

BPM 1010: RESIDENTIAL PROPERTY MANAGEMENT



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CHAPTER OVERVIEW

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1.1: Introduction

Buildings are constructed to support and protect activity and artifacts. Buildings may incorporate natural structures, such as the document storage and server farms housed in rooms within a large, underground limestone mine owned by Iron Mountain in Pennsylvania. While human buildings are quite prominent, many animals engage in building activities for nests, hives, etc.

While buildings may be relatively simple structures, most include other systems providing quite extensive functionality, including:

- Electricity distribution and lighting, typically using alternating current of 110 to 220 volts.
- Water distribution and heating for human use.
- Waste disposal systems for solid or liquid wastes.
- Heating, ventilation and air conditioning (HVAC) systems.
- Internal transportation systems, including elevators, escalators, and stairways.
- Kitchens for food preparation and storage.
- Security systems to identify and discourage intruders.
- Telecommunications systems for data transfer.
- Garages for parking vehicles.

Charging stations for battery electric and plug-in vehicles.

Buildings also have systems for emergencies and security. Fire alarms are often required by regulation. Signage for evacuation and emergency lighting is common. First aid supplies are common. Video cameras for security purposes are often installed.

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1.2: Duration and Extent of Building Infrastructure

Building statistics often differentiate between commercial, residential and other types of buildings. Table 1.2.1 shows the 2003 distribution of commercial buildings in the United States with regard to size, use, and energy sources. The total inventory includes 4.6 million buildings. Not surprisingly, the number of buildings in each size category declines as size increases. Nearly all commercial vehicles have electricity, and most have other energy sources

Table 1.2.1 - Characteristics of Commercial Buildings in the United States 2003

Characteristic	All Buildings (1,000)	Floor Space (million ft ²)	Mean FT ² Per Building (1,000)	Mean FT ² Per Worker (number)
All buildings	4,645	64,783	13.9	890
Building floor space (square feet):				
1,001 to 5,000	2,552	6,789	2.7	683
5,001 to 10,000	889	6,585	7.4	877
10,001 to 25,000	738	11,535	15.6	1,069
25,001 to 50,000	241	8,668	35.9	976
50,001 to 100,000	129	9,057	70.4	1,074
100,001 to 200,000	65	9,064	138.8	779
200,001 to 500,000	25	7,176	289.0	1,043
Over 500,000	7	5,908	896.1	676
Principal activity within building:				
Education	386	9,874	25.6	791
Food sales	226	1,255	5.6	877
Food service	297	1,654	5.6	528
Health care	129	3,163	24.6	501
Inpatient	8	1,905	241.4	513
Outpatient	121	1,258	10.4	484
Lodging	142	5,096	35.8	2,074
Retail (other than mall)	443	4,317	9.7	1,246
Office	824	12,208	14.8	434
Public assembly	277	3,939	14.2	1,645
Public order and safety	71	1,090	15.5	809
Characteristic	All Buildings (1,000)	Floor Space (million ft ²)	Mean FT ² Per Building (1,000)	Mean FT ² Per Worker (number)
Religious worship	370	3,754	10.1	2,200
Service	622	4,050	6.5	1,105
Warehouse and storage	597	10,078	16.9	2,306
Other	79	1,738	21.9	956
Vacant	182	2,567	14.1	(NA)
Energy sources:				
Electricity	4,404	63,307	14.4	871
Natural gas	2,391	43,468	18.2	837
Fuel oil	451	15,157	33.6	772
District heat	67	5,443	81.4	534
District chilled water	33	2,853	86.7	397
Propane	502	7,076	14.1	1,208
Wood	62	289	4.6	1,105

Source: Statistical Abstract of the United States, 2008, Public Domain, 'Commercial Buildings Summary,' Table 968.
<https://www.census.gov/library/publi...n-housing.html>

The numbers of housing units in the United States is shown in Table 1.2.2. The numbers of residential buildings would be smaller than the number of housing units since there are multi-unit buildings. Of the 124 million housing units in 2005, 76 million (or 61%) are single unit houses (Census, 2008). The numbers of housing units has been increasing over time, reflecting growth in population and a decline in the average size per household. The fraction of homes owned by residents has been increasing over time to 60% in 2005.

Table 1.2.2 - United States Housing Units 1980-2005

Item	1980 (1,000)	1990 (1,000)	2000 (1,000)	2005 (1,000)
All housing units	87,739	106,283	119,628	123,925
Vacant	8,101	12,059	13,908	15,694
Total occupied	79,638	94,224	105,720	108,231
Owner	52,223	60,248	71,250	74,553
Renter	27,415	33,976	34,470	33,678
PERCENT DISTRIBUTION				
All housing units	100.0	100.0	100.0	100.0
Vacant	9.2	11.3	11.6	12.7
Total occupied	90.8	88.7	88.4	87.3
Owner	59.5	56.7	59.6	60.2
Renter	31.2	32.0	28.8	27.2

Source: Statistical Abstract of the United States, 2008, Public Domain, 'Total Housing Inventory for the United States,' Table 947. <https://www.census.gov/library/publications/housing.html>

Buildings tend to relatively long-lived types of infrastructure, with averages of 50 to 100 years not uncommon. Many buildings are demolished not due to deterioration, but due to functional obsolescence: building needs may change and replacing a building may become advantageous. The US Internal Revenue Service prescribes a depreciation lifetime of 20 years for farm buildings, 27.5 years for residential rental property and 39 years for nonresidential real estate (Treasury - <https://www.irs.gov/pub/irs-pdf/p946.pdf>). Figure 1.2.1 shows the reported age of US commercial buildings in 2012, with a median building age of 32 years. Within any building, components may be replaced more frequently, such as HVAC or roof replacements.

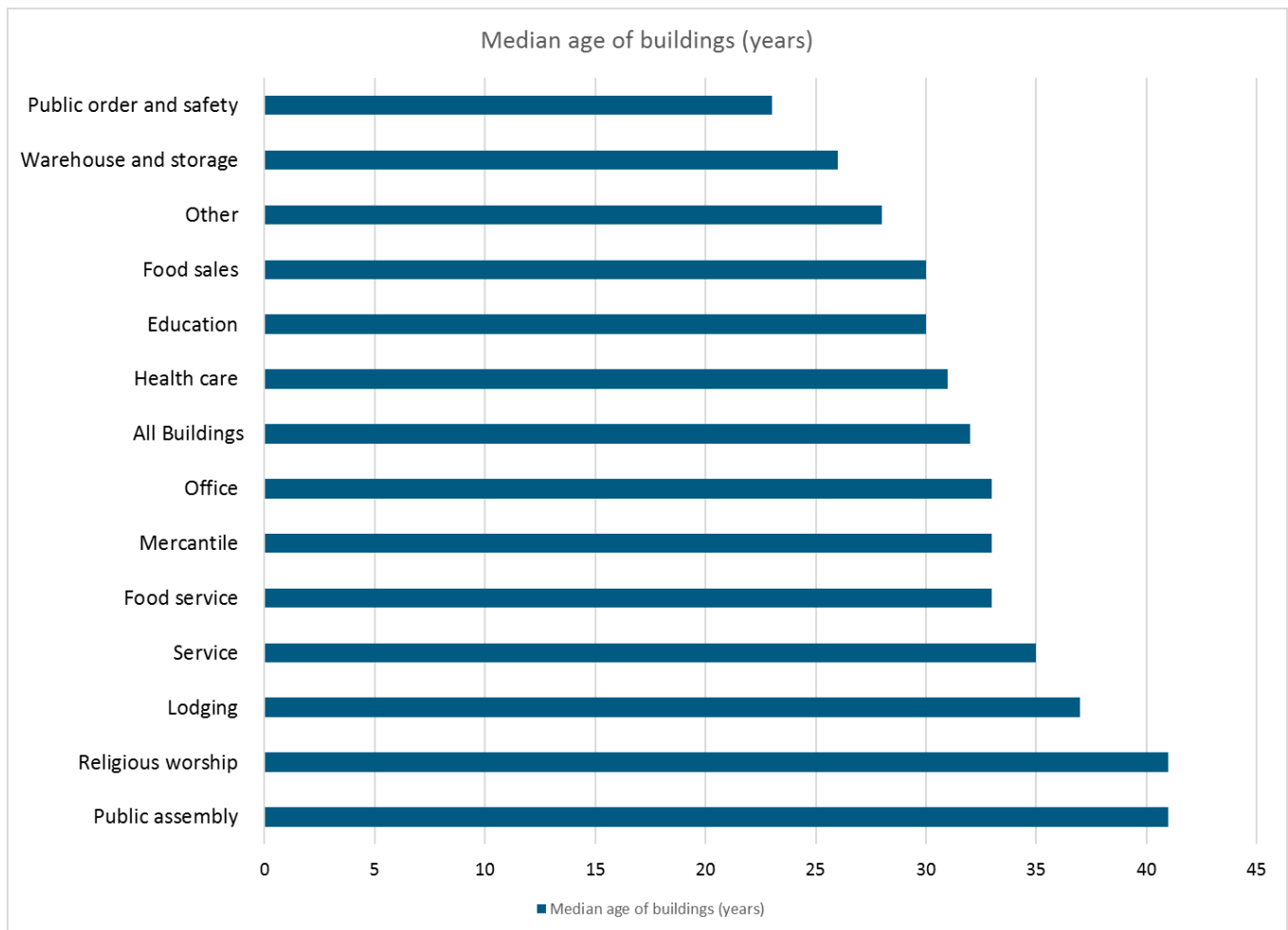


Figure 1.2.1: Median Age of US Commercial Buildings by Type, 2012

Figure By Donald Coffelt. Data. Source: U.S. Energy Information Administration, Office of Energy Consumption and Efficiency Statistics, Form EIA-871A of the 2012 Commercial Buildings Energy Consumption Survey, Public Domain, www.eia.gov/consumption/comm.../2012/#b11-b14.

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1.3: Institutional Arrangements for Building Infrastructure

Buildings may be owned by occupants (or residents) or investors of various kinds. As shown in Table 12.2.2, nearly 30% of US housing units are owned by investors and rented to occupants.

Ownership of buildings commonly changes over the building lifetime. Initially, buildings may be constructed with the intent of re-sale upon completion of construction, as with residential developers. Active real estate markets aid in the transfer of ownership during the lifetime of buildings. Opportunities to gain tax advantages through rapid depreciation of buildings can motivate relatively frequent building sales. With or without ownership changes, buildings typically undergo renovations and changes in function during their lifetime.

Lending institutions often make loans using real estate as collateral. In the event of default on the loans, the lending institution can foreclose and gain possession of the property. During construction of buildings, the value of buildings is problematic, so lending institutions typically charge more for construction loans than for mortgage loans secured by a complete building's collateral.

Building management can be undertaken by a variety of parties, including owners, occupants or contractors. Automated aids for building management are typically less sophisticated than aids for other infrastructure systems, reflecting in part the diverse ownership of the building infrastructure.

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1.4: Goals for Infrastructure Management

Just as the number and extent of infrastructure systems are complex, so are the goals that are pursued for any particular infrastructure system. One common goal suggested is to ensure ‘sustainable’ infrastructure. One interpretation of sustainability is simply to have facilities with great longevity. However, this is often not a realistic goal. First, managers must be sensitive to the amount of resources required to construct and maintain any particular facility. Longevity requires greater capital investment for initial construction. Second, the requirements for facilities are likely to change over time. For example, the legal size and weight of trucks can change over time (usually with an increase), which may make existing bridges functionally obsolete since they cannot support larger trucks. Third, the usage of facilities may decline to such an extent that maintaining an existing facility is not beneficial.

For most infrastructure systems, managers adopt a planning horizon for longevity decision making. Such planning horizons can vary from a short period (such as a year or two) to decades (for infrastructures such as ports or buildings). Each organization involved in infrastructure management may have its own planning horizon for such decision making.

In practice, the goals for infrastructure management are complex and multiple. Most critically, facilities are expected to provide acceptable performance to a variety of users. For example, a local roadway might accommodate a variety of motorized vehicles (such as buses, cars, and trucks - moving or parked), bicycles and pedestrians (particularly at intersections). Deterioration of the facility can affect acceptable performance, as with the development of potholes, uneven surfaces and cracking for pavement. Extreme events such as earthquakes, hurricanes, flooding or terrorist activities can require immediate attention and response.



Figure 1.2 - Example of Flooding Requiring Infrastructure Management Responses.

Source: By The National Guard (Maryland National Guard Uploaded by Dough4872) [CC BY 2.0 (<http://creativecommons.org/licenses/by/2.0>)], via Wikimedia Commons. commons.wikimedia.org/wiki/File%3AHurricane_Sandy_flooding_Crisfield_MD.jpg (accessed 9/16/2017)

Typically, goals for infrastructure management can be categorized as economic, environmental and social. Economic impacts include the direct and indirect costs of managing and operating the infrastructure system, the economic development potential for the system (including employment) and any user or non-user benefits stemming from the system. Environmental impacts are associated with ecological system uses, emissions to the environment (especially toxic chemicals and greenhouse gas emissions), and non-renewable resource use. Social impacts pertain to equity of benefits, social justice and individual development (including employment). This ‘Triple Bottom Line’ of goals is common for many social investments.

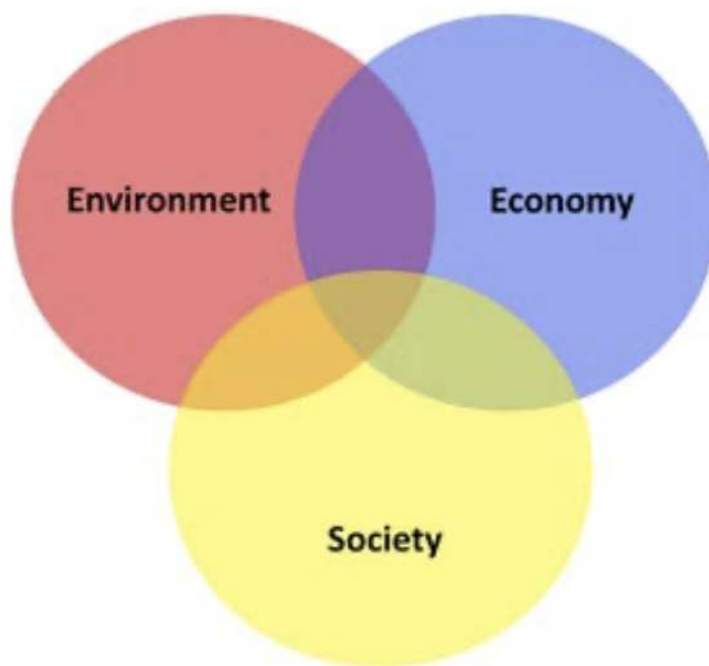


Figure 1.3 -Triple Bottom Line Goals for Sustainable Infrastructure.

Source: US Environmental Protection Agency, Public Domain, <http://archive.epa.gov/region4/p2/we...inability.html> (accessed 2/17/2016).

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1.5: Some Infrastructure Management Issues for Buildings

Buildings are large consumers of resources and producers of environmental impacts throughout the world. As a result of these impacts, buildings are receiving increasing attention to improve function, reduce costs and reduce environmental impact. At the same time, architectural interests are flourishing to promote ‘aesthetic’ designs. In addition, there is continuing concern to make buildings better at supporting the occupants through improved ventilation, noise control and temperature control.

As noted in Chapter 10, ‘Green buildings’ standards are becoming much more prevalent, with many entities committed to such buildings, including the US General Services Administration (GSA) (<https://www.gsa.gov/portal/content/123747>). The most common standard in the US is the Green Building Alliance’s (a private non-profit group) ‘Leadership in Energy and Environmental Design’ (LEED) (USGBC, 2016). It is based on a point award system for a checklist of possible design and construction activities. Prerequisites and credits are included in the categories of:

- Sustainable site characteristics
- Water efficiency
- Energy and atmosphere
- Materials and resources
- Indoor environmental quality
- Innovation in design

Buildings are certified to different levels of standards based on submitted documentation and the published point system. Achieving savings in energy inputs during the building operational phase is of particular interest in the design stages.

Building construction and management improvement are continuing targets for research and innovation. Active areas include computer aids (such as Building Information Modeling), lean construction practices, new materials, pre-manufactured components, building resiliency, and life cycle costing for management.

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1.6: Chapter 12 Exercises

P12.1 (5 pts)

What are the differences between commercial and housing buildings that influence management practices and decision making?

P12.2 (10 pts)

Select a category of LEED credits and estimate their life cycle effect and cost for a typical building.

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1.7: References

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CHAPTER OVERVIEW

2: The General Nature of Property Rights

Learning Objectives

After reading this chapter, you should understand the following:

1. The difference between personal property and other types of property
2. How rights in personal property are acquired and maintained
3. How some kinds of personal property can become real property, and how to determine who has rights in fixtures that are part of real property

In this chapter, we examine the general nature of property rights and the law relating to personal property—with special emphasis on acquisition and fixtures.

[2.1: The General Nature of Property Rights](#)

[2.2: Personal Property](#)

[2.3: Fixtures](#)

[2.4: Summary and Exercises](#)

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2.1: The General Nature of Property Rights

Learning Objectives

1. Understand the elastic and evolving boundaries of what the law recognizes as property that can be bought or sold on the market.
2. Distinguish real property from personal property.

Definition of Property

Property, which seems like a commonsense concept, is difficult to define in an intelligible way; philosophers have been striving to define it for the past 2,500 years. To say that “property is what we own” is to beg the question—that is, to substitute a synonym for the word we are trying to define. Blackstone’s famous definition is somewhat wordy: “The right of property is that sole and despotic dominion which one man claims and exercises over the external things of the world, in total exclusion of the right of any other individual in the universe. It consists in the free use, enjoyment, and disposal of all a person’s acquisitions, without any control or diminution save only by the laws of the land.” A more concise definition, but perhaps too broad, comes from the Restatement of the Law of Property, which defines property as the “legal relationship between persons with respect to a thing.”

The Restatement’s definition makes an important point: property is a *legal relationship*, the power of one person to use objects in ways that affect others, to exclude others from the property, and to acquire and transfer property. Still, this definition does not contain a specific list of those nonhuman “objects” that could be in such a relationship. We all know that we can own personal objects like iPods and DVDs, and even more complex objects like homes and minerals under the ground. Property also embraces objects whose worth is representative or symbolic: ownership of stock in a corporation is valued not for the piece of paper called a stock certificate but for dividends, the power to vote for directors, and the right to sell the stock on the open market. Wholly intangible things or objects like copyrights and patents and bank accounts are capable of being owned as property. But the list of things that can be property is not fixed, for our concept of property continues to evolve. Collateralized debt obligations (CDOs) and structured investment vehicles (SIVs), prime players in the subprime mortgage crisis, were not on anyone’s list of possible property even fifteen years ago.

The Economist’s View

Property is not just a legal concept, of course, and different disciplines express different philosophies about the purpose of property and the nature of property rights. To the jurist, property rights should be protected because it is just to do so. To an economist, the legal protection of property rights functions to create incentives to use resources efficiently. For a truly efficient system of property rights, some economists would require universality (everything is owned), exclusivity (the owners of each thing may exclude all others from using it), and transferability (owners may exchange their property). Together, these aspects of property would lead, under an appropriate economic model, to efficient production and distribution of goods. But the law of property does not entirely conform to the economic conception of the ownership of productive property by private parties; there remain many kinds of property that are not privately owned and some parts of the earth that are considered part of “the commons.” For example, large areas of the earth’s oceans are not “owned” by any one person or nation-state, and certain land areas (e.g., Yellowstone National Park) are not in private hands.

Classification of Property

Property can be classified in various ways, including tangible versus intangible, private versus public, and personal versus real. **Tangible property** is that which physically exists, like a building, a popsicle stand, a hair dryer, or a steamroller. **Intangible property** is something without physical reality that entitles the owner to certain benefits; stocks, bonds, and intellectual property would be common examples. **Public property** is that which is owned by any branch of government; **private property** is that which is owned by anyone else, including a corporation.

Perhaps the most important distinction is between real and personal property. Essentially, **real property** is immovable; **personal property** is movable. At common law, personal property has been referred to as “chattels.” When chattels become affixed to real property in a certain manner, they are called fixtures and are treated as real property. (For example, a bathroom cabinet purchased at

Home Depot and screwed into the bathroom wall may be converted to part of the real property when it is affixed.) Fixtures are discussed in Section 9.3 "Fixtures" of this chapter.

Importance of the Distinction between Real and Personal Property

In our legal system, the distinction between real and personal property is significant in several ways. For example, the sale of personal property, but not real property, is governed by Article 2 of the Uniform Commercial Code (UCC). Real estate transactions, by contrast, are governed by the general law of contracts. Suppose goods are exchanged for realty. Section 2-304 of the UCC says that the transfer of the goods and the seller's obligations with reference to them are subject to Article 2, but not the transfer of the interests in realty nor the transferor's obligations in connection with them.

The form of transfer depends on whether the property is real or personal. Real property is normally transferred by a deed, which must meet formal requirements dictated by state law. By contrast, transfer of personal property often can take place without any documents at all.

Another difference can be found in the law that governs the transfer of property on death. A person's heirs depend on the law of the state for distribution of his property if he dies intestate—that is, without a will. Who the heirs are and what their share of the property will be may depend on whether the property is real or personal. For example, widows may be entitled to a different percentage of real property than personal property when their husbands die intestate.

Tax laws also differ in their approach to real and personal property. In particular, the rules of valuation, depreciation, and enforcement depend on the character of the property. Thus real property depreciates more slowly than personal property, and real property owners generally have a longer time than personal property owners to make good unpaid taxes before the state seizes the property.

key takeaway

Property is difficult to define conclusively, and there are many different classifications of property. There can be public property as well as private property, tangible property as well as intangible property, and, most importantly, real property as well as personal property. These are important distinctions, with many legal consequences.

Exercises 2.1.1

1. Kristen buys a parcel of land on Marion Street, a new and publicly maintained roadway. Her town's ordinances say that each property owner on a public street must also provide a sidewalk within ten feet of the curb. A year after buying the parcel, Kristen commissions a house to be built on the land, and the contractor begins by building a sidewalk in accordance with the town's ordinance. Is the sidewalk public property or private property? If it snows, and if Kristen fails to remove the snow and it melts and ices over and a pedestrian slips and falls, who is responsible for the pedestrian's injuries?
2. When can private property become public property? Does public property ever become private property?

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2.2: Personal Property

Learning Objectives

1. Explain the various ways that personal property can be acquired by means other than purchase.

Most legal issues about personal property center on its acquisition. Acquisition by purchase is the most common way we acquire personal property, but there are at least five other ways to legally acquire personal property: (1) possession, (2) finding lost or misplaced property, (3) gift, (4) accession, and (5) confusion.

Possession

It is often said that “possession is nine-tenths of the law.” There is an element of truth to this, but it’s not the whole truth. For our purposes, the more important question is, what is meant by “possession”? Its meaning is not intuitively obvious, as a moment’s reflection will reveal. For example, you might suppose that you possess something when it is physically within your control, but what do you say when a hurricane deposits a boat onto your land? What if you are not even home when this happens? Do you possess the boat? Ordinarily, we would say that you don’t, because you don’t have physical control when you are absent. You may not even have the intention to control the boat; perhaps instead of a fancy speedboat in relatively good shape, the boat is a rust bucket badly in need of repair, and you want it removed from your front yard.

Even the element of physical domination of the object may not be necessary. Suppose you give your new class ring to a friend to examine. Is it in the friend’s possession? No: the friend has custody, not possession, and you retain the right to permit a second friend to take it from her hands. This is different from the case of a bailment, in which the bailor gives possession of an object to the bailee. For example, a garage (a bailee) entrusted with a car for the evening, and not the owner, has the right to exclude others from the car; the owner could not demand that the garage attendants refrain from moving the car around as necessary.

From these examples, we can see that possession or physical control must usually be understood as the power to exclude others from using the object. Otherwise, anomalies arise from the difficulty of physically controlling certain objects. It is more difficult to exercise control over a one-hundred-foot television antenna than a diamond ring. Moreover, in what sense do you possess your household furniture when you are out of the house? Only, we suggest, in the power to exclude others. But this power is not purely a physical one: being absent from the house, you could not physically restrain anyone. Thus the concept of possession must inevitably be mixed with legal rules that do or could control others.

Possession confers ownership in a restricted class of cases only: when no person was the owner at the time the current owner took the object into his possession. The most obvious categories of objects to which this rule of possession applies are wild animals and abandoned goods. The rule requires that the would-be owner actually take possession of the animal or goods; the hunter who is pursuing a particular wild animal has no legal claim until he has actually captured it. Two hunters are perfectly free to pursue the same animal, and whoever actually grabs it will be the owner.

But even this simple rule is fraught with difficulties in the case of both wild animals and abandoned goods. We examine abandoned goods in Section 9.2.2 “Lost or Misplaced Property”. In the case of wild game, fish in a stream, and the like, the general rule is subject to the rights of the owner of the land on which the animals are caught. Thus even if the animals caught by a hunter are wild, as long as they are on another’s land, the landowner’s rights are superior to the hunter’s. Suppose a hunter captures a wild animal, which subsequently escapes, and a second hunter thereafter captures it. Does the first hunter have a claim to the animal? The usual rule is that he does not, for once an animal returns to the wild, ownership ceases.

Lost or Misplaced Property

At common law, a technical distinction arose between lost and misplaced property. An object is lost if the owner inadvertently and unknowingly lets it out of his possession. It is merely misplaced if the owner intentionally puts it down, intending to recover it, even if he subsequently forgets to retrieve it. These definitions are important in considering the old saying “Finders keepers, losers weepers.” This is a misconception that is, at best, only partially true, and more often false. The following hierarchy of ownership claims determines the rights of finders and losers.

First, the owner is entitled to the return of the property unless he has intentionally abandoned it. The finder is said to be a quasi-bailee for the true owner, and as bailee she owes the owner certain duties of care. The finder who knows the owner or has reasonable means of discovering the owner's identity commits larceny if she holds on to the object with the intent that it be hers. This rule applies only if the finder actually takes the object into her possession. For example, if you spot someone's wallet on the street you have no obligation to pick it up; but if you do pick it up and see the owner's name in it, your legal obligation is to return it to the rightful owner. The finder who returns the object is not automatically entitled to a reward, but if the loser has offered a reward, the act of returning it constitutes performance of a unilateral contract. Moreover, if the finder has had expenses in connection with finding the owner and returning the property, she is entitled to reasonable reimbursement as a quasi-bailee. But the rights of the owner are frequently subject to specific statutes, such as the one discussed in *Bishop v. Ellsworth* in Section 9.4.1 "Lost or Misplaced Property".

Second, if the owner fails to claim the property within the time allowed by statute or has abandoned it, then the property goes to the owner of the real estate on which it was found if (1) the finder was a trespasser, (2) the goods are found in a private place (though what exactly constitutes a private place is open to question: is the aisle of a grocery store a private place? the back of the food rack? the stockroom?), (3) the goods are buried, or (4) the goods are misplaced rather than lost.

If none of these conditions apply, then the finder is the owner. These rules are considered in the *Bishop* case, (see Section 9.4.1 "Lost or Misplaced Property").

Gift

A **gift** is a voluntary transfer of property without consideration or compensation. It is distinguished from a sale, which requires consideration. It is distinguished from a promise to give, which is a declaration of an intention to give in the future rather than a present transfer. It is distinguished from a testamentary disposition (will), which takes effect only upon death, not upon the preparation of the documents. Two other distinctions are worth noting. An **inter vivos** (enter VYE vos) gift is one made between living persons without conditions attached. A **causa mortis** (KAW zuh mor duz) gift is made by someone contemplating death in the near future.

Requirements



Figure 2.2.1: Gift Requirements

To make an effective gift *inter vivos* or *causa mortis*, the law imposes three requirements: (1) the donor must *deliver* a deed or object to the donee; (2) the donor must actually *intend* to make a gift, and (3) the donee must accept (see Figure 2.2.1).

Delivery

Although it is firmly established that the object be delivered, it is not so clear what constitutes delivery. On the face of it, the requirement seems to be that the object must be transferred to the donee's possession. Suppose your friend tells you he is making a gift to you of certain books that are lying in a locked trunk. If he actually gives you the trunk so that you can carry it away, a gift has been made. Suppose, however, that he had merely given you the key, so that you could come back the next day with your car. If this were the sole key, the courts would probably construe the transfer of the key as possession of the trunk. Suppose, instead, that the books were in a bank vault and the friend made out a legal document giving both you and him the power to take from the bank vault. This would not be a valid gift, since he retained power over the goods.

Intent

The intent to make a gift must be an intent to give the property at the present time, not later. For example, suppose a person has her savings account passbook put in her name and a friend's name, intending that on her death the friend will be able to draw out whatever money is left. She has not made a gift, because she did not intend to give the money when she changed the passbook. The intent requirement can sometimes be sidestepped if legal title to the object is actually transferred, postponing to the donee only the use or enjoyment of the property until later. Had the passbook been made out in the name of the donee only and delivered to a third party to hold until the death of the donor, then a valid gift may have been made. Although it is sometimes difficult to discern this distinction in practice, a more accurate statement of the rule of intent is this: Intention to give in the future does not constitute the requisite intent, whereas present gifts of future interests will be upheld.

Acceptance

In the usual case, the rule requiring acceptance poses no difficulties. A friend hands you a new book and says, "I would like you to have this." Your taking the book and saying "thank-you" is enough to constitute your acceptance. But suppose that the friend had given you property without your knowing it. For example, a secret admirer puts her stock certificates jointly in your name and hers without telling you. Later, you marry someone else, and she asks you to transfer the certificates back to her name. This is the first you have heard of the transaction. Has a gift been made? The usual answer is that even though you had not accepted the stock when the name change was made, the transaction was a gift that took effect immediately, subject to your right to repudiate when you find out about it. If you do not reject the gift, you have joint rights in the stock. But if you expressly refuse to accept a gift or indicate in some manner that you might not have accepted it, then the gift is not effective. For example, suppose you are running for office. A lobbyist whom you despise gives you a donation. If you refuse the money, no gift has been made.

Gifts Causa Mortis

Even though the requirements of delivery, intent, and acceptance apply to gifts causa mortis as well as inter vivos, a gift causa mortis (one made in contemplation of death) may be distinguished from a gift inter vivos on other grounds. The difference between the two lies in the power of the donor to revoke the gift before he dies; in other words, the gift is conditional on his death. Since the law does not permit gifts that take place in the future contingent on some happening, how can it be that a gift causa mortis is effective? The answer lies in the nature of the transfer: the donee takes actual title when the gift is made; should the donor not in fact die or should he revoke the gift before he dies, then and only then will the donee lose title. The difference is subtle and amounts to the difference between saying "If I die, the watch is yours" and "The watch is yours, unless I survive." In the former case, known as a condition precedent, there is no valid gift; in the latter case, known as a condition subsequent, the gift is valid.

Gifts to Minors

Every state has adopted either the Uniform Gifts to Minors Act (UGMA) or the Uniform Transfers to Minors Act (UTMA), both of which establish the manner by which irrevocable gifts are made to minors. Under these acts, a custodian holds the gifts until the minor reaches the age of eighteen, twenty-one, or twenty-five, depending on state law. Gifts under UGMA are limited for the most part to money or securities, while UTMA allows other types of gifts as well, such as real estate or tangible personal property.

Gift Tax

The federal government and many states impose gift taxes on gifts above a certain dollar amount. We discuss gift taxes in connection with estate taxes in Chapter 14 "Estate Planning: Wills, Estates, and Trusts".

Accession

An **accession** is something that is added to what one already possesses. In general, the rule is that the owner of the thing owns the additional thing that comes to be attached to it. For example, the owner of a cow owns her calves when she gives birth. But when one person adds value to another person's property, either through labor alone or by adding new materials, the rule must be stated somewhat differently. The general rule is this: when goods are added to goods, the owner of the principal goods becomes the owner of the enhanced product. For example, a garage uses its paint to repaint its customer's automobile. The car owner, not the painter, is the owner of the finished product.

When someone has wrongfully converted—that is, taken as her own—the property of another, the owner may sue for damages, either to recover his property or its value. But a problem arises when the converter has added to the value of that property. In

general, the courts hold that when the conversion is willful, the owner is entitled to the full value of the goods as enhanced by the converter. Suppose that a carpenter enters a ten-acre forest that he knows belongs to his neighbor, cuts down one hundred trees, transports them to his shop, and cuts them up into standard lumber, thus increasing their market value. The owner is entitled to this full value, and the carpenter will get nothing for his trouble. Thus the willful converter loses the value of his labor or materials. If, on the other hand, the conversion was innocent, or at most negligent, the rule is somewhat more uncertain. Generally the courts will award the forest owner the value of the standing timber, giving the carpenter the excess attributable to his labor and transportation. A more favorable treatment of the owner is to give her the full value of the lumber as cut, remitting to the carpenter the value of his expenses.

Confusion

In accession, the goods of one owner are transformed into a more valuable commodity or are inextricably united with the goods of another to form a constituent part. Still another type of joining is known as **confusion**, and it occurs when goods of different owners, while maintaining their original form, are commingled. A common example is the intermingling of grain in a silo. But goods that are identifiable as belonging to a particular person—branded cattle, for instance—are not confused, no matter how difficult it may be to separate herds that have been put together.

When the goods are identical, no particular problem of division arises. Assuming that each owner can show how much he has contributed to the confused mass, he is entitled to that quantity, and it does not matter which particular grains or kernels he extracts. So if a person, seeing a container of grain sitting on the side of the road, mistakes it for his own and empties it into a larger container in his truck, the remedy is simply to restore a like quantity to the original owner. When owners of like substances consent to have those substances combined (such as in a grain silo), they are said to be tenants in common, holding a proportional share in the whole.

In the case of willful confusion of goods, many courts hold that the wrongdoer forfeits all his property unless he can identify his particular property. Other courts have modified this harsh rule by shifting the burden of proof to the wrongdoer, leaving it up to him to claim whatever he can establish was his. If he cannot establish what was his, then he will forfeit all. Likewise, when the defendant has confused the goods negligently, without intending to do so, most courts will tend to shift to the defendant the burden of proving how much of the mass belongs to him.

key takeaway

Other than outright purchase of personal property, there are various ways in which to acquire legal title. Among these are possession, gift, accession, confusion, and finding property that is abandoned, lost, or mislaid, especially if the abandoned, lost, or mislaid property is found on real property that you own.

Exercises 2.2.1

1. Dan captures a wild boar on US Forest Service land. He takes it home and puts it in a cage, but the boar escapes and runs wild for a few days before being caught by Romero, some four miles distant from Dan's house. Romero wants to keep the boar. Does he "own" it? Or does it belong to Dan, or to someone else?
2. Harriet finds a wallet in the college library, among the stacks. The wallet has \$140 in it, but no credit cards or identification. The library has a lost and found at the circulation desk, and the people at the circulation desk are honest and reliable. The wallet itself is unique enough to be identified by its owner. (a) Who owns the wallet and its contents? (b) As a matter of ethics, should Harriet keep the money if the wallet is "legally" hers?

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2.3: Fixtures

Learning Objectives

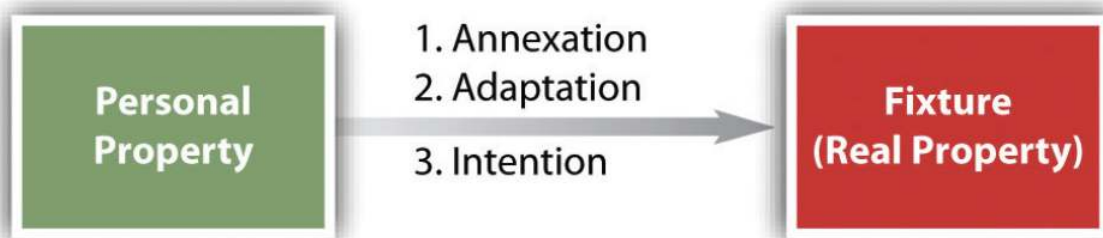
1. Know the three tests for when personal property becomes a fixture and thus becomes real property.

Definition

A **fixture** is an object that was once personal property but that has become so affixed to land or structures that it is considered legally a part of the real property. For example, a stove bolted to the floor of a kitchen and connected to the gas lines is usually considered a fixture, either in a contract for sale, or for testamentary transfer (by will). For tax purposes, fixtures are treated as real property.

Tests

Figure 36.2 Fixture Tests



Obviously, no clear line can be drawn between what is and what is not a fixture. In general, the courts look to three tests to determine whether a particular object has become a fixture: annexation, adaptation, and intention (see [Figure 36.2 "Fixture Tests"](#)).

Annexation

The object must be annexed or affixed to the real property. A door on a house is affixed. Suppose the door is broken and the owner has purchased a new door made to fit, but the house is sold before the new door is installed. Most courts would consider that new door a fixture under a rule of constructive annexation. Sometimes courts have said that an item is a fixture if its removal would damage the real property, but this test is not always followed. Must the object be attached with nails, screws, glue, bolts, or some other physical device? In one case, the court held that a four-ton statue was sufficiently affixed merely by its weight. *Snedeker v. Warring*, 12 N.Y. 170 (1854).

Adaptation

Another test is whether the object is adapted to the use or enjoyment of the real property. Examples are home furnaces, power equipment in a mill, and computer systems in bank buildings.

Intention

Recent decisions suggest that the controlling test is whether the person who actually annexes the object intends by so doing to make it a permanent part of the real estate. The intention is usually deduced from the circumstances, not from what a person might later say her intention was. If an owner installs a heating system in her house, the law will presume she intended it as a fixture because the installation was intended to benefit the house; she would not be allowed to remove the heating system when she sold the house by claiming that she had not intended to make it a fixture.

Fixture Disputes

Because fixtures have a hybrid nature (once personal property, subsequently real property), they generate a large number of disputes. We have already examined disputes between mortgagees and secured parties ([Chapter 33 "Secured Transactions and](#)

Suretyship"). Two other types of disputes are discussed here.

Transfer of Real Estate

When a homeowner sells her house, the problem frequently crops up as to whether certain items in the home have been sold or may be removed by the seller. Is a refrigerator, which simply plugs into the wall, a fixture or an item of personal property? If a dispute arises, the courts will apply the three tests—annexation, adaptation, and intention. Of course, the simplest way of avoiding the dispute is to incorporate specific reference to questionable items in the contract for sale, indicating whether the buyer or the seller is to keep them.

Tenant's Fixtures

Tenants frequently install fixtures in the buildings they rent or the property they occupy. A company may install tens of thousands of dollars worth of equipment; a tenant in an apartment may bolt a bookshelf into the wall or install shades over a window. Who owns the fixtures when the tenant's lease expires? The older rule was that any fixture, determined by the usual tests, must remain with the landlord. Today, however, certain types of fixtures—known as **tenant's fixtures**—stay with the tenant. These fall into three categories: (1) trade fixtures—articles placed on the premises to enable the tenant to carry on his or her trade or business in the rented premises; (2) agricultural fixtures—devices installed to carry on farming activities (e.g., milling plants and silos); (3) domestic fixtures—items that make a tenant's personal life more comfortable (carpeting, screens, doors, washing machines, bookshelves, and the like).

The three types of tenant's fixtures remain personal property and may be removed by the tenant if the following three conditions are met: (1) They must be installed for the requisite purposes of carrying on the trade or business or the farming or agricultural pursuits or for making the home more comfortable, (2) they must be removable without causing substantial damage to the landlord's property, and (3) they must be removed before the tenant turns over possession of the premises to the landlord. Again, any debatable points can be resolved in advance by specifying them in the written lease.

Key Takeaway

Personal property is often converted to real property when it is affixed to real property. There are three tests that courts use to determine whether a particular object has become a fixture and thus has become real property: annexation, adaptation, and intention. Disputes over fixtures often arise in the transfer of real property and in landlord-tenant relations.

Exercises

1. Jim and Donna Stoner contract to sell their house in Rochester, Michigan, to Clem and Clara Hovenkamp. Clara thinks that the decorative chandelier in the entryway is lovely and gives the house an immediate appeal. The chandelier was a gift from Donna's mother, "to enhance the entryway" and provide "a touch of beauty" for Jim and Donna's house. Clem and Clara assume that the chandelier will stay, and nothing specific is mentioned about the chandelier in the contract for sale. Clem and Clara are shocked when they move in and find the chandelier is gone. Have Jim and Donna breached their contract of sale?
2. Blaine Goodfellow rents a house from Associated Properties in Abilene, Texas. He is there for two years, and during that time he installs a ceiling fan, custom-builds a bookcase for an alcove on the main floor, and replaces the screening on the front and back doors, saving the old screening in the furnace room. When his lease expires, he leaves, and the bookcase remains behind. Blaine does, however, take the new screening after replacing it with the old screening, and he removes the ceiling fan and puts back the light. He causes no damage to Associated Properties' house in doing any of this. Discuss who is the rightful owner of the screening, the bookcase, and the ceiling fan after the lease expires

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2.4: Summary and Exercises

Summary

Property is the *legal relationship* between persons with respect to things. The law spells out what can be owned and the degree to which one person can assert an interest in someone else's things. Property is classified in several ways: personal versus real, tangible versus intangible, private versus public. The first distinction, between real and personal, is the most important, for different legal principles often apply to each. Personal property is movable, whereas real property is immovable.

Among the ways personal property can be acquired are: by (1) possession, (2) finding, (3) gift, (4) accession, and (5) confusion.

Possession means the power to exclude others from using an object. Possession confers ownership only when there is no owner at the time the current owner takes possession. "Finders keepers, losers weepers" is not a universal rule; the previous owner is entitled to return of his goods if it is reasonably possible to locate him. If not, or if the owner does not claim his property, then it goes to the owner of the real estate on which it was found, if the finder was a trespasser, or the goods were buried, were in a private place, or were misplaced rather than lost. If none of these conditions applies, the property goes to the finder.

A gift is a voluntary transfer of property without consideration. Two kinds of gifts are possible: *inter vivos* and *causa mortis*. To make an effective gift, (1) the donor must make out a deed or physically deliver the object to the donee, (2) the donor must intend to make a gift, and (3) the donee must accept the gift. Delivery does not always require physical transfer; sometimes, surrender of control is sufficient. The donor must intend to give the gift now, not later.

Accession is an addition to that which is already owned—for example, the birth of calves to a cow owned by a farmer. But when someone else, through labor or by supplying material, adds value, the accession goes to the owner of the principal goods.

Confusion is the intermingling of like goods so that each, while maintaining its form, becomes a part of a larger whole, like grain mixed in a silo. As long as the goods are identical, they can easily enough be divided among their owners.

A fixture is a type of property that ceases to be personal property and becomes real property when it is annexed or affixed to land or buildings on the land and adapted to the use and enjoyment of the real property. The common-law rules governing fixtures do not employ clear-cut tests, and sellers and buyers can avoid many disputes by specifying in their contracts what goes with the land. Tenant's fixtures remain the property of the tenant if they are for the convenience of the tenant, do not cause substantial damage to the property when removed, and are removed before possession is returned to the landlord.

? Exercise 2.4.1

1. Kate owns a guitar, stock in a corporation, and an antique bookcase that is built into the wall of her apartment. How would you classify each kind of property?
2. After her last business law class, Ingrid casually throws her textbook into a trash can and mutters to herself, "I'm glad I don't have to read that stuff anymore." Tom immediately retrieves the book from the can. Days later, Ingrid realizes that the book will come in handy, sees Tom with it, and demands that he return the book. Tom refuses. Who is entitled to the book? Why?
3. In Exercise 2, suppose that Ingrid had accidentally left the book on a table in a restaurant. Tom finds it, and chanting "Finders keepers, losers weepers," he refuses to return the book. Is Ingrid entitled to the book? Why?
4. In Exercise 3, if the owner of the book (Ingrid) is never found, who is entitled to the book—the owner of the restaurant or Tom? Why?
5. Matilda owned an expensive necklace. On her deathbed, Matilda handed the necklace to her best friend, Sadie, saying, "If I die, I want you to have this." Sadie accepted the gift and placed it in her safe-deposit box. Matilda died without a will, and now her only heir, Ralph, claims the necklace. Is he entitled to it? Why or why not?

? self-test questions 2.4.1

1. Personal property is defined as property that is
 - a. not a chattel
 - b. owned by an individual

- c. movable
- d. immovable
- 2. Personal property can be acquired by
 - a. accession
 - b. finding
 - c. gift
 - d. all of the above
- 3. A gift causa mortis is
 - a. an irrevocable gift
 - b. a gift made after death
 - c. a gift made in contemplation of death
 - d. none of the above
- 4. To make a gift effective,
 - a. the donor must intend to make a gift
 - b. the donor must either make out a deed or deliver the gift to the donee
 - c. the donee must accept the gift
 - d. all of the above are required
- 5. Tenant's fixtures
 - a. remain with the landlord in all cases
 - b. remain the property of the tenant in all cases
 - c. remain the property of the tenant if they are removable without substantial damage to the landlord's property
 - d. refer to any fixture installed by a tenant

Answers

- 1. c
- 2. d
- 3. c
- 4. d
- 5. c

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CHAPTER OVERVIEW

3: Landlord and Tenant Law

Learning Objectives

After reading this chapter, you should understand the following:

1. The various types of leasehold estates
2. How leasehold states are created and extended
3. The rights and duties of landlords
4. The rights and duties of tenants
5. The potential tort liability of landlords

[3.1: Types and Creation of Leasehold Estates](#)

[3.2: Rights and Duties of Landlords and Tenants](#)

[3.3: Transfer of Landlord's or Tenant's Interest](#)

[3.4: Landlord's Tort Liability](#)

[3.5: Cases](#)

[3.6: Summary and Exercises](#)

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3.1: Types and Creation of Leasehold Estates

Learning Objectives

1. Distinguish between the different types of leasehold estates.
2. Describe how leasehold states can be created, both orally and in writing, and the requirements for creating leases that last for more than one year.

In Chapter 11 "The Nature and Regulation of Real Estate and the Environment", we noted that real property can be divided into types of interests: freehold estates and leasehold estates. The freehold estate is characterized by indefinite duration, and the owner has title and the right to possess. The leasehold estate, by contrast, lasts for a specific period. The owner of the leasehold estate—the tenant—may take possession but does not have title to the underlying real property. When the period of the leasehold ends, the right to possession reverts to the landlord—hence the landlord's interest during the tenant's possession is known as a **reversionary interest**. Although a leasehold estate is said to be an interest in real property, the leasehold itself is in fact personal property. The law recognizes three types of leasehold estates: the estate for years, the periodic tenancy, and the tenancy at will.

Types of Leasehold Estates

Estate for Years

The estate for years is characterized by a definite beginning and a definite end. When you rent an apartment for two years, beginning September 1 and ending on the second August 31, you are the owner of an estate for years. Virtually any period will do; although it is called an estate "for years," it can last but one day or extend one thousand years or more. Some statutes declare that any estate for years longer than a specified period—one hundred years in Massachusetts, for instance—is a fee simple estate.

Unless the lease—the agreement creating the leasehold interest—provides otherwise, the estate for years terminates automatically at midnight of the last day specified in the lease. The lease need not refer explicitly to calendar dates. It could provide that "the tenant may occupy the premises for six months to commence one week from the date of signing." Suppose the landlord and tenant sign on June 23. Then the lease term begins at 12:00 a.m. on July 1 and ends just before midnight of December 31. Unless a statute provides otherwise, the landlord is not obligated to send the tenant a notice of termination. Should the tenant die before the lease term ends, her property interest can be inherited under her will along with her other personal property or in accordance with the laws of intestate succession.

Periodic Tenancy

As its name implies, a periodic tenancy lasts for a period that is renewed automatically until either landlord or tenant notifies the other that it will end. The periodic tenancy is sometimes called an estate from year to year (or month to month, or week to week). The lease may provide explicitly for the periodic tenancy by specifying that at the expiration of, say, a one-year lease, it will be deemed renewed for another year unless one party notifies the other to the contrary within six months prior to the expiration of the term. Or the periodic tenancy may be created by implication, if the lease fails to state a term or is defective in some other way, but the tenant takes possession and pays rent. The usual method of creating a periodic tenancy occurs when the tenant remains on the premises ("holds over") when an estate for years under a lease has ended. The landlord may either reject or accept the implied offer by the tenant to rent under a periodic tenancy. If he rejects the implied offer, the tenant may be ejected, and the landlord is entitled to rent for the holdover period. If he accepts the offer, the original lease determines the rent and length of the renewable period, except that no periodic tenancy may last longer than from year to year—that is, the renewable period may never be any longer than twelve months.

At common law, a party was required to give notice at least six months prior to the end of a year-to-year tenancy, and notice equal to the term for any other periodic tenancy. In most states today, the time period for giving notice is regulated by statute. In most instances, a year-to-year tenancy requires a month's notice, and shorter tenancies require notice equal to the term. To illustrate the approach typically used, suppose Simone rents from Anita on a month-to-month tenancy beginning September 15. On March 30, Simone passes the orals for her doctorate and decides to leave town. How soon may she cancel her tenancy? If she calls Anita that afternoon, she will be two weeks shy of a full month's notice for the period ending April 15, so the earliest she can finish her obligation to pay rent is May 15. Suppose her term had been from the first of each month. On April 1, she notifies Anita of her

intention to leave at the end of April, but she is stuck until the end of May, because notice on the first of the month is not notice for a full month. She would have had to notify Anita by March 31 to terminate the tenancy by April 30.

Tenancy at Will

If the landlord and tenant agree that the lease will last only as long as both want it to, then they have created a tenancy at will. Statutes in most states require some notice of intention to terminate. Simone comes to the university to study, and Anita gives her a room to stay in for free. The arrangement is a tenancy at will, and it will continue as long as both want it to. One Friday night, after dinner with classmates, Simone decides she would rather move in with Bob. She goes back to her apartment, packs her suitcase, and tells Anita she's leaving. The tenancy at will terminates that day.

Creation of Leasehold Estates

Oral Leases

Leases can be created orally, unless the term of the lease exceeds the period specified by the Statute of Frauds. In most states, that period is one year. Any oral lease for a period longer than the statutory period is invalid. Suppose that Simone, in a state with a one-year Statute of Frauds period, orally agrees with Anita to rent Anita's apartment for two years, at a monthly rent of \$250. The lease is invalid, and either could repudiate it.

Written Leases

A lease required to be in writing under the Statute of Frauds must contain the following items or provisions: (1) it must identify the parties, (2) it must identify the premises, (3) it must specify the duration of the lease, (4) it must state the rent to be paid, and (5) it must be signed by the party against whom enforcement is sought (known as "the party to be charged").

The provisions need not be perfectly stated. As long as they satisfy the five requirements, they will be adequate to sustain the lease under the Statute of Frauds. For instance, the parties need not necessarily be named in the lease itself. Suppose that the prospective tenant gives the landlord a month's rent in advance and that the landlord gives the tenant a receipt listing the property and the terms of the lease but omitting the name of the tenant. The landlord subsequently refuses to let the tenant move in. Who would prevail in court? Since the tenant had the receipt in her possession, that would be sufficient to identify her as the tenant to whom the terms of the lease were meant to apply. Likewise, the lease need not specify every aspect of the premises to be enjoyed. Thus the tenant who rents an apartment in a building will be entitled to the use of the common stairway, the roof, and so on, even though the lease is silent on these points. And as long as a specific amount is ascertainable, the rent may be stated in other than absolute dollar terms. For example, it could be expressed in terms of a cost-of-living index or as a percentage of the tenant's dollar business volume.

Key Takeaway

A leasehold estate, unlike a freehold estate, has a definite duration. The landlord's interest during the term of a leasehold estate is a reversionary interest. Leasehold estates can last for short terms or very long terms; in the case of long-term leases, a property right is created that can be passed to heirs. The usual landlord-tenant relationship is a periodic tenancy, which carries with it various common-law and statutory qualifications regarding renewal and termination. In a tenancy at will, either landlord or tenant can end the leasehold estate as soon as notice is provided by either party.

Exercises 3.1.1

1. What is the difference between a periodic tenancy and a tenancy at will?
2. What are the essential terms that must be in a written lease?

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3.2: Rights and Duties of Landlords and Tenants

Learning Objectives

1. Itemize and explain the rights and duties of landlords.
2. List and describe the rights and duties of tenants.
3. Understand the available remedies for tenants when a landlord is in breach of his or her duties.

Rights and Duties of Landlords

The law imposes a number of duties on the landlord and gives the tenant a number of corresponding rights. These include (1) possession, (2) habitable condition, and (3) noninterference with use.

Possession

The landlord must give the tenant the right of possession of the property. This duty is breached if, at the time the tenant is entitled to take possession, a third party has paramount title to the property and the assertion of this title would deprive the tenant of the use contemplated by the parties. Paramount title means any legal interest in the premises that is not terminable at the will of the landlord or at the time the tenant is entitled to take possession.

If the tenant has already taken possession and then discovers the paramount title, or if the paramount title only then comes into existence, the landlord is not automatically in breach. However, if the tenant thereafter is evicted from the premises and thus deprived of the property, then the landlord is in breach. Suppose the landlord rents a house to a doctor for ten years, knowing that the doctor intends to open a medical office in part of the home and knowing also that the lot is restricted to residential uses only. The doctor moves in. The landlord is not yet in default. The landlord will be in default if a neighbor obtains an injunction against maintaining the office. But if the landlord did not know (and could not reasonably have known) that the doctor intended to use his home for an office, then the landlord would not be in default under the lease, since the property could have been put to normal—that is, residential—use without jeopardizing the tenant’s right to possession.

Warranty of Habitability

As applied to leases, the old common-law doctrine of caveat emptor said that once the tenant has signed the lease, she must take the premises as she finds them. Since she could inspect them before signing the lease, she should not complain later. Moreover, if hidden defects come to light, they ought to be easy enough for the tenant herself to fix. Today this rule no longer applies, at least to residential rentals. Unless the parties specifically agree otherwise, the landlord is in breach of his lease if the conditions are unsuitable for residential use when the tenant is due to move in. The landlord is held to an implied warranty of habitability.

The change in the rule is due in part to the conditions of the modern urban setting: tenants have little or no power to walk away from an available apartment in areas where housing is scarce. It is also due to modem construction and technology: few tenants are capable of fixing most types of defects. A US court of appeals has said the following:

Today’s urban tenants, the vast majority of whom live in multiple dwelling houses, are interested not in the land, but solely in “a house suitable for occupation.” Furthermore, today’s city dweller usually has a single, specialized skill unrelated to maintenance work; he is unable to make repairs like the “jack-of-all-trades” farmer who was the common law’s model of the lessee. Further, unlike his agrarian predecessor who often remained on one piece of land for his entire life, urban tenants today are more mobile than ever before. A tenant’s tenure in a specific apartment will often not be sufficient to justify efforts at repairs. In addition, the increasing complexity of today’s dwellings renders them much more difficult to repair than the structures of earlier times. In a multiple dwelling, repairs may require access to equipment and areas in control of the landlord. Low and middle income tenants, even if they were interested in making repairs, would be unable to obtain financing for major repairs since they have no long-term interest in the property. (*Javins v. First National Realty Corp.*, 428 F.2d 1071, 1078-79 (D.C. Cir.), cert. denied, 400 U.S. 925 (1970)).

At common law, the landlord was not responsible if the premises became unsuitable once the tenant moved in. This rule was often harshly applied, even for unsuitable conditions caused by a sudden act of God, such as a tornado. Even if the premises collapsed, the tenant would be liable to pay the rent for the duration of the lease. Today, however, many states have statutorily abolished the

tenant's obligation to pay the rent if a non-man-made force renders the premises unsuitable. Moreover, most states today impose on the landlord, after the tenant has moved in, the responsibility for maintaining the premises in a safe, livable condition, consistent with the safety, health, and housing codes of the jurisdiction.

These rules apply only in the absence of an express agreement between the parties. The landlord and tenant may allocate in the lease the responsibility for repairs and maintenance. But it is unlikely that any court would enforce a lease provision waiving the landlord's implied warranty of habitability for residential apartments, especially in areas where housing is relatively scarce.

Noninterference with Use

In addition to maintaining the premises in a physically suitable manner, the landlord has an obligation to the tenant not to interfere with a permissible use of the premises. Suppose Simone moves into a building with several apartments. One of the other tenants consistently plays music late in the evening, causing Simone to lose sleep. She complains to the landlord, who has a provision in the lease permitting him to terminate the lease of any tenant who persists in disturbing other tenants. If the landlord does nothing after Simone has notified him of the disturbance, he will be in breach. This right to be free of interference with permissible uses is sometimes said to arise from the landlord's implied covenant of quiet enjoyment.

Tenant's Remedies

When the landlord breaches one of the foregoing duties, the tenant has a choice of three basic remedies: termination, damages, or rent adjustment.

In virtually all cases where the landlord breaches, the tenant may terminate the lease, thus ending her obligation to continue to pay rent. To terminate, the tenant must (1) actually vacate the premises during the time that she is entitled to terminate and (2) either comply with lease provisions governing the method of terminating or else take reasonable steps to ensure that the landlord knows she has terminated and why.

When the landlord physically deprives the tenant of possession, he has evicted the tenant; wrongful eviction permits the tenant to terminate the lease. Even if the landlord's conduct falls short of actual eviction, it may interfere substantially enough with the tenant's permissible use so that they are tantamount to eviction. This is known as constructive eviction, and it covers a wide variety of actions by both the landlord and those whose conduct is attributable to him, as illustrated by *Fidelity Mutual Life Insurance Co. v Kaminsky*, (see Section 13.5.1 "Constructive Eviction").

Damages

Another traditional remedy is money damages, available whenever termination is an appropriate remedy. Damages may be sought after termination or as an alternative to termination. Suppose that after the landlord had refused Simone's request to repair the electrical system, Simone hired a contractor to do the job. The cost of the repair work would be recoverable from the landlord. Other recoverable costs can include the expense of relocating if the lease is terminated, moving costs, expenses connected with finding new premises, and any increase in rent over the period of the terminated lease for comparable new space. A business may recover the loss of anticipated business profits, but only if the extent of the loss is established with reasonable certainty. In the case of most new businesses, it would be almost impossible to prove loss of profits.

In all cases, the tenant's recovery will be limited to damages that would have been incurred by a tenant who took all reasonable steps to mitigate losses. That is, the tenant must take reasonable steps to prevent losses attributable to the landlord's breach, to find new space if terminating, to move efficiently, and so on.

Rent Remedies

Under an old common-law rule, the landlord's obligation to provide the tenant with habitable space and the tenant's obligation to pay rent were independent covenants. If the landlord breached, the tenant was still legally bound to pay the rent; her only remedies were termination and suit for damages. But these are often difficult remedies for the tenant. Termination means the aggravation of moving, assuming that new quarters can be found, and a suit for damages is time consuming, uncertain, and expensive. The obvious solution is to permit the tenant to withhold rent, or what we here call rent adjustment. The modern rule, adopted in several states (but not yet in most), holds that the mutual obligations of landlord and tenant are dependent. States following this approach have developed three types of remedies: rent withholding, rent application, and rent abatement.

The simplest approach is for the tenant to withhold the rent until the landlord remedies the defect. In some states, the tenant may keep the money. In other states, the rent must be paid each month into an escrow account or to the court, and the money in the escrow account becomes payable to the landlord when the default is cured.

Several state statutes permit the tenant to apply the rent money directly to remedy the defect or otherwise satisfy the landlord's performance. Thus Simone might have deducted from her rent the reasonable cost of hiring an electrician to repair the electrical system.

In some states, the rent may be reduced or even eliminated if the landlord fails to cure specific types of defects, such as violations of the housing code. The abatement will continue until the default is eliminated or the lease is terminated.

Rights and Duties of Tenants

In addition to the duties of the tenant set forth in the lease itself, the common law imposes three other obligations: (1) to pay the rent reserved (stated) in the lease, (2) to refrain from committing waste (damage), and (3) not to use the premises for an illegal purpose.

Duty to Pay Rent

What constitutes rent is not necessarily limited to the stated periodic payment usually denominated "rent." The tenant may also be responsible for such assessments as taxes and utilities, payable to the landlord as rent. Simone's lease calls for her to pay taxes of \$500 per year, payable in quarterly installments. She pays the rent on the first of each month and the first tax bill on January 1. On April 1, she pays the rent but defaults on the next tax bill. She has failed to pay the rent reserved in the lease.

The landlord in the majority of states is not obligated to mitigate his losses should the tenant abandon the property and fail thereafter to pay the rent. As a practical matter, this means that the landlord need not try to rent out the property but instead can let it sit vacant and sue the defaulting tenant for the balance of the rent as it becomes due. However, the tenant might notify the landlord that she has abandoned the property or is about to abandon it and offer to surrender it. If the landlord accepts the surrender, the lease then terminates. Unless the lease specifically provides for it, a landlord who accepts the surrender will not be able to recover from the tenant the difference between the amount of her rent obligation and the new tenant's rent obligation.

Many leases require the tenant to make a security deposit—a payment of a specific sum of money to secure the tenant's performance of duties under the lease. If the tenant fails to pay the rent or otherwise defaults, the landlord may use the money to make good the tenant's performance. Whatever portion of the money is not used to satisfy the tenant's obligations must be repaid to the tenant at the end of the lease. In the absence of an agreement to the contrary, the landlord must pay interest on the security deposit when he returns the sum to the tenant at the end of the lease.

Alteration and Restoration of the Premises

In the absence of a specific agreement in the lease, the tenant is entitled to physically change the premises in order to make the best possible permissible use of the property, but she may not make structural alterations or damage (waste) the property. A residential tenant may add telephone lines, put up pictures, and affix bookshelves to the walls, but she may not remove a wall in order to enlarge a room.

The tenant must restore the property to its original condition when the lease ends, but this requirement does not include normal wear and tear. Simone rents an apartment with newly polished wooden floors. Because she likes the look of oak, she decides against covering the floors with rugs. In a few months' time, the floors lose their polish and become scuffed. Simone is not obligated to refinish the floors, because the scuffing came from normal walking, which is ordinary wear and tear.

Use of the Property for an Illegal Purpose

It is a breach of the tenant's obligation to use the property for an illegal purpose. A landlord who found a tenant running a numbers racket, for example, or making and selling moonshine whiskey could rightfully evict her.

Landlord's Remedies

In general, when the tenant breaches any of the three duties imposed by the common law, the landlord may terminate the lease and seek damages. One common situation deserves special mention: the holdover tenant. When a tenant improperly overstays her lease, she is said to be a tenant at sufferance, meaning that she is liable to eviction. Some cultures, like the Japanese, exhibit a

considerable bias toward the tenant, making it exceedingly difficult to move out holdover tenants who decide to stay. But in the United States, landlords may remove tenants through summary (speedy) proceedings available in every state or, in some cases, through self-help. Self-help is a statutory remedy for landlords or incoming tenants in some states and involves the peaceful removal of a holdover tenant's belongings. If a state has a statute providing a summary procedure for removing a holdover tenant, neither the landlord nor the incoming tenant may resort to self-help, unless the statute specifically allows it. A provision in the lease permitting self-help in the absence of statutory authority is unenforceable. Self-help must be peaceful, must not cause physical harm or even the expectation of harm to the tenant or anyone on the premises with his permission, and must not result in unreasonable damage to the tenant's property. Any clause in the lease attempting to waive these conditions is void.

Self-help can be risky, because some summary proceeding statutes declare it to be a criminal act and because it can subject the landlord to tort liability. Suppose that Simone improperly holds over in her apartment. With a new tenant scheduled to arrive in two days, the landlord knocks on her door the evening after her lease expires. When Simone opens the door, she sees the landlord standing between two 450-pound Sumo wrestlers with menacing expressions. He demands that she leave immediately. Fearing for her safety, she departs instantly. Since she had a reasonable expectation of harm had she not complied with the landlord's demand, Simone would be entitled to recover damages in a tort suit against her landlord, although she would not be entitled to regain possession of the apartment.

Besides summary judicial proceedings and self-help, the landlord has another possible remedy against the holdover tenant: to impose another rental term. In order to extend the lease in this manner, the landlord need simply notify the holdover tenant that she is being held to another term, usually measured by the periodic nature of the rent payment. For example, if rent was paid each month, then imposition of a new term results in a month-to-month tenancy. One year is the maximum tenancy that the landlord can create by electing to hold the tenant to another term.

Key Takeaway

Both landlords and tenants have rights and duties. The primary duty of a landlord is to meet the implied warranty of habitability: that the premises are in a safe, livable condition. The tenant has various remedies available if the landlord fails to meet that duty, or if the landlord fails to meet the implied covenant of quiet enjoyment. These include termination, damages, and withholding of rent. The tenant has duties as well: to pay the rent, refrain from committing waste, and not use the property for an illegal purpose.

Exercises 3.2.1

1. Consistent with the landlord's implied warranty of habitability, can the landlord and tenant agree in a lease that the tenant bear any and all expenses to repair the refrigerator, the stove, and the microwave?
2. Under what conditions is it proper for a tenant to withhold rent from the landlord?

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3.3: Transfer of Landlord's or Tenant's Interest

Learning Objectives

1. Explain how the landlord's reversionary interest works and how it may be assigned.
2. Describe the two ways in which a tenant's leasehold interest may be transferred to another party.

General Rule

At common law, the interests of the landlord and tenant may be transferred freely unless (1) the tenancy is at will; (2) the lease requires either party to perform significant personal services, which would be substantially less likely to be performed if the interest was transferred; or (3) the parties agree that the interest may not be transferred.

Landlord's Interest

When the landlord sells his interest, the purchaser takes subject to the lease. If there are tenants with leases in an apartment building, the new landlord may not evict them simply because he has taken title. The landlord may divide his interest as he sees fit, transferring all or only part of his entire interest in the property. He may assign his right to the rent or sell his reversionary interest in the premises. For instance, Simone takes a three-year lease on an apartment near the university. Simone's landlord gives his aged uncle his reversionary interest for life. This means that Simone's landlord is now the uncle, and she must pay him rent and look to him for repairs and other performances owed under the lease. When Simone's lease terminates, the uncle will be entitled to rent the premises. He does so, leasing to another student for three years. One year later, the uncle dies. His nephew (Simone's original landlord) has the reversionary interest and so once again becomes the landlord. He must perform the lease that the uncle agreed to with the new student, but when that lease expires, he will be free to rent the premises as he sees fit.

Tenant's Interest

Why would a tenant be interested in transferring her leasehold interest? For at least two reasons: she might need to move before her lease expired, or she might be able to make money on the leasehold itself. In recent years, many companies in New York have discovered that their present leases were worth far more to them by moving out than staying in. They had signed long-term leases years ago when the real estate market was glutted and were paying far less than current market prices. By subletting the premises and moving to cheaper quarters, they could pocket the difference between their lease rate and the market rate they charged their subtenants.

The tenant can transfer her interest in the lease by assigning or by subletting. In an assignment, the tenant transfers all interest in the premises and all obligations. Thus the assignee-tenant is duty bound to pay the landlord the periodic rental and to perform all other provisions in the lease. If the assignee defaulted, however, the original tenant would remain liable to the landlord. In short, with an assignment, both assignor and assignee are liable under the lease unless the landlord releases the assignor. By contrast, a sublease is a transfer of something less than the entire leasehold interest (see Figure 13.1 "Assignment vs. Sublease"). For instance, the tenant might have five years remaining on her lease and sublet the premises for two years, or she might sublet the ground floor of a four-story building. Unlike an assignee, the subtenant does not step into the shoes of the tenant and is not liable to the landlord for performance of the tenant's duties. The subtenant's only obligations are to the tenant. What distinguishes the assignment from the sublease is not the name but whether or not the entire leasehold interest has been transferred. If not, the transfer is a sublease.

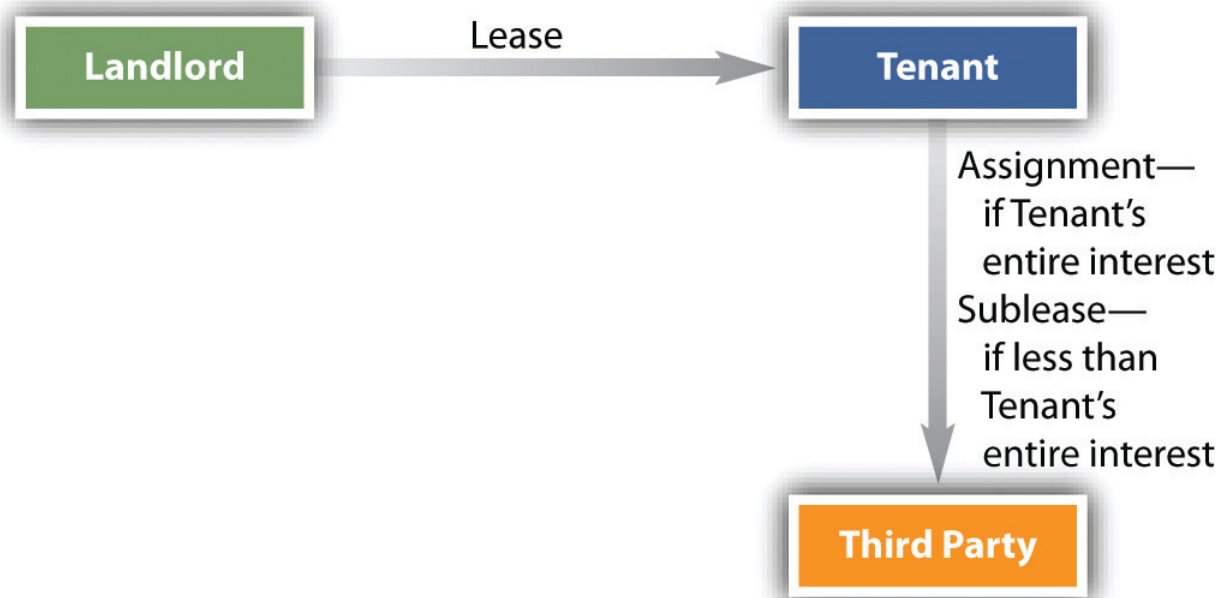


Figure 3.3.1: Assignment vs Sublease

Many landlords include clauses in their leases prohibiting assignments or subleases, and these clauses are generally upheld. But the courts construe them strictly, so that a provision barring subleases will not be interpreted to bar assignments.

Key Takeaway

The interests of landlords and tenants can be freely transferred unless the parties agree otherwise or unless there is a tenancy at will. If the tenant assigns her leasehold interest, she remains liable under the lease unless the landlord releases her. If less than the entire leasehold interest is transferred, it is a sublease rather than an assignment. But the original lease may prohibit either or both.

Exercises 3.3.1

1. What is the difference between an assignment and a sublease?
2. Are the duties of the tenant any different if the reversionary interest is assigned? Suppose that Simone is in year one of a three-year lease and that Harry is the landlord. If Harry assigns his reversionary interest to Louise, can Louise raise the rent for the next two years beyond what is stated in the original lease?

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3.4: Landlord's Tort Liability

Learning Objectives

1. State the general common-law rule as to the liability of the landlord for injuries occurring on the leased premises.
2. State the exceptions to the general rule, and explain the modern trend toward increased liability of the landlord.

In Chapter 11 "The Nature and Regulation of Real Estate and the Environment", we discussed the tort liability of the owner or occupier of real estate to persons injured on the property. As a general rule, when injury occurs on premises rented to a tenant, it is the tenant—an occupier—who is liable. The reason for this rule seems clear: The landlord has given up all but a reversionary interest in the property; he has no further control over the premises. Indeed, he is not even permitted on the property without the tenant's permission. But over the years, certain exceptions have developed to the rule that the landlord is not liable. The primary reason for this change is the recognition that the landlord is better able to pay for repairs to his property than his relatively poorer tenants and that he has ultimate control over the general conditions surrounding the apartment or apartment complex.

Exceptions to the General Rule

Hidden Dangers Known to Landlord

The landlord is liable to the tenant, her family, or guests who are injured by hidden and dangerous conditions that the landlord knew about or should have known about but failed to disclose to the tenant.

Dangers to People off the Premises

The landlord is liable to people injured outside the property by defects that existed when the lease was signed. Simone rents a dilapidated house and agrees with the landlord to keep the building repaired. She neglects to hire contractors to repair the cracked and sagging wall on the street. The building soon collapses, crushing several automobiles parked alongside. Simone can be held responsible and so can the landlord; the tenant's contractual agreement to maintain the property is not sufficient to shift the liability away from the landlord. In a few cases, the landlord has even been held liable for activities carried on by the tenant, but only because he knew about them when the lease was signed and should have known that the injuries were probable results.

Premises Leased for Admitting the Public

A landlord is responsible for injuries caused by dangerous conditions on property to be used by the public if the danger existed when the lease was made. Thus an uneven floor that might cause people to trip or a defective elevator that stops a few inches below the level of each floor would be sufficiently dangerous to pin liability on the landlord.

Landlord Retaining Control of Premises

Frequently, a landlord will retain control over certain areas of the property—for example, the common hallways and stairs in an apartment building. When injuries occur as a result of faulty and careless maintenance of these areas, the landlord will be responsible. In more than half the states, the landlord is liable for failure to remove ice and snow from a common walkway and stairs at the entrance. In one case, the tenant even recovered damages for a broken hip caused when she fell in fright from seeing a mouse that jumped out of her stove; she successfully charged the landlord with negligence in failing to prevent mice from entering the dwelling in areas under his control.

Faulty Repair of Premises

Landlords often have a duty to repair the premises. The duty may be statutory or may rest on an agreement in the lease. In either case, the landlord will be liable to a tenant or others for injury resulting from defects that should have been repaired. No less important, a landlord will be liable even if he has no duty to repair but negligently makes repairs that themselves turn out to be dangerous.

key takeaway

At common law, injuries taking place on leased premises were the responsibility of the tenant. There were notable exceptions, including situations where hidden dangers were known to the landlord but not the tenant, where the premises' condition caused injury to people off the premises, or where faulty repairs caused the injuries. The modern trend is to adopt general negligence principles to determine landlord liability. Thus where the landlord does not use reasonable care and subjects others to an unreasonable risk of harm, there may be liability for the landlord. This varies from state to state.

? Exercises 3.4.1

1. What was the basic logic of the common law in having tenants be responsible for all injuries that took place on leased premises?
2. Does the modern trend of applying general negligence principles to landlords make more sense? Explain your answer.

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3.5: Cases

Constructive Eviction

Fidelity Mutual Life Insurance Co. v. Kaminsky

768 S.W.2d 818 (Tx. Ct. App. 1989)

MURPHY, JUSTICE

The issue in this landlord-tenant case is whether sufficient evidence supports the jury's findings that the landlord and appellant, Fidelity Mutual Life Insurance Company ["Fidelity"], constructively evicted the tenant, Robert P. Kaminsky, M.D., P.A. ["Dr. Kaminsky"] by breaching the express covenant of quiet enjoyment contained in the parties' lease. We affirm.

Dr. Kaminsky is a gynecologist whose practice includes performing elective abortions. In May 1983, he executed a lease contract for the rental of approximately 2,861 square feet in the Red Oak Atrium Building for a two-year term which began on June 1, 1983. The terms of the lease required Dr. Kaminsky to use the rented space solely as "an office for the practice of medicine." Fidelity owns the building and hires local companies to manage it. At some time during the lease term, Shelter Commercial Properties ["Shelter"] replaced the Horne Company as managing agents. Fidelity has not disputed either management company's capacity to act as its agent.

The parties agree that: (1) they executed a valid lease agreement; (2) Paragraph 35 of the lease contains an express covenant of quiet enjoyment conditioned on Dr. Kaminsky's paying rent when due, as he did through November 1984; Dr. Kaminsky abandoned the leased premises on or about December 3, 1984 and refused to pay additional rent; anti-abortion protestors began picketing at the building in June of 1984 and repeated and increased their demonstrations outside and inside the building until Dr. Kaminsky abandoned the premises.

When Fidelity sued for the balance due under the lease contract following Dr. Kaminsky's abandonment of the premises, he claimed that Fidelity constructively evicted him by breaching Paragraph 35 of the lease. Fidelity apparently conceded during trial that sufficient proof of the constructive eviction of Dr. Kaminsky would relieve him of his contractual liability for any remaining rent payments. Accordingly, he assumed the burden of proof and the sole issue submitted to the jury was whether Fidelity breached Paragraph 35 of the lease, which reads as follows:

Quiet Enjoyment

Lessee, on paying the said Rent, and any Additional Rental, shall and may peaceably and quietly have, hold and enjoy the Leased Premises for the said term.

A constructive eviction occurs when the tenant leaves the leased premises due to conduct by the landlord which materially interferes with the tenant's beneficial use of the premises. Texas law relieves the tenant of contractual liability for any remaining rentals due under the lease if he can establish a constructive eviction by the landlord.

The protests took place chiefly on Saturdays, the day Dr. Kaminsky generally scheduled abortions. During the protests, the singing and chanting demonstrators picketed in the building's parking lot and inner lobby and atrium area. They approached patients to speak to them, distributed literature, discouraged patients from entering the building and often accused Dr. Kaminsky of "killing babies." As the protests increased, the demonstrators often occupied the stairs leading to Dr. Kaminsky's office and prevented patients from entering the office by blocking the doorway. Occasionally they succeeded in gaining access to the office waiting room area.

Dr. Kaminsky complained to Fidelity through its managing agents and asked for help in keeping the protestors away, but became increasingly frustrated by a lack of response to his requests. The record shows that no security personnel were present on Saturdays to exclude protestors from the building, although the lease required Fidelity to provide security service on Saturdays. The record also shows that Fidelity's attorneys prepared a written statement to be handed to the protestors soon after Fidelity hired Shelter as its managing agent. The statement tracked TEX. PENAL CODE ANN. §30.05 (Vernon Supp. 1989) and generally served to inform trespassers that they risked criminal prosecution by failing to leave if asked to do so. Fidelity's attorneys instructed Shelter's representative to "have several of these letters printed up and be ready to distribute them and verbally demand that these people move on and off the property." The same representative conceded at trial that she did not distribute these notices. Yet when Dr.

Kaminsky enlisted the aid of the Sheriff's office, officers refused to ask the protestors to leave without a directive from Fidelity or its agent. Indeed, an attorney had instructed the protestors to remain unless the landlord or its representative ordered them to leave. It appears that Fidelity's only response to the demonstrators was to state, through its agents, that it was aware of Dr. Kaminsky's problems.

Both action and lack of action can constitute "conduct" by the landlord which amounts to a constructive eviction....

This case shows ample instances of Fidelity's failure to act in the face of repeated requests for assistance despite its having expressly covenanted Dr. Kaminsky's quiet enjoyment of the premises. These instances provided a legally sufficient basis for the jury to conclude that Dr. Kaminsky abandoned the leased premises, not because of the trespassing protestors, but because of Fidelity's lack of response to his complaints about the protestors. Under the circumstances, while it is undisputed that Fidelity did not "encourage" the demonstrators, its conduct essentially allowed them to continue to trespass.

[The trial court judgment is affirmed.]

? case questions 3.5.1

A constructive eviction occurs when the tenant leaves the leased premises because of conduct by the landlord that materially interferes with the tenant's beneficial use of the premises.

1. At the trial, who concluded that Fidelity's "conduct" constituted constructive eviction? Is this a question of fact, an interpretation of the contract, or both?
2. How can failure to act constitute "conduct"? What could explain Fidelity's apparent reluctance to give notice to protestors that they might be arrested for trespass?

Landlord's Tort Liability

Stephens v. Stearns

106 Idaho 249; 678 P.2d 41 (Idaho Sup. Ct. 1984)

Donaldson, Chief Justice

Plaintiff-appellant Stephens filed this suit on October 2, 1978, for personal injuries she sustained on July 15, 1977, from a fall on an interior stairway of her apartment. Plaintiff's apartment, located in a Boise apartment complex, was a "townhouse" consisting of two separate floors connected by an internal stairway.

The apartments were built by defendant Koch and sold to defendant Stearns soon after completion in 1973. Defendant Stearns was plaintiff's landlord from the time she moved into the apartment in 1973 through the time of plaintiff's fall on July 15, 1977. Defendant Albanese was the architect who designed and later inspected the apartment complex.

* * *

When viewed in the light most favorable to appellant, the facts are as follows: On the evening of July 15, 1977, Mrs. Stephens went to visit friends. While there she had two drinks. She returned to her apartment a little past 10:00 p.m. Mrs. Stephens turned on the television in the living room and went upstairs to change clothes. After changing her clothes, she attempted to go downstairs to watch television. As Mrs. Stephens reached the top of the stairway, she either slipped or fell forward. She testified that she "grabbed" in order to catch herself. However, Mrs. Stephens was unable to catch herself and she fell to the bottom of the stairs. As a result of the fall, she suffered serious injury. The evidence further showed that the stairway was approximately thirty-six inches wide and did not have a handrail although required by a Boise ordinance.

* * *

In granting defendant Stearns' motion for directed verdict, the trial judge concluded that there was "an absolute lack of evidence" and that "to find a proximate cause between the absence of the handrail and the fall suffered by the plaintiff would be absolutely conjecture and speculation." (Although the trial judge's conclusion referred to "proximate cause," it is apparent that he was referring to factual or actual cause. (See *Munson v. State, Department of Highways*, 96 Idaho 529, 531 P.2d 1174 (1975)).) We disagree with the conclusion of the trial judge.

We have considered the facts set out above in conjunction with the testimony of Chester Shawver, a Boise architect called as an expert in the field of architecture, that the primary purpose of a handrail is for user safety. We are left with the firm conviction that there is sufficient evidence from which reasonable jurors could have concluded that the absence of a handrail was the actual cause of plaintiff's injuries; i.e., that plaintiff would not have fallen, or at least would have been able to catch herself, had there been a handrail available for her to grab.

In addition, we do not believe that the jury would have had to rely on conjecture and speculation to find that the absence of the handrail was the actual cause. To the contrary, we believe that reasonable jurors could have drawn legitimate inferences from the evidence presented to determine the issue. This comports with the general rule that the factual issue of causation is for the jury to decide. (*McKinley v. Fanning*, 100 Idaho 189, 595 P.2d 1084 (1979); *Munson v. State, Department of Highways*, *supra*). In addition, courts in several other jurisdictions, when faced with similar factual settings, have held that this issue is a question for the jury.

* * *

Rather than attempt to squeeze the facts of this case into one of the common-law exceptions, plaintiff instead has brought to our attention the modern trend of the law in this area. Under the modern trend, landlords are simply under a duty to exercise reasonable care under the circumstances. The Tennessee Supreme Court had the foresight to grasp this concept many years ago when it stated: "The ground of liability upon the part of a landlord when he demises dangerous property has nothing special to do with the relation of landlord and tenant. It is the ordinary case of liability for personal misfeasance, which runs through all the relations of individuals to each other." (*Wilcox v. Hines*, 100 Tenn. 538, 46 S.W. 297, 299 (1898)). Seventy-five years later, the Supreme Court of New Hampshire followed the lead of *Wilcox*. *Sargent v. Ross*, 113 N.H. 388, 308 A.2d 528 (1973). The *Sargent* court abrogated the common-law rule and its exceptions, and adopted the reasonable care standard by stating:

We thus bring up to date the other half of landlord-tenant law. Henceforth, landlords as other persons must exercise reasonable care not to subject others to an unreasonable risk of harm....A landlord must act as a reasonable person under all of the circumstances including the likelihood of injury to others, the probable seriousness of such injuries, and the burden of reducing or avoiding the risk.

Id. at 534 [Citations]

Tennessee and New Hampshire are not alone in adopting this rule. As of this date, several other states have also judicially adopted a reasonable care standard for landlords.

* * *

In commenting on the common-law rule, A. James Casner, Reporter of Restatement (Second) of Property—Landlord and Tenant, has stated: "While continuing to pay lip service to the general rule, the courts have expended considerable energy and exercised great ingenuity in attempting to fit various factual settings into the recognized exceptions." Restatement (Second) of Property—Landlord and Tenant ch. 17 Reporter's Note to Introductory Note (1977). We believe that the energies of the courts of Idaho should be used in a more productive manner. Therefore, after examining both the common-law rule and the modern trend, we today decide to leave the common-law rule and its exceptions behind, and we adopt the rule that a landlord is under a duty to exercise reasonable care in light of all the circumstances.

We stress that adoption of this rule is not tantamount to making the landlord an insurer for all injury occurring on the premises, but merely constitutes our removal of the landlord's common-law cloak of immunity. Those questions of hidden danger, public use, control, and duty to repair, which under the common-law were prerequisites to the consideration of the landlord's negligence, will now be relevant only inasmuch as they pertain to the elements of negligence, such as foreseeability and unreasonableness of the risk. We hold that defendant Stearns did owe a duty to plaintiff Stephens to exercise reasonable care in light of all the circumstances, and that it is for a jury to decide whether that duty was breached. Therefore, we reverse the directed verdict in favor of defendant Stearns and remand for a new trial of plaintiff's negligence action against defendant Stearns.

? case question 3.5.2

1. Why should actual cause be a jury question rather than a question that the trial judge decides on her own?
2. Could this case have fit one of the standard exceptions to the common-law rule that injuries on the premises are the responsibility of the tenant?
3. Does it mean anything at all to say, as the court does, that persons (including landlords) must “exercise reasonable care not to subject others to an unreasonable risk of harm?” Is this a rule that gives very much direction to landlords who may wonder what the limit of their liabilities might be?

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3.6: Summary and Exercises

Summary

A leasehold is an interest in real property that terminates on a certain date. The leasehold itself is personal property and has three major forms: (1) the estate for years, (2) the periodic tenancy, and (3) the tenancy at will. The estate for years has a definite beginning and end; it need not be measured in years. A periodic tenancy—sometimes known as an estate from year to year or month to month—is renewed automatically until either landlord or tenant notifies the other that it will end. A tenancy at will lasts only as long as both landlord and tenant desire. Oral leases are subject to the Statute of Frauds. In most states, leases to last longer than a year must be in writing, and the lease must identify the parties and the premises, specify the duration, state the rent, and be signed by the party to be charged.

The law imposes on the landlord certain duties toward the tenant and gives the tenant corresponding rights, including the right of possession, habitable condition, and noninterference with use. The right of possession is breached if a third party has paramount title at the time the tenant is due to take possession. In most states, a landlord is obligated to provide the tenant with habitable premises not only when the tenant moves in but also during the entire period of the lease. The landlord must also refrain from interfering with a tenant's permissible use of the premises.

If the landlord breaches an obligation, the tenant has several remedies. He may terminate the lease, recover damages, or (in several states) use a rent-related remedy (by withholding rent, by applying it to remedy the defect, or by abatement).

The tenant has duties also. The tenant must pay the rent. If she abandons the property and fails to pay, most states do not require the landlord to mitigate damages, but several states are moving away from this general rule. The tenant may physically change the property to use it to her best advantage, but she may not make structural alterations or commit waste. The tenant must restore the property to its original condition when the lease ends. This rule does not include normal wear and tear.

Should the tenant breach any of her duties, the landlord may terminate the lease and seek damages. In the case of a holdover tenant, the landlord may elect to hold the tenant to another rental term.

The interest of either landlord or tenant may be transferred freely unless the tenancy is at will, the lease requires either party to perform significant personal services that would be substantially less likely to be performed, or the parties agree that the interest may not be transferred.

Despite the general rule that the tenant is responsible for injuries caused on the premises to outsiders, the landlord may have significant tort liability if (1) there are hidden dangers he knows about, (2) defects that existed at the time the lease was signed injure people off the premises, (3) the premises are rented for public purposes, (4) the landlord retains control of the premises, or (5) the landlord repairs the premises in a faulty manner.

? Exercises 3.6.1

1. Lanny orally agrees to rent his house to Tenny for fifteen months, at a monthly rent of \$1,000. Tenny moves in and pays the first month's rent. Lanny now wants to cancel the lease. May he? Why?
2. Suppose in Exercise 1 that Tenny had an option to cancel after one year. Could Lanny cancel before the end of the year? Why?
3. Suppose in Exercise 1 that Lanny himself is a tenant and has leased the house for six months. He subleases the house to Tenny for one year. The day before Tenny is to move into the house, he learns of Lanny's six-month lease and attempts to terminate his one-year lease. May he? Why?
4. Suppose in Exercise 3 that Tenny learned of Lanny's lease the day after he moved into the house. May he terminate? Why?
5. Simon owns a four-story building and rents the top floor to a college student. Simon is in the habit of burning refuse in the backyard, and the smoke from the refuse is so noxious that it causes the student's eyes to water and his throat to become raw. Has Simon breached a duty to the student? Explain.
6. In Exercise 5, if other tenants (but not Simon) were burning refuse in the backyard, would Simon be in breach? Why?
7. Assume in Exercise 5 that Simon was in breach. Could the student move out of the apartment and terminate the lease? What effect would this have on the student's duty to pay rent? Explain.

? Self-Test Questions 3.6.1

1. An estate for years
 - a. has a definite beginning and end
 - b. is a leasehold estate
 - c. usually terminates automatically at midnight of the last day specified in the lease
 - d. includes all of the above
2. Not included among the rights given to a tenant is
 - a. paramount title
 - b. possession
 - c. habitable condition
 - d. noninterference with use
3. The interest of either landlord or tenant may be transferred freely
 - a. unless the tenancy is at will
 - b. unless the lease requires significant personal services unlikely to be performed by someone else
 - c. unless either of the above apply
 - d. under no circumstances
4. When injuries are caused on the premises to outsiders,
 - a. the tenant is always liable
 - b. the landlord is always liable
 - c. the landlord may be liable if there are hidden dangers the landlord knows about
 - d. they have no cause of action against the landlord or tenant since they have no direct contractual relationship with either party
5. Legally a tenant may
 - a. commit waste
 - b. make some structural alterations to the property
 - c. abandon the property at any time
 - d. physically change the property to suit it to her best advantage, as long as no structural alterations are made

Answer

1. d
2. a
3. c
4. c
5. d

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CHAPTER OVERVIEW

4: Contracts

Learning Objectives

After reading this chapter, you should understand the following:

- What role contracts play in society today
- What a contract is
- The sources of contract law
- Some basic contract taxonomy
- The required elements of a contract: mutual assent, consideration, legality, and capacity
- The circumstances when a contract needs to be in writing to be enforceable
- The remedies for breach of contract

The two fundamental concepts considered the twin cornerstones of business relationships are contract and tort. Although both involve the concept of duty, creation of the duty differs in a manner that is important to business. The parties create *contract* duties through a bargaining process. The key element in the process is control; individuals are in control of a situation because they have the freedom to decide whether to enter into a contractual relationship. *Tort* duties, in contrast, are obligations the law imposes. Despite the obvious difficulty in controlling tort liability, an understanding of tort theory is important because it is a critical factor in strategic planning and risk management.

[4.1: General Perspectives on Contracts](#)

[4.2: Contract Formation](#)

[4.3: Remedies](#)

[4.4: Cases](#)

[4.5: Summary and Exercises](#)

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4.1: General Perspectives on Contracts

Learning Objectives

By the end of this section, you will be able to:

- Understand the role of contract in society: it moves society from status to contract.
- Know the definition of a contract.
- Recognize the sources of contract law: the common law, the UCC, and the Convention on the International Sale of Goods—a treaty (the CISG).
- Understand some fundamental contract taxonomy and terminology.

The Role of Contract in Society

Contract is probably the most familiar legal concept in our society because it is so central to a deeply held conviction about the essence of our political, economic, and social life. In common parlance, the term is used interchangeably with agreement, bargain, undertaking, or deal; but whatever the word, it embodies our notion of freedom to pursue our own lives together with others. Contract is central because it is the means by which a free society orders what would otherwise be a jostling, frenetic anarchy. So commonplace is the concept of contract—and our freedom to make contracts with each other—that it is difficult to imagine a time when contracts were rare, an age when people's everyday associations with one another were not freely determined. Yet in historical terms, it was not so long ago that contracts were rare, entered into if at all by very few. In “primitive” societies and in the medieval Europe from which our institutions sprang, the relationships among people were largely fixed; traditions spelled out duties that each person owed to family, tribe, or manor. Though he may have oversimplified, Sir Henry Maine, a nineteenth-century historian, sketched the development of society in his classic book *Ancient Law*. As he put it:

(F)rom a condition of society in which all the relations of Persons are summed up in the relations of Family, we seem to have steadily moved towards a phase of social order in which all these relations arise from the free agreement of Individuals. . . . Thus the status of the Slave has disappeared—it has been superseded by the contractual relation of the servant to his master. . . . The status of the Female under Tutelage . . . has also ceased to exist. . . . So too the status of the Son under Power has no true place in the law of modern European societies. If any civil obligation binds together the Parent and the child of full age, it is one to which only contract gives its legal validity.... If then we employ Status, agreeably with the usage of the best writers, to signify these personal conditions [arising from ancient legal privileges of the Family] only, we may say that the movement of the progressive societies has hitherto been a movement *from Status to Contract*. Sir Henry Maine, *Ancient Law* (1869), 180–82.

This movement was not accidental. It went hand-in-glove with the emerging industrial order; from the fifteenth to the nineteenth centuries, as England, especially, evolved into a booming mercantile economy with all that that implies—flourishing trade, growing cities, an expanding monetary system, commercialization of agriculture, mushrooming manufacturing—contract law was created of necessity.

Contract law did not develop, however, according to a conscious, far-seeing plan. It was a response to changing conditions, and the judges who created it frequently resisted, preferring the quieter, imagined pastoral life of their forefathers. Not until the nineteenth century, in both the United States and England, did a full-fledged law of contracts arise together with modern capitalism.

Contract Defined

As usual in the law, the legal definition of “contract” is formalistic. The Restatement says: “A contract is a promise or a set of promises for the breach of which the law gives a remedy, or the performance of which the law in some way recognizes as a duty.” (*Restatement (Second) of Contracts*, Section 1) Similarly, the Uniform Commercial Code says: “‘Contract’ means the total legal obligation which results from the parties’ agreement as affected by this Act and any other applicable rules of law.” (Section 1-201(11)) A short-hand definition is: “A contract is a legally enforceable promise.”

Economic View of Contract Law

In *An Economic Analysis of Law* (1973), Judge Richard A. Posner (a former University of Chicago law professor) suggests that contract law performs three significant economic functions. First, it helps maintain incentives to individuals to exchange goods and

services efficiently. Second, it reduces the costs of economic transactions because its very existence means that the parties need not go to the trouble of negotiating a variety of rules and terms already spelled out. Third, the law of contracts alerts the parties to trouble spots that have arisen in the past, thus making it easier to plan the transactions more intelligently and avoid potential pitfalls.

Sources of Contract Law

There are four basic sources of contract law: the Constitution, federal and state statutes, federal and state case law, and administrative law. For our purposes, the most important of these, and the ones that we will examine at some length, are case law and statutes.

Case (Common) Law and the Restatement of Contracts

Because contract law was forged in the common-law courtroom, hammered out case by case on the anvil of individual judges, it grew in the course of time to formidable proportions. By the early twentieth century, tens of thousands of contract disputes had been submitted to the courts for resolution, and the published opinions, if collected in one place, would have filled dozens of bookshelves. Clearly this mass of case law was too unwieldy for efficient use. A similar problem had developed in the other leading branches of the common law. Disturbed by the profusion of cases and the resulting uncertainty of the law, a group of prominent American judges, lawyers, and teachers founded the American law Institute in 1923 to attempt to clarify, simplify, and improve the law. One of its first projects, and ultimately one of its most successful, was the drafting of the Restatement of the Law of Contracts, completed in 1932. A revision—the *Restatement (Second) of Contracts*—was undertaken in 1946 and finally completed in 1979.

The Restatements (others exist in the fields of torts, agency, conflicts of laws, judgments, property, restitution, security, and trusts) are detailed analyses of the decided cases in the field. These analyses are made with an eye to discerning the various principles that have emerged from the courts, and to the maximum extent possible, the Restatements declare the law as the courts have determined it to be. The Restatements, guided by a Reporter (the director of the project) and a staff of legal scholars, go through several so-called “tentative” drafts—sometimes as many as fifteen or twenty—and are screened by various committees within the American Law Institute before they are eventually published as final documents.

The *Restatement of Contracts* won prompt respect in the courts and has been cited in innumerable cases. The Restatements are not authoritative, in the sense that they are not actual judicial precedents, but they are nevertheless weighty interpretive texts, and judges frequently look to them for guidance. They are as close to “black letter” rules of law as exist anywhere in the American legal system for judge-made (common) law.

Statutory Law: The Uniform Commercial Code

Common law contract principles govern contracts for real estate and for services, obviously very important areas of law. But in one area the common law has been superseded by an important statute: the Uniform Commercial Code (UCC), especially Article 2, which deals with the sale of goods.

A Brief History

The UCC is a model law developed by the American law Institute and the National Conference of Commissioners on Uniform State Laws; it has been adopted in one form or another in all fifty states, the District of Columbia, and the American territories. It is the only “national” law not enacted by Congress.

Before the UCC was written, commercial law varied, sometimes greatly, from state to state. This first proved a nuisance and then a serious impediment to business as the American economy became nationwide during the twentieth century. Although there had been some uniform laws concerned with commercial deals—including the Uniform Sales Act, first published in 1906—few were widely adopted and none nationally. As a result, the law governing sales of goods, negotiable instruments, warehouse receipts, securities, and other matters crucial to doing business in an industrial, market economy was a crazy quilt of untidy provisions that did not mesh well from state to state.

Initial drafting of the UCC began in 1942 and was ten years in the making, involving the efforts of hundreds of practicing lawyers, law teachers, and judges. A final draft, promulgated by the Institute and the Conference, was endorsed by the American Bar Association and published in 1951.

Pennsylvania enacted the code in its entirety in 1953. It was the only state to enact the original version, because the Law Revision Commission of the New York State legislature began to examine it line by line and had serious objections. Three years later, in 1956, a revised code was issued. This version, known as the 1957 Official Text, was enacted in Massachusetts and Kentucky. In 1958, the Conference and the Institute amended the Code further and again reissued it, this time as the 1958 Official Text. Sixteen states, including Pennsylvania, adopted this version.

But in so doing, many of these states changed particular provisions. As a consequence, the Uniform Commercial Code was no longer so uniform. Responding to this development the American Law Institute established a permanent editorial board to oversee future revisions of the code. Various subcommittees went to work redrafting, and a 1962 Official Text was eventually published. Twelve more states adopted the code, eleven of them the 1962 text. By 1966, only three states and two territories had failed to enact any version: Arizona, Idaho, Louisiana, Guam, and Puerto Rico.

Meanwhile, non-uniform provisions continued to be enacted in various states, particularly in Article 9, to which 337 such amendments had been made. In 1971, a redraft of that article was readied and the 1972 Official Text was published. By that time, Louisiana was the only holdout. Two years later, in 1974, Louisiana made the UCC a truly national law when it enacted some but not all of the 1972 text (significantly, Louisiana has not adopted Article 2). One more major change was made, a revision of Article 8, necessitated by the electronics revolution that led to new ways of transferring investment securities from seller to purchaser. This change was incorporated in the 1978 Official Text, the version that remains current.

From this brief history, it is clear that the UCC is now a basic law of relevance to every business and business lawyer in the United States, even though it is not entirely uniform because different states have adopted it at various stages of its evolution—an evolution that continues still.

The Basic Framework of the UCC

The UCC embraces the Jaw of “commercial transactions,” a term of some ambiguity. A commercial transaction may seem to be a series of separate transactions; it may include, for example, the making of a contract for the sale of goods, the signing of a check, the endorsement of the check, the shipment of goods under a bill of Lading, and so on. However, the UCC presupposes that each of these transactions is a facet of one single transaction: the sale of and payment for goods. The Code deals with phases of this transaction from start to finish. These phases are organized according to the following “articles”:

- *Sales* (Article 2)
- *Commercial Paper* (Article 3)
- *Bank Deposits and Collections* (Article 4)
- *Letters of Credit* (Article 5)
- *Bulk Transfers* (Article 6)
- *Warehouse Receipts, Bills of Lading, and Other Documents of Title* (Article 7)
- *Investment Securities* (Article 8)
- *Secured Transactions; Sales of Accounts and Chattel Paper* (Article 9)

We now turn our attention to the sale—the first facet, and the cornerstone, of the commercial transaction. Sales law is a special type of contract law in that Article 2 applies only to the sale of goods, defined (Section 2-105) in part as “all things . . . which are movable at the time of identification to the contract for sale other than the money in which the price is to be paid. . . .” The only contracts and agreements covered by Article 2 are those relating to the present or future sale of goods.

In certain cases, the courts have difficulty in determining the nature of the object of a sales contract. The problem: How can goods and services be separated in contracts calling for the seller to deliver a combination of goods and services? This difficulty frequently arises in product liability cases in which the buyer sues the seller for breach of one of the UCC warranties. For example, you go to the hairdresser for a permanent and the shampoo gives you a severe scalp rash. May you recover damages on the grounds that either the hairdresser or the manufacturer breached an implied warranty in the sale of goods?

When the goods used are incidental to the service, the courts are split on whether the plaintiff should win. Compare *Epstein v. Giannattasio*, 197 A.2d 342 (Conn. 1963), in which the court held that no sale of goods had been made because the plaintiff received a treatment in which the cosmetics were only incidentally used, with *Newmark v. Gimbel's Inc.*, 258 A.2d 697 (N.J. 1969), in which the court said “[i]f the permanent wave lotion were sold . . . for home consumption . . . unquestionably an implied

warranty of fitness for that purpose would have been an integral incident of the sale.” The New Jersey court rejected the defendant’s argument that by actually applying the lotion to the patron’s head the salon lessened the liability it otherwise would have had if it had simply sold her the lotion.

In two areas, state legislatures have taken the goods vs. services issue out of the courts’ hands and resolved the issue through legislation. One area involves restaurant cases, in which typically the plaintiff charges that he became ill because of tainted food. UCC Section 2-314(1) states that any seller who is regularly a merchant of the goods sold impliedly warrants their merchantability in a contract for their sale. This section explicitly declares that serving food or drink is a sale, whether they are to be consumed on or off the premises.

The second type of case involves blood transfusions, which can give a patient hepatitis, a serious and sometimes fatal disease. Hospitals and blood banks obviously face large potential liability under the UCC provision just referred to on implied warranty of merchantability. Because medical techniques cannot detect the hepatitis virus in any form of blood used, hospitals and blood banks would be in constant jeopardy, without being able to take effective action to minimize the danger. Most states have enacted legislation specifically providing that blood supplies to be used in transfusions are a service, not goods, thus relieving the suppliers and hospitals of an onerous burden.

Three Basic Contract Types: Sources of Law

With this brief description of the UCC, it should now be clear that the primary sources of law for the three basic types of contracts are:

- Real estate: common law;
- Services: common law;
- Sale of goods: UCC (as interpreted by the courts).

Common law and UCC rules are often similar. For example, both require good faith in the performance of a contract. However, there are two general differences worth noting between the common law of contracts and the UCC’s rules governing the sales of goods. First, the UCC is more liberal than the common law in upholding the existence of a contract. For example, in a sales contract (covered by the UCC), “open” terms—that is, those the parties have not agreed upon—do not require a court to rule that no contract was made. However, open terms in a *nonsales* contract will frequently result in a ruling that there is no contract. Second, although the common law of contracts applies to every person equally, under the UCC “merchants” occasionally receive special treatment. By “merchants” the UCC means persons who have special knowledge or skill who deal in the goods involved in the transaction.

The Convention on Contracts for the International Sale of Goods

A Convention on Contracts for the International Sale of Goods (CISG) was approved in 1980 at a diplomatic conference in Vienna. (A convention is a preliminary agreement that serves as the basis for a formal treaty.) The Convention has been adopted by several countries, including the United States.

The Convention is significant for three reasons. First, the Convention is a uniform law governing the sale of goods—in effect, an international Uniform Commercial Code. The major goal of the drafters was to produce a uniform law acceptable to countries with different legal, social and economic systems. Second, although provisions in the Convention are generally consistent with the UCC, there are significant differences. For instance, under the Convention, consideration (discussed below) is not required to form a contract and there is no Statute of Frauds (a requirement that some contracts be evidenced by a writing to be enforceable—also discussed below). Finally, the Convention represents the first attempt by the US Senate to reform the private law of business through its treaty powers, for the Convention preempts the UCC if the parties to a contract elect to use the CISG.

Basic Contract Taxonomy

Contracts are not all cut from the same die. Some are written, some oral; some are explicit, some not. Because contracts can be formed, expressed, and enforced in a variety of ways, a taxonomy of contracts has developed that is useful in lumping together like legal consequences. In general, contracts are classified along these dimensions: explicitness, mutuality, enforceability, and degree of completion. **Explicitness** is concerned with the degree to which the agreement is manifest to those not party to it. **Mutuality** takes into account whether promises are exchanged by two parties or only one. **Enforceability** is the degree to which a given

contract is binding. **Completion** considers whether the contract is yet to be performed or the obligations have been fully discharged by one or both parties. We will examine each of these concepts in turn.

Explicitness

Express Contract

An express contract is one in which the terms are spelled out directly; the parties to an express contract, whether written or oral, are conscious that they are making an enforceable agreement. For example, an agreement to purchase your neighbor's car for \$500 and to take title next Monday is an express contract.

Implied Contract

An implied contract is one that is inferred from the actions of the parties. Although no discussion of terms took place, an implied contract exists if it is clear from the conduct of both parties that they intended there be one. A delicatessen patron who asks for a "turkey sandwich to go" has made a contract and is obligated to pay when the sandwich is made. By ordering the food, the patron is implicitly agreeing to the price, whether posted or not.

Contract Implied in Law: Quasi-contract

Both express and implied contracts embody an actual agreement of the parties. A quasi-contract, by contrast, is an obligation said to be "imposed by law" in order to avoid unjust enrichment of one person at the expense of another. In fact, a quasi-contract is not a contract at all; it is a fiction that the courts created to prevent injustice. Suppose, for example, that a carpenter mistakenly believes you have hired him to repair your porch; in fact, it is your neighbor who has hired him. One Saturday morning he arrives at your doorstep and begins to work. Rather than stop him, you let him proceed, pleased at the prospect of having your porch fixed for free (since you have never talked to the carpenter, you figure you need not pay his bill). Although it is true there is no contract, the law implies a contract for the value of the work.

Mutuality

The garden-variety contract is one in which the parties make mutual promises. Each is both promisor and promisee; that is, each pledges to do something and each is the recipient of such a pledge. This type of contract is called a bilateral contract. But mutual promises are not necessary to constitute a contract. Unilateral contracts, in which only one party makes a promise, are equally valid but depend upon performance of the promise to be binding. If Charles says to Fran, "I will pay you five dollars if you wash my car," Charles is contractually bound to pay once Fran washes the car. Fran never makes a promise, but by actually performing she makes Charles liable to pay. A common example of a unilateral contract is the offer "\$50 for the return of my lost dog." Frances never makes a promise to the offeror, but if she looks for the dog and finds it, she is entitled to the \$50.

Enforceability

Not every agreement between two people is a binding contract. An agreement that is lacking one of the legal elements of a contract is said to be void—that is, not a contract at all. An agreement that is illegal—for example, a promise to commit a crime in return for a money payment—is void. Neither party to a void "contract" may enforce it.

By contrast, a voidable contract is one that is unenforceable by one party but enforceable by the other. For example, a minor (any person under eighteen, in most states) may "avoid" a contract with an adult; the adult may not enforce the contract against the minor, if the minor refuses to carry out the bargain. But the adult has no choice if the minor wishes the contract to be performed. (A contract may be voidable by both parties if both are minors.) Ordinarily, the parties to a voidable contract are entitled to be restored to their original condition. Suppose you agree to buy your seventeen-year-old neighbor's car. He delivers it to you in exchange for your agreement to pay him next week. He has the legal right to terminate the deal and recover the car, in which case you will of course have no obligation to pay him. If you have already paid him, he still may legally demand a return to the *status quo ante* (previous state of affairs). You must return the car to him; he must return the cash to you.

A voidable contract remains a valid contract until it is voided. Thus, a contract with a minor remains in force unless the minor decides he does not wish to be bound by it. When the minor reaches his majority, he may "ratify" the contract—that is, agree to be bound by it—in which case the contract will no longer be voidable and will thereafter be fully enforceable.

An unenforceable contract is one that some rule of law bars a court from enforcing. For example, Tom owes Pete money, but Pete has waited too long to collect it and the statute of limitations has run out. The contract for repayment is unenforceable and Pete is out of luck, unless Tom makes a new promise to pay or actually pays part of the debt. (However, if Pete is holding collateral as security for the debt, he is entitled to keep it; not all rights are extinguished because a contract is unenforceable.)

Degree of Completion

In medieval England, contract—defined as set of promises—was not an intuitive concept. The courts gave relief to one who wanted to collect a debt, for in such a case the creditor presumably had already given the debtor something of value, and the failure of the debtor to pay up was seen as manifestly unjust. But the issue was less clear when neither promise had yet been fulfilled. Suppose John agrees to sell Humphrey a quantity of wheat in one month. On the appointed day, Humphrey refuses to take the wheat or to pay. The modern law of contracts holds that a valid contract exists and that Humphrey is required to pay John.

An agreement consisting of a set of promises is called an executory contract before either promise is carried out. Most executory contracts are enforceable. If one promise or set of terms has been fulfilled—if, for example, John had delivered the wheat to Humphrey—the contract is called partially executed. A contract that has been carried out fully by both parties is called an executed contract.

Key Takeaways

Contract is the mechanism by which people in modern society make choices for themselves, as opposed to being born or placed into a status as is common in feudal societies. A contract is a legally enforceable promise. The law of contract is the common law (for contracts involving real estate and services), statutory law (the Uniform Commercial Code for contract involving the sale or leasing of goods), and treaty law (the Convention on the International Sale of Goods). Contracts may be described based on the degree of their explicitness, mutuality, enforceability, and degree of completion.

Exercises

1. What did Sir Henry Maine mean when he wrote of society's movement "from status to contract?"
2. Are all promises "contracts"?
3. What is the source of law for contracts involving real estate? For contracts involving the sale of goods?
4. In contract taxonomy, what are the degrees of explicitness, mutuality, enforceability, and of completion?

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4.2: Contract Formation

Learning Objectives

By the end of this section, you will be able to:

- Understand the elements of common-law contracts: mutuality of agreement (offer and acceptance), consideration, legality, and capacity.
- Learn when a contract must be in writing—or evidenced by some writing—to be enforceable.

Although it has countless wrinkles and nuances, contract law asks two principal questions: did the parties create a valid, enforceable contract? What remedies are available when one party breaks the contract? The answer to the first question is not always obvious; the range of factors that must be taken into account can be large and their relationship subtle. Since people in business frequently conduct contract negotiations without the assistance of a lawyer, it is important to attend to the nuances to avoid legal trouble at the outset. Whether a valid enforceable contract has been formed depends in turn on whether:

1. The parties reached an agreement (offer and acceptance);
2. Consideration was present (some “price was paid for what was received in return);
3. The agreement was legal;
4. The parties entered into the contract with capacity to make a contract; and
5. The agreement is in the proper form (something in writing, if required).

The Agreement: Offer and Acceptance

The core of a legal contract is the agreement between the parties. That is not merely a matter of convenience; it is at the heart of our received philosophical and psychological beliefs. As the great student of contract law, Samuel Williston, put it:

It was a consequence of the emphasis laid on the ego and the individual will that the formation of a contract should seem impossible unless the wills of the parties concurred. Accordingly we find at the end of the eighteenth century, and the beginning of the nineteenth century, the prevalent idea that there must be a “meeting of the minds” (a new phrase) in order to form a contract. (1921, p. 365)

Although agreements may take any form, including unspoken conduct between the parties (UCC Section 2-204(1)), they are usually structured in terms of an *offer* and an *acceptance*. Note, however, that not every agreement, in the broadest sense of the word, need consist of an offer and acceptance, and it is entirely possible, therefore, for two persons to reach agreement without forming a contract. For example, people may agree that the weather is pleasant or that it would be preferable to go out for Chinese food rather than seeing a foreign film; in neither case has a contract been formed. One of the major functions of the law of contracts is to sort out those agreements that are legally binding—those that are contracts—from those that are not.

In interpreting agreements, courts generally apply an objective standard. The *Restatement (Second) of Contracts* defines agreement as a “*manifestation of mutual assent by two or more persons to one another.*” (Section 3) The UCC defines agreement as “the bargain of the parties in fact as found in their language or by implication from other circumstances including course of dealing or usage of trade or course of performance.” (Section 1-201(3)) The critical question is what the parties said or did, not what they thought they said or did.

The distinction between objective and subjective standards crops up occasionally when one person claims he spoke in jest. The vice president of a manufacturer of punchboards, used in gambling, testified to the Washington State Game Commission that he would pay \$100,000 to anyone who found a “crooked board.” Barnes, a bartender, who had purchased two that were crooked some time before, brought one to the company office, and demanded payment. The company refused, claiming that the statement was made in jest (the audience before the commission had laughed when the offer was made). The court disagreed, holding that it was reasonable to interpret the pledge of \$100,000 as a means of promoting punchboards:

(I)f the jest is not apparent and a reasonable hearer would believe that an offer was being made, then the speaker risks the formation of a contract which was not intended. It is the objective manifestations of the offeror that count and not secret, unexpressed intentions. If a party’s words or acts, judged by a reasonable standard, manifest an intention to agree in regard to the matter in

question, that agreement is established, and it is immaterial what may be the real but unexpressed state of the party's mind on the subject. *Barnes v. Treece*, 549 P.2d 1152 (Wash. App. 1976).

An offer is a manifestation of willingness to enter into a bargain such that it would be reasonable for another individual to conclude that assent to the offer would complete the bargain. Offers must be communicated and must be definite; that is, they must spell out terms to which the offeree can assent.

To constitute an agreement, there must be an acceptance of the offer. The offeree must manifest his assent to the terms of the offer in a manner invited or required by the offer. Complications arise when an offer is accepted indirectly through correspondence. Although offers and revocations of offers are not effective until received, an acceptance is deemed accepted when sent if the offeree accepts in the manner specified by the offeror.

If the offeror specifies no particular mode, then acceptance is effective when transmitted as long as the offeree uses a reasonable method of acceptance. It is implied that the offeree can use the same means used by the offeror or a means of communication customary to the industry. For example, the use of the postal service was so customary that acceptances are considered effective when mailed, regardless of the method used to transmit the offer. Indeed, the so-called "mailbox rule" (the acceptance is effective upon dispatch) has an ancient lineage, tracing back nearly two hundred years to the English courts. *Adams v. Lindsell*, 1 Barmwall & Alderson 681 (K.B. 1818).

Consideration

Consideration, is the quid pro quo (something given or received for something else) between the contracting parties in the absence of which the law will not enforce the promise or promises made. Consider the following three "contracts":

1. Betty offers to give a book to Lou. Lou accepts.
2. Betty offers Lou the book in exchange for Lou's promise to pay \$15. Lou accepts.
3. Betty offers to give Lou the book if Lou promises to pick it up at Betty's house. Lou accepts.

The question is which, if any, is a binding contract? In American law, only situation 2 is a binding contract, because only that contract contains a set of mutual promises in which each party pledges to give up something to the benefit of the other.

The question of what constitutes a binding contract has been answered differently throughout history and in other cultures. For example, under Roman law, any contract that was reduced to writing was binding, whether or not there was consideration in our sense. Moreover, in later Roman times, certain promises of gifts were made binding, whether written or oral; these would not be binding in the United States. And in the Anglo-American tradition, the presence of a seal was once sufficient to make a contract binding without any other consideration. In most states, the seal is no longer a substitute for consideration, although in some states it creates a presumption of consideration. The Uniform Commercial Code has abolished the seal on contracts for the sale of goods.

The existence of consideration is determined by examining whether the person against whom a promise is to be enforced (the promisor) received something in return from the person to whom he made the promise (the promisee). That may seem a simple enough question. But as with much in the law, the complicating situations are never very far away. The "something" that is promised or delivered cannot just be anything: a feeling of pride, warmth, amusement, friendship; it must be something known as a legal detriment—an act, a forbearance, or a promise of such from the promisee. The detriment need not be an actual detriment; it may in fact be a benefit to the promisee, or at least not a loss. At the same time, the "detriment" to the promisee need not confer a tangible benefit on the promisor; the promisee can agree to forego something without that something being given to the promisor. Whether consideration is legally sufficient has nothing to do with whether it is morally or economically adequate to make the bargain a fair one. Moreover, legal consideration need not even be certain; it can be a promise contingent on an event that may never happen. Consideration is a *legal* concept, and it centers on the giving up of a *legal* right or benefit.

Consideration has two elements. The first, as just outlined, is whether the promisee has incurred a legal detriment. (Some courts—although a minority—take the view that a bargained-for legal benefit to the promisor is sufficient consideration.) The second is whether the legal detriment was *bargained for*: did the promisor specifically intend the act, forbearance, or promise in return for his promise? Applying this two-pronged test to the three examples given at the outset of the chapter, we can easily see why only in the second is there legally sufficient consideration. In the first, Lou incurred no legal detriment; he made no pledge to act or to forbear from acting, nor did he in fact act or forbear from acting. In the third example, what might appear to be such a promise is not really

so. Betty made a promise on a condition that Lou come to her house; the intent clearly is to make a gift. Betty was not seeking to induce Lou to come to her house by promising the book.

There is a widely recognized exception to the requirement of consideration. In cases of promissory estoppel, the courts will enforce promises without consideration. Simply stated, promissory estoppel means that the courts will stop the promisor from claiming that there was no consideration. The doctrine of promissory estoppel is invoked in the interests of justice when three conditions are met: (1) the promise is one that the promisor should reasonably expect to induce the promisee to take action or forbear from taking action of a definite and substantial character; (2) the action or forbearance is taken; and (3) injustice can be avoided only by enforcing the promise.

Timko served on the board of trustees of a school. He recommended that the school purchase a building for a substantial sum of money, and to induce the trustees to vote for the purchase, he promised to help with the purchase and to pay at the end of five years the purchase price less the down payment. At the end of four years, Timko died. The school sued his estate, which defended on the ground that there was no consideration for the promise. Timko was promised or given nothing in return, and the purchase of the building was of no direct benefit to him (which would have made the promise enforceable as a unilateral contract). The court ruled that under the three-pronged promissory estoppel test, Timko's estate was liable. *Estate of Timko v. Oral Roberts Evangelistic Assn.*, 215 N.W.2d 750 (Mich. App. 1974).

Illegality

In general, illegal contracts are unenforceable. The courts must grapple with two types of illegalities: (1) statutory violations (e.g., the practice of law by a non-lawyer is forbidden by statute), and (2) violations of public policy not expressly declared unlawful by statute, but so declared by the courts.

Capacity

A contract is a meeting of minds. If someone lacks mental capacity to understand what he is assenting to—or that he is assenting to anything—it is unreasonable to hold him to the consequences of his act.

The general rule is that persons younger than eighteen can avoid their contracts. Although the age of majority was lowered in most states during the 1970s to correspond to the Twenty-sixth Amendment (ratified in 1971, guaranteeing the right to vote at eighteen), some states still put the age of majority at twenty-one. Legal rights for those under twenty-one remain ambiguous, however. Although eighteen-year-olds may assent to binding contracts, not all creditors and landlords believe it, and they may require parents to cosign. For those under twenty-one, there are also legal impediments to holding certain kinds of jobs, signing certain kinds of contracts, marrying, leaving home, and drinking alcohol. There is as yet no uniform set of rules.

The exact day on which the disability of minority vanishes also varies. The old common law rule put it on the day before the twenty-first birthday. Many states have changed this rule so that majority commences on the day of the eighteenth (or twenty-first) birthday.

A minor's contract is voidable, not void. A child wishing to avoid the contract need do nothing positive to disaffirm; the defense of minority to a lawsuit is sufficient. Although the adult cannot enforce the contract, the child can (which is why it is said to be voidable, not void).

When the minor becomes an adult, he has two choices: he may ratify the contract or disaffirm it. She may ratify explicitly; no further consideration is necessary. She may also do so by implication—for instance, by continuing to make payments or retaining goods for an unreasonable period of time. (In some states, a court may ratify the contract before the child becomes an adult. In California, for example, a state statute permits a movie producer to seek court approval of a contract with a child actor in order to prevent the child from disaffirming it upon reaching majority and suing for additional wages. As *quid pro quo*, the court can order the producer to pay a percentage of the wages into a trust fund that the child's parents or guardians cannot invade.) If the child has not disaffirmed the contract while still a minor, she may do so within a reasonable time after reaching majority.

In most cases of disavowal, the only obligation is to return the goods (if he still has them) or repay the consideration (unless it has been dissipated). However, in two situations, a minor might incur greater liability: contracts for necessities and misrepresentation of age.

Contract for Necessities

At common law, a “necessity” was defined as an essential need of a human being: food, medicine, clothing, and shelter. In recent years, however, the courts have expanded the concept, so that in many states today necessities include property and services that will enable the minor to earn a living and to provide for those dependent on him. If the contract is executory, the minor can simply disaffirm. If the contract has been executed, however, the minor must face more onerous consequences. Although he will not be required to perform under the contract, he will be liable under a theory of “quasi-contract” for the reasonable value of the necessity.

Misrepresentation of Age

In most states, a minor may misrepresent his age and disaffirm in accordance with the general rule, because that’s what kids do, misrepresent their age. That the adult reasonably believed the minor was also an adult is of no consequence in a contract suit. But some states have enacted statutes that make the minor liable in certain situations. A Michigan statute, for instance, prohibits a minor from disaffirming if he has signed a “separate instrument containing only the statement of age, date of signing and the signature.” And some states “estop” him from claiming to be a minor if he falsely represented himself as an adult in making the contract. “Estoppel” is a refusal by the courts on equitable grounds to listen to an otherwise valid defense; unless the minor can return the consideration, the contract will be enforced.

Contracts made by an *insane* or *intoxicated* person are also said to have been made by a person lacking capacity. In general, such contracts are voidable by the person when capacity is regained (or by the person’s legal representative if capacity is not regained).

Form

As a general rule, a contract need not be in writing to be enforceable. An oral agreement to pay a high-fashion model \$1 million to pose for a photograph is as binding as if the language of the deal were printed on vellum and signed in the presence of twenty bishops. For centuries, however, a large exception has grown up around the Statute of Frauds, first enacted in England in 1677 under the formal name “An Act for the Prevention of Frauds and Perjuries.” The purpose of the Statute of Frauds is to prevent the fraud that occurs when one party attempts to impose upon another a contract that did not in fact exist. The two sections dealing with contracts read as follows:

[Sect. 4] ...no action shall be brought whereby to charge any executor or administrator upon any special promise, to answer damages out of his own estate; (2) or whereby to charge the defendant upon any special promise to answer for the debt, default or miscarriages of another person; (3) or to charge any person upon any agreement made upon consideration of marriage; (4) or upon any contract or sale of lands, tenements or hereditaments, or any interest in or concerning them; (5) or upon any agreement that is not to be performed within the space of one year from the making thereof; (6) unless the agreement upon which such action shall be brought, or some memorandum or note thereof, shall be in writing, and signed by the party to be charged therewith, or some other person thereunto by him lawfully authorized.

[Sect. 17] ...no contract for the sale of any goods, wares and merchandizes, for the price of ten pounds sterling or upwards, shall be allowed to be good, except the buyer shall accept part of the goods so sold, and actually receive the same, or give something in earnest to bind the bargain, or in part of payment, or that some note or memorandum in writing of the said bargain be made and signed by the parties to be charged by such contract, or their agents thereunto lawfully authorized.

Again, as may be evident from the title of the act and its language, the general purpose of the law is to provide evidence, in areas of some complexity and importance, that a contract was actually made. To a lesser degree, the law serves to caution those about to enter a contract and “to create a climate in which parties often regard their agreements as tentative until there is a signed writing.” (*Restatement (Second) of Contracts* Chapter 5, statutory note)

The Statute of Frauds has been enacted in form similar to the seventeenth century act in most states. However, in the twentieth century Section 7 was been replaced by a section Uniform Commercial Code. The UCC requires contracts for the sale of goods for \$500 or more and for the sale of securities to be in writing.

Key Takeaways

A contract requires mutuality—an offer and an acceptance of the offer; it requires consideration—a “price” paid for what is obtained; it requires that the parties to the contract have legal capacity to know what they are doing; it requires legality. Certain

contracts—governed by the statute of frauds—are required to be evidenced by some writing, signed by the party to be bound. The purpose here is to avoid the fraud that occurs when one person attempts to impose upon another a contract that did not really exist.

Exercises

1. What are the required elements of a contract?
2. When was the Statute of Frauds first enacted, by whom, and why?
3. Basically, what does the Statute of Frauds require?

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4.3: Remedies

Learning Objectives

By the end of this section, you will be able to:

- Know the types of damages: compensatory and punitive.
- Understand specific performance as a remedy.
- Understand restitution as a remedy.
- Recognize the interplay between contract and tort as a cause of action.

Monetary awards (called “damages”), specific performance, and restitution are the three principle remedies.

In view of the importance given to the intention of the parties in forming and interpreting contracts, it may seem surprising that the remedy for every breach is not a judicial order that the obligor carry out his undertakings. But it is not. Of course, some duties cannot be performed after a breach: time and circumstances will have altered their purpose and rendered many worthless. Still, although there are numerous occasions on which it would be theoretically possible for courts to order the parties to carry out their contracts, the courts will not do it. In 1897, Justice Oliver Wendell Holmes, Jr., declared in a famous line that “the duty to keep a contract at common law means a prediction that you must pay damages if you do not keep it.” By that he meant simply that the common law looks more toward compensating the promisee for his loss than toward compelling the promisor to perform—a person always has the power, though not the right, to breach a contract. Indeed, the law of remedies often provides the parties with an incentive to break the contract. In short, the promisor has a choice: to perform or pay. The purpose of contract remedies is, for the most part, to compensate the non-breaching party for the losses suffered—to put the non-breaching party in the position he, she, or it would have been in had there been no breach.

Compensatory Damages

One party has the right to damages (money) when the other party has breached the contract unless, of course, the contract itself or other circumstances suspend or discharge that right. Compensatory damages is the general category of damages awarded to make the non-breaching party whole.

Consequential Damages

A basic principle of contract law is that a person injured by breach of contract is not entitled to compensation unless the breaching party, at the time the contract was made, had reason to foresee the loss as a probable result of the breach. The leading case, perhaps the most studied case in all the common law, is *Hadley v. Baxendale*, decided in England in 1854. Joseph and Jonah Hadley were proprietors of a flour mill in Gloucester. In May 1853, the shaft of the milling engine broke, stopping all milling. An employee went to Pickford and Company, a common carrier, and asked that the shaft be sent as quickly as possible to a Greenwich foundry that would use the shaft as a model to construct a new one. The carrier’s agent promised delivery within two days. But through an error the shaft was shipped by canal rather than by rail and did not arrive in Greenwich for seven days. The Hadleys sued Joseph Baxendale, managing director of Pickford, for the profits they lost because of the delay. In ordering a new trial, the Court of Exchequer ruled that Baxendale was not liable because he had had no notice that the mill was stopped:

Where two parties have made a contract which one of them has broken, the damages which the other party ought to receive in respect of such breach of contract should be such as may fairly and reasonably be considered either arising naturally, i.e., according to the usual course of things, from such breach of contract itself, or such as may reasonably be supposed to have been in the contemplation of both parties, at the time they made the contract, as the probable result of the breach of it. *Hadley v. Baxendale* (1854), 9 Ex. 341, 354, 156 Eng.Rep. 145, 151.

This rule, it has been argued, was a subtle change from the earlier rule that permitted damages for any consequences as long as the breach caused the injury and the plaintiff did not exacerbate it. But the change was evidently rationalized, at least in part, by the observation that in the “usual course of things,” a mill would have on hand a spare shaft, so that its operations would not cease. R. J. Danzig, “Hadley v. Baxendale: A Study in the Industrialization of the Law,” *Journal of Legal Studies* 4, no. 249 (1975): 249.

This sub-set of compensatory damages is called consequential damages—damages that flow as a foreseeable consequence of the breach. For example, if you hire a roofer to fix a leak in your roof, and he does a bad job so that the interior of your house suffers water damage, the roofer is liable not only for the poor roofing job, but also for the ruined drapes, damaged flooring and walls, and so on.

Nominal Damages

If the breach caused no loss, the plaintiff is nevertheless entitled to a minor sum, perhaps one dollar, called nominal damages. When, for example, a buyer could purchase the same commodity at the same price as that contracted for, without spending any extra time or money, there can be no real damages in the event of breach.

Incidental Damages

Suppose City College hires Prof. Blake on a two-year contract, after an extensive search. After one year the professor quits to take a job elsewhere, in breach of her contract. If City College has to pay \$5000 more to find a replacement for year, Blake is liable for that amount—that's compensatory damages. But what if it costs City College \$1200 to search for, bring to campus and interview a replacement? City College can claim that, too, as incidental damages which include additional costs incurred by the non-breaching party after the breach in a reasonable attempt to avoid further loss, even if the attempt is unsuccessful.

Punitive Damages

Punitive damages are those awarded for the purpose of punishing a defendant in a civil action, in which criminal sanctions may be unavailable. They are not part of the compensation for the loss suffered; they are proper in cases in which the defendant has acted willfully and maliciously and are thought to deter others from acting similarly. Since the purpose of contract law is compensation, not punishment, punitive damages have not traditionally been awarded, with one exception: when the breach of contract is also a tort for which punitive damages may be recovered. Punitive damages are permitted in the law of torts (in most states) when the behavior is malicious or willful (reckless conduct causing physical harm, deliberate defamation of one's character, a knowingly unlawful taking of someone's property), and some kinds of contract breach are also tortious—for example, when a creditor holding collateral as security under a contract for a loan sells the collateral to a good-faith purchaser for value even though the debtor was not in default, he has breached the contract and committed the tort of conversion. Punitive damages may be awarded, assuming the behavior was willful and not merely mistaken.

Punitive damages are not fixed by law. The judge or jury may award at its discretion whatever sum is believed necessary to redress the wrong or deter like conduct in the future. This means that a richer person may be slapped with much heavier punitive damages than a poorer one in the appropriate case. But the judge in all cases may remit (lower) some or all of a punitive damage award if he or she considers it excessive.

Punitive damage claims have been made in cases dealing with the refusal by insurance companies to honor their contracts. Many of these cases involve disability payments, and among the elements are charges of tortious conduct by the company's agents or employees. California has been the leader among the state courts in their growing willingness to uphold punitive damage awards despite insurer complaints that the concept of punitive damages is but a device to permit plaintiffs to extort settlements from hapless companies. Courts have also awarded punitive damages against other types of companies for breach of contract.

Specific Performance

Specific performance is a judicial order to the promisor that he undertake the performance to which he obligated himself in a contract. Specific performance is an alternative remedy to damages and may be issued at the discretion of the court, subject to a number of exceptions. (When the promisee is seeking enforcement of a contractual provision for forbearance—a promise that the promisor will refrain from doing something—an injunction, a judicial order not to act in a specified manner, may be the appropriate remedy.) Emily signs a contract to sell Charlotte a gold samovar, a Russian antique of great sentimental value because it once belonged to Charlotte's mother. Emily then repudiates the contract while still executory. A court may properly grant Charlotte an order of specific performance against Emily. Specific performance is an attractive but *limited* remedy: it is only available for breach of contract to sell a unique item (real estate is always unique).

Restitution

As the word implies, restitution is a restoring to one party of what he gave to the other. Therefore, only to the extent that the injured party conferred a benefit on the other party may the injured party be awarded restitution.

If the claimant has given the other party a sum of money, there can be no dispute over the amount of the restitution interest. Tom gives Tim \$100 to chop his tree into firewood. Tim repudiates. Tom's restitution interest is \$100. But serious difficulties can arise when the benefit conferred was performance. The courts have considerable discretion to award either the cost of hiring someone else to do the work that the injured party performed (generally, the market price of the service) or the value that was added to the property of the party in breach by virtue of the claimant's performance. Mellors, a gardener, agrees to construct ten fences around Lady Chatterley's flower gardens at the market price of \$2,500. After erecting three, Mellors has performed services that would cost \$750, market value. Assume that he has increased the value of the Lady's grounds by \$800. If the contract is repudiated, there are two measures of Mellors's restitution interest: \$800, the value by which the property was enhanced; or \$750, the amount it would have cost Lady Chatterley to hire someone else to do the work. Which measure to use depends on who repudiated the contract and for what reason.

Tort vs. Contract Remedies

Frequently a contract breach may also amount to tortious conduct. A physician warrants her treatment as perfectly safe but performs the operation negligently, scarring the patient for life. The patient could sue for malpractice (tort) or for breach of warranty (contract). The choice involves at least four considerations:

1. *Statute of limitations.* Most statutes of limitations prescribe longer periods for contract than for tort actions.
2. *Allowable damages.* Punitive damages are more often permitted in tort actions, and certain kinds of injuries are compensable in tort but not in contract suits—for example, pain and suffering.
3. *Expert testimony.* In most cases, the use of experts would be the same in either tort or contract suits, but in certain contract cases, the expert witness could be dispensed with, as, for example, in a contract case charging that the physician abandoned the patient.
4. *Insurance coverage.* Most policies do not cover intentional torts, so a contract theory that avoids the element of willfulness would provide the plaintiff with a surer chance of recovering money damages.

Key Takeaways

The purpose of remedies in contract is, usually, to put the non-breaching party in the position he or she would have been in had there been no breach. The remedies are: compensatory damages (money paid to compensate the non-breaching party for the losses caused by the breach), which also include sub-categories of incidental and nominal damages; punitive damages (to punish the breaching party) are sometimes allowed where the breach is egregious and intentional.

Exercises

1. What are compensatory damages?
2. When is specific performance an appropriate remedy? Will it be used to require a person to perform a service (such as properly repair a leaky roof)?
3. When is restitution used?
4. How could a breach of contract also be a tort, and when is one cause of action chosen over the other?
5. What is the purpose of punitive damages?

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4.4: Cases

Objective Intention

Lucy v. Zehmer

84 S.E.2d 516 (Va. 1954)

Buchanan, J.

This suit was instituted by W. O. Lucy and J. C. Lucy, complainants, against A. H. Zehmer and Ida S. Zehmer, his wife, defendants, to have specific performance of a contract by which it was alleged the Zehmers had sold to W. O. Lucy a tract of land owned by A. H. Zehmer in Dinwiddie county containing 471.6 acres, more or less, known as the Ferguson farm, for \$50,000. J. C. Lucy, the other complainant, is a brother of W. O. Lucy, to whom W. O. Lucy transferred a half interest in his alleged purchase.

The instrument sought to be enforced was written by A. H. Zehmer on December 20, 1952, in these words: "We hereby agree to sell to W. O. Lucy the Ferguson farm complete for \$50,000.00, title satisfactory to buyer," and signed by the defendants, A. H. Zehmer and Ida S. Zehmer.

The answer of A. H. Zehmer admitted that at the time mentioned W. O. Lucy offered him \$50,000 cash for the farm, but that he, Zehmer, considered that the offer was made in jest; that so thinking, and both he and Lucy having had several drinks, he wrote out "the memorandum" quoted above and induced his wife to sign it; that he did not deliver the memorandum to Lucy, but that Lucy picked it up, read it, put it in his pocket, attempted to offer Zehmer \$5 to bind the bargain, which Zehmer refused to accept, and realizing for the first time that Lucy was serious, Zehmer assured him that he had no intention of selling the farm and that the whole matter was a joke. Lucy left the premises insisting that he had purchased the farm....

In his testimony Zehmer claimed that he "was high as a Georgia pine," and that the transaction "was just a bunch of two doggoned drunks bluffing to see who could talk the biggest and say the most." That claim is inconsistent with his attempt to testify in great detail as to what was said and what was done....

If it be assumed, contrary to what we think the evidence shows, that Zehmer was jesting about selling his farm to Lucy and that the transaction was intended by him to be a joke, nevertheless the evidence shows that Lucy did not so understand it but considered it to be a serious business transaction and the contract to be binding on the Zehmers as well as on himself. The very next day he arranged with his brother to put up half the money and take a half interest in the land. The day after that he employed an attorney to examine the title. The next night, Tuesday, he was back at Zehmer's place and there Zehmer told him for the first time, Lucy said, that he wasn't going to sell and he told Zehmer, "You know you sold that place fair and square." After receiving the report from his attorney that the title was good he wrote to Zehmer that he was ready to close the deal.

Not only did Lucy actually believe, but the evidence shows he was warranted in believing, that the contract represented a serious business transaction and a good faith sale and purchase of the farm.

In the field of contracts, as generally elsewhere, "We must look to the outward expression of a person as manifesting his intention rather than to his secret and unexpressed intention. The law imputes to a person an intention corresponding to the reasonable meaning of his words and acts."

At no time prior to the execution of the contract had Zehmer indicated to Lucy by word or act that he was not in earnest about selling the farm. They had argued about it and discussed its terms, as Zehmer admitted, for a long time. Lucy testified that if there was any jesting it was about paying \$50,000 that night. The contract and the evidence show that he was not expected to pay the money that night. Zehmer said that after the writing was signed he laid it down on the counter in front of Lucy. Lucy said Zehmer handed it to him. In any event there had been what appeared to be a good faith offer and a good faith acceptance, followed by the execution and apparent delivery of a written contract. Both said that Lucy put the writing in his pocket and then offered Zehmer \$5 to seal the bargain. Not until then, even under the defendants' evidence, was anything said or done to indicate that the matter was a joke. Both of the Zehmers testified that when Zehmer asked his wife to sign he whispered that it was a joke so Lucy wouldn't hear and that it was not intended that he should hear.

The mental assent of the parties is not requisite for the formation of a contract. If the words or other acts of one of the parties have but one reasonable meaning, his undisclosed intention is immaterial except when an unreasonable meaning which he attaches to his

manifestations is known to the other party.

“* * * The law, therefore, judges of an agreement between two persons exclusively from those expressions of their intentions which are communicated between them. * * *.” [Citation]

An agreement or mutual assent is of course essential to a valid contract but the law imputes to a person an intention corresponding to the reasonable meaning of his words and acts. If his words and acts, judged by a reasonable standard, manifest an intention to agree, it is immaterial what may be the real but unexpressed state of his mind.

So a person cannot set up that he was merely jesting when his conduct and words would warrant a reasonable person in believing that he intended a real agreement.

Whether the writing signed by the defendants and now sought to be enforced by the complainants was the result of a serious offer by Lucy and a serious acceptance by the defendants, or was a serious offer by Lucy and an acceptance in secret jest by the defendants, in either event it constituted a binding contract of sale between the parties....

Reversed and remanded.

? Case Questions

1. What objective evidence was there to support the defendants' contention that they were just kidding when they agreed to sell the farm?
2. Suppose the defendants really did think the whole thing was a kind of joke. Would that make any difference?
3. As a matter of public policy, why does the law use an objective standard to determine the seriousness of intention, instead of a subjective standard?
4. It's 85 degrees in July and 5:00 p.m., quitting time. The battery in Mary's car is out of juice, again. Mary says, "Arrgh! I will sell this stupid car for \$50!" Jason, walking to his car nearby, whips out his checkbook and says, "It's a deal. Leave your car here. I'll give you a ride home and pick up your car after you give me the title." Do the parties have a contract?

Consideration: Preexisting Obligation

Denney v. Reppert

432 S.W.2d 647 (Ky. 1968)

R. L. Myre, Sr., Special Commissioner.

The sole question presented in this case is which of several claimants is entitled to an award for information leading to the apprehension and conviction of certain bank robbers....

On June 12th or 13th, 1963, three armed men entered the First State Bank, Eubank, Kentucky, and with a display of arms and threats robbed the bank of over \$30,000 [about \$208,000 in 2010 dollars]. Later in the day they were apprehended by State Policemen Garret Godby, Johnny Simms and Tilford Reppert, placed under arrest, and the entire loot was recovered. Later all of the prisoners were convicted and Garret Godby, Johnny Simms and Tilford Reppert appeared as witnesses at the trial.

The First State Bank of Eubank was a member of the Kentucky Bankers Association which provided and advertised a reward of \$500.00 for the arrest and conviction of each bank robber. Hence the outstanding reward for the three bank robbers was \$1,500.00 [about \$11,000 in 2010 dollars]. Many became claimants for the reward and the Kentucky State Bankers Association being unable to determine the merits of the claims for the reward asked the circuit court to determine the merits of the various claims and to adjudge who was entitled to receive the reward or share in it. All of the claimants were made defendants in the action.

At the time of the robbery the claimants Murrell Denney, Joyce Buis, Rebecca McCollum and Jewell Snyder were employees of the First State Bank of Eubank and came out of the grueling situation with great credit and glory. Each one of them deserves approbation and an accolade. They were vigilant in disclosing to the public and the peace officers the details of the crime, and in describing the culprits, and giving all the information that they possessed that would be useful in capturing the robbers. Undoubtedly, they performed a great service. It is in the evidence that the claimant Murrell Denney was conspicuous and energetic in his efforts to make known the robbery, to acquaint the officers as to the personal appearance of the criminals, and to give other pertinent facts.

The first question for determination is whether the employees of the robbed bank are eligible to receive or share in the reward. The great weight of authority answers in the negative. [Citation] states the rule thusly:

‘To the general rule that, when a reward is offered to the general public for the performance of some specified act, such reward may be claimed by any person who performs such act, is the exception of agents, employees and public officials who are acting within the scope of their employment or official duties. * * *.’...

At the time of the robbery the claimants Murrell Denney, Joyce Buis, Rebecca McCollum, and Jewell Snyder were employees of the First State Bank of Eubank. They were under duty to protect and conserve the resources and moneys of the bank, and safeguard every interest of the institution furnishing them employment. Each of these employees exhibited great courage, and cool bravery, in a time of stress and danger. The community and the county have recompensed them in commendation, admiration and high praise, and the world looks on them as heroes. But in making known the robbery and assisting in acquainting the public and the officers with details of the crime and with identification of the robbers, they performed a duty to the bank and the public, for which they cannot claim a reward.

The claims of Corbin Reynolds, Julia Reynolds, Alvie Reynolds and Gene Reynolds also must fail. According to their statements they gave valuable information to the arresting officers. However, they did not follow the procedure as set forth in the offer of reward in that they never filed a claim with the Kentucky Bankers Association. It is well established that a claimant of a reward must comply with the terms and conditions of the offer of reward. [Citation]

State Policemen Garret Godby, Johnny Simms and Tilford Reppert made the arrest of the bank robbers and captured the stolen money. All participated in the prosecution. At the time of the arrest, it was the duty of the state policemen to apprehend the criminals. Under the law they cannot claim or share in the reward and they are interposing no claim to it.

This leaves the defendant, Tilford Reppert the sole eligible claimant. The record shows that at the time of the arrest he was a deputy sheriff in Rockcastle County, but the arrest and recovery of the stolen money took place in Pulaski County. He was out of his jurisdiction, and was thus under no legal duty to make the arrest, and is thus eligible to claim and receive the reward. In [Citation] it was said:

‘It is * * * well established that a public officer with the authority of the law to make an arrest may accept an offer of reward or compensation for acts or services performed outside of his bailiwick or not within the scope of his official duties. * * *.’...

It is manifest from the record that Tilford Reppert is the only claimant qualified and eligible to receive the reward. Therefore, it is the judgment of the circuit court that he is entitled to receive payment of the \$1,500.00 reward now deposited with the Clerk of this Court.

The judgment is affirmed.

? Case Questions

1. Why did the Bankers Association put the resolution of this matter into the court’s hands?
2. Several claimants came forward for the reward; only one person got it. What was the difference between the person who got the reward and those who did not?

Consequential Damages

EBWS, LLC v. Britly Corp.

928 A.2d 497 (Vt. 2007)

Reiber, C.J.

The Ransom family owns Rock Bottom Farm in Strafford, Vermont, where Earl Ransom owns a dairy herd and operates an organic dairy farm. In 2000, the Ransoms decided to build a creamery on-site to process their milk and formed EBWS, LLC to operate the dairy-processing plant and to market the plant’s products. In July 2000, Earl Ransom, on behalf of EBWS, met with Britly’s president to discuss building the creamery....In January 2001, EBWS and Britly entered into a contract requiring Britly to construct a creamery building for EBWS in exchange for \$160,318....The creamery was substantially completed by April 15, 2001, and

EBWS moved in soon afterward. On June 5, 2001, EBWS notified Britly of alleged defects in construction. [EBWS continued to use the creamery pending the necessity to vacate it for three weeks when repairs were commenced].

On September 12, 2001, EBWS filed suit against Britly for damages resulting from defective design and construction....

Following a three-day trial, the jury found Britly had breached the contract and its express warranty, and awarded EBWS: (1) \$38,020 in direct damages, and (2) \$35,711 in consequential damages....

...The jury's award to EBWS included compensation for both direct and consequential damages that EBWS claimed it would incur while the facility closed for repairs. Direct damages [i.e., compensatory damages] are for "losses that naturally and usually flow from the breach itself," and it is not necessary that the parties actually considered these damages. [Citation]. In comparison, special or consequential damages "must pass the tests of causation, certainty and foreseeability, and, in addition, be reasonably supposed to have been in the contemplation of both parties at the time they made the contract."

...The court ruled that EBWS could not recover for lost profits because it was not a going concern at the time the contract was entered into, and profits were too speculative. The court concluded, however, that EBWS could submit evidence of other business losses, including future payment for unused milk and staff wages....

At trial, Huyffer, the CEO of EBWS, testified that during a repairs closure the creamery would be required to purchase milk from adjacent Rock Bottom Farm, even though it could not process this milk. She admitted that such a requirement was self-imposed as there was no written output contract between EBWS and the farm to buy milk. In addition, Huyffer testified that EBWS would pay its employees during the closure even though EBWS has no written contract to pay its employees when they are not working. The trial court allowed these elements of damages to be submitted to the jury, and the jury awarded EBWS consequential damages for unused milk and staff wages.

On appeal, Britly contends that because there is no contractual or legal obligation for EBWS to purchase milk or pay its employees, these are not foreseeable damages. EBWS counters that it is common knowledge that cows continue to produce milk, even if the processing plant is not working, and thus it is foreseeable that this loss would occur. We conclude that these damages are not the foreseeable result of Britly's breach of the construction contract and reverse the award....

[W]e conclude that...it is not reasonable to expect Britly to foresee that its failure to perform under the contract would result in this type of damages. While we are sympathetic to EBWS's contention that the cows continue to produce milk, even when the plant is closed down, this fact alone is not enough to demonstrate that buying and dumping milk is a foreseeable result of Britly's breach of the construction contract. Here, the milk was produced by a separate and distinct entity, Rock Bottom Farm, which sold the milk to EBWS....

Similarly, EBWS maintained no employment agreements with its employees obligating it to pay wages during periods of closure for repairs, dips in market demand, or for any other reason. Any losses EBWS might suffer in the future because it chooses to pay its employees during a plant closure for repairs would be a voluntary expense and not in Britly's contemplation at the time it entered the construction contract. It is not reasonable to expect Britly to foresee losses incurred as a result of agreements that are informal in nature and carry no legal obligation on EBWS to perform. "[P]arties are not presumed to know the condition of each other's affairs nor to take into account contracts with a third party that is not communicated." [Citation] While it is true that EBWS may have business reasons to pay its employees even without a contractual obligation, for example, to ensure employee loyalty, no evidence was introduced at trial by EBWS to support a sound rationale for such considerations. Under these circumstances, this business decision is beyond the scope of what Britly could have reasonably foreseen as damages for its breach of contract....

In addition, the actual costs of the wages and milk are uncertain....[T]he the milk and wages here are future expenses, for which no legal obligation was assumed by EBWS, and which are separate from the terms of the parties' contract. We note that at the time of the construction contract EBWS had not yet begun to operate as a creamery and had no history of buying milk or paying employees. See [Citation] (explaining that profits for a new business are uncertain and speculative and not recoverable). Thus, both the cost of the milk and the number and amount of wages of future employees that EBWS might pay in the event of a plant closure for repairs are uncertain.

Award for consequential damages is reversed....

? Case Questions

1. Why, according to EBWS's CEO, would EBWS be required to purchase milk from adjacent Rock Bottom Farm, even though it could not process this milk?
2. Surely it is well known in Vermont dairy country that dairy farmers can't simply stop milking cows when no processing plant is available to take the milk—the cows will soon stop producing. Why was EBWS then not entitled to those damages which it will certainly suffer when the creamery is down for repairs?
3. Britly (the contractor) must have known EBWS had employees that would be idled when the creamery shut down for repairs. Why was it not liable for their lost wages?
4. What could EBWS have done at the time of contracting to protect itself against the damages it would incur in the event the creamery suffered downtime due to faulty construction?

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4.5: Summary and Exercises

Summary

In this chapter we have seen that two fundamental sources of contract law are the common law as developed in the state courts and as summarized in the *Restatement (Second) of Contracts*, and the Uniform Commercial Code for the sale of goods.

Sales law is a special type of contract law, governed by Article 2 of the UCC. Article 2 governs the sale of goods only, defined as things movable at the time of identification to the contract for sale. When the goods are “sold” incidental to a service, the courts do not agree on whether Article 2 applies. For two categories of goods, legislation specifically answers the question: foodstuffs served by a restaurant are goods; blood supplied for transfusions is not.

Types of contracts can be distinguished along these axes: (1) express and implied, including quasi-contracts implied by law; (2) bilateral and unilateral; (3) enforceable and unenforceable; and (4) completed (executed) and uncompleted (executory). To understand contract law, it is necessary to master these distinctions and their nuances.

In order to determine whether a valid, enforceable contract exists, the following questions must be answered: (1) Did the parties reach an agreement? (2) Was consideration present? (3) Was the agreement legal? (4) Did the parties have capacity to make a contract? (5) Was the agreement in the proper form?

Remedies available against someone who breaches a contract include damages, specific performance, and restitution. Frequently the party who is not in breach must choose between tort and contract remedies.

Exercises

1. On November 26, Joe wrote to Kate offering to purchase a farm that she owned. Upon receiving the letter on November 28, Kate immediately sent Joe a letter of acceptance. However, shortly after mailing the letter, Kate had second thoughts and called Joe to advise him that she was rejecting his offer. The call was made before Joe received the letter of acceptance. Has a contract been formed? Why?
2. On a busy day just before April 15, Albert Accountant received a call from a local car dealer. The dealer said, “Hi, Mr. Accountant. Now, while you have income from doing clients’ taxes, I have an excellent offer for you. You can buy a new Buick Century automobile completely loaded for \$36,000. Al, I know you’re busy. If I don’t hear from you by the end of the day, I’ll assume you want the car.” Albert, distracted, did not respond immediately, and the dealer hung up. Then followed an exhausting day of working with anxiety-ridden tax clients. Albert forgot about the conversation. Two days later a statement arrived from the dealer, with instructions on how Albert should pick up the car at the dealership. Is there a contract? Explain.
3. Bert purchased Ernie’s car. Before selling the car, Ernie had stated to Bert, “This car runs well and is reliable. Last week I drove the car all the way from Seattle to San Francisco to visit my mother and back again to Seattle.” In fact, Ernie was not telling the truth: he had driven the car to San Francisco to visit his paramour, not his mother. Upon discovery of the truth, may Bert avoid the contract? Why?
4. Langstraat was seventeen when he purchased a motorcycle. When applying for insurance, he signed a “Notice of Rejection,” declining to purchase uninsured motorist coverage. He was involved in an accident with an uninsured motorist and sought to disaffirm his rejection of the uninsured motorist coverage on the basis of infancy. May he do so?
5. Richard promised to have Darlene’s deck awning constructed by July 10. On June 20, Darlene called him and asked if he could get the job done by July 3, in time for Independence Day. Richard said he could, but he failed to do so, and Darlene had to rent two canopies at some expense. Darlene claims that because Richard breached his promise, he is liable for the cost of awning rental. Is she correct—was his promise binding? Why?
6. After taking a business law class at State U, Elke entered into a contract to sell her business law book to a classmate, Matthew, for \$45. As part of the same contract, she agreed to prepare a will for Matthew’s mother for an additional \$110. Elke prepared the will and sent the book to Matthew, but he refused to pay her. Is she entitled to any payment? Explain.
7. Sara Hohe, a fifteen-year-old junior at Mission Bay High School in San Diego, was injured during a campus hypnotism show sponsored by the PTSA as a fund-raiser for the senior class. Hypnotism shows had been held annually since 1980, and Sara had seen the previous year’s show. She was selected at random from a group of many volunteers. Her participation in the “Magic of the Mind Show” was conditioned on signing two release forms. Hohe’s father signed a form entitled “Mission Bay High School PTSA Presents Dr. Karl Santo.” Hohe and her father both signed a form titled “Karl Santo Hypnotist,” releasing Santo and the

school district from all liability. During the course of the show, while apparently hypnotized, Hohe slid from her chair and also fell to the floor about six times and was injured. She, through her father, then sued the school district. The Hohes claimed the release was contrary to public policy; the trial court dismissed the suit on summary judgment. Was the release contrary to public policy? Decide.

8. Plaintiff Irma Kozlowski cohabited with Defendant Thaddeus Kozlowski for fifteen years without marriage. She repeatedly asked him specifically about her financial situation should he predecease her, and he assured her—she said—that he would arrange to provide for her for the rest of her life. She had provided the necessary household services and emotional support to permit him to successfully pursue his business career; she had performed housekeeping, cleaning, and shopping services and had run the household and raised the children, her own as well as his. When they separated and she was “literally forced out of the house,” she was sixty-three years old and had no means or wherewithal for survival. When she sued, he raised the Statute of Frauds’ one-year rule as a defense. Is the defense good?
9. Owner of an auto repair shop hires Contractor to remodel his shop but does not mention that two days after the scheduled completion date, Owner is to receive five small US Army personnel carrier trucks for service, with a three-week deadline to finish the job and turn the trucks over to the army. The contract between Owner and the army has a liquidated damages clause calling for \$300 a day for every day trucks are not operable after the deadline. Contractor is five days late in finishing the remodel. Can Owner claim the \$1,500 as damages against Contractor as a consequence of the latter’s tardy completion of the contract? Explain.
10. Calvin, a promising young basketball and baseball player, signed a multiyear contract with a professional basketball team after graduating from college. After playing basketball for one year, he decided he would rather play baseball and breached his contract with the basketball team. What remedy could the team seek?

SELF CHECK QUESTIONS

1. An implied contract
 1. must be in writing
 2. is one in which the terms are spelled out
 3. is one inferred from the actions of the parties
 4. is imposed by law to avoid an unjust result
 5. may be avoided by one party.
2. The Convention on Contracts for the International Sale of Goods is
 1. an annual meeting of international commercial purchasing agents.
 2. contract law used in overseas US federal territories
 3. a customary format or template for drafting contracts
 4. a kind of treaty setting out international contract law, to which the United States is a party
 5. the organization that develops uniform international law.
3. Consideration
 1. can consist of a written acknowledgment of some benefit received, even if in fact the benefit is not delivered
 2. cannot be nominal in amount
 3. is a bargained-for act, forbearance, or promise from the promisee
 4. is all of the above
4. An example of valid consideration is a promise
 1. by a seventeen-year-old to refrain from drinking alcohol
 2. to refrain from going to court
 3. to cook dinner if the promisor can get around to it
 4. to repay a friend for the four years of free legal advice he had provided.
5. A contract to pay a lobbyist to influence a public official is generally illegal.
 1. true
 2. false

Answers

1. c
2. d
3. c
4. b
5. false

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CHAPTER OVERVIEW

5: Common Interest Realty

5.1: Housing Supply and Demand

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5.1: Housing Supply and Demand

Learning Objectives

After you have read this section, you should be able to answer the following questions:

1. What factors underlie the demand for housing?
2. What factors underlie the supply of housing?
3. What determines the amount of housing traded and the price of housing?

The first two articles we quoted from made it clear that the housing market was heavily affected by the financial crisis. More than that, it was where the crisis began—and so it is where we begin our story.

We start with the market for new homes, which are part of real gross domestic product (real GDP). (The buying and selling of existing homes is not counted in GDP.) New homes are supplied by construction firms and demanded by families wishing to live in a new home. New homes are also bought by speculators who purchase houses in the hope that they can resell them for a higher price in the future.

Toolkit: Section 31.9

Supply and demand is a framework we use to explain and predict the equilibrium price and quantity of a good. A point on the market supply curve shows the quantity that suppliers are willing to sell for a given price. A point on the market demand curve shows the quantity that demanders are willing to buy for a given price. The intersection of supply and demand determines the equilibrium price and quantity that will prevail in the market.

The toolkit contains a presentation of supply and demand that you can use for reference purposes in this and the following chapters.

The supply-and-demand framework applies to the case that economists call a **competitive market**. A market is said to be competitive, or, more precisely, to exhibit perfect competition, under two conditions:

1. There are many buyers and many sellers, all of whom are small relative to the market.
2. The goods that sellers produce are perfect substitutes.

In a competitive market, buyers and sellers take the price as given; they think their actions have no effect on the price in the market.

Demand

The market demand for housing is shown in Figure 5.1.1. We call this the **market demand curve** because it reflects the choices of the many households in the economy. In macroeconomics, we typically look at markets at this level of aggregation and do not worry much about the individual decisions that underlie curves such as this one.

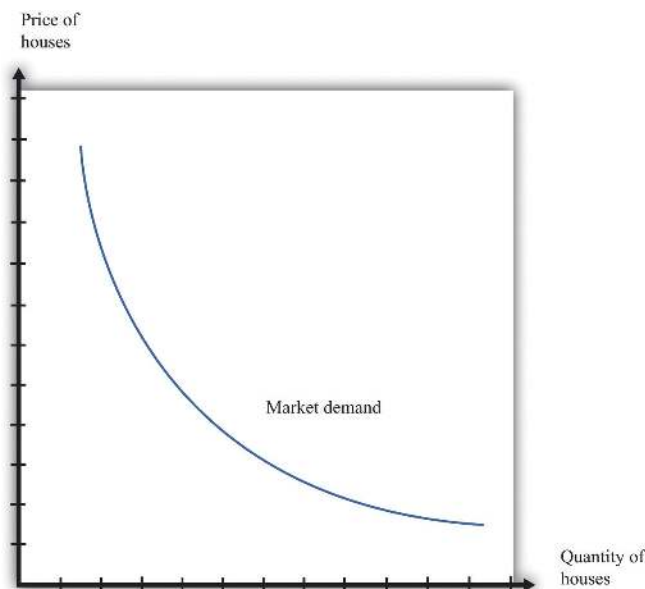


Figure 5.1.1: The Market Demand for Houses. The market demand

curve shows the quantity of houses demanded at each price.

As the price of housing decreases, the quantity demanded increases. This is an example of the law of demand, which derives from two effects:

1. As the price of a good or service decreases, more individuals choose to buy a positive quantity rather than zero.
2. As the price of a good or a service decreases, individuals choose to buy a larger quantity.

In the case of the market for housing, the first of these is more important. Most people own either zero houses or one house. As houses become cheaper, more people decide that they can afford a house, so the quantity demanded increases. A few people might decide to buy an additional house, but they would presumably be in the rich minority. For other goods, such as chocolate bars or shoeshines, the second effect is more important: as price decreases, people increase the quantity that they buy.

Shifts in Demand

When we draw a demand curve, we are varying the price but *holding everything else fixed*. In particular, we hold fixed the level of income, the prices of other goods and services in the economy, and the tastes of households. If these other factors change, then the market demand curve will *shift*—that is, the quantity demanded will change at each price.

A leftward shift of the market demand curve for houses, as indicated in Figure 5.1.2, could be caused by many factors, including the following:

- A decrease in the incomes of households in the market
- Concerns about the future health of the economy
- A reduction in the price of a typical apartment rental
- An increase in the interest rates for mortgages
- A change in social tastes so that buying a house is no longer viewed as a status symbol

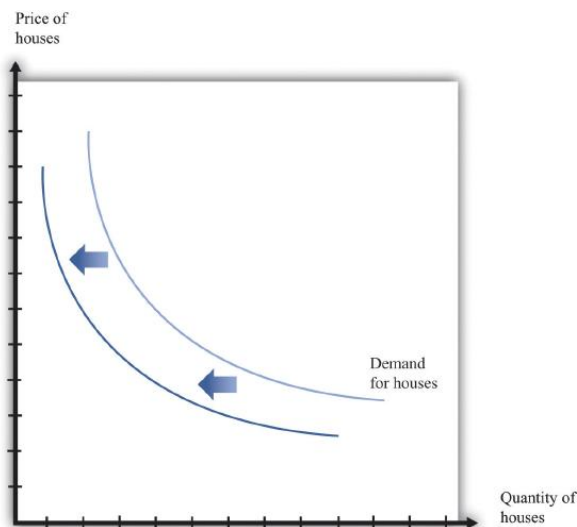


Figure 5.1.2: A Shift in the Market Demand Curve. If there is a decrease in demand for houses, then fewer houses are demanded at each price. The demand curve shifts leftward.

Supply

The counterpart to the market demand curve is the **market supply curve**, which is obtained by adding together the individual supply curves in the economy. The supply curve slopes upward: as price increases, the quantity supplied to the market increases. As with demand, there are two underlying effects.

1. As price increases, more firms decide to enter the market—that is, these firms produce some positive quantity rather than zero.
2. As price increases, firms increase the quantity that they wish to produce.

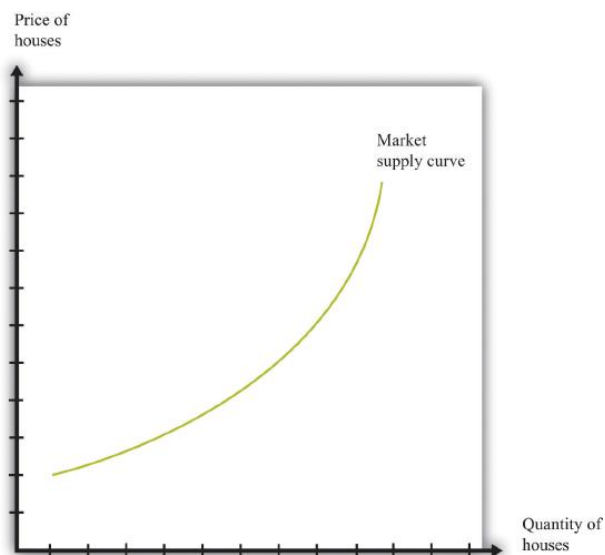


Figure 5.1.3: The Market Supply of Houses. The market supply curve shows the quantity of houses supplied at each price. It has a positive slope: as the price of houses increases, the number of houses supplied to the market increases as well.

Shifts in Supply

When we draw a supply curve, we again vary the price but hold everything else fixed. A change in any other factor will cause the market supply curve to shift. A leftward shift of the market supply curve for houses, as indicated in Figure 5.1.4, could be caused by many factors, including the following:

- Increases in the costs of production, such as wages, the cost of borrowing, or the price of oil
- Bad weather that delays or damages construction in process
- Changes in regulations that make it harder to build

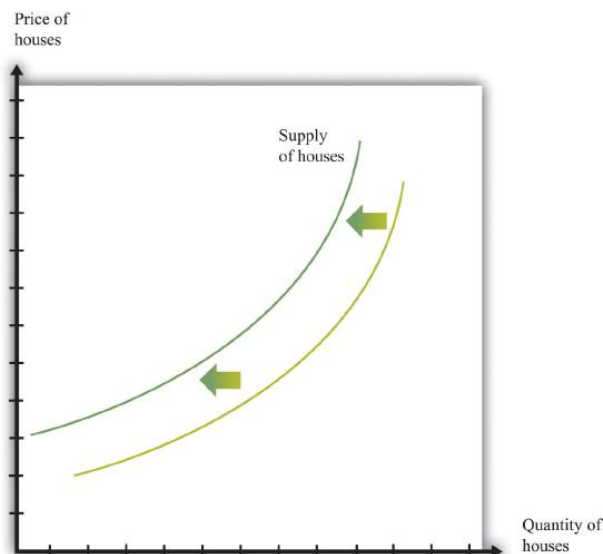


Figure 5.1.4: A Shift in Supply of Houses. If there is a decrease in supply of houses, then fewer houses are supplied at each price. The supply curve shifts leftward.

Market Equilibrium: What Determines the Price of Housing?

We now put the market demand and market supply curves together to give us the supply-and-demand picture in Figure 5.1.5. The point where supply and demand meet is the equilibrium in the market. At this point, there is a perfect match between the amount that buyers want to buy and the amount that sellers want to sell.

Toolkit: Section 31.9

Equilibrium in a market refers to an equilibrium price and an equilibrium quantity and has the following features:

- Given the equilibrium price, sellers supply the equilibrium quantity.
- Given the equilibrium price, buyers demand the equilibrium quantity.

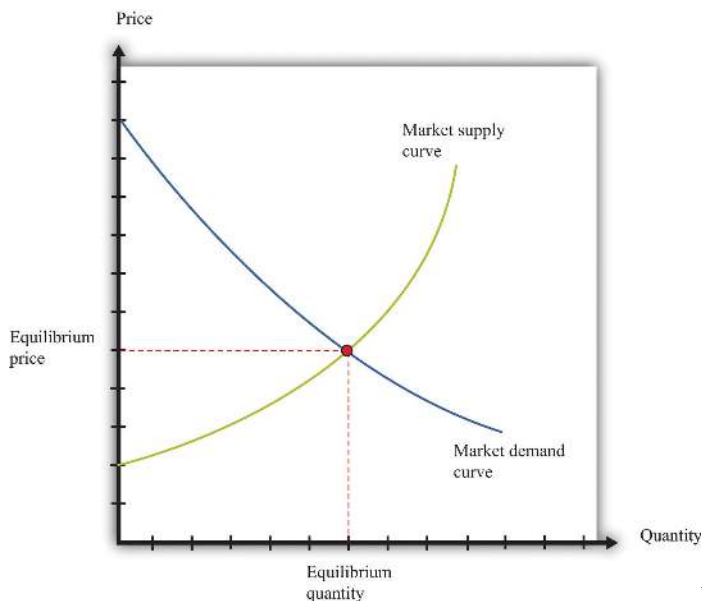


Figure 5.1.5: Market Equilibrium. In a competitive market, equilibrium price and quantity are determined by the intersection of the supply and demand curves.

We speak of equilibrium because there is a balancing of the forces of supply and demand in the market. At the **equilibrium price**, suppliers of the good can sell as much as they wish, and demanders of the good can buy as much of the good as they wish. There

are no disappointed buyers or sellers. Because the demand curve has a negative slope and the supply curve has a positive slope, supply and demand will cross once, and both equilibrium price and **equilibrium quantity** will be positive.

Table 19.2.1 "Market Equilibrium: An Example" provides an example of market equilibrium. It gives market supply and market demand for four different prices. Equilibrium occurs at a price of \$100,000 and a quantity of 50 new houses.

Table 5.1.1: Market Equilibrium: An Example

Price (\$)	Market Supply	Market Demand
10,000	5	95
50,000	25	75
100,000	50	50
200,000	100	0

Economists typically believe that a perfectly competitive market is likely to reach equilibrium. The reasons for this belief are as follows:

- If price is different from the equilibrium price, then there will be an imbalance between demand and supply. This gives buyers and sellers an incentive to behave differently. For example, if price is less than the equilibrium price, demand will exceed supply. Disappointed buyers might start bidding up the price, or sellers might realize they could charge a higher price. The opposite is true if the price is too high: suppliers might be tempted to try cutting prices, while buyers might look for better deals.
- There is strong support for market predictions in the evidence from experimental markets. When buyers and sellers meet individually and bargain over prices, we typically see an outcome very similar to the market outcome in Figure 5.1.5.
- The supply-and-demand framework generally provides reliable predictions about the movement of prices.

Pictures like Figure 5.1.5 are useful to help understand how the market works. Keep in mind, however, that firms and households in the market do not need any of this information. This is one of the beauties of the market. All an individual firm or household needs to know is the prevailing market price. All the coordination occurs through the workings of the market.

Key Takeaways

- The primary factor influencing demand for housing is the price of housing. By the law of demand, as price decreases, the quantity of housing demanded increases. The demand for housing also depends on the wealth of households, their current income, and interest rates.
- The primary factor influencing supply of housing is the price of housing. As price increases, the quantity supplied also increases. The supply of housing is shifted by changes in the price of inputs and changes in technology.
- The quantity and price of housing traded is determined by the equilibrium of the housing market.

Exercises

1. What would be the impact of a decrease in the cost of borrowing on the market supply curve of housing? What would be the impact of a decrease in the cost of borrowing on the market demand curve?
2. Name two events that would cause the housing market supply curve to shift rightward. Name two events that would cause the housing market demand curve to shift rightward.

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CHAPTER OVERVIEW

6: Human Resource Management

6.1: Human Resource Management

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6.1: Human Resource Management

Learning Objectives

- Describe the core functions of human resource management
- Explain how the functions of human resource management contribute to business success



What do all businesses have in common regardless of the product or service? Employees! Unless you are a sole proprietorship, you will have to navigate the process of planning for, recruiting, hiring, training, managing, and possibly firing employees. These responsibilities all fall under the heading of human resource management.

Human resource management (HRM or HR) is essentially the management of human resources. It is a function in organizations designed to maximize employee performance in service of an employer's strategic objectives. HR is primarily concerned with the management of people within organizations, focusing on policies and on systems. HR departments in organizations typically undertake a number of activities, including employee benefits design, employee recruitment, training and development, performance appraisal, and rewarding (e.g., managing pay and benefit systems). HR also concerns itself with organizational change and industrial relations, that is, the balancing of organizational practices with requirements arising from collective bargaining and from governmental laws.

HR is a product of the human relations movement of the early twentieth century, when researchers began documenting ways of creating business value through the strategic management of the workforce. The function was initially dominated by transactional work, such as payroll and benefits administration, but due to globalization, company consolidation, technological advances, and further research, HR today includes strategic initiatives like talent management, industrial and labor relations, and diversity and inclusion.

Most companies focus on lowering employee turnover and on retaining the talent and knowledge held by their workforce. Hiring a new employee is a costly process and there's always a risk that the incoming employee won't match the performance of the person who previously worked in that position. HR departments strive to offer benefits that will appeal to workers, thus reducing the risk of losing corporate knowledge. Businesses are moving globally and forming more diverse teams. It is the role of human resources to make sure that these teams can function and people are able to communicate cross-culturally and across borders. Due to changes in business, current topics in human resources are diversity and inclusion as well as using technology to advance employee engagement.

In short, HR involves maximizing employee productivity. HR managers may also focus on a particular aspect of HRM, such as recruiting, training, employee relations, or benefits. Recruiting specialists are in charge of finding and hiring top talent. Training and development professionals ensure that employees are trained and receive ongoing professional development. This takes place through training programs, performance evaluations, and reward programs. Employee relations deals with employee concerns and incidents such as policy violations, sexual harassment, and discrimination. Benefit managers develop compensation structures, family-leave programs, discounts, and other benefits available to employees. At the other end of the spectrum are HR generalists who work in all areas or as labor relations representatives for unionized employees.

Core Functions of HR

Human resources (HR) professionals conduct a wide variety of tasks within an organizational structure. A brief rundown on the core functions of human resource departments will be useful in framing the more common activities a human resource professional will conduct. The core functions can be summarized as follows:

Staffing

This includes the activities of hiring new full-time or part-time employees, hiring contractors, and terminating employee contracts.

Staffing activities include:

- Identifying and fulfilling talent needs (through recruitment, primarily)
- Utilizing various recruitment technologies to acquire a high volume and diverse pool of candidates (and to filter them based on position requirements)
- Protecting the company from lawsuits by satisfying legal requirements and maintaining ethical hiring practices
- Writing employee contracts and negotiating salary and benefits
- Terminating employee contracts when necessary

Training and Professional Development

On-boarding new employees and providing professional development opportunities is a key investment for organizations, and HR is charged with seeing that those efforts and resources are well spent and utilized.

Development activities include:

- Training and preparing new employees for their roles
- Providing training opportunities (internal training, educational programs, conferences, etc.) to keep employees up to date in their respective fields
- Preparing management prospects and providing feedback to employees and managers

Compensation

Salary and benefits are also within the scope of human resource management. This includes identifying appropriate compensation based on role, performance, and legal requirements.

Compensation activities include:

- Setting compensation levels to be competitive and appropriate within the market, using benchmarks such as industry standards for a given job function
- Negotiating group health insurance rates, retirement plans, and other benefits with third-party providers
- Discussing raises and other compensation increases and/or decreases with employees in the organization
- Ensuring compliance with legal and cultural expectations when it comes to employee compensation

Safety and Health

HR managers are also responsible for understanding and implementing the best safety and health practices in their industry and addressing any relevant employee concerns.

Safety and health activities include the following:

- Ensuring compliance with legal requirements based on job function for safety measures (i.e., hard hats in construction, available counseling for law enforcement, appropriate safety equipment for chemists, etc.). Many of these requirements are specified by the Occupational Safety and Health Administration (OSHA).
- Implementing new safety measures when laws change in a given industry
- Discussing safety and compliance with relevant government departments
- Discussing safety and compliance with unions

Employee and Labor Relations

Defending employee rights, coordinating with unions, and mediating disagreements between the organization and its human resources are also core HR functions.

Employee and labor relations activities include:

- Mediating disagreements between employees and employers
- Mediating disagreements between employees and other employees
- Investigating claims of harassment and other workplace abuses
- Discussing employee rights with unions, management, and stakeholders
- Acting as the voice of the organization and/or the voice of the employees during any broader organizational issues pertaining to employee welfare

In this module you will explore each of these core functions in greater depth and also learn about the main challenges facing today's HR professional.

? Practice Questions

<https://assessments.lumenlearning.co...essments/14510>

<https://assessments.lumenlearning.co...essments/14511>

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CHAPTER OVERVIEW

7: Fair Housing Laws

[7.1: Housing Discrimination Against Racial and Ethnic Minorities 2012](#)

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7.1: Housing Discrimination Against Racial and Ethnic Minorities 2012

A Glass Half Full: Discrimination Against Minority Homeseekers and Implications for Fair Housing Policy

For much of the twentieth century, discrimination by private real estate agents and rental property owners helped establish and sustain stark patterns of housing and neighborhood inequality. Beginning in the late 1970s, the Department of Housing and Urban Development (HUD) has rigorously monitored trends in racial and ethnic discrimination in both rental and sales markets approximately once each decade through a series of nationwide paired-testing studies. This summary report presents findings from the fourth such study, which applied paired-testing methodology in 28 metropolitan areas to measure the incidence and forms of discrimination experienced by black, Hispanic, and Asian renters and homebuyers.^[1]

Exhibit 1: Minority Homeseekers Told About and Shown Fewer Housing Units



When well-qualified minority homeseekers contact housing providers to inquire about recently advertised housing units, they generally are just as likely as equally qualified white homeseekers to get an appointment and learn about at least one available housing unit. However, when differences in treatment occur, white homeseekers are more likely to be favored than minorities. Most important, minority homeseekers are told about and shown fewer homes and apartments than whites (Exhibit 1).^[2]

Although the most blatant forms of housing discrimination (refusing to meet with a minority homeseeker or provide information about any available units) have declined since the first national paired-testing study in 1977, the forms of discrimination that persist (providing information about fewer units) raise the costs of housing search for minorities and restrict their housing options. Looking forward, national fair housing policies must continue to adapt to address the patterns of discrimination and disparity that persist today.

In this study... More than 8,000 tests were conducted in a nationally representative sample of 28 metropolitan areas. In each test, two trained individuals—one white and the other black, Hispanic, or Asian—contacted a housing provider to inquire about a housing unit randomly selected from recently advertised homes and apartments. The two testers in each pair were matched on gender and age, and both presented themselves as equally and unambiguously well-qualified to rent or buy the advertised unit. Each tester independently recorded the treatment he or she experienced, including information about all the homes or apartments recommended and shown.

There can be no question that the housing circumstances of whites and minorities differ substantially. Whites are more likely to own their homes, to occupy better quality homes and apartments, and to live in safer, more opportunity-rich neighborhoods. However, it is less obvious whether—or how much—these disparities result from current racial and ethnic discrimination in the housing market because whites and minorities differ systematically in employment, income, assets, and debts.

Paired testing offers a uniquely effective tool for directly observing differential treatment of equally qualified homeseekers, essentially catching discrimination in the act

In a paired test, two people, one white and the other minority, pose as equally qualified homeseekers and inquire about available homes or apartments. Researchers have adapted the tool to systematically measure how often discrimination occurs across housing markets and what forms it takes.^[3]

Understanding the numbers... Not every instance of white-favored treatment should be interpreted as systematic discrimination. In some tests, random factors may contribute to observed differences in treatment; in other tests, minorities may experience more favorable treatment than their white partners for systematic reasons. Therefore, we report the share of tests in which the white was favored over the minority, the share in which the minority was favored over the white, and the difference between the two. This difference—or net measure— provides a conservative, lower-bound estimate of systematic discrimination against minority homeseekers, because it not only subtracts random differences from the gross measure of white-favored treatment, but may also subtract some differences that reflect systematic reverse discrimination. Gross measures of discrimination receive less emphasis in this report than in past national studies because analysis over the past 25 years strongly suggests that they reflect a lot of random differences in treatment, and that net measures more accurately reflect the systematic disadvantages faced by minority homeseekers.

Despite its power, paired testing cannot capture all forms of housing discrimination that might occur during a housing search. For example, it does

not encompass differences in advertising practices that may limit a homeseeker's knowledge about available housing options. It cannot measure differences in treatment that might occur after the initial inquiry—when homeseekers submit applications, seek mortgage financing, or negotiate lease terms.

Moreover, the results presented here do not reflect the experience of the

average or typical minority homeseeker, because testers presented themselves as unambiguously well-qualified for the advertised homes and apartments about which they inquired.^[4] Evidence from other research suggests that when testers pose as more marginally qualified homeseekers, more discrimination occurs (Hunter and Walker 1996). For all these reasons, results reported here probably understate the total level of discrimination that occurs in the marketplace.

People of color still face discrimination when they search for housing today

Each paired test in this study compares the treatment of whites and minorities at three critical steps in the search for housing:

1. First, testers attempted (by telephone or e-mail) to **make appointments** for in-person visits.
2. If successful, they used the **in-person visit** to learn about available homes or apartments.
3. Finally, if told about at least one available housing unit, testers sought to **inspect homes or apartments**.

The discussion and exhibits that follow summarize the main findings at each of these three steps, first for renters and then for homebuyers.

Discrimination against minority renters. Minority renters who call to inquire about recently advertised homes or apartments are rarely denied appointments that their white counterparts are able to make. In the vast majority of tests, if one tester is able to make an appointment, then both are. The very small treatment differences favor neither whites nor minorities (Exhibit 2).

Exhibit 2: Call for Rental Appointment



When renters meet in person with housing providers, they are almost always told about at least one available unit. However, Hispanic renters are slightly more likely than equally qualified whites to be told that no homes or apartments are available (1.8

percentage points). Moreover, in about half of all in-person visits, one tester is told about more available units than the other, with whites significantly more likely to be favored than minorities, as detailed in Exhibit 3. Black, Hispanic, and Asian renters are all told about fewer housing units than equally qualified white renters. Blacks and Hispanics are told about one fewer unit for every five in-person visits; Asians are told about one fewer unit for every six in-person visits.

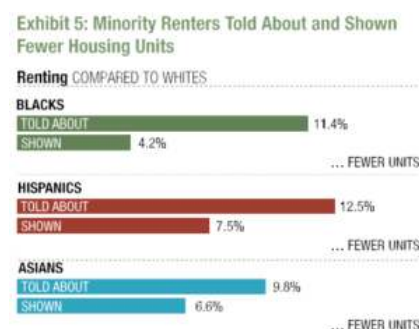


For example... In one rental test, the white tester arrived first and asked to see a two-bedroom apartment. The agent showed him the available two-bedroom unit as well as a one-bedroom apartment and provided application information for both units. The Hispanic tester arrived two hours later at the same office, but was told that nothing was available.

Finally, in about one-third of in-person visits, one tester is shown more units than his or her partner, with whites significantly more likely to be favored than minorities. As Exhibit 4 details, black, Hispanic, and Asian renters are all shown significantly fewer housing units than equally qualified whites. Blacks are shown about one fewer unit for every 25 visits; Hispanics are shown one fewer unit for every 14 visits; and Asians are shown one fewer unit for every 13 visits.



Taking all three steps into account (ability to make an appointment, availability of units, and agents' willingness to show units), minority renters are told about and shown fewer homes and apartments than equally qualified whites (Exhibit 5).



- Black renters who contact agents about recently advertised housing units learn about 11.4 percent fewer available units than equally qualified whites and are shown 4.2 percent fewer units.
- Hispanic renters learn about 12.5 percent fewer available units than equally qualified whites and are shown 7.5 percent fewer units.
- Asian renters learn about 9.8 percent fewer available units than equally qualified whites and are shown 6.6 percent fewer units.

Minority renters sometimes experience other forms of discriminatory treatment as well, relating to housing costs and quality and the helpfulness of the rental agent. These differences are less consistent and smaller in magnitude than the differences in numbers

of units available and shown. Details will be found in Chapter IV of the full report.

Discrimination against minority homebuyers. Like renters, minority homebuyers are rarely denied appointments that their white counterparts are able to make (Exhibit 6). However, black homebuyers are slightly more likely than equally qualified whites to be denied an in-person appointment (2.4 percentage points).



When homebuyers meet in person with housing providers, they are usually told about at least one available unit. However, agents frequently tell one tester about more available homes than the other, with whites significantly more likely to be favored than blacks and Asians, as illustrated in Exhibit 7. Consequently, for every two visits, black and Asian homebuyers learn about one fewer home than equally qualified whites.



Finally, in about two-thirds of in-person visits, one tester is shown more units than his or her partner, with whites significantly more likely to be favored than blacks or Asians. As Exhibit 8 details, black and Asian renters are shown significantly fewer homes than equally qualified whites. Specifically, blacks are shown about one fewer home for every three in-person visits; Asians are shown one fewer home for every two in-person visits.



For example... In one sales test, the black tester called and spoke with an agent who insisted that she must be prequalified in order to see homes. The agent refused to meet with the tester until she had talked to a lender. The white tester was not asked about prequalification over the phone and was able to make an appointment to meet with the agent.

Taking all three steps into account (ability to make an appointment, availability of units, and agents' willingness to show units), black and Asian homebuyers are told about and shown fewer homes than equally qualified whites (Exhibit 9).

Exhibit 9: Minority Homebuyers Told About and Shown Fewer Housing Units

Buying COMPARED TO WHITES



- Black homebuyers who contact agents about recently advertised homes for sale learn about 17.0 percent fewer available homes than equally qualified whites and are shown 17.7 percent fewer homes.
- Asian homebuyers learn about 15.5 percent fewer available homes than equally qualified whites and are shown 18.8 percent fewer homes.

Overall differences in treatment for Hispanic homebuyers are not statistically significant, and Hispanics are not recommended or shown a statistically different number of homes per inquiry than comparably qualified white homebuyers. This result extends across many forms of treatment and across the metropolitan areas where testing was conducted. As discussed further later, it also reflects a longer-term decline in discrimination against Hispanic homebuyers.

Most of the for-sale homes recommended and shown to testers of all races and ethnicities are located in majority-white neighborhoods. In many cases, however, one tester is recommended and shown homes in neighborhoods that have a higher percentage of white residents, on average, than his or her partner. Whites are significantly more likely than blacks or Asians to be shown these neighborhoods with higher percentages of whites; and, when they are, the neighborhoods whites see are about 17 percentage points higher in the percentage of white residents than those shown to equally qualified blacks or Asians. However, minorities are sometimes shown “whiter” neighborhoods than their partners; and, when they are, the neighborhoods they see are 14 to 15 percentage points higher in proportion of white residents than those shown to equally qualified whites. As a consequence, across all tests, the average racial composition of neighborhoods recommended to whites is only slightly higher in white percentage than the average for blacks and Asians—less than 2 percentage points more white. In other words, over multiple inquiries, the composition of neighborhoods recommended to minority homebuyers is very similar to the composition of those recommended to equally qualified whites.

Identifiability of minority homeseekers... When homeseekers call (or e-mail) to make an appointment, the housing provider might or might not identify their race or ethnicity. Even when homeseekers meet in person with housing providers, it is not certain that their race or ethnicity is accurately identified. In this study, a team of coders assessed the race/ethnicity of each tester based on reading the tester’s name and listening to a recording of his or her speech—the information available to an agent over the phone. A parallel assessment, conducted by other members of the coding team, was based on name, speech, and a photograph—the information available to an agent during an in-person meeting. Each tester was assessed by three independent coders based on name and speech and by three independent coders based on name, speech, and appearance.

Minorities whose ethnicity is more readily identifiable experience more discrimination than those who may be mistaken for whites. This is the first time such an assessment has been performed as part of a national paired-testing study.

Minority homebuyers sometimes experience other forms of discriminatory treatment as well, relating to housing costs and financing, housing quality, and the helpfulness of the sales agent. These differences are less consistent and smaller in magnitude than the differences in numbers of homes available and shown. For details, see Chapter IV in the full report.

Variations in discrimination patterns. In addition to estimating the overall incidence and severity of discrimination, a large-scale national testing study sheds light on important variations in discrimination, indicating what types of homeseekers are most disadvantaged, what types of agents discriminate most frequently, and where discrimination is most prevalent. This study finds that minority homeseekers whose ethnicity is more readily identifiable experience more discrimination than those who may be mistaken for whites. Specifically, black and Asian renters whose race is readily identifiable based on name and speech are significantly more

likely to be denied an appointment than minorities perceived to be white. During an in-person visit, renters who are identifiably black, Hispanic, or Asian are shown fewer units than minorities who are perceived to be white. Similarly, homebuyers who are identifiably black or Asian face higher discrimination during the in-person visit than those who are perceived to be white.

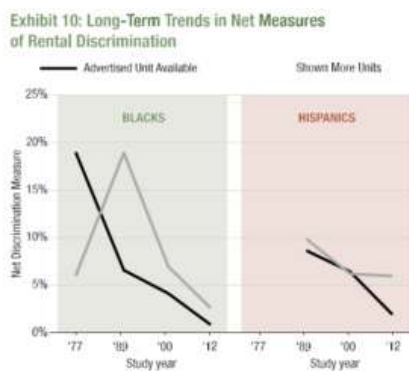
The study does not support other widely held assumptions about when and where discrimination is most likely to occur. It does not find substantial differences in the incidence or severity of discrimination across metropolitan areas or regions of the country, suggesting that housing discrimination remains a national problem. It is neither more nor less severe in housing markets hit hardest by the Great Recession.^[5]

What are the consequences of the discrimination documented here? When housing providers deny minority homeseekers information about some of the housing options offered to whites, the time and cost of minorities' housing search rise and their choices are constrained. A recent survey of homebuyers finds that the median search lasts 12 weeks, with 12 homes seen (National Association of Realtors 2011). A black or Asian homebuyer would have to search longer or choose from a narrower set of options. Unfortunately, little is known about patterns of search among renters, but spending time inquiring about more advertisements and visiting more properties could be burdensome, especially for those with low incomes or inflexible work schedules.

The most blatant forms of discrimination have declined since passage of the 1968 Fair Housing Act

Due to changes in housing markets, sampling methods, and testing protocols, results from HUD's four decennial paired-testing studies cannot be precisely compared. But they do provide a qualitative picture of trends in the adverse treatment of minority homeseekers. The first national paired-testing study, launched in 1977, focused exclusively on discrimination against blacks (Wienk, et al. 1979). The 1989 Housing

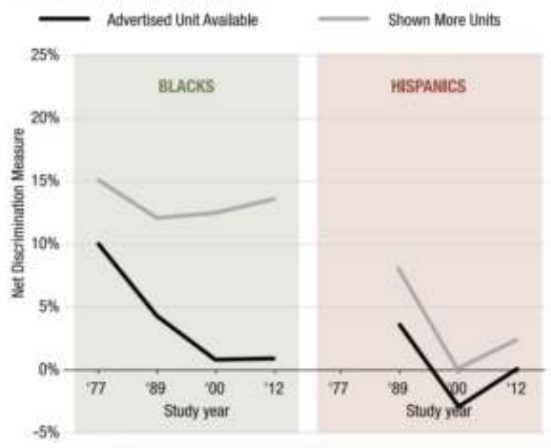
Discrimination Study measured discrimination against Hispanics as well as blacks (Turner, Struyk, and Yinger 1991). And the 2000 Housing Discrimination Study produced national estimates of discrimination against black, Hispanic, and Asian homeseekers (Turner and Ross 2003a, 2003b; Turner, et al. 2002).



Trends in rental discrimination. Exhibit 10 illustrates the long-term trends in two important net measures of discriminatory treatment for blacks and Hispanics: whether the agent told only the white tester that the advertised unit was available and whether the white tester was shown more units. In 1977, black renters were frequently denied access to advertised units that were available to equally qualified whites. This kind of “door slamming” discrimination had declined dramatically by 1989 and has continued to decline since. The net measure of discrimination for the number of units shown to black versus white renters actually increased between 1977 and 1989 (possibly because blacks were less likely to be denied advertised housing outright) but has declined since. Denial of advertised units to Hispanic renters has also dropped substantially since 1989, while discrimination on the number of units shown appears to have declined between 1989 and 2000, but not between 2000 and 2012.

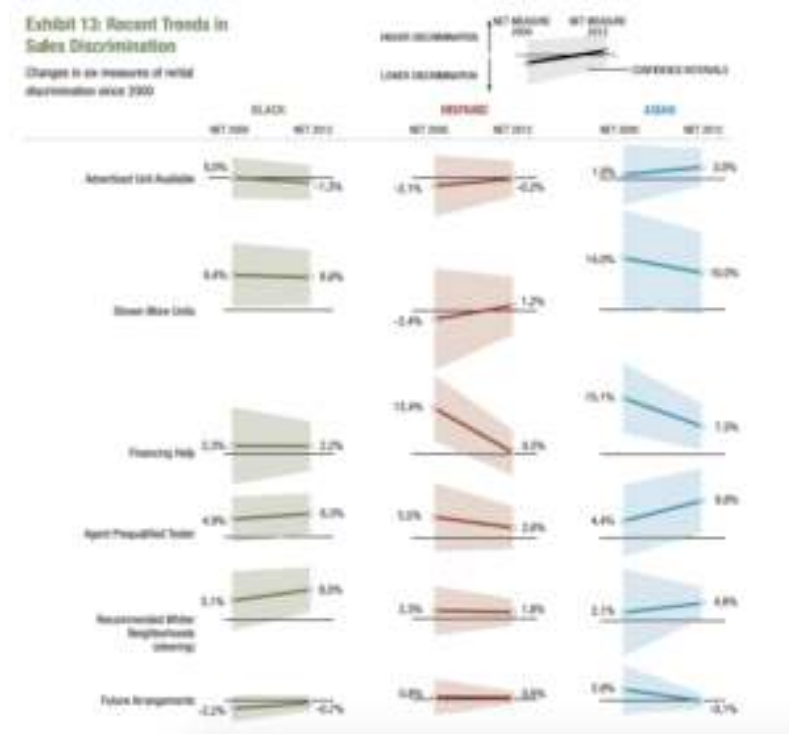
Focusing on more recent trends, Exhibit 11 reports net estimates of discrimination for four comparable treatment measures in 2000 and 2012. These trend lines are overlaid on the associated statistical confidence intervals, illustrating that for many measures, the intervals are too wide to conclude with confidence that significant changes have occurred. Black renters today appear less likely than a decade ago to be told that advertised units are unavailable. Asian renters are more likely than a decade ago to be shown fewer units, but they are less likely to experience adverse treatment when making future arrangements with the agent. Changes in other measures of rental discrimination are not statistically significant, so we cannot draw definitive conclusions about whether discrimination against minority renters has increased or decreased.

Exhibit 12: Long-Term Trends in Net Measures of Sales Discrimination



Trends in sales discrimination. Exhibit 12 illustrates the long-term trends in two major net measures of discriminatory treatment for black and Hispanic homebuyers: whether the agent told only the white tester that the advertised unit was available and whether the white tester was shown more units. Like black renters, black homebuyers were frequently denied access to advertised homes in 1977. This form of discrimination had declined dramatically by 1989 and even more by 2000. The net measure of discrimination for the number of homes shown, however, does not appear to have changed much over time. In contrast, adverse treatment of Hispanic homebuyers dropped substantially between 1989 and 2000 and remained low (too low to be statistically significant) through 2012.

Focusing on more recent trends in sales discrimination, we find less evidence of meaningful progress. Exhibit 13 reports net estimates of discrimination for six comparable treatment measures in 2000 and 2012. These trend lines are overlaid on the associated statistical confidence intervals, illustrating that for virtually all measures, the intervals are too wide to conclude with confidence that significant changes have occurred. The only statistically significant change is for Hispanics, who are less likely than a decade ago to be denied financing help compared to equally qualified white homebuyers.



For example... One agent told a white tester: “I’m not prejudiced but I wouldn’t recommend living in South Albuquerque...too many Hispanics. The further south you go the more you run into.”

Taken together, these findings suggest that the blatant discrimination observed in the earliest paired-testing study (refusing to meet or provide information about any available units) is much less frequent today, but that other, less

easily detectable forms of discrimination (providing information about fewer units) persist, limiting the information and options offered to minority homeseekers. The fact that blatant discrimination against

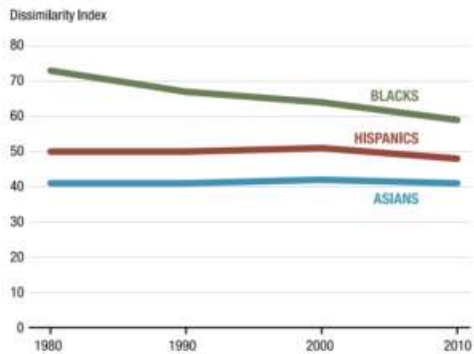
well-qualified minority homeseekers is rare does not mean it never occurs or that more marginally qualified homeseekers do not face more frequent or severe barriers to housing choice.

Fair housing policies must continue to adapt to address today's patterns of discrimination and disparity

The fair housing challenges facing the United States today extend beyond the discriminatory practices documented by this study. Beginning with the Great Migration of blacks from the rural south to northern and midwestern cities, discrimination by landlords and real estate agents blocked minorities from moving into white neighborhoods, and produced high levels of residential segregation in metropolitan areas across the

country (Polikoff 2006). Too often, blacks and other minorities were excluded from neighborhoods with high- quality housing, schools, and other public services. Lenders have been less willing to invest in predominantly minority communities (Oliver and Shapiro 1997) or have offered predatory loans and loan terms that stripped wealth from minority homeowners rather than helping build wealth (HUD 2000; Calem, Gillen, and Wachter 2004; Engel and McCoy 2008). Today, even middle-class minority neighborhoods have lower house price appreciation, fewer neighborhood amenities, lower-performing schools, and higher crime than white neighborhoods with comparable income levels (Cashin 2004; Pattillo-McCoy 1999; Pattillo 2005). Rigorous research documents the high costs of racial and ethnic segregation—not just for individuals but for society as a whole (Carr and Kutty 2008; Hartman and Squires 2010).

Exhibit 14: Trends in Segregation of Whites from Blacks, Hispanics, and Asians



Source: John R. Logan and Brian Stults. 2011. "The Persistence of Segregation in the Metropolis: New Findings from the 2010 Census." Census Brief prepared for Project US2010. <http://www.s4.brown.edu/us2010>.

Over the past three decades, black-white segregation has declined steadily (although it remains high in many metropolitan areas) and immigration has transformed the country's population, bringing greater racial and ethnic diversity to the neighborhoods of both blacks and whites (Turner and McDade 2012a, b). Hispanics and Asians are considerably less segregated from whites than are blacks (Exhibit 14). Moreover, most whites live in more diverse neighborhoods today than they did three decades ago, reflecting the combined effects of immigration, greater minority access to white neighborhoods, and gentrification of some minority neighborhoods.

Consistent with this trend, racial and ethnic prejudice is generally waning among Americans, and attitudes toward residential diversity are more open today—especially among young people. Most adults know and approve of the fact that federal law prohibits housing discrimination on the basis of race and ethnicity (Abravanel 2006). A declining share of the population expresses prejudice against blacks or distaste for black neighbors (Schumann et al. 1997; Krysan 2011). Recent surveys show a decline in the share of whites opposed to living in communities where half their neighbors are black (Krysan 2011).

Trends in attitudes toward immigrants (and ethnic groups associated with immigration) are less clear. When immigration levels rise or high-profile immigration issues dominate the news, negative perceptions seem to rise (Lapinski et al. 1997; Espenshade and Belanger 1997).

Long-term trends in patterns of discrimination suggest that the attitudes and actions of rental and sales agents have changed over time, and that fair housing enforcement and public education are working. Despite the progress that has been achieved, fair housing enforcement and education are still needed to address the forms of discrimination that persist. Prejudice has by no means disappeared (see, for example, White 2012) and, as this latest paired-testing study documents, minorities still face significant barriers to housing search, even when they are well-qualified as renters or homebuyers.

Because the forms of discrimination that this study documents are very difficult for victims to detect, enforcement strategies should not rely primarily on individual complaints of suspected discrimination. HUD should encourage the local fair housing organizations it funds to conduct more proactive testing, especially in the sales market, where discrimination appears higher than in the rental market. Enforcement testing does not have to meet the statistical standards of research studies, but it should be thoughtfully designed and targeted and consistently implemented so that it detects discrimination that may be prevalent in particular neighborhoods, rental complexes, or companies. Proactive testing can

reveal discriminatory practices that would otherwise go unpunished, and when housing providers know that testing is ongoing, they are more likely to comply with the law.

Local fair housing organizations should also expand and strengthen their relationships with Hispanic and Asian communities to address the discrimination experienced by all people of color. Historically, the fair housing movement has focused on

discrimination against blacks. Although some local organizations have extended their scope in light of changing demographic realities, others have not yet done so.

Research and enforcement testing differ... Because its goal is to measure the prevalence of discrimination across the market as a whole, research testing usually covers a representative sample of available homes and apartments, rather than targeting properties or communities where discrimination is suspected.

In addition, to produce generalizable results, research testing requires a fairly large number of tests, covering many different housing providers, rather than multiple tests to clearly establish discrimination by a single provider. To generate results that can be aggregated across many tests, research protocols have to be rigidly consistent for every test, whereas the best enforcement protocols are flexible enough to respond to circumstances

that arise in particular tests. Finally, research testing report forms require predefined, closed-ended responses that can be consistently compared across many tests, rather than detailed and nuanced narratives that convey exactly what happened in an individual test.

In addition, more locally targeted research testing may be needed to pinpoint the types of neighborhoods, housing providers, or homeseekers where discrimination is most prevalent. In particular, minority homeseekers with lower incomes, less wealth, weaker English language fluency, or blemished credit may face higher levels of discrimination than documented in this study.

As attitudes and market practices evolve, policymakers and fair housing practitioners need reliable research not only on patterns of discrimination, but also on other factors that may contribute to residential segregation and disparities in neighborhood quality. Minorities still suffer from substantial disparities in neighborhood amenities and access to opportunity (Logan 2011) and the levels and forms of housing discrimination captured by this paired-testing study cannot fully explain current levels of residential segregation. Information gaps, stereotypes and fears, local regulatory policies, and disparities in purchasing power all work together to perpetuate segregation, even though many Americans—minority and white—say they want to live in more diverse neighborhoods (Ellen 2008; Farley, Fielding, and Krysan 1997). Meaningful reductions in neighborhood segregation and inequality can only be achieved if we tackle all these causal forces at the same time.

Enforcing existing fair housing protections remains essential. However, fair housing enforcement alone cannot reverse persistent patterns of segregation or undo the damage they cause. The evidence argues for a multipronged strategy that includes vigorous enforcement of anti-discrimination protections along with education—about the availability and desirability of diverse neighborhoods; local regulatory reforms and affordable housing development—to open up exclusive communities and preserve affordable options in gentrifying neighborhoods; neighborhood reinvestment—to equalize the quality of services, resources, and amenities in minority neighborhoods; and new incentives to encourage and nurture stable diversity (Turner and Rawlings 2009). All these elements are required to achieve the fundamental goals of free and fair housing choice and healthy, opportunity-rich neighborhoods.

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1. Based on standard U.S. Census Bureau practice, this report uses the term “Asian” to refer to all Asian and Asian American testers. In addition, the term “white” refers to non-Hispanic whites. ↵
2. All reported differences between minority and white treatment are statistically significant at the 0.90 level or higher. For specific tests of statistical significance, see the exhibits in Chapters IV and V of the full report. ↵
3. This study focuses on differential treatment discrimination—when equally qualified homeseekers receive unequal treatment from housing providers. For methodological details, see Chapters II and III in the full report. Federal law also prohibits forms of treatment that may appear equal on their face but that have a disparate impact on minority homeseekers. ↵
4. All testers were assigned financial characteristics that qualified them for the housing units about which they were inquiring. Therefore, the assigned income levels varied widely, matching the variation in advertised rents and home prices in the sampled metropolitan areas. However, in most metropolitan areas, average incomes among black, Hispanic, and Asian households are lower than the average incomes assigned to testers. ↵
5. For more details on analysis of variations in discrimination, see Chapter V of the full report ↵

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The Urban Institute

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CHAPTER OVERVIEW

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8.1: Marketing and Customer Relationships

Customer Relationship Management: A Strategic Imperative

We have stated that the central purpose of marketing is to help organizations identify, satisfy, and retain their customers. These three activities lay the groundwork for what has become a strategic imperative in modern marketing: customer relationship management.

To a student of marketing in the digital age, the idea of relationship building between customers and companies may seem obvious and commonplace. It certainly is a natural outgrowth of the marketing concept, which orients entire organizations around understanding and addressing customer needs. But only in recent decades has technology made it possible for companies to capture and utilize information about their customers to such a great extent and in such meaningful ways. The Internet and digital social media have created new platforms for customers and product providers to find and communicate with one another. As a result, there are more tools now than ever before to help companies create, maintain, and manage customer relationships.

Maximizing Customer Lifetime Value

Central to these developments is the concept of customer lifetime value. Customer lifetime value predicts how much profit is associated with a customer during the course of their lifetime relationship with a company.^[1] One-time customers usually have a relatively low customer lifetime value, while frequent, loyal, repeat-customers typically have a high customer lifetime value.

How do companies develop strong, ongoing relationships with customers who are likely to have a high customer lifetime value? Through marketing, of course.

Marketing applies a customer-oriented mindset and, through particular marketing activities, tries to make initial contact with customers and move them through various stages of the relationship—all with the goal of increasing lifetime customer value. These activities are summarized below.

Typical Marketing Activities during each Stage of the Customer Relationship

Stage 1: Meeting and Getting Acquainted

- Find desirable target customers, including those likely to deliver a high customer lifetime value
- Understand what these customers want
- Build awareness and demand for what you offer
- Capture new business

Stage 2: Providing a Satisfying Experience

- Measure and improve customer satisfaction
- Track how customers' needs and wants evolve
- Develop customer confidence, trust, and goodwill
- Demonstrate and communicate competitive advantage
- Monitor and counter competitive forces

Stage 3: Sustain a Committed Relationship

- Convert contacts into loyal repeat customers, rather than one-time customers
- Anticipate and respond to evolving needs
- Deepen relationships, expand reach of and reliance on what you offer

Another benefit of effective customer relationship management is that it reduces the cost of business and increases profitability. As a rule, winning a new customer's business takes significantly more time, effort, and marketing resources than it does to renew or expand business with an existing customer.

Customer Relationship As Competitive Advantage



As the global marketplace provides more and more choices for consumers, relationships can become a primary driver of why a customer chooses one company over others (or chooses none at all). When customers feel satisfaction with and affinity for a specific company or product, it simplifies their buying choices.

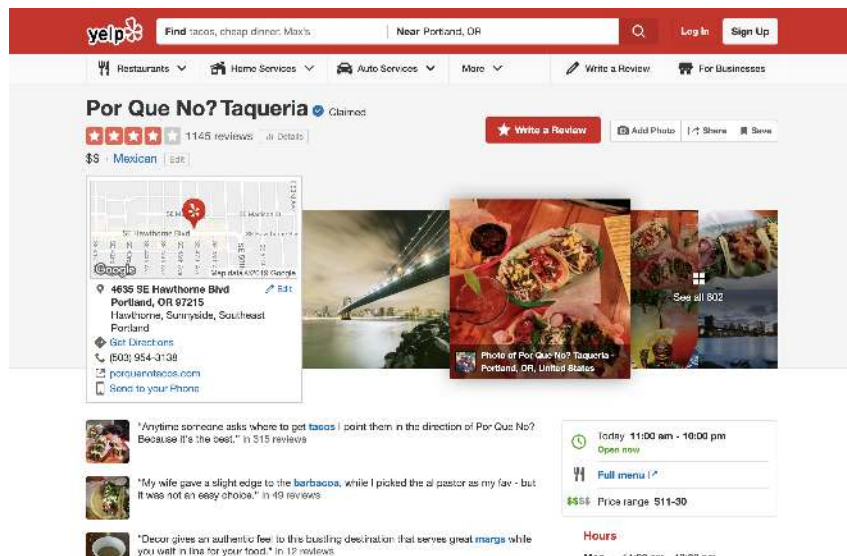
For example, why might a woman shopping for a cocktail dress choose to go to Nordstrom rather than Macy's or Dillard's, or pick from an army of online stores? Possibly because she prefers the selection of dresses at Nordstrom and the store's atmosphere. It's much more likely, though, that thanks to Nordstrom's practices, this shopper has a relationship with an attentive sales associate who has helped her find great outfits and accessories in the past. She also knows about the store's customer-friendly return policy, which might come in handy if she needs to return something.

A company like Nordstrom delivers such satisfactory experiences that its customers return again and again. A consistently positive customer experience matures into a relationship in which the customer becomes increasingly receptive to the company and its products. Over time, the customer relationship gives Nordstrom a competitive advantage over other traditional department stores and online retailers.

When Customers Become Your Best Marketing Tool

Customer testimonials and recommendations have always been powerful marketing tools. They often work to persuade new customers to give something a try. In today's digital media landscape there is unprecedented opportunity for companies to engage customers as credible advocates. When organizations invest in building strong customer relationships, these activities become particularly fruitful.

For example, service providers like restaurateurs, physical therapists, and dentists frequently ask regular patrons and patients to write reviews about their real-life experiences on popular recommendation sites like Yelp and Google+. Product providers do the same on sites like Amazon and CNET.com. Although companies risk getting a bad review, they usually gain more by harnessing the credible voices and authentic experiences of customers they have served. In this process they also gain invaluable feedback about what's working or not working for their customers. Using this input, they can retool their products or approach to better match what customers want and improve business over time.



Additionally, smart marketers know that when people take a public stance on a product or issue, they tend to become more committed to that position. Thus, customer relationship management can become a virtuous cycle. As customers have more exposure and positive interaction with a company and its products, they want to become more deeply engaged, and they are more likely to become vocal evangelists who share their opinions publicly. Customers become an active part of a marketing engine that generates new business and retains loyal customers for repeat business and increased customer lifetime value.

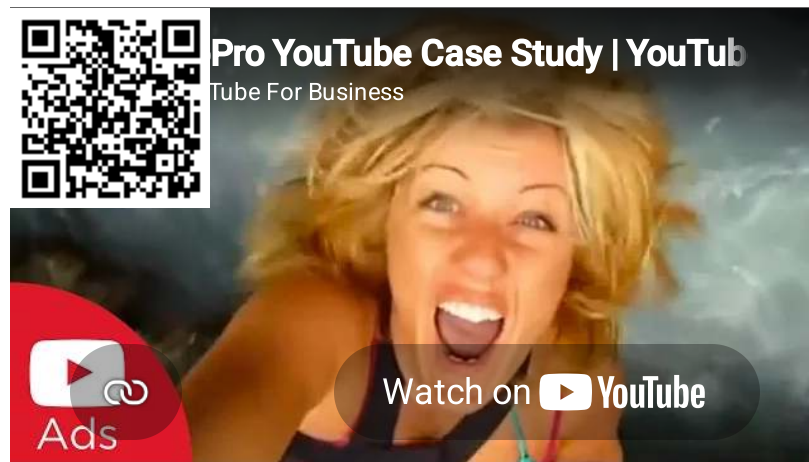
Engagement Marketing: Making Customers Part of the Brand

A further step beyond customer evangelism is engagement marketing, the practice of reaching out to customers and encouraging them to become full participants in marketing activity and the growth of a brand. Sometimes called “live marketing,” this approach is becoming more common as media and technology provide more interactive, visible, and sharable ways for consumers to connect with brands and companies.

A mind shift is under way, away from one-way, company-to-consumer communication toward marketing activities that invite consumers to shape and become part of the value a brand provides. In an increasingly crowded marketplace, many organizations find that they can distinguish themselves and their products by creating “tribes” of fans who not only advocate for the brand, but also actively make it part of their daily activities and lifestyle. Customers might even become involved in developing marketing programs, producing content that can be used for marketing purposes, and cultivating one-on-one relationships with a company or brand.

Creative marketers have invented many ways to foster engagement marketing. The self-promotional mindset and proliferating tools of social media are a natural fit for making customers part of a brand. People “check in” at their favorite restaurants and post photos to communicate with friends when they are having fun. Bloggers routinely name-check favorite products, review them, and carry on conversations about them in their posts.

The phenomenon of engagement marketing helps explain the meteoric rise in popularity of GoPro cameras. When company leaders realized that their customers had an unquenchable appetite for sharing videos of amazing outdoor adventures (shot with GoPro cameras, of course), they built the company brand and marketing strategy around engaging customers in viral sharing. The following video, produced by YouTube, explains this engagement marketing success story.



You can [view the transcript for “GoPro YouTube Case Study | YouTube Advertisers” here \(opens in new window\).](#)

1. "Customer Lifetime Value." Cambridge Dictionary. Accessed September 10, 2019.
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8.3: The Marketing Concept

What is the marketing concept and relationship-building?

Marketing is the process of getting the right goods or services or ideas to the right people at the right place, time, and price, using the right promotion techniques and utilizing the appropriate people to provide the customer service associated with those goods, services, or ideas. This concept is referred to as the “*right*” principle and is the basis of all marketing strategy. We can say that **marketing** is finding out the needs and wants of potential buyers (whether organizations or consumers) and then providing goods and services that meet or exceed the expectations of those buyers. Marketing is about creating exchanges. An **exchange** takes place when two parties give something of value to each other to satisfy their respective needs or wants. In a typical exchange, a consumer trades money for a good or service. In some exchanges, nonmonetary things are exchanged, such as when a person who volunteers for the company charity receives a T-shirt in exchange for time spent. One common misconception is that some people see no difference between marketing and sales. They are two different things that are both part of a company’s strategy. Sales incorporates actually selling the company’s products or service to its customers, while marketing is the process of communicating the value of a product or service to customers so that the product or service sells.

To encourage exchanges, marketers follow the “right” principle. If a local Avon representative doesn’t have the right lipstick for a potential customer when the customer wants it, at the right price, the potential customer will not exchange money for a new lipstick from Avon. Think about the last exchange (purchase) you made: What if the price had been 30 percent higher? What if the store or other source had been less accessible? Would you have bought anything? The “right” principle tells us that marketers control many factors that determine marketing success.

Most successful organizations have adopted the **marketing concept**. The marketing concept is based on the “right” principle. The marketing concept is the use of marketing data to focus on the needs and wants of customers in order to develop marketing strategies that not only satisfy the needs of the customers but also the accomplish the goals of the organization. An organization uses the marketing concept when it identifies the buyer’s needs and then produces the goods, services, or ideas that will satisfy them (using the “right” principle). The marketing concept is oriented toward pleasing customers (be those customers organizations or consumers) by offering value. Specifically, the marketing concept involves the following:

- Focusing on the needs and wants of the customers so the organization can distinguish its product(s) from competitors’ offerings. Products can be goods, services, or ideas.
- Integrating all of the organization’s activities, including production and promotion, to satisfy these wants and needs
- Achieving long-term goals for the organization by satisfying customer wants and needs legally and responsibly

Today, companies of every size in all industries are applying the marketing concept. Enterprise Rent-A-Car found that its customers didn’t want to have to drive to its offices. Therefore, Enterprise began delivering vehicles to customers’ homes or places of work. Disney found that some of its patrons really disliked waiting in lines. In response, Disney began offering FastPass at a premium price, which allows patrons to avoid standing in long lines waiting for attractions. One important key to understanding the marketing concept is to know that using the marketing concept means the product is created *after* market research is used to identify the needs and wants of the customers. Products are not just created by production departments and then marketing departments are expected to identify ways to sell them based on the research. An organization that truly utilizes the marketing concept uses the data about potential customers from the very inception of the product to create the best good, service, or idea possible, as well as other marketing strategies to support it.

Customer Value

Customer value is the ratio of benefits for the customer (organization or consumer) to the sacrifice necessary to obtain those benefits. The customer determines the value of both the benefits and the sacrifices. Creating customer value is a core business strategy of many successful firms. Customer value is rooted in the belief that price is not the only thing that matters. A business that focuses on the cost of production and price to the customer will be managed as though it were providing a commodity differentiated only by price. In contrast, businesses that provide customer value believe that many customers will pay a premium for superior customer service or accept fewer services for a value price. It is important not to base value on price (instead of service or quality) because customers who only value price will buy from the competition as soon as a competitor can offer a lower price.

It is much better to use marketing strategies based on customer relationships and service, which are harder for the competition to replicate. Southwest Airlines doesn't offer assigned seats, meals, or in-flight movies. Instead the budget carrier delivers what it promises: on-time departures. In "service value" surveys, Southwest routinely beats the full-service airlines such as American Airlines, which actually provide passengers with luxuries such as movies and food on selected long-haul flights.

Customer Satisfaction

Customer satisfaction is a theme stressed throughout this text. **Customer satisfaction** is the customer's feeling that a product has met or exceeded expectations. Expectations are often the result of communication, especially promotion. Utilizing marketing research to identify specific expectations and then crafting marketing strategy to meet or exceed those expectations is a major contributor to success for an organization. Lexus consistently wins awards for its outstanding customer satisfaction. JD Powers surveys car owners two years after they make their purchase. Its Customer Satisfaction Survey is made up of four measures that each describe an element of overall ownership satisfaction at two years: vehicle quality/ reliability, vehicle appeal, ownership costs, and service satisfaction from a dealer. Lexus continues to lead the industry and has been America's top-ranked vehicle for five years in a row.¹



Exhibit 11.2: Geico—the major auto insurer with the scaly mascot—famously boasts a 97 percent customer-satisfaction rating. Although the firm's claim may be exaggerated a bit, consumers get the message that Geico delivers quality insurance coverage at low prices. *In what way does the company's quirky and ubiquitous advertising—in which customers claim to have saved a bunch of money on car insurance by switching to Geico—influence customers' service expectations?* (Credit: Mike Mozart/ Flickr/ Attribution 2.0 Generic (CC BY 2.0))

Building Relationships

Relationship marketing is a strategy that focuses on forging long-term partnerships with customers. Companies build relationships with customers by offering value and providing customer satisfaction. Once relationships are built with customers, customers tend to continue to purchase from the same company, even if the prices of the competitors are less or if the competition offers sales promotions or incentives. Customers (both organizations and consumers) tend to buy products from suppliers whom they trust and feel a kinship with, regardless of offerings of unknown competitors. Companies benefit from repeat sales and referrals that lead to increases in sales, market share, and profits. Costs fall because it is less expensive to serve existing customers than to attract new ones. Focusing on customer retention can be a winning tactic; studies show that increasing customer retention rates by 5 percent increases profits by anywhere from 25 to 95 percent.²

Customers also benefit from stable relationships with suppliers. Business buyers have found that partnerships with their suppliers are essential to producing high-quality products while cutting costs. Customers remain loyal to firms that provide them greater value and satisfaction than they expect from competing firms.

Frequent-buyer clubs are an excellent way to build long-term relationships. All major airlines have frequent-flyer programs. After you fly a certain number of miles, you become eligible for a free ticket. Now, cruise lines, hotels, car rental agencies, credit-card companies, and even mortgage companies give away "airline miles" with purchases. Consumers patronize the airline and its

partners because they want the free tickets. Thus, the program helps to create a long-term relationship with (and ongoing benefits for) the customer. Southwest Airlines carries its loyalty program a bit further than most. Members get birthday cards, and some even get profiled in the airline's in-flight magazine!

CONCEPT CHECK

1. Explain the marketing concept.
2. Explain the difference between customer value and customer satisfaction.
3. What is meant by relationship marketing?

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8.6: Creating a Marketing Strategy

How do managers create a marketing strategy?

What Is Marketing Strategy?

Marketers use a number of different “tools” to develop the products or services that meet the needs and wants of their customers, provide excellent value for the customers, and satisfy those customers. Marketing strategy is really five different components of marketing. These components are called “the **Five Ps**” of marketing. They are the methods, tools, and processes used by marketers to develop and market products. These five tools are also called “the marketing mix.” These are the 5Ps:

- **Product:** Something offered in exchange and for which marketing actions are taken and marketing decisions made. Products can be goods (physical things such as smartphones) or services (such as the telecommunications that must be used for a smartphone to work) or ideas (such as the thought that being constantly connected through telecommunications is absolutely crucial in today’s society). All products have both tangible and intangible aspects.
- **Price:** Something given in exchange for a product. Price may be monetary or nonmonetary (such as waiting in long lines for a restaurant or giving blood at the local blood bank). Price has many names, such as rent, fees, charges, and others.
- **Place:** Some method of getting the product from the creator of the product to the customer. Place includes a myriad of important tasks: transportation, location, supply chain management (managing each entity that deals with the product in its route to the buyer), online presence, inventory, and atmospherics (how the office, store, or even the website looks).
- **Promotion:** Methods for informing and influencing customers to buy the product. Promotion includes several different components – traditional advertising, sales promotion, public relations, personal selling, social media, and e-commerce. Promotion is often mistaken for marketing because it is the most visible part of marketing; however, marketing encompasses much more than just promotion.
- **People:** Methods of utilizing organization employees to support the marketing strategies of the company. All products have both tangible and intangible aspects. People (as a marketing strategy) are crucial to the development of the product’s intangible aspects.

Marketers utilize the tools of marketing strategy to develop new products and sell them in the marketplace. But marketers cannot create products in isolation. Marketers must understand and consider all aspects of the external environment in order to create marketing programs (plans) that will be successful in the current market and in future markets. Thus, many organizations assemble a team of specialists to continually collect and evaluate environmental information, a process called **environmental scanning**. The goal in gathering the environmental data is to identify current and future market opportunities and threats.

Computer manufacturers understand the importance of environmental scanning to monitor rapidly changing consumer interests. Since the invention of the personal computer (PC), computer technicians and other enthusiasts have taken two things for granted: processor speeds will grow exponentially, and PCs will become indistinguishable from televisions. The result of this will be “convergence,” which means that the digital industry (manufacturers of computers, smartphones, and other mobile devices) will merge together with entertainment (such as television, radio, streaming video, and the internet). This convergence is already creating great opportunities for new products—watches that have both computers and cell phones in them, cell phones used to download videos not available except by independent entertainment producers (who are not affiliated with traditional media) such as Amazon and Google.

One clear winner in this new world so far is Apple, which has leveraged its computer platform to make it easy and fashionable for consumers to become experts in the digital age. Apple has capitalized on this through the development of iTunes, the iPhone and iPads, and the iWatch. Apple sells almost as many iPads per quarter as it does Macintosh computers, and it certainly sells a massive number of iPhones. Microsoft wants in on this business badly, but Hewlett-Packard decided to shift its loyalty to Apple, so Microsoft doesn’t have much leverage just now. The other company to watch over the next few years is Samsung, which has doubled its efforts to make its consumer electronics offerings strong competition to Apple products. Finally, the device-free streaming services such as Amazon Music, Pandora, and Spotify have provided competition to Apple while restoring profitability to the music industry.³

In general, six categories of environmental data shape most marketing decisions:

- *Cultural/social forces*: Includes such factors as the buying behaviors of specific cultures and subcultures, the values of potential customers, the changing roles of families, and other societal trends such as employees working from home and flexible work hours
- *Demographic forces*: Includes such factors as changes in the ages of potential customers (e.g., baby boomers, millennials), birth and death rates, and locations of various groups of people
- *Economic forces*: Includes such factors as changing incomes, unemployment levels, inflation, and recession
- *Technological forces*: Includes such factors as advances in telecommunications and computer technology
- *Political and legal forces*: Includes such factors as changes in laws, regulatory agency activities, and political movements
- *Competitive forces*: Includes such factors as new and shifting competition from domestic and foreign-based firms

Defining the Target Market

Marketers develop the information about the environment to get a clear picture of the total market for the product, including environmental factors. Once the marketers understand the various environmental factors, specific target markets must then be chosen from the total market. Marketers focus on providing value for a well-defined target market or target markets. The **target market** is the specific group of customers (which could be organizations or individual consumers) toward which a firm directs its marketing efforts. Quaker Oats targets its grits to blue-collar consumers in the South. Williams Sonoma has several different types of stores, each geared toward a distinct target market: Pottery Barn for upscale home furnishings; its specialty stores, West Elm, Mark and Graham, and Rejuvenation, that specialize in jewelry and other accessories; and home improvement and furnishings that are affordable and sustainable. These target markets are all part of the overall retail market for housewares and lifestyle. Identifying a target market helps a company focus its marketing efforts on those who are most likely to buy its products or services. Concentrating on potential customers lets the firm use its resources efficiently. Examples of the target markets for Marriott Hotel Brands' lodging alternatives are shown in Table 8.6.1.

Table 8.6.1: Creating a Competitive Advantage - Examples of Target Markets for Marriott Hotel Brands

	Price Range	Target Market
Fairfield Inn	\$105–125	Economizing business and leisure travelers
Towne Place Suites	\$110–140	Moderate-tier travelers who stay three to four weeks
SpringHill Suites	\$120–165	Business and leisure travelers looking for more space and amenities
Courtyard	\$120–170	Travelers seeking quality and affordable accommodations designed for the road warrior
Residence Inn	\$126–175	Travelers seeking a residential-style hotel
Marriott Hotels, Resorts, and Suites	\$135–410	Grounded achievers who desire consistent quality
Renaissance Hotels and Resorts	\$135–415	Discerning business and leisure travelers who seek creative attention to detail
Ritz-Carlton	\$295–1,500	Senior executives and entrepreneurs looking for a unique, luxury, personalized experience

Creating a Competitive Advantage

A **competitive advantage**, also called a *differential advantage*, is a set of unique features of a company and its products that are perceived by the target market(s) as significant and superior to those of the competition. Competitive advantage is the factor that causes customers to patronize a specific firm and not the competition. There are four types of competitive advantage: cost, product differentiation, service differentiation, and niche.

Cost Competitive Advantage

A firm that has a **cost competitive advantage** can produce a product or service at a lower cost than all its competitors while maintaining satisfactory profit margins. Firms become cost leaders by obtaining inexpensive raw materials, making plant operations more efficient, designing products for ease of manufacture, controlling overhead costs, and avoiding marginal customers.

Over time, the cost competitive advantage may fail. Typically, if one firm is using an innovative technology to reduce its costs, then other firms in the industry will adopt this technology and reduce their costs as well. For example, Bell Labs invented fiber-optic cables that reduced the cost of voice and data transmission by dramatically increasing the number of calls that could be transmitted simultaneously through a two-inch cable. Within five years, however, fiber-optic technology had spread through the industry, and Bell Labs lost its cost competitive advantage. Firms may also lose their cost competitive advantage if competing firms match their low costs by using the same lower-cost suppliers. Therefore, a cost competitive advantage may not offer a long-term competitive advantage.

Product Differentiation Competitive Advantage

Because cost competitive advantages are subject to continual erosion, other types of competitive advantage tend to provide a longer-lasting competitive advantage. The durability of a **differential competitive advantage** can be more successful for the long-term viability of the company. Common differential advantages are brand names (Tide detergent), a strong dealer network (Caterpillar for construction equipment), product reliability (Lexus vehicles), image (Neiman Marcus in retailing), and service (Federal Express). Brand names such as Chanel, BMW, and Cartier stand for quality the world over. Through continual product and marketing innovations and attention to quality and value, marketers at these organizations have created enduring competitive advantages.

Service Differentiation Competitive Advantage

In today's world of instant connection and social media, services are crucial for both tangible and nontangible products. Almost every day, the media report the consequences of poor service that went "viral" on social media because the service interaction was videotaped and uploaded to the internet. Customers now demand a higher level of service for all kinds of products, and if the service level does not meet customer expectations, it is likely that the customer will post negative comments on a review site or upload the interaction to various social media platforms. Some small companies have had to close their doors on the basis of one poor service interaction that went viral. Service levels that delight customers are even more important for intangible products such as engineering and accounting. More than 80 percent of the U.S. GDP is based on services. The ability to create the service product, continually refine the service process, and interact with customers (co-creators of the service) is crucial. Higher-level services require more planning, better execution, and constant evolution through the relationships with the customers. The use of service differentiation as a competitive advantage can be one of the most enduring and viable types of advantage.

Niche Competitive Advantage

A company with a **niche competitive advantage** targets and effectively serves a single segment of the market. For small companies with limited resources that potentially face giant competitors, utilizing a niche competitive advantage may be the only viable option. A market segment that has good growth potential but is not crucial to the success of major competitors is a good candidate for a niche strategy. Once a potential segment has been identified, the firm needs to make certain it can defend against challengers through its superior ability to serve buyers in the segment. For example, Regions Bank–Music Row Private Bank follows a niche strategy with its concentration on country music stars and entertainment industry professionals in Nashville. Its office is in the heart of Nashville's music district. Music Row Private Bank has decided to expand its niche strategy to Miami, the "epicenter" of Latin music, and to Atlanta. The latter is a longtime rhythm-and-blues capital and now is the center of contemporary "urban" music. Both new markets have the kinds of music professionals—entertainers, record executives, producers, agents, and others—that have made Regions Bank–Music Row Private Bank so successful in Nashville.

CONCEPT CHECK

1. What is environmental scanning?
2. What is a target market, and why should a company have one?
3. Explain the four types of competitive advantages and provide examples of each.

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8.7: Real Estate Investments

Learning Objectives

1. Distinguish between direct and indirect investments in real estate.
2. Identify the four main ways to invest in real estate indirectly.
3. Explain the role and the different kinds of REITs.
4. Discuss the role and uses of mortgage-backed securities.

When you buy a home, even with a mortgage, you are making a **direct investment**, because you are both the investor and the owner who holds legal title to the property. For most people, a home is the single largest investment they ever make.

As an investor, you may want to include other real estate holdings in your portfolio, most likely as an **indirect investment** in which you invest in an entity that owns and manages real estate. Studies have shown that real estate is a good diversifier for financial investments such as stocks and bonds. Jack Clark Francis and Roger G. Ibbotson, *Contrasting Real Estate with Comparable Investments, 1978–2004* (Ibbotson Associates, 2007), <http://corporate.morningstar.com/ib/asp/detail.aspx?xmlfile=1409.xml> (accessed June 24, 2009).

Direct Investments

Sonia is looking to buy her first home. After graduating from college, she decided to stay on because she liked the town and found a job as an elementary school teacher. She loves her job, but her income is limited. She finds a nice, two-family house in a neighborhood close to the college. It needs some work, but she figures she can use the summer months to fix it up—she's pretty handy—and renting to students won't be a problem. The tenants will pay their own utilities. Sonia figures that the rental income will help pay her mortgage, insurance, and taxes, and that after the mortgage is paid off, it will provide a nice extra income.



Figure 17.2.1 . © 2010 Jupiterimages Corporation

Many real estate investors begin like Sonia, buying a rental property that helps them to afford their own home. If you actively manage the rental property, there are tax benefits as well. Of course, you have to provide maintenance services and arrange for

repairs, and, in Sonia's case, perhaps give up a bit of privacy. A second or vacation home can be used as a rental property as well, although the tax benefits are less assured. In both cases, the investor is making a direct investment in the property.

The advantages to a direct investment are the additional rental income and tax benefits. The disadvantages are that real estate is relatively illiquid, and the investment concentrates your portfolio in one asset class—residential real estate. Conventional wisdom was that real estate was a good hedge against inflation, but the recent burst of the housing bubble—not only in the United States but also worldwide—has cast a shadow on that thinking. Also, to realize the tax benefits, you must actively manage the rental property, and being a landlord is not for everyone.



Figure 17.2.2 : © 2010 Jupiterimages Corporation

Other direct real estate investments include **commercial property**, or property exclusively for rent, and undeveloped land. Developers buy property or land and seek to profit from quickly improving and reselling it. Both are more speculative investments, especially if purchased with debt financing. They may also prove to be illiquid and to concentrate assets, making them inappropriate investments for investors without a large and diversified portfolio.

Indirect Investments

Investors who want to add a real estate investment to their portfolio more often make an indirect investment. That is, they buy shares in an entity or group that owns and manages property. For example, they may become limited partners in a real estate syndicate.

A **syndicate** is a group created to buy and manage commercial property such as an apartment, office building, or shopping mall. The syndicate may be structured as a corporation or, more commonly, as a limited partnership.

In a **limited partnership**, there is a general partner and limited partners. The general partner manages the entity, while the limited partners invest in partnership shares. The limited partners are only liable for the amount of their investment; that is, they can lose only as much as they have put in. Limiting liability is particularly important in real estate, which relies on leverage or debt financing. Investors find syndicates valuable in limiting liability and in providing management for the property.

Another form of indirect investing is a **real estate investment trust (REIT)**—a mutual fund of real estate holdings. You buy shares in the REIT, which may be privately held or publicly traded on an exchange. The REIT is a fund invested in various commercial properties. Some REITs specialize, concentrating investments in specific kinds of property, such as shopping malls, apartments, or vacation properties.

To qualify as a REIT in the United States (for the allowable tax benefits), a fund must

- be managed by directors as a corporation or trust,
- offer transferrable shares,

- not be a financial institution,
- have at least a hundred shareholders,
- have at least 95 percent of income from interest, dividends, and property,
- pay dividends that are at least 90 percent of the REITs taxable income,
- have at least 75 percent of its assets invested in real estate,
- get at least 75 percent of gross revenue from real estate.

An equity REIT invests in property, while a mortgage REIT provides real estate financing. A hybrid REIT does both. REITs do for real estate what mutual funds do for other assets. They provide investors with a way to invest with more liquidity and diversity and with comparatively lower transaction costs.

Another way to invest in the real estate market is to invest in the real estate financing rather than the actual real estate. **Mortgage-backed securities (MBS)** are bonds secured by pools of mortgages owned by large financial institutions or agencies of the federal government.

It is difficult to price mortgage-backed securities—to gauge their present and future value and their risk. Like any bond, mortgage-backed securities are vulnerable to interest rate, reinvestment, and inflation risk, but they are also particularly vulnerable to economic cycles and to default risk. If the economy is in a recession and unemployment rises, mortgage defaults will likely rise. When mortgage defaults rise, and the value of mortgage-backed securities falls.

Because they are complicated and risky, mortgage-backed securities are appropriate only for investors with a large enough asset base and risk tolerance to support the investment. MBS investors are usually institutional investors or very wealthy individuals.

Key Takaways

- Direct investments in real estate involve controlling ownership and management of the property.
- Indirect investment involves owning a share of a company that owns and manages the real estate.
- Indirect investments may be structured as
 - a syndicate,
 - a limited partnership,
 - a real estate investment trust (REIT).
- A REIT is designed as a mutual fund of real estate holdings.
 - An equity REIT invests in property.
 - A mortgage REIT invests in real estate financing.
 - A hybrid REIT does both.
- Mortgage-backed securities are another way to invest in a real estate market by investing in its financing, but they are considered too risky for individual investors.

Exercises

1. View the video “Top Eight Real Estate Investment Mistakes” at www.5min.com/Video/Top-Eight-...takes-24084962. According to the speaker, based on eight common mistakes that real estate investors make, what eight things should you do to succeed? The same speaker gives advice on how to be a landlord at www.5min.com/Video/What-Does-...dlord-27579055. What five points does she identify as most important?
2. What have been your experiences as a landlord or as a tenant? Collaborate with classmates to develop two lists: advantages and disadvantages of direct investing in rental property and of being a tenant in a residential or commercial space. Have you had any experience with developing or “flipping” property for resale? What is your opinion of direct investing in foreclosed homes to flip for profit? For perspectives, see the 2009 Money Talks videos on this subject, such as “Vulture Investing” at www.youtube.com/watch?v=rXF1d...fs&feature=fvw. According to the MSN article “Flipping Houses Is Harder than It Looks” at <http://realestate.msn.com/article.aspx?cp-documentid=13107725>, why is flipping houses so challenging?
3. Are you already invested in real estate? Record in My Notes or your personal finance journal information about your investment and/or your strategy for including real estate in your investment portfolio. Will you invest directly, indirectly, or both? What is your plan and timetable for executing your strategy? Choose one of the REITs listed at “In Reality” at

www.inrealty.com/restocks/linmrt.html to track and to consider hypothetically as an investment. What might be some advantages and risks of investing in this or another REIT as part of your investing strategy?

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CHAPTER OVERVIEW

9: Housing Complaints

9.1: Housing-Related Complaints

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9.1: Housing-Related Complaints

Find out what to do if you have one of these complaints when buying or renting a home.

What's on This Page

- [Complaints About Mortgage Companies](#)
- [Identify and Complain about Housing Discrimination](#)
- [Landlord and Tenant Disputes](#)

Complaints About Mortgage Companies

If you feel that you have been the victim of a discriminatory lending transaction, you can contact the [Federal Trade Commission \(FTC\)](#) or file a complaint using their Online Complaint Assistant. The FTC has enforcement authority in the case of mortgage companies for the following laws:

- [Equal Credit Opportunity Act \(ECOA\)](#)
- [Truth in Lending Act](#)
- Fair Credit Reporting Act

You may also file consumer complaints using the following resources:

- [Consumer Financial Protection Bureau \(CFPB\)](#)
- [State/local consumer protection agencies](#)

Foreclosure Scams

If you feel you are the victim of a foreclosure scam, you may contact the HOPE NOW Alliance at 1-888-995-HOPE (1-888-995-4673) or (TTY 1-877-304-9709), for more information on how to lodge your complaint.

Predatory Lending

Getting the right mortgage can be difficult. For instance, consumers can become victims of predatory lending, which is the practice of convincing borrowers to agree to unfair and/or unprincipled loan terms. Federal and state governments enact many laws to prevent predatory lending. Find information on [predatory lending](#), including resources to help protect you against it.

Please note: You are legally obligated to make your mortgage payments by the date specified each month, whether or not you are provided with a bill, the mortgage company or loan service agency has properly credited your previous payments, and/or the escrow has been properly handled. Never withhold your mortgage payments for any reason.

Identify and Complain about Housing Discrimination

Housing discrimination happens when a housing provider acts in a way that blocks someone from renting or buying housing because of their

- Race or color
- Religion
- Sex
- National origin
- Familial status (such as having children)
- Disability

A housing provider that discriminates against someone could be a landlord or a real estate management company. It could also be a lending institution like a bank or other organization that is an important part of acquiring a home.

Housing discrimination is prohibited by the Fair Housing Act. Discrimination covered by the Act can take many different forms beyond just raising prices or lying about availability. For example, the Act addresses wheelchair access in some newer properties. Learn what the Fair Housing Act covers, how to complain, and how the investigation process works.

File a Housing Discrimination Complaint

If you think you are a victim of housing discrimination,

- Complete and submit a Housing Discrimination Complaint Form or
- Contact your regional HUD office

Discrimination Against LGBT People

The Fair Housing Act does not specifically prohibit discrimination based on sexual orientation or gender identity. But discrimination against someone who is lesbian, gay, bisexual, or transgender (LGBT) may still be in violation of the Act or other state or local regulations. If you think you've been discriminated against for these reasons, file a complaint as described above, or email HUD at LGBTFairhousing@hud.gov with general questions about LGBT housing issues.

Landlord and Tenant Disputes

If you are someone who pays to rent a home or an apartment (a tenant), you may at some point have a dispute with the person who owns the building or management company that represents the owner (the landlord). Often disputes are about the conditions of the building, essential services, rent increases, or your right to stay. It is best to come to an agreement directly with the landlord or manager. Make sure that you get everything in writing. If a landlord and tenant cannot come to an agreement, a tenant might turn to outside help.

Getting Help for a Dispute with a Landlord

Laws about the rights of tenants and landlords are almost always handled at the state level. Find help from your state in a directory of state-level agencies and resources of interest to tenants. Results differ for each state, but you may find:

- State agencies that address tenant rights.
- Agencies that handle complaints.
- Resources for legal assistance.

You may eventually decide that you need help from a lawyer. People with very low-income might qualify for [free legal aid from a non-profit organization](#).

Complaints about housing discrimination or landlords who receive assistance from the federal government should be directed to the U.S. Department of Housing and Urban Development.

Before There's a Problem

Of course, it's best to avoid a dispute in the first place if possible.

- Understand your lease completely.
- Keep all correspondence between you and your landlord.
- Communicate problems early on and in writing, noting date and time of phone calls.
- Keep proof of rent and deposits paid.
- Know the landlord-tenant laws in your state.

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CHAPTER OVERVIEW

10: Leasing Processes and Types of Residents

10.1: Residential Lease Transactions

10.2: Residential Leases

10.3: Selecting Tenants

10.4: Appendix 1- Sample Lease

10.5: References

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10.1: Residential Lease Transactions

INTRODUCTION

This chapter will explain the basics in residential lease transactions. It should be noted that this chapter will discuss the law as it pertains generally across the New York State. The law regarding rent control, rent stabilization, and boarding house leases will not be discussed in much detail.

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10.2: Residential Leases

Leases are contracts between landlords and tenants, (also referred to as lessors and lessees) which can be in writing or verbal, allowing the tenant to take possession of the landlord's property for a specific term and for a specified rent. All leases can be in writing, but do not have to be. However, all leases that are for a term of one year or more must be in writing. An oral lease for more than one year cannot be legally enforced. (General Obligations Law § 5-701) Leases that are that not in writing are called month-to-month leases.

Written leases that are for a term of one year or more can become month-to-month leases. For example, take a tenant who has a written lease for a term of one year. After one year, the written lease now expires, but the landlord allows the tenant to remain in the rental unit without signing a lease renewal or new lease. All the terms of the written lease will remain intact except that the lease is now a month-to-month lease, meaning the term is one month. If the tenant wants to move out, or the landlord wants to raise the rent, the law regarding month-to-month leases applies.

The law regarding month-to-month leases allows tenants to terminate their lease with one month's notice. (30 days in NYC.) However, the one month's notice must be given before the first of the month of termination. For example, if a tenant wants to move out at the end of June, the one-month notice would have to be given to the landlord no later than May 31st. If the notice was given to the landlord on June 1st, the tenant would be responsible for both the June and July rent. The lease would not terminate until the end of July.

The law for landlords of month-to-month leases is very much the same. If a landlord wants to terminate the tenancy of a tenant, the same rules regarding one month's notice apply. The same one month's notice applies if the landlord wants to raise the rent.

Terminating a month-to-month lease is much easier as no cause needs to be established, only proof of proper notice. Not so if a tenant or landlord attempts to terminate a longer term lease before the end of the term. In those situations, cause must be alleged and proven.

Plain English: The law in New York requires that all leases must be in plain English. The language in residential leases must be clear, simple, and understandable. (General Obligations Law § 5-702; NY CPLR § 4544)

At a minimum, a lease should identify the premises to be leased, specify the names and addresses of the parties, the amount and due dates of the rent, the term or duration of the lease, conditions of occupancy, and the rights and obligations of both parties.

Rent: As long as an apartment is not subject to Rent Control or Rent Stabilization, a landlord can charge any amount of rent agreed upon by the parties. Rent is usually paid monthly and usually is due the first of the month. Some leases give a grace period that the rent can be paid before a late fee applies.

Rent Control: Rent control limits the rent a landlord may charge for an apartment. It also restricts the right of the landlord to evict tenants. Rent control is still in effect in New York City and parts of Albany, Erie, Nassau, Rensselaer, Schenectady, and Westchester counties.

Rent Stabilization: Rent stabilization generally covers buildings built after 1947 and before 1974, along with some buildings built with tax incentives. Rent stabilization limits the ability of landlords to raise rent. It also entitles tenants to have their leases renewed, and tenants may not be evicted except on legal grounds. You will find rent stabilization laws in NYC and in certain localities located in Nassau, Westchester, and Rockland counties.

Security Deposit: This is money paid by a tenant that is held in escrow by a landlord as collateral in the event the tenant damages the property they are leasing, or fails to pay all the rent that is due. The amount of a security deposit is whatever the parties agree to. Generally, it is an amount that equals between one and two months' rent. Non-refundable security deposits are unlawful.

Landlords of buildings with six or more apartments must put all security deposits in a New York bank accounts earning interest at the prevailing rate. Each tenant must be informed in writing of the bank's name and address and the amount of the deposit. Landlords are entitled to collect annual administrative expenses of one percent of the deposit. All other interest earned on the deposits belongs to the tenants. (General Obligations Law § 7-103)

New York State law requires that security deposits must be returned in a reasonable amount of time. There is no specific time frame set by statute. Generally speaking, courts have interpreted 30 days to be a reasonable amount of time.

A landlord can use a security deposit to make repairs caused by the tenant. A landlord can also use the security deposit for any rent or fees that are unpaid. If a landlord does keep any amount of a security deposit, they must inform the tenant in writing on why and how they calculated their expenditures.

While a landlord can deduct from the deposit actual cost of damages including labor costs, they cannot deduct for repairs that are considered normal wear and tear. However, if a tenant leaves the apartment unclean, the costs of cleaning can be deducted from the security deposit.

Renewal Clauses: Leases may contain automatic renewal clauses. However, to be enforceable, the landlord must give the tenant advance notice of the existence of this clause between 15 and 30 days before the tenant is required to notify the landlord of an intention not to renew the lease. (General Obligations Law § 5-905)

Senior Citizen Rights: Senior citizens have the right to terminate their leases with thirty days' notice to their landlord if they are at least 62-year- old, and accepted into: 1) an adult care facility; 2) a residential health care facility; 3) subsidized low income housing; 4) other senior housing; or 5) move into the residence of a relative or family member if certified by a physician as no longer able to live independently. (Real Property Law § 227-a)

Active Duty Military: Tenants that are on active duty with the military and transferred out of the area, may terminate their lease with a thirty-day notice corresponding to the rent due date. (NY Military Law § 310)

Victims of Domestic Violence: Tenants that are victims of domestic violence and are shielded by a court order of protection are permitted, with ten days' notice to their landlord, to seek a court order terminating their lease. If the lease is terminated by court order, the tenant will be released from any further rental payments. (Real Property Law § 227-c)

Sharing Occupancy: A landlord cannot restrict the occupancy of an apartment strictly to the named tenant or tenants in a lease. Tenants may share the rental unit with immediate family, one additional occupant, and the occupant's dependent children, provided that the tenant or the tenant's spouse occupies the premises as their primary residence.

When a lease names more than one tenant, and one of the tenants named in the lease moves out, that tenant may be replaced with another occupant and the dependent children of the occupant.

Tenants have the obligation to give the landlord notice of the additional occupants within 30 days. If the tenant moves out, the occupants have no right of occupancy.

Landlords may limit the total number of people living in rental based on state and local occupancy laws.

Heat Bills: The law in New York requires that a landlord or heat supplier must furnish, upon request by a prospective tenant, the cost of heating and cooling for the past two years. (Energy Law § 17-103)

Providing Heat: A landlord must provide heating, plumbing, and electrical apparatus in good and safe working order, even if the tenant pays the utility bills. State law requires that landlords who supply heat to tenants must do so between October 1 and May 31. Multiple Dwelling Law § 79 links the outside temperature to the required indoor temperature as follows:

Time	Outside	Inside
6 a.m. to 10 p.m.	55 degrees or less	68 degrees
10 p.m. to 6 a.m.	40 degrees or less	55 degrees

Municipalities may require higher, but not lower, indoor temperatures.

Hot Water: Landlords must provide both hot and cold water. (Multiple Dwelling Law § 75) Hot water should have a constant temperature of 120 degrees or greater at the tap.

Safety: Landlords are required to follow all Certificate of Occupancy requirements. They must install and maintain the proper number of smoke detectors and carbon monoxide detectors. They must abide by all state and local lead paint laws. The apartment must be secured with functioning window and door locks. Some buildings require functioning intercom systems and access to fire escapes. Landlords are required to take reasonable measures to keep their property safe from crime.

Assignment of Lease: “Unless a greater right to assign is conferred by the lease, a tenant renting a residence may not assign his lease without the written consent of the owner, which consent may be unconditionally withheld without cause provided that the owner shall release the tenant from the lease upon request of the tenant upon thirty days’ notice if the owner unreasonably withholds consent which release shall be the sole remedy of the tenant. If the owner reasonably withholds consent, there shall be no assignment and the tenant shall not be released from the lease.” (Real Property Law § 226-b(1)).

Sublet: “A tenant renting a residence pursuant to an existing lease in a dwelling having four or more residential units shall have the right to sublease his premises subject to the written consent of the landlord in advance of the subletting. Such consent shall not be unreasonably withheld.”

(Real Property Law § 226-b(2)(a))

“If the landlord consents, the premises may be sublet in accordance with the request, but the tenant thereunder, shall nevertheless remain liable for the performance of tenant’s obligations under said lease. If the landlord reasonably withholds consent, there shall be no subletting and the tenant shall not be released from the lease. If the landlord unreasonably withholds consent, the tenant may sublet in accordance with the request and may recover the costs of the proceeding and attorney’s fees if it is found that the owner acted in bad faith by withholding consent.”

(Real Property Law § 226-b(2)(c))

Pets: Whether a landlord will allow a tenant to have pets is a lease term that is negotiated between the parties. Landlord are allowed to charge more rent and fees, including higher security deposits with tenants that want to have pets.

Snow Removal and Lawn Cutting: Tenants of single family and two-family dwellings are responsible for cutting the grass and shoveling the snow unless the landlord and tenant(s) agree otherwise. Some local laws even require that the first-floor tenant is responsible for snow removal on the public sidewalk in front of the rented premises.

Warranty of Habitability: “In every written or oral lease or rental agreement for residential premises the landlord or lessor shall be deemed to covenant and warrant that the premises so leased or rented and all areas used in connection therewith in common with other tenants or residents are fit for human habitation and for the uses reasonably intended by the parties and that the occupants of such premises shall not be subjected to any conditions which would be dangerous, hazardous or detrimental to their life, health or safety. When any such condition has been caused by the misconduct of the tenant or lessee or persons under his direction or control, it shall not constitute a breach of such covenants and warranties.” (Real Property Law § 235-b(1))

“Any agreement by a lessee or tenant of a dwelling waiving or modifying his rights as set forth in this section shall be void as contrary to public policy.” (Real Property Law § 235-b(2))

The warrant of habitability does not have to be stated in the lease. It applies to all residential leases by law.

Tenant Repair and Deduct Law: When a tenant has repeatedly requested repairs in writing over an extended period of time, the tenant may, under common law, make the repairs and deduct the costs of said repairs from the rent. There is no written law that allows this remedy in NYS. Therefore, there is no guaranteed protection given a tenant who decides to take the course of action.

Appliances: Landlords are not required to provide appliances in an apartment. However, if they do not provide a stove or refrigerator with the apartment, they must notify the tenant before finalizing the lease. If the landlord does supply appliances, they must keep them in good working order.

Privacy Rights of a Tenant: Tenants are entitled to what is referred to as quiet enjoyment of their leased premises. This doctrine limits a landlord’s access to a tenant’s apartment so as to protect the privacy of a tenant. If a landlord wants to enter the tenant’s apartment, they must give reasonable notice (24 hours) before doing so. However, a landlord may enter without notice for emergencies. Fire, gas or water leaks, and burglary are considered emergencies. A lease often details how the tenant’s right to privacy will be protected.

Unlawful Lease Terms: Certain terms in a lease are void by law. A term that exempt the landlord from liability for injuries to persons or property caused by the landlord’s negligence, or that of the landlord’s employees or agents would be void pursuant to General Obligations Law § 5-321. Waiving the tenant’s right to a jury trial in any lawsuit brought by either of the parties against the other for personal injury or property damage would be void pursuant to Real Property Law § 259-c. Requiring tenants to pledge their household furniture as security for rent is void pursuant to Real Property Law § 231.

Renters Insurance: Tenants often purchase renter's insurance to cover their risk of loss if their personal property in their apartment is damaged. Landlord's carry insurance that covers the risks to the landlord's property, not to damage or losses incurred to a tenant's personal property in a rental unit. When damage results to a tenant's personal property from something like water damage due to a broken water supply line, or burglary, the landlord will not be responsible for said damages. That is when renters insurance would help a tenant recover from their loss. If the landlord were in some way legally responsible, a tenant may be able to sue the landlord for said damages but that is often not easy to prove, can be expensive, and is time consuming.

Evictions: Evictions are legal proceedings where a landlord is asking a civil court to issue an order for removal of the tenant from an apartment. Typically, when a tenant has not paid the rent (is in arrears), or violated terms of the lease (like having a pet in an apartment where the lease specifically prohibits such), or is a hold over tenant (when a tenant remains in possession of a property without the landlords consent after their lease has expired), a landlord must first give three days' written notice of the violations, then serve a tenant with a Notice of Petition and Petition to appear in court for a Summary Proceeding for eviction. The Petition sets out the grounds for the eviction, while the Notice of Petition sets out the date, location of the court, and time of appearance for the Summary Proceeding. A Summary Proceeding is an expedited court proceeding.

At the Summary Proceeding, if a judge finds there that no triable issues exist, there is no hearing. The landlord then obtains an order for eviction and judgment for rent due. If the judge finds there is a triable issue of fact (like a warrant of habitability violation claim), then the judge can set a hearing date to get testimony from both parties before rendering an order of eviction or dismissing the case.

Landlords may not use self-help to evict a tenant. A landlord cannot do things like change the locks, remove a tenant's possessions, or shut off the utilities to force a tenant out. These actions are criminal acts under New York State Real Property Law § 235.

If a judge issues a judgment of eviction known as a Warrant of Eviction, the tenant will have 72 hours to vacate the premises. If the tenant fails to abide by the Warrant of Eviction, only a marshal of the court can enforce the Warrant. The landlord would hire the marshal to enforce the Warrant and remove the tenant.

If the tenant leaves their personal belongings behind in an apartment, whether the tenant is evicted or not, unless the tenant has given notice to the landlord that they do not want said personal property, the landlord must place those items in a secure storage area for 30 days before disposing of them. The tenant has the right retrieve said items of personal property within the 30-day period of time as long as they pay the landlord for the reasonable cost of the storage. After the 30-day period expires, the landlord can sell any remaining personal property in storage and apply those funds to any monies owed to the landlord by the tenant.

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10.3: Selecting Tenants

A person's ability to pay rent and willingness to preserve an apartment are the two major considerations of a landlord in selecting a tenant.

Landlords usually use an application form which requests the following information:

- Name, social security number, and current residence address
- Number and names of people who will occupy rental unit
- Residence and work telephone numbers
- Annual income and source
- Employer's name, address, and length of time on the job
- Bank accounts – name of bank and account number(s)
- Past residence addresses over several years
- Motor vehicle make, model, year, and plate numbers
- Credit and character references
- Whom to contact in the event of an emergency
- Written permission from the applicant to run a credit report on them

Discrimination: In selecting a tenant, a landlord is prohibited under New York's Human Rights Act and the federal government's Fair Housing Amendments Act of 1988 from illegally refusing to rent or refuse to renew a lease based on race, color, religion, national origin, age, sex, marital status, disabilities, sexual orientation, military status, and children. These are what are called under the laws "protected categories" that prohibit discrimination in residential lease transactions.

However, landlords in owner-occupied rental units of four units or less, and in renting a room in a home in which the owner resides, are exempt from both these state and federal discrimination laws.

Sexual Harassment in Housing: Sexual harassment in housing is a form of sex discrimination prohibited by the Fair Housing Act and other federal and state laws. There are two main types of sexual harassment: (1) quid pro quo sexual harassment; and (2) hostile environment sexual harassment.

Quid pro quo harassment is when a landlord, property manager, or maintenance person requires a person to submit to an unwelcome request to engage in sexual conduct as a condition of obtaining or maintaining housing or housing-related services.

Hostile environment harassment is when a landlord, property manager, or maintenance person subjects a person to severe or pervasive unwelcome sexual conduct that interferes with the rental, the availability of a rental, or the terms, conditions, or privileges of housing or housing-related services.

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10.4: Appendix 1- Sample Lease

LEASE AGREEMENT made by and between the Tenant, _____, currently residing at _____, and the Landlord, _____, with a current mailing address of _____.

The parties hereby agree to the following terms and conditions of this lease agreement:

1. **Apartment Location:** _____, Apt. No. _____.
2. **Term of Lease:** _____ Months, beginning _____ and ending _____.
3. **Rent:** Monthly: \$ _____.
4. **Rent Due Date:** Rent will be due the _____ day of the month starting _____.
5. **Late Charge:** Tenant will pay a charge of \$ _____ if rent is more than five (5) days late.
6. **Maintenance of the Apartment:** The tenant agrees to pay for any damage to the apartment occurring during his term only. Tenant may, within ten (10) days of moving in, notify the owner in writing of any items which are damaged, broken, or soiled. The tenant will not be held responsible for any damage, breakage, or soil occurring before the tenant moved in. Broken glass of windows shall be replaced by tenant. The tenant agrees not to paint or make any alterations to the apartment without discussing his plans with the owner. The tenant is responsible for, and shall take care of, the apartment during his occupancy and agrees to keep the apartment clean.
7. **Security Deposit:** A Security Deposit in the amount of \$ _____, which represents one-month's rent, is required, and will be held in trust by the owner until termination of tenancy. The security deposit is not to be considered as rent for the last month of lease. The Security Deposit will be refunded in full, with interest minus a 1% account maintenance fee within thirty (30) days of termination of this tenancy, less any damages over and above regular wear and tear, and less cleaning charges, if any.
8. **Cleaning Charges:** Tenant is expected to leave apartment clean at end of tenancy, and to place all unwanted items in boxes, and remove same from the apartment, and place at curb, ready for refuse collector. If the tenant fails to leave the apartment in clean condition, the following cleaning charges may be applied against the Security Deposit: Range: \$25.00; Refrigerator: \$25.00; Kitchen (including cabinets), Bathroom (including all fixtures and tile), and all other rooms: \$15.00 each.
9. **Utilities:** The tenant shall be responsible and pay for electric, cable, telephone, and internet service to the apartment. The landlord is responsible for, and will pay, the utilities for the gas appliances that provide heat and hot water service to the apartment and for the water supply service.
10. **Early Termination:** Tenant agrees to occupy the apartment and to pay rent during the full term of lease. Owner will release tenant from tenant's obligation to complete the full term of this lease provided:
 - (a) Tenant gives at least one-month's written notice of his intention to leave. Notice should be mailed to Owner at address as stated at the top of this lease, and
 - (b) Tenant pays the regular rent for one month after date of written notice, and
 - (c) Tenant will let owner keep the security deposit to cover such rental expenses as advertising, traveling, and showing apartment caused by the earlier termination.
11. **Use of Premises:** The tenant shall use the apartment as private living quarters for no more than _____ occupants. Tenant agrees not to use the apartment for business purposes. The tenant shall not violate any regulation of the Board of Health, Fire Underwriters, City Ordinance, or State or Federal laws of any nature, and shall not use the apartment for any unlawful or immoral purpose.
12. **Assignment or Subletting:** The tenant agrees that he will not assign this lease or sublet the apartment, or any part of it, without the written consent of the owner. Said consent shall not be unreasonably withheld and the landlord will only refuse to consent for a good reason.

13. **Repairs:** Plumbing leaks, failure of heating or hot water systems, and electrical malfunctions will be repaired by the landlord within a reasonable time after the tenant notifies the owner. To avoid more damage to the apartment, the tenant agrees to give notice of the need of said repairs to the landlord as soon as possible. Landlord is not required to give notice of entry of the apartment to evaluate and/or make emergency repairs.

14. **Insurance:** The owner's insurance policy covers damage or loss by fire, theft, or otherwise, to the building and owner's furnishings only. It is the responsibility of the tenant to protect with renters insurance tenant's own personal property. Tenant agrees to make no claims against owner for any such damage or loss.

15. **Pets:** No pets of any kind are allowed in the apartment.

16. **Snow Removal and Lawn Maintenance:** The landlord is responsible for all snow removal at the premises, as well as lawn maintenance.

17. **Tenant Privacy:** Tenant will have quiet enjoyment of said apartment. Landlord will give 24-hour notice of intent to enter said apartment unless emergency repairs are required.

18. **Signatures:** The person signing this lease as the tenant states that she/he has the authority to sign for all other persons who will occupy the apartment.

_____, Tenant

Dated: _____

_____, Landlord

Dated: _____

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CHAPTER OVERVIEW

11: Banishment in Public Housing

[11.1: Banishment in Public Housing- Testing an Evolution of Broken Windows](#)

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11.1: Banishment in Public Housing- Testing an Evolution of Broken Windows

Abstract

Banishment policies grant police the authority to formally ban individuals from entering public housing and arrest them for trespassing if they violate the ban. Despite its widespread use and the social consequences resulting from it, an empirical evaluation of the effectiveness of banishment has not been performed. Understanding banishment enforcement is an evolution of broken windows policing, this study explores how effective bans are at reducing crime in public housing. We analyze crime data, spanning the years 2001–2012, from six public housing communities and 13 surrounding communities in one southeastern U.S. city. Using Arellano-Bond dynamic panel models, we investigate whether or not issuing bans predicts reductions in property and violent crimes as well as increases in drug and trespass arrests in public housing. We find that this brand of broken windows policing does reduce crime, albeit relatively small reductions and only for property crime, while resulting in an increase in trespass arrests. Given our findings that these policies have only a modest impact on property crime, yet produce relatively larger increases in arrests for minor offenses in communities of color, and ultimately have no significant impact on violent crime, it will be important for police, communities, and policy makers to discuss whether the returns are worth the potential costs.

1. Introduction

The broken windows theory of crime suggests that physical disorder in neighborhoods leads to social disorder and eventually serious crime [1]. In efforts to reduce serious crime, proponents of the theory have developed a broken windows policing strategy, which was made famous by New York City's "quality-of-life policing" strategy [2,3]. Broken windows policing targets low-level misdemeanor crimes to prevent serious crime [4,5]. While the effectiveness of the strategy has been debated and its use is controversial (see [6]), within public housing, an evolution of broken windows policing has made its way into the lives of residents through a process of legal banishment. Banishment policies grant police the authority to formally prohibit individuals from entering public housing properties and arrest them for trespassing if they then violate the ban. Public housing agencies (PHAs) justify banishment by arguing that it is a strategy for reducing serious crime in public housing. In addition to attempting to stymie social disorder through the issuing of formal bans, this policy grants police the opportunity to more easily control drug possession and potential sales since banned individuals can be arrested for trespassing and subsequently searched if they enter public housing. In this way, banishment serves two purposes for police: it allows them to remove potential criminals and makes it easier to enforce drug laws. Despite the widespread use of banishment policies (see [7]) and the evaluation of policing efforts in public housing [8,9,10,11,12,13,14,15,16], an empirical evaluation of the impact of banishment on reducing crime or making drug arrests has not been performed. This study is the first to explore the effect these bans have on crime and drug arrests in public housing. As will be explained below, this strategy, which has been shown to be disproportionately used in disenfranchised communities [17], empowers the police [7] and can result in citizens being permanently excluded from spaces even if they have been invited. The result of these policies can have serious social consequences for the banned individuals, their families, and the communities in which it is used. Given the potential social costs, understanding the effectiveness of banishment enforcement in public housing is therefore critical. Thus, the current study adds to the extant literature on broken windows policing broadly, the policing of public housing generally, and banishment in public housing specifically. More precisely, we extend on the work done by Torres [18] which investigated the perceived effectiveness of banishment and police in Kings Housing Authority (KHA) and found that public housing residents are more likely to find banishment and police effective if they trusted the police. Notwithstanding the significance of perceptions toward banishment's effectiveness, we turn our attention here to address whether issuing bans predicts reductions in property and violent crimes in KHA.¹ We also explore whether issuing bans predicts increases in drug and trespass arrests. We rely on crime data from 19 communities in one southeastern U.S. city: six public housing communities and 13 surrounding communities. We find that this brand of broken windows policing does work to reduce crime, albeit relatively small reductions and only for property crime. Furthermore, we find that banishment results in an increase in trespass arrests. Both of these findings raise questions about whether or not PHAs and police departments should continue to use banishment. On the one hand, banishment has been shown to modestly reduce property crime. However, it generates a significant increase in trespass arrests, which brings into question its usefulness as a deterrent, increases the number of low level arrests in neighborhoods that are disproportionately composed of people of color, and does not significantly reduce violent crime.

2. Background

2.1. Banishment in Public Housing

In the wake of the War on Drugs and specifically the Anti-Drug Abuse Act of 1988, PHAs took considerable measures to stem the proliferation of drugs and violence within their communities.² One logical strategy was banishment or "no-trespass policies" [20,21,22,23]. Under banishment policies, PHAs can ask their local police department to warn nonresidents that they may be banned if they engage in criminal and civil behaviors, past or present, that PHAs consider worthy of banishment. Banned persons are placed on a no-trespass list maintained by PHAs or police. Once banned, individuals found on the property can be arrested for trespassing [18,21,22,23]. For an idea of how critical PHAs have felt that banishment is vital to crime suppression, a survey of

PHAs was conducted in 2003 by the Council of Large Public Housing Authorities, the National Association of Housing and Redevelopment Officials, and the Public Housing Authorities Directors Association. Results from the survey indicate that 85 percent (307 out of 368) of PHAs had adopted no-trespass policies, 97 percent had adopted these policies “in whole or in part as a measure to protect residents from crime or illegal drugs,” and over 98 percent felt that no-trespass policies were “essential to controlling crime and drugs in [their] developments” (as cited in [20]).

The re-emergence of banishment policies grew as cities took measures to combat social disorder through civility codes. During the 1960s and 1970s, vagrancy statutes were invalidated by the Supreme Court due to their racially biased enforcement and vague interpretation that led to wide discretion in vagrancy enforcement [24,25]. In the 1980s, with police departments feeling the need for a law enforcement response to social disorder, courts responded in support of the police through the enactment of civility codes. Instead of the vague loitering and vagrancy statutes of the 1960s and 1970s, newly established civility codes required localities to specify the exact behaviors that can result in an arrest [7]. Through civility codes, police can now target the socially undesirable, such as homeless or publicly intoxicated individuals, by enforcing codes that outlaw their behaviors (e.g., public urination, sleeping on a park bench, panhandling).

Banishment in public housing is based on the enforcement of such civility codes by codifying into PHA policy the prohibition of specific civil and criminal acts, past or present, that when observed by PHA officials and law enforcement can result in banishment and potentially an arrest for trespassing. Due to civility codes, the banning of non-residents by PHAs follows strict guidelines that have been specifically detailed. While many initial banishment policies in public housing failed to delineate the behaviors that could qualify for banishment, the courts did not abolish banishment altogether in cases that questioned the legality of banishment stops—they simply required PHAs to specify the criteria for banishment [26]. Despite these court mandates, the current criteria for banning in PHAs sometimes involve vague, broad, and numerous acts, allowing the possibility for any non-resident to get banned [21]. For example, the following reasons, taken from publicly available PHA banishment policies, have been cited for instituting bans: having no legal right or legitimate purpose to be on the property; not being an invited guest of a resident; having a prior criminal history; engaging in activities that interfere with the quiet and peaceful enjoyment of residents; and involvement in drug activity or violence on public housing property [27,28,29,30]. Not surprisingly, the ability of these policies to ban nearly anyone has received much criticism from scholars [7,17,21,31]. However, since such policies are civil in nature they are beyond judicial review [32].

2.2. Policing and Banishment in Kings Housing Authority

The following section describes how KHA is policed and the creation of its banishment policy. It is drawn from the Torres [18] study since both studies use the same PHA. This information is based on KHA’s banishment policy and a face-to-face interview with a local police Captain overseeing KHA [33]: As Torres ([18], pp. 4–6) states:

Enforcement of banishment and use of community policing in KHA was a process dating to 1995 when the local police department adopted its own KHA community policing initiative. After a department-wide request for officers to participate, eight were chosen and each assigned to one of the eight neighborhoods. One sergeant heads the KHA community policing unit and reports to a precinct captain, bypassing a lieutenant. KHA public housing officers (PHOs) have no assigned shifts and are given their own discretion as to how they want to fulfil their required work hours. However, supervisors strongly encourage PHOs to work hours typically associated with higher levels of crime (i.e., nights and weekends), and PHOs are encouraged to work longer than the department minimum eight-and-a-half hour shift. KHA’s community policing crime enforcement strategy extends beyond assigned communities and flexible schedules. PHOs utilize geographic crime statistics to report to their sergeant about trends and patterns of crime within their assigned neighborhoods. The crime statistics are also used for follow-up investigations with residents, to problem-solve emerging criminal issues, and to establish responsibility for a PHOs community. When on the street, PHOs are also given discretion as to how they choose to patrol: vehicle patrol, bicycle patrol, or foot patrol. PHOs are expected to handle only calls for service in public housing and nowhere else during their shifts. Finally, PHOs are given work cell phones, provided by KHA, to allow for residents to call them for non-emergencies. KHA PHOs work closely with KHA security and KHA property managers as well. First, when either of these parties encounters residents violating their lease or involved in crime, an Incident Report is generated and communicated amongst these groups. Should non-PHOs encounter lease violations or crime among residents while PHOs are not available, they may communicate the issue with the appropriate PHO who would determine if an Incident Report is necessary. KHA property managers then hold monthly grounds to appear (GTA) meetings with residents involved in Incident Reports. During GTA meetings, KHA security, KHA property managers, and PHOs all collectively review the incident with the resident to determine whether some action against the resident will be taken. The possible actions range from a warning to lease cancellation. During the early years of the community policing program in KHA, PHOs concluded that the majority of the problems plaguing their neighborhoods involved non-residents [33]. Through guidance of the local judge, PHOs were able to establish the initial criteria to begin its enforcement of trespassing, to include: posting visible no-trespass signs; giving a warning to a non-resident on their first encounter; having prior knowledge a non-resident has been given warning before arresting them for trespassing; [and warning residents that the KHA PHOs would begin enforcing banishment] [33]. It was not until suspects began to contest trespassing charges, stating they were never issued a warning to stay off the property, that the local courts mandated the police department and KHA to begin utilizing a formal ban notice. The formal use of banishment began in 2004. The procedure for issuing, maintaining, and enforcing ban notices on public housing property is similar to what has been detailed in the

literature (see [21,31,34,35]). First, ‘non-residents who are discovered on any KHA property and who engage in [activities punishable by banishment] will be determined to be trespassers and will receive a written trespass notice banning them from the premises’ [36]. After an individual has been issued a ban notice, the person is then entered into a no-trespass list maintained by the police department, specifically by KHA PHOs, and updated bimonthly. If the person is caught back on the property, they can then be arrested for trespassing. While PHOs maintain full responsibility for the enforcement of banishment, non-PHOs are trained in enforcing banishment in the event PHOs are not available [33]. Like other cities, the criteria for banning are broad [21]. Any non-resident involved in any crime on KHA property can be banned. Non-criminal activity on the property that qualifies for banishment includes: grouping for the purpose of threatening or intimidating; ‘prior involvement of narcotic activity/violations’; not demonstrating a legitimate business or social purpose for being on the premises; and ‘engaging in any conduct which interferes with the enjoyment of the premises by adversely affecting the health safety, or welfare of residents, guests, employees, communities, and/or properties of [KHA]’ [36]. Once a ban notice is served to a non-resident, it is effective at that time and “remains in effect indefinitely” [36]. Furthermore: If such non-resident maintains that he or she is a guest or invitee of a resident of KHA property, a copy of this notice will also be served upon the tenant via mail, hand-delivery, or by posting it on the door at the tenant’s last known place of residence.[36] Notification of an individual banned may also be discussed with the tenant at GTA meetings [36]. Leases may be terminated should banned individuals return to the property with the tenant’s consent or knowledge. However, appealing banishment is allowed in this city under some guidelines. The head of household that the banned individual was visiting are the only person that can appeal a ban notice. An appeal process begins with the head of household contacting the head of KHA security and stating they want to appeal a ban notice [33]. Furthermore, ‘such an appeal must be in writing and filed within ten days of receipt of the ban notice’ [36]. Appeals are not applicable to: (1) any criminal activity that threatens the health, safety, or right to peaceful enjoyment of the premises of other tenants or employees of the authority; (2) any violent or drug-related criminal activity on or off the premises; (3) disputes between tenants; or (4) ‘class grievances’ [35]. Should KHA security decide to lift the ban, the head of household is notified, and KHA PHOs are advised to remove the banned individual from the ban list. Finally, while the information for appeal appears on the back of the ban notice, officers (PHOs and non-PHOs) routinely inform banned individuals verbally the steps in making an appeal when issuing ban notices [33]. The use of banishment tactics in public housing can be seen as an outgrowth of broader policing strategies. Specifically, banishment is a logical extension of broken windows policing. The next sections detail the logic of broken windows theory and the policing strategies that emerged from it, and how banishment relates to this broader tactic.

2.3. Broken Windows

In 1982, James Q. Wilson and George Kelling published an Atlantic Monthly article introducing the broken windows theory of crime. The broken windows theory of crime posits that physical disorder, such as graffiti, may not only change the physical character of an area but may lead to social disorder and ultimately to serious crime [1]. Specifically, the theory argues that serious crime may be the final outcome, because physical decay conveys to criminals that informal social controls in the area are weak as local residents become more fearful of the ensuing social disorder and withdraw from the community [1,4,37]. The theory was instrumental for a 1980s era that was synonymous with “get tough” on crime measures focused mainly on sentencing regimes [38]. While the major theoretical foundation of broken windows relies on the link between physical disorder and crime, the idea that social disorder can manifest into more serious crime became the ideology behind broken windows policing [4]. Here, law enforcement concentrates on the second aspect of broken windows, social disorder. If social disorder leads to more serious crime, then arrests should be targeted at low-level offenses that visibly convey social disorder, such as loitering, drinking in public, public urination, panhandling, and prostitution (see [39,40]). This style of policing would later take center stage in New York City during the 1990s under Mayor Giuliani and Police Commissioner William Bratton. Together they introduced an aggressive form of broken windows policing that targeted low-level misdemeanor offenses, sometimes called “quality-of-life policing” [2,4].

2.4. Banishment and Broken Windows

By allowing police to formally ban non-residents from public housing by issuing them a ban notice and arresting them for trespassing if they violate the ban, banishment theoretically expands on broken windows theory and broadens broken windows policing. Theoretically, banishment and broken windows share a concern over social disorder; however, they diverge on their understandings of what triggers social disorder. Broken windows argues that physical disorder (i.e., graffiti, broken windows, etc.) welcomes social disorder (i.e., homelessness, drinking in public, etc.). In turn, the presence of social disorder indicates to potentially dangerous criminals that policing is limited, informal social control is weak, and the community does not care. This lack of social control leads to serious crime. Thus, the causal path to crime under broken windows theory is as follows (see [1]):

Physical disorder → Social disorder → Serious crime.

Since banishment is used in a variety of spaces, its assumptions about physical disorder are not necessarily associated with instances of vandalism, graffiti, or literal broken windows.³ After all, banishment is used in areas that are now physically aesthetic, including some public housing neighborhoods.⁴ To understand how banishment policies reframe the broken windows theory within public housing, one must understand that public housing authorities assert that non-residents are the source of crime in public housing [18,21,22,42]. Thus, a non-resident’s mere presence in public housing conveys a “disorder” that must be addressed. The remainder of the conceptual path to serious crime remains the same. Thus, with banishment policies in public housing, the path

towards crime is as follows: Non-residents → Social disorder → Serious crime. Banishment enforcement also expands the focus of traditional broken windows policing on aggressively enforcing low-level offenses to reduce social disorder. Traditionally, the broken windows policing strategy works as follows: Increase in low-level offense arrests → Decrease in social disorder → Decrease in serious crime. With banishment policing, however, since non-residents represent the source of serious crime, enforcement targets them. Under traditional broken windows policing, law enforcement would harshly enforce low-level offenses on non-residents within public housing while still allowing them to enter public housing. PHAs have instead decided to completely remove non-residents from public housing by issuing them with a formal ban notice in hopes that being banned can independently reduce social disorder and crime by preventing banned individuals from returning to public housing. As explained above, bans can be issued to anyone committing a crime on the property or anyone entering the property who is deemed by the police to have no legitimate reason to be there. As such, these broad criteria allow nearly any non-resident to be targeted for banishment, thereby ensuring the problem with non-residents is addressed. In sum, banishment, as a logical extension of broken windows policing, is based on the assertion that simply banning non-residents from public housing can reduce serious crime. Under this logic, the causal argument works as follows: Increase in bans → Decrease in non-residents → Decrease in social disorder → Decrease in serious crime. Incidents of social disorder are not neglected under banishment policing. Police still enforce low-level offenses, but these offenses, along with any other offense, can also lead to the additional sanction of being banned from public housing. Moreover, banishment naturally amplifies a significant type of social disorder offense: trespassing. By amplifying trespassing laws, banishment provides substantial benefits to law enforcement and expands police powers far more than traditional broken windows policing does. First, even if officers do not observe crimes on public housing property, banishment policies create reasonable suspicion that the crime of trespassing is, has, or is about to occur. If an officer observes an individual on public housing property and does not know that individual, the officer can stop the individual under reasonable suspicion that he or she is trespassing. Therefore, banishment allows police to stop and approach anyone on public housing property to inquire about their residency, under the guise of a trespass investigation [16].⁵ Second, should someone who is stopped not be a resident of public housing and not be previously banned, they are subject to the broad banishment criteria [21]. Third, should someone who is stopped be identified as someone who was previously banned, the person can be subject to an arrest for trespassing. Finally, providing a steadfast approach to gaining trespass arrests provides an easy way to search for guns and drugs that bypasses traditional approaches to combatting drugs and guns such as undercover buy-busts [7,17]. This expansion of police powers is important considering that the reduction of drugs and violence is one of the primary justifications PHAs provide for banishment. As might be expected, police have lauded this particular benefit afforded by banishment [7], and PHA officials and residents often support banishment as an effective means of combatting drugs (see [18,20]) because it provides additional tactics for law enforcement to penetrate the drug trade [7,16,34,44]. By granting officers the ability to arrest for trespassing, they can circumvent the need for undercover drug operations, and with search-incident-to-arrest for trespassing, they can search potential drug offenders. Figure 1 depicts how banishment works to generate drug arrests.



Increase in bans → Increase in trespass arrests → Increase in drug arrests Figure 1. Theoretical path model between bans and drug arrests.

Under this framework, it is possible that banishment is capable of reducing both property and violent crime. There is already evidence that broken windows strategies, outside of banishment, are associated with reductions in crime [45]. While many disorder-related studies explore the relationship between some form of misdemeanor arrests and different types of crime (see [46,47]), the application of banishment works with the intention of reducing serious crime by removing non-residents. By banning individuals, PHAs believe that crime can be reduced because banned individuals will not return to the property to commit crime. While banishment appears to have become a staple for public housing, empirical studies have been minimal. One study pointed to its racially disparate enforcement [17]. Using crime data from New York City, the authors found that the percentage of public housing residents that are black or Hispanic predicted trespass arrests, even after accounting for socioeconomic conditions, crime, and police-related variables. This is significant considering New York City has a substantial number of buildings outside public housing that allow police to arrest for trespassing. Thus, in New York City, despite the fact that many buildings are eligible for the use of no-trespass policies, trespass enforcement is overwhelmingly concentrated in public housing disproportionately populated by people of color. Another studying of banishment policies in public housing surveyed residents to assess their perceptions of banishment's effectiveness [18]. The results indicated that, while residents were generally favorable toward the policy, banishment enforced without the guidance of community policing can threaten police legitimacy and community trust of the police [18]. Collectively, these studies highlight that banishment has the potential to subject already disadvantaged public housing communities, specifically public housing communities of color, to a policy that other communities do not experience and that may undermine policing efforts by jeopardizing their legitimacy unless community policing strategies are also in place. Other than these studies, an empirical evaluation of the effectiveness of banishment tactics in reducing crime has not been performed. This study is the first to explore how effective bans are at reducing violent and property crime in public housing. Under broken windows, banishment is arguably capable of reducing property and violent crime by removing people from public housing. Further, given the potential of banishment laws to generate trespass and drug arrests, we should also expect increases in these forms of arrests due to bans. The above leads us to two pairs of substantive and testable hypotheses, the first addressing the impact of bans on serious crimes, the second addressing the impact of bans on arrests: Hypothesis 1A: Bans significantly reduce property crime in public housing independent of the enforcement of trespass arrests and drug arrests. Hypothesis 1B: Bans significantly reduce violent crime

in public housing independent of the enforcement of trespass arrests and drug arrests. Hypothesis 2A: Bans lead to an increase in trespass arrests in public housing. Hypothesis 2B: Bans lead to an increase in drug arrests in public housing.

3. Method

3.1. Sample

Our analyses are based on a sample of 19 neighborhoods located within a southeastern U.S. city. These neighborhoods include six public housing neighborhoods and 13 non-public housing neighborhoods. The six public housing neighborhoods represent the population of all public housing neighborhoods in the city except three elderly assisted living public housing buildings. The non-public housing neighborhoods were selected based on their proximity to the public housing communities. All non-public housing neighborhoods within a half-mile radius of the public housing communities were used. Data were collected at the neighborhood level over a 12-year period (2001–2012). Banishment policies were introduced to the city in 2004.

3.2. Measures

This study relies on data comprised of bans (2004–2012), trespass arrests, drug arrests, FBI Part I property and violent crimes, and measures of concentrated disadvantage (2001–2012). All relevant crime data were provided by neighborhood and year and came from the local police department.

Our crime models predict property crime and violent crime. Property crime is measured as the total incidents of reported Part I property crime by neighborhood and year. Similarly, violent crime is the total incidents of reported Part I violent crime by neighborhood and year. We also generated two sets of arrest models that predict drug arrests and trespass arrests. Both arrest variables are measured as the total number of each type of arrest by neighborhood and year. All crime and arrest variables came from the police department overseeing the public housing neighborhoods in this city and were log transformed to reduce positive skewness. We measured the number of bans issued in public housing neighborhoods by year. Because the formal use of banishment began in 2004, ban data were collected for the years 2004 through 2012. Only bans issued within one of the six public housing neighborhoods chosen for the study were recorded. This city has various public housing neighborhoods, including assisted living developments for the elderly. Bans issued to these properties were excluded from the study, as were bans issued to a now demolished public housing property. This resulted in excluding a maximum of 13 percent of total bans in 2008 and a minimum of 1 percent in 2012. Two of the public housing communities were combined due to the inability to obtain separate socio-demographic variables for each within the 2000 Census and 2008–2012 American Community Survey 5-Year Estimates (ACS), as each survey places both communities under the same block group. This is explained by the fact that the two public housing communities are physically adjacent. For non-public housing neighborhoods, the number of bans was set to zero for all years. Bans for each public housing neighborhood by year are found in [Table 1](#).

Table 1. Bans and population by public housing neighborhood by year

Neighborhood	2004	2005	2006	2007	2008	2009	2010	2011	2012
Public Housing 1	Bans: 37	20	43	66	79	140	179	101	91
	(1291)	(1191)	(2261)	(2191)	(2211)	(2791)	(2911)	(2211)	(2411)
Pop:	1719	1752	1749	1706	1763	1851	1917	1829	1881
Public Housing 2	Bans: 31	41	37	48	76	120	140	140	91
	(1761)	(2461)	(2461)	(2011)	(2311)	(2511)	(2711)	(2511)	(2411)
Pop:	1838	1850	1961	1973	1984	1993	2036	2018	2029
Public Housing 3	Bans: 13	17	14	14	88	82	91	91	77
	(761)	(1116)	(1016)	(1416)	(2416)	(1416)	(1716)	(1716)	(1216)
Pop:	102	898	865	871	879	884	891	897	904
Public Housing 4 +	Bans: 40	52	31	53	42	126	200	89	42
	(2451)	(1016)	(2216)	(2216)	(1416)	(2416)	(2816)	(2516)	(1416)
Pop:	2218	2218	2218	2217	2217	2217	2217	2217	2217
Public Housing 5	Bans: 18	26	11	17	32	30	30	40	31
	(1016)	(1716)	(716)	(1116)	(1916)	(1916)	(1916)	(2116)	(1916)
Pop:	1252	1247	1243	1238	1234	1229	1224	1220	1215
Public Housing Total	Bans: 179	136	124	140	309	329	399	420	302
	(10091)	(10091)	(10091)	(10091)	(10091)	(10091)	(10091)	(10091)	(10091)
Pop:	7974	8033	8034	8045	8096	8123	8135	8186	8236

Note: * Two K12A communities were combined since they are both under the same block group in the ACS and Census.

Table 1. Bans and population by public housing neighborhood by year.

Our full regression models controlled for concentrated disadvantage, which refers to the geographic concentration of poverty and associated social conditions (see [48]). Concentrated disadvantage has been found to influence crime in low-income communities (see [46,47,49,50,51,52]). The following neighborhood-level socio-demographic variables were used as indicators of concentrated disadvantage: (1) median family income; (2) percentage of families with income below the poverty line; (3) percentage of population with less than a high school education; (4) percentage of households on public assistance; (5) unemployment rate; (6) percentage of female single parent households; (7) percentage of households with income below \$30,000. These data came from the 2000 and 2010 U.S. Census [53,54] and the 2008–2012 American Community Survey (ACS) 5-year Estimates [55]. Since annual data for these variables could not be obtained, linear interpolation was used to generate yearly estimates. Principal component analysis was conducted to generate a component score for concentrated disadvantage using a single extracted component. Four of the variables were transformed to reduce skewness prior to extraction. The first component explained 84 percent of the joint variance and was the only component with an eigenvalue greater than one. All of the component loadings for the single component were larger than 0.74 with five of the seven loading higher than 0.90. Ideally, a measure of neighborhood instability should be included as an additional control variable. Neighborhood instability is thought to lead to a neighborhood's inability to police itself because of high residential turnover. Neighborhoods with more stability therefore should have lower crime

rates, while neighborhoods with a more transitory population—more neighborhood change—should have greater crime and disorder because the higher rates of residential turnover disrupt social networks. There is some evidence for the association between neighborhood instability and crime (for example, see [56,57]). Typical measures of neighborhood instability such as the proportion of renters/owners and the proportion of vacant homes are problematic with our data because 100 percent of public housing residents are renters, by definition. We therefore did not use a measure of neighborhood instability given the inability to construct an efficient measure. Table 2 presents descriptive statistics for the variables used in our models. The within neighborhood minimum and maximum values have been de-meaned (i.e., the group mean is subtracted and the grand mean is added), which is why some of the variables have negative values. We also controlled for the year of the study in our regression models.

Table 2. Summary statistics.

Variable	Mean	Standard Deviation	Min	Max
Property Crime	100.0	100.0	0.0	200.0
			0.0	200.0
Violent Crime	10.0	10.0	0.0	20.0
			0.0	20.0
Trespass Arrests	10.0	10.0	0.0	20.0
			0.0	20.0
Drug Arrests	10.0	10.0	0.0	20.0
			0.0	20.0
Concentrated Disadvantage	10.0	10.0	0.0	20.0
			0.0	20.0

Table 2. Summary statistics.

3.3. Models

To test our hypotheses, we used sets of Arellano–Bond dynamic panel models to predict the crime and arrest variables of interest. In the full crime models, meant to test our first set of hypotheses, we separately predicted property and violent crime as a function of bans issued net of covariates. These models are beneficial when the data has more panels than years, when one or more of the explanatory variables are expected to be endogenous, and when issues of autocorrelation are likely to be present [47,58].

The following equation was used to estimate the full crime models:

$$\Delta y_{it} = \beta_1 \Delta y_{i,t-1} + \beta_2 \Delta B_{i,t-1} + \beta_3 \Delta Cit + \beta_4 \Delta Y_t + \beta_5 \Delta Ti_{t-1} + \beta_6 \Delta Di_{t-1} + \Delta u_{it}, \quad (1)$$

where “ Δy_{it} ” represents the dependent variable (property or violent crime) for neighborhood “ i ” at time “ t ”, “ $\Delta B_{i,t-1}$ ” is the number of bans, “ ΔCit ” is the concentrated disadvantage, “ ΔY_t ” is the year, “ ΔTi_{t-1} ” is the number of trespass arrests, “ ΔDi_{t-1} ” is the number of drug arrests, “ Δu_{it} ” is the error term (composed of the unobserved neighborhood effects and the residual errors such that “ $\Delta u_{it} = v_i + e_{it}$ ”), and the “ $\Delta \beta$ ” values are the regression coefficients. By taking first differences, the Arellano–Bond estimator eliminates the fixed unobserved neighborhood specific effects along with any endogeneity issues they might potentially introduce. To deal with issues of autocorrelation, the models use a lagged dependent variable (LDV) as well as additional lags of the dependent variable, which act as instruments to eliminate potential endogeneity introduced by the first-differenced LDV. Notice that the ban, trespass arrest, and drug arrest variables have been lagged by one time unit. We are interested in determining whether crime levels are influenced by the number of bans and amount of low-level enforcement from the previous year. Bans, drug arrests, and trespass arrests have the same goal of reducing crime. We caution that this suggests the potential for multiple treatments at work; however, our analysis allows us to isolate the effect of each type of treatment. Both drug arrests and trespass arrests were used before the start of banishment in public housing. Since bans are set to 0 in public housing from 2001–2003 and 0 for all non-public housing sites, we are able to determine if bans influence crime, once implemented, independent of drug and trespass enforcement. It is necessary here to reiterate the uniqueness of issuing bans as a policing tool. Bans are civil punishments, not criminal punishments that prohibit individuals from returning to the property. This is a more proactive approach to deterrence than arresting individuals for committing a criminal act such as possessing drugs or trespassing. Because all of these policing tactics can potentially influence crime but do so in different fashions, we control for drug and trespass arrests so we can estimate the independent effect of bans on crime. Unlike the majority of program evaluative studies, which assume a dichotomous treatment (a ban law is either present or absent for each neighborhood in a given year), our regression models treat bans as a continuous measure that enhances precision and provides a better look at the impact of bans. If two different public housing neighborhoods for which the ban law is in effect enforce and issue bans differently, our models will capture this. We tested Hypothesis 2A by predicting trespass arrests as a function of lagged ban variables (the equation shows only the first difference of bans as a predictor, but second, third, and fourth differences were tested as well in separate models). The following equation for the full trespass arrest model was used:

$$\Delta Ti_{it} = \beta_1 \Delta Ti_{i,t-1} + \beta_2 \Delta B_{i,t-1} + \beta_3 \Delta Cit + \beta_4 \Delta Y_t + \Delta u_{it}. \quad (2)$$

Similarly, we tested Hypothesis 2B by predicting drug arrests as a function of lagged ban variables. The following equation for the full drug arrest model was used, which included lagged trespass arrest variables to determine if trespass arrests potentially mediate a relationship between bans and drug arrests:

$$\Delta Di_{it} = \beta_1 \Delta Di_{i,t-1} + \beta_2 \Delta B_{i,t-1} + \beta_3 \Delta Cit + \beta_4 \Delta Y_t + \beta_5 \Delta Ti_{i,t-1} + \Delta u_{it}. \quad (3)$$

It should be noted that only two additional lags of the dependent variable were used to create instruments to avoid over-identifying the models. Though Arellano–Bond models typically use all possible lags of the dependent variable to ensure that autocorrelation is removed, tests for autocorrelation show that any autocorrelation has been sufficiently removed from our models. Also, the variance inflation factors for the variables used in our models all had values lower than three, indicating that multi-collinearity was not an issue.

4. Results

We begin by looking at the trend in bans (see [Figure 2](#)). As discussed above, bans were formally introduced in 2004 to public housing communities, but as we can see from the figure, their usage by officers varied in the decade following their introduction. The use of bans generally rose in public housing after being formally introduced in 2004, peaking in 2010.

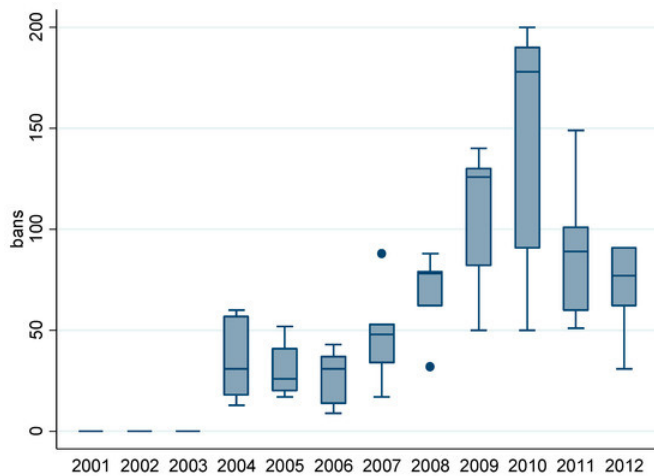


Figure 2. Bans in public housing by year*. Notes: *Ban legislation

only covered public housing neighborhoods from 2004 onward; non-public housing neighborhoods had zero bans for all years. [Figure 3](#) looks at property crimes over time in public and non-public housing communities. Though it is generally lower in public housing, it appears to have decreased in public housing in the period after 2004, especially when compared to non-public housing communities. To test if this apparent effect is significantly due to bans, we used three separate regression models presented in [Table 3](#), all three of which are nested in the model presented as Equation (1) above.

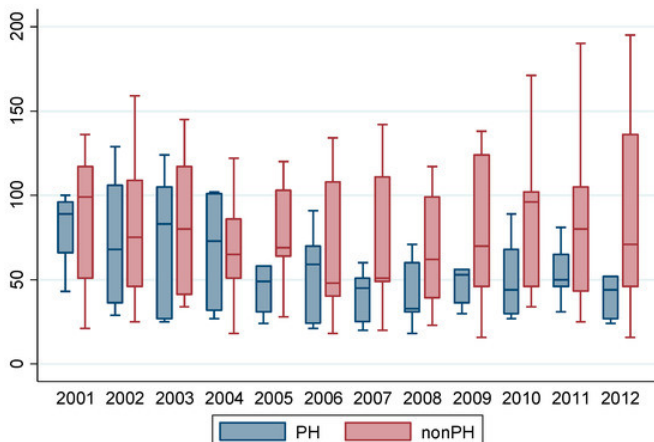


Figure 3. Property crimes by public housing by year.

excludes outside values

Table 3. Arellano–Bond dynamic panel-data models predicting property crime.

Effect/Model	1	2	3
Property Crime(t-1)	0.274 ** (0.089)	0.326 ** (0.094)	0.288 ** (0.100)
Bans(t-1)	-0.054 * (0.024)	-0.083 * (0.032)	-0.076 * (0.033)
Concentrated Disadvantage		-0.011 (0.330)	-0.019 (0.345)
Year		0.009 (0.018)	0.008 (0.019)
Trespass Arrests(t-1)			-0.015 (0.039)
Drug Arrests(t-1)			-0.053 (0.052)
N	180	180	180
n	18	18	18
Wald chi-square	19.9 **	43.0 **	46.4 **

Notes: * $p < 0.05$; ** $p < 0.01$, two tail; Robust standard errors in parentheses.

Table 3. Arellano–Bond dynamic panel-data models predicting property crime.

As we can see, the number of bans issued in a given year significantly reduces property crime, even after the covariates are added. This finding supports Hypothesis 1A (additional support for H1A using the synthetic control method for counterfactual analysis can be found in [Appendix A](#)). Notice, however, that doubling the number of bans issued in a given year only reduces the number of property crimes by approximately five percent in the following year ($>2-0.076=0.95$). Surprisingly, we do not find an effect of

disadvantage or drug and trespass enforcement on property crime independent of the other effects. Though tests for autocorrelation show that second order and larger autocorrelated errors have been removed, it should be noted that when placebo controls were added in the form of leads of the ban variable, a significant lead effect was discovered. Models including up to four leads found that a two-year lead in bans significantly predicts a decrease in property crime. This calls into question the causal claims that can be made regarding bans and property crime. Though we find that significant independent negative correlation exists between number of bans issued and subsequent property crime with the Arellano–Bond models, we cannot claim that bans cause a reduction in property crime and not the other way around. That being said, our synthetic control models in [Appendix A](#) demonstrate that a divergence in property crime between public housing neighborhoods and a synthetic control case does occur in the expected direction after the institution of bans, supporting our causal claim from H1A. When we turn our attention to violent crime (see [Figure 4](#)), there does not appear to be an obvious trend, inside or outside of public housing, despite the general decrease in violent crime experienced by the nation as a whole during this time. Using the Arellano–Bond models to predict violent crime, we find that the number of bans in a given year does not significantly predict violent crime in the following year (or two, three, or four years later) in any of our models (see [Table 4](#)). Given this result, we do not find support for Hypothesis 1B. As it turned out, none of the variables significantly predicted violent crime in our models.

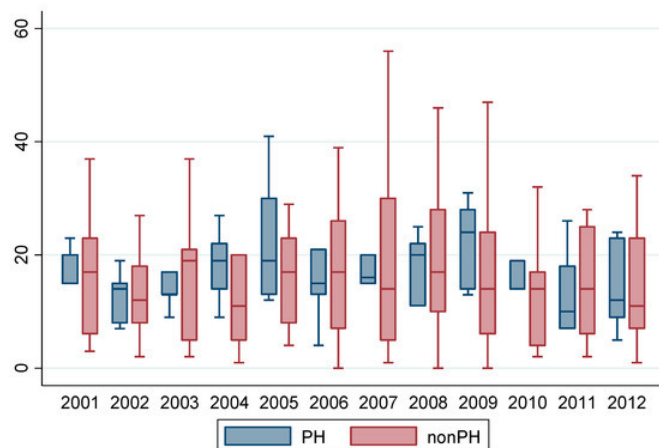


Figure 4. Violent crimes in public housing by year.

excludes outside values

Effect/Model	1	2	3
Violent Crime($t-1$)	0.247 (0.153)	0.077 (0.088)	0.025 (0.097)
Bans($t-1$)	0.013 (0.029)	0.053 (0.047)	0.053 (0.044)
Concentrated Disadvantage		0.139 (0.452)	0.119 (0.413)
Year		−0.009 (0.024)	−0.004 (0.022)
Trespass Arrests($t-1$)			−0.047 (0.030)
Drug Arrests($t-1$)			0.102 (0.066)
<i>N</i>	180	180	180
<i>n</i>	18	18	18
Wald chi-square	3.5	3.2	15.8 *

Notes: * $p < 0.05$, two tail; Robust standard errors in parentheses.

Table 4. Arellano–Bond dynamic panel-data models predicting violent crime.

To test Hypothesis 2A, we examine trespass arrests over time. From [Figure 5](#) we can see that trespass arrests appear to grow during the years following the institution of the ban legislation in public housing neighborhoods. The trespass arrest regression models in [Table 5](#) demonstrate that though trespass arrests are not significantly correlated with bans in the previous year, they are significantly influenced by the number of bans two years prior, even when we account for a general independent trend of increasing trespass arrests (this relationship does not exist for other lagged ban variables: third-differenced, fourth-differenced, etc., and holds when placebo controls are added in the form of leads; no significant placebo controls were found in models including up to four leads for the ban variable). Notice that in the third model, which predicts trespass arrests using only the LDV and second differenced bans as explanatory variables, the effect of lagged bans is stronger than in the final model. The coefficient for bans is being inflated by a general trend of trespass arrests increasing over time (both in public and in non-public housing, though the trend is stronger in public housing). However, when we control for this trend, Model 4 shows that bans still have a positive significant ($p < 0.10$, two-tail) impact on trespass arrests. These models provide support for Hypothesis 2A (additional support can be found in [Appendix A](#)).

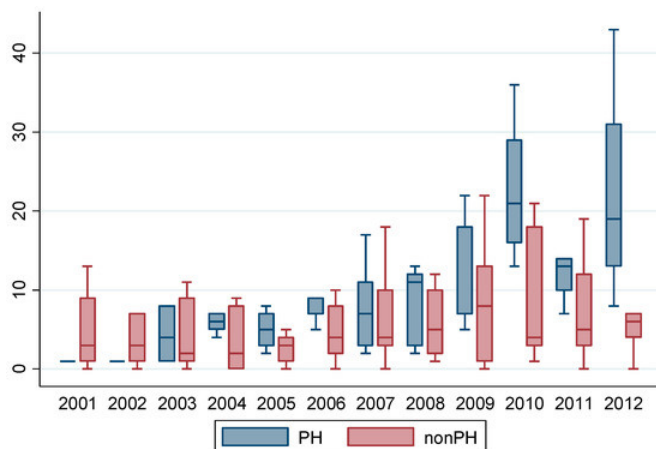


Figure 5. Trespass arrests in public housing by year.

excludes outside values

Table 5. Arellano–Bond dynamic panel-data models predicting trespass arrests.

Effect/Model	1	2	3	4
Trespass Arrests($t-1$)	0.196 (0.228)	0.337 (0.206)	0.272 (0.188)	0.242 (0.159)
Bans($t-1$)	0.116 (0.096)	-0.077 (0.084)		
Bans($t-2$)			0.248 ** (0.083)	0.106 * (0.061)
Concentrated Disadvantage		0.012 (0.771)		0.711 (0.471)
Year		0.079 (0.050)	0.081 ** (0.025)	
N	180	180	180	180
n	18	18	18	18
Wald chi-square	3.7	27.3 **	13.0 **	63.0 **

Notes: * $p < 0.10$; ** $p < 0.01$, two tail; Robust standard errors in parentheses.

Table 5. Arellano–Bond dynamic panel-data models predicting trespass arrests.

Finally, we examine drug arrests in [Figure 6](#) and [Table 6](#). Though the variability in drug arrests appears to be higher in non-public housing, according to [Figure 6](#), there does not appear to be much of a difference between the trends across housing types, and there does not appear to be a consistent change in public housing after the institution of ban legislation. However, when we examine the Arellano–Bond regression models (see [Table 6](#)), we find that just like for trespass arrests, drug arrests are significantly influenced by the bans issued two years prior. In Model 4, which predicts drug arrests using only an LDV and second-differenced bans as explanatory variables, it appears that lagged bans do not influence drug arrests. However, this is because a suppression effect is present due to a general decrease in drug arrests over the period in these neighborhoods. Once we control for this time trend (Models 5 and 6), we see that drug arrests are significantly increased by the bans issued two years prior. Interestingly, lagged trespass arrests do not predict drug arrests independent of lagged bans. Various combinations of lagged trespass variables were included independently and together. Model 6 shows the effects of first and second-differenced trespass arrests on drug arrests in the same model, but the coefficients and standard errors are nearly identical when only one or the other is included by itself. Just like in the property crime models, we need to add a word of caution. Though tests for autocorrelation show that second order and larger autocorrelated errors have been removed, when placebo controls were added in the form of leads of the ban variable, a significant lead effect was discovered. Models including up to four leads found that a one-year lead in bans significantly predicts a decrease in drug arrests. This calls into question the findings regarding a causal relationship between bans and drug arrests given the contradiction in direction of the relationship between the significant lag and significant lead of bans. Additionally, our synthetic control models in [Appendix A](#) do not find a consistent divergence in drug arrests between public housing neighborhoods and a synthetic control case after the institution of bans. Because of these issues, we cannot conclude with confidence that there is a causal connection between bans and drug arrests in public housing.

individuals on public housing property, even without probable cause for drug possession or distribution. We found mixed support for this and cannot conclude with confidence that a causal relationship between bans and drug arrests exists. While there is evidence that bans increase drug arrests in subsequent years, the fact that a two-year lead of bans is also statistically significant in our model raises doubts about the true relationship between bans and drug arrests. Still, the results indicating that bans can lead to an increase in trespass arrests poses concern. We find that an increase in bans that leads to a 5 percent reduction in property crime the following year corresponds to an 8 percent increase in trespass arrests in two years, even though trespass arrests do not appear to reduce either property or violent crime independently. Therefore, increasing trespass arrests appear to be a necessary byproduct of ban legislation. Additionally, the high level of trespass arrests that emerge post-legislation in public housing may challenge any claims that banishment acts as a deterrent. For a policy that is intended to keep banned individuals away, the message is quite clear that many come back to public housing, whether it is to offend or not, and are arrested for trespassing. Ultimately, PHAs, police departments, and residents will have to decide whether the returns are worth the potential legal and social costs. We certainly should expect that the social consequences are most felt by banned individuals and those they know within public housing; however, these consequences should not be ignored for a number of reasons. Socially, it is well documented that banishment can disrupt families [75,76]. For example, Torres [18] found that 40 percent of public housing households know at least one friend or family member that has been arrested for trespassing. Furthermore, processing trespassing offenses can clog an already overburdened criminal justice system. In addition, court cases dealing with banishment in public housing involve disputing the legality of banishment when it is used on those with intent to see family (see [21,31]). Moreover, the findings of this study need to be understood in the context of who resides in these public housing communities. African-Americans make up over 97 percent of the public housing population in this study [54]. Therefore, in this southern city, communities of color are disproportionately affected by ban policies. One clear consequence of these policies is an increase in trespass arrests. It follows that policies like banishment, that operate in communities disproportionately comprised of racial and ethnic minorities, contribute to the persistent racial disparities in the criminal justice system, including imprisonment (see [38,77,78]). Thus, our findings that banishment produces only meager benefits in terms of reductions in property crimes while generating trespass and drug arrests must be considered in light of the work of Fagan and colleagues [17] that found racially selective enforcement of banishment in New York City public housing. Still, despite the already tense relationship between police and many disadvantaged communities of color, there has been evidence that even in predominantly African-American public housing communities using banishment, residents can find the police to be effective [18]. Ultimately, future studies should consider whether banishment builds or hinders collective efficacy and whether it decreases or increases fear of crime. We should acknowledge some of the limitations of the current study. First, we want to emphasize that this study involves a limited number of neighborhoods from a single city and therefore suffers from lack of power and is sensitive to noise. We attempted to increase the power by using dynamic panel models that rely on multiple differences and by treating the stimulus (ban legislation) as a continuous variable that varies dramatically within the treatment cases (public housing neighborhoods) from panel to panel. Nevertheless, we are relying on repeated measures of a panel consisting of data from only 19 neighborhoods, and we fully recognize this limitation. Yet, maybe even surprisingly given the small sample, we find significant effects that support two of our four hypotheses. In addition, in these cases, several different analytic strategies—albeit each with their own sets of problems and limitations—produce consistent findings. Therefore, while we recognize the small sample size to be a serious limitation, we are confident these data tell an interesting and consistent story, especially with respect to the influence of bans on trespass offenses and property crimes. Second, we did not control for spatial lag whereby contiguous areas influence adjacent areas' levels of crime and arrests (see [46,47,79,80,81,82,83]). Spatial lags could be used to determine if bans displace crime. However, under the context of public housing, this may not be important; the goal of banishment is to keep crime out of public housing, so if crime increases in non-public housing communities as a result of banishment, it is of no concern to PHAs. However, while public housing officials may not care if banishment displaces crime, police departments do. Knowing such information may be useful in developing strategies for dealing with displacement. With that, this study could merely offer speculative support of any displacement effects. In looking at Figure 3, it appears that non-public housing neighborhoods experienced a period of increased property crime following the start of banishment. However, the average amount of property crime experienced in non-public housing neighborhoods after banishment began is not clearly above the average amount of property crime experienced by non-public housing neighborhoods before banishment began. Further, while we might expect that this displacement could vary by crime types (i.e., robbery versus aggravated assaults), we looked at additional plots (not shown) and found similar results. Thus, there were no consistent patterns of heightened levels crime in non-public housing neighborhoods following the implementation of banishment above what these neighborhoods experienced before banishment was implemented. While future studies will need to address displacement explicitly, these descriptive results suggest that banishment does not displace crime in the long term. It is possible that banishment is ineffective at totally displacing the criminally active who have ties to the public-housing community; thus, there may be some displacement, but crime is not totally displaced (see [84]). Again, we found definitive evidence that bans lead to increases in trespass arrests, which implies that a number of people are not deterred by the ban itself and return to public housing. Thus, there may be a number of offenders who are tied to the public-housing community and not willing to offend elsewhere. The literature suggests this situation would result in a lack of displacement because of the inability of potential offenders to seek alternative opportunities (see [85,86,87]) or their preference for committing offenses close to their home or previous home [88,89,90,91], which in this case would be public housing. Third, we did not use calls-for-service, police-initiated or citizen-initiated, which could help determine both the proactivity of police officers and their visibility in the

community. In a study of the consequences of assigned beats, Kane [92] found that officers on a permanent beat increase police-initiated calls-for-service. Since the studied communities have strong community policing components and community policing requires officers be accountable to their assigned beats, one would expect the studied communities to have more proactive officers and more police-initiated calls for service. Citizen-initiated calls-for-service may also be higher in public housing if residents know community police officers are likely to respond, therefore increasing police presence in public housing communities only. Still there is no reason to suspect that police visibility dramatically influenced crime levels in these neighborhoods. The neighborhoods had community policing initiatives implemented in them for years prior to enacting the banishment policy, and permanently assigned officers routinely made foot patrols in the neighborhoods. The frequency of the patrols did not increase after the banishment policy was enacted; however, the police now had a new strategy to pursue when trying to prevent crime. Finally, while PHAs may be more concerned with long-term reductions in crime that come from banishment, building models with monthly data would help solve the endogeneity issues from aggregate, within-year models and help determine the short-term effects of banishment. Despite our limitations, this is an important first step in understanding the logic and merits of banishment in public housing. Of importance for the sake of this test of broken windows theory is that it utilized variables capturing the context of local conditions. In the case of banishment, it calls forth a civil punishment, bans, that are unique to the policy and to the site. Attempts to address crime reduction strategies where public housing communities are included must account for differences in how public housing communities are policed compared to how non-public housing communities are policed. The use of bans in this study is something exclusive to public housing, and this can only be explained by banishment.

6. Conclusions

Broken windows policing has garnered national attention since its rise in New York City in the 1990s. In a post-Ferguson society, broken windows policing has reignited debates surrounding its efficacy and constitutionality. PHAs have instituted their own style of broken windows policing, banishment, which targets non-residents by banning them and arresting them for trespassing if they violate their bans. In the first study to measure the efficacy of banishment, it was evidenced that this brand of broken windows policing does work to reduce crime, albeit relatively small reductions and only property crimes. Meanwhile, these policies generate an increase in trespass arrests that disproportionately and unintentionally affect people of color. While PHAs, police, and residents may view these the small crime control benefits as a victory, the inability of banishment to prevent people from returning to public housing, reduce violent crime, and produce observable drug control benefits must be weighed to determine whether such benefits are worth the costs.

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Author Contributions

Jose Torres, Jacob Apkarian, and James Hawdon conceived and designed the experiments; Jose Torres and Jacob Apkarian performed the experiments; Jose Torres, Jacob Apkarian, and James Hawdon analyzed the data; Jose Torres, Jacob Apkarian, and James Hawdon wrote the paper.

Conflicts of Interest

The authors declare no conflict of interest.

Appendix A

In addition to Arellano–Bond dynamic panel models, we employed the synthetic control method for counterfactual analysis, which takes advantage of the discontinuity that the banishment legislation produced during our period of study. The drawbacks of this approach are that the data from the six public housing neighborhoods are averaged and treated as a single case, and that the explanatory variable of interest (bans) is treated as dichotomous despite the fact that bans were issued differently by neighborhood over time. Regardless of these limitations, this approach is an effective way to estimate the impact that bans have on our crime and arrest variables, and findings in this appendix support Hypotheses 1A and 2A.

The synthetic control method uses the control cases (the 13 non-public housing neighborhoods not subject to banishment legislation) to generate a “synthetic” control case in order to demonstrate what would have happened to our treatment case (the average across public housing neighborhoods) if it (they) had never been subject to the intervention of banishment legislation. The synthetic control case is produced using factor analysis. It is composed of a weighted average of scores on the variables relevant to the study from non-public housing neighborhoods prior to the intervention such that the synthetic case is as close to the treatment case on these variables as possible (the RMS error is minimized). The synthetic and treatment cases are assumed to be equivalent prior to the intervention, and therefore any difference occurring after the intervention is likely to have been caused by the intervention itself. For this analysis, the synthetic case was generated using the crime and arrest variables that were logged to reduce skewness prior to factor analysis. Only four non-public housing neighborhoods were ultimately utilized (i.e., assigned factor weights) to generate the optimal synthetic control case. The factor algorithm decided that nine of the non-public housing neighborhoods were too different from public housing and therefore were not assigned weights. We included the variable

measuring concentrated disadvantage, but the variable was dropped due to the program not being able to generate equivalent synthetic and treatment cases. The similarity of synthetic and treatment cases varied from dependent variable to dependent variable with a less than one percent discrepancy on all variables used in the factor analysis for the property crime variable (i.e., high equivalency of cases) and a less than eight percent discrepancy on all variables used for factor analysis for the violent crime variable (i.e., lower equivalency of cases). [Figure A1](#) plots the natural log of property crime by year for both the synthetic control case and the treatment case. We can see from the figure that during the period prior to the intervention, the synthetic and treatment cases have similar behavior (despite some obvious noise), but then clearly diverge after the intervention. Once bans are introduced, property crime for the synthetic control is consistently higher than in the treatment case that is composed of actual public housing crime data. Despite a very small number of years, a two-tailed t-test finds the change in difference between synthetic and treatment across the intervention to be significant at a 90% confidence level. This supports our results from the Arellano–Bond models that bans significantly reduce property crime in public housing.

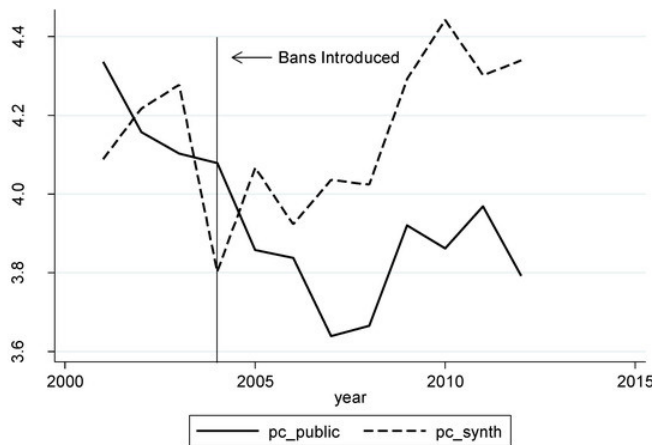


Figure A1. Trends in property crime: public housing vs. synthetic public housing. [Figure A2](#) plots the natural log of violent crime by year for both the synthetic control case and the treatment case. We can see from the figure that violent crime behaves erratically for both cases, and that they track each other relatively closely during the period of study despite the heavy amount of year-to-year noise. This implies that ban legislation does not influence violent crime, and this fact is supported by testing the difference between the cases before and after the intervention. The difference is not found to be statistically significant.

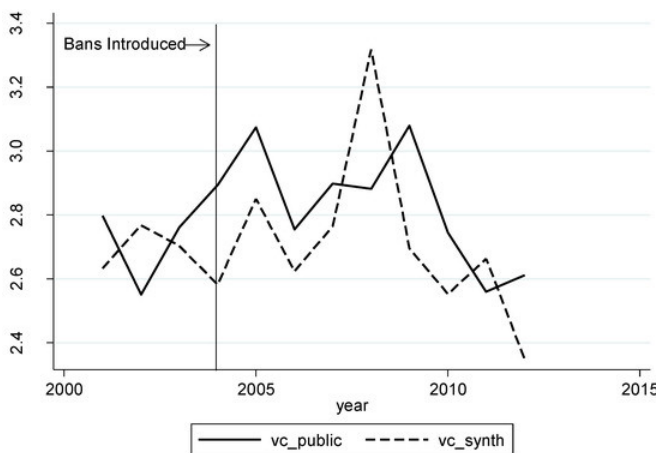


Figure A2. Trends in violent crime: public housing vs. synthetic public housing.

[Figure A3](#) plots the natural log of trespass arrests by year for both the synthetic control case and the treatment case. Despite some pre-intervention noise, the two cases are relatively close in trespass arrests and only greatly diverge once bans are introduced. For all time periods after the intervention, the synthetic case has a lower number of trespass arrests than the treatment case which experiences ban legislation which supports hypothesis 2A. Despite a very small number of years, a two-tailed t-test finds the change in difference between synthetic and treatment across the intervention to be significant at a 95% confidence level.

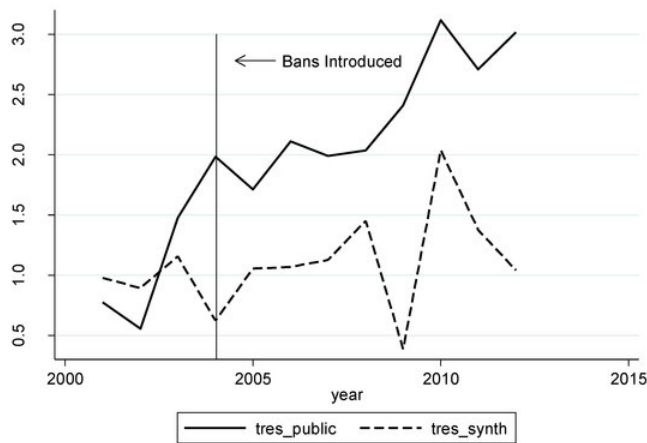


Figure A3. Trends in trespass arrests: public housing vs. synthetic

public housing.

Figure A4 plots the natural log of drug arrests by year for both the synthetic control case and the treatment case. Despite a few occasionally large discrepancies, the two cases track one another very closely over the duration of the period implying that there is no relationship between ban legislation and drug arrests. The difference between synthetic and treatment cases before and after the intervention is not found to be statistically significant.

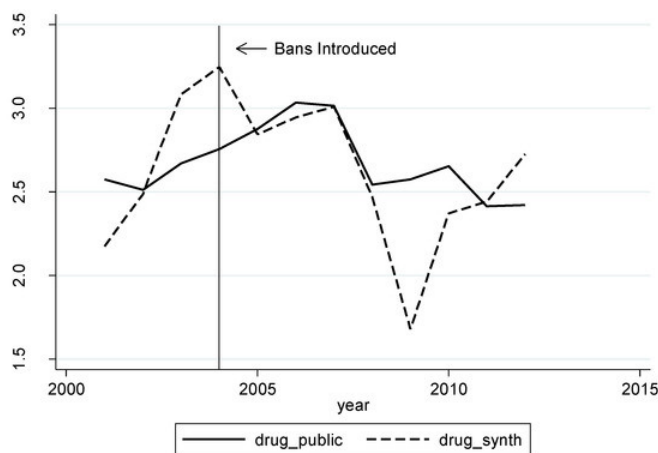


Figure A4. Trends in drug arrests: public housing vs. synthetic

public housing.

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- 1 KHA is a pseudonym for the actual PHA used for this and the Torres [18] study.
 - 2 For an understanding of how concerned the federal government was about issues of drugs and violence in public housing see *Dep't of Hous. and Urban Dev. v. Rucker* [19] and Graham et al. [20].
 - 3 Banishment has been used on public and private property, residential and business properties, and areas handpicked by local judges [7].
 - 4 As a result of the National Commission on Severely Distressed Public Housing, Congress created HOPE VI, which called for many of the nation's public housing communities to undergo physical revitalizations or be demolished altogether (see [41]).
 - 5 As of 2016, only the NYPD has publicly denounced the practice of stopping anyone in public housing under the guise of a trespass investigation (see [43]).

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CHAPTER OVERVIEW

12: Property Risk Management and Insurance

12.1: Property Insurance, Liability Insurance, and Life Insurance

12.2: Budgeting and Business

12.3: Components of the Master Budget

12.4: Introduction to the Master Budget

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12.1: Property Insurance, Liability Insurance, and Life Insurance

Learning Objectives

1. Distinguish and define the basic types of insurance for property, liability, and life.
2. Explain the concepts of subrogation and assignment.

We turn now to a more detailed discussion of the law relating to the three most common types of insurance: property, liability, and life insurance.

Property Insurance

It is sometimes said that property is the foundation for a system of free market capitalism. If so, then protecting property is a necessary part of being part of that system, whether as an individual or as a business entity.

Coverage

As we have noted, property insurance provides coverage for real and personal property owned by a business or an individual. Property insurance is also part of automobile policies covering damage to the car caused by an accident (collision coverage) or by other events such as vandalism or fire (comprehensive coverage). Different levels of coverage are available. For example, many basic homeowners' policies cover damage resulting from the following types of perils only: fire and lightning, windstorm and hail, explosions, riots and civil commotions, aircraft and vehicular accidents, smoke, vandalism and malicious mischief, theft, and breakage of glass that is part of a building.

A broader policy, known as broad coverage, also includes these perils: falling objects; weight of ice, snow, and sleet; collapse of buildings; sudden and accidental damage to heating systems; accidental discharge from plumbing, heating, or air-conditioning systems; freezing of heating, plumbing, and air conditioning systems; and sudden and accidental injury from excess currents to electrical appliances and wiring. Even with the broadest form of coverage, known as comprehensive, which covers all perils except for certain named exclusions, the homeowner can be left without protection. For example, comprehensive policies do not usually cover damage resulting from flooding, earthquakes, war, or nuclear radiation. The homeowner can purchase separate coverage for these perils but usually at a steep premium.

Insurable Interest in Property

To purchase property insurance, the would-be insured must have an insurable interest in the property. Insurable interest is a real and substantial interest in specific property such that a loss to the insured would ensue if the property were damaged. You could not, for instance, take out an insurance policy on a motel down the block with which you have no connection. If a fire destroyed it, you would suffer no economic loss. But if you helped finance the motel and had an investment interest in it, you would be permitted to place an insurance policy on it. This requirement of an insurable interest stems from the public policy against wagering. If you could insure anything, you would in effect be betting on an accident.

To insure property, therefore, you must have a legal interest and run the risk of a pecuniary loss. Any legal interest is sufficient: a contractual right to purchase, for instance, or the right of possession (a bailee may insure). This insurable interest must exist both at the time you take out the policy and at the time the loss occurs. Moreover, coverage is limited to the extent of the interest. As a mortgagee, you could ensure only for the amount still due.

Prior to the financial meltdown of 2008, many investment banks took insurance against possible losses from collateralized debt obligations (CDOs) and other financial products based on subprime loans. The principal insurer was American International Group, Inc. (AIG), which needed a US government bailout when the risks covered by AIG turned out to be riskier than AIG's models had projected.

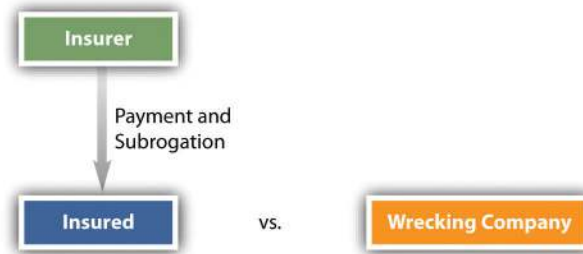


Figure 12.1.1: Subrogation

Subrogation is the substitution of one person for another in pursuit of a legal claim. When an insured is entitled to recover under a policy for property damage, the insurer is said to be subrogated to the insured's right to sue any third party who caused the damage. For example, a wrecking company negligently destroys an insured's home, mistaking it for the building it was hired to tear down. The insured has a cause of action against the wrecking company. If the insured chooses instead to collect against a homeowner's policy, the insurance company may sue the wrecking company in the insured's place to recover the sum it was obligated to pay out under the policy (see Figure 15.1 "Subrogation").

Assignment

Assignment is the transfer of any property right to another. In property insurance, a distinction is made between assignment of the coverage and assignment of the proceeds. Ordinarily, the insured may not assign the policy itself without the insurer's permission—that is, he may not commit the insurer to insure someone else. But the insured may assign any claims against the insurer—for example, the proceeds not yet paid out on a claim for a house that has already burned down.

Intentional Losses

Insurance is a means of spreading risk. It is economically feasible because not every house burns down and not every car is stolen. The number that do burn down or that are stolen can be calculated and the premium set accordingly. Events that will certainly happen, like ordinary wear and tear and the destruction of property through deliberate acts such as arson, must be excluded from such calculations. The injury must result from accidental, not deliberate, causes.

Coinurance Clause

Most commercial property policies contain a so-called coinsurance clause, which requires the insured to maintain insurance equal to a specified percentage of the property value. It is often 80 percent but may be higher or lower. If the property owner insures for less than that percentage, the recovery will be reduced. In effect, the owner becomes a coinsurer with the insurance company. The usual formula establishes the proportion that the insurer must pay by calculating the ratio of (1) the amount of insurance actually taken to (2) the coinsurance percentage multiplied by the total dollar value of the property. Suppose a fire causes \$160,000 damage to a plant worth \$1,000,000. The plant should have been insured for 80 percent (\$800,000), but the insured took out only a \$500,000 policy. He will recover only \$100,000. To see why, multiply the total damages of \$160,000 by the coinsurance proportion of five-eighths (\$500,000 of insurance on the required minimum of \$800,000). Five-eighths of \$160,000 equals \$100,000, which would be the insured's recovery where the policy has a coinsurance clause.

Liability Insurance

Liability insurance has taken on great importance for both individuals and businesses in contemporary society. Liability insurance covers specific types of legal liabilities that a homeowner, driver, professional, business executive, or business itself might incur in the round of daily activities. A business is always at risk in sending products into the marketplace. Doctors, accountants, real estate brokers, insurance agents, and lawyers should obtain liability insurance to cover the risk of being sued for malpractice. A prudent homeowner will acquire liability insurance as part of homeowner's policy and a supplemental umbrella policy that insures for liability in excess of a limit of, say, \$100,000 in the regular homeowner's policy. And businesses, professionals, and individuals typically acquire liability insurance for driving-related activities as part of their automobile insurance. In all cases, liability policies cover not only any settlement or award that might ultimately have to be paid but also the cost of lawyers and related expenses in defending any claims.

Liability insurance is similar in several respects to property insurance and is often part of the same package policy. As with property insurance, subrogation is allowed with liability insurance, but assignment of the policy is not allowed (unless permission of the insurer is obtained), and intentional losses are not covered. For example, an accountant who willfully helps a client conceal fraud will not recover from his malpractice insurance policy if he is found guilty of participating in the fraud.

No-Fault Trends

The major legal development of the century relating to liability insurance has been the elimination of liability in the two areas of greatest exposure: in the workplace and on the highway. In the next unit on agency law, we discuss the no-fault system of workers' compensation, under which a worker receives automatic benefits for workplace injuries and gives up the right to sue the employer under common-law theories of liability. Here we will look briefly at the other major type of no-fault system: recovery for damages stemming from motor vehicle accidents.

"No-fault" means that recovery for damages in an accident no longer depends on who was at fault in causing it. A motorist will file a claim to recover his actual damages (medical expenses, income loss) directly from his own insurer. The no-fault system dispenses with the costly and uncertain tort system of having to prove negligence in court. Many states have adopted one form or another of no-fault automobile insurance, but even in these states the car owner must still carry other insurance. Some no-fault systems have a dollar "threshold" above which a victim may sue for medical expenses or other losses. Other states use a "verbal threshold," which permits suits for "serious" injury, defined variously as "disfigurement," "fracture," or "permanent disability." These thresholds have prevented no-fault from working as efficiently as theory predicts. Inflation has reduced the power of dollar thresholds (in some states as low as \$200) to deter lawsuits, and the verbal thresholds have standards that can only be defined in court, so much litigation continues.

No state has adopted a "pure" no-fault system. A pure no-fault system trades away entirely the right to sue in return for the prompt payment of "first-party" insurance benefits—that is, payment by the victim's own insurance company instead of traditional "third-party" coverage, in which the victim collects from the defendant's insurance company.

Among the criticisms of no-fault insurance is the argument that it fails to strengthen the central purpose of the tort system: to deter unsafe conduct that causes accidents. No-fault lessens, it is said, the incentive to avoid accidents. In any event, no-fault automobile insurance has been a major development in the insurance field since 1970 and seems destined to be a permanent fixture of insurance law.

Life Insurance

Insurable Interest

The two types of life insurance mentioned in Section 15.1.2 "Types of Insurance for the Individual", term and whole-life policies, are important both to individuals and to businesses (insurance for key employees). As with property insurance, whoever takes out a life insurance policy on a person's life must have an insurable interest. Everyone has an insurable interest in his own life and may name whomever he pleases as beneficiary; the beneficiary need not have an insurable interest. But the requirement of insurable interest restricts those who may take out insurance on someone else's life. A spouse or children have an insurable interest in a spouse or parent. Likewise, a parent has an insurable interest in any minor child. That means that a wife, for example, may take out a life insurance policy on her husband without his consent. But she could not take out a policy on a friend or neighbor. As long as the insurable interest existed when the policy was taken out, the owner may recover when the insured dies, even if the insurable interest no longer exists. Thus a divorced wife who was married when the policy was obtained may collect when her ex-husband dies as long as she maintained the payments. Likewise, an employer has an insurable interest in his key employees and partners; such insurance policies help to pay off claims of a partner's estate and thus prevent liquidation of the business.

Subrogation

Unlike property insurance, life insurance does not permit subrogation. The insurer must pay the claim when the insured dies and may not step into the shoes of anyone entitled to file a wrongful death claim against a person who caused the death. Of course, if the insured died of natural causes, there would be no one to sue anyway.

Change of Beneficiary and Assignment

Unless the insured reserves the right to change beneficiaries, his or her initial designation is irrevocable. These days, however, most policies do reserve the right if certain formalities are observed, including written instructions to the insurer's home office to make the change and endorsement of the policy. The insured may assign the policy, but the beneficiary has priority to collect over the assignee if the right to change beneficiaries has not been reserved. If the policy permits beneficiaries to be changed, then the assignee will have priority over the original beneficiary.

Intentional Losses

Two types of intentional losses are especially important in life insurance: suicide and murder of the insured by the beneficiary.

Suicide

In a majority of states, in the absence of a suicide clause in the policy, when an insured commits suicide, the insurer need not pay out if the policy is payable to the insured's estate. However, if the policy is payable to a third person (e.g., the insured's company), payment will usually be allowed. And if an insured kills himself while insane, all states require payment, whether to the estate or a third party. Most life insurance policies today have a provision that explicitly excepts suicide from coverage for a limited period, such as two years, after the policy is issued. In other words, if the insured commits suicide within the first two years, the insurer will refund the premiums to his estate but will not pay the policy amount. After two years, suicide is treated as any other death would be.

Murder

Under the law in every state, a beneficiary who kills the insured in order to collect the life insurance is barred from receiving it. But the invocation of that rule does not absolve the insurer of liability to pay the policy amount. An alternate beneficiary must be found. Sometimes the policy will name contingent beneficiaries, and many, but not all, states require the insurer to pay the contingent beneficiaries. When there are no contingent beneficiaries or the state law prohibits paying them, the insurer will pay the insured's estate. Not every killing is murder; the critical question is whether the beneficiary intended his conduct to eliminate the insured in order to collect the insurance.

The willful, unlawful, and felonious killing of the insured by the person named as beneficiary in a life policy results in the forfeiture of all rights of such person therein. It is unnecessary that there should be an express exception in the contract of insurance forbidding a recovery in favor of such a person in such an event. On considerations of public policy, the death of the insured, willfully and intentionally caused by the beneficiary of the policy, is an excepted risk so far as the person thus causing the death is concerned.

key takeaway

Many kinds of insurance are available for individuals and businesses. For individuals, life insurance, homeowner's insurance, and automobile insurance are common, with health insurance considered essential but often expensive. Businesses with sufficient employees will obtain workers' compensation insurance, property insurance, and liability insurance, and auto insurance for any employees driving company vehicles. Insurance companies will often pay a claim for their insured and take over the insured's claim against a third party.

Liability insurance is important for individuals, companies, and licensed professionals. A trend toward no-fault in liability insurance is seen in claims for work-related injuries (workers' compensation) and in automobile insurance. Life insurance is common for most families and for businesses that want to protect against the loss of key employees.

Exercise 12.1.1

1. Helen Caldicott raises a family and then begins a career as a caterer. As her business grows, she hires several employees and rents space near downtown that has a retail space, parking, and a garage for the three vehicles that bear her business's name. What kinds of insurance does Helen need for her business?

2. One of Helen's employees, Bob Zeek, is driving to a catered event when another car fails to stop at a red light and severely injures Bob and nearly totals the van Bob was driving. The police issue a ticket for careless and reckless driving to the other driver, who pleads guilty to the offense. The other driver is insured, but Helen's automobile insurance carrier goes ahead and pays for the damages to the company vehicle. What will her insurance company likely do next?
3. The health insurance provider for Helen's employees pays over \$345,000 of Bob's medical and hospitalization bills. What will Helen's insurance company likely do next?
4. Many homeowners live on floodplains but have homeowner's insurance nonetheless. Must insurance companies write such policies? Do homeowners on floodplains pay more in premiums? If insurance companies are convinced that global climate change is happening, with rising sea levels and stronger storms, can they simply avoid writing policies for homes and commercial buildings in coastal areas?

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12.2: Budgeting and Business

Learning Outcomes

- Describe the advantages of budgeting to a business

Just like your household, a business has debts and expenses they are responsible for. In an effort to make sure the funds exist to cover these expenses, businesses need to put together a budget.

Some of the common expenses that a business may have include:

- Rent or mortgage
- Utilities
- Telephone
- Insurance
- Advertising
- Materials for product production
- Payroll
- Taxes

Budgeting makes it possible for a business to plan into the future, attract investors, set sales goals, obtain financing. Businesses also need a properly prepared budget to set goals and to answer questions of existing investors or board members. Comparing actual expenditures to a budgeted amount is helpful to notice things like an increase in the cost of electricity or a mistake in the invoice from your advertising agency!

The budget can be seen as a benchmark document, to help staff define goals and stay within the parameters of the budget. Even the smallest businesses should put together a budget! Watching income and expenses can help managers notice small changes and fluctuations before they become problems.

The process of budgeting helps managers learn to allocate resources effectively, and in larger companies, the budget can put together different components of the business into one document. This may show areas where bottlenecks might occur in spending, again, before this becomes a problem.

Budgets are a big deal, and not a task to put off. If you are a manager, chances are you will be asked to help prepare a budget, or run a department based on a budget. Whatever your role is, a budget will most likely be part of your job.

Practice Questions

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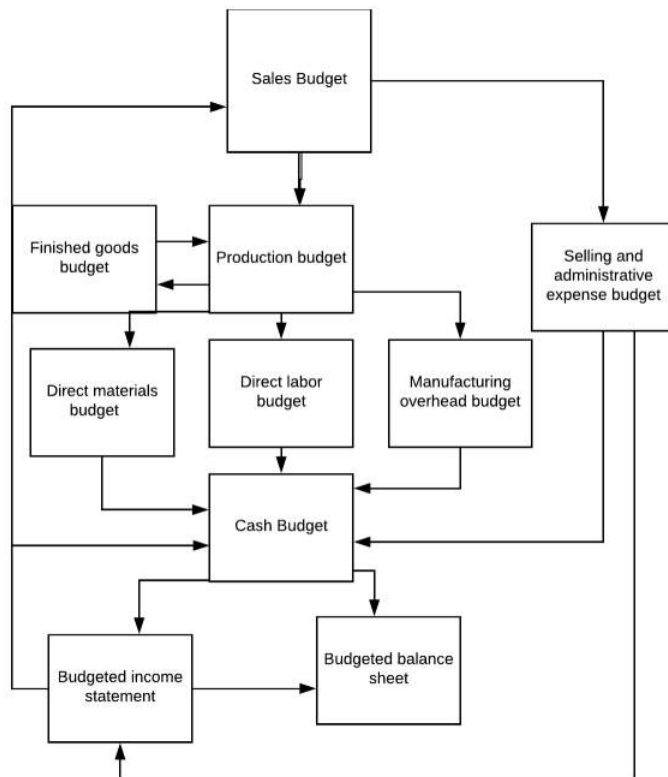
12.3: Components of the Master Budget

Learning Outcomes

- Outline the sequence of components of the master budget

So, the sales budget is the starting point, as we discussed in the previous section. We also discussed some of the other components of the master budget that can happen once we have solid sales numbers to work from.

The components of the master budget interrelate, and it is important to prepare them in order, as information from one component is needed to complete the next! Take a look at this crazy flow chart for a manufacturing business!



So this gives you an overview of how each of the components of the entire budget work together. As a reminder, that this is a master budget for a manufacturing business. Also note, that we would be setting up the budgets in an Excel workbook with a sheet for each budget.

Now let's look at the production budget!

Practice Questions

<https://assessments.lumenlearning.co...sessments/9636>

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12.4: Introduction to the Master Budget

What you'll learn to do: Discuss the purpose of an master budget

Every company needs a master budget! The components of this budget are outlined in this unit, along with the order in which they need to be completed. Certain data is needed before the next set of budgets can be completed. Giving the responsibility of the budget to the employees involved in each component of the work can be helpful in insuring that you have set reasonable and attainable budgeting goals.

Let's take a look at the components of a master budget and how they interrelate.

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CHAPTER OVERVIEW

13: Corporate Social Responsibility and Business Ethics

A great society is a society in which [leaders] of business think greatly about their functions.

- Alfred North Whitehead

Learning Objectives

After reading this chapter, you should be able to do the following:

1. Understand the principal philosophies of ethics, including utilitarianism, duty-based ethics, and virtue ethics.
2. Explain the difference between shareholder and stakeholder models of ethical corporate governance.
3. Explain why it is difficult to establish and maintain an ethical corporate culture in a business organization.

Few subjects are more contentious or important as the role of business in society, particularly, whether corporations have social responsibilities that are distinct from maximizing shareholder value. While the phrase “business ethics” is not oxymoronic (i.e., a contradiction in terms), there is plenty of evidence that businesspeople and firms seek to look out primarily for themselves. However, business organizations ignore the ethical and social expectations of consumers, employees, the media, nongovernment organizations (NGOs), government officials, and socially responsible investors at their peril. Legal compliance alone no longer serves the long-term interests of many companies, who find that sustainable profitability requires thinking about people and the planet as well as profits.

This chapter has a fairly modest aim: to introduce potential businesspeople to the differences between legal compliance and ethical excellence by reviewing some of the philosophical perspectives that apply to business, businesspeople, and the role of business organizations in society.

[13.1: What is Ethics?](#)

[13.2: Major Ethical Perspectives](#)

[13.3: An Ethical Decision Model](#)

[13.4: Corporations and Corporate Government](#)

[13.5: Summary and Exercises](#)

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13.1: What is Ethics?

Learning Objectives

1. Explain how law and ethics are different, and why a good reputation can be more important than legal compliance.

Most of those who write about ethics do not make a clear distinction between ethics and morality. The question of what is “right” or “morally correct” or “ethically correct” or “morally desirable” in any situation is variously phrased, but all of the words and phrases are after the same thing: what act is “better” in a moral or ethical sense than some other act? People sometimes speak of morality as something personal but view ethics as having wider social implications. Others see morality as the subject of a field of study, that field being ethics. Ethics would be morality as applied to any number of subjects, including journalistic ethics, business ethics, or the ethics of professionals such as doctors, attorneys, and accountants. We will venture a definition of *ethics*, but for our purposes, *ethics* and *morality* will be used as equivalent terms.

People often speak about the ethics or morality of individuals and also about the morality or ethics of corporations and nations. There are clearly differences in the kind of moral responsibility that we can fairly ascribe to corporations and nations; we tend to see individuals as having a soul, or at least a conscience, but there is no general agreement that nations or corporations have either. Still, our ordinary use of language does point to something significant: if we say that some nations are “evil” and others are “corrupt,” then we make moral judgments about the quality of actions undertaken by the governments or people of that nation. For example, if North Korea is characterized by the US president as part of an “axis of evil,” or if we conclude that WorldCom or Enron acted “unethically” in certain respects, then we are making judgments that their collective actions are morally deficient.

In talking about morality, we often use the word *good*; but that word can be confusing. If we say that Microsoft is a “good company,” we may be making a statement about the investment potential of Microsoft stock, or their preeminence in the market, or their ability to win lawsuits or appeals or to influence administrative agencies. Less likely, though possibly, we may be making a statement about the civic virtue and corporate social responsibility of Microsoft. In the first set of judgments, we use the word *good* but mean something other than ethical or moral; only in the second instance are we using the word *good* in its ethical or moral sense.

A word such as *good* can embrace ethical or moral values but also nonethical values. If I like Daniel and try to convince you what a “good guy” he is, you may ask all sorts of questions: Is he good-looking? Well-off? Fun to be with? Humorous? Athletic? Smart? I could answer all of those questions with a yes, yet you would still not know any of his moral qualities. But if I said that he was honest, caring, forthright, and diligent, volunteered in local soup kitchens, or tithed to the church, many people would see Daniel as having certain ethical or moral qualities. If I said that he keeps the Golden Rule as well as anyone I know, you could conclude that he is an ethical person. But if I said that he is “always in control” or “always at the top of his game,” you would probably not make inferences or assumptions about his character or ethics.

There are three key points here:

1. Although morals and ethics are not precisely measurable, people generally have similar reactions about what actions or conduct can rightly be called ethical or moral.
2. As humans, we need and value ethical people and want to be around them.
3. Saying that someone or some organization is law-abiding does not mean the same as saying a person or company is ethical.

Here is a cautionary note: for individuals, it is far from easy to recognize an ethical problem, have a clear and usable decision-making process to deal it, and then have the moral courage to do what’s right. All of that is even more difficult within a business organization, where corporate employees vary in their motivations, loyalties, commitments, and character. There is no universally accepted way for developing an organization where employees feel valued, respected, and free to openly disagree; where the actions of top management are crystal clear; and where all the employees feel loyal and accountable to one another.

Before talking about how ethics relates to law, we can conclude that ethics is the study of morality—“right” and “wrong”—in the context of everyday life, organizational behaviors, and even how society operates and is governed.

How Do Law and Ethics Differ?

There is a difference between legal compliance and moral excellence. Few would choose a professional service, health care or otherwise, because the provider had a record of perfect legal compliance, or always following the letter of the law. There are many professional ethics codes, primarily because people realize that law prescribes only a minimum of morality and does not provide purpose or goals that can mean excellent service to customers, clients, or patients.

Business ethicists have talked for years about the intersection of law and ethics. Simply put, what is legal is not necessarily ethical. Conversely, what is ethical is not necessarily legal. There are lots of legal maneuvers that are not all that ethical; the well-used phrase “legal loophole” suggests as much.

Here are two propositions about business and ethics. Consider whether they strike you as true or whether you would need to know more in order to make a judgment.

- Individuals and organizations have reputations. (For an individual, moral reputation is most often tied to others’ perceptions of his or her character: is the individual honest, diligent, reliable, fair, and caring? The reputation of an organization is built on the goodwill that suppliers, customers, the community, and employees feel toward it. Although an organization is not a person in the usual sense, the goodwill that people feel about the organization is based on their perception of its better qualities by a variety of stakeholders: customers or clients, suppliers, investors, employees, government officials).
- The goodwill of an organization is to a great extent based on the actions it takes and on whether the actions are favorably viewed. (This goodwill is usually specifically counted in the sale of a business as an asset that the buyer pays for. While it is difficult to place a monetary value on goodwill, a firm’s good reputation will generally call for a higher evaluation in the final accounting before the sale. Legal troubles or a reputation for having legal troubles will only lessen the price for a business and will even lessen the value of the company’s stock as bad legal news comes to the public’s attention.)

Another reason to think about ethics in connection with law is that the laws themselves are meant to express some moral view. If there are legal prohibitions against cheating the Medicare program, it is because people (legislators or their agents) have collectively decided that cheating Medicare is wrong. If there are legal prohibitions against assisting someone to commit suicide, it is because there has been a group decision that doing so is immoral. Thus the law provides some important cues as to what society regards as right or wrong.

Finally, important policy issues that face society are often resolved through law, but it is important to understand the moral perspectives that underlie public debate—as, for example, in the continuing controversies over stem-cell research, medical use of marijuana, and abortion. Some ethical perspectives focus on rights, some on social utility, some on virtue or character, and some on social justice. People consciously (or, more often, unconsciously) adopt one or more of these perspectives, and even if they completely agree on the facts with an opponent, they will not change their views. Fundamentally, the difference comes down to incompatible moral perspectives, a clash of basic values. These are hot-button issues because society is divided, not so much over facts, but over basic values. Understanding the varied moral perspectives and values in public policy debates is a clarifying benefit in following or participating in these important discussions.

Why Should an Individual or a Business Entity Be Ethical?

The usual answer is that good ethics is good business. In the long run, businesses that pay attention to ethics as well as law do better; they are viewed more favorably by customers. But this is a difficult claim to measure scientifically, because “the long run” is an indistinct period of time and because there are as yet no generally accepted criteria by which ethical excellence can be measured. In addition, life is still lived in the short run, and there are many occasions when something short of perfect conduct is a lot more profitable.

Some years ago, Royal Dutch/Shell (one of the world’s largest companies) found that it was in deep trouble with the public for its apparent carelessness with the environment and human rights. Consumers were boycotting and investors were getting frightened, so the company took a long, hard look at its ethic of short-term profit maximization. Since then, changes have been made. The CEO told one group of business ethicists that the uproar had taken them by surprise; they thought they had done everything right, but it seemed there was a “ghost in the machine.” That ghost was consumers, NGOs, and the media, all of whom objected to the company’s seeming lack of moral sensitivity.

The market does respond to unethical behavior. In Section 2.4 "Corporations and Corporate Governance", you will read about the Sears Auto Centers case. The loss of goodwill toward Sears Auto Centers was real, even though the total amount of money lost cannot be clearly accounted for. Years later, there are people who will not go near a Sears Auto Center; the customers who lost trust in the company will never return, and many of their children may avoid Sears Auto Centers as well.

The Arthur Andersen story is even more dramatic. A major accounting firm, Andersen worked closely with Enron in hiding its various losses through creative accounting measures. Suspiciously, Andersen's Houston office also did some shredding around the clock, appearing to cover up what it was doing for Enron. A criminal case based on this shredding resulted in a conviction, later overturned by the Supreme Court. But it was too late. Even before the conviction, many clients had found other accounting firms that were not under suspicion, and the Supreme Court's reversal came too late to save the company. Even without the conviction, Andersen would have lost significant market share.

The irony of Andersen as a poster child for overly aggressive accounting practices is that the man who founded the firm built it on integrity and straightforward practices. "Think straight, talk straight" was the company's motto. Andersen established the company's reputation for integrity over a hundred years ago by refusing to play numbers games for a potentially lucrative client.

Maximizing profits while being legally compliant is not a very inspiring goal for a business. People in an organization need some quality or excellence to strive for. By focusing on pushing the edge of what is legal, by looking for loopholes in the law that would help create short-term financial gain, companies have often learned that in the long term they are not actually satisfying the market, the shareholders, the suppliers, or the community generally.

key takeaway

Legal compliance is not the same as acting ethically. Your reputation, individually or corporately, depends on how others regard your actions. Goodwill is hard to measure or quantify, but it is real nonetheless and can best be protected by acting ethically.

Exercises 13.1.1

1. Think of a person who did something morally right, at least to your way of thinking. (This is not a matter of finding something they did well, like efficiently changing a tire, but something good.) What was it? Explain to a friend of yours—or a classmate—why you think it was right. Does your friend agree? Why or why not? What is the basic principle that forms the basis for your judgment that it was right?
2. Think of an act by an individual or a corporation that is ethical but not legal. Compare your answer with those of your classmates: were you more likely to find an example from individual action or corporate action? Do you have any thoughts as to why?

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13.2: Major Ethical Perspectives

Learning Objectives

1. Begin considering how the major theories about ethics apply to difficult choices in life and business.

There are several well-respected ways of looking at ethical issues. Some of them have been around for centuries. It is important to know that many who think a lot about business and ethics have deeply held beliefs about which perspective is best. Others would recommend considering ethical problems from a variety of different perspectives. Here, we take a brief look at (1) utilitarianism, (2) deontology, (3) social justice and social contract theory, and (4) virtue theory. We are leaving out some important perspectives, such as general theories of justice and “rights” and feminist thought about ethics and patriarchy.

Utilitarianism

Utilitarianism is a prominent perspective on ethics, one that is well aligned with economics and the free-market outlook that has come to dominate much current thinking about business, management, and economics. Jeremy Bentham is often considered the founder of utilitarianism, though John Stuart Mill (who wrote *On Liberty and Utilitarianism*) and others promoted it as a guide to what is good. Utilitarianism emphasizes not rules but results. An action (or set of actions) is generally deemed good or right if it maximizes happiness or pleasure throughout society. Originally intended as a guide for legislators charged with seeking the greatest good for society, the utilitarian outlook may also be practiced individually and by corporations.

Bentham believed that the most promising way to obtain agreement on the best policies for a society would be to look at the various policies a legislature could pass and compare the good and bad consequences of each. The right course of action from an ethical point of view would be to choose the policy that would produce the greatest amount of utility, or usefulness. In brief, the utilitarian principle holds that an action is right if and only if the sum of utilities produced by that action is greater than the sum of utilities from any other possible act.

This statement describes “act utilitarianism”—which action among various options will deliver the greatest good to society? “Rule utilitarianism” is a slightly different version; it asks, what rule or principle, if followed regularly, will create the greatest good?

Notice that the emphasis is on finding the best possible results and that the assumption is that we can measure the utilities involved. (This turns out to be more difficult than you might think.) Notice also that “the sum total of utilities” clearly implies that in doing utilitarian analysis, we cannot be satisfied if an act or set of acts provides the greatest utility to us as individuals or to a particular corporation; the test is, instead, whether it provides the greatest utility to society as a whole. Notice that the theory does not tell us what kinds of utilities may be better than others or how much better a good today is compared with a good a year from today.

Whatever its difficulties, utilitarian thinking is alive and well in US law and business. It is found in such diverse places as cost-benefit analysis in administrative and regulatory rules and calculations, environmental impact studies, the majority vote, product comparisons for consumer information, marketing studies, tax laws, and strategic planning. In management, people will often employ a form of utility reasoning by projecting costs and benefits for plan X versus plan Y. But the issue in most of these cost-benefit analyses is usually (1) put exclusively in terms of money and (2) directed to the benefit of the person or organization doing the analysis and not to the benefit of society as a whole.

An individual or a company that consistently uses the test “What’s the greatest good for me or the company?” is not following the utilitarian test of the greatest good overall. Another common failing is to see only one or two options that seem reasonable. The following are some frequent mistakes that people make in applying what they think are utilitarian principles in justifying their chosen course of action:

1. Failing to come up with lots of options that seem reasonable and then choosing the one that has the greatest benefit for the greatest number. Often, a decision maker seizes on one or two alternatives without thinking carefully about other courses of action. If the alternative does more good than harm, the decision maker assumes it’s ethically okay.
2. Assuming that the greatest good for you or your company is in fact the greatest good for all—that is, looking at situations subjectively or with your own interests primarily in mind.

3. Underestimating the costs of a certain decision to you or your company. The now-classic Ford Pinto case demonstrates how Ford Motor Company executives drastically underestimated the legal costs of not correcting a feature on their Pinto models that they knew could cause death or injury. General Motors was often taken to task by juries that came to understand that the company would not recall or repair known and dangerous defects because it seemed more profitable not to. In 2010, Toyota learned the same lesson.
4. Underestimating the cost or harm of a certain decision to someone else or some other group of people.
5. Favoring short-term benefits, even though the long-term costs are greater.
6. Assuming that all values can be reduced to money. In comparing the risks to human health or safety against, say, the risks of job or profit losses, cost-benefit analyses will often try to compare apples to oranges and put arbitrary numerical values on human health and safety.

Rules and Duty: Deontology

In contrast to the utilitarian perspective, the deontological view presented in the writings of Immanuel Kant purports that having a moral intent and following the right rules is a better path to ethical conduct than achieving the right results. A deontologist like Kant is likely to believe that ethical action arises from doing one's duty and that duties are defined by rational thought. Duties, according to Kant, are not specific to particular kinds of human beings but are owed universally to all human beings. Kant therefore uses "universalizing" as a form of rational thought that assumes the inherent equality of all human beings. It considers all humans as equal, not in the physical, social, or economic sense, but equal before God, whether they are male, female, Pygmy, Eskimoan, Islamic, Christian, gay, straight, healthy, sick, young, or old.

For Kantian thinkers, this basic principle of equality means that we should be able to universalize any particular law or action to determine whether it is ethical. For example, if you were to consider misrepresenting yourself on a resume for a particular job you really wanted and you were convinced that doing so would get you that job, you might be very tempted to do so. (What harm would it be? you might ask yourself. When I have the job, I can prove that I was perfect for it, and no one is hurt, while both the employer and I are clearly better off as a result!) Kantian ethicists would answer that your chosen course of action should be a universal one—a course of action that would be good for all persons at all times. There are two requirements for a rule of action to be universal: consistency and reversibility. Consider reversibility: if you make a decision as though you didn't know what role or position you would have after the decision, you would more likely make an impartial one—you would more likely choose a course of action that would be most fair to all concerned, not just you. Again, **deontology** requires that we put duty first, act rationally, and give moral weight to the inherent equality of all human beings.

In considering whether to lie on your resume, reversibility requires you to actively imagine both that you were the employer in this situation and that you were another well-qualified applicant who lost the job because someone else padded his resume with false accomplishments. If the consequences of such an exercise of the imagination are not appealing to you, your action is probably not ethical.

The second requirement for an action to be universal is the search for consistency. This is more abstract. A deontologist would say that since you know you are telling a lie, you must be willing to say that lying, as a general, universal phenomenon, is acceptable. But if everyone lied, then there would be no point to lying, since no one would believe anyone. It is only because honesty works well for society as a whole and is generally practiced that lying even becomes possible! That is, lying cannot be universalized, for it depends on the preexistence of honesty.

Similar demonstrations can be made for actions such as polluting, breaking promises, and committing most crimes, including rape, murder, and theft. But these are the easy cases for Kantian thinkers. In the gray areas of life as it is lived, the consistency test is often difficult to apply. If breaking a promise would save a life, then Kantian thought becomes difficult to apply. If some amount of pollution can allow employment and the harm is minimal or distant, Kantian thinking is not all that helpful. Finally, we should note that the well-known Golden Rule, "Do unto others as you would have them do unto you," emphasizes the easier of the two universalizing requirements: practicing reversibility ("How would I like it if someone did this to me?").

Social Justice Theory and Social Contract Theory

Social justice theorists worry about "distributive justice"—that is, what is the fair way to distribute goods among a group of people? Marxist thought emphasizes that members of society should be given goods according to their needs. But this

redistribution would require a governing power to decide who gets what and when. Capitalist thought takes a different approach, rejecting any giving that is not voluntary. Certain economists, such as the late Milton Friedman (see the sidebar in Section 2.4 "Corporations and Corporate Governance") also reject the notion that a corporation has a duty to give to unmet needs in society, believing that the government should play that role. Even the most dedicated free-market capitalist will often admit the need for some government and some forms of welfare—Social Security, Medicare, assistance to flood-stricken areas, help for AIDS patients—along with some public goods (such as defense, education, highways, parks, and support of key industries affecting national security).

People who do not see the need for **public goods** (including laws, court systems, and the government goods and services just cited) often question why there needs to be a government at all. One response might be, "Without government, there would be no corporations." Thomas Hobbes believed that people in a "state of nature" would rationally choose to have some form of government. He called this the **social contract**, where people give up certain rights to government in exchange for security and common benefits. In your own lives and in this course, you will see an ongoing balancing act between human desires for freedom and human desires for order; it is an ancient tension. Some commentators also see a kind of social contract between corporations and society; in exchange for perpetual duration and limited liability, the corporation has some corresponding duties toward society. Also, if a corporation is legally a "person," as the Supreme Court reaffirmed in 2010, then some would argue that if this corporate person commits three felonies, it should be locked up for life and its corporate charter revoked!

Modern social contract theorists, such as Thomas Donaldson and Thomas Dunfee (*Ties that Bind*, 1999), observe that various communities, not just nations, make rules for the common good. Your college or school is a community, and there are communities within the school (fraternities, sororities, the folks behind the counter at the circulation desk, the people who work together at the university radio station, the sports teams, the faculty, the students generally, the gay and lesbian alliance) that have rules, norms, or standards that people can buy into or not. If not, they can exit from that community, just as we are free (though not without cost) to reject US citizenship and take up residence in another country.

Donaldson and Dunfee's integrative social contracts theory stresses the importance of studying the rules of smaller communities along with the larger social contracts made in states (such as Colorado or California) and nation-states (such as the United States or Germany). Our Constitution can be seen as a fundamental social contract.

It is important to realize that a social contract can be changed by the participants in a community, just as the US Constitution can be amended. Social contract theory is thus dynamic—it allows for structural and organic changes. Ideally, the social contract struck by citizens and the government allows for certain fundamental rights such as those we enjoy in the United States, but it need not. People can give up freedom-oriented rights (such as the right of free speech or the right to be free of unreasonable searches and seizures) to secure order (freedom from fear, freedom from terrorism). For example, many citizens in Russia now miss the days when the Kremlin was all powerful; there was less crime and more equality and predictability to life in the Soviet Union, even if there was less freedom.

Thus the rights that people have—in positive law—come from whatever social contract exists in the society. This view differs from that of the deontologists and that of the natural-law thinkers such as Gandhi, Jesus, or Martin Luther King Jr., who believed that rights come from God or, in less religious terms, from some transcendent moral order.

Another important movement in ethics and society is the communitarian outlook. Communitarians emphasize that rights carry with them corresponding duties; that is, there cannot be a right without a duty. Interested students may wish to explore the work of Amitai Etzioni. Etzioni was a founder of the Communitarian Network, which is a group of individuals who have come together to bolster the moral, social, and political environment. It claims to be nonsectarian, nonpartisan, and international in scope.

The relationship between rights and duties—in both law and ethics—calls for some explanations:

1. If you have a right of free expression, the government has a duty to respect that right but can put reasonable limits on it. For example, you can legally say whatever you want about the US president, but you can't get away with threatening the president's life. Even if your criticisms are strong and insistent, you have the right (and our government has the duty to protect your right) to speak freely. In Singapore during the 1990s, even indirect criticisms—mere hints—of the political leadership were enough to land you in jail or at least silence you with a libel suit.
2. Rights and duties exist not only between people and their governments but also between individuals. Your right to be free from physical assault is protected by the law in most states, and when someone walks up to you and punches you in the nose, your

rights—as set forth in the positive law of your state—have been violated. Thus other people have a duty to respect your rights and to not punch you in the nose.

3. Your right in legal terms is only as good as your society's willingness to provide legal remedies through the courts and political institutions of society.

A distinction between basic rights and nonbasic rights may also be important. Basic rights may include such fundamental elements as food, water, shelter, and physical safety. Another distinction is between positive rights (the right to bear arms, the right to vote, the right of privacy) and negative rights (the right to be free from unreasonable searches and seizures, the right to be free of cruel or unusual punishments). Yet another is between economic or social rights (adequate food, work, and environment) and political or civic rights (the right to vote, the right to equal protection of the laws, the right to due process).

Aristotle and Virtue Theory

Virtue theory, or virtue ethics, has received increasing attention over the past twenty years, particularly in contrast to utilitarian and deontological approaches to ethics. Virtue theory emphasizes the value of virtuous qualities rather than formal rules or useful results. Aristotle is often recognized as the first philosopher to advocate the ethical value of certain qualities, or virtues, in a person's character. As LaRue Hosmer has noted, Aristotle saw the goal of human existence as the active, rational search for excellence, and excellence requires the personal virtues of honesty, truthfulness, courage, temperance, generosity, and high-mindedness. This pursuit is also termed "knowledge of the good" in Greek philosophy. (LaRue Hosmer, *Moral Leadership in Business* (Chicago: Irwin Professional Publishing, 1994), 72).

Aristotle believed that all activity was aimed at some goal or perceived good and that there must be some ranking that we do among those goals or goods. Happiness may be our ultimate goal, but what does that mean, exactly? Aristotle rejected wealth, pleasure, and fame and embraced reason as the distinguishing feature of humans, as opposed to other species. And since a human is a reasoning animal, happiness must be associated with reason. Thus happiness is living according to the active (rather than passive) use of reason. The use of reason leads to excellence, and so happiness can be defined as the active, rational pursuit of personal excellence, or virtue.

Aristotle named fourteen virtues: (1) courage, particularly in battle; (2) temperance, or moderation in eating and drinking; (3) liberality, or spending money well; (4) magnificence, or living well; (5) pride, or taking pleasure in accomplishments and stature; (6) high-mindedness, or concern with the noble rather than the petty; (7) unnamed virtue, which is halfway between ambition and total lack of effort; (8) gentleness, or concern for others; (9) truthfulness; (10) wit, or pleasure in group discussions; (11) friendliness, or pleasure in personal conduct; (12) modesty, or pleasure in personal conduct; (13) righteous indignation, or getting angry at the right things and in the right amounts; and (14) justice.

From a modern perspective, some of these virtues seem old-fashioned or even odd. Magnificence, for example, is not something we commonly speak of. Three issues emerge: (1) How do we know what a virtue is these days? (2) How useful is a list of agreed-upon virtues anyway? (3) What do virtues have to do with companies, particularly large ones where various groups and individuals may have little or no contact with other parts of the organization?

As to the third question, whether corporations can "have" virtues or values is a matter of lively debate. A corporation is obviously not the same as an individual. But there seems to be growing agreement that organizations do differ in their practices and that these practices are value driven. If all a company cares about is the bottom line, other values will diminish or disappear. Quite a few books have been written in the past twenty years that emphasize the need for businesses to define their values in order to be competitive in today's global economy. (James O'Toole and Don Mayer, eds., *Good Business: Exercising Effective and Ethical Leadership* (London: Routledge, 2010)).

As to the first two questions regarding virtues, a look at Michael Josephson's core values may prove helpful.

Josephson's Core Values Analysis and Decision Process

Michael Josephson, a noted American ethicist, believes that a current set of *core values* has been identified and that the values can be meaningfully applied to a variety of personal and corporate decisions.

To simplify, let's say that there are ethical and nonethical qualities among people in the United States. When you ask people what kinds of qualities they admire in others or in themselves, they may say wealth, power, fitness, sense of humor, good looks,

intelligence, musical ability, or some other quality. They may also value honesty, caring, fairness, courage, perseverance, diligence, trustworthiness, or integrity. The qualities on the second list have something in common—they are distinctively ethical characteristics. That is, they are commonly seen as moral or ethical qualities, unlike the qualities on the first list. You can be, like the Athenian Alcibiades, brilliant but unprincipled, or, like some political leaders today, powerful but dishonest, or wealthy but uncaring. You can, in short, have a number of admirable qualities (brilliance, power, wealth) that are not per se virtuous. Just because Harold is rich or good-looking or has a good sense of humor does not mean that he is ethical. But if Harold is honest and caring (whether he is rich or poor, humorous or humorless), people are likely to see him as ethical.

Among the virtues, are any especially important? Studies from the Josephson Institute of Ethics in Marina del Rey, California, have identified six **core values** in our society, values that almost everyone agrees are important to them. When asked what values people hold dear, what values they wish to be known by, and what values they wish others would exhibit in their actions, six values consistently turn up: (1) trustworthiness, (2) respect, (3) responsibility, (4) fairness, (5) caring, and (6) citizenship.

Note that these values are distinctly ethical. While many of us may value wealth, good looks, and intelligence, having wealth, good looks, and intelligence does not automatically make us virtuous in our character and habits. But being more trustworthy (by being honest and by keeping promises) does make us more virtuous, as does staying true to the other five core values.

Notice also that these six core values share something in common with other ethical values that are less universally agreed upon. Many values taught in the family or in places of worship are not generally agreed on, practiced, or admired by all. Some families and individuals believe strongly in the virtue of saving money or in abstaining from alcohol or sex prior to marriage. Others clearly do not, or at least don't act on their beliefs. Moreover, it is possible to have and practice core ethical values even if you take on heavy debt, knock down several drinks a night, or have frequent premarital sex. Some would dispute this, saying that you can't really lead a virtuous life if you get into debt, drink heavily, or engage in premarital sex. But the point here is that since people do disagree in these areas, the ethical traits of thrift, temperance, and sexual abstinence do not have the unanimity of approval that the six core values do.

The importance of an individual's having these consistent qualities of character is well known. Often we remember the last bad thing a person did far more than any or all previous good acts. For example, Eliot Spitzer and Bill Clinton are more readily remembered by people for their last, worst acts than for any good they accomplished as public servants. As for a company, its good reputation also has an incalculable value that when lost takes a great deal of time and work to recover. Shell, Nike, and other companies have discovered that there is a market for morality, however difficult to measure, and that not paying attention to business ethics often comes at a serious price. In the past fifteen years, the career of ethics and compliance officer has emerged, partly as a result of criminal proceedings against companies but also because major companies have found that reputations cannot be recovered retroactively but must be pursued proactively. For individuals, Aristotle emphasized the practice of virtue to the point where virtue becomes a habit. Companies are gradually learning the same lesson.

key takeaway

Throughout history, people have pondered what it means "to do what is right." Some of the main answers have come from the differing perspectives of utilitarian thought; duty-based, or deontological, thought; social contract theory; and virtue ethics.

Exercises 13.2.1

XYZ Motor Corporation begins to get customer complaints about two models of its automobiles. Customers have had near-death experiences from sudden acceleration; they would be driving along a highway at normal speed when suddenly the car would begin to accelerate, and efforts to stop the acceleration by braking fail to work. Drivers could turn off the ignition and come to a safe stop, but XYZ does not instruct buyers of its cars to do so, nor is this a common reaction among drivers who experience sudden acceleration.

Internal investigations of half a dozen accidents in US locations come to the conclusion that the accidents are not being caused by drivers who mistake the gas pedal for the brake pedal. In fact, there appears to be a possible flaw in both models, perhaps in a semiconductor chip, that makes sudden acceleration happen. Interference by floor mats and poorly designed gas pedals do not seem to be the problem.

It is voluntary to report these incidents to the National Highway Traffic and Safety Administration (NHTSA), but the company decides that it will wait awhile and see if there are more complaints. Recalling the two models so that local dealers and their mechanics could examine them is also an option, but it would be extremely costly. Company executives are aware that quarterly and annual profit-and-loss statements, on which their bonuses depend, could be decisively worse with a recall. They decide that on a cost-benefit basis, it makes more sense to wait until there are more accidents and more data. After a hundred or more accidents and nearly fifteen fatalities, the company institutes a selective recall, still not notifying NHTSA, which has its own experts and the authority to order XYZ to do a full recall of all affected models.

Experts have advised XYZ that standard failure-analysis methodology requires that the company obtain absolutely every XYZ vehicle that has experienced sudden acceleration, using microscopic analysis of all critical components of the electronic system. The company does not wish to take that advice, as it would be—as one top executive put it—“too time-consuming and expensive.”

1. What would Kant advise XYZ to do? Explain.
2. What would the “virtuous” approach be for XYZ in this situation?

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13.3: An Ethical Decision Model

Learning Objectives

1. Understand one model for ethical decision making: a process to arrive at the most ethical option for an individual or a business organization, using a virtue ethics approach combined with some elements of stakeholder analysis and utilitarianism.

Josephson's Core Values Model

Once you recognize that there is a decision that involves ethical judgment, Michael Josephson would first have you ask as many questions as are necessary to get a full background on the relevant facts. Then, assuming you have all the needed information, the decision process is as follows:

1. Identify the stakeholders. That is, who are the potential gainers and losers in the various decisions that might be made here?
2. Identify several likely or reasonable decisions that could be made.
3. Consider which stakeholders gain or lose with each decision.
4. Determine which decision satisfies the greatest number of core values.
5. If there is no decision that satisfies the greatest number of core values, try to determine which decision delivers the greatest good to the various stakeholders.

It is often helpful to identify who (or what group) is the most important stakeholder, and why. In Milton Friedman's view, it will always be the shareholders. In the view of John Mackey, the CEO of Whole Foods Market, the long-term viability and profitability of the organization may require that customers come first, or, at times, some other stakeholder group (see "Conscious Capitalism" in Section 2.4 "Corporations and Corporate Governance").

✓ the core values

Here are the core values and their subcomponents as developed by the Josephson Institute of Ethics.

Trustworthiness: *Be honest*—tell the truth, the whole truth, and nothing but the truth; be sincere, forthright; don't deceive, mislead, or be tricky with the truth; don't cheat or steal, and don't betray a trust. *Demonstrate integrity*—stand up for what you believe, walk the walk as well as talking the talk; be what you seem to be; show commitment and courage. *Be loyal*—stand by your family, friends, co-workers, community, and nation; be discreet with information that comes into your hands; don't spread rumors or engage in harmful gossip; don't violate your principles just to win friendship or approval; don't ask a friend to do something that is wrong. *Keep promises*—keep your word, honor your commitments, and pay your debts; return what you borrow.

Respect: Judge people on their merits, not their appearance; be courteous, polite, appreciative, and accepting of differences; respect others' right to make decisions about their own lives; don't abuse, demean, mistreat anyone; don't use, manipulate, exploit, or take advantage of others.

Responsibility: Be accountable—think about the consequences on yourself and others likely to be affected before you act; be reliable; perform your duties; take responsibility for the consequences of your choices; set a good example and don't make excuses or take credit for other people's work. Pursue excellence: Do your best, don't quit easily, persevere, be diligent, make all you do worthy of pride. Exercise self-restraint—be disciplined, know the difference between what you have a right to do and what is right to do.

Fairness: Treat all people fairly, be open-minded; listen; consider opposing viewpoints; be consistent; use only appropriate considerations; don't let personal feelings improperly interfere with decisions; don't take unfair advantage of mistakes; don't take more than your fair share.

Caring: Show you care about others through kindness, caring, sharing, compassion, and empathy; treat others the way you want to be treated; don't be selfish, mean, cruel, or insensitive to others' feelings.

Citizenship: Play by the rules, obey laws; do your share, respect authority, stay informed, vote, protect your neighbors, pay your taxes; be charitable, help your community; protect the environment, conserve resources.

When individuals and organizations confront ethical problems, the core values decision model offered by Josephson generally works well (1) to clarify the gains and losses of the various stakeholders, which then raises ethical awareness on the part of the decision maker and (2) to provide a fairly reliable guide as to what the most ethical decision would be. In nine out of ten cases, step 5 in the decision process is not needed.

That said, it does not follow that students (or managers) would necessarily act in accord with the results of the core values decision process. There are many psychological pressures and organizational constraints that place limits on people both individually and in organizations. These pressures and constraints tend to compromise ideal or the most ethical solutions for individuals and for organizations. For a business, one essential problem is that ethics can cost the organization money or resources, at least in the short term. Doing the most ethical thing will often appear to be something that fails to maximize profits in the short term or that may seem pointless because if you or your organization acts ethically, others will not, and society will be no better off, anyway.

key takeaway

Having a step-by-step process to analyze difficult moral dilemmas is useful. One such process is offered here, based on the core values of trustworthiness, caring, respect, fairness, responsibility, and citizenship.

Exercise 13.3.1

1. Consider XYZ in the exercises for Section 2.2.5 "Josephson's Core Values Analysis and Decision Process" and use the core values decision-making model. What are XYZ's options when they first notice that two of their models are causing sudden acceleration incidents that put their customers at risk? Who are the stakeholders? What options most clearly meet the criteria for each of the core values?

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13.4: Corporations and Corporate Government

Learning Objectives

1. Understand how the shareholder profit-maximization model is different from stakeholder theory.
2. Explain what conscious capitalism is and how it differs from stakeholder theory.

Legal Organization of the Corporation

Figure 13.4.1, though somewhat oversimplified, shows the basic legal structure of a corporation under Delaware law and the laws of most other states in the United States. Shareholders elect directors, who then hire officers to manage the company. From this structure, some very basic realities follow. Because the directors of a corporation do not meet that often, it's possible for the officers hired (top management, or the "C-suite") to be selective of what the board knows about, and directors are not always ready and able to provide the oversight that the shareholders would like. Nor does the law require officers to be shareholders, so that officers' motivations may not align with the best interests of the company. This is the "agency problem" often discussed in corporate governance: how to get officers and other top management to align their own interests with those of the shareholders. For example, a CEO might trade insider information to the detriment of the company's shareholders. Even board members are susceptible to misalignment of interest; for example, board members might resist hostile takeover bids because they would likely lose their perks (short for *perquisites*) as directors, even though the tender offer would benefit stockholders. Among other attempted realignments, the use of stock options was an attempt to make managers more attentive to the value of company stock, but the law of unintended consequences was in full force; managers tweaked and managed earnings in the bubble of the 1990s bull market, and "managing by numbers" became an epidemic in corporations organized under US corporate law. The rights of shareholders can be bolstered by changes in state and federal law, and there have been some attempts to do that since the late 1990s. But as owners, shareholders have the ultimate power to replace nonperforming or underperforming directors, which usually results in changes at the C-suite level as well.

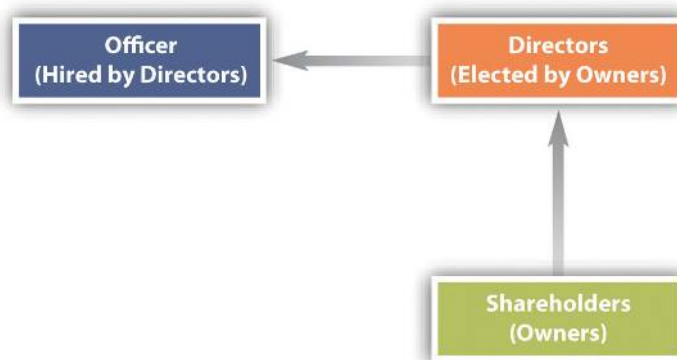


Figure 13.4.1: Corporate Legal Structure

Shareholders and Stakeholders

There are two main views about what the corporation's duties are. The first view—maximizing profits—is the prevailing view among business managers and in business schools. This view largely follows the idea of Milton Friedman that the duty of a manager is to maximize return on investment to the owners. In essence, managers' legally prescribed duties are those that make their employment possible. In terms of the legal organization of the corporation, the shareholders elect directors who hire managers, who have legally prescribed duties toward both directors and shareholders. Those legally prescribed duties are a reflection of the fact that managers are managing other people's money and have a moral duty to act as a responsible agent for the owners. In law, this is called the manager's fiduciary duty. Directors have the same duties toward shareholders. Friedman emphasized the primacy of this duty in his writings about corporations and social responsibility.

Maximizing Profits: Milton Friedman

Economist Milton Friedman is often quoted as having said that the only moral duty a corporation has is to make the most possible money, or to maximize profits, for its stockholders. Friedman's beliefs are noted at length (see sidebar on Friedman's article from the *New York Times*), but he asserted in a now-famous 1970 article that in a free society, "there is one and only one social responsibility of business: to use its resources and engage in activities designed to increase its profits as long as it stays within the rules of the game, which is to say, engages in open and free competition without deception and fraud." What follows is a major portion of what Friedman had to say in 1970.

"The Social Responsibility of Business Is to Increase Its Profits"

Milton Friedman, *New York Times Magazine*, September 13, 1970

What does it mean to say that "business" has responsibilities? Only people can have responsibilities. A corporation is an artificial person and in this sense may have artificial responsibilities, but "business" as a whole cannot be said to have responsibilities, even in this vague sense....

Presumably, the individuals who are to be responsible are businessmen, which means individual proprietors or corporate executives....In a free enterprise, private-property system, a corporate executive is an employee of the owners of the business. He has direct responsibility to his employers. That responsibility is to conduct the business in accordance with their desires, which generally will be to make as much money as possible while conforming to the basic rules of the society, both those embodied in law and those embodied in ethical custom....

...[T]he manager is that agent of the individuals who own the corporation or establish the eleemosynary institution, and his primary responsibility is to them...

Of course, the corporate executive is also a person in his own right. As a person, he may have other responsibilities that he recognizes or assumes voluntarily—to his family, his conscience, his feeling of charity, his church, his clubs, his city, his country. He may feel impelled by these responsibilities to devote part of his income to causes he regards as worthy, to refuse to work for particular corporations, even to leave his job...But in these respects he is acting as a principal, not an agent; he is spending his own money or time or energy, not the money of his employers or the time or energy he has contracted to devote to their purposes. If these are "social responsibilities," they are the social responsibilities of individuals, not of business.

What does it mean to say that the corporate executive has a "social responsibility" in his capacity as businessman? If this statement is not pure rhetoric, it must mean that he has to act in some way that is not in the interest of his employers. For example, that he is to refrain from increasing the price of the product in order to contribute to the social objective of preventing inflation, even though a price increase would be in the best interests of the corporation. Or that he is to make expenditures on reducing pollution beyond the amount that is in the best interests of the corporation or that is required by law in order to contribute to the social objective of improving the environment. Or that, at the expense of corporate profits, he is to hire "hardcore" unemployed instead of better qualified available workmen to contribute to the social objective of reducing poverty.

In each of these cases, the corporate executive would be spending someone else's money for a general social interest. Insofar as his actions...reduce returns to stockholders, he is spending their money. Insofar as his actions raise the price to customers, he is spending the customers' money. Insofar as his actions lower the wages of some employees, he is spending their money.

This process raises political questions on two levels: principle and consequences. On the level of political principle, the imposition of taxes and the expenditure of tax proceeds are governmental functions. We have established elaborate constitutional, parliamentary, and judicial provisions to control these functions, to assure that taxes are imposed so far as possible in accordance with the preferences and desires of the public....

Others have challenged the notion that corporate managers have no real duties except toward the owners (shareholders). By changing two letters in *shareholder*, stakeholder theorists widened the range of people and institutions that a corporation should pay moral consideration to. Thus they contend that a corporation, through its management, has a set of responsibilities toward nonshareholder interests.

Stakeholder Theory

Stakeholders of a corporation include its employees, suppliers, customers, and the community. Stakeholder is a deliberate play on the word *shareholder*, to emphasize that corporations have obligations that extend beyond the bottom-line aim of maximizing profits. A stakeholder is anyone who most would agree is significantly affected (positively or negatively) by the decision of another moral agent.

There is one vital fact about corporations: the corporation is a creation of the law. Without law (and government), corporations would not have existence. The key concept for corporations is the legal fact of limited liability. The benefit of limited liability for shareholders of a corporation meant that larger pools of capital could be aggregated for larger enterprises; shareholders could only lose their investments should the venture fail in any way, and there would be no personal liability and thus no potential loss of personal assets other than the value of the corporate stock. Before New Jersey and Delaware competed to make incorporation as easy as possible and beneficial to the incorporators and founders, those who wanted the benefits of incorporation had to go to legislatures—usually among the states—to show a public purpose that the company would serve.

In the late 1800s, New Jersey and Delaware changed their laws to make incorporating relatively easy. These two states allowed incorporation “for any legal purpose,” rather than requiring some public purpose. Thus it is government (and its laws) that makes limited liability happen through the corporate form. That is, only through the consent of the state and armed with the charter granted by the state can a corporation’s shareholders have limited liability. This is a right granted by the state, a right granted for good and practical reasons for encouraging capital and innovation. But with this right comes a related duty, not clearly stated at law, but assumed when a charter is granted by the state: that the corporate form of doing business is legal because the government feels that it socially useful to do so.

Implicitly, then, there is a social contract between governments and corporations: as long as corporations are considered socially useful, they can exist. But do they have explicit social responsibilities? Milton Friedman’s position suggests that having gone along with legal duties, the corporation can ignore any other social obligations. But there are others (such as advocates of **stakeholder theory**) who would say that a corporation’s social responsibilities go beyond just staying within the law and go beyond the corporation’s shareholders to include a number of other important stakeholders, those whose lives can be affected by corporate decisions.

According to stakeholder theorists, corporations (and other business organizations) must pay attention not only to the bottom line but also to their overall effect on the community. Public perception of a company’s unfairness, uncaring, disrespect, or lack of trustworthiness often leads to long-term failure, whatever the short-term successes or profits may be. A socially responsible corporation is likely to consider the impact of its decisions on a wide range of stakeholders, not just shareholders. As Table 13.4.1 indicates, stakeholders have very different kinds of interests (“stakes”) in the actions of a corporation.

Table 13.4.1. The Stakes of Various Stakeholders

<i>Ownership</i>	The value of the organization has a direct impact on the wealth of these stakeholders.	Managers Directors who own stock Shareholders
<i>Economic Dependence</i>	Stakeholders can be economically dependent without having ownership. Each of these stakeholders relies on the corporation in some way for financial well-being.	Salaried managers Creditors Suppliers Employees Local communities
<i>Social Interests</i>	These stakeholders are not directly linked to the organization but have an interest in making sure the organization acts in a socially responsible manner.	Communities Government Media

Corporate Culture and Codes of Ethics

A corporation is a “person” capable of suing, being sued, and having rights and duties in our legal system. (It is a legal or juridical person, not a natural person, according to our Supreme Court.) Moreover, many corporations have distinct cultures and beliefs that are lived and breathed by its members. Often, the culture of a corporation is the best defense against individuals within that firm who may be tempted to break the law or commit serious ethical misdeeds.

What follows is a series of observations about corporations, ethics, and corporate culture.

Ethical Leadership Is Top-Down

People in an organization tend to watch closely what the top managers do and say. Regardless of managers’ talk about ethics, employees quickly learn what speech or actions are in fact rewarded. If the CEO is firm about acting ethically, others in the organization will take their cues from him or her. People at the top tend to set the target, the climate, the beliefs, and the expectations that fuel behavior.

Accountability Is Often Weak

Clever managers can learn to shift blame to others, take credit for others’ work, and move on before “funny numbers” or other earnings management tricks come to light. See Robert Jackall, *Moral Mazes: The World of Corporate Managers* (New York: Oxford University Press, 1988). Again, we see that the manager is often an agent for himself or herself and will often act more in his or her self-interest than for the corporate interest.

Killing the Messenger

Where organizations no longer function, inevitably some employees are unhappy. If they call attention to problems that are being covered up by coworkers or supervisors, they bring bad news. Managers like to hear good news and discourage bad news. Intentionally or not, those who told on others, or blew the whistle, have rocked the boat and become unpopular with those whose defalcations they report on and with the managers who don’t really want to hear the bad news. In many organizations, “killing the messenger” solves the problem. Consider James Alexander at Enron Corporation, who was deliberately shut out after bringing problems to CEO Ken Lay’s attention. (John Schwartz, “An Enron Unit Chief Warned, and Was Rebuffed,” *New York Times*, February 20, 2002). When Sherron Watkins sent Ken Lay a letter warning him about Enron’s accounting practices, CFO Andrew Fastow tried to fire her. (Warren Bennis, “A Corporate Fear of Too Much Truth,” *New York Times*, February 17, 2002).

Ethics Codes

Without strong leadership and a willingness to listen to bad news as well as good news, managers do not have the feedback necessary to keep the organization healthy. Ethics codes have been put in place—partly in response to federal sentencing guidelines and partly to encourage feedback loops to top management. The best ethics codes are aspirational, or having an ideal to be pursued, not legalistic or compliance driven. The Johnson & Johnson ethics code predated the Tylenol scare and the company’s oft-celebrated corporate response. (University of Oklahoma Department of Defense Joint Course in Communication, *Case Study: The Johnson & Johnson Tylenol Crisis*, accessed April 5, 2011.) The corporate response was consistent with that code, which was lived and modeled by the top of the organization.

It’s often noted that a code of ethics is only as important as top management is willing to make it. If the code is just a document that goes into a drawer or onto a shelf, it will not effectively encourage good conduct within the corporation. The same is true of any kind of training that the company undertakes, whether it be in racial sensitivity or sexual harassment. If the message is not continuously reinforced, or (worse yet) if the message is undermined by management’s actions, the real message to employees is that violations of the ethics code will not be taken seriously, or that efforts to stop racial discrimination or sexual harassment are merely token efforts, and that the important things are profits and performance. The ethics code at Enron seems to have been one of those “3-P” codes that wind up sitting on shelves—“Print, Post, and Pray.” Worse, the Enron board twice suspended the code in 1999 to allow outside partnerships to be led by a top Enron executive who stood to gain financially from them. (FindLaw, Report of Investigation by the Special Investigative Committee of the Board of Directors of Enron Corp., February 1, 2002, accessed April 5, 2011, <http://news.findlaw.com/wsj/docs/enron/sicreport>.)

Ethics Hotlines and Federal Sentencing Guidelines

The federal sentencing guidelines were enacted in 1991. The original idea behind these guidelines was for Congress to correct the lenient treatment often given to white-collar, or corporate, criminals. The guidelines require judges to consider “aggravating and mitigating” factors in determining sentences and fines. (While corporations cannot go to jail, its officers and managers certainly can, and the corporation itself can be fined. Many companies will claim that it is one bad apple that has caused the problem; the guidelines invite these companies to show that they are in fact tending their orchard well. They can show this by providing evidence that they have (1) a viable, active code of ethics; (2) a way for employees to report violations of law or the ethics code; and (3) an ethics ombudsman, or someone who oversees the code.

In short, if a company can show that it has an ongoing process to root out wrongdoing at all levels of the company, the judge is allowed to consider this as a major mitigating factor in the fines the company will pay. Most Fortune 500 companies have ethics hotlines and processes in place to find legal and ethical problems within the company.

Managing by the Numbers

If you manage by the numbers, there is a temptation to lie about those numbers, based on the need to get stock price ever higher. At Enron, “15 percent a year or better earnings growth” was the mantra. Jeffrey Pfeffer, professor of organizational behavior at Stanford University, observes how the belief that “stock price is all that matters” has been hardwired into the corporate psyche. It dictates not only how people judge the worth of their company but also how they feel about themselves and the work that they are doing. And, over time, it has clouded judgments about what is acceptable corporate behavior. (Steven Pearlstein, “Debating the Enron Effect,” *Washington Post*, February 17, 2002).

Managing by Numbers: The Sears Auto Center Story

If winning is the most important thing in your life, then you must be prepared to do anything to win.

—Michael Josephson

Most people want to be winners or associate with winners. As humans, our desire to associate with those who have status provides plenty of incentive to glorify winners and ignore losers. But if an individual, a team, or a company does whatever it takes to win, then all other values are thrown out in the goal to win at all costs. The desire of some people within Sears & Roebuck Company’s auto repair division to win by gaining higher profits resulted in the situation portrayed here.

Sears Roebuck & Company has been a fixture in American retailing throughout the twentieth century. At one time, people in rural America could order virtually anything (including a house) from Sears. Not without some accuracy, the company billed itself as “the place where Americans shop.” But in 1992, Sears was charged by California authorities with gross and deliberate fraud in many of its auto centers.

The authorities were alerted by a 50 percent increase in consumer complaints over a three-year period. New Jersey’s division of consumer affairs also investigated Sears Auto Centers and found that all six visited by investigators had recommended unnecessary repairs. California’s department of consumer affairs found that Sears had systematically overcharged by an average of \$223 for repairs and routinely billed for work that was not done. Sears Auto Centers were the largest providers of auto repair services in the state.

The scam was a variant on the old bait-and-switch routine. Customers received coupons in the mail inviting them to take advantage of hefty discounts on brake jobs. When customers came in to redeem their coupons, sales staffers would convince them to authorize additional repairs. As a management tool, Sears had also established quotas for each of their sales representatives to meet.

Ultimately, California got Sears to settle a large number of lawsuits against it by threatening to revoke Sears’ auto repair license. Sears agreed to distribute \$50 coupons to nearly a million customers nationwide who had obtained certain services between August 1, 1990, and January 31, 1992. Sears also agreed to pay \$3.5 million to cover the costs of various government investigations and to contribute \$1.5 million annually to conduct auto mechanic training programs. It also agreed to abandon its repair service quotas. The entire settlement cost Sears \$30 million. Sears Auto Center sales also dropped about 15 to 20 percent after news of the scandal broke.

Note that in boosting sales by performing unnecessary services, Sears suffered very bad publicity. Losses were incalculable. The short-term gains were easy to measure; long-term consequences seldom are. The case illustrates a number of important lessons:

- People generally choose short-term gains over potential long-term losses.
- People often justify the harm to others as being minimal or “necessary” to achieve the desired sales quota or financial goal.
- In working as a group, we often form an “us versus them” mentality. In the Sears case, it is likely that Sears “insiders” looked at customers as “outsiders,” effectively treating them (in Kantian terms) as means rather than ends in themselves. In short, outsiders were used for the benefit of insiders.
- The long-term losses to Sears are difficult to quantify, while the short-term gains were easy to measure and (at least for a brief while) quite satisfying financially.
- Sears’ ongoing rip-offs were possible only because individual consumers lacked the relevant information about the service being offered. This lack of information is a market failure, since many consumers were demanding more of Sears Auto Center services than they would have (and at a higher price) if relevant information had been available to them earlier. Sears, like other sellers of goods and services, took advantage of a market system, which, in its ideal form, would not permit such information distortions.
- People in the organization probably thought that the actions they took were necessary.

Noting this last point, we can assume that these key people were motivated by maximizing profits and had lost sight of other goals for the organization.

The emphasis on doing whatever is necessary to win is entirely understandable, but it is not ethical. The temptation will always exist—for individuals, companies, and nations—to dominate or to win and to write the history of their actions in a way that justifies or overlooks the harm that has been done. In a way, this fits with the notion that “might makes right,” or that power is the ultimate measure of right and wrong.

Conscious Capitalism

One effort to integrate the two viewpoints of stakeholder theory and shareholder primacy is the conscious capitalism movement. Companies that practice **conscious capitalism** embrace the idea that profit and prosperity can and must go hand in hand with social justice and environmental stewardship. They operate with a holistic or systems view. This means that they understand that all stakeholders are connected and interdependent. They reject false trade-offs between stakeholder interests and strive for creative ways to achieve win-win-win outcomes for all. (Milton Friedman, John Mackey, and T. J. Rodgers, “Rethinking the Social Responsibility of Business,” Reason.com, October 2005, <http://reason.com/archives/2005/10/01/rethinking-the-social-responsi>.)

The “conscious business” has a purpose that goes beyond maximizing profits. It is designed to maximize profits but is focused more on its higher purpose and does not fixate solely on the bottom line. To do so, it focuses on delivering value to all its stakeholders, harmonizing as best it can the interests of consumers, partners, investors, the community, and the environment. This requires that company managers take a “servant leadership” role, serving as stewards to the company’s deeper purpose and to the company’s stakeholders.

Conscious business leaders serve as such stewards, focusing on fulfilling the company’s purpose, delivering value to its stakeholders, and facilitating a harmony of interests, rather than on personal gain and self-aggrandizement. Why is this refocusing needed? Within the standard profit-maximizing model, corporations have long had to deal with the “agency problem.” Actions by top-level managers—acting on behalf of the company—should align with the shareholders, but in a culture all about winning and money, managers sometimes act in ways that are self-aggrandizing and that do not serve the interests of shareholders. Laws exist to limit such self-aggrandizing, but the remedies are often too little and too late and often catch only the most egregious overreaching. Having a culture of servant leadership is a much better way to see that a company’s top management works to ensure a harmony of interests.

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13.5: Summary and Exercises

Summary

Doing good business requires attention to ethics as well as law. Understanding the long-standing perspectives on ethics—utilitarianism, deontology, social contract, and virtue ethics—is helpful in sorting out the ethical issues that face us as individuals and businesses. Each business needs to create or maintain a culture of ethical excellence, where there is ongoing dialogue not only about the best technical practices but also about the company’s ethical challenges and practices. A firm that has purpose and passion beyond profitability is best poised to meet the needs of diverse stakeholders and can best position itself for long-term, sustainable success for shareholders and other stakeholders as well.

? Exercises 13.5.1

1. Consider again Milton Friedman’s article.
 - a. If the laws of the society are limiting the company’s profitability, would the company be within its rights to disobey the law?
 - b. What if the law is “on the books,” but the company could count on a lack of enforcement from state officials who were overworked and underpaid? Should the company limit its profits? Suppose that it could save money by discharging a pollutant into a nearby river, adversely affecting fish and, potentially, drinking water supplies for downstream municipalities. In polluting against laws that aren’t enforced, is it still acting “within the rules of the game”? What if almost all other companies in the industry were saving money by doing similar acts?
2. Consider again the *Harris v. Forklift* case. The Supreme Court ruled that Ms. Harris was entitled to be heard again by the federal district court, which means that there would be a trial on her claim that Mr. Hardy, owner of Forklift Systems, had created a “hostile working environment” for Ms. Harris. Apart from the legal aspects, did he really do anything unethical? How can you tell?
 - a. If Kant were his second-in-command and advising him on ethical matters, would he have approved of Mr. Hardy’s behavior? Why or why not?
3. Assume that Forklift Systems is a large public corporation and that the CEO engages in these kinds of behaviors. Assume also that the board of directors knows about it. What action should the board take, and why?
4. Assume that the year is 1963, prior to the passage of the Civil Rights Act of 1964 and the Title VII provisions regarding equal employment opportunity that prohibit discrimination based on sex. So, Mr. Hardy’s actions are not illegal, fraudulent, or deceitful. Assume also that he heads a large public company and that there is a large amount of turnover and unhappiness among the women who work for the company. No one can sue him for being sexist or lecherous, but are his actions consistent with maximizing shareholder returns? Should the board be concerned?

Notice that this question is really a stand-in for any situation faced by a company today regarding its CEO where the actions are not illegal but are ethically questionable. What would conscious capitalism tell a CEO or a board to do where some group of its employees are regularly harassed or disadvantaged by top management?

? Self-test questions 13.5.1

1. Milton Friedman would have been most likely to agree to which of the following statements?
 - a. The business of business is business.
 - b. All is fair in love, war, and business.
2. Milton Friedman meant (using the material quoted in this chapter) that companies should
 - a. Always remember that the business of business is business.
 - b. Maximize shareholder wealth by engaging in open competition without fraud or deceit.
3. What are some key drawbacks to utilitarian thinking at the corporate level?
 - a. It is difficult to predict future consequences; decision makers in for-profit organizations will tend to overestimate the upside of certain decisions and underestimate the downside.
 - b. all of the above
 - c. a and b only
4. Which ethical perspective would allow that under certain circumstances, it might be ethical to lie to a liar?
 - a. virtue ethics
 - b. all of the above
5. Under conscious capitalism,
 1. Shareholders, whether they be traders or long-term investors, are always the first and last consideration for the CEO and the board.
 2. Kantian duties take precedence over cost-benefit analyses.

Answers

1. c
2. d
3. d
4. c
5. c

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CHAPTER OVERVIEW

14: The Nature and Regulation of Real Estate and the Environment

Learning Objectives

After reading this chapter, you should understand the following:

1. The various kinds of interests (or “estates”) in real property
2. The various rights that come with ownership of real property
3. What easements are, how they are created, and how they function
4. How ownership of real property is regulated by tort law, by agreement, and by the public interest (through eminent domain)
5. The various ways in which environmental laws affect the ownership and use of real property

Real property is an important part of corporate as well as individual wealth. As a consequence, the role of the corporate real estate manager has become critically important within the corporation. The real estate manager must be aware not only of the value of land for purchase and sale but also of proper lease negotiation, tax policies and assessments, zoning and land development, and environmental laws.

In this chapter and in Chapter 12 and Chapter 13, we focus on regulation of land use and the environment (see Figure 11.1.1 "Chapter Overview"). We divide our discussion of the nature of real estate into three major categories: (1) estates; (2) rights that are incidental to the possession and ownership of land—for example, the right to air, water, and minerals; and (3) easements—the rights in lands of others.

[14.1: Estates](#)

[14.2: Rights Incident to Possession and Ownership of Real Estate](#)

[14.3: Easements- Rights in the Lands of Others](#)

[14.4: Regulation of Land Use](#)

[14.5: Environmental Law](#)

[14.6: Cases](#)

[14.7: Summary and Exercises](#)

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14.1: Estates

Learning Objectives

1. Distinguish between the various kinds of estates, or interests, in real property that the law recognizes.

In property law, an estate is an interest in real property, ranging from absolute dominion and control to bare possession. Ordinarily when we think of property, we think of only one kind: absolute ownership. The owner of a car has the right to drive it where and when she wants, rebuild it, repaint it, and sell it or scrap it. The notion that the owner might lose her property when a particular event happens is foreign to our concept of personal property. Not so with real property. You would doubtless think it odd if you were sold a used car subject to the condition that you not paint it a different color—and that if you did, you would automatically be stripped of ownership. But land can be sold that way. Land and other real property can be divided into many categories of interests, as we will see. (Be careful not to confuse the various types of interests in real property with the forms of ownership, such as joint tenancy. An interest in real property that amounts to an estate is a measure of the degree to which a thing is owned; the form of ownership deals with the particular person or persons who own it.)

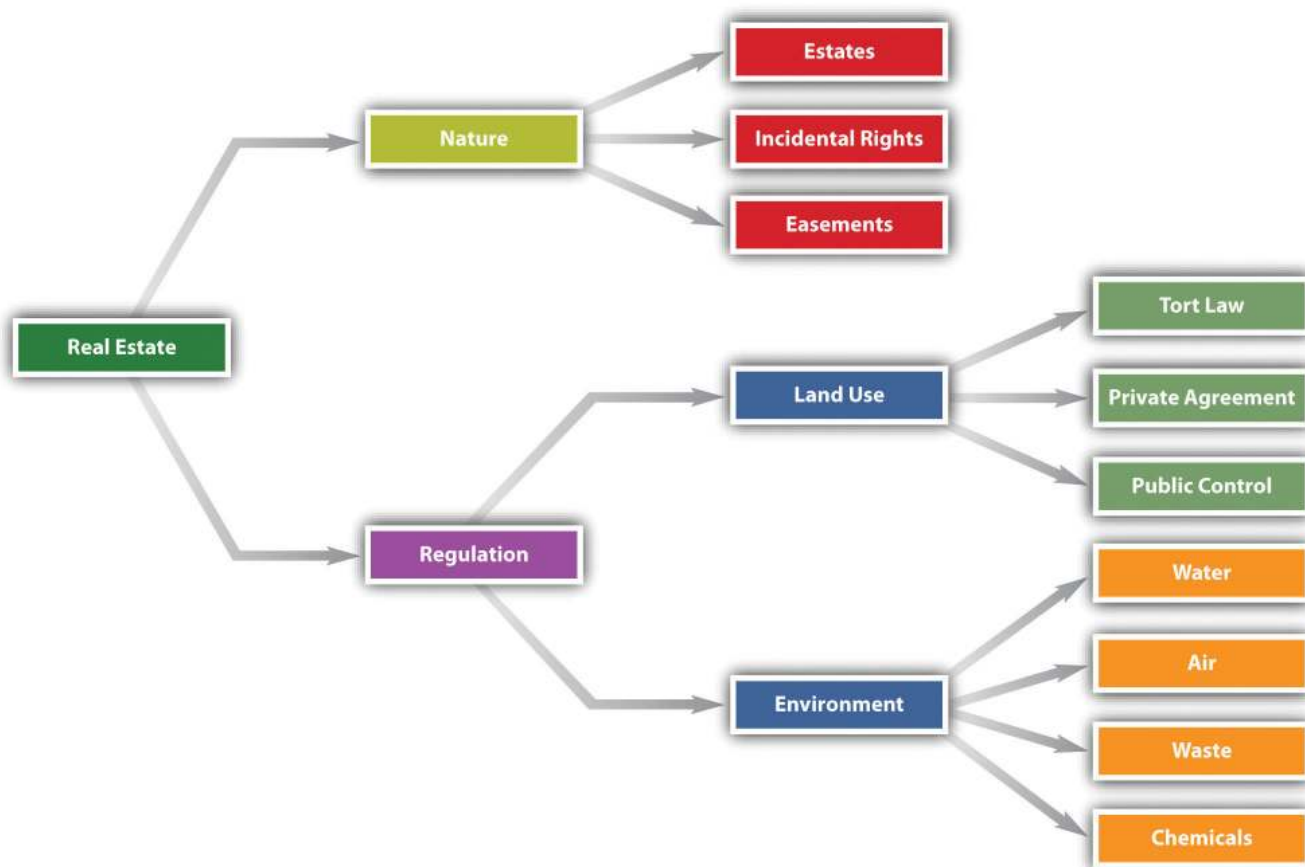


Figure 14.1.1: Chapter Overview

The common law distinguishes estates along two main axes: (1) freeholds versus leaseholds and (2) present versus future interests. A **freehold estate** is an interest in land that has an uncertain duration. The freehold can be outright ownership—called the fee simple absolute—or it can be an interest in the land for the life of the possessor; in either case, it is impossible to say exactly how long the estate will last. In the case of one who owns property outright, her estate will last until she sells or transfers it; in the case of a life estate, it will last until the death of the owner or another specified individual. A **leasehold estate** is one whose termination date is usually known. A one-year lease, for example, will expire precisely at the time stated in the lease agreement.

A present estate is one that is currently owned and enjoyed; a future estate is one that will come into the owner's possession upon the occurrence of a particular event. In this chapter, we consider both present and future freehold interests; leasehold interests we

save for Chapter 13 "Landlord and Tenant Law".

Present Estates (Freeholds)

Fee Simple Absolute

The strongest form of ownership is known as the **fee simple absolute** (or fee simple, or merely fee). This is what we think of when we say that someone “owns” the land. As one court put it, “The grant of a fee in land conveys to the grantee complete ownership, immediately and forever, with the right of possession from boundary to boundary and from the center of the earth to the sky, together with all the lawful uses thereof.” (*Magnolia Petroleum Co. v. Thompson*, 106 F.2d 217 (8th Cir. 1939)). Although the fee simple may be encumbered by a mortgage (you may borrow money against the equity in your home) or an easement (you may grant someone the right to walk across your backyard), the underlying control is in the hands of the owner. Though it was once a complex matter in determining whether a person had been given a fee simple interest, today the law presumes that the estate being transferred is a fee simple, unless the conveyance expressly states to the contrary. (In her will, Lady Gaga grants her five-thousand-acre ranch “to my screen idol, Tilda Swinton.” On the death of Lady Gaga, Swinton takes ownership of the ranch outright in fee simple absolute.)

Fee Simple Defeasible

Not every transfer of real property creates a fee simple absolute. Some transfers may limit the estate. Any transfer specifying that the ownership will terminate upon a particular happening is known as a **fee simple defeasible**. Suppose, for example, that Mr. Warbucks conveys a tract of land “to Miss Florence Nightingale, for the purpose of operating her hospital and for no other purpose. Conveyance to be good as long as hospital remains on the property.” This grant of land will remain the property of Miss Nightingale and her heirs as long as she and they maintain a hospital. When they stop doing so, the land will automatically revert to Mr. Warbucks or his heirs, without their having to do anything to regain title. Note that the conveyance of land could be perpetual but is not absolute, because it will remain the property of Miss Nightingale only so long as she observes the conditions in the grant.

Life Estates

An estate measured by the life of a particular person is called a **life estate**. A conventional life estate is created privately by the parties themselves. The simplest form is that conveyed by the following words: “to Scarlett for life.” Scarlett becomes a life tenant; as such, she is the owner of the property and may occupy it for life or lease it or even sell it, but the new tenant or buyer can acquire only as much as Scarlett has to give, which is ownership for her life (i.e., all she can sell is a life estate in the land, not a fee simple absolute). If Scarlett sells the house and dies a month later, the buyer’s interest would terminate. A life estate may be based on the life of someone other than the life tenant: “to Scarlett for the life of Rhett.”

The **life tenant** may use the property as though he were the owner in fee simple absolute with this exception: he may not act so as to diminish the value of the property that will ultimately go to the remainderman—the person who will become owner when the life estate terminates. The life tenant must pay the life estate for ordinary upkeep of the property, but the remainderman is responsible for extraordinary repairs.

Some life estates are created by operation of law and are known as legal life estates. The most common form is a widow’s interest in the real property of her husband. In about one-third of the states, a woman is entitled to **dower**, a right to a percentage (often one-third) of the property of her husband when he dies. Most of these states give a widower a similar interest in the property of his deceased wife. Dower is an alternative to whatever is bequeathed in the will; the widow has the right to elect the share stated in the will or the share available under dower. To prevent the dower right from upsetting the interests of remote purchasers, the right may be waived on sale by having the spouse sign the deed.

Future Estates

To this point, we have been considering present estates. But people also can have future interests in real property. Despite the implications of its name, the future interest is owned now but is not available to be used or enjoyed now. For the most part, future interests may be bought and sold, just as land held in fee simple absolute may be bought and sold. There are several classes of future interests, but in general there are two major types: reversion and remainder.

Reversion

A **reversion** arises whenever the estate transferred has a duration less than that originally owned by the transferor. A typical example of a simple reversion is that which arises when a life estate is conveyed. The ownership conveyed is only for the life; when the life tenant dies, the ownership interest reverts to the grantor. Suppose the grantor has died in the meantime. Who gets the reversion interest? Since the reversion is a class of property that is owned now, it can be inherited, and the grantor's heirs would take the reversion at the subsequent death of the life tenant.

Remainder

The transferor need not keep the reversion interest for himself. He can give that interest to someone else, in which case it is known as a **remainder** interest, because the remainder of the property is being transferred. Suppose the transferor conveys land with these words: "to Scarlett for life and then to Rhett." Scarlett has a life estate; the remainder goes to Rhett in fee simple absolute. Rhett is said to have a vested remainder interest, because on Scarlett's death, he or his heirs will automatically become owners of the property. Some remainder interests are contingent—and are therefore known as contingent remainder interests—on the happening of a certain event: "to my mother for her life, then to my sister if she marries Harold before my mother dies." The transferor's sister will become the owner of the property in fee simple only if she marries Harold while her mother is alive; otherwise, the property will revert to the transferor or his heirs. The number of permutations of reversions and remainders can become quite complex, far more than we have space to discuss in this text.

key takeaway

An estate is an interest in real property. Estates are of many kinds, but one generic difference is between ownership estates and possessory estates. Fee simple estates and life estates are ownership estates, while leasehold interests are possessory. Among ownership estates, the principal division is between present estates and future estates. An owner of a future estate has an interest that can be bought and sold and that will ripen into present possession at the end of a period of time, at the end of the life of another, or with the happening of some contingent event.

? Exercises 14.1.1

1. Jessa owns a house and lot on 9th Avenue. She sells the house to the Hartley family, who wish to have a conveyance from her that says, "to Harriet Hartley for life, remainder to her son, Alexander Sandridge." Alexander is married to Chloe, and they have three children, Carmen, Sarah, and Michael. Who has a future interest, and who has a present interest? What is the correct legal term for Harriet's estate? Does Alexander, Carmen, Sarah, or Michael have any part of the estate at the time Jessa conveys to Harriet using the stated language?
2. After Harriet dies, Alexander wants to sell the property. Alexander and Chloe's children are all eighteen years of age or older. Can he convey the property by his signature alone? Who else needs to sign?

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14.2: Rights Incident to Possession and Ownership of Real Estate

Learning Objectives

1. Understand that property owners have certain rights in the airspace above their land, in the minerals beneath their land, and even in water that adjoins their land.

Rights to Airspace

The traditional rule was stated by Lord Coke: “Whoever owns the soil owns up to the sky.” This traditional rule remains valid today, but its application can cause problems. A simple example would be a person who builds an extension to the upper story of his house so that it hangs out over the edge of his property line and thrusts into the airspace of his neighbor. That would clearly be an encroachment on the neighbor’s property. But is it trespass when an airplane—or an earth satellite—flies over your backyard? Obviously, the courts must balance the right to travel against landowners’ rights. In *U.S. v. Causby*, (*U.S. v. Causby*, 328 U.S. 256 (1946)) the Court determined that flights over private land may constitute a diminution in the property value if they are so low and so frequent as to be a direct and immediate interference with the enjoyment and use of land.

Rights to the Depths

Lord Coke’s dictum applies to the depths as well as the sky. The owner of the surface has the right to the oil, gas, and minerals below it, although this right can be severed and sold separately. Perplexing questions may arise in the case of oil and gas, which can flow under the surface. Some states say that oil and gas can be owned by the owner of the surface land; others say that they are not owned until actually extracted—although the property owner may sell the exclusive right to extract them from his land. But states with either rule recognize that oil and gas are capable of being “captured” by drilling that causes oil or gas from under another plot of land to run toward the drilled hole. Since the possibility of capture can lead to wasteful drilling practices as everyone nearby rushes to capture the precious commodities, many states have enacted statutes requiring landowners to share the resources.

Rights to Water

The right to determine how bodies of water will be used depends on basic property rules. Two different approaches to water use in the United States—eastern and western—have developed over time (see Figure 14.2.1). Eastern states, where water has historically been more plentiful, have adopted the so-called riparian rights theory, which itself can take two forms. Riparian refers to land that includes a part of the bed of a waterway or that borders on a public watercourse. A riparian owner is one who owns such land. What are the rights of upstream and downstream owners of riparian land regarding use of the waters? One approach is the “natural flow” doctrine: Each riparian owner is entitled to have the river or other waterway maintained in its natural state. The upstream owner may use the river for drinking water or for washing but may not divert it to irrigate his crops or to operate his mill if doing so would materially change the amount of the flow or the quality of the water. Virtually all eastern states today are not so restrictive and rely instead on a “reasonable use” doctrine, which permits the benefit to be derived from use of the waterway to be weighed against the gravity of the harm. This approach is illustrated in *Hoover v. Crane*, (see Section 11.6.1 “Reasonable Use Doctrine”. (*Hoover v. Crane*, 362 Mich. 36, 106 N.W.2d 563 (1960)).

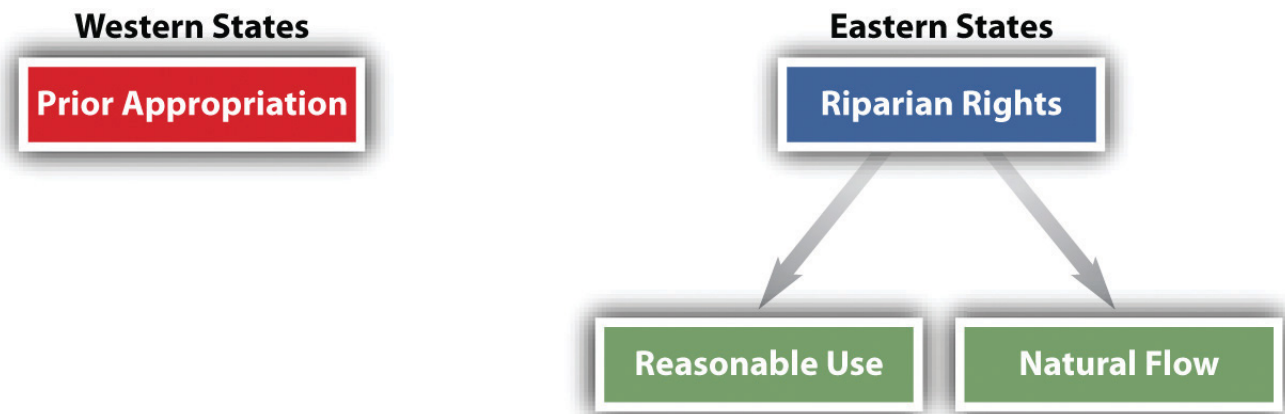


Figure 14.2.1: Water Rights

In contrast to riparian rights doctrines, western states have adopted the prior appropriation doctrine. This rule looks not to equality of interests but to priority in time: first in time is first in right. The first person to use the water for a beneficial purpose has a right superior to latecomers. This rule applies even if the first user takes all the water for his own needs and even if other users are riparian owners. This rule developed in water-scarce states in which development depended on incentives to use rather than hoard water. Today, the prior appropriation doctrine has come under criticism because it gives incentives to those who already have the right to the water to continue to use it profligately, rather than to those who might develop more efficient means of using it.

key takeaway

Property owners have certain rights in the airspace above their land. They also have rights in subsurface minerals, which include oil and gas. Those property owners who have bodies of water adjacent to their land will also have certain rights to withdraw or impound water for their own use. Regarding US water law, the reasonable use doctrine in the eastern states is distinctly different from the prior appropriation doctrine in western states.

? Exercises 14.2.1

1. Steve Hannaford farms in western Nebraska. The farm has passed to succeeding generations of Hannafords, who use water from the North Platte River for irrigation purposes. The headlands of the North Platte are in Colorado, but use of the water from the North Platte by Nebraskans preceded use of the water by settlers in Colorado. What theory of water rights governs Nebraska and Colorado residents? Can the state of Colorado divert and use water in such a way that less of it reaches western Nebraska and the Hannaford farm? Why or why not?
2. Jamie Stoner decides to put solar panels on the south face of his roof. Jamie lives on a block of one- and two-bedroom bungalows in South Miami, Florida. In 2009, someone purchases the house next door and within two years decides to add a second and third story. This proposed addition will significantly decrease the utility of Jamie's solar array. Does Jamie have any rights that would limit what his new neighbors can do on their own land?

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14.3: Easements- Rights in the Lands of Others

Learning Objectives

1. Explain the difference between an easement and a license.
2. Describe the ways in which easements can be created.

Definition

An **easement** is an interest in land created by agreement that permits one person to make use of another's estate. This interest can extend to a profit, the taking of something from the other's land. Though the common law once distinguished between an easement and profit, today the distinction has faded, and profits are treated as a type of easement. An easement must be distinguished from a mere **license**, which is permission, revocable at the will of the owner, to make use of the owner's land. An easement is an estate; a license is personal to the grantee and is not assignable.

The two main types of easements are affirmative and negative. An affirmative easement gives a landowner the right to use the land of another (e.g., crossing it or using water from it), while a **negative easement**, by contrast, prohibits the landowner from using his land in ways that would affect the holder of the easement. For example, the builder of a solar home would want to obtain negative easements from neighbors barring them from building structures on their land that would block sunlight from falling on the solar home. With the growth of solar energy, some states have begun to provide stronger protection by enacting laws that regulate one's ability to interfere with the enjoyment of sunlight. These laws range from a relatively weak statute in Colorado, which sets forth rules for obtaining easements, to the much stronger statute in California, which says in effect that the owner of a solar device has a vested right to continue to receive the sunlight.

Another important distinction is made between easements appurtenant and easements in gross. An **easement appurtenant** benefits the owner of adjacent land. The easement is thus appurtenant to the holder's land. The benefited land is called the **dominant tenement**, and the burdened land—that is, the land subject to the easement—is called the **servient tenement** (see Figure 11.3 "Easement Appurtenant"). An easement in gross is granted independent of the easement holder's ownership or possession of land. It is simply an independent right—for example, the right granted to a local delivery service to drive its trucks across a private roadway to gain access to homes at the other end.

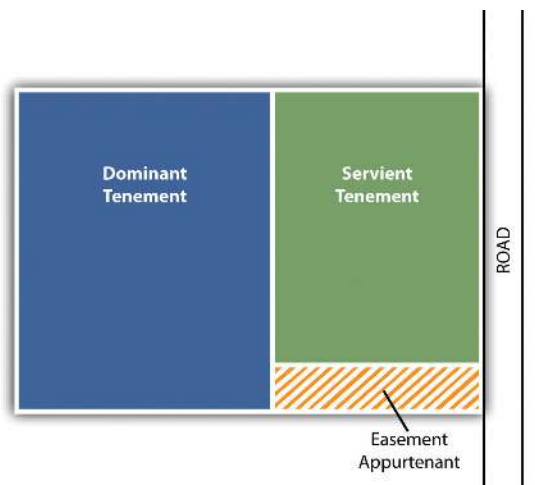


Figure 14.3.1: Easement Appurtenant

Unless it is explicitly limited to the grantee, an easement appurtenant “runs with the land.” That is, when the dominant tenement is sold or otherwise conveyed, the new owner automatically owns the easement. A commercial easement in gross may be transferred—for instance, easements to construct pipelines, telegraph and telephone lines, and railroad rights of way. However, most noncommercial easements in gross are not transferable, being deemed personal to the original owner of the easement. Rochelle sells her friend Mrs. Nanette—who does not own land adjacent to Rochelle—an easement across her country farm to operate skimobiles during the winter. The easement is personal to Mrs. Nanette; she could not sell the easement to anyone else.

Creation

Easements may be created by express agreement, either in deeds or in wills. The owner of the dominant tenement may buy the easement from the owner of the servient tenement or may reserve the easement for himself when selling part of his land. But courts will sometimes allow implied easements under certain circumstances. For instance, if the deed refers to an easement that bounds the premises—without describing it in any detail—a court could conclude that an easement was intended to pass with the sale of the property.

An easement can also be implied from prior use. Suppose a seller of land has two lots, with a driveway connecting both lots to the street. The only way to gain access to the street from the back lot is to use the driveway, and the seller has always done so. If the seller now sells the back lot, the buyer can establish an easement in the driveway through the front lot if the prior use was (1) apparent at the time of sale, (2) continuous, and (3) reasonably necessary for the enjoyment of the back lot. The rule of implied easements through prior use operates only when the ownership of the dominant and servient tenements was originally in the same person.

Use of the Easement

The servient owner may use the easement—remember, it is on or under or above his land—as long as his use does not interfere with the rights of the easement owner. Suppose you have an easement to walk along a path in the woods owned by your neighbor and to swim in a private lake that adjoins the woods. At the time you purchased the easement, your neighbor did not use the lake. Now he proposes to swim in it himself, and you protest. You would not have a sound case, because his swimming in the lake would not interfere with your right to do so. But if he proposed to clear the woods and build a mill on it, obliterating the path you took to the lake and polluting the lake with chemical discharges, then you could obtain an injunction to bar him from interfering with your easement.

The owner of the dominant tenement is not restricted to using his land as he was at the time he became the owner of the easement. The courts will permit him to develop the land in some “normal” manner. For example, an easement on a private roadway for the benefit of a large estate up in the hills would not be lost if the large estate were ultimately subdivided and many new owners wished to use the roadway; the easement applies to the entire portion of the original dominant tenement, not merely to the part that abuts the easement itself. However, the owner of an easement appurtenant to one tract of land cannot use the easement on another tract of land, even if the two tracts are adjacent.

key takeaway

An easement appurtenant runs with the land and benefits the dominant tenement, burdening the servient tenement. An easement, generally, has a specific location or description within or over the servient tenement. Easements can be created by deed, by will, or by implication.

Exercise 14.3.1

Beth Delaney owns property next to Kerry Plemmons. The deed to Delaney’s property notes that she has access to a well on the Plemmons property “to obtain water for household use.” The well has been dry for many generations and has not been used by anyone on the Plemmons property or the Delaney property for as many generations. The well predated Plemmons’s ownership of the property; as the servient tenement, the Plemmons property was burdened by this easement dating back to 1898. Plemmons hires a company to dig a very deep well near one of his outbuildings to provide water for his horses. The location is one hundred yards from the old well. Does the Delaney property have any easement to use water from the new well?

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14.4: Regulation of Land Use

Learning Objectives

1. Compare the various ways in which law limits or restricts the right to use your land in any way that you decide is best for you.
2. Distinguish between regulation by common law and regulation by public acts such as zoning or eminent domain.
3. Understand that property owners may restrict the uses of land by voluntary agreement, subject to important public policy considerations.

Land use regulation falls into three broad categories: (1) restriction on the use of land through tort law, (2) private regulation by agreement, and (3) public ownership or regulation through the powers of eminent domain and zoning.

Regulation of Land Use by Tort Law

Tort law is used to regulate land use in two ways: (1) The owner may become liable for certain activities carried out on the real estate that affect others beyond the real estate. (2) The owner may be liable to persons who, upon entering the real estate, are injured.

Landowner's Activities

The two most common torts in this area are nuisance and trespass. A common-law **nuisance** is an interference with the use and enjoyment of one's land. Examples of nuisances are excessive noise (especially late at night), polluting activities, and emissions of noxious odors. But the activity must produce substantial harm, not fleeting, minor injury, and it must produce those effects on the reasonable person, not on someone who is peculiarly allergic to the complained-of activity. A person who suffered migraine headaches at the sight of croquet being played on a neighbor's lawn would not likely win a nuisance lawsuit. While the meaning of nuisance is difficult to define with any precision, this common-law cause of action is a primary means for landowners to obtain damages for invasive environmental harms.

A **trespass** is the wrongful physical invasion of or entry upon land possessed by another. Loud noise blaring out of speakers in the house next door might be a nuisance but could not be a trespass, because noise is not a physical invasion. But spraying pesticides on your gladiolas could constitute a trespass on your neighbor's property if the pesticide drifts across the boundary.

Nuisance and trespass are complex theories, a full explanation of which would consume far more space than we have. What is important to remember is that these torts are two-edged swords. In some situations, the landowner himself will want to use these theories to sue trespassers or persons creating a nuisance, but in other situations, the landowner will be liable under these theories for his own activities.

Injury to Persons Entering the Real Estate

Traditionally, liability for injury has depended on the status of the person who enters the real estate.

Trespassers

If the person is an intruder without permission—a trespasser—the landowner owes him no duty of care unless he knows of the intruder's presence, in which case the owner must exercise reasonable care in his activities and warn of hidden dangers on his land of which he is aware. A known trespasser is someone whom the landowner actually sees on the property or whom he knows frequently intrudes on the property, as in the case of someone who habitually walks across the land. If a landowner knows that people frequently walk across his property and one day he puts a poisonous chemical on the ground to eliminate certain insects, he is obligated to warn those who continue to walk on the grounds. Intentional injury to known trespassers is not allowed, even if the trespasser is a criminal intent on robbery, for the law values human life above property rights.

Children

If the trespasser is a child, a different rule applies in most states. This is the doctrine of **attractive nuisance**. Originally this rule was enunciated to deal with cases in which something on the land attracted the child to it, like a swimming pool. In recent years,

most courts have dropped the requirement that the child must have been attracted to the danger. Instead, the following elements of proof are necessary to make out a case of attractive nuisance (Restatement of Torts, Section 339):

1. The child must have been injured by a structure or other artificial condition.
2. The possessor of the land (not necessarily the owner) must have known or should have known that young children would be likely to trespass.
3. The possessor must have known or should have known that the artificial condition exists and that it posed an unreasonable risk of serious injury.
4. The child must have been too young to appreciate the danger that the artificial condition posed.
5. The risk to the child must have far outweighed the utility of the artificial condition to the possessor.
6. The possessor did not exercise reasonable care in protecting the child or eliminating the danger.

Old refrigerators, open gravel pits, or mechanisms that a curious child would find inviting are all examples of attractive nuisance. Suppose Farmer Brown keeps an old buggy on his front lawn, accessible from the street. A five-year-old boy clambers up the buggy one day, falls through a rotted floorboard, and breaks his leg. Is Farmer Brown liable? Probably so. The child was too young to appreciate the danger posed by the buggy, a structure. The farmer should have appreciated that young children would be likely to come onto the land when they saw the buggy and that they would be likely to climb up onto the buggy. Moreover, he should have known, if he did not know in fact, that the buggy, left outside for years without being tended, would pose an unreasonable risk. The buggy's utility as a decoration was far overbalanced by the risk that it posed to children, and the farmer failed to exercise reasonable care.

Licensees

A nontrespasser who comes onto the land without being invited, or if invited, comes for purposes unconnected with any business conducted on the premises, is known as a **licensee**. This class of visitors to the land consists of (1) social guests (people you invite to your home for a party); (2) a salesman, not invited by the owner, who wishes to sell something to the owner or occupier of the property; and (3) persons visiting a building for a purpose not connected with the business on the land (e.g., students who visit a factory to see how it works). The landowner owes the same duty of care to licensees that he owes to known trespassers. That is, he must warn them against hidden dangers of which he is aware, and he must exercise reasonable care in his activities to ensure that they are not injured.

Invitees

A final category of persons entering land is that of **invitee**. This is one who has been invited onto the land, usually, though not necessarily, for a business purpose of potential economic benefit to the owner or occupier of the premises. This category is confusing because it sounds as though it should include social guests (who clearly are invited onto the premises), but traditionally social guests are said to be licensees.

Invitees include customers of stores, users of athletic and other clubs, customers of repair shops, strollers through public parks, restaurant and theater patrons, hotel guests, and the like. From the owner's perspective, the major difference between licensees and invitees is that he is liable for injuries resulting to the latter from hidden dangers that he should have been aware of, even if he is not actually aware of the dangers. How hidden the dangers are and how broad the owner's liability is depends on the circumstances, but liability sometimes can be quite broad. Difficult questions arise in lawsuits brought by invitees (or business invitees, as they are sometimes called) when the actions of persons other than the landowner contribute to the injury.

The foregoing rules dealing with liability for persons entering the land are the traditional rules at common law. In recent years, some courts have moved away from the rigidities and sometimes perplexing differences between trespassers, licensees, and invitees. By court decision, several states have now abolished such distinctions and hold the proprietor, owner, or occupier liable for failing to maintain the premises in a reasonably safe condition. According to the California Supreme Court,

A man's life or limb does not become less worthy of protection by the law nor a loss less worthy of compensation under the law because he has come upon the land of another without permission or with permission but without a business purpose. Reasonable people do not ordinarily vary their conduct depending upon such matters, and to focus upon the status of the injured party as a trespasser, licensee, or invitee in order to determine the question whether the landowner has a duty of care, is contrary to our modern social mores and humanitarian values. Where the occupier of land is aware of a concealed condition involving in the

absence of precautions an unreasonable risk of harm to those coming in contact with it and is aware that a person on the premises is about to come in contact with it, the trier of fact can reasonably conclude that a failure to warn or to repair the condition constitutes negligence. Whether or not a guest has a right to expect that his host will remedy dangerous conditions on his account, he should reasonably be entitled to rely upon a warning of the dangerous condition so that he, like the host, will be in a position to take special precautions when he comes in contact with it. (*Rowland v. Christian*, 443 P.2d 561 (Cal. 1968)).

Private Regulation of Land Use by Agreement

A restrictive covenant is an agreement regarding the use of land that “runs with the land.” In effect, it is a contractual promise that becomes part of the property and that binds future owners. Violations of covenants can be redressed in court in suits for damages or injunctions but will not result in reversion of the land to the seller.

Usually, courts construe restrictive covenants narrowly—that is, in a manner most conducive to free use of the land by the ultimate owner (the person against whom enforcement of the covenant is being sought). Sometimes, even when the meaning of the covenant is clear, the courts will not enforce it. For example, when the character of a neighborhood changes, the courts may declare the covenant a nullity. Thus a restriction on a one-acre parcel to residential purposes was voided when in the intervening thirty years a host of businesses grew up around it, including a bowling alley, restaurant, poolroom, and sewage disposal plant. (*Norris v. Williams*, 54 A.2d 331 (Md. 1947)).

An important nullification of restrictive covenants came in 1947 when the US Supreme Court struck down as unconstitutional racially restrictive covenants, which barred blacks and other minorities from living on land so burdened. The Supreme Court reasoned that when a court enforces such a covenant, it acts in a discriminatory manner (barring blacks but not whites from living in a home burdened with the covenant) and thus violates the Fourteenth Amendment’s guarantee of equal protection of the laws. (*Shelley v. Kraemer*, 334 U.S. 1 (1947)).

Public Control of Land Use through Eminent Domain

The government may take private property for public purposes. Its power to do so is known as eminent domain. The power of eminent domain is subject to constitutional limitations. Under the Fifth Amendment, the property must be put to public use, and the owner is entitled to “just compensation” for his loss. These requirements are sometimes difficult to apply.

Public Use

The requirement of public use normally means that the property will be useful to the public once the state has taken possession—for example, private property might be condemned to construct a highway. Although not allowed in most circumstances, the government could even condemn someone’s property in order to turn around and sell it to another individual, if a legitimate public purpose could be shown. For example, a state survey in the mid-1960s showed that the government owned 49 percent of Hawaii’s land. Another 47 percent was controlled by seventy-two private landowners. Because this concentration of land ownership (which dated back to feudal times) resulted in a critical shortage of residential land, the Hawaiian legislature enacted a law allowing the government to take land from large private estates and resell it in smaller parcels to homeowners. In 1984, the US Supreme Court upheld the law, deciding that the land was being taken for a public use because the purpose was “to attack certain perceived evils of concentrated property ownership.” (*Hawaii Housing Authority v. Midkiff*, 467 U.S. 229 (1984)). Although the use must be public, the courts will not inquire into the necessity of the use or whether other property might have been better suited. It is up to government authorities to determine whether and where to build a road, not the courts.

The limits of public use were amply illustrated in the Supreme Court’s 2002 decision of *Kelo v. New London*, (*Kelo v. New London*, 545 U.S. 469 (2005)) in which Mrs. Kelo’s house was condemned so that the city of New London, in Connecticut, could create a marina and industrial park to lease to Pfizer Corporation. The city’s motives were to create a higher tax base for property taxes. The Court, following precedent in *Midkiff* and other cases, refused to invalidate the city’s taking on constitutional grounds. Reaction from states was swift; many states passed new laws restricting the bases for state and municipal governments to use powers of eminent domain, and many of these laws also provided additional compensation to property owners whose land was taken.

Just Compensation

The owner is ordinarily entitled to the fair market value of land condemned under eminent domain. This value is determined by calculating the most profitable use of the land at the time of the taking, even though it was being put to a different use. The owner

will have a difficult time collecting lost profits; for instance, a grocery store will not usually be entitled to collect for the profits it might have made during the next several years, in part because it can presumably move elsewhere and continue to make profits and in part because calculating future profits is inherently speculative.

Taking

The most difficult question in most modern cases is whether the government has in fact “taken” the property. This is easy to answer when the government acquires title to the property through condemnation proceedings. But more often, a government action is challenged when a law or regulation inhibits the use of private land. Suppose a town promulgates a setback ordinance, requiring owners along city sidewalks to build no closer to the sidewalk than twenty feet. If the owner of a small store had only twenty-five feet of land from the sidewalk line, the ordinance would effectively prevent him from housing his enterprise, and the ordinance would be a taking. Challenging such ordinances can sometimes be difficult under traditional tort theories because the government is immune from suit in some of these cases. Instead, a theory of inverse condemnation has developed, in which the plaintiff private property owner asserts that the government has condemned the property, though not through the traditional mechanism of a condemnation proceeding.

Public Control of Land Use through Zoning

Zoning is a technique by which a city or other municipality regulates the type of activity to be permitted in geographical areas within its boundaries. Though originally limited to residential, commercial, and industrial uses, today’s zoning ordinances are complex sets of regulations. A typical municipality might have the following zones: residential with a host of subcategories (such as for single-family and multiple-family dwellings), office, commercial, industrial, agricultural, and public lands. Zones may be exclusive, in which case office buildings would not be permitted in commercial zones, or they may be cumulative, so that a more restricted use would be allowed in a less restrictive zone. Zoning regulations do more than specify the type of use: they often also dictate minimum requirements for parking, open usable space, setbacks, lot sizes, and the like, and maximum requirements for height, length of side lots, and so on.

Nonconforming Uses

When a zoning ordinance is enacted, it will almost always affect existing property owners, many of whom will be using their land in ways no longer permitted under the ordinance. To avoid the charge that they have thereby “taken” the property, most ordinances permit previous nonconforming uses to continue, though some ordinances limit the nonconforming uses to a specified time after becoming effective. But this permission to continue a nonconforming use is narrow; it extends only to the specific use to which the property was put before the ordinance was enacted. A manufacturer of dresses that suddenly finds itself in an area zoned residential may continue to use its sewing machines, but it could not develop a sideline in woodworking.

Variances

Sometimes an owner may desire to use his property in ways not permitted under an existing zoning scheme and will ask the zoning board for a **variance**—authority to carry on a nonconforming use. The board is not free to grant a variance at its whim. The courts apply three general tests to determine the validity of a variance: (1) The land must be unable to yield a reasonable return on the uses allowed by the zoning regulation. (2) The hardship must be unique to the property, not to property generally in the area. (3) If granted, the variance must not change the essential character of the neighborhood.

key takeaway

Land use regulation can mean (1) restrictions on the use of land through tort law, (2) private regulation—by agreement, or (3) regulation through powers of eminent domain or zoning.

Exercises 14.4.1

1. Give one example of the exercise of eminent domain. In order to exercise its power under eminent domain, must the government actually take eventual ownership of the property that is “taken”?

2. Felix Unger is an adult, trespassing for the first time on Alan Spillborghs's property. Alan has been digging a deep grave in his backyard for his beloved Saint Bernard, Maximilian, who has just died. Alan stops working on the grave when it gets dark, intending to return to the task in the morning. He seldom sees trespassers cutting through his backyard. Felix, in the dark, after visiting the local pub, decides to take a shortcut through Alan's yard and falls into the grave. He breaks his leg. What is the standard of care for Alan toward Felix or other infrequent trespassers? If Alan has no insurance for this accident, would the law make Alan responsible?
3. Atlantic Cement owns and operates a cement plant in New York State. Nearby residents are exposed to noise, soot, and dust and have experienced lowered property values as a result of Atlantic Cement's operations. Is there a common-law remedy for nearby property owners for losses occasioned by Atlantic's operations? If so, what is it called?

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14.5: Environmental Law

Learning Objectives

1. Describe the major federal laws that govern business activities that may adversely affect air quality and water quality.
2. Describe the major federal laws that govern waste disposal and chemical hazards including pesticides.

In one sense, environmental law is very old. Medieval England had smoke control laws that established the seasons when soft coal could be burned. Nuisance laws give private individuals a limited control over polluting activities of adjacent landowners. But a comprehensive set of US laws directed toward general protection of the environment is largely a product of the past quarter-century, with most of the legislative activity stemming from the late 1960s and later, when people began to perceive that the environment was systematically deteriorating from assaults by rapid population growth and greatly increased automobile driving, vast proliferation of factories that generate waste products, and a sharp rise in the production of toxic materials. Two of the most significant developments in environmental law came in 1970, when the National Environmental Policy Act took effect and the Environmental Protection Agency became the first of a number of new federal administrative agencies to be established during the decade.

National Environmental Policy Act

Signed into law by President Nixon on January 1, 1970, the National Environmental Policy Act (NEPA) declared that it shall be the policy of the federal government, in cooperation with state and local governments, “to create and maintain conditions under which man and nature can exist in productive harmony, and fulfill the social, economic, and other requirements of present and future generations of Americans....The Congress recognizes that each person should enjoy a healthful environment and that each person has a responsibility to contribute to the preservation and enhancement of the environment.”⁴² United States Code, Section 4321 et seq.

The most significant aspect of NEPA is its requirement that federal agencies prepare an **environmental impact statement** in every recommendation or report on proposals for legislation and whenever undertaking a major federal action that significantly affects environmental quality. The statement must (1) detail the environmental impact of the proposed action, (2) list any unavoidable adverse impacts should the action be taken, (3) consider alternatives to the proposed action, (4) compare short-term and long-term consequences, and (5) describe irreversible commitments of resources. Unless the impact statement is prepared, the project can be enjoined from proceeding. Note that NEPA does not apply to purely private activities but only to those proposed to be carried out in some manner by federal agencies.

Environmental Protection Agency

The Environmental Protection Agency (EPA) has been in the forefront of the news since its creation in 1970. Charged with monitoring environmental practices of industry, assisting the government and private business to halt environmental deterioration, promulgating regulations consistent with federal environmental policy, and policing industry for violations of the various federal environmental statutes and regulations, the EPA has had a pervasive influence on American business. *Business Week* noted the following in 1977: “Cars rolling off Detroit’s assembly line now have antipollution devices as standard equipment. The dense black smokestack emissions that used to symbolize industrial prosperity are rare, and illegal, sights. Plants that once blithely ran discharge water out of a pipe and into a river must apply for permits that are almost impossible to get unless the plants install expensive water treatment equipment. All told, the EPA has made a sizable dent in man-made environmental filth.” (“The Tricks of the Trade-off,” *Business Week*, April 4, 1977, 72).

The EPA is especially active in regulating water and air pollution and in overseeing the disposition of toxic wastes and chemicals. To these problems we now turn.

Water Pollution

Clean Water Act

Legislation governing the nation's waterways goes back a long time. The first federal water pollution statute was the Rivers and Harbors Act of 1899. Congress enacted new laws in 1948, 1956, 1965, 1966, and 1970. But the centerpiece of water pollution enforcement is the Clean Water Act of 1972 (technically, the Federal Water Pollution Control Act Amendments of 1972), as amended in 1977 and by the Water Quality Act of 1987. The Clean Water Act is designed to restore and maintain the “chemical, physical, and biological integrity of the Nation’s waters.”³³ United States Code, Section 1251. It operates on the states, requiring them to designate the uses of every significant body of water within their borders (e.g., for drinking water, recreation, commercial fishing) and to set water quality standards to reduce pollution to levels appropriate for each use.

Congress only has power to regulate interstate commerce, and so the Clean Water Act is applicable only to “navigable waters” of the United States. This has led to disputes over whether the act can apply, say, to an abandoned gravel pit that has no visible connection to navigable waterways, even if the gravel pit provides habitat for migratory birds. In *Solid Waste Agency of Northern Cook County v. Army Corps of Engineers*, the US Supreme Court said no. (*Solid Waste Agency of Northern Cook County v. Army Corps of Engineers*, 531 U.S. 159 (2001)).

Private Industry

The Clean Water Act also governs private industry and imposes stringent standards on the discharge of pollutants into waterways and publicly owned sewage systems. The act created an effluent permit system known as the National Pollutant Discharge Elimination System. To discharge any pollutants into navigable waters from a “point source” like a pipe, ditch, ship, or container, a company must obtain a certification that it meets specified standards, which are continually being tightened. For example, until 1983, industry had to use the “best practicable technology” currently available, but after July 1, 1984, it had to use the “best available technology” economically achievable. Companies must limit certain kinds of “conventional pollutants” (such as suspended solids and acidity) by “best conventional control technology.”

Other EPA Water Activities

Federal law governs, and the EPA regulates, a number of other water control measures. Ocean dumping, for example, is the subject of the Marine Protection, Research, and Sanctuaries Act of 1972, which gives the EPA jurisdiction over wastes discharged into the oceans. The Clean Water Act gives the EPA and the US Army Corps of Engineers authority to protect waters, marshlands, and other wetlands against degradation caused by dredging and fills. The EPA also oversees state and local plans for restoring general water quality to acceptable levels in the face of a host of non-point-source pollution. The Clean Water Act controls municipal sewage systems, which must ensure that wastewater is chemically treated before being discharged from the sewage system.

Obviously, of critical importance to the nation's health is the supply of drinking water. To ensure its continuing purity, Congress enacted the Safe Drinking Water Act of 1974, with amendments passed in 1986 and 1996. This act aims to protect water at its sources: rivers, lakes, reservoirs, springs, and groundwater wells. (The act does not regulate private wells that serve fewer than twenty-five individuals.) This law has two strategies for combating pollution of drinking water. It establishes national standards for drinking water derived from both surface reservoirs and underground aquifers. It also authorizes the EPA to regulate the injection of solid wastes into deep wells (as happens, for instance, by leakage from underground storage tanks).

Air Pollution

The centerpiece of the legislative effort to clean the atmosphere is the Clean Air Act of 1970 (amended in 1975, 1977, and 1990). Under this act, the EPA has set two levels of National Ambient Air Quality Standards (NAAQS). The primary standards limit the ambient (i.e., circulating) pollution that affects human health; secondary standards limit pollution that affects animals, plants, and property. The heart of the Clean Air Act is the requirement that subject to EPA approval, the states implement the standards that the EPA establishes. The setting of these pollutant standards was coupled with directing the states to develop state implementation plans (SIPs), applicable to appropriate industrial sources in the state, in order to achieve these standards. The act was amended in 1977 and 1990 primarily to set new goals (dates) for achieving attainment of NAAQS since many areas of the country had failed to meet the deadlines.

Beyond the NAAQS, the EPA has established several specific standards to control different types of air pollution. One major type is pollution that mobile sources, mainly automobiles, emit. The EPA requires new cars to be equipped with catalytic converters and to use unleaded gasoline to eliminate the most noxious fumes and to keep them from escaping into the atmosphere. To minimize

pollution from stationary sources, the EPA also imposes uniform standards on new industrial plants and those that have been substantially modernized. And to safeguard against emissions from older plants, states must promulgate and enforce SIPs.

The Clean Air Act is even more solicitous of air quality in certain parts of the nation, such as designated wilderness areas and national parks. For these areas, the EPA has set standards to prevent significant deterioration in order to keep the air as pristine and clear as it was centuries ago.

The EPA also worries about chemicals so toxic that the tiniest quantities could prove fatal or extremely hazardous to health. To control emission of substances like asbestos, beryllium, mercury, vinyl chloride, benzene, and arsenic, the EPA has established or proposed various National Emissions Standards for Hazardous Air Pollutants.

Concern over acid rain and other types of air pollution prompted Congress to add almost eight hundred pages of amendments to the Clean Air Act in 1990. (The original act was fifty pages long.) As a result of these amendments, the act was modernized in a manner that parallels other environmental laws. For instance, the amendments established a permit system that is modeled after the Clean Water Act. And the amendments provide for felony convictions for willful violations, similar to penalties incorporated into other statutes.

The amendments include certain defenses for industry. Most important, companies are protected from allegations that they are violating the law by showing that they were acting in accordance with a permit. In addition to this “permit shield,” the law also contains protection for workers who unintentionally violate the law while following their employers’ instructions.

Waste Disposal

Though pollution of the air by highly toxic substances like benzene or vinyl chloride may seem a problem removed from that of the ordinary person, we are all in fact polluters. Every year, the United States generates approximately 230 million tons of “trash”—about 4.6 pounds per person per day. Less than one-quarter of it is recycled; the rest is incinerated or buried in landfills. But many of the country’s landfills have been closed, either because they were full or because they were contaminating groundwater. Once groundwater is contaminated, it is extremely expensive and difficult to clean it up. In the 1965 Solid Waste Disposal Act and the 1970 Resource Recovery Act, Congress sought to regulate the discharge of garbage by encouraging waste management and recycling. Federal grants were available for research and training, but the major regulatory effort was expected to come from the states and municipalities.

But shocking news prompted Congress to get tough in 1976. The plight of homeowners near Love Canal in upstate New York became a major national story as the discovery of massive underground leaks of toxic chemicals buried during the previous quarter century led to evacuation of hundreds of homes. Next came the revelation that Kepone, an exceedingly toxic pesticide, had been dumped into the James River in Virginia, causing a major human health hazard and severe damage to fisheries in the James and downstream in the Chesapeake Bay. The rarely discussed industrial dumping of hazardous wastes now became an open controversy, and Congress responded in 1976 with the Resource Conservation and Recovery Act (RCRA) and the Toxic Substances Control Act (TSCA) and in 1980 with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA).

Resource Conservation and Recovery Act

The RCRA expresses a “cradle-to-grave” philosophy: hazardous wastes must be regulated at every stage. The act gives the EPA power to govern their creation, storage, transport, treatment, and disposal. Any person or company that generates hazardous waste must obtain a permit (known as a “manifest”) either to store it on its own site or ship it to an EPA-approved treatment, storage, or disposal facility. No longer can hazardous substances simply be dumped at a convenient landfill. Owners and operators of such sites must show that they can pay for damage growing out of their operations, and even after the sites are closed to further dumping, they must set aside funds to monitor and maintain the sites safely.

This philosophy can be severe. In 1986, the Supreme Court ruled that bankruptcy is not a sufficient reason for a company to abandon toxic waste dumps if state regulations reasonably require protection in the interest of public health or safety. The practical effect of the ruling is that trustees of the bankrupt company must first devote assets to cleaning up a dump site, and only from remaining assets may they satisfy creditors. (*Midlantic National Bank v. New Jersey*, 474 U.S. 494 (1986)) Another severity is RCRA’s imposition of criminal liability, including fines of up to \$25,000 a day and one-year prison sentences, which can be extended beyond owners to individual employees, as discussed in *U.S. v. Johnson & Towers, Inc., et al.*, (see Section 11.6.2 “Criminal Liability of Employees under RCRA”).

Comprehensive Environmental Response, Compensation, and Liability Act

The CERCLA, also known as the Superfund, gives the EPA emergency powers to respond to public health or environmental dangers from faulty hazardous waste disposal, currently estimated to occur at more than seventeen thousand sites around the country. The EPA can direct immediate removal of wastes presenting imminent danger (e.g., from train wrecks, oil spills, leaking barrels, and fires). Injuries can be sudden and devastating; in 1979, for example, when a freight train derailed in Florida, ninety thousand pounds of chlorine gas escaped from a punctured tank car, leaving 8 motorists dead and 183 others injured and forcing 3,500 residents within a 7-mile radius to be evacuated. The EPA may also carry out “planned removals” when the danger is substantial, even if immediate removal is not necessary.

The EPA prods owners who can be located to voluntarily clean up sites they have abandoned. But if the owners refuse, the EPA and the states will undertake the task, drawing on a federal trust fund financed mainly by taxes on the manufacture or import of certain chemicals and petroleum (the balance of the fund comes from general revenues). States must finance 10 percent of the cost of cleaning up private sites and 50 percent of the cost of cleaning up public facilities. The EPA and the states can then assess unwilling owners’ punitive damages up to triple the cleanup costs.

Cleanup requirements are especially controversial when applied to landowners who innocently purchased contaminated property. To deal with this problem, Congress enacted the Superfund Amendment and Reauthorization Act in 1986, which protects innocent landowners who—at the time of purchase—made an “appropriate inquiry” into the prior uses of the property. The act also requires companies to publicly disclose information about hazardous chemicals they use. We now turn to other laws regulating chemical hazards.

Chemical Hazards

Toxic Substances Control Act

Chemical substances that decades ago promised to improve the quality of life have lately shown their negative side—they have serious adverse side effects. For example, asbestos, in use for half a century, causes cancer and asbestosis, a debilitating lung disease, in workers who breathed in fibers decades ago. The result has been crippling disease and death and more than thirty thousand asbestos-related lawsuits filed nationwide. Other substances, such as polychlorinated biphenyls (PCBs) and dioxin, have caused similar tragedy. Together, the devastating effects of chemicals led to enactment of the TSCA, designed to control the manufacture, processing, commercial distribution, use, and disposal of chemicals that pose unreasonable health or environmental risks. (The TSCA does not apply to pesticides, tobacco, nuclear materials, firearms and ammunition, food, food additives, drugs, and cosmetics—all are regulated by other federal laws.)

The TSCA gives the EPA authority to screen for health and environmental risks by requiring companies to notify the EPA ninety days before manufacturing or importing new chemicals. The EPA may demand that the companies test the substances before marketing them and may regulate them in a number of ways, such as requiring the manufacturer to label its products, to keep records on its manufacturing and disposal processes, and to document all significant adverse reactions in people exposed to the chemicals. The EPA also has authority to ban certain especially hazardous substances, and it has banned the further production of PCBs and many uses of asbestos.

Both industry groups and consumer groups have attacked the TSCA. Industry groups criticize the act because the enforcement mechanism requires mountainous paperwork and leads to widespread delay. Consumer groups complain because the EPA has been slow to act against numerous chemical substances. The debate continues.

Pesticide Regulation

The United States is a major user of pesticides, substances that eliminate troublesome insects, rodents, fungi, and bacteria, consuming more than a billion pounds a year in the form of thirty-five thousand separate chemicals. As useful as they can be, like many chemical substances, pesticides can have serious side effects on humans and plant and animal life. Beginning in the early 1970s, Congress enacted major amendments to the Federal Insecticide, Fungicide, and Rodenticide Act of 1947 and the Federal Food, Drug, and Cosmetic Act (FFDCA) of 1906.

These laws direct the EPA to determine whether pesticides properly balance effectiveness against safety. If the pesticide can carry out its intended function without causing unreasonable adverse effects on human health or the environment, it may remain on the

market. Otherwise, the EPA has authority to regulate or even ban its distribution and use. To enable the EPA to carry out its functions, the laws require manufacturers to provide a wealth of data about the way individual pesticides work and their side effects. The EPA is required to inspect pesticides to ensure that they conform to their labeled purposes, content, and safety, and the agency is empowered to certify pesticides for either general or restricted use. If a pesticide is restricted, only those persons certified in approved training programs may use it. Likewise, under the Pesticide Amendment to the FFDCA, the EPA must establish specific tolerances for the residue of pesticides on feed crops and both raw and processed foods. The Food and Drug Administration (for agricultural commodities) and the US Department of Agriculture (for meat, poultry, and fish products) enforce these provisions.

Other Types of Environmental Controls

Noise Regulation

Under the Noise Regulation Act of 1972, Congress has attempted to combat a growing menace to US workers, residents, and consumers. People who live close to airports and major highways, workers who use certain kinds of machinery (e.g., air compressors, rock drills, bulldozers), and consumers who use certain products, such as power mowers and air conditioners, often suffer from a variety of ailments. The Noise Regulation Act delegates to the EPA power to limit “noise emissions” from these major sources of noise. Under the act, manufacturers may not sell new products that fail to conform to the noise standards the EPA sets, and users are forbidden from dismantling noise control devices installed on these products. Moreover, manufacturers must label noisy products properly. Private suits may be filed against violators, and the act also permits fines of up to \$25,000 per day and a year in jail for those who seek to avoid its terms.

Radiation Controls

The terrifying effects of a nuclear disaster became frighteningly clear when the Soviet Union’s nuclear power plant at Chernobyl exploded in early 1986, discharging vast quantities of radiation into the world’s airstream and affecting people thousands of miles away. In the United States, the most notorious nuclear accident occurred at the Three Mile Island nuclear utility in Pennsylvania in 1979, crippling the facility for years because of the extreme danger and long life of the radiation. Primary responsibility for overseeing nuclear safety rests with the Nuclear Regulatory Commission, but many other agencies and several federal laws (including the Clean Air Act; the Federal Water Pollution Control Act; the Safe Drinking Water Act; the Uranium Mill Tailings Radiation Control Act; the Marine Protection, Research, and Sanctuaries Act; the Nuclear Waste Policy Act of 1982; the CERCLA; and the Ocean Dumping Act) govern the use of nuclear materials and the storage of radioactive wastes (some of which will remain severely dangerous for thousands of years). Through many of these laws, the EPA has been assigned the responsibility of setting radiation guidelines, assessing new technology, monitoring radiation in the environment, setting limits on release of radiation from nuclear utilities, developing guidance for use of X-rays in medicine, and helping to plan for radiation emergencies.

key takeaway

Laws limiting the use of one’s property have been around for many years; common-law restraints (e.g., the law of nuisance) exist as causes of action against those who would use their property to adversely affect the life or health of others or the value of their neighbors’ property. Since the 1960s, extensive federal laws governing the environment have been enacted. These include laws governing air, water, chemicals, pesticides, solid waste, and nuclear activities. Some laws include criminal penalties for noncompliance.

Exercise 14.5.1

1. Who is responsible for funding CERCLA? That is, what is the source of funds for cleanups of hazardous waste?
2. Why is it necessary to have criminal penalties for noncompliance with environmental laws?
3. What is the role of states in setting standards for clean air and clean water?
4. Which federal act sets up a “cradle-to-grave” system for handling waste?
5. Why are federal environmental laws necessary? Why not let the states exclusively govern in the area of environmental protection?

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14.6: Cases

Reasonable Use Doctrine

Hoover v. Crane

362 Mich. 36, 106 N.W.2d 563 (1960)

EDWARDS, JUSTICE

This appeal represents a controversy between plaintiff cottage and resort owners on an inland Michigan lake and defendant, a farmer with a fruit orchard, who was using the lake water for irrigation. The chancellor who heard the matter ruled that defendant had a right to reasonable use of lake water. The decree defined such reasonable use in terms which were unsatisfactory to plaintiffs who have appealed.

The testimony taken before the chancellor pertained to the situation at Hutchins Lake, in Allegan county, during the summer of 1958. Defendant is a fruit farmer who owns a 180-acre farm abutting on the lake. Hutchins Lake has an area of 350 acres in a normal season. Seventy-five cottages and several farms, including defendant's, abut on it. Defendant's frontage is approximately 1/4 mile, or about 10% of the frontage of the lake.

Hutchins Lake is spring fed. It has no inlet but does have an outlet which drains south. Frequently in the summertime the water level falls so that the flow at the outlet ceases.

All witnesses agreed that the summer of 1958 was exceedingly dry and plaintiffs' witnesses testified that Hutchins Lake's level was the lowest it had ever been in their memory. Early in August, defendant began irrigation of his 50-acre pear orchard by pumping water out of Hutchins Lake. During that month the lake level fell 6 to 8 inches—the water line receded 50 to 60 feet and cottagers experienced severe difficulties with boating and swimming.

* * *

The tenor of plaintiffs' testimony was to attribute the 6- to 8-inch drop in the Hutchins Lake level in that summer to defendant's irrigation activities. Defendant contended that the decrease was due to natural causes, that the irrigation was of great benefit to him and contributed only slightly to plaintiff's discomfiture. He suggests to us:

One could fairly say that because plaintiffs couldn't grapple with the unknown causes that admittedly occasioned a greater part of the injury complained of, they chose to grapple mightily with the defendant because he is known and visible.

The circuit judge found it impossible to determine a normal lake level from the testimony, except that the normal summer level of the lake is lower than the level at which the lake ceases to drain into the outlet. He apparently felt that plaintiffs' problems were due much more to the abnormal weather conditions of the summer of 1958 than to defendant's irrigation activities.

His opinion concluded:

Accepting the reasonable use theory advanced by plaintiffs it appears to the court that the most equitable disposition of this case would be to allow defendant to use water from the lake until such time when his use interferes with the normal use of his neighbors. One quarter inch of water from the lake ought not to interfere with the rights and uses of defendant's neighbors and this quantity of water ought to be sufficient in time of need to service 45 acres of pears. A meter at the pump, sealed if need be, ought to be a sufficient safeguard. Pumping should not be permitted between the hours of 11 p.m. and 7 a.m. Water need be metered only at such times as there is no drainage into the outlet.

The decree in this suit may provide that the case be kept open for the submission of future petitions and proofs as the conditions permit or require.

* * *

Michigan has adopted the reasonable-use rule in determining the conflicting rights of riparian owners to the use of lake water.

In 1874, Justice COOLEY said:

It is therefore not a diminution in the quantity of the water alone, or an alteration in its flow, or either or both of these circumstances combined with injury, that will give a right of action, if in view of all the circumstances, and having regard to

equality of right in others, that which has been done and which causes the injury is not unreasonable. In other words, the injury that is incidental to a reasonable enjoyment of the common right can demand no redress. *Dumont v. Kellogg*, 29 Mich 420, 425.

And in *People v. Hulbert*, the Court said:

No statement can be made as to what is such reasonable use which will, without variation or qualification, apply to the facts of every case. But in determining whether a use is reasonable we must consider what the use is for; its extent, duration, necessity, and its application; the nature and size of the stream, and the several uses to which it is put; the extent of the injury to the one proprietor and of the benefit to the other; and all other facts which may bear upon the reasonableness of the use. *Red River Roller Mills v. Wright*, 30 Minn 249, 15 NW 167, and cases cited.

The Michigan view is in general accord with 4 Restatement, Torts, §§ 851–853.

* * *

We interpret the circuit judge's decree as affording defendant the total metered equivalent in pumpage of 1/4 inch of the content of Hutchins Lake to be used in any dry period in between the cessation of flow from the outlet and the date when such flow recommences. Where the decree also provides for the case to be kept open for future petitions based on changed conditions, it would seem to afford as much protection for plaintiffs as to the future as this record warrants.

Both resort use and agricultural use of the lake are entirely legitimate purposes. Neither serves to remove water from the watershed. There is, however, no doubt that the irrigation use does occasion some water loss due to increased evaporation and absorption. Indeed, extensive irrigation might constitute a threat to the very existence of the lake in which all riparian owners have a stake; and at some point the use of the water which causes loss must yield to the common good.

The question on this appeal is, of course, whether the chancellor's determination of this point was unreasonable as to plaintiffs. On this record, we cannot overrule the circuit judge's view that most of plaintiffs' 1958 plight was due to natural causes. Nor can we say, if this be the only irrigation use intended and the only water diversion sought, that use of the amount provided in the decree during the dry season is unreasonable in respect to other riparian owners.

Affirmed.

? case questions 14.6.1

1. If the defendant has caused a diminution in water flow, an alteration of the water flow, and the plaintiff is adversely affected, why would the Supreme Court of Michigan not provide some remedy?
2. Is it possible to define an injury that is "not unreasonable"?
3. Would the case even have been brought if there had not been a drought?

Criminal Liability of Employees under RCRA

U.S. v. Johnson & Towers, Inc., Jack W. Hopkins, and Peter Angel

741 F.2d 662 (1984)

SLOVITER, Circuit Judge

Before us is the government's appeal from the dismissal of three counts of an indictment charging unlawful disposal of hazardous wastes under the Resource Conservation and Recovery Act. In a question of first impression regarding the statutory definition of "person," the district court concluded that the Act's criminal penalty provision imposing fines and imprisonment could not apply to the individual defendants. We will reverse.

The criminal prosecution in this case arose from the disposal of chemicals at a plant owned by Johnson & Towers in Mount Laurel, New Jersey. In its operations the company, which repairs and overhauls large motor vehicles, uses degreasers and other industrial chemicals that contain chemicals such as methylene chloride and trichlorethylene, classified as "hazardous wastes" under the Resource Conservation and Recovery Act (RCRA), 42 U.S.C. §§ 6901–6987 (1982) and "pollutants" under the Clean Water Act, 33 U.S.C. §§ 1251–1376 (1982). During the period relevant here, the waste chemicals from cleaning operations were drained into a holding tank and, when the tank was full, pumped into a trench. The trench flowed from the plant property into Parker's Creek, a tributary of the Delaware River. Under RCRA, generators of such wastes must obtain a permit for disposal from the Environmental

Protection Agency (E.P.A.). The E.P.A. had neither issued nor received an application for a permit for Johnson & Towers' operations.

The indictment named as defendants Johnson & Towers and two of its employees, Jack Hopkins, a foreman, and Peter Angel, the service manager in the trucking department. According to the indictment, over a three-day period federal agents saw workers pump waste from the tank into the trench, and on the third day observed toxic chemicals flowing into the creek.

Count 1 of the indictment charged all three defendants with conspiracy under 18 U.S.C. § 371 (1982). Counts 2, 3, and 4 alleged violations under the RCRA criminal provision, 42 U.S.C. § 6928(d) (1982). Count 5 alleged a violation of the criminal provision of the Clean Water Act, 33 U.S.C. § 1319(c) (1982). Each substantive count also charged the individual defendants as aiders and abettors under 18 U.S.C. § 2 (1982).

The counts under RCRA charged that the defendants “did knowingly treat, store, and dispose of, and did cause to be treated, stored and disposed of hazardous wastes without having obtained a permit...in that the defendants discharged, deposited, injected, dumped, spilled, leaked and placed degreasers...into the trench....” The indictment alleged that both Angel and Hopkins “managed, supervised and directed a substantial portion of Johnson & Towers’ operations...including those related to the treatment, storage and disposal of the hazardous wastes and pollutants” and that the chemicals were discharged by “the defendants and others at their direction.” The indictment did not otherwise detail Hopkins’ and Angel’s activities or responsibilities.

Johnson & Towers pled guilty to the RCRA counts. Hopkins and Angel pled not guilty, and then moved to dismiss counts 2, 3, and 4. The court concluded that the RCRA criminal provision applies only to “owners and operators,” i.e., those obligated under the statute to obtain a permit. Since neither Hopkins nor Angel was an “owner” or “operator,” the district court granted the motion as to the RCRA charges but held that the individuals could be liable on these three counts under 18 U.S.C. § 2 for aiding and abetting. The court denied the government’s motion for reconsideration, and the government appealed to this court under 18 U.S.C. § 3731 (1982).

* * *

The single issue in this appeal is whether the individual defendants are subject to prosecution under RCRA’s criminal provision, which applies to:

any person who—

....

(2) knowingly treats, stores, or disposes of any hazardous waste identified or listed under this subchapter either—

(A) without having obtained a permit under section 6925 of this title...or

(B) in knowing violation of any material condition or requirement of such permit.

42 U.S.C. § 6928(d) (emphasis added). The permit provision in section 6925, referred to in section 6928(d), requires “each person owning or operating a facility for the treatment, storage, or disposal of hazardous waste identified or listed under this subchapter to have a permit” from the E.P.A.

The parties offer contrary interpretations of section 6928(d)(2)(A). Defendants consider it an administrative enforcement mechanism, applying only to those who come within section 6925 and fail to comply; the government reads it as penalizing anyone who handles hazardous waste without a permit or in violation of a permit. Neither party has cited another case, nor have we found one, considering the application of this criminal provision to an individual other than an owner or operator.

As in any statutory analysis, we are obliged first to look to the language and then, if needed, attempt to divine Congress’ specific intent with respect to the issue.

First, “person” is defined in the statute as “an individual, trust, firm, joint stock company, corporation (including a government corporation), partnership, association, State, municipality, commission, political subdivision of a State, or any interstate body.” 42 U.S.C. § 6903(15) (1982). Had Congress meant in section 6928(d)(2)(A) to take aim more narrowly, it could have used more narrow language. Since it did not, we attribute to “any person” the definition given the term in section 6903(15).

Second, under the plain language of the statute the only explicit basis for exoneration is the existence of a permit covering the action. Nothing in the language of the statute suggests that we should infer another provision exonerating persons who knowingly

treat, store or dispose of hazardous waste but are not owners or operators.

Finally, though the result may appear harsh, it is well established that criminal penalties attached to regulatory statutes intended to protect public health, in contrast to statutes based on common law crimes, are to be construed to effectuate the regulatory purpose.

* * *

Congress enacted RCRA in 1976 as a “cradle-to-grave” regulatory scheme for toxic materials, providing “nationwide protection against the dangers of improper hazardous waste disposal.” H.R. Rep. No. 1491, 94th Cong., 2d Sess. 11, *reprinted in* 1976 U.S. Code Cong. & Ad. News 6238, 6249. RCRA was enacted to provide “a multifaceted approach toward solving the problems associated with the 3–4 billion tons of discarded materials generated each year, and the problems resulting from the anticipated 8% annual increase in the volume of such waste.” *Id.* at 2, 1976 U.S. Code Cong. & Ad. News at 6239. The committee reports accompanying legislative consideration of RCRA contain numerous statements evincing the Congressional view that improper disposal of toxic materials was a serious national problem.

The original statute made knowing disposal (but not treatment or storage) of such waste without a permit a misdemeanor. Amendments in 1978 and 1980 expanded the criminal provision to cover treatment and storage and made violation of section 6928 a felony. The fact that Congress amended the statute twice to broaden the scope of its substantive provisions and enhance the penalty is a strong indication of Congress’ increasing concern about the seriousness of the prohibited conduct.

We conclude that in RCRA, no less than in the Food and Drugs Act, Congress endeavored to control hazards that, “in the circumstances of modern industrialism, are largely beyond self-protection.” *United States v. Dotterweich*, 320 U.S. at 280. It would undercut the purposes of the legislation to limit the class of potential defendants to owners and operators when others also bear responsibility for handling regulated materials. The phrase “without having obtained a permit *under section 6925*” (emphasis added) merely references the section under which the permit is required and exempts from prosecution under section 6928(d)(2)(A) anyone who has obtained a permit; we conclude that it has no other limiting effect. Therefore we reject the district court’s construction limiting the substantive criminal provision by confining “any person” in section 6928(d)(2)(A) to owners and operators of facilities that store, treat or dispose of hazardous waste, as an unduly narrow view of both the statutory language and the congressional intent.

? case questions 14.6.2

1. The district court (trial court) accepted the individual defendants’ argument. What was that argument?
2. On what reasoning did the appellate court reject that argument?
3. If employees of a company that is violating the RCRA carry out disposal of hazardous substances in violation of the RCRA, they would presumably lose their jobs if they didn’t. What is the moral justification for applying criminal penalties to such employees (such as Hopkins and Angel)?

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14.7: Summary and Exercises

Summary

An estate is an interest in real property; it is the degree to which a thing is owned. Freehold estates are those with an uncertain duration; leaseholds are estates due to expire at a definite time. A present estate is one that is currently owned; a future estate is one that is owned now but not yet available for use.

Present estates are (1) the fee simple absolute; (2) the fee simple defeasible, which itself may be divided into three types, and (3) the life estate.

Future estates are generally of two types: reversion and remainder. A reversion arises whenever a transferred estate will endure for a shorter time than that originally owned by the transferor. A remainder interest arises when the transferor gives the reversion interest to someone else.

Use of air, earth, and water are the major rights incident to ownership of real property. Traditionally, the owner held “up to the sky” and “down to the depths,” but these rules have been modified to balance competing rights in a modern economy. The law governing water rights varies with the states; in general, the eastern states with more plentiful water have adopted either the natural flow doctrine or the reasonable use doctrine of riparian rights, giving those who live along a waterway certain rights to use the water. By contrast, western states have tended to apply the prior appropriation doctrine, which holds that first in time is first in right, even if those downstream are disadvantaged.

An easement is an interest in land—created by express agreement, prior use, or necessity—that permits one person to make use of another’s estate. An affirmative easement gives one person the right to use another’s land; a negative easement prevents the owner from using his land in a way that will affect another person’s land. In understanding easement law, the important distinctions are between easements appurtenant and in gross, and between dominant and servient owners.

The law not only defines the nature of the property interest but also regulates land use. Tort law regulates land use by imposing liability for (1) activities that affect those off the land and (2) injuries caused to people who enter it. The two most important theories relating to the former are nuisance and trespass. With respect to the latter, the common law confusingly distinguishes among trespassers, licensees, and invitees. Some states are moving away from the perplexing and rigid rules of the past and simply require owners to maintain their property in a reasonably safe condition.

Land use may also be regulated by private agreement through the restrictive covenant, an agreement that “runs with the land” and that will be binding on any subsequent owner. Land use is also regulated by the government’s power under eminent domain to take private land for public purposes (upon payment of just compensation), through zoning laws, and through recently enacted environmental statutes, including the National Environmental Policy Act and laws governing air, water, treatment of hazardous wastes, and chemicals.

? Exercises 14.7.1

1. Dorothy deeded an acre of real estate that she owns to George for the life of Benny and then to Ernie. Describe the property interests of George, Benny, Ernie, and Dorothy.
2. In Exercise 1, assume that George moves into a house on the property. During a tornado, the roof is destroyed and a window is smashed. Who is responsible for repairing the roof and window? Why?
3. Dennis likes to spend his weekends in his backyard, shooting his rifle across his neighbor’s yard. If Dennis never sets foot on his neighbor’s property, and if the bullets strike neither persons nor property, has he violated the legal rights of the neighbor? Explain.
4. Dennis also drills an oil well in his backyard. He “slant drills” the well; that is, the well slants from a point on the surface in his yard to a point four hundred feet beneath the surface of his neighbor’s yard. Dennis has slanted the drilling in order to capture his neighbor’s oil. Can he do this legally? Explain.
5. Wanda is in charge of acquisitions for her company. Realizing that water is important to company operations, Wanda buys a plant site on a river, and the company builds a plant that uses all of the river water. Downstream owners bring suit to stop the company from using any water. What is the result? Why?

6. Sunny decides to build a solar home. Before beginning construction, she wants to establish the legal right to prevent her neighbors from constructing buildings that will block the sunlight. She has heard that the law distinguishes between licenses and easements, easements appurtenant and in gross, and affirmative and negative easements. Which of these interests would you recommend for Sunny? Why?

? self-test questions 14.7.1

1. A freehold estate is defined as an estate
 - a. with an uncertain duration
 - b. due to expire at a definite time
 - c. owned now but not yet available for use
 - d. that is leased or rented
2. A fee simple defeasible is a type of
 - a. present estate
 - b. future estate
 - c. life estate
 - d. leasehold estate
3. A reversion is
 - a. a present estate that prevents transfer of land out of the family
 - b. a form of life estate
 - c. a future estate that arises when the estate transferred has a duration less than that originally owned by the transferor
 - d. identical to a remainder interest
4. An easement is an interest in land that may be created by
 - a. express agreement
 - b. prior use
 - c. necessity
 - d. all of the above
5. The prior appropriation doctrine
 - a. tends to be applied by eastern states
 - b. holds that first in time is first in right
 - c. gives those that live along a waterway special rights to use the water
 - d. all of the above

Answers

1. a
2. a
3. c
4. d
5. b

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CHAPTER OVERVIEW

15: General Overview

15.1: Project Frog - Sustainability and Innovation in Building Design

15.2: Greening Facilities - Hermes Microtech Inc.

15.3: Shaw Industries - Sustainable Business, Entrepreneurial Innovation, and Green Chemistry

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15.1: Project Frog - Sustainability and Innovation in Building Design

Learning Objectives

1. Evaluate opportunities and challenges for sustainability innovation within the modular building market.
2. Analyze the value of collaborations for innovation.
3. Examine the stages of growth for a start-up firm active in the sustainability space.

Introduction

Project Frog was an innovative designer of kits to rapidly build energy-efficient, greener, healthier, and affordable buildings. The company was transitioning from start-up to the next phase of growth just as the 2008–10 economic recession brought virtually all new building construction to a halt across the United States. Conditions forced the company to rethink strategy, conserve cash, and further refine its product and its processes. The company's Crissy Field project, completed in early 2010, provided a critically important demonstration of the company's designs, and as the economy began to turn around in 2010, geographic expansion and new markets segments—possibly government, retail, and health care—were planned. Architect, designer, and founder Mark Miller; president Adam Tibbs; and new CEO Ann Hand also hoped to meet more aggressive margin targets that would enable the company to triple revenue and be profitable early in 2011, only five years after start-up. **Venture capital** funding from RockPort Capital Partners and investor exit expectations required rapid ramping up of projects in the short run. Miller summarized the overlap of Project Frog's products and lead venture capital investor's interests: "Their vision for energy and resource efficiency and innovative products is perfectly aligned with the Project Frog approach: to be better, greener, faster and cheaper." Project FROG, "Project FROG, Makers of Smart Building Systems, Closes Series B Funding with RockPort Capital Partners," news release, *Business Wire*, November 19, 2008, accessed January 28, 2011, www.thefreelibrary.com/Project+.+Makers+of+Smart+Building+Systems,+Closes+Series+B...-a0189242085.

In late spring 2010, having just moved from an operating role to a board position, Miller was focused on strategic concerns and how best to explain and sell his product to a broader range of buyers, including the military and potentially disaster-relief agencies. The Project Frog office, a short walk from San Francisco's Embarcadero district, was informal and open. Although Miller occupied the only office with a door, it was bounded by two glass walls and a clear acrylic panel he used as a whiteboard. He could often be found crisscrossing the office or standing at someone's workstation or at the table where Tibbs sat. Meanwhile, new CEO Ann Hand had set up her computer, sharing the long table with Tibbs. She sought to translate her experience at BP as senior vice president of global marketing and innovation into a strategy for Project Frog to build its brand and scale up. The senior team saw huge potential in Project Frog, but they had many decisions to make and priorities to set. Most important, they wanted to ensure Project Frog met key business goals as they focused on preparing to give the venture capital investors a successful exit in just a few years, either taking the company public or finding a buyer.

History

Mark Miller was no stranger to new design and enterprises in architecture. He graduated from Haverford College in 1984 and earned his master's in architecture and a prestigious Keasbey Fellowship at Cambridge University. He went to Kuala Lumpur as a Henry Luce Scholar, helping design refugee camps among other projects and deepening his strong interest in the relationship between culture and architecture. He also was certified by the American Institute of Architects. Miller later served as director of corporate and technology projects and director of the Asia Projects Group for the firm Kaplan McLaughlin Diaz in San Francisco, where his portfolio included Euro Disney. In 2000, he used \$50,000 in personal savings to start MKThink, a design and architecture firm in San Francisco focused on innovative architectural design. Staff that included anthropologists conducted careful human behavior research to understand what people in work spaces truly need for high productivity and high performance. MKThink designed advanced offices and campuses for Sun Microsystems and General Electric's Warren Tech Center in Michigan and worked extensively with Stanford University on several projects, including a dozen at the law school, work for the education and engineering schools, and the business school's relocation analysis.

Around 2000, Miller began to think seriously about the education market and temporary or portable classrooms, the trailers that frequently begin as stopgaps and become permanent features of many schools despite their unhealthy interior environments and

energy inefficiency. Miller said, “Design should speak to the issues of the day, and technology needs to enable the human condition, not dominate it. So what are the issues of today? Well, we’ve got a problem: 35% of the kids in the state of California go to school in out-of-date trailers. That’s an issue of the day. It’s how do you educate kids in public schools and what are their facilities like in solving that systematically? We have the technology, we have the knowledge. We can solve this.” Andrea Larson and Mark Meier, *Project FROG: Sustainability and Innovation in Building Design*, UVA-ENT-0158 (Charlottesville: Darden Business Publishing, University of Virginia, 2010). Other quotations in this section, unless otherwise noted, also refer to this case study.

Solutions oriented, Miller saw an opportunity to meet the challenge. While relatively cheap, how well did existing buildings address how students learn and what teachers need to be high-performing instructors? How could technology and design come together to create healthier schools while addressing the desperate need for more classrooms as well as rising and more volatile energy costs? Why accept existing answers? Smart buildings were emerging as alternatives. Estimates were that school overcrowding and insufficient tax revenues to government to pay for new school facilities would continue to force public school students into trailer classrooms, and this was not just California’s problem.

MKThink had always had a research component that enabled it to consider problems in its field, write half a dozen white papers a year, and present at conferences. By 2004, that research focused on the problem of unhealthy learning environments for children’s education. After all, 60 percent of the firm’s work was related to education. The group knew it had a solution, but not yet a new company, when it devised the basic idea for modular buildings that would be better places for kids to learn and more energy efficient. “I’m making a product that makes a system that becomes a kit. You could call it Lego and Tinker Toys on steroids,” Miller said. Witnessing the devastation and aftermath of the 2004 Indonesian tsunami and Hurricane Katrina in 2005 in the United States confirmed for Miller that better buildings also needed to be constructed quickly. “That was the birth of Frog”—Flexible Response to Ongoing Growth—Miller told *GreenerBuildings* magazine. “Frogs are green. They only jump forward and—one of my favorites—each frog is a prince with the message, ‘Do not be afraid of what’s not familiar.’ Because if you embrace it, it is a prince.” Leslie Gueverra, “Project FROG Becomes a Cinderella Story for Modular Construction,” *GreenerBuildings*, November 25, 2008, accessed January 28, 2011, <http://www.greenbiz.com/news/2008/11/25/project-frog-becomes-cinderella-story-modular-construction>.

By late 2005, Miller had decided to form a new company with two MKThink partners and two others, an industrial designer and a metal fabricator with a strong record of working well together. Together with angel investors, family and friends initially contributed \$1.2 million to launch Project Frog in 2006. Their driving mantra was “better, greener, faster, cheaper.” Their mission was to “provide global impact and market leadership in green building products and systems.” Miller emphasized what Project Frog was not: “We are not a construction company. We are not about better trailers.”

The metal fabricator, Bakir Begovic, became board vice chairman for Project Frog. He received his BS in mechanical, industrial, and manufacturing engineering from California Polytechnic State University in 1996. He had previous experience in various high-tech firms. Begovic was founding principal of B&H Engineering, a semiconductor manufacturing and technology firm with an emphasis on metal fabrication, manufacture, and assembly. He was also chair of the board of directors for Acteron, a coating company.

Indeed, Project Frog needed such architectural and high-tech manufacturing expertise because it hoped to combine and optimize the best of modular and traditional construction—cheap and mass-manufactured and also energy efficient and conducive to occupant comfort and productivity. To achieve all these results, Project Frog needed to innovate. Since 1947, productivity in manufacturing in the United States had increased sevenfold. In construction, in contrast, productivity had actually declined slightly. If Project Frog could harness the efficiency of manufacturing and bring it into the field of construction, the company could radically outperform the industry, which was used to margins of only a few percent. Instead of conceiving of a classroom as the culmination of a long, unique construction process involving myriad players, Miller conceived of it as a “technology-infused product,” likening it to an iPhone, that could be produced from standardized parts and plans on a large scale in a variety of locations. Project Frog would thereby consolidate many tasks that were normally parceled among architects, engineers, and contractors, making the process more efficient and hence cheaper for the consumer and more profitable for Project Frog. In some sense, buying a Project Frog building was like purchasing a PC kit or an IKEA bookshelf: a lot of thought went into designing and configuring the components, but it was up to the end user to assemble them or hire someone who could.

The company's buildings, erected from standardized kits it designed and contractors assembled, would require less energy and materials to build and to operate. They offered spacious layouts designed to aid user productivity, health, and comfort. Units offered abundant natural light, state-of-the-art clean air systems, high-performance heating, ventilation, and air-conditioning (HVAC) systems, customized microclimate controls, and excellent acoustic performance. They also could be built faster because they did not require a new architectural design, engineering analysis, lengthy approval processes each time, nor did they require as much work and coordination of supplies from contractors. Project Frog modules also used recycled material, from steel beams to carpets and tiles, and were designed to support green "living" roofs and solar panels. Finally, more efficient design meant fewer machines and less labor were needed to assemble a building with fewer materials wasted. The net impact could be significant: even though construction was about 5 percent of the US economy, buildings accounted for about 40 percent of energy use and produced about two-thirds of landfill waste.

Sophisticated design and modeling software enabled this reconceptualization from construction process to manufactured product. Project Frog's engineering designers began with SolidWorks, software used to design products as diverse as airplanes and cell phones. The designers infused into their plans and predictive performance models data about the actual environmental performance of building materials—data that were regularly updated with measurements from new buildings. This design and analysis became the core of Project Frog's competence and intellectual property, which was the subject of several patent applications. The company also consulted Loisos+Ubbelohde, based in nearby Alameda, California, to help develop the energy modeling for its initial Project Frog kit system. That energy firm had previously worked on the Gap's headquarters in New York and Apple's Fifth Avenue store. Sarah Rich, "Project Frog's 21st-Century Buildings," *Dwell*, April 1, 2009, accessed January 30, 2011, <http://www.dwell.com/articles/project-frogs-21st-century-buildings.html>. George Loisos and Susan Ubbelohde had directed significant government and university research programs on building energy use and efficiency, and their collaboration was a significant addition to the Frog design team.

Better control of manufacturing allowed Project Frog to use a set of basic parts with minor modifications to produce an array of products. Project Frog chose, however, to outsource the actual fabrication to others instead of having to build its own capacity. Project Frog sought partners to supply the steel structure, glass panels, curtain walls, ceilings, and finishing, such as external siding or carpets. A reporter for *Forbes* magazine described the result: "They snap together for a not bad look, as if a bunch of Swedish designers got hold of a really big Erector set." Quentin Hardy, "Ideas Worth Millions," *Forbes*, January 29, 2009, accessed January 30, 2011, http://www.forbes.com/2009/01/29/innovations-venture-capital-technology_0129_innovations.html.

Miller chose to focus on the educational market in the early days of the company. Education is the largest segment of the \$400 billion construction market, accounting for about one-fourth of both the traditional and modular market. Furthermore, few people are involved in making the decisions relative to the size of the project, schools generally desire to go green and efficient, and they don't have a lot of money but often need buildings quickly. Educational institutions have long needed to add or subtract space rapidly as schools and communities change. California had issued bonds at various times since 2002 to raise money to construct new schools to keep pace with its population. Compounding that growth, California was trying to reduce its average class size, requiring even more space. Hence when funding was available, construction could easily fall behind demand. Miller had seen Frog's previous portable, temporary choices.

Schools would also save time on design because they would choose from a limited number of prefabricated choices and configure and combine them as needed. Project Frog's designs were precertified in California by the Division of the State Architect, saving about six months on permitting individual projects. (The Division of the State Architect oversaw the design and construction of K–12 schools and community colleges and also developed and maintained building codes.) The State Allocation Board Office of Public School Construction noted that it took two to four years to design, build, and inhabit an average school for two thousand students, while portable classrooms took nine to fifteen months to plan and inhabit. Finally, students learned better when indoor air and light quality were better, thus schools had often been proponents of green construction.

Studies from 1999 through 2006 provided evidence of the link between green design and student performance. Window area correlated with improvement in math and reading, better air reduced asthma and other ailments that affected attendance, and improved temperature control increased the ability of students and teachers to concentrate. Meanwhile, money saved from operating more efficient buildings could be used to educate students. Project Frog thus used passive design, large windows and coatings, and other methods to improve learning and cut costs. California had strict energy-efficiency standards under Title 24, and

the state specifically allotted \$100 million in 2009 for High Performance Incentive grants to improve energy efficiency or maximize daylight in K–12 schools.

That grant, however, was still in the future when Project Frog began with two pilot projects in California, a preschool and racing school. The results pleased customers, but Project Frog was not making enough money from them. The company received \$2.2 million from angel investors in 2007 and had revenue around \$3.7 million with sixteen full-time employees. However, it was burning about \$300,000 per month and had missed project completion deadlines. Nonetheless, in 2008 Miller projected to generate over \$50 million in revenue by 2010. Then portents of a recession began to appear.

Completed Projects as of Spring 2010

Project Frog gained momentum with a number of projects (see [Note 7.3 "Project Examples"](#)). The following are the most notable ones:

- **Child Development Center at City College San Francisco, 2007.** Constructed 9,400 square feet of space for children, teachers, and administrators.
- **Jim Russell Racing Drivers School Learning and Technology Center, Sonoma, California, 2007.** Constructed 14,000 square feet of classroom and meeting space.
- **Greenbuild Conference Boston, 2008.** Constructed and unveiled the 1,280-square-foot Frog 2.0 in one week.
- **Jacoby Creek Charter School, Bayside, California, 2009.** Replaced a Northern California school's trailers with Frog classrooms, paid for by a state grant.
- **Vaughn Next Century Learning Center, Los Angeles, 2010.** Built a 3,000-square-foot structure for the charter school's Infrastructure Career Academy, designed to train students in green-collar jobs.
- **Crissy Field Center, San Francisco, 2010.** Built Golden Gate National Park a 7,400-square-foot education center to Leadership in Energy and Environmental Design (LEED) Gold standards, including classrooms, offices, and a café.
- **Watkinson School, classrooms for Global Studies Program, Connecticut, 2010.** Built 3,800 square feet of Frog Zero classroom and lab space.

Project Examples



Figure 15.1.1: Project Frog Modules Linked to Make the Child Development Center, City College of San Francisco



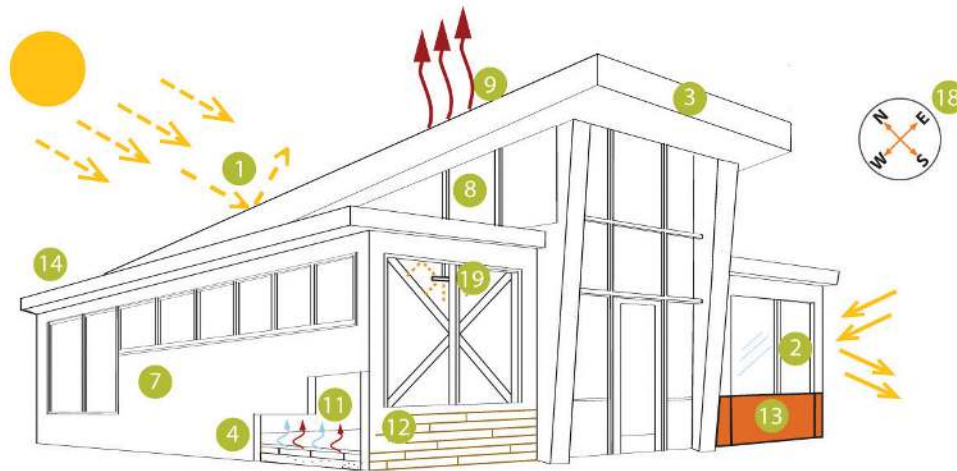
Figure 15.1.2: Interior of Project Frog Demonstration Classroom. Source: Project Frog.



Figure 15.1.3: Exterior of Project Frog Zero at Greenbuild 2008. Source: Project Frog.



Figure 15.1.4: Crissy Field Center, San Francisco. Source: Project Frog. A virtual tour is at www.projectfrog.com/gallery/tour.



Energy Efficient

- 1 Cool membrane roof (bright white) reflects heat away from the building to reduce energy requirements and increase thermal comfort.
- 2 Low-E windows manage the solar impacts on the interior by reflecting heat away from the building in the summer while insulating the building year-round.
- 3 Extended roof overhangs provide shading and block out high-angle sun to reduce glare while enabling indirect light to reduce the requirements for artificial lighting.
- 4 High levels of roof (R-30) and wall insulation (R-19) improve thermal comfort, reduce energy use, and help keep occupants comfortable.

High Performance

- 5 Low—to no-VOC interior materials like paint, flooring, and adhesives protect health and performance of students and teachers.
- 6 The high-performance ceiling tiles reduce reverberation time, improving acoustics.
- 7 Exterior rainscreen system enhances moisture resistance of the envelope, improves resistance to mold, and increases the insulation performance of the walls.
- 8 Clerestory windows allow abundant indirect natural daylight to enter the building, reducing the need for electric lighting while enhancing user performance.
- 9 Operable windows and roof exhaust fans form the natural cooling and ventilation strategy. Air is drawn in through lower windows and exhausted through higher windows and fans, creating a stack effect.
- 10 Raised access floor provides building and systems flexibility and reduces operational and churn costs.
- 11 Underfloor air distribution system efficiently transfers heat from the four furnaces to students and staff.

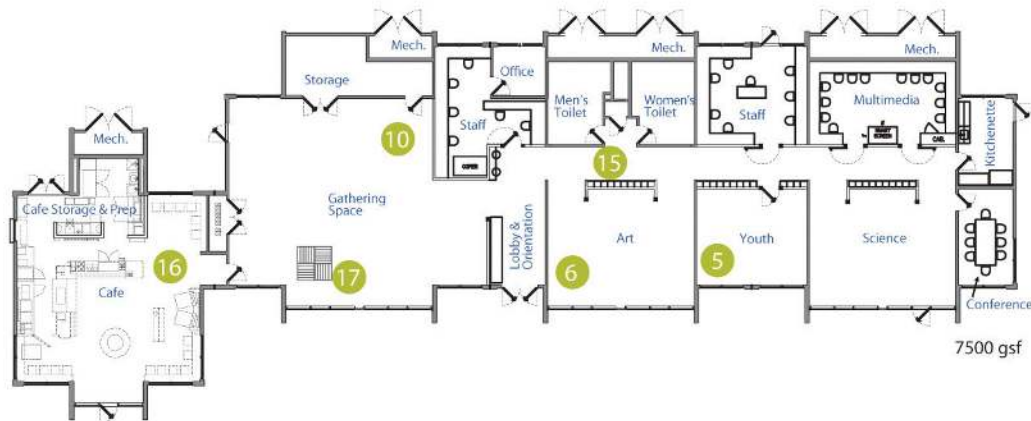
Environmentally Responsible

- 12 Reclaimed and newly milled redwood siding from an old railroad tunnel in Marin, California, provides a beautiful, unique finish while saving natural resources and protecting existing forests.
- 13 EcoClad siding is made from recycled paper and bamboo fibers. The pieces of paper are dipped in resin and heated and pressed together to form a rock-hard surface.
- 14 Rainwater capture system funnels rainwater from the roof into a large cistern. The water is filtered and then supplied to the toilets and urinals, reducing the building's dependence on the municipal water supply.
- 15 Cabinetry is made from FSC-certified maple and wheat board – wheat straw that has been cut, dried, pressed, and bound together to form sheets for cabinets or counters.
- 16 Total building materials contain over 35% recycled content, including the structural steel frame, light-gauge steel wall and roof panels, ceiling tiles, and carpet tiles.
- 17 Individual carpet squares can be removed, cleaned, or replaced as needed. The manufacturer

reclaims and recycles carpet. Project Frog also uses Project Frog carpet. Project Frog carpet has a total of 68% recycled content.

Smart Technology

- 18** Predictive modeling enables FROG to optimize the building orientation and design to reduce energy needs, allow for pre-heating, and promote daylighting while controlling for glare. The result is a potential energy-demand reduction of as much as 50% as compared to baseline without sacrifice to comfort.
- 19** Daylight and occupancy sensors regulate use of the electric lights to optimize lighting levels and reduce energy use.



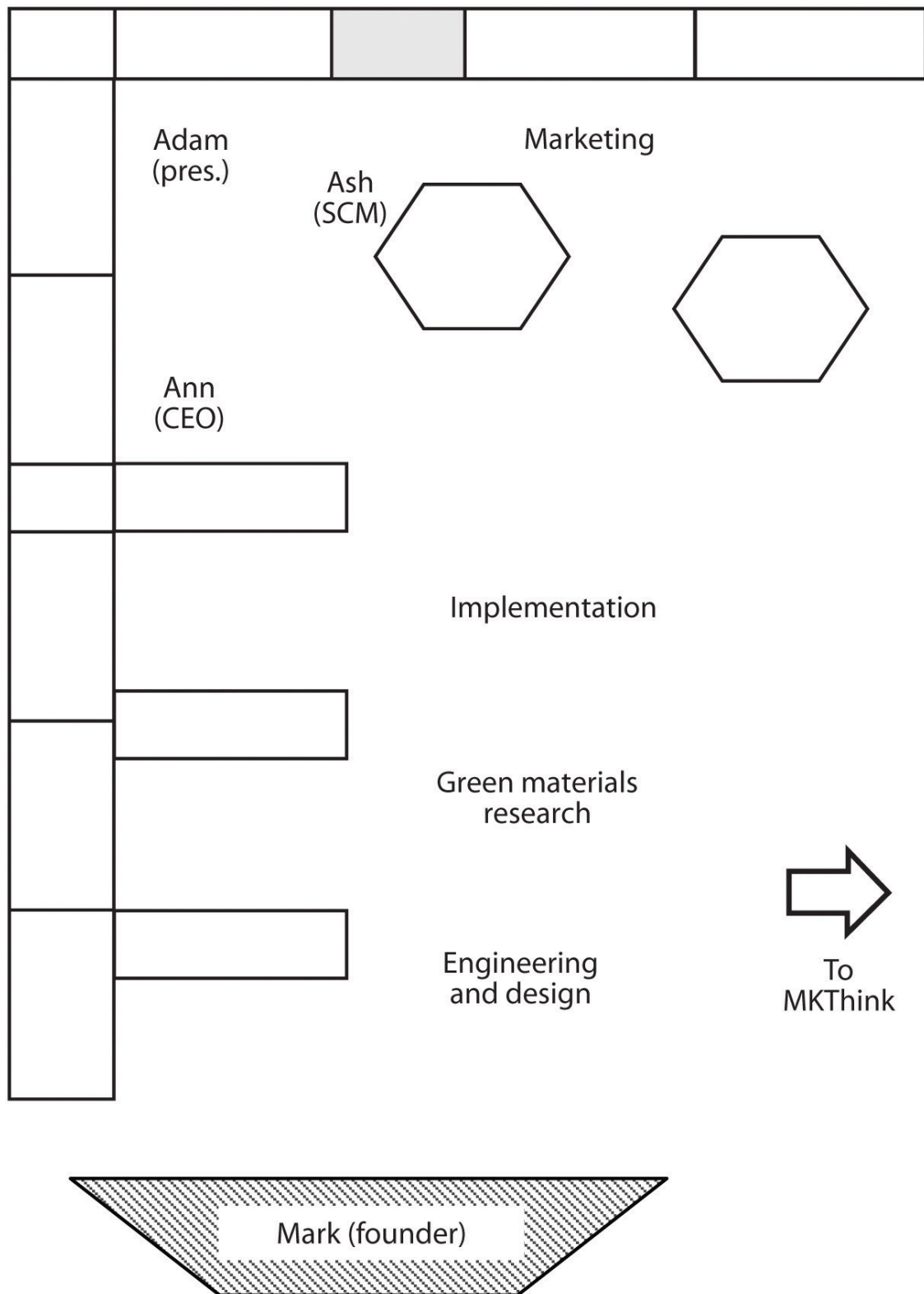


Figure 15.1.6: Diagram of Project Frog Office

Customers were pleased with the buildings' performance. Project Frog's purchase price was 25–40 percent lower than traditional construction. Operating costs could be as much as 50–70 percent lower than conventional or trailer construction. The new Frog Zero units could claim 75 percent energy demand reduction through use of occupancy and daylight sensors, smart wall panels that absorbed and reflected light, natural light optimization, glare control, superior air quality, microclimate customization through advanced climate control technology, and enhanced acoustics. Carpeting and interiors were screened for toxicity. Conventional portables typically were equipped with pressed-wood furniture, vinyl walls, and new paint and carpet; these alternatives were superior to standard options, which could release invisible toxic gases known as volatile organic compounds (VOCs). The most advanced line, the Frog Zero buildings, produced more energy than they used and were energy neutral. Built from renewable or recyclable materials, the units could be disassembled easily and were designed with 100 percent recyclability potential.

However, the major appeal of any unconventional classroom construction was typically price. Project Frog's California prices were between prices for traditional construction and portable or trailer classrooms. In California, laws had actually mandated that 30 percent of new classroom construction be portables, to avoid overbuilding classrooms that would become vacant when birth rates declined. But some school districts facing unexpected and shifting population demographics found themselves housing 50 percent of their students in portables that ranged from relatively new to over forty years old. In Florida, 75 percent of portables that were intended as temporary structures were later classified as "permanent" classroom spaces. Estimates for 2009 placed six million students in portable classrooms. In 2003, it was estimated 220,000 portable classrooms served public school systems nationwide. Perception of lower quality was often justified; portables were poorly suited to music and language learning and they had heating and cooling inefficiencies, absence of natural light, and poor air quality, all of which undermined performance of students and teachers.

The Industry

As of June 2009, all but seven states had some kind of energy-efficiency requirements for government buildings. Pew Center on Global Climate Change, "Building Standards for State Buildings," June 16, 2009, accessed January 30, 2011, www.pewclimate.org/what_s_being_done/in_the_states/leed_state_buildings.cfm. About half those states required LEED Basic or equivalent certification specifically, and increasingly, states such as California and municipalities such as Boston and San Francisco required any large new construction or renovation to meet green building standards. LEED, created by the US Green Building Council (USGBC), was widely used to measure building efficiency and environmental impact and came in various levels, from Basic to Platinum. Other rating systems existed, especially as LEED Basic came to be considered too lax or inappropriate for homes or other structures, but LEED continued to be the industry norm. Buildings earned points toward certification based on site selection and design, environmental performance, and other attributes. The US General Services Administration (GSA), which oversaw many federal properties and purchases, began requiring LEED Silver certification in 2009. A study by McGraw-Hill Construction calculated the size of the green building market to be \$10 billion in 2005 and \$42 billion in 2009, and it estimated the market would be worth between \$96 billion and \$140 billion by 2013, with the education sector accounting for 15–30 percent of that market. McGraw-Hill Construction, *2009 Green Outlook: Trends Driving Change*, accessed January 26, 2011, http://construction.com/market_research/reports/GreenOutlook.asp.

Meeting those standards and the needs of the client, however, traditionally involved an array of people. Architects devised plans and construction engineers decided how to implement them safely. Government agencies had to approve those plans, and then an array of craftspeople—masons, carpenters, electricians, glaziers, and so on—were marshaled by a general contractor to execute the plans. Each new participant took a slice of the profit and decreased efficiency by not having an influence on the end-to-end life-cycle design but only on one small piece. Furthermore, involving more people increased the chance for delay and cost overruns, and the longer a project continued, the more likely weather or supply disruptions could slow it further. A single building could take years to plan and build. Hence construction typically had low margins and was unattractive to venture capitalists.

Indeed, when Project Frog sought investors, it found itself being compared to steel manufacturers. Investors had no idea how to value the company accurately: it wasn't traditional construction, nor was it traditional manufacturing. Project Frog combined many of the previously disparate aspects of construction in its predesigned, preapproved kit, which sped construction and limited the number of people involved, including distinct craft unions that would fight for their shares of the project. That increased the company's profit while decreasing cost to clients. Miller encountered one other problem he didn't anticipate: Project Frog was too fast. Schools typically forecast building new classrooms five to ten years out and had correspondingly sluggish procurement

processes. Consequently, schools had a hard time determining how to buy something that could be standing and in use six months later.

Changes and Challenges

Project Frog president Adam Tibbs had shown a proclivity for entrepreneurial initiatives early, having started and sold a lawn-mowing company as a kid before earning his bachelor of arts in English from Columbia University in 1995. He worked as an editorial assistant for the Columbia University Press, where he gravitated toward digital publications, and then joined Nicholson NY, an Internet and software consulting company, where he managed major projects from 1996 to 1998. In 1999 he founded Bluetip, a software development and incubator company. Bluetip spun off and sold several companies before Tibbs entered real estate development in New York and the Virgin Islands. He bought a house in the country and set out to write a novel. He also consulted for nonprofits and often borrowed Miller's office when he came to San Francisco, where his friend and eventual wife worked at MKThink. Eventually he went to work for Project Frog, where he arrived as president in June 2007.

In 2008 Project Frog began to redesign its base module and reorganize its business processes. Tibbs noticed that the original Project Frog designs were simply overbuilt; the same result could be achieved with less material and less design time. Tibbs was quick to note, "If you remove green from the table, the way we do things is still better. The innovation is business processes in an industry that doesn't have any business processes." Looking back, Tibbs recalled, "We stopped selling and redesigned from the ground up. We tried to bring intelligence in-house and keep it there." The international law firm Wilson Sonsini Goodrich & Rosati was brought in to "clean up" the company's procedures and documentation.

Meanwhile, Miller and his team examined their previous projects and relied on input from their own green material researchers as well as suppliers, especially steel manufacturer Tom Ahlborn, about how to improve environmental performance and efficiency. Ahlborn was based in California. He made the frame for the modules and also assembled them on-site. Hence his experience allowed engineers to make improvements along the entire life cycle of the project. After eighteen months of design, the 1,280-square-foot Frog 2.0 was unveiled at the Greenbuild Conference in Boston, where contractor Fisher Development Inc. assembled the demo module in only seven days to allay fears that Project Frog would miss deadlines again. The new design also earned California's Division of State Architect (DSA) precertification and an award from the Modular Building Institute. The new Frog 2.0 was anticipated to be 25–40 percent cheaper to build and 50–75 percent cheaper to operate, which meant it was baseline LEED Silver and could potentially be energy neutral when outfitted with photovoltaic panels (part of the Frog Zero option.) The components were recyclable or compostable and engineered for seismic design category E (which included San Francisco; the highest category was F.) Moreover, the building could withstand 110-mile-per-hour winds and be assembled in one-half to one-fifth the time of a traditional building. Since the basic plans had to be approved by engineering and architecture firms in fifty states, Frog 2.0 also streamlined documentation and certification.

On the financial side, the Wilson Sonsini law firm introduced Project Frog to a few venture capital companies. A deal for \$8 million in Series B funding closed in November 2008. A partner from the venture capital fund joined Project Frog's board of directors. The partner said of the new partnership, "This is a truly pioneering company. Project FROG is developing dynamic concepts from a product design and manufacturing platform and applying those innovations to the building industry. Project FROG has a critical grasp on the technical and market advancements that will be game changers in the green building industry. These attributes solidify Project FROG's position as a leader in this fast growing marketplace." Rockport Capital, "Project FROG Closes \$8MM Series B Financing Led by RockPort Capital Partners," press release, November 19, 2008, accessed January 30, 2011, www.rockportcap.com/press-releases/project-frog-closes-8mm-series-b-financing-led-by-rockport-capital-partners.

Though still \$4 million short of its goal, Project Frog kept costs low and in 2010 raised an additional \$5.2 million through debt financing and promissory notes. Project FROG, "Project FROG, Makers of Smart Building Systems, Closes Series B Funding with RockPort Capital Partners," news release, *Business Wire*, November 19, 2008, accessed January 30, 2011, www.reuters.com/article/2008/11/19/idUS111863+19-Nov-2008+BW20081119. In 2008, Project Frog won the Crunchies Award for Best Clean Tech company, given for compelling start-ups and Internet or technology innovation. Things continued to look up for the company when the Office of Naval Research asked the venture capital community about green buildings. The military was particularly interested in energy efficiency after paying exorbitant sums to keep fuel on the front lines in Iraq and Afghanistan. It had begun to see energy efficiency as a national security issue and sustainability (making sure the military had a positive footprint

in terms of community, ecological, and health impacts of its operations) as key to continuing to operate bases in communities around the world. The investors recommended Project Frog, which eventually began work with the Navy on projects in Hawaii.

Even as Project Frog continually strove to distinguish itself from traditional trailer manufacturers, competition emerged from other modular groups. Miller believed that modular offerings sacrificed quality and green features. Nonetheless, they remained attractive to some clients such as cash-strapped schools.

New Hire, Next Steps, and Exit Strategy

Project Frog needed a way to stay ahead of the competition. Its improved Frog 2.0 certainly would help, and Frog Zero was the first energy-neutral building of its kind; streamlining business practices was now a priority. Project Frog turned to its supply chain to boost efficiency and profit.

Ash Notaney had worked with Booz Allen on strategy and supply-chain issues for twelve years. Through a mutual friend, he met Adam Tibbs and began to offer advice to the company about supply-chain management. In January 2010, he was hired. He noticed right away that people at Project Frog talked to one another; meetings were rare, which kept people available at their desks for interaction; the hierarchy was flat; and there were no corporate silos. “I don’t think we even had an organizational chart until one of the investors asked to see one,” Notaney recalled. Andrea Larson and Mark Meier, *Project FROG: Sustainability and Innovation in Building Design*, UVA-ENT-0158 (Charlottesville: Darden Business Publishing, University of Virginia, 2010). Other quotations in this section, unless otherwise noted, also refer to this case study. The spirit of collaboration was reflected in the office space: there were no cubicles, just tables where people worked side by side. Notaney literally sat with marketing to one side and the president to the other. Exposed HVAC conduits and hanging lights marked the building for what it was: a renovated roundhouse for streetcars that used to run along the Embarcadero. About two dozen employees were at work in the office on a given day, and probably two-thirds were under thirty years old. Clear plastic bins held sample materials from Project Frog buildings: exterior siding, interior wall, flooring, even bolts. Engineers continually manipulated plans on their SolidWorks screens.

Notaney began working with suppliers to collaborate more with Project Frog. The Crissy Field, Vaughan, and Jacoby projects used the same company to manufacture and assemble most of the kit. That company was Ahlborn Structural Steel. Tom Ahlborn, in particular, had been an excellent partner, continuing to suggest ways to improve the steel manufacture and assembly. Project Frog in return helped him cut costs and shared projected sales and volume of purchases over the coming year with increasingly detailed projections for closer time periods. Ahlborn became the preferred vendor for steel in any project unless contract stipulations or geography made it impossible. The company also used the same construction firm, Fisher Development Inc., for three of its installations. Fisher was based in San Francisco but worked nationally as a general contractor and construction manager. The company had worked with clients such as Williams-Sonoma and Hugo Boss and had assembled Project Frog’s demonstration module at the Greenbuild Conference. Fisher had also worked on the Watkinson School in Connecticut. Although no single Project Frog building gave Fisher much money, he appreciated that construction was predictable and short, which allowed him to finish a project at a profit and move on. Moreover, he believed Project Frog was ripe to expand into markets beyond education and consequently all the small buildings would begin to add up.

Meanwhile, Project Frog worked with YKK and its partner Erie Architectural Products to procure exterior glass panels and curtain walls. The new glass panels could be installed legally and technically by steel unions, which meant Project Frog’s contractors no longer needed to have glaziers on-site. The panels could also be modified for optimal performance in different environmental conditions. Roof panel suppliers were also involved, but to date the most effective relationships had been with Ahlborn and Fisher. Notaney was working to develop strategic partnerships with other suppliers.

The relationship with Fisher made sense for Tibbs as well. “We pick a guy we trust to fulfill our brand promise and make it a pleasurable experience,” he said. After all, the company wanted to meet aggressive targets for margins and revenue. The company needed to sell the value of the learning experience its buildings created. Further, Tibbs wanted the company to grow not just by getting more deals in more markets but by keeping more of the money for Project Frog from each deal by integrating more features into its own manufactured kit. A switch to ceilings that integrated insulation and panels as well as the structural frame moved the company further along that path.

Tibbs continued to push for automating more of the design, improving algorithms, filing patents, and infringing on the company’s earlier patents. He brought in GTC Law Group of Boston for patent advice. Tibbs wanted a way for clients to select features

through online models and see the corresponding performance characteristics of the different designs. Once a plan was chosen, the computer could confirm the design, print a plan for the architect, and print any necessary parts designs and orders for suppliers.

In 2010, Project Frog raised an additional \$5.2 million through convertible notes. That brought another venture capital director onto the company's board. He joined Ann Hand, who had a spot by virtue of being Project Frog's CEO; Miller, who had moved out of daily operations not long after Hand had arrived; and the lead venture capital partner from the B round. The fifth seat on the board, by charter designated for an independent member, remained vacant.

By summer of 2010, the market seemed to be improving, and Project Frog was on track to double its revenue that year. In fact, Project Frog was poised to flourish in a market that had changed radically from 2007. Miller said, "We mitigate risk. Clients are smarter and much more rigorous about goals and timeframes. Everyone wants to do green. That's changed. It has to be green, and it has to be cost-effective. They go together. That's just the way it is now."

The Crissy Field Center in Golden Gate National Park attracted 1,500 people to its grand opening and made a strong impression on visitors. Hundreds of people became Facebook fans of Project Frog. Guided tours of the center continued to draw many visitors through spring 2010 as did the building's café. Miller said with pride, "People walk into Crissy Field and say, 'I want one of these.' People don't usually buy buildings that way." But now with Project Frog, they could. In 2010 Project Frog had something very tangible and attractive to sell.

Miller continued to ponder how best to present his product. The company offered a unique synthesis of product and technology; sometimes he called it a product-oriented technology company. He liked the idea of portraying Project Frog as an integrated space and energy package in one leased product rather than a building with a mortgage that would also cut a client's energy costs. Furthermore, if prices reached the levels they had in 2007, breakeven could be cut in half. Miller wanted to underline that in a way people could understand and incorporate into their accounting. He worried, however, that the company might default downward into a conventional construction company if it did not maintain its industry expertise and vision for innovation at the edge of the industry.

The decision about an exit strategy also remained. Project Frog could go public. It also could court potential buyers. Yet many attitudes still reflected the confusion early investors felt about Project Frog's business. The venture capitalists struggled to find comps (comparable firms) to do the valuation. Various corporations with related business entities had expressed interest in investing in Project Frog. Each saw something it liked because the company integrated so many previously distinct businesses. Tibbs conjectured a global construction company or European modular building maker could make a bid. "We have about a three-year expectation to exit," Tibbs said. "I'm hoping to accelerate that." The whiteboard behind him was covered with red marker goals and graphs for the coming years. "If things go according to plan, we should be profitable by Q1 next year. For me, going public would be more fun because I've never done that before."

Project Frog and its venture capitalist investors appeared to share a business philosophy about green and what Mark Miller referred to as "edge of the grid energy areas"—the overlooked but attractive opportunities for innovation now that businesses and consumers were interested in saving energy and willing to invest in technology controls. The buyer had to get over the conventional "first cost" mentality, however. The new approach required monetizing the life cycle of the solution. It might mean taking facilities off the balance sheet.

Mark Miller was interested in these options, but his mind was focused on more immediate concerns:

We have to make sales and we have to execute. We have the product designed and defined. Now we need revenue. We're inventing a category though. The VCs understand that and they like us, but aren't sure how to think about us. We were one of the last VC deals done before the economy collapsed. And of course the market stopped for us too. I mean schools have no money and states are basically bailing out. And sales cycles are long because buyers have to be educated. We have our work cut out for us.

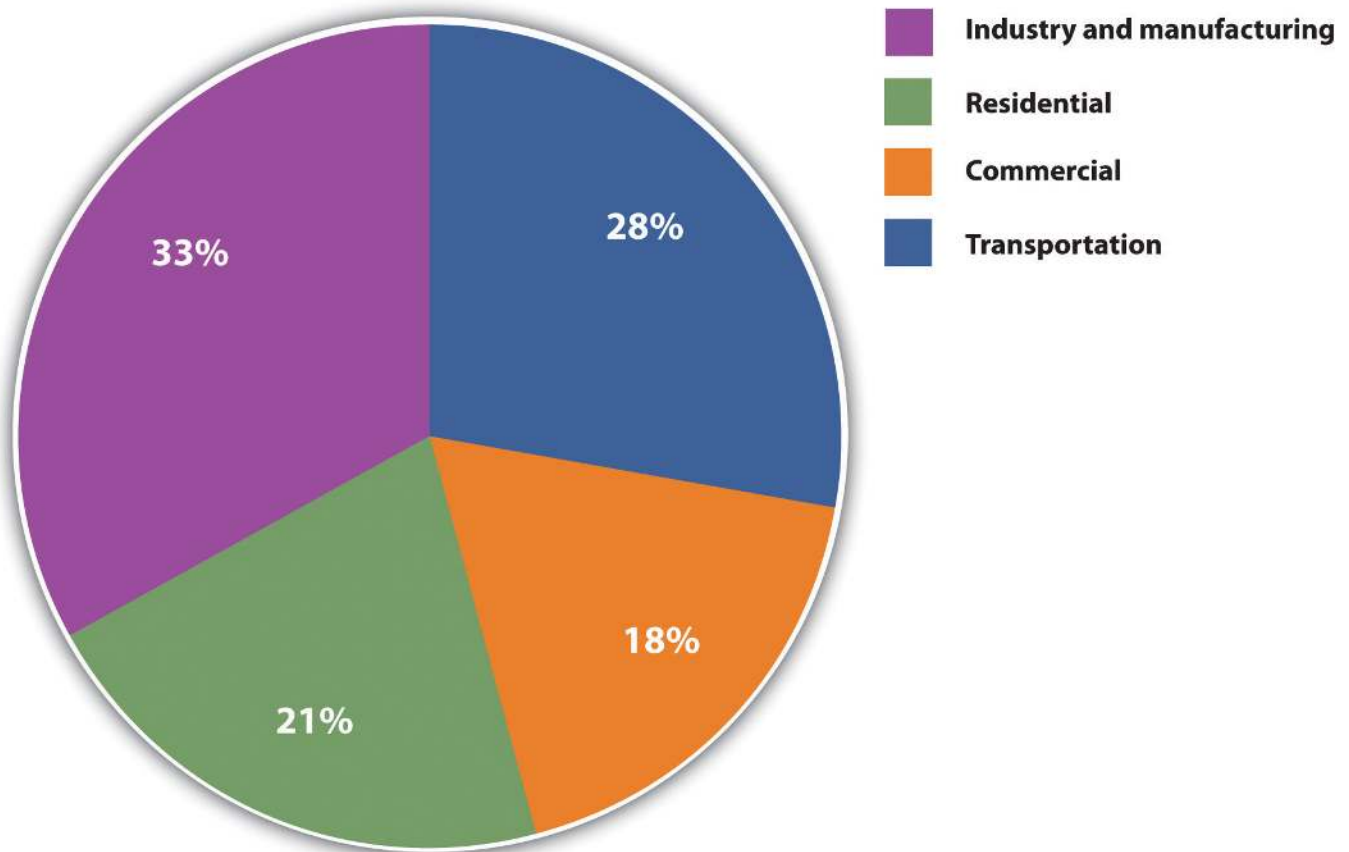


Figure 15.1.7: Energy Consumption by Sector in the US Economy. Source: Energy Information Administration, Annual Energy Review 2010, www.eia.doe.gov/aer/txt/ptb0201a.html.

Award Criteria: City College of San Francisco, Child Development Center

Thermal Comfort Strategy

The units at CCSF strongly support thermal comfort, enhancing occupant productivity and satisfaction. The number of operable windows for ventilation exceeds minimum requirements. The efficiency/quality of thermal comfort with the Raised Floor System is superior to overhead or wall mounted, fan diffused systems in most modular units. Air is supplied by multiple floor diffusers, creating an upward flow of fresh air via natural convection and exhausted through ceiling return outlets, unlike overhead systems that mix cool and heated air near the ceiling, spending energy forcing it down to user zones. Cool air is supplied at higher temps/lower velocity than overhead systems, reducing discomfort from high air speed/cold spots. Energy savings are due to diffusers' close proximity to occupants and user-defined location, direction, and flow; the living roof that supports consistent indoor temperatures; R-19 rigid expanded polystyrene (EPS) in the roof and the floor; and R-15 EPS in the walls.

Indoor Air Quality Strategy

The CCSF classrooms exemplify FROG's effort to circumvent the health problems, low test scores and high absentee rates posed by indoor air pollution. We use Low/No VOC carpet tiles, ceiling tiles and interior paint. Sealants meet/exceed the requirements of the Bay Area Air Quality Management District Regulation 8, Rule 51. Intersept antimicrobial preservative in the carpet tiles combats a broad spectrum of bacteria/fungi. BioBlock inhibits the spread of mold/mildew on ceiling tiles. Under floor air distribution delivers outside air from below directly to the occupants' breathing zone. New air replaces contaminated air instead of diluting it with old air, the method of most portables. FROG units allow for up to 100% outside air, providing clean air to the occupants, reducing any remaining VOCs/bacteria in occupied areas. Unlike most portables'

fiberglass batt insulation, FROG's Ultratouch cotton fiber insulation resists microbial growth; doesn't cause skin irritation; formaldehyde-free.

Daylighting Strategy

The FROG building's integrated system of customizable window wall units, sunshades and clerestory windows allow the interiors of the CCSF classrooms to be illuminated far more naturally and efficiently than any other modular classroom. The customizable window wall system (85% of the exterior walls) consists of interchangeable window/wall panels of user-specified colors /materials. Each 2'× 4' panel can be high performance glass or insulated composite panel. Design customization allows a perfect balance between the need for abundant light in some areas (i.e. play/learning rooms) and less in others (i.e. nap areas), shadow reduction and/or heat gain. Sunshades are mounted to the south and west side of the curtain walls to protect each classroom from an excess of direct sunlight and reduce glare. A signature feature of FROG's structure is the unique clerestory. Each unit's sloped roof assembly is enveloped on three sides by clerestory windows that flood the unit with natural light.

Acoustic Strategy

The acoustical ceiling panels used at CCSF contain a 70% Noise Reduction Coefficient (NRC). This reduces most echoing within the building, thus increasing speech clarity. In addition to the R-19 roof insulation (with space for an additional R-19), the living roof reduces outside noise transmission. The under floor air distribution system implements a pressurized plenum and harnesses natural convection to assist the airflow out of the floor diffusers and directly into the occupied zone, eliminating the noisy ducts of traditional portable models carrying air being pushed at high velocities. Most modular classrooms use a wall-mounted HVAC system, resulting in high levels of noise. Project FROG eliminates this excess noise with its Powerpak, which places the HVAC system in an exterior room separated from the learning area by an auxiliary room or restroom and an extra thick wall filled with sound-attenuating insulation.

Energy-Efficiency Strategy

The FROG units at CCSF use high quality recycled/recyclable materials, including recyclable acoustic ceiling tiles (75% recycled content (RC)); raised floor tiles (33.9% RC:1.8% post consumer (PC)/22.1% post industrial(PI)); Ultratouch batt insulation (85% PI recycled natural fibers). Carpet tiles (44% RC) and vinyl tiles (92% RC, 25% PC) can be replaced individually (instead of the entire floor) and reused. Most modular buildings consist of wood; all FROG units are steel (up to 100% RC) which can always be recycled. Non-steel materials (i.e. wood) are field cut, creating excess waste; FROG parts are cut in a metal shop and all excess is recycled. The FROG units are designed for minimal site disruption. Each unit's foundation takes up less than 1/2 of the overall sq. footage of the unit itself, requiring only 7.5 cu yards concrete. The living roof reduces rainwater runoff; serves as a protective layer, increasing the building's lifespan; and contributes to water/air purification.

Architectural Excellence

Customized and flexible, the new campus at CCSF is architecturally stylish inside and out. Exciting and expanding upward, the undulating roofline rises in the middle and lowers at the sides to provide a dramatic expression. The grand curved rear (which hides unsightly mechanical equipment) is trimmed with rounded edges to set a modern tone. The customized exterior earth tone colors were chosen to blend with the surrounding neighborhood context. The window wall system has interesting patterns of wall vs. window to create a unique exterior and functional interior. To foster creativity and encourage collaboration, the interior is full of natural light with optimal acoustics and clear sight lines. The careful configuration and positioning of the units creates a comfortable and safe campus environment, and is truly beautiful from every angle.

Economic Practicality

By using FROG units, CCSF realized significant economic savings that will multiply over time. Due to grouping/orientation, the CCSF FROG units are more than 30% more energy efficient than Title 24 requires. FROGS are built quickly enabling buyers to save on construction escalation costs (up to 12% per year). Since FROG units are California DSA Pre-Certified buildings and can be approved "over-the-counter", the permit fees are lower than traditional construction. FROG installation costs are lower than traditional construction since units can be installed on a variety of surfaces with minimal waste, site preparation, clean-up, and landscaping. FROG buildings will perform optimally and inline with permanent structures. Costs

associated with removal, demolition, and temporary building replacements are eliminated. The use of steel and glass eliminates roof/wall/flooring degradation for low long term costs. FROG modular building requires less on-site skilled labor.

Other

Energy Efficiency: FROG succeeded in making CCSF the most energy efficient of its kind. The raised floor system delivers air via floor diffusers directly to the occupied zone, creating an upward flow of fresh air of natural convection. By using higher-temperature air for cooling, the system can utilize outside air for a longer period, thereby reducing HVAC energy consumption. The natural light from the clerestory/window walls decrease the artificial light necessary for internal illumination. The glass is Solarban70XL Solar Control Low-E and blocks 63% of the direct solar heat, reducing the energy and costs of cooling, while still having the benefits of natural light. The smart lighting system balances the amount of natural light with Daylight Sensors, allowing for less energy usage and lowers wasted energy with Occupancy Sensors. Photovoltaic panels produce energy onsite for the units use and distribute back to the city grid when not in use. Modular Business Institute, “City College of San Francisco—Child Development Center,” accessed January 30, 2011, <http://www.modular.org/Awards/AwardEntryDetail.aspx?awardentryid=370>.

Project Frog Wins 2008 Crunchies Award for “Best Clean Tech”

SAN FRANCISCO, Calif.—January 13, 2009—Project FROG, San Francisco-based manufacturer of LEED rated high performance building systems, is pleased to announce it was honored on Friday with a 2008 Crunchies Award for “Best Clean Tech” company. The Crunchies, co-hosted by GigaOm, VentureBeat, Silicon Valley Insider and TechCrunch, is an annual industry award that recognizes and celebrates the most compelling start-ups, internet and technology innovations of the year. “We were honored just to be included as a finalist, so we were surprised and thrilled to receive the award for Best Clean Tech Company,” said Mark Miller, founder and CEO of Project FROG. “Clean Technology is an emerging field with tremendous opportunity for innovation, and we have great need for creative entrepreneurs, venture capitalists and especially prescient media such as the sponsors of the Crunchies. The other finalists are remarkable companies with important innovation and technology, and it’s a privilege to be recognized among them.” The awards were host to more than 80 nominees across 16 categories, and winners included Facebook, GoodGuide, Amazon Web Services and Google Reader. Better Place was the runner-up in the Clean Tech category.

About Project FROG

Better, greener, faster, cheaper. Smart. Project Frog, Inc. is a venture-backed company founded in 2006 with the mission of designing and manufacturing smart buildings—high-performance, green building systems that are healthy, quick to deploy, affordable, sustainable and permanent. The company’s leadership team comprises award-winning business professionals, engineers, architects as well as accomplished entrepreneurs and innovative builders. FROG (Flexible Response to Ongoing Growth) products are contemporary, highly functional, energy efficient, quick-to-deploy and adaptable. The recipient of numerous industry awards, Project FROG is at the forefront of change for a new standard in green building. For more information, visit <http://www.projectfrog.com>. Cleantech PR Wire, “Project FROG Wins 2008 Crunchies Award for ‘Best Clean Tech,’” press release, January 13, 2009, accessed March 7, 2011, www.ct-si.org/news/press/item.html?id=5279.

Project Frog Building Systems for the Future

I caught a small segment of an *Anderson Cooper 360* show that highlighted the first energy-efficient building in New England. It’s also the only independent school in Hartford Connecticut. Watkinson School—Center for Science and Global Studies is a Project Frog design. Project Frog’s website states it “makes the most technologically advanced, energy-efficient building systems on the planet. Employing innovative clean technology across the construction spectrum.” I was impressed, but than [sic] again I’ve always been in the modern, contemporary mode, what is Project Frog’s style.

Watkinson School needed a new building and fast. So in keeping with the theme of science and global studies that surely covers global climate change, the school went with Project Frog’s building plans/concepts, and 7 months later the school was ready. It leaves no carbon footprint and cost far less to run than a conventional building.

Check out the segment I saw on CNN and Project Frog's website for more information. To me this looks like the way to go for charter Schools, new office buildings, retail, and hopefully homes of the future. And the biggest news here, it's cheaper than standard building structures. Project Frog's website lists the qualities of its buildings:

Better	
Healthier	low VOC, high air quality, abundant daylight
Higher quality	engineered, factory built, premium materials
Safer	2008 IBC, zone 4 seismic, 110+mph wind
Greener	
Materials	high recycled content
Operations	50–70% less consumption
Waste Reduction	near zero on-site construction waste
Faster	
Purchase	single integrated point of purchase
Permit	weeks not months
Build	5× faster than traditional construction
Cheaper	
Purchase	25–40% less first cost
Operate	50–75% less operational cost
Recycle	100% recycle potential

I think we're going to hear a whole lot more about Project Frog. Finally a company that presents a win, win situation for new building construction. Oh forgot to include that local contractors put up the buildings too.

Other Stories

green.venturebeat.com/2010/01/19/project-frog-leaps-ahead-with-5-2m-for-greener-school-buildings

FOR IMMEDIATE RELEASE CONTACT: Nikki Tankursley (September 29, 2009)

nikki@projectfrog.com

415-814-8520 "Project Frog Building Systems for the Future," BlogsMonroe.com, March 23, 2010, accessed April 5, 2010, www.blogsmonroe.com/world/2010/03/project-frog-building-systems-for-the-future.

Ann Hand, New CEO at Project Frog

World-Class Green Energy Executive to Grow Markets and Scale Business for Leading Manufacturer of Smart Buildings

SAN FRANCISCO—(BUSINESS WIRE)—Project Frog (<http://www.projectfrog.com>), leading manufacturer of smart building systems, announced today that Ann Hand has joined the company as Chief Executive Officer. She will provide strategic leadership as Project FROG seeks to capitalize on the high growth market for green buildings with its innovative high performance building systems.

"I am delighted that Ann has decided to join the Project FROG team," said founder Mark Miller. "I look forward to working closely with her to develop our next generation of green building products and accelerate our growth. Ann has a great track record of building scalable businesses with sustainability as a cornerstone."

Ann is a highly experienced executive within the clean energy sector and comes to Project FROG from BP where she was Senior Vice President of Global Brand Marketing and Innovation with responsibility for driving operational performance across 25,000 retail gas stations. Prior to that role, she was CEO of BP's Global Liquefied Petroleum Gas business unit and oversaw 3,000 employees in 15 countries. Before BP, Ann held marketing, finance and operation positions at Exxon Mobil and McDonald's Corporation.

"I believe in the mission of this company, the quality of its people and the potential of our technology to transform the building industry," said Ann. "I was fortunate to have the satisfaction of making things 'a little better' at BP, and am compelled by the opportunity at Project FROG to change how buildings are built and redefine standards for how they perform...we can make construction a *lot* better."

Chuck McDermott, a Project FROG board member and General Partner at RockPort Capital Partners says, "Ann is a very dynamic executive who understands how to create vision and build brands. We're confident that she will provide important leadership as Project FROG diversifies products that grow markets and monetize its game-changing innovation."

About Project FROG

Better, Greener, Faster. Smart. Project FROG makes the most technologically advanced, energy-efficient building systems on the planet. Employing innovative clean technology across the construction spectrum, Project FROG aims to transform the building industry by creating new standards for healthy buildings that significantly reduce energy consumption and construction waste. Venture funding from Rockport Capital facilitated entrance into education and governmental markets in California, New England and Hawaii. Near-term plans include expansion into new geographies and market sectors.

Project Frog's smart building systems are frequent recipients of industry awards for their design and performance. For more information, visit <http://www.projectfrog.com>.

About RockPort Capital Partners

RockPort Capital Partners, <http://www.rockportcap.com>, is a leading venture capital firm partnering with clean tech entrepreneurs around the world to build innovative companies and bring disruptive technologies and products to the 21st century. RockPort's investment approach is distinguished by collaboration with management teams to foster growth and create value. Combining domain expertise with policy and international experience, RockPort has a proven track record of leveraging its insights and networks to foster growth and create value. Business Wire, "Ann Hand New CEO at Project FROG," news release, September 22, 2009, accessed September 1, 2010, <http://www.businesswire.com/news/home/20090922005679/en/Ann-Hand-CEO-Project-FROG>.

Interview with CEO Ann Hand

alisterpaine.info/2009/11/16/ceo-interview-ann-hand-of-project-frog

Time-Lapse Video of Project Frog Building at Greenbuild

it.truveo.com/Project-FROG-at-Greenbuild-2008/id/2823405421

Rating Environmental Performance in the Building Industry: Leadership in Energy and Environmental Design (LEED)

LEED provides building owners and operators a concise framework for identifying and implementing practical and measurable green building design, construction, operations and maintenance solutions. US Green Building Council, "Intro—What LEED Is," accessed January 28, 2011, www.usgbc.org/DisplayPage.aspx?CMSPageID=1988.

- US Green Building Council

Environmentally preferable, "sustainable," or "green" building uses optimal and innovative design and construction to provide economic, health, environmental, and social benefits. Green buildings cost little or nothing more to build than conventional facilities and typically cost significantly less to operate and maintain while having a smaller impact on the environment. Davis

Langdon, *Cost of Green Revisited: Reexamining the Feasibility and Cost Impact of Sustainable Design in the Light of Increased Market Adoption*, July 2007, accessed January 28, 2011, www.centerforgreenschools.org/docs/cost-of-green-revisited.pdf; Steven Winter Associates Inc., *GSA LEED Cost Study*, October 2004, accessed January 28, 2011, www.wbdg.org/ccb/GSAMAN/gsaleed.pdf; US Green Building Council–Chicago Chapter, *Regional Green Building Case Study Project: A Post-Occupancy Study of LEED Projects in Illinois*, Fall 2009, accessed January 28, 2011, www.usgbc-chicago.org/wp-content/uploads/2009/08/Regional-Green-Building-Case-Study-Project-Year-1-Report.pdf. These savings plus a burnished environmental reputation and improved indoor comfort mean green buildings can command higher rents and improve occupant productivity. Piet Eichholtz, Nils Kok, and John M. Quigley, “Doing Well by Doing Good? Green Office Buildings” (Program on Housing and Urban Policy Working Paper No. W08-001, Institute of Business and Economic Research, Fisher Center for Real Estate & Urban Economics, University of California, Berkeley, 2008), accessed January 28, 2011, www.jetsongreen.com/files/doing_well_by_doing_good_green_office_buildings.pdf. In addition, green buildings’ life-cycle costing provides a more accurate way to evaluate long-term benefits than the traditional focus on initial construction cost alone. Andrea Larson, Jeff York, and Mark Meier, “Rating Performance in the Building Industry: Leadership in Energy and Environmental Design” (UVA-ENT-0053), 2010 Darden Case Collection. All other references in this section, unless otherwise noted, come from this source.

Although many were interested in the idea of green building, in the early 1990s green building was difficult to define, which slowed the market adoption of its principles and practices. In response, the USGBC was formed in 1993 in association with the American Institute of Architects, the leading US architectural design organization. By 2000, USGBC had about 250 members that included property owners, designers, builders, brokers, product manufacturers, utilities, finance and insurance firms, professional societies, government agencies, environmental groups, and universities. Those council members helped create the LEED rating system, released to the public in 2000. The LEED standard intended to transform the building market by providing guidelines, certification, and education for green building. Thus architects, clients, and builders could identify and acquire points across a variety of environmental performance criteria and then apply for independent certification, which verified the green attributes of the building for others, such as buyers or occupants.

LEED quickly expanded as it filled the need for a reliable definition of green building. Within two years of its release, LEED captured 3 percent of the US market, including 6 percent of commercial and institutional buildings under design that year. By 2003, USGBC had more than three thousand members, more than fifty buildings had been LEED certified, and more than six hundred building projects totaling more than ninety-one million square feet were registered for future certification in fifty US states and fifteen countries. US Green Building Council, *Building Momentum: National Trends and Prospects for High-Performance Green Buildings*, February 2003, 1, 11, 13, accessed January 28, 2011, www.usgbc.org/Docs/Resources/043003_hpgb_whitepaper.pdf.

LEED found multiple proponents. In December 2005, USGBC made the *Scientific American* 50, the magazine’s prestigious international list of “people and organizations worldwide whose research, policy, or business leadership has played a major role in bringing about the science and technology innovations that are improving the way we live and offer the greatest hopes for the future.” US Green Building Council, “USGBC Named to ‘Scientific American 50,’” news release, January 1, 2006, accessed January 28, 2011, www.usgbc.org/News/PressReleaseDetails.aspx?ID=2045. The federal government, through divisions such as the General Services Administration and US military, began providing incentives and requiring that its projects be LEED certified. The trademarked LEED certification became the de facto green building code for many locations, such as the cities of Santa Monica and San Francisco, or was rewarded with tax breaks, such as in New York, Indiana, and Massachusetts. Corporate and public sector organizations with certified or registered buildings soon included Genzyme, Honda, Toyota, Johnson & Johnson, IBM, Goldman Sachs, Ford, Visteon, MIT, and Herman Miller.

By July 2010, USGBC membership had jumped to over 30,000, more than 155,000 building professionals had been credentialed formally in the LEED system, and 6,000 buildings had been certified as meeting LEED criteria. The LEED system had been revised and expanded to include homes, renovation, and neighborhood development, not just individual, new commercial buildings. Almost half the states of the United States had begun to require LEED or equivalent certification for most state buildings. Hence, despite its shortcomings and competition, LEED remains the best-known green building program, and USGBC remains a committee-based, member-driven, and consensus-focused nonprofit coalition leading a national consensus to promote high-performance buildings that are environmentally responsible, profitable, and healthy places to live and work.

Why the Building Industry?

Buildings consume many resources and produce much waste. In the United States, buildings consume about 40 percent of all energy, including 72 percent of electricity, and 9 percent of all water, or forty trillion gallons daily. As a result, buildings produce about 40 percent of all greenhouse gas emissions. They also produce solid waste. A 2009 EPA study estimated that in one year, building construction, renovation, and demolition alone produced 170 million tons of debris, about half of which went straight to landfills. D&R International Ltd., “1.1: Buildings Sector Energy Consumption,” in *2009 Buildings Energy Data Book* (Silver Spring, MD: US Department of Energy, 2009), 1–10, accessed January 28, 2011, buildingsdatabook.eren.doe.gov/docs/DataBooks/2009_BEDB_Updated.pdf; D&R International Ltd., “8.1: Buildings Sector Water Consumption,” in *2009 Buildings Energy Data Book* (Silver Spring, MD: US Department of Energy, 2009), 8-1, table 8.1.1, accessed January 28, 2011, buildingsdatabook.eren.doe.gov/docs/DataBooks/2009_BEDB_Updated.pdf; US Green Building Council, “Green Building Facts,” accessed March 23, 2011, <http://www.usgbc.org/ShowFile.aspx?DocumentID=5961>; US Environmental Protection Agency, *Estimating 2003 Building-Related Construction and Demolition Materials Amounts*, accessed January 28, 2011, www.epa.gov/wastes/conserve/rrr/imr/cdm/pubs/cd-meas.pdf. Since Americans spend 90 percent of their time indoors, the building environment is also key to overall health.

The construction industry has major economic impacts. Construction and renovation is the largest sector of US manufacturing, and buildings and building products span more Standard Industrial Classification codes than any other industrial activity. The value of new construction put in place rose from \$800 billion in 1993 to peak at nearly \$1.2 trillion in 2006, equal to 5 to 8 percent of GDP over that span. About half of construction in the past two decades has been residential and about one-third commercial, manufacturing, office, or educational space (Figure 7.8). Including highways and other nonbuilding construction, total construction is roughly 70 percent private and 30 percent public. US Census Bureau, “Construction Spending: Total Construction,” accessed September 3, 2010, www.census.gov/const/www/totpage.html. Hence the building sector presents some of the most accessible opportunities to develop innovative strategies for increasing profits and addressing environmental and related community quality-of-life concerns.

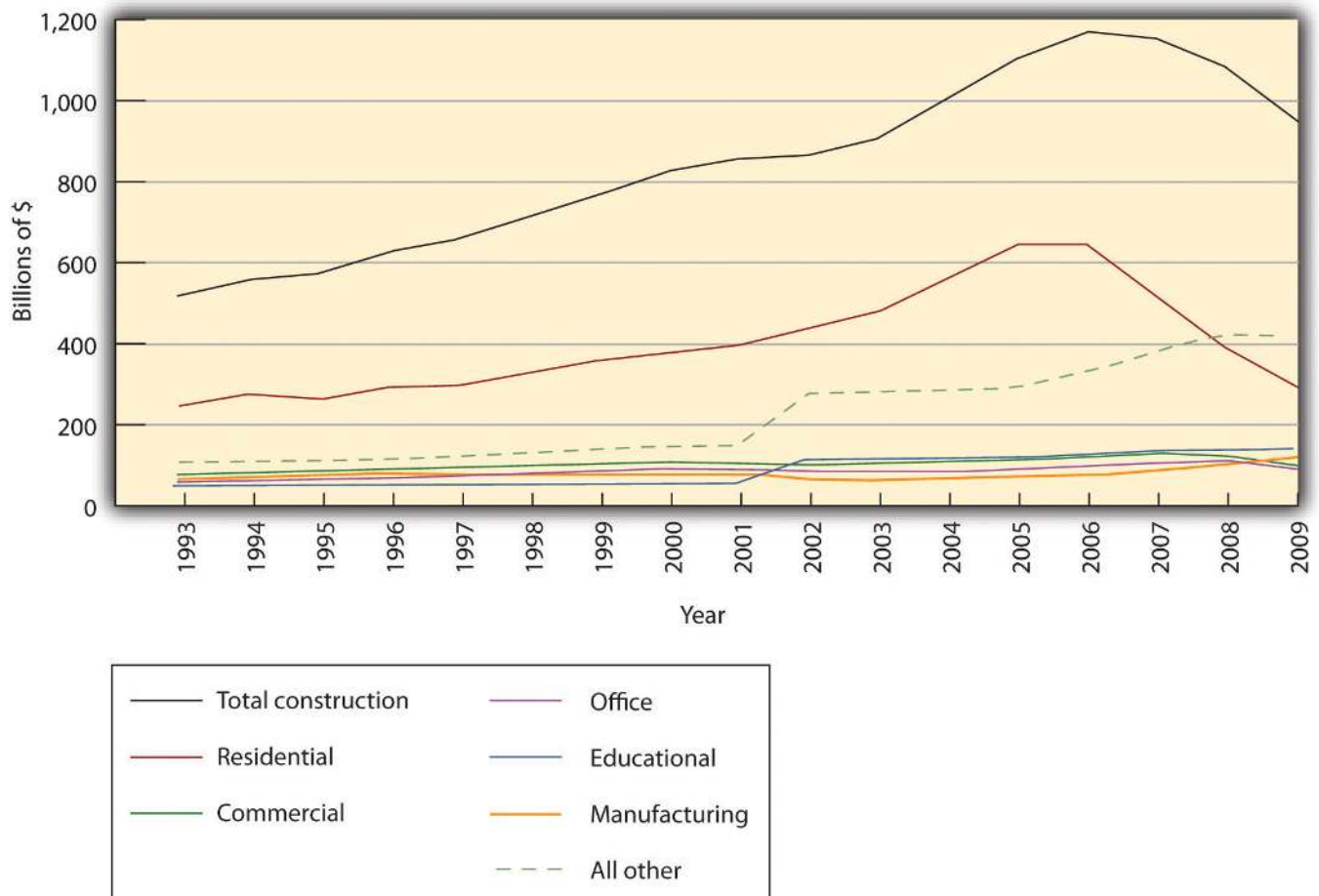


Figure 15.1.21: US Construction Trends. Source: Created by author from US Census Bureau data available from www.census.gov/const/C30/ototall.xls. The total value put in place for 1993–2009 includes both public and private projects, whereas values for separate categories before 2002 include only private construction since public projects were not disaggregated by category until that time.

Buildings, however, have some characteristics that can impede environmental design. They have a thirty- to forty-year life cycle from planning, design, and construction through operations and maintenance (O&M) and renovation to ultimate demolition or recycling. This long, varied life span requires advance planning to maximize environmental benefits and minimize harm and can lock older, less efficient, or hazardous technologies such as asbestos or lead paint in place. Indeed, advance planning is key. Structural and site design is the most important factor determining performance and cost throughout a building's life.

LEED Silver-Qualified PNC Firstside Center

PNC Firstside Center

Pittsburgh, Pennsylvania



Version 2.0
SILVER



Photographer: Ed Marsery

Owner: PNC Financial Services Group

Project Team:

Architect:	L.D. Asorino Companies
Engineer:	L.D. Asorino Companies
Contractor:	Dick Corporation
Consultant:	Paladino Green Building Strategies

Building Statistics:

Completion Date:	November 2000
Cost:	\$108 million
Size:	647,000 gross square feet
Footprint:	140,418 square feet
Construction Type:	5 floor, new construction
Use Group:	Financial services
Lot Size:	4.66 acres
Annual Energy Use:	59 kBtu/sf/year
Occupancy:	1800 staff

Sustainable Sites

- Site Selection: Remediated brownfield site (previous urban railway); contributes to an area needing economic revitalization
- Alternative Transportation: Ample bus lines; shower facilities for bicycle commuters; electric vehicle recharging station; site acts as downtown link for an extensive bike trail
- Reduced Site Disturbance: Exceeded local open space requirements by more than 25% by tightening program needs and stacking floor plans
- Stormwater Management: Filtering settlement basins capture and remove 80% of suspended solids and 40% of phosphorus
- Reduced Heat Islands: Used light colored/high-albedo materials for at least 36% of the site's non-roof impervious surfaces

Water Efficiency

- Water Efficient Landscaping: Sub-surface irrigation system reduces water use for irrigation by more than 50%

Energy and Atmosphere

- Optimize Energy Performance: Exceeds ASHRAE 90.1-1999 by 33% using exterior passive sun shading, interior motorized window coverings, underfloor ventilation systems, and air handling units with full economizer capabilities
- Additional Commissioning: Best practice commissioning applied

Materials and Resources

- Recycled Content: 90% post-consumer recycled steel
- Local/Regional Materials: 54% of materials (by cost) were manufactured within 500 miles; 11% of materials were extracted, recovered or harvested locally

Indoor Environmental Quality

- CO₂ Monitoring: CO₂ sensors located in the return air duct
- Increase Ventilation Effectiveness: Complies with ASHRAE Fundamentals Chapter 31 through use of diffusers in both the underfloor and overhead air distribution systems and full capacity economizers
- Construction IAQ Management Plan: Cleaned the underfloor plenum and conducted a two-week building flush out after construction and before occupancy
- Low-Emitting Materials: Carpeting has low VOC emissions
- Thermal Comfort: Meets ASHRAE 55-1992 through integrated temperature controls, independent humidifying systems and economizers
- Daylight & Views: 93% of occupied space has access to exterior views; 79% of occupied space is daylight; strategies included a large southern exposure, skylights, atrium, glazed partitions and doors, and clerestory windows

Innovation & Design Process

- Innovation in Design: Carpet tile with releasable adhesives and hybrid HVAC system reduce churn costs and waste

Figure 15.1.9: PNC Firstside Center. Source: US Green Building Council: Overview," 2008, accessed March 7, 2011, leedcasestudies.usgbc.org/overview.cfm?ProjectID=62.

Buildings also involve multiple stakeholders, which can complicate optimization of the system. Costs are borne by one or more parties, such as owners, operators, and tenants. This division can hamper maximizing the overall efficiency of the building, as various groups vie for their own advantage or simply fail to coordinate their efforts. Wages and benefits paid to occupant employees dwarf all other expenses but are typically not included in building life-cycle costs. Depending on the arrangement, a tenant may pay for most of O&M but have had no say in the original design or site selection. A system such as LEED can make all parties aware of environmental performance and thus help them collaborate to improve it while also assuring others that the building has been designed to a certain standard.

How LEED Works

USGBC created the LEED Green Building rating system to, in the council's words, transform the building market by doing the following:

- Defining *green building* by establishing a common standard of measurement
- Promoting integrated, whole-building design practices
- Recognizing environmental leadership in the building industry
- Stimulating competition
- Raising consumer awareness of green building benefits

To achieve these goals, LEED provides a comprehensive framework for assessing the environmental performance of a building over its lifetime as measured through the following categories (Table 7.1):

- **Sustainable sites.** Minimizing disruption of the ecosystem and new development.
- **Water efficiency.** Using less water inside and in landscaping.
- **Energy and atmosphere.** Minimizing energy consumption and emissions of pollutants.
- **Materials and resources.** Using recycled or sustainable building materials and recycling construction debris.

- **Indoor environmental quality.** Maximizing indoor air quality, daylight, and comfort.
- **Innovation and design process.** Fostering breakthroughs and best practices.
- **Regional priorities.** Credits that vary by site to reward local priorities.

Projects within a given LEED rating system can earn points in each category and all points are equal, no matter the effort needed to achieve them. For instance, installing bike racks and a shower in an office building can earn one point for Sustainable Sites, as can redeveloping a brownfield. Merely including a LEED Accredited Professional (LEED AP) on the design team earns a point for Innovation and Design. The same action could also earn multiple points across categories. Installing a green roof could potentially manage storm water runoff, mitigate a local heat island, and restore wildlife habitat. The most points are concentrated in energy efficiency, which accounts for nearly one-third of all possible points (Figure 7.10). Under LEED 3, released in 2009, once a project gains 40 of the possible 110 points and meets certain prerequisites, such as collecting recyclable materials, it can apply for LEED Basic certification. (The criteria are slightly different for LEED for residences.) This point system makes LEED flexible about how goals are met, rewards innovative approaches, and recognizes regional differences. This systems perspective distinguishes LEED from conventional thinking.

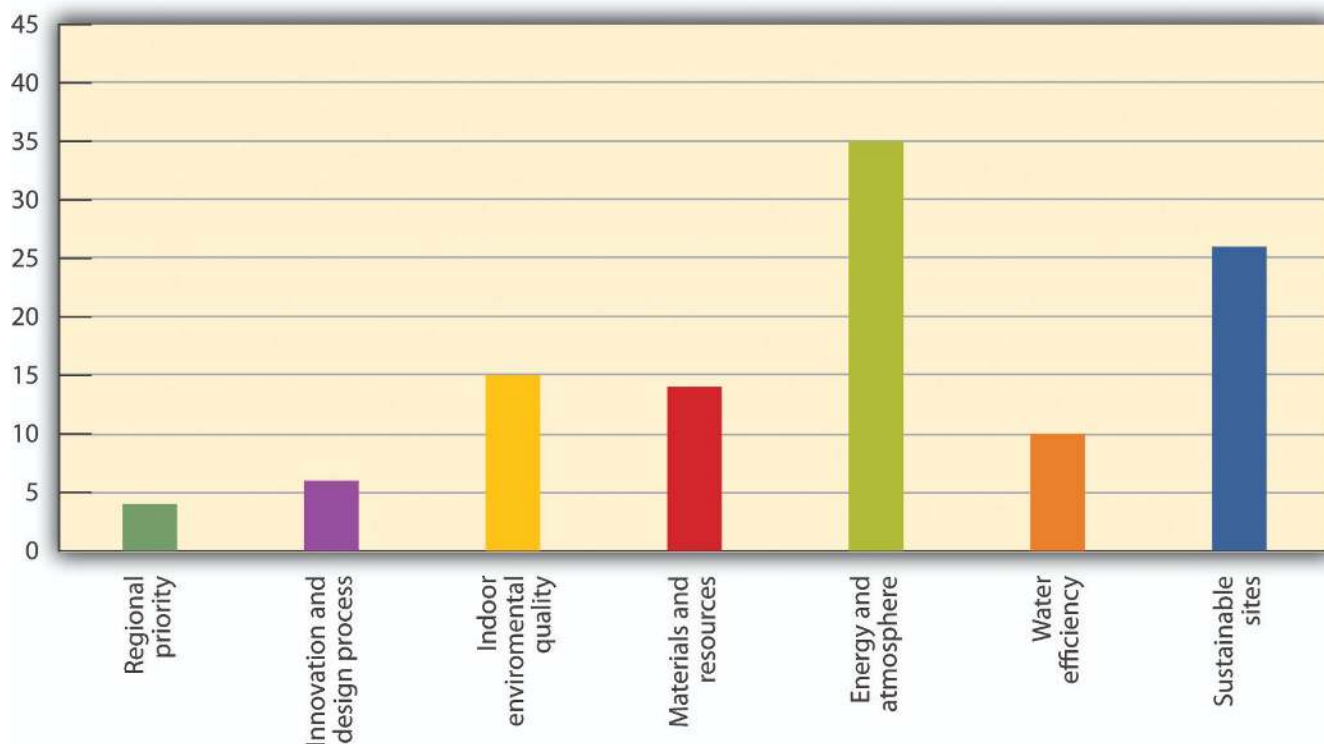


Figure 15.1.10: LEED Points. Source: US Green Building Council, “LEED for New Construction and Major Renovation,” accessed March 7, 2011, <http://www.usgbc.org/ShowFile.aspx?DocumentID=1095>. This point distribution is for LEED-NC. LEED for schools, commercial interiors, core and shell, and so on vary slightly in their distribution but have a similar emphasis on energy efficiency.

Table 7.1 LEED for New Construction Rating System

Sustainable Sites		26
Prereq 1	Construction Activity Pollution Prevention	0
Credit 1	Site Selection	1
Credit 2	Development Density and Community Connectivity	5
Credit 3	Brownfield Redevelopment	1
Credit 4.1	Alternative Transportation—Public Transportation Access	6
Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
Credit 4.4	Alternative Transportation—Parking Capacity	2
Credit 5.1	Site Development—Protect or Restore Habitat	1
Credit 5.2	Site Development—Maximize Open Space	1
Credit 6.1	Stormwater Design—Quantity Control	1
Credit 6.2	Stormwater Design—Quality Control	1
Credit 7.1	Heat Island Effect—Nonroof	1
Credit 7.2	Heat Island Effect—Roof	1
Credit 8	Light Pollution Reduction	1
Water Efficiency		10
Prereq 1	Water Use Reduction—20% Reduction	0
Credit 1	Water Efficient Landscaping	2 to 4
Credit 2	Innovative Wastewater Technologies	2
Credit 3	Water Use Reduction	2 to 4
Energy and Atmosphere		35
Prereq 1	Fundamental Commissioning of Building Energy Systems	0
Prereq 2	Minimum Energy Performance	0
Prereq 3	Fundamental Refrigerant Management	0
Credit 1	Optimize Energy Performance	1 to 19
Credit 2	On-Site Renewable Energy	1 to 7
Credit 3	Enhanced Commissioning	2

Credit 4	Enhanced Refrigerant Management	2
Credit 5	Measurement and Verification	3
Credit 6	Green Power	2
Materials and Resources		14
Prereq 1	Storage and Collection of Recyclables	0
Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
Credit 1.2	Building Reuse—Maintain 50% of Interior Nonstructural Elements	1
Credit 2	Construction Waste Management	1 to 2
Credit 3	Materials Reuse	1 to 2
Credit 4	Recycled Content	1 to 2
Credit 5	Regional Materials	1 to 2
Credit 6	Rapidly Renewable Materials	1
Credit 7	Certified Wood	1
Indoor Environmental Quality		15
Prereq 1	Minimum Indoor Air Quality Performance	0
Prereq 2	Environmental Tobacco Smoke (ETS) Control	0
Credit 1	Outdoor Air Delivery Monitoring	1
Credit 2	Increased Ventilation	1
Credit 3.1	Construction IAQ Management Plan—During Construction	1
Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
Credit 4.3	Low-Emitting Materials—Flooring Systems	1
Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
Credit 5	Indoor Chemical and Pollutant Source Control	1
Credit 6.1	Controllability of Systems—Lighting	1
Credit 6.2	Controllability of Systems—Thermal Comfort	1

Credit 7.1	Thermal Comfort—Design	1
Credit 7.2	Thermal Comfort—Verification	1
Credit 8.1	Daylight and Views—Daylight	1
Credit 8.2	Daylight and Views—Views	1
Innovation and Design Process		6
Credit 1.1	Innovation in Design: Specific Title	1
Credit 1.2	Innovation in Design: Specific Title	1
Credit 1.3	Innovation in Design: Specific Title	1
Credit 1.4	Innovation in Design: Specific Title	1
Credit 1.5	Innovation in Design: Specific Title	1
Credit 2	LEED Accredited Professional	1
Regional Priority Credits		4
Credit 1.1	Regional Priority: Specific Credit	1
Credit 1.2	Regional Priority: Specific Credit	1
Credit 1.3	Regional Priority: Specific Credit	1
Credit 1.4	Regional Priority: Specific Credit	1
Total		110

Source: US Green Building Council, “LEED for New Construction and Major Renovation,” accessed March 7, 2011, <http://www.usgbc.org/ShowFile.aspx?DocumentID=1095>.

LEED has been amended regularly to respond to emerging needs. Partly in reaction to criticism that LEED focused too narrowly on new commercial construction, USGBC developed different LEED rating systems for different types of projects. In addition to the original LEED for New Construction and Major Renovation (LEED-NC), there are now LEED for Schools, LEED for Existing Building Operations and Maintenance (LEED-EB O&M), LEED for Commercial Interiors (LEED-CI), and LEED for Core and Shell (LEED-CS), all of which use the above categories and have similar, albeit slightly different, distributions of the 110 possible points among the categories. Rating systems are available at US Green Building Council, “LEED Resources and Tools: LEED 2009 Addenda,” accessed September 3, 2010, www.usgbc.org/DisplayPage.aspx?CMSPageID=2200#BD+C. The more recent LEED for Neighborhood Development (LEED-ND) and LEED for Homes have the same point approach but different categories. LEED-ND awards points for Innovation and Design and Regional Priorities plus Smart Location and Linkage, Neighborhood Pattern and Design, and Green Infrastructure and Buildings. LEED for Homes largely follows the categories of other building types but also has Locations and Linkages distinct from Sustainable Sites to encourage walking, infill, and so forth; Awareness and Education to encourage homeowners to educate others; and a Home Size Adjustment to acknowledge that bigger homes, efficiency notwithstanding, consume more resources than smaller ones. LEED for Homes also has 136, not 110, possible points with a lower threshold for Basic certification. LEED for Retail and LEED for Healthcare (versus more generic commercial buildings covered by LEED) were in development as of July 2010 and likely to be launched within a year.

Sample LEED Rating System Version 2.1 Credit

Energy & Atmosphere Credit 1: Optimize Energy Performance 1–10 Points

Intent

Achieve increasing levels of energy performance above the prerequisite standard to reduce environmental impacts associated with excessive energy use.

Requirements

Reduce design energy cost compared with the energy cost budget for energy systems regulated by ASHRAE/IESNA Standard 90.1-1999 (without amendments), as demonstrated by a whole building simulation using the Energy Cost Budget Method described in Section 11 of the Standard.

Table 7.2 Comparison of New versus Existing Buildings

New buildings (%)	Existing buildings (%)	Points
15	5	1
20	10	2
25	15	3
30	20	4
35	25	5
40	30	6
45	35	7
50	40	8
55	45	9
60	50	10

Source: Data from ASHRAE/IESNA Standard 90.1-1999.

Regulated energy systems include heating, cooling, fans, and pumps (HVAC), service hot water, and interior lighting. Nonregulated systems include plug loads, exterior lighting, garage ventilation and elevators (vertical transportation). Two methods can be used to separate energy consumption for regulated systems. The energy consumption for each fuel may be prorated according to the fraction of energy used by regulated and nonregulated energy. Alternatively, separate meters (accounting) may be created in the energy simulation program for regulated and nonregulated energy uses.

If an analysis has been made comparing the proposed design to local energy standards and a defensible equivalency (at minimum) to ASHRAE/IESNA Standard 90.1-1999 has been established, then the comparison against the local code may be used in lieu of the ASHRAE

Standard Project teams are encouraged to apply for innovation credits if the energy consumption of nonregulated systems is also reduced.

Optimize Energy Performance: 1–10 Points

Submittals

Complete the LEED Letter Template incorporating a quantitative summary table showing the energy-saving strategies incorporated in the building design.

Demonstrate via summary printout from energy simulation software that the design energy cost is less than the energy cost budget as defined in ASHRAE/IESNA 90.1-1999, Section 11.

Potential Technologies and Strategies

Design the building envelope and building systems to maximize energy performance. Use a computer simulation model to assess the energy performance and identify the most cost-effective energy efficiency measures. Quantify energy performance as compared with a baseline building. Reprinted courtesy of the US Green Building Council, *LEED 2009 for New Construction*

and Major Renovations Rating System (Washington DC: US Green Building Council, 2009), last updated October 2010, accessed January 31, 2011, www.usgbc.org/DisplayPage.aspx?CMSPageID=220&.

To be LEED certified, a project is first registered for a few hundred dollars with the Green Building Certification Institute (GBCI), an independent spin-off of USGBC that assumed sole responsibility for LEED certifying buildings and training LEED APs in 2009. Documentation is gathered to demonstrate compliance with LEED criteria and then submitted to the GBCI along with another fee, over \$2,000 for an average project, for certification. Bigger projects cost more to certify, and higher levels of certification are available with more points: 50 points earns Silver, 60 Gold, and 80 or more Platinum (Figure 7.11). Higher certification typically correlates with less energy use. A 2008 study by USGBC and the New Buildings Institute found that in the United States, newly built LEED Basic commercial buildings (including offices and laboratories) used 24 percent less energy per square foot than the average of all commercial building stock, while LEED Gold and Platinum buildings used 44 percent less energy than the average. Just over half of the LEED buildings, however, performed significantly better or worse than predicted at the outset of the project, with one quarter actually consuming more energy than the code baseline. Cathy Turner and Mark Frankel (New Buildings Institute), *Energy Performance of LEED for New Construction Buildings* (Washington DC: US Green Building Council, 2008), accessed January 31, 2011, <http://www.usgbc.org/ShowFile.aspx?DocumentID=3930>.

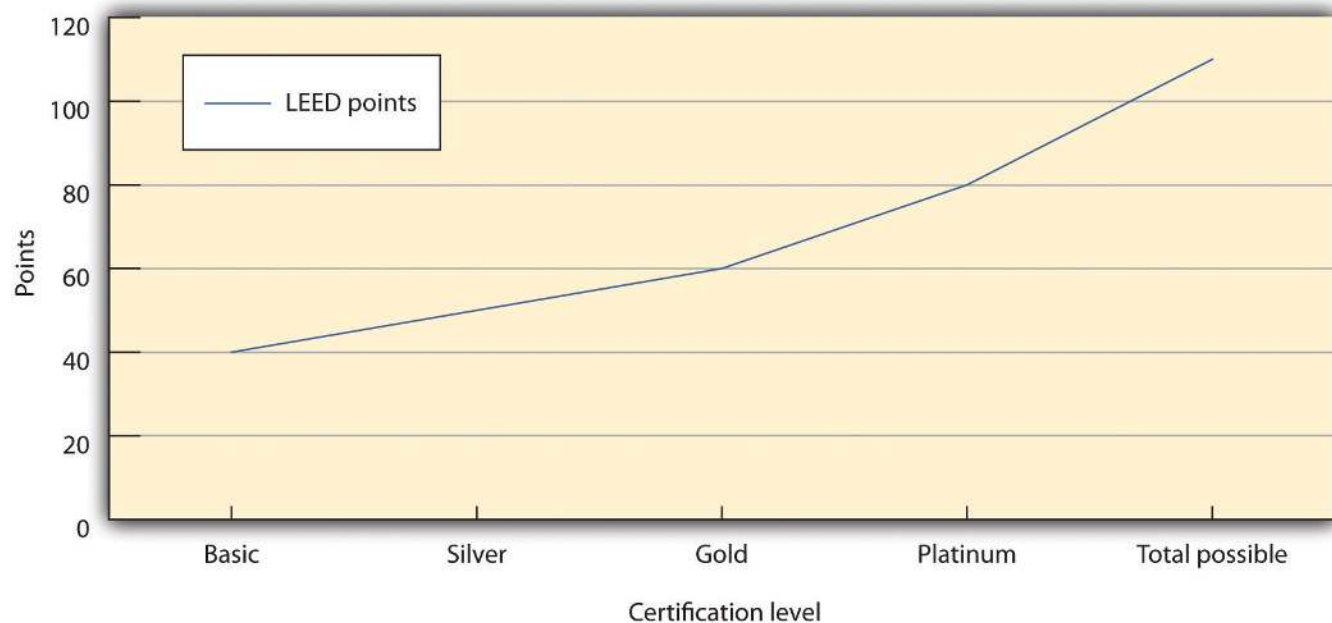


Figure 15.1.11: LEED Certification Levels. Source: US Green Building Council, “LEED 2009: Technical Advancements to the LEED Rating System,” accessed March 7, 2011, www.usgbc.org/DisplayPage.aspx?CMSPageID=1971. These point values apply to all LEED rating systems except LEED for Homes.

LEED 3 was intended to address some of these prediction problems as well as criticisms that LEED could reward, for instance, a building for air-conditioning the desert as long as it did so more efficiently than comparable buildings. LEED 3 added online tools to facilitate planning and certification. It also harmonized criteria among its rating systems for different types of projects and added points to categories that made a larger overall difference in energy use, such as building near existing public transportation infrastructure instead of a more remote location. LEED already had been twice revised prior to LEED 3, and USGBC continues to support LEED as it evolves and expands.

To simplify use and speed adoption, LEED refers to existing industry standards of practice. LEED for Homes specifies ANSI (American National Standards Institute) Z765 for calculating square footage for the Home Size Adjustment. LEED for Operations and Maintenance adheres to ASHRAE (American Society of Heating, Refrigeration, and Air-Conditioning Engineers) standards for ventilation and various American Standards for Testing and Materials (ASTM) standards for lighting and reflectance.

Many credits require submission of a letter signed by the architect, engineer, owner, or responsible party and verification of the claims in language provided by a specific LEED template. To maintain the credibility of the third-party rating system, claims to credits are subject to auditing by GBCI.

Green Building Costs and Benefits

There are multiple aspects of green building cost and benefits. For LEED certification in particular, direct project costs include the administrative costs of the application process and fees, which can run into the thousands of dollars, as well as the financial impacts on building design, construction, and operation, due to implementation of LEED-related measures. These costs should be evaluated in terms of total cost of ownership, including both first costs and operating costs over the building's life cycle. Indirect costs are often harder to assess but are worthy of consideration.

Green building can add little to nothing to total design and construction cost, at least for the lower levels of LEED certification or equivalent green building codes. A study by global construction consultant Davis Langdon in 2006 found “no significant difference in average costs for green buildings as compared to nongreen buildings. Many project teams are building green buildings with little or no added cost to the amount a traditional building costs, and with budgets well within the cost range of nongreen buildings with similar programs.” Davis Langdon, *Cost of Green Revisited: Reexamining the Feasibility and Cost Impact of Sustainable Design in the Light of Increased Market Adoption*, July 2007, accessed January 28, 2011, www.centerforgreenschools.org/docs/cost-of-green-revisited.pdf. Green design may require particular attention and effort in the initial phases, and design costs are generally higher, but more and more firms see green as part of the standard package, not an addition. Other studies of specific buildings by the GSA and various organizations found that green design might cost a few percentage points more but significantly reduced operating costs and improved occupant comfort. Steven Winter Associates Inc., *GSA LEED Cost Study*, October 2004, accessed January 28, 2011, www.wbdg.org/ccb/GSAMAN/gsaleed.pdf; US Green Building Council—Chicago Chapter, *Regional Green Building Case Study Project: A Post-Occupancy Study of LEED Projects in Illinois*, Fall 2009, accessed January 28, 2011, www.usgbc-chicago.org/wp-content/uploads/2009/08/Regional-Green-Building-Case-Study-Project-Year-1-Report.pdf. The City of Portland, Oregon, for example, had eighteen LEED buildings in 2004 and saved more than \$1 million per year in avoided wastewater treatment costs and another \$1 million a year in lower energy bills. Mike Italiano (board member, US Green Building Council), personal communication, March 14, 2003.

In some cases, highly innovative design features might retard both market and regulatory acceptance of green buildings (especially at the local level where green design knowledge may be low), slowing the project timetable and increasing costs. For example, regulators who are unfamiliar with constructed wetlands might doubt their effectiveness as a way to reduce the impacts of storm water runoff. Similarly, the real estate market in some areas, due to a lack of familiarity, might question the value of a geothermal heating system, or condo association rules might prohibit a supplemental solar electric system.

Nonetheless, green building, especially when certified to LEED or another standard, offers many benefits. Environmentally, it reduces the strain on the local ecosystem, conserves resources and habitat, and improves indoor air quality. Economically, green building lowers operating costs, can garner tax incentives, improves public image, can lower insurance costs, improves employee productivity and attendance, and increases market value. Indeed, in a 2008 study, Piet Eichholtz and collaborators compared 700 hundred Energy Star and LEED-certified office buildings to 7,500 conventional ones and found that the green office buildings had higher occupancy rates and could charge slightly higher rents, making the market value of a green building typically \$5 million greater than its conventional equivalent. The report states, “The results show that large increases in the supply of green buildings during 2007–2009, and the recent downturns in property markets, have *not* significantly affected the rents of green buildings relative to those of comparable high quality property investments; the economic premium to green building has decreased slightly, but rents and occupancy rates are still higher than those of comparable properties.” The report also concludes that green certification commands higher rental premiums and asset value at resale: “We find that green buildings have rents and asset prices that are significantly higher than those documented for conventional office space, while controlling specifically for differences in hedonic attributes and location using propensity score weights.” Piet Eichholtz, Nils Kok, and John M. Quigley, *The Economics of Green Building*, 3, 20, accessed January 26, 2011, www.ctgbc.org/archive/EKQ_Economics.pdf.

Given these benefits, green building will likely expand. With so much money on the line, the need for verified environmental performance and design standards will remain strong.

Alternatives to and Criticisms of LEED

Despite growth in the green building market, in 2009, \$42 billion represented less than 10 percent of total building construction. One criticism of LEED is that as a voluntary standard, it does not force enough change fast enough. Public policy analyst David Hart concluded LEED “is inevitably bumping up against its limits” and does not “act assertively to pull along the trailing edge of

'brown building' practice."David M. Hart, "Don't Worry About the Government? The LEED-NC 'Green Building' Rating System and Energy Efficiency in US Commercial Buildings" (MIT-IPC-Energy Innovation Working Paper 09-001, Industrial Performance Center, Massachusetts Institute of Technology, 2009), accessed January 31, 2011, <http://web.mit.edu/ipc/publications/pdf/09-001.pdf>. As more governments and organizations adopt LEED or similar standards because it gives them an established, reliable metric, the market could shift more quickly toward greener construction.

A second persistent criticism of LEED has been that basic certification doesn't represent much improvement over conventional building. As recently as 2010, renowned architect Frank Gehry criticized LEED for crediting "bogus stuff" that doesn't truly pay off. Blair Kamin, "Frank Gehry Holds Forth on Millennium Park, the Modern Wing, and Why He's Not into Green Architecture," *Cityscapes* (blog), *Chicago Tribune*, April 7, 2010, accessed January 31, 2011, featuresblogs.chicagotribune.com/theskyline/2010/04/looking-down-on-the-stunning-view-of-the-frank-gehry-designed-pritzker-pavilion-from-the-art-institute-of-chicagos-renzo-pian.html. LEED certification in this line of reasoning distracts people from more ambitious targets, and the money spent on registration and certification—ranging from about \$2,000 for smaller buildings for USGBC members to \$27,500 for larger buildings for nonmembers—could instead be spent on more environmental improvements. For costs, see Green Building Certification Institute, "Current Certification Fees," 2010, accessed January 31, 2011, <http://www.gbci.org/main-nav/building-certification/resources/fees/current.aspx>; and Green Building Certification Institute, "Registration Fees," accessed January 31, 2011, <http://www.gbci.org/Certification/Resources/Registration-fees.aspx>. For criticism, see Anya Kamenetz, "The Green Standard?," *Fast Company*, October 1, 2007, accessed January 31, 2011, www.fastcompany.com/magazine/119/the-green-standard.html?page=0%2C0. Such fees also mean USGBC and GBCI have an economic stake in making LEED the dominant standard of certification. USGBC has even criticized California's State Building Code for the CalGreen label because USGBC feared the label would create confusion and detract from LEED's value. "California's Building Code Turns a Deeper Shade of Green," *Green Business*, January 14, 2010, accessed January 31, 2011, <http://www.greenbiz.com/news/2010/01/14/californias-building-code-turns-deeper-shade-green>.

Finally, LEED unabashedly focuses on energy use as its main criterion for environmental performance. That has led to criticism from the nonprofit Environment and Human Health Inc. (EHHI) that LEED does too little to keep toxic materials out of buildings. An EHHI report from 2010 urged USGBC to discourage "chemicals of concern" such as phthalates and halogenated flame retardants and to include more medical professionals on its board. A USGBC vice president said he was willing to collaborate with critics to improve LEED, provided the expectations were reasonable: "LEED could say there should be no chemicals in any building and no energy used and no water and every building should give back water and energy. We could do all that, and no one would use the rating system. We can only take the market as far as it's willing to go." Suzanne Labarre, "LEED Buildings Rated Green...and Often Toxic," *Fast Company*, June 3, 2010, accessed January 31, 2011, www.fastcompany.com/1656162/are-leed-buildings-unhealthy. Also Tristan Roberts, "New Report Criticizes LEED on Public Health Issues," *Environmental Building News*, June 3, 2010, accessed January 31, 2011, <http://www.buildinggreen.com/auth/article.cfm/2010/6/3/New-Report-Criticizes-LEED-on-Public-Health-Issues>.

Yet LEED seems to have found just where the market is willing to go. Other certification systems exist but have not attained the status that LEED has. Green Globes, for instance, began in 2000, the same year as LEED, and had an online component from its inception. Green Globes offers a similar performance rating system, and certification is often cheaper than LEED. Green Globes is more prevalent in Canada, but in the United States it is being incorporated as ANSI's official green building standard. Green Globes, "What Is Green Globes?," accessed September 3, 2010, <http://www.greenglobes.com/about.asp>. The US EPA also awards Energy Star certification to buildings in the seventy-fifth or higher percentile for energy use in their category. Builders can apply by designing for Energy Star and completing an online application; actual operating data, however, are necessary to earn the final Energy Star label. Energy Star, "The Energy Star for Buildings & Manufacturing Plants," accessed January 26, 2011, http://www.energystar.gov/index.cfm?c=business.bus_bldgs. There is no fee for certification. Finally, various regional certification programs exist, from EarthCraft in the southeast United States to Build It Green in California. These systems tend to be tailored more specifically to their locations.

Green building has become increasingly desirable. LEED and other certification systems have helped to make it even more desirable by creating trust. Builders, regulators, or the average person can know that LEED certification guarantees a modicum of environmental considerations without having to know a thing about what those are or how they work in the building. LEED in

particular has proven powerful and flexible enough to spread internationally and to undergo frequent revision of its existing rating systems and expansion into brand new ones.

Key Takeaways

- Challenging the building and construction industry and its submarkets with new products and unprecedented supply-chain requirements requires managing not only technology development but also market perception and accepted practices.
- Economic downturns add unique opportunities and challenges for new ventures.
- Meeting third-party standards offers market differentiation.

Exercises

1. Put together an analysis of the major elements of entrepreneurial venturing and sustainability innovation applied to Project Frog.
2. In teams, identify a differentiated and innovative company and interview senior management about their market and how they overcame challenges to convince early customers to accept their product or service.

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15.2: Greening Facilities - Hermes Microtech Inc.

Learning Objectives

1. Compare internal and external impediments to a company's shift toward a sustainability strategy for a new building design.
2. Understand how and why decision participants might end up at cross purposes in implementing green building designs.
3. Identify traits of successful sustainability innovation processes.

The next case is Hermes Microtech. This case was prepared by Batten fellow Chris Lotspeich in collaboration with author Andrea Larson. Andrea Larson and Chris Lotspeich, *"Greening" Facilities: Hermes Microtech, Inc.*, UVA-ENT-0054 (Charlottesville: Darden Business Publishing, University of Virginia, 2004). Case can be accessed through the Darden Case Collection at <https://store.darden.virginia.edu>. Created as an amalgam of various company experiences, this case shows the decision-making complexity of building design and construction. The viewpoints of various participants provide insights into why sustainability concerns change decision processes and therefore can be so difficult for conventional organizations.

Greening Facilities: Hermes Microtech Inc.

Heather Glen's name has been changed. This case is an amalgamation of different business scenarios that case researcher/writer Chris Lotspeich created. The case is not about one single company and none of the names are real; note tongue-in-cheek choice of names. She pushed back in her chair in her office at Hermes Microtech Inc., which gave her a commanding view of the books, binders, notes, and messages piled around her computer. The sunset was fading out over the Pacific, and as the last of her colleagues left, she welcomed the quiet opportunity to contemplate the task before her. Hermes CEO Alden Torus had just approved the most important project in Glen's career to date, and she didn't want to waste any time getting started. Glen had one month to organize an initial meeting of all key participants involved in creating and building Hermes's new headquarters. For the first time, the company would bring together professionals from each phase of facilities design, construction, and operation to initiate project planning, and Glen would run the meeting. Although she was not the construction project manager, Glen was going to try to change the way her company built and ran its facilities to make them more environmentally friendly—and in the process transform the company itself.

Much had happened in the eighteen months since Glen had been appointed special projects coordinator by Sandy Strand, Hermes's executive vice president of environment and facilities (E&F). Strand had asked her to lead efforts to make environmental quality a higher priority in the company's buildings and facilities, a goal the CEO shared. Glen's work in implementing energy-efficiency improvements at one of their microchip factories had produced mixed results. She learned a great deal about the technical potential for improvement from that pilot project, but her most valuable lessons concerned the organizational dynamics of the design-build effort. She realized that the most important factors for success—as well as the greatest challenges—lay in renovating the decision-making process rather than in different design and technology choices.

As dusk fell and the cubicles outside her office sank into shadow, photo sensors increased the brightness of the fluorescent light fixtures above Glen's desk. She sipped another mouthful of coffee to stave off any drowsiness that might follow the meal she had just shared with Torus and Strand. Torus had called the dinner meeting to discuss how best to make the company's next planned facility an environmentally friendly or "green" building. He wanted that to happen because he believed it would benefit the company, and he had supported Strand and Glen's efforts. Yet Torus knew it would be a challenge to change the way the organization went about the design-build process.

"I am realistic about the constraints on my ability to effect change on this topic," Torus had told them. "My time and attention are consumed with more traditional core business issues. I can make it clear to others that I support the goal of environmental improvements, but I need to rely on you to make it happen." Torus asked Strand and Glen to suggest how best to proceed. He liked Glen's proposal that everyone involved in the full life cycle of the building join in an initial integrated design workshop to initiate the project. "I can't spare the time to attend the full meeting, but I can kick it off with introductory remarks," Torus said to her. "Send me a one-page memo with the three to five most important things you want me to say."

After dinner, Glen had returned to the office to draft an e-mail invitation to workshop participants. In her mind's eye, she saw their faces, and reviewed their roles in the project and in the greening efforts to date.

The Hermes Story

Hermes was a medium-sized microelectronics manufacturer based in California's Silicon Valley. The company started as a military contractor but grew to focus on consumer electronics through a series of mergers, acquisitions, and spin-offs. It made a mix of microchips spanning a range of capabilities and applications, from complex and costly chips for personal computers and cellular phones to simpler, cheaper devices for consumer appliances and automobiles. Hermes was essentially a component maker; almost all its customers were original equipment manufacturers (OEMs). Its ten manufacturing facilities, three R&D laboratories, and twenty sales offices in the United States, Europe, and Asia employed ten thousand people and generated annual revenues of \$1 billion, with a net profit of \$100 million.

Hermes CEO Alden Torus had been with the company since its founding twenty-five years earlier. The son of immigrants, he had started in the product development department and worked his way up through the ranks. Torus was an effective and charismatic engineer with a good head for business strategy and an encyclopedic memory for detail. He epitomized the corporate culture at Hermes: hardworking and production focused, he put in long hours to help develop and launch new products. Torus understood the importance of the first-mover advantage in the fast-paced microelectronics industry. Innovation was highly valued at Hermes, and product R&D was a spending priority.

Microchip Market Dynamics

Microchips were a commodity, competition was stiff, and profit margins were relatively narrow. The industry's business cycle was highly variable, typified by regular and significant swings in price and profits. The driving influence was the rapid pace of technological development, characterized by Moore's Law, which says computing processing power doubles every eighteen months. Racing each other as well as technical evolution, makers churned out increasingly sophisticated products, shrinking both transistor sizes and product development periods. Time to market was a critical competitive factor. The time available for new product launches did not often exceed eighteen months, including process and yield improvements. The sector was sensitive to macroeconomic conditions, particularly consumer spending. More than 85 percent of Hermes's revenues came from chips embedded in consumer products.

Another influence on supply and demand fluctuations was the uneven or "lumpy" process of step function increases in production capacity. Microchip manufacturing was capital intensive, and new fabrication facilities—"fabs"—took many months to bring online. When chip demand rose far enough, competing manufacturers responded quickly and invested in new capacity. Those fabs tended to come online at about the same time; the surge in supply depressed prices, inventories built up, and the market slumped. Eventually demand and prices rose again, followed by a new round of investment in manufacturing capacity for the latest products.

Chip fabs were costly and complex. Microchips were made on silicon wafers in a series of steps that were carried out within high-tech devices called tools, each of which cost millions of dollars. The tools operated inside carefully climate-controlled environments called clean rooms. Microelectronics production was very sensitive to disruption and contamination by microscopic particles. Line stoppages could ruin production batches and cost more than \$1 million dollars per day or as much as tens of thousands of dollars per minute for some product lines. Clean rooms were isolated seismically from the rest of the fab on dedicated support pillars, so that vibrations from minor earthquakes or even nearby truck traffic did not disrupt the tools. Process water was deionized and highly filtered before being piped into the clean room and the tools.

Fabs had extensive HVAC systems with high-performance filters to maintain the clean room's temperature, humidity, and quantity of airborne particulates within stringent parameters. The air handlers, fans, pumps, furnaces, and chillers were located outside the clean room and delivered conditioned air and cooling water into the clean room via ducts and pipes. Those HVAC systems typically made up 40–50 percent of a fab's electricity consumption. Fab electricity use ranged from three million to fifteen million watts or megawatts (MW), depending on the size of the facility.

The Evolution of Hermes's Environmental Strategy

Microchip manufacturing involved numerous hazardous materials, toxic emissions, and energy-intensive processes. Maintaining worker safety and managing pollution was a critical function. Potentially dangerous emissions were highly regulated and strictly controlled. Traditionally, environmental health and safety (EHS) management and strategy had focused on end-of-the-pipe problems and solutions, such as treating acid-contaminated exhaust air before it was released into the atmosphere. More recently, increased attention and effort had focused on pollution prevention strategies that reduced dangerous emissions by changes in

production processes. Such strategies could meet regulated emissions control requirements at less cost than end-of-the-pipe methods and often yielded economic benefits through waste reduction and other manufacturing improvements. Hermes's environmental activities were representative of the industry in that regard. In the mid-1990s, Hermes consolidated the EHS department and the maintenance department into one E&F department.

CEO Alden Torus did not pay much attention to environmental issues during most of his career. Like most of his colleagues, he regarded pollution control as a cost of doing business, driven by compliance with ever-increasing government regulations. He considered such matters to be the responsibility of the environment and facilities department but neither a high priority for senior management nor a central element of corporate strategy. He maintained that perspective during his tenure as VP of production and his early years as CEO.

Torus's perspective began to change when his young son developed a rare form of cancer. During the course of his son's treatment, he discovered that several other children in his neighborhood had the same type of cancer. His teenage daughter was passionate about environmental issues and had often complained about the extent of environmental contamination in Silicon Valley, asking her father to do something about it. Chemical feedstocks and by-products of electronics manufacturing had contaminated groundwater at more than one hundred locations. Santa Clara County had twenty-nine federally designated "Superfund" toxic waste sites, the highest concentration in the nation. Torus began to wonder if that had anything to do with his son's illness. His son recovered after long and difficult treatment, but other children with the same disease died. Although no link to any specific chemical or site was established, that family crisis prompted Torus to rethink his views on industrial pollution.

Prompted by his children, Torus began to explore new perspectives. His friend Sandy Strand, Hermes's VP of E&F, had long been interested in the potential business opportunities described by leading advocates of the integration of ecology and commerce (see Figure 7.12 for an organizational chart). Strand introduced Torus to the writing of such thinkers as Paul Hawken, Amory Lovins, and William McDonough and the work of organizations such as The Natural Step, the Coalition for Environmentally Responsible Economies, and the World Business Council for Sustainable Development. Torus learned about new business tools and strategies, including environmental management systems, green design, and industrial ecology. He heard from other CEOs about businesses in a wide range of industries that were finding profit and competitive advantage through innovation and collaboration with leading practitioners. Soon Torus joined Strand in the belief that Hermes could realize many business benefits by incorporating more environmental and social factors with traditional economic considerations into what author John Elkington called a new "triple bottom line."

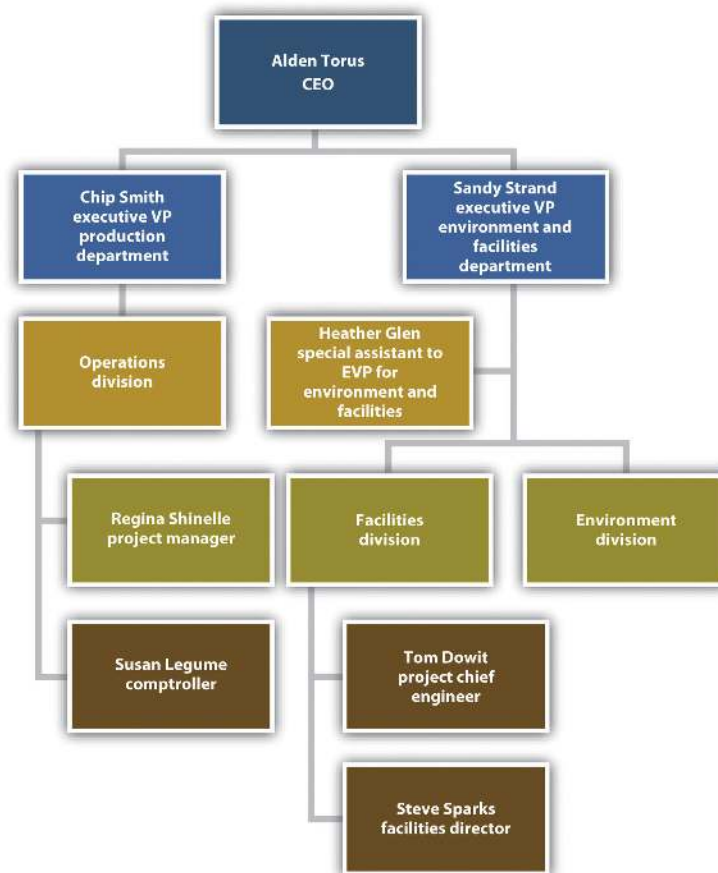


Figure 15.2.1: Hermes Microtech Organizational Chart (Partial)

But where would they begin? Torus and Strand shared a long-term view of the transitional process of moving their industry (and the world economy) toward the vision of a more sustainable condition. Neither man advocated rapid change without regard to cost. They continued to believe that their priority was economic success and that building the business case for green business initiatives was essential. They recognized that they were well ahead of most of their colleagues on those issues and were pragmatic about the potential scope and pace of change, particularly within the managerial constraints of executive responsibility in a publicly traded company. They had limited time and attention to devote to a new strategic initiative, capital resources were perpetually constrained, and the company lacked experience with many of the promising approaches. Yet they wanted to start somewhere—and steadily, if slowly, develop momentum for organizational change.

Hermes's Green Initiatives

Torus began by sharing his vision of the future with the company and the public and declaring his support for prudent green business initiatives. His advocacy did not require much of his time, but it provided crucial top-level support for the employees who would carry most of the responsibility for project implementation. Initial efforts would pursue incremental improvements toward clear, measurable objectives. Those efforts would be supported by education and training, recruitment of skilled staff, and outside expertise where necessary. Hermes had built its success on innovation and rigorous quality management.

Torus set two initial priorities: (1) development of a new, more environmentally friendly line of chips and (2) a 20 percent improvement in energy and water efficiency over five years. Those programs would have to pay for themselves within five years.

The green chip project would be implemented by the R&D and operations divisions of the production department, headed by Executive VP of Production Christopher “Chip” Smith. In addition to traditional areas of performance improvement, the new microprocessor had a design goal of using at least 15 percent less electricity than the previous model, which would appeal to OEM buyers and consumers because it would extend the battery life of portable devices such as laptops and cell phones. Manufacturing

process improvements would reduce waste and toxic pollution. Hermes would advertise these attributes to differentiate their product, attract environmentally conscious consumers, and boost sales, thereby (hopefully) paying for the effort.

The energy and water efficiency effort would be implemented by the facilities maintenance division of the E&F department and the operations division of the production department. The program would pay for itself through avoided costs. The program would be headed up by Heather Glen, then a special assistant to Strand. At the time, Glen was a bright young electrical engineer and recent MBA graduate who had sought a position with Hermes because she had heard about the company's greening efforts and wanted to work in that field. She had been at Hermes for one year and had spent most of that time pulling together an overview of all its fabs' environmental performance and energy and water use. She had also initiated a pilot program to save energy through lighting retrofits at the company's headquarters and two other office spaces, which were successful though small in scope.

Initial Efforts: The F3 Fab Energy Survey

Strand hired a team of consultants led by Rocky Mountain Institute (RMI), a nonprofit research and consulting organization. He had seen a lecture by Amory Lovins, RMI's CEO and a resource efficiency pioneer, in which Lovins described RMI's energy-efficiency work in fabs that saved up to half of the HVAC energy cost-effectively. He invited Lovins to meet with Torus, who agreed to a pilot effort at Hermes's F3 fab near Dallas, Texas. Glen was designated project coordinator and liaison with RMI.

F3 was chosen because it was one of the most energy-intensive fabs in the company, water costs were relatively high, and a significant expansion was planned. The facility was built in the early 1970s by another firm and had been acquired by Hermes in the late 1980s. A renovation called Phase I was done in the late 1990s to accommodate a new production line, with only minor changes to the original HVAC system. A new addition was planned with another clean room and dedicated HVAC utilities, called Phase II. The initial drawings for Phase II had been completed by Expedia Design Company, Hermes's long-standing architectural and engineering design vendor. EDC was a fab design vendor to several firms in the industry and had a reputation for speed and competitive fees.

The RMI consulting team was led by Bill Greenman, an architect with an MBA and a background in green design. Technical services were provided by Peter Rumsey and John Blumberg from Rumsey Engineers, an engineering design firm and frequent RMI partner that specialized in energy-efficient HVAC systems for clean rooms and green buildings. Their objective was to briefly survey F3 to identify existing opportunities for improvement and conduct a streamlined design review of Expedia's plans for the rehab. The deliverable was a report with a list of recommendations that would be practical but general in nature, rather than a detailed engineering study based on performance measurements. The report would not include design plans or payback calculations. That introductory visit was intended to identify potential areas of improvement for further investigation and to provide an opportunity for the company and the consultants to learn more about each other. The limited scope of work also kept the consulting fees low.

Glen had been to the F3 site only once before, although she had worked with its facilities staff on her energy performance assessment. She flew from the company's headquarters in the Silicon Valley to Texas and met the RMI team there for the two-day survey. The team spent the first morning describing their approach and being briefed on the facility. They then toured the site for the rest of that day and much of the second, working with the chief engineer and facilities staff to understand HVAC and controls systems, water use, and operating procedures. At the end of the second day, the team presented its initial conclusions and recommendations in a meeting attended by facilities staff, the site's general manager Regina Shinelle, Expedia's Phase II project manager Art Schema, and Strand, who flew in for the occasion.

The RMI team estimated that low- and no-cost changes to F3's current operations could save up to 10 percent of the HVAC electricity almost immediately, such as utilizing evaporative "free" cooling in dry periods by operating all the cooling towers in parallel at low speed to reduce reliance on electric chillers. Another 15–25 percent savings were attainable with modest retrofit investments and estimated paybacks of two to three years, including pumping and fan system upgrades. Significant investments could reduce site HVAC energy use by more than 50 percent, requiring changes to Expedia's Phase II design to allow consolidation of the two clean rooms' independent process cooling systems into a centralized plant serving both buildings. The estimated payback period would be at least five years if it were to be conducted as a retrofit, once Phase II had been completed, or much sooner if combined with proposed Phase II energy-efficiency improvements.

The RMI team noted that significant opportunities for energy efficiency were not captured by the current Phase II design. These included larger low-friction air handlers with smaller fan motors and variable-speed drives, high-performance cooling towers, heat-reflective coatings on rooftop air intake ducts, and upgraded sensors and controls. Such measures would decrease HVAC energy use and cost by 30 to 60 percent, with paybacks ranging from immediate to several years depending on the measure. They would also increase construction costs, although some component capital costs would fall due to smaller equipment such as motors and chillers. The extent of this proposed redesign would be significant and would take weeks or even months.

With the exception of the centralized cooling plant, most recommended measures would not interrupt production and involved no intrusion into the clean room space. All the suggested methods had been demonstrated within the industry but not all in one place, and few had been tried within Hermes. RMI suggested that Hermes establish energy performance benchmarks to be used as guidelines for both existing fab operations and new design specifications.

Rumsey Engineers' Blumberg worked on water efficiency measures and proposed a method for reclaiming wastewater for evaporative cooling. But when he investigated techniques for reusing some of the acid rinse water that drained from a tool, the production manager rebuked him for interfering with manufacturing matters and the idea was dropped.

The Phase II review also noted that Expedia's design was an almost exact replica of another Hermes fab that was more than ten years old, which itself was based on blueprints from the 1970s. That became apparent when the team asked about a piping diagram showing an unusual zigzag in midair, and a facilities engineer named Steve Sparks replied that there was a structural pillar in that location in the fab these plans were drawn from—a pillar absent in Phase II. It did not appear to the RMI team that any performance improvements had been incorporated into the successive iterations of that design.

Such “copy exactly” practices were common in the microelectronics industry. Microchip manufacturing was extremely complicated. The sequence involved thousands of process variables and chemical interactions that were so complex as to defy full comprehension. Performance parameters and specifications were exacting, as minor deviations could be disastrous, and if problems occurred they needed to be isolated and identified. Time-to-market deadlines were unforgiving, and meeting them required an extraordinary level of control over process variables. Therefore, when something worked, it was copied exactly. A pilot production line for new product development was essentially “cloned” in numbers to create a high-volume manufacturing facility. That mindset shaped all aspects facilities design, even areas outside the clean room that did not require such stringent inflexibility. “Copy exactly” reduced fab design effort, time, and cost but also hindered the adoption of technological and process improvements, including energy-conserving features.

Implementation Challenges

A few weeks after the survey in Texas, RMI and Rumsey Engineers submitted a brief report (see Table 7.3) summarizing their observations and recommendations, which was circulated at the site and among senior management including Strand, Torus, and Smith. Meetings were held to discuss the recommendations and strategies for implementation. The reactions were mixed.

Table 7.3 Executive Summary of Recommendations from Rumsey Engineers' Review of Baseline Ventilation System Design for Hermes Office Building Renovation

Specifications	Baseline Design Criteria	Proposed Design Criteria— Larger Ducts	Proposed Design Criteria— Larger Ducts and Lower Face Velocity Air Handler
Duct spec	Avg. diameter is 36 in.	Avg. diameter is 40 in. Increase duct area 20% (reduce external pressure loss by 36%).	Avg. diameter is 40 in. Increase duct area 20% and increase air handler size (reduce total pressure loss by 36%).
Design face velocity (fpm)	500	500	400
Design flow (cfm)	50,000	50,000	50,000
Design total static pressure (in.)	4.5	3.6	2.9
<i>Internal pressure loss (AHU; in.)</i>	2	2.0	1.3
<i>External pressure loss (ducting; in.)</i>	2.5	1.6	1.6
<i>Fan efficiency (%)</i>	70	70	70
<i>Motor efficiency (%)</i>	90	90	90
Operating face velocity (fpm)	500	400	400
Operating flow (cfm)	50,000	32,500	32,500
Operating total static pressure (in.)	4.5	2.0	1.7
<i>Internal pressure loss (AHU; in.)</i>	2	1.1	0.8
<i>External pressure loss (ducting; in.)</i>	2.5	0.9	0.9
<i>Fan efficiency (%)</i>	70	70	70
<i>Motor efficiency (%)</i>	90	90	90
Motor HP	60	50	50
Motor VFD	No	Yes	Yes
Annual operating hours	3,560	3,560	3,560
Annual energy use (kWh)	149,000	44,000	37,000
Annual energy cost (\$)	22,350	6,500	5,550

Assumptions:

Building Size = 50,000 square feet (SF)

Design CFM = 50,000 cubic feet per minute (cfm)

Operating CFM = 32,500 cfm for proposed design (with VFD); 50,000 cfm for base case (without VFD)

Operating hours per year = 3,560 (10 hours per day)

	Case 1	Case 2	Case 3		
	Baseline design	Proposed design— larger duct case	Proposed design cost (or savings)	Proposed design— larger duct and larger air handler case	Proposed design cost (or savings)
Capital costs					
Duct cost (\$)	120,000	130,000	10,000	130,000	10,000
Fan motors VFD cost (\$)		10,000	10,000	10,000	10,000
Air handler cost (\$)	60,000	60,000	0	63,000	3,000
Marginal cost (\$)			20,000		23,000
Operating costs					
Fan motor energy cost/y (\$)	22,350	6,500	(15,850)	5,550	(16,800)
Payback			$\$20,000 \div \$15,850$ per yr. = 1.3 yrs.		$\$23,000 \div$ $\$16,800/\text{yr.} = 1.4$ yrs.
ROI			$\$15,850 \div \$20,000$ = 79%		$\$16,800 \div \$23,000 =$ 73%

The RMI team had been greeted with initial skepticism by the site's facilities staff members, who were wary of outside interference, had never heard of RMI, and were confused about the unusual nonprofit-corporate consulting partnership. Chief Engineer Tom Dowit had been a particularly reluctant participant. It was rumored that Dowit had called the survey "just another far-fetched scheme of those environment division idealists" that was going to cost his facilities division money and distract him from his primary job of ensuring that the production division could maximize output. He was openly skeptical during RMI's initial presentations, although as the survey progressed, he grudgingly acknowledged the value of some of the team's observations, stating at one point that he would have made some of the same improvements if he'd been given permission and funding. But he grew defensive—and at one point openly derisive—during the final presentation as the team described opportunities to save tens of thousands of dollars.

Glen realized that Dowit might have feared that the consultants were making him look bad by finding large cost savings he had not uncovered himself in recent years. But she also understood why he might have taken a highly cautious approach to new techniques. The facilities engineering staff had a difficult job, with a great deal of responsibility for maintaining highly complex and sensitive production equipment. They had limited input into tool selection and operation, yet when something went wrong, they often got the blame. The facilities department budget was constantly squeezed, pressuring engineers to cut corners. Many production managers viewed facilities as an overhead cost center that played a subordinate support role to manufacturing's revenue generation.

The rest of Dowit's staff agreed that many of the recommendations were technically feasible and had already successfully implemented some operational changes since the visit. Their initial skepticism about "a bunch of academics who were coming here to write on blackboards and waste our time" subsided over the course of the survey as the RMI team's skills became apparent, and most people quickly came to respect the consultants' abilities and ideas. The staff would need additional money for retrofits to capture further savings. A few of the consultants' ideas had been suggested in the past by site facilities staff, including measures used at other Hermes fabs, but most had been rejected because they did not meet the site's requirement that retrofit investments have a maximum payback period of eighteen months.

Facilities Engineer Steve Sparks enthusiastically supported the energy-efficiency efforts and confided in Glen. He lamented the inefficiency of F3's older equipment, pointing out that Dowit kept it running on a "shoestring budget." Dowit blamed the spending constraints on the comptroller, but Sparks suspected that Dowit was also currying favor with the production department by minimizing O&M spending. Sparks had worked at another fab just after Dowit had left there as chief engineer (the same facility Expedia had used as a template for Phase II). Sparks thought that Dowit's cost cutting might have helped him get promoted to this position at F3, but it had also run down the mechanical systems and left his successor with deferred upkeep costs. "To be fair," Sparks added, "Dowit is not unusual in this careful approach, he's good at it and he has been rewarded for it. This is typical of the facilities culture at Hermes."

F3 General Manager Shinelle had little interest in any project that diverted attention from production and no interest in slowing down the Phase II expansion. She did not meet the RMI team until their final presentation and did not say much then or in subsequent meetings; what she did say tended to agree with Dowit. "This facility works, and energy is 2 percent of the cost of our chips," she said. "I can't spend time worrying about it. We need to use our limited investment capital to get new, high-quality products quickly to market." Glen had the impression that Shinelle participated only reluctantly and would not have done so at all if it wasn't clear that Strand had requested she host the pilot energy survey. Ultimately, Shinelle agreed to direct Dowit's staff to select "a few" of the more cost-effective measures that met the site's eighteen-month payback criteria, and she would approve those facilities funding requests.

Nevertheless, Shinelle refused to make any changes to the Phase II design that would slow the project timeline. Nudged by Strand, she directed Dowit to check with Expedia and see if there was still time to order more efficient motors than the inexpensive but relatively low-efficiency types specified in the design—as long as the cost premium did not exceed 10 percent. "The production division can't afford to pay more for this expansion," she insisted. "We lose tens of thousands of dollars of sales revenue every week that we delay getting Phase II manufacturing up and running. We have to stay within budget and on schedule." Glen understood that Shinelle's annual performance bonus was probably tied to that very achievement and that in any event the facilities division would be paying the utility bills.

Expedia's Art Schema had been unsure how to respond to the design review comments during the on-site presentation. Although his primary clients Shinelle and Dowit seemed to think that the RMI team's input wouldn't change much if anything about Phase II, Schema could see that Strand supported the consultants' efforts. Schema limited his comments to polite expressions of interest in the findings and promised to give them detailed consideration.

Within a week of receiving the RMI report, Schema sent a critique of the design review to F3, and Shinelle e-mailed copies to Glen and Strand. Expedia's point-by-point response acknowledged the merit of a few of RMI's suggestions but dismissed most of the recommendations as too costly, impractical, or impossible. The tenor of the response was that half of RMI's recommendations were off-base and the other half were nothing new to Expedia. Schema's cover letter read in part: "Expedia provides superior reliability and security. Our architects and engineers have built our close relationship with Hermes by delivering economical designs that work, as proven in previous projects. We leverage our skills and experience to consistently deliver low bids and rapid turnaround times, which benefit both Hermes and Expedia. We are open to discussions about changes to design criteria at any time with you, our valued clients."

Shinelle defended Expedia's approach and service in her attached e-mail. "Expedia has always been there for us and has never let us down. They have played a key role in Hermes's agility and speed in product development and launch. Let's not mess up a good partnership with untested ideas." It occurred to Glen that both Shinelle and Smith had risen through the ranks of the production department boosted by reputations as star managers of fab construction projects—success stories that Expedia had helped build. In addition, Shinelle's product quality and yield record at F3 was unmatched across Hermes's manufacturing sites for its consistency, and she had a reputation for bringing new products to market very rapidly.

Mixed Results

Six months later, Glen and Strand regarded the F3 survey as only a partial success. On the upside, technical results were positive. F3 facilities staff had successfully implemented most of the RMI team's low- and no-cost recommendations. Sparks and his colleagues were impressed by the new techniques, welcomed corporate-level support for investment in system improvements, and were openly supportive of the energy-efficiency efforts. They convinced Dowit to request that the RMI team return to conduct more detailed analysis of some of the more involved recommendations. The fact that Torus had mentioned the pilot effort at F3 in a

companywide webcast address, praising the site manager and chief engineer's efforts, helped their cause. But unlike the first visit, which was underwritten by Strand's office, subsequent fees would have to come from the site's operating budget. Shinelle agreed to allocate them in principle but said no such expenditures could be undertaken until the following quarter at the earliest.

On the downside, F3's Phase II expansion project went ahead as designed. Some motor efficiency upgrades were incorporated at the last minute at minimal extra cost, but the scramble to change equipment orders at a late stage in a tight schedule resulted in some grumbling by Dowit and Schema.

Strand's environment department had engaged the RMI team to conduct similar general surveys at two more sites in Oregon and the Silicon Valley, accompanied by Glen in each case. The visits occurred three months after the F3 survey, and the team's recommendations had been submitted but not acted upon. Those visits had paralleled the experience at F3. The team worked with facilities division staff on energy improvements that did not risk interfering with production. (Manufacturing water efficiency was no longer investigated following Blumberg's rebuke at F3.) Technical efficiency opportunities were similar; so, too, were the political dynamics. Some facilities staff members were skeptical, but receptivity increased as awareness of the RMI team's capabilities spread by word of mouth and direct experience. Production staff members were more wary; the word going around the department was that the energy program was an expensive nuisance.

Expedia seemed to be torn about the energy program. Its design work was directly challenged by the consultants' critiques, its managers' personal networks and alliances were aligned with Hermes's production department (the one that hired it), and its designers were not keen to devote a great deal of effort to restructure its cost-effective copy-exactly approach. However, Expedia also wanted to please its client and recognized that Hermes's CEO was interested. Glen noted that Art Schema, the Hermes account manager at Expedia, had avoided directly criticizing the RMI team's work—that had been left to subordinates—and had signaled his openness to discussing new frameworks for doing business. In a brief aside as a meeting broke up, he told Glen, "We can design more energy-efficient systems; Hermes has never asked us to."

The Change Agent's Dilemma

Glen saw her task as essentially intrapreneurial. She was trying to harness resources to realize a new vision of the future. She marveled at how difficult it was to be innovative even in a company built around the creation of new ideas, techniques, and products. She faced a big challenge in trying to change business as usual, pushing against a persistent headwind of inertia and resistance to new methods. The semiconductor industry was typified by a very cautious and conservative corporate culture, stemming from exacting technical and process requirements, safety risks posed by hazardous materials, the high cost of downtime, and brutal competition in a fast-moving marketplace. (It wasn't for nothing that Intel CEO Andy Grove's book was titled *Only the Paranoid Survive*.)

Glen had to persuade many people to change the way they did things, both with different departments at Hermes and with outside vendors. She sometimes felt like an outsider herself during the site visits; even colleagues from the facilities division of her own department viewed her as an environment division staffer from the corporate office. Glen was grateful that the RMI team could back up its claims with practical expertise. Her position afforded little formal authority to dictate change, although executive endorsement lent her informal authority, and her training provided only limited credibility with facilities engineers. The RMI team lacked authority but was building credibility with demonstrated skills, one site survey at a time, complementary to her strengths.

Her colleagues knew she had Strand and even Torus backing her, but executive time and attention was very limited, she was left to her own means to manage the process and implement change. Glen sensed that the production-focused skeptics in the opposing camp would respond positively to the energy program when she or Strand were present but would then return to the status quo as soon as the efficiency advocates weren't looking, hoping they could wait it out until the CEO retired and the issue dissipated. She recalled the Chinese saying about that attitude among middle management: "Heaven is high and the Emperor is far away."

A New Opportunity: The Green Headquarters Building

Despite his authority as CEO and personal credibility as a successful manager and leader, Alden Torus could not afford to dedicate much political and social capital to any efforts not directly focused on commercial success. Yet his interest in sustainable business opportunities remained strong, and he wanted to choose his interventions carefully to provide the greatest leverage for change. If he was going to risk his reputation and get out ahead of his colleagues on an unfamiliar issue, he wanted it to count. He was pleased with the early phases of the energy and water efficiency efforts, although it was becoming clear that the process of organizational

learning and transformation would not be rapid. He wanted to expand awareness of—and attention to—environmental dimensions of commerce that went beyond using resources more efficiently.

One strategy under consideration was to establish companywide emissions reductions targets for gases that contributed to climate change. Specified targets could provide coherence to energy-efficiency efforts across the company's facilities and prevent individual sites from "cream skimming" only those opportunities with the most attractive paybacks—an approach that often rendered longer payoff measures uneconomic under current investment criteria. Torus suspected that bundling projects for investment would increase the average payback periods but yield larger overall emissions reductions. Internal emissions trading might further reduce the total cost of such efforts by directing funds to the highest-leverage opportunities.

Torus saw a good opportunity in the company's decision to consolidate the corporate headquarters and western US sales offices into one location. He asked the board of directors to support construction of a green building and invited RMI's Lovins and Greenman to the board meeting to describe the potential benefits. Green buildings used more environmentally friendly materials and design and construction practices and typically reduced utility bills by as much as 50 percent through energy and water efficiency. They did not have to cost more to build than conventional buildings, although they required careful design attention. The board was intrigued by research indicating that worker productivity typically increased in green buildings by an average of 5 percent, which would be even more valuable to the company than eliminating the utility bills entirely.

"But what constitutes 'green' building?" the board asked. Lovins and Greenman had said that each project was unique, and there were no simple standards to apply to a design, no Band-Aids that would make it green. However, third-party accreditation was available through the LEED rating system established in 2000 by the US Green Building Council (USGBC), a respected consensus coalition of stakeholders from all aspects of the building industry. LEED certification required that best practices be used in certain core aspects of building construction and operation. It provided a list of techniques and practices, most of which were rooted in existing industry standards. Designers and builders could incorporate features chosen from this menu of options to earn points toward certification. LEED provided a framework for action with defined objectives and established criteria for what was "green." USGBC data from scores of completed projects indicated that the basic level of certification added 0–5 percent to a building's initial cost (not factoring in typical operating cost savings), and the primary factor in that variability was the skill and experience of the design-build team. LEED was well received in the industry, grew rapidly, and within three years of its release was being applied to more than 5 percent of all planned commercial and institutional construction and major renovation projects in the United States.

The board approved the project. Torus believed the building would provide a potent educational symbol of the business benefits of green design and serve as a tool for organizational learning. He thought it likely that the new headquarters' innovative design approaches would appeal to Hermes's corporate culture, particularly that of the production department. He liked the idea that strategic planning and new product conceptual development would occur in a unique facility.

As with other Hermes facilities, the new office building development was being managed by the production department. (Most Hermes buildings projects were production related, so to simplify administration the production department oversaw all new construction.) Torus had decided to make the new headquarters a green building after the project had already begun. The plan had been to completely renovate a four-story, fifty-thousand-square-foot office building in the Silicon Valley. The project management team had been designated, and the design and construction contractors had already been chosen based on their conceptual design: Hermes's traditional partners, Expedia Design Company and Advanced Building Services (ABS). Art Schema was the Expedia project manager, and William Ditt was the ABS construction manager. Both had worked extensively with Hermes facilities in the past but had minimal experience with green building techniques. The next project milestone was to be a review of Expedia's initial plans for the building core and utilities, but Torus had put the process on hold when he decided to seek board approval to make the renovation a LEED building project. It was not too late to change the design to meet that new objective.

Torus decided to build on both the momentum of the energy-efficiency program and RMI's program. RMI and Rumsey Engineers would be retained as design consultants, based on their growing credibility in the company and reputation as leaders in the green design field. Glen was tasked with leading the greening effort toward the goal of attaining LEED certification and continuing her role as liaison to the RMI team.

Executive VP of Production Chip Smith had chosen Regina Shinelle as project manager and Tom Dowit as chief engineer. Glen could not help wondering whether that was a positive development and what Smith's true intentions were. Smith had not revealed much about his opinion of the greening efforts; although he acted supportive in Torus's presence, on most issues he embodied the

production department's perspective. Now Glen would be working with the two people who had presented the most stubborn resistance to her efforts and who did not share her priorities. If the renovation failed to attain LEED certification or performed poorly, it would be a major setback to the sustainability program. But if the collaborative effort resulted in an economical, high-performance LEED building, it would bring positive recognition to all participants and perhaps create greater buy-in for sustainability efforts among the skeptics companywide.

Glen was pleased that Steve Sparks had been named facilities director for the new headquarters. He had been the most enthusiastic supporter of the efficiency efforts at F3, and his persistent efforts had played a key role in successful implementation of the recommended measures, despite more hesitant colleagues. Glen had suggested to Strand that Sparks would be an ideal internal candidate for the position. Sparks was excited about the promotion and the opportunity to be more involved in green design.

Greening Strategies

Glen's primary proposal as the project's sustainability coordinator was to arrange an integrated design process called a charrette. This multidisciplinary-facilitated meeting would bring together project participants, stakeholders, and outside experts in the same room (often around the same table) at the earliest practical point in a project. The goal was to clarify desired outcomes, identify obstacles, and devise strategies for attaining the best overall result. That integrative process helped participants to understand their differing perspectives and incentives, exchange ideas, build trust, work out problems, and create consensus. The approach took some time, but the investment of extra effort could significantly improve plans and specifications, streamline construction, reduce total costs, and increase building performance. "An axiom of design is that all the big mistakes are made on the first day," Greenman told Glen. "Most of a building's life-cycle cost is determined by the tiny fraction of the budget spent on initial design. Carpenters know it makes sense to measure twice and cut once. A charrette helps us to do that."

The charrette was to last for two days and would be held in Hermes's R&D center conference facilities. Hermes R&D staff had used similar techniques for product design, but it had never been tried in a facilities project. Participants commented that never before had all the parties spanning the service life of a Hermes building project met together simultaneously.

The meeting would begin with team introductions, followed by presentations on green design and LEED by the RMI team (which had obtained excellent results in past charrettes). Glen planned to describe the list of LEED requirements and the credit areas that she thought were best suited for exploration. There were several areas she identified as readily achievable and many more worthy of deeper exploration. The group would pick an initial set of LEED credit areas to pursue. That would take much of the first day.

The most detailed technical subject would be a collective consideration of HVAC design alternatives. Rumsey Engineers had reviewed the preliminary design drawn up by Expedia before the green objectives were set—now called the baseline case. Rumsey had submitted a proposal outlining recommendations for increasing the ventilation system efficiency. It involved spending more money on construction to save money on operation. The executive summary of recommendations and estimated costs and benefits was to be circulated to each participant. That discussion would begin on the first day and carry over to the second day if necessary.

The last and most difficult topic, but perhaps the most important, would concern potential policy and procedural changes that might foster more efficient facilities investments. Hermes's traditional approach to requiring, financing, designing, building, and operating its facilities was functional but not optimal. The energy-efficiency program of retrofit improvements had proven that there was widespread waste of energy and capital within the company's facilities. It had also highlighted aspects of the process that hindered improvement. It was in the interest of management and shareholders to create a more efficient process.

Most of those issues were not unique to Hermes but were characteristic of the industry. Buildings were made in a collective but not well-optimized production process. As Greenman put it, "If a camel is a horse designed by a committee, than most buildings are camels." Some decisions produced short-term savings for certain participants but degraded building performance or imposed long-term costs on the owners and occupants. Usually those choices made business sense to each decision maker and were not intended to cause problems elsewhere. Those challenges were a function of the rules of the game, and it was worth exploring whether changing any of those rules would produce better buildings. Glen's discussion would examine the participants' roles, incentives and disincentives, and the impact of financial and investment criteria. It had the potential to make some participants uncomfortable but also to yield significant process improvements.

Those thoughts were racing in Glen's mind on the night Torus had approved the charrette. She was excited and a little anxious as she set out to draft a meeting invitation and brief description. She hoped that the charrette would reduce rather than inflame any

latent (or blatant) tensions and conflicts among participants. Greenman had assured her the process usually worked surprisingly well, but she could see how achieving consensus might also seem like herding cats. She considered the cast of characters she now had to work with, each representing a different organization or department, and made notes summarizing her interpretation of each participant's perspective going into the project.

She needed to identify the obstacles and opportunities in the group dynamic and select strategies that provided the highest leverage for change. The CEO had offered her the opportunity to try a few new approaches and policies that he could announce in his introductory remarks. She thought that a small number of well-targeted measures could “change the rules of the game” for key participants in the design-build process by providing different incentives or by removing important disincentives. That would help steer the group's decision toward a successful outcome for this project, and perhaps for future facilities as well.

Charrette Participants

Hermes Personnel

- **Regina Shinelle, project manager, production department, facilities division.** “I’ve got to get this facility built on time and under budget. The faster the construction and the lower the capital expenditure, the bigger my bonus. I’ve relied on Expedia Design contractors in the past for prompt and reliable service. There is no room in this process for trial and error.”
- **Tom Dowit, project chief engineer, environment department, facilities division.** “It’s my job to ensure facility operations support production, while minimizing risk and cost. I don’t have the money or leeway to do anything expensive or risky. I’ve got to maintain the systems and pay the utility bills, and if my costs go down this year, my budget gets cut next year. Keep it simple, and if it ain’t broke don’t fix it—that’s my philosophy. I’ve been doing this a long time, and my approach works. That’s why I’ve been asked to oversee the design and construction process and contractors for this new building project. I use the value engineering process to review all aspects of design and construction, and either approve or reject proposed elements to control costs. Sure, there are some opportunities for improvement, but this green design stuff gets too much attention, costs too much, and slows me down. What a pain in the neck.”
- **Steve Sparks, headquarters facilities director, environment department, facilities division.** “I will be responsible for the new building’s operations and maintenance once it is completed. I am excited to work in a green building. I’ve seen some of those techniques work in practice and I believe there is great potential for facilities improvements. I’m surprised I was asked to participate in this design meeting. Usually the production department calls us when a facility is built, hands us the keys at the ribbon-cutting, and says ‘keep it clean and running.’ Or they tell us ‘new fab tools are going online in two weeks, make sure they have power and water.’ I look forward to having a say in decisions that affect my job.”
- **Susan Legume, comptroller, production department.** “My priority is cost control. I’ve got my eye on the bottom line and my mind on shareholder value. Capital spending is one area where costs can spiral, especially construction projects with multiple contractors. My job is to ride the project manager hard and squeeze the vendors harder. They can really nickel-and-dime the budget away if we don’t watch out. The value engineering process gives us a chance to rein in runaway spending by cutting unnecessary purchases from the design or construction.”

Design-Build Contractors

- **Art Schema, project manager for Expedia Design Company.** “We deliver reliability and security. Our architects and engineers have built this business by delivering economical designs that work, as proven in previous projects. We leverage our skills and experience to consistently deliver low bids and rapid turnaround times, which helps us win projects. Doing anything differently increases our costs; unfamiliar design techniques increase our risk exposure and project expense. As designer of record for this project, we would have to carefully consider whether we could sign off on any exotic features or plans. Of course, customer service is our number one priority and Hermes is a valued client, so we are open to whatever we are asked to do, as long as it is clearly defined and we are compensated for our efforts.”
- **William Ditt, construction manager for Advanced Building Services.** “I cut this bid to the bone to get this contract. We’ll make up for it by cutting a few corners, based on my experience where it will do the job. I’ve got to maintain cash flow by getting this done as fast as possible so I can move on to another project. I rely on my supplier network to get me the parts I need, quickly and at low cost. Any delays risk cutting into my thin profit margin and my tight schedule.”

Green Design Consultants

- **Bill Greenman, consultant, Rocky Mountain Institute.** “Nonprofit organizations such as RMI can collaborate fruitfully with businesses to make money while protecting the environment. We are design consultants and process facilitators. Although we do not ourselves provide architectural plans or engineering designs, our partner Rumsey Engineers can do that. We can help with LEED certification and suggest ideas and best practices that we’ve seen used successfully elsewhere. Standard design-build practices do not produce green buildings. Green building is new to the industry as a whole, and we have experience with these innovative techniques. Green building can be profitable, but each case is unique and requires increased design effort and careful project management.”
- **Peter Rumsey, consultant, Rumsey Engineers.** “We specialize in whole-systems energy-efficient design. We can deliver equivalent or superior HVAC performance at lower energy use and reduced cost of ownership (although our systems might cost more up front to build). It is always best to incorporate green techniques early in the project timeline, starting with the initial phases of design. All too often we’re called in at the last minute when the plans have been completed and it is very difficult to make changes, at least at low cost and minimal hassle.”

Environment, Entrepreneurship, and Innovation: Systems Efficiency Strategies for Industrial and Commercial Facilities

Many managers are unaware of the strategic advantages and cost savings possible through systems analysis applied to material, energy, and water use in building design and operation. This section provides whole-systems strategies for improving resource efficiency in industrial and commercial buildings. This background note was prepared by Batten fellow Chris Lotspeich in collaboration with author Andrea Larson. Andrea Larson and Chris Lotspeich, *Environment, Entrepreneurship, and Innovation: Systems Efficiency Strategies for Industrial and Commercial Facilities*, UVA-ENT-0052 (Charlottesville: Darden Business Publishing, University of Virginia, 2008). Note can be accessed through the Darden Case Collection at <https://store.darden.virginia.edu>. Systems thinking and integrated, multidisciplinary methods are explained that can stimulate innovation in both the equipment (technical) systems that make up facilities as well as the human (organizational) systems involved in the design-build-operate process. Identifying and using key leverage points and systemic synergies can dramatically increase the performance of buildings and the groups of people who make and run them. In practice those approaches have saved money, reduced environmental impacts, improved worker health and productivity, attracted new employees, greatly decreased operating costs while adding little or nothing to initial costs, and in some cases even decreased capital costs.

Resource Efficiency: Doing More with Less

Resource efficiency (also called “resource productivity” and “eco-efficiency”) provides cost-saving methods for reducing a company’s environmental and health impacts. Businesses consume resources to deliver goods and services and to create socioeconomic benefits. Primary resource inputs are materials, water, and energy. Their use directly links industrial activity to the earth through extraction, pollution, and waste generation. (Labor, money, and time are also economic inputs, although environmental and health impacts associated with their use are generally more indirect; we will focus on physical and energy resource use.) In any firm that manages for maximum efficiency, the life-cycle resource intensity and environmental “footprint” of a given product or company is evaluated across the supply chain, from the natural resource base through manufacturing and use to ultimate disposal or recycling.

Ideally resource efficiency enables the delivery of goods and services of equal or better quality while reducing both the costs and impacts of each unit of output. Systems efficiency strategies go beyond conservation by boosting productivity and differentiating the firm. When efficiency measurement stimulates innovation, doing more and better with less fosters revenue growth. Innovation and the entrepreneurial initiative that drives it result in the delivery to market of *new* goods and services with superior performance or other attributes that out-compete existing products and industries.

This Schumpeterian “creative destruction” (the creation of new products, processes, technologies, markets, and organizational forms) is fundamental to capitalism. A capitalist economizes on scarce capital resources by investing to improve productivity. The resource intensity of each unit of production tends to fall over time as knowledge and technology improve. Those dynamics have already increased resource productivity. For example, in the United States the amount of energy consumed per dollar of GDP has decreased in all but five of the years since 1976—for a total drop of more than 35 percent between 1973 and 2000. That improvement is good, but the reality is that standard practices have tended to prompt relatively incremental improvements. The

potential for much greater productivity increases remains untapped, awaiting the systematic and synergistic application of best practices and better technologies. Unfortunately, market barriers and organizational behaviors maintain standard practices, thus hindering progress.

Overcoming those obstacles requires leadership, comprehensive strategies, and organizational change, but radical resource efficiency can be achieved. Radical resource efficiency results from effective management combined with innovative practices. Systems thinking and end-use, least-cost analysis (discussed later in this section) are essential conceptual frameworks for rapid improvement. Doing more with less is a basic and accepted business objective and a central concept of practices such as total quality management. Thus resource efficiency measures provide a familiar, practicable, and visibly beneficial first step.

“Greening” Facilities: A Good Place to Start

Buildings are one of an organization’s primary interfaces with natural systems via the impacts of materials, energy, water, and land use. Consequently, they deserve attention from both systems dynamics and corporate strategy perspectives. Buildings and facilities are ideal sites for initial resource efficiency efforts in most companies. Every business uses buildings and pays literal overhead costs to keep the roof up. Yet often overlooked are the simultaneous financial, environmental, and health leverage that buildings offer.

Most buildings are relatively wasteful of money and resources, compared with state-of-the-art green building examples. Best practices can yield large improvements in building performance, occupant health and productivity, and environmental impacts. These benefits come with 30–50 percent lower operating costs and on average only 2–7 percent higher initial costs (and, in some cases, decreased capital costs). Those benefits have been widely demonstrated in environmentally preferable or “green” buildings certified by USGBC’s **Leadership in Energy and Environmental Design (LEED)** rating system, and the US Department of Energy’s Energy Star label.

There are many areas for performance improvement. The opportunities discussed here are primarily but not exclusively in energy use. Typically, those are the easiest opportunities to identify and offer the quickest benefits at the least risk to most businesses. The major categories of energy savings opportunities include lighting; motors; pumps and fans; heating, ventilation, and air-conditioning (HVAC) systems; building envelope; thermal integration of temperature differences and heat flows; load management; measurement and controls; and operational techniques. Keep in mind that the same systems thinking can be applied to other dimensions of a company’s operations, including its supply chain.

Common resource efficiency opportunities in most building systems are quantifiable, proven, and relatively easy to understand and implement. Such opportunities are widespread due to technological improvements and because the design-build process consistently produces structural and mechanical systems that are relatively inefficient and overbuilt. Factories are particularly attractive subjects because manufacturing is a resource-intensive enterprise. Offices and other commercial buildings also offer potential. The economic and environmental gains are greatest in new design and construction, but retrofit opportunities abound.

Implementing a suite of proven best practices and technologies carries a high probability of yielding short-term cost-effective improvements. These measures increase profits directly, as each dollar of saved overhead goes straight to the bottom line. Although these savings convey more limited profit-growth potential than do sales, this oft-neglected frontier of cost reduction can add value at lower risk than launching new products and services, which only add to profits on the margin. In some cases, significant savings through more efficient resource use can make additional, relatively inexpensive capital available for higher priority investments.

Systems Thinking

Strategies discussed here are informed by systems thinking and the principles of system dynamics. These representative approaches to technology, design, and management have been successfully applied in a broad spectrum of facilities and contexts. As we have discussed, systems can be technical or organizational. Buildings are “technical” systems comprising subsystems such as climate control, water and plumbing, lighting, and others. Buildings are designed, built, and operated by “organizational” systems that include owners, architects, engineers, builders, tenants, and others. As with other manufacturing activities, this organizational system comprises different individuals, and teams execute an iterative process that results in a product (the building). Well-established systems analysis tells us that small changes at key nodes or input variables of complex systems can result in large changes in system outcomes. Thus identifying and using insights about key leverage points can significantly increase the performance of buildings as well as the groups that make and run them.

Implementation strategies typically are directed at creating change by making the business case for efficiency improvements and providing incentives for desired present and future behavior. As the reader knows, not all approaches will yield economic results in every context because conditions vary widely at different facilities and companies. There is no magic formula for success, nor can we provide an exhaustive list of opportunities. Rather, this discussion is intended as an introduction to representative opportunities and to methods for realizing their greatest value.

Leadership, Management, Innovation, and Entrepreneurship

Realizing those potential benefits requires that standard practices be changed. It is a leadership and management challenge that involves entrepreneurial innovation. Building design, construction, and operation is a complex process involving many participants, including developers, architects, contractors and subcontractors, clients, and end users. Greening that process encompasses design, engineering, and technology, and the management of information, money, and organizational behavior. The organizational learning value is high and spans a range of disciplines and enterprise functions. The successful integration of the varied participants involved in a building's life cycle is a primary challenge to green building champions and is perhaps the most influential factor in achieving radical improvements in building performance.

When it comes to adopting a green building design, differences between managers and leaders are also a consideration. Management strategies are arguably more conservative than leadership initiatives. Managers typically seek stability and risk reduction as they help steer an organization toward defined goals. Managers tend to favor slower, more incremental change. In contrast, the more entrepreneurial leaders are innovation oriented and take greater risks to move an organization farther and faster toward end states that radically differ from the existing patterns. These leaders often are not formal, official leaders. They may emerge as leaders of change. Acting as a change agent is essentially entrepreneurial because implementing significant organizational change requires vision and initiative, not a risk-reduction mind-set. Entrepreneurs have a vision of a new future reality and harness resources to realize that vision. Entrepreneurial leadership seeks to create innovative change in a company's products and services. Acting entrepreneurially within one's own organization is what consultant Gifford Pinchot III terms "intrapreneuring." Gifford Pinchot, *Intrapreneuring: Why You Don't Have to Leave the Corporation to Become an Entrepreneur* (New York: Harper & Row, 1985). See also Elizabeth Pinchot and Gifford Pinchot, *The Intelligent Organization* (San Francisco: Berrett-Koehler Publications, 1996); and Gifford Pinchot and Ron Pellman, *Intrapreneuring in Action: A Handbook for Business Innovation* (San Francisco: Berrett-Koehler Publications, 1999). Sustaining innovation often requires organizational change, also potentially an innovative act.

A would-be change agent usually has limited resources with which to attain his or her objectives. He or she typically lacks formal authority over all the process participants whose cooperation is needed to reach a goal. Consequently, a systems perspective is valuable. An intrapreneur can identify and focus on leverage points in the system to effect the most change with limited resources. Identifying technical synergies can yield cost-effective performance improvements. (Examples are discussed later in this section.) Influencing the decision rules of participants can shift organizational process outcomes. Persuasion can substitute for compulsion. Identifying benefits and incentives for the participant decision maker can help build buy-in to the change agent's approach.

Green buildings are innovative products with dramatically improved performance relative to standard buildings. Those improvements are heavily dependent on improvements in technical subsystems, such as energy and water use. They are determined by the actions and outcome of the organizational design-build-operate system, which is in effect the manufacturing process.

The economic benefits of greening facilities provide the strongest motivating factor and a common denominator for undertaking new practices involving disparate parties, unfamiliar methods, and the challenges of change. The dollar is the universal solvent, the value-neutral language of business. All participants can agree to the goal of cost cutting, regardless of their beliefs or perspectives on the environmental and social aspects.

Initial successes in green building can free up resources and build stakeholder knowledge, buy-in, and confidence. These traits are useful for further, more challenging steps toward sustainability, such as product and business model redesign.

This is not to say that efficiency measures are easy—they are not. The process requires unlearning old techniques and reforming the traditional process. Even modest changes can meet with significant resistance. But greening strategies use proven tools and techniques that can be discussed in quantifiable terms of engineering and financial analysis, simplifying the challenge of implementing new ways of doing things. Expert assistance is readily available, and successful systems and buildings provide literal

examples. Skeptical participants might believe that certain measures “can’t work here,” but they can be shown buildings where such techniques have worked in a wide range of climates and structures. The merits can be presented with numbers rather than assertions.

Systematic Resistance

Green building is growing rapidly and moving into the mainstream of the construction industry. Nevertheless, many people continue to view it as a leading-edge activity and lacking standard practice, despite demonstrated benefits. The diffusion of this innovation is still in its early stages. As with many innovations, organizational behavior is the crux of the issue and has a larger impact than technology. It determines whether or not resource-efficient decisions are undertaken and implemented. That should not be surprising. After all, the usual ways of doing things seem to work. Buildings get built, their systems function, people occupy them and go about their business, and complaints are relatively few. Architects and engineers get paid and move on to the next project. Most of the parties involved are satisfied. If the system is not broken, why fix it?

Follow the Money to Find the Motives

Some might ask, if green building is so cost-effective, why isn’t more of it happening in the free market? Surely if it were profitable, people would do it. But in the workaday world, green building experience is lacking and schedule and budget pressures limit the amount of effort that can be put into design and construction. If the owner doesn’t ask for green features, it is up to another project participant to promote them. Champions of sustainable design face many obstacles to implementing their ideas, both in the marketplace and even within their own organizations. Selling environmentally friendly approaches and equipment to clients, managers, and colleagues often remains challenging, especially if taking those approaches or using that equipment asks them to do anything differently or spend more time and money. In addition, most design and construction professionals have little or no training or direct experience in sustainable building techniques. They don’t see much incentive to try something new if they think it might increase the risk of a lost bid or an unhappy client. If common practices, habits, and perspectives don’t prioritize green techniques then, as the saying goes, it can be hard to teach old dogs new tricks.

The picture is changing rapidly. Public agencies, architects, interior designers, construction companies, and other professionals are increasingly realizing the benefits of green buildings and are asking for—and getting—better results. Has it swept the country? No, but people are doing it and making money. There are many demonstrated economic benefits to more sustainable real estate development, but the problem is they don’t all accrue to the same parties. Some benefits aren’t counted directly in our economic system, such as reduced environmental impacts. But most important, we don’t live in a free market; we live in the real world. Free markets exist only in theories and textbooks. Actual markets function under the influence of human and organizational behaviors and dynamics that prevent more optimal results.

In politics, it is said that if you want to know why something happens (or doesn’t), follow the money. The same is true in building design and construction. We must look more closely at the economic incentives (and disincentives) facing the various parties to the design-build process to understand why more buildings aren’t more sustainable.

Usually, several different companies and individuals are involved in a construction project. Sometimes one party profits at the expense of another party in the same project (even in the same firm). For example, a contractor or project manager might buy cheaper, less efficient mechanical equipment to save money or speed delivery. As a result, the tenant or facilities manager pays higher energy bills. For each decision or action, determine who benefits and you will often understand why a better outcome for society and the environment (if not for the owner) didn’t occur.

Market dynamics and business models shape the decision rules of participants in the process and thus the outcomes. For example, the after-tax return on increasing the diameter of wire by just one size in a standard US office lighting circuit typically approaches 200 percent per year. The wire-size table in the National Electrical Code is meant only to help prevent fires, not save money, and hence specifies wire with half the diameter—and four times the electrical losses due to greater resistance—as would be economically desirable. However, an electrician altruistic enough to buy the larger (and more expensive) wire would no longer be the low bidder and wouldn’t get the job. This example embodies two barriers to more efficient buildings: a life-safety minimum-requirement code misinterpreted as an economic optimum, and a split incentive between the party who chooses the wire size and the one who later pays the electric bills.

It is worthwhile to examine the incentives and disincentives faced by the various parties to the design-build process, and explore why standard practices and paradigms often block environmental improvements, to determine effective remedies.

The Current Design-Build Process Paradigm

Consider a representative list of the different parties involved in creating typical commercial buildings. The owner might be a building developer seeking to sell or lease the property, or it might be a business, public agency, educational institution, or other organization that owns its buildings. The project manager might be an employee of the owner or a general contractor. The design is created by contractors and consultants, or sometimes by staff of the business owner, including architects, structural engineers, and mechanical engineers. Construction is typically contracted out, or sometimes performed by a unit of the developer or business owner. Facility managers operate and maintain the buildings.

Now consider some of the common pressures and motivations that each of these parties faces. Any of them can champion sustainable design but also can undermine it—often unintentionally—by pursuing goals that their position or employer’s policies dictate. Each project and decision maker is different, and generalizations are useful to a limited extent. Nevertheless, one can draw insights by considering typical incentives and disincentives that come with a given job description and role in the design-build process, regardless of the opinions and values of the person who is doing that particular job. Scholars of organizational behavior note that “where you stand depends on where you sit” applies.

Developers often build on speculation. They will find a buyer eventually. The lower their initial costs, the greater their potential profit from sale or lease. The structural shell is designed before tenants are found, and performance specifications are unlikely to exceed minimum building code requirements. Developers can buy low-quality equipment to save themselves money, and they don’t ultimately pay the resulting higher energy bills. They might be experienced in green building techniques but probably are not. Many see little incentive to risk slowing their project turnover rate, increasing costs, or alienating potential customers with unfamiliar green features.

Tenants usually have little control over building design and tend to have a short-term perspective on costs. Even buyers of spec buildings often have no influence on the design or performance.

Organizations that own their buildings are more likely to take a more integrated, long-term perspective on life-cycle cost and performance (especially for new construction). They might be more interested in green building concepts than other players—or at least more likely to push for improvements. Even then, senior managers might share and communicate a greener vision but face competing pressures from project managers or department heads within their own firm or among their contractors.

Project managers are often rewarded for completing work ahead of schedule and under budget. This can provide incentives to cut corners, reject or redo design features and specifications (such “value engineering” often undermines integrated design), squeeze more out of contractors, and proceed with the most readily available options without pausing to make improvements or even to correct noncritical shortcomings and mistakes. If the manager’s budget is funding construction but not building operation, there might be an incentive to use cheaper but lower-quality materials and equipment and leave any increased maintenance or cost concerns to somebody else. These factors apply to both owners’ employees and general contractors alike.

Architects are encouraged to innovate and are rewarded for interesting new designs with recognition and further work. However, environmental attributes do not often rank high in the review criteria of their clients and peers. Architects might have significant training or experience in whole-system, resource-efficient sustainable design but probably do not. If the client hasn’t asked them to create a green building, they have little incentive to struggle to explain the potential benefits to the owner or contractor. When fees are based on a percentage of project cost, the compensation structure rewards architects for what they spend and not for what they save the client (or whoever ultimately pays the utility bills) in reduced energy or water use and costs.

Architects and engineers must work together on the same design, but that does not mean that they necessarily coordinate their efforts to produce an optimal building. In many cases, the architects and engineers are from different contractors. Even when they are from two departments within the same firm, all too often there is relatively little communication and harmonization of design approaches and equipment specifications. The architect completes the design with minimal input from the engineers and in effect rolls up the drawings and pushes them through a little hole in the wall into the engineering department to execute the next project phase. The design process is sequential rather than simultaneous.

There are two main types of engineers involved in building. Structural engineers are relatively conservative in their approach because if their design doesn't work, someone could die. Safety and consistency are prioritized over innovation. Mechanical engineers (MEs) face less pressure in that their worst-case design failure scenario is that building occupants might have to buy a fan or heater. But MEs are ultimately responsible for the majority of a building's energy use. For example, HVAC systems comprise almost half of the energy use of a typical San Francisco office building, the largest share of the load. (The next-largest energy consumer is lighting at more than one-fourth, and plug loads account for more than 10 percent of the building's total electricity use.) Yet better mechanical systems designs are typically invisible to users. Even if those paying the utility bills realize lower costs, unless they share the savings with the engineering team, the MEs are typically not rewarded for innovation or greater effort to green the design.

Both types of engineers face incentives to overdesign structural and mechanical systems, as excess capacity provides a margin of security (but often wastes resources). Both types labor under the same tight budgets and short timelines. They often specify average- rather than premium-quality equipment to cut initial costs and use design rules of thumb to save time. Indeed, if a problem arises, the engineer's best defense is that the design follows standard practice. Techniques that worked in the past (or at least did not fail) are copied and reused. Measurement and analysis of previous structures' actual performance is not commonly incorporated into improving the next similar design. Unlike architects, engineers are quite happy to make a building look and perform like the one next door. Those habitual approaches produce functional but overly energy-intensive designs.

Facility managers' experience and input are rarely solicited and incorporated into the design process. Typically, the managers are handed the keys after the building is complete and tasked with keeping the lights on and the floors clean on a limited budget. Increasingly, their function is outsourced. Their staff might not have the time or training to commission, maintain, and operate systems at peak environmental performance. They might not pay the utility bills or have much funding for investment in building improvements. Even if they do, they might not be inclined to increase energy and water efficiency and cut costs if their reward is a smaller budget next year.

Apart from the owner, no single participant in this group decision-making system has compelling authority over the others, and none can exert determining influence over the process. Even the owner must exert considerable effort to ensure that her objectives survive every step of the sequence. The typical result of this collective process is safe, sometimes interesting-looking structures with poor energy performance and average (frequently excessive) environmental impacts.

Most of the parties to design-build projects are used to these standard approaches and common dynamics, adhere to them habitually, and expect them intuitively. They see nothing abnormal and perceive little need for improvement, given that for the most part the end-user clients and occupants are satisfied or at least not complaining any more than usual. No market failures are required to explain this outcome, although it imposes unnecessary costs on society. All the participants in this process are acting in their economic rational self-interest, within the bounds of their knowledge. If a camel is "a horse designed by a committee," as the joke goes, then, in effect, all buildings are camels: their design intention has been subverted by the process.

Strategies for a Greener Facility Design-Build Process

The standard process produces suboptimal buildings because participants pursue their own objectives, even to a limited extent, rather than compromising more and cooperating in greater harmony to obtain optimal outcomes for building owners and users over the long term. Thus green building champions are necessarily change agents. Their challenge is to influence the organizational system by influencing the participants as well as technology and design. This experience can be as difficult as herding cats.

Only by providing participants with compelling reasons to change their approach, such as financial benefits and strategic advantage, can you foster lasting change.

The following paragraphs give a brief overview of some remedies to the common barriers to greener buildings.

Start early. It is very important to incorporate green elements from the very beginning of a project. An old design axiom says that all the really important mistakes are made on the first day. Even small decisions early in the process have significant influence on future building performance and costs. It is worthwhile to "measure twice and cut once" where building design and performance are concerned.

Increased awareness of green building techniques and demonstrated successes would benefit all the parties. Formal education plays a crucial role, but the pace of market transformation can be slow as graduates enter the workplace and make their mark. More and

better in-service training and user-friendly resource materials for busy professionals can help shift existing practices faster. Positive, hands-on field experience with sustainable building is perhaps the most potent learning tool.

Encourage the use of outside energy-efficiency reviewers. Doing so can help establish a common baseline for design objectives and performance benchmarks. Authoritative third-party project assessments reinforce the importance of ensuring that specified and installed equipment and systems operate efficiently. For example, many energy companies provide energy-efficiency design assistance, useful resources and support, and sometimes economic incentives.

Building codes (such as California’s stringent Title 24) and *voluntary guidelines* (such as LEED) can improve building design and performance as well as help educate practitioners. The LEED rating system provides a framework for setting shared goals, a template for project execution, and neutral evaluation criteria based on consensus best practices and measurable criteria (for more information on the LEED rating system, see Chapter 7, [Section 7.1.](#))

Set targets and rewards for performance. Use specific metrics and performance criteria. Provide clear financial incentives for high-quality work. For example, provide a bonus payment if the building’s performance exceeds California’s Title 24 Energy Code by more than 40 percent or if LEED rating points are earned. Performance-based fees compensate architects and engineers in part based on measured savings in energy and water efficiency relative to preagreed building performance standards, an incentive for more efficient design.

The most effective approach is neither a technology nor a set of guidelines and benchmarks but rather to redesign the process itself. An *integrated design process* brings together project participants, stakeholders, and outside expertise at the earliest practical point in the project to collaborate, cocreate, and execute a shared vision. Often called a charrette, such an intensive, multidisciplinary-facilitated meeting can help identify and overcome many of the barriers to optimal green design.

This integrative process assists participants in articulating their differing perceptions and incentives and allows them to exchange ideas, work out problems, and establish common terminology and objectives. It creates a communication space in which to build mutual understanding and trust, clarifies owners’ goals and options, and helps participants agree on any mutual trade-offs and concessions that might be required to achieve an optimal result. Those exercises can significantly improve plans and specifications, streamline construction, reduce total costs, and increase building performance—increasing the chances that systems will work as they are intended to, rather than just as they are *designed to*.

Design and Technology

End-Use, Least-Cost Analysis

End-use, least-cost analysis is a core concept of whole-systems, resource-efficient design. Historically, energy resource discussions have focused on supply: where do we get more, and how much does it cost? But people don’t want barrels of oil or kilowatt-hours of electricity per se; they want the services that energy ultimately provides, such as hot showers, cold beer, comfortable buildings, light, torque, and mobility. Considered from the demand as well as the supply side of the equation, least-cost analysis identifies the cheapest, cleanest way to deliver each of these services. Often the better, more cost-effective way is using less energy more productively, with smarter technologies. Efficient end use can thus compete with new supply as an energy resource and leverage bigger savings in resources, cost, and upstream pollution across the whole system.

Saving energy (especially electricity) is cheaper than consuming fuel to generate it. Surveys of utility-directed “demand-side management” efforts to save electricity show saved watts—or what Amory Lovins calls “negawatts”—typically cost from \$0.025 to \$0.02 per saved kilowatt-hour or less. That is less expensive than the marginal cost of electricity from all other sources of supply and unlike most types of generation does not emit any pollution. Although the potential savings are finite, they are significant.

Consider a pumping example (Figure 7.13). The end use is to move a unit of fluid through an industrial pipe. The pump runs on electricity. Thermal losses occur when coal is burned at a power plant to produce steam that a generator converts to electricity. Energy losses compound in transmission and distribution, in the motor and pump, the throttling balance valve, and pipe friction, until ultimately only 10 percent of the coal’s embodied energy does the desired work.

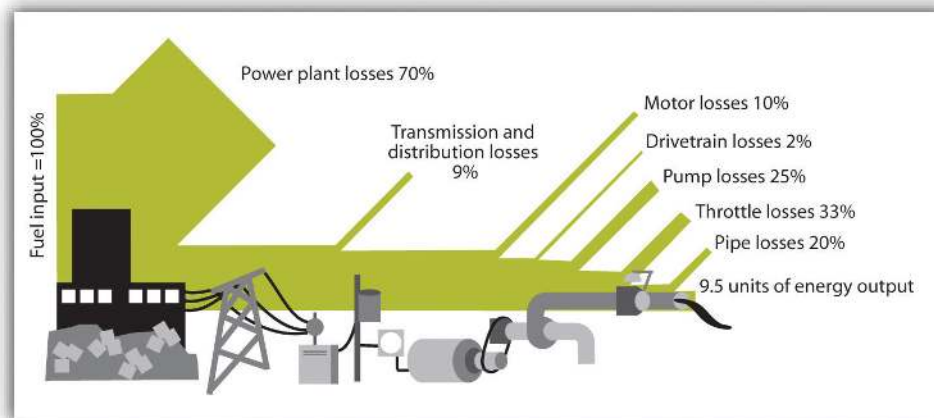


Figure 15.2.2: Energy Efficiency Downstream Prevents More Wasted Energy Upstream. Source: Andrea Larson and Chris Lotspeich, “Greening” Facilities: Hermes Microtech, Inc., UVA-ENT-0054 (Charlottesville: Darden Business Publishing, University of Virginia, 2004).

Where is the biggest leverage point for resource efficiency? Conversion efficiency can be improved at the power plant (e.g., with heat recapture and cogeneration) and at other points along the delivery chain. Yet the biggest “bang for the buck” lies closest to the end-use application. For example, bigger pipes have less friction, reducing pumping requirements. That leverages upstream savings, turning losses into compounding savings. Each unit of conserved pumping energy in the pipe saves ten units of fuel, cost, and pollution at the power plant.

Generating Returns from Integrated Systems

Integrated design methodology optimizes the relationships among the components in technical systems as well as among a facility’s component subsystems. The performance of many mechanical systems is undermined by design shortcuts, compromised layouts, and penny-wise, pound-foolish capital cost cutting. An integrated design approach can recognize and mitigate these effects at the same or reduced construction cost. It is much more cost-effective to integrate these elements into the initial design than to try to squeeze them into the project later—or retrofit them after completion. Maximum savings are achieved by first minimizing load at the end-use application, before selecting the energy supply or applying energy-conserving measures “upstream” toward the motor or other energy-conversion device.

Consider the pumping example depicted in Figure 7.13. Bends in pipes or ducts increase friction and thus pumping power requirements. Optimal pipe and duct layouts eliminate bends. Larger-diameter pipe sizing is also very important because friction falls as nearly the fifth power of pipe diameter. Smaller pumping requirements enable smaller pumps, motors, and electrical systems, reducing capital costs. Larger pipes also maintain equivalent fluid flow at less velocity, enabling significant pumping energy savings. The “cube law” relationship between pump impeller power and fluid flow means that decreasing velocity by half drops pumping power use by almost seven-eighths. (Those same dynamics and potential savings also apply to ducts and fans.)

That approach was pioneered by Singaporean engineer Lee Eng Lock. Lee tutored Dutch engineer Jan Schilham at Interface Corporation, who applied those techniques to a pumping loop for a new carpet factory. A top European company designed the system to use pumps requiring a total of 95 horsepower. But before construction began, Schilham upsized the pipes and thus downsized the pumps. The original designer had chosen the smaller pipes because, according to the traditional cost-benefit analysis method, the extra cost of larger ones wasn’t justified by the pumping energy savings.

Schilham further reduced friction with shorter, straighter pipes by laying out the pipes first, then positioning the equipment that they connected. Designers normally position production equipment without concern for efficient power configuration, and then have a pipe fitter connect the components with long runs and numerous bends. Those simple design changes cut the power requirement to only 7 horsepower—a 92 percent reduction. The redesigned system cost less to build and to operate, was easier to insulate, involved no new technology, and worked better in all respects. That small example has important implications: pumping is the largest application of motors, and motors use three-quarters of all industrial electricity in the United States, or three-fifths of all electricity.

Inventor Edwin Land said, “People who seem to have had a new idea have often simply stopped having an old idea.” Andrea Larson and Mark Meier, *Project FROG: Sustainability and Innovation in Building Design*, UVA-ENT-0158 (Charlottesville: Darden Business Publishing, University of Virginia, 2010). The old idea is one of diminishing returns—that the greater the resource saving, the higher the cost. But that old idea is giving way to the new idea that innovative design can make big energy savings less expensive to attain than small savings. Such “tunneling through the cost barrier” has been proven in many kinds of technical systems. (A few other examples are highlighted later in this section.)

Noted green architect William McDonough said, “Our culture designs the same building for Reykjavik and Rangoon; we heat one and cool the other; why do we do it that way? I call this the ‘Black Sun.’” Andrea Larson and Mark Meier, *Project FROG: Sustainability and Innovation in Building Design*, UVA-ENT-0158 (Charlottesville: Darden Business Publishing, University of Virginia, 2010). Facilities’ energy intensity is chiefly in the HVAC systems that create interior comfort by compensating for climatic conditions and that provide (or remove) industrial process heat and cooling.

Cooling systems are typically designed to serve peak load, regardless of how frequently that occurs. The chilled water temperature is often determined by the most extreme thermal requirements of a small subset of the total load, such as one or two machines out of many. That results in excess cooling capacity and inefficient operation at partial loads. It is much more efficient to segregate the loads with parallel chilled water piping loops at two different temperatures. One higher-temperature loop with dedicated chillers optimized for that temperature can serve the majority of a facility’s load. A second lower-temperature loop with a smaller high-efficiency chiller can serve the most demanding subset of the load. This can improve overall cooling plant efficiency by 25 percent or more. Higher temperature chillers cost less than lower temperature chillers of equal capacity.

“Thermal integration” leverages temperature differences. Many businesses consume energy to create heat and then spend even more energy removing waste heat from their processes and facilities, without matching up the two. Instead, they should strive to make full use of available energies before discarding them to the environment. Waste heat from an oven or boiler can be used to preheat wash water or intake air. Winter or night cool air, groundwater, or utility water can provide free cooling. Heat exchangers can allow energy transfer between media that should not mix. Such measures can reduce or eliminate HVAC capacity.

Lighting is generally one of the most cost-effective energy savings opportunities, due to the rapid pace of improvements in lighting technology and design. Retrofits usually offer attractive paybacks, averaging roughly 30 percent ROI. Yet the impact on building systems extends beyond illumination. Energy-efficient bulbs also emit less heat, thereby reducing facility cooling loads, enabling HVAC capacity cost savings.

Money

Making the business case for efficiency improvements is perhaps the most important yet most challenging task facing a sustainability champion. Most companies spend a small fraction of their costs on energy, and it does not command much executive attention. Facilities maintenance is a far lower priority to most senior managers than production, sales, and customer service. Yet saving 1–2 percent of total costs matters, even in financial terms alone.

Whole-Systems, Life-Cycle Costing

Green building experience shows that cost-effective energy savings of 30–50 percent are achievable in many facilities worldwide. Much of this wasted energy and excess mechanical and electrical systems capacity results from minimizing first cost instead of cost of ownership, especially in fast-track projects. High-efficiency design and equipment can cost more up front. Penny-wise, pound-foolish shortcuts and cost cutting degrade performance and increase energy bills for a facility’s lifetime. Smart money looks at the big picture, not just the price tag.

Pervasive overemphasis on short-term first costs results in wasteful decisions. In facilities design and construction, the “value engineering” process is intended to save the owners money. Plans are reviewed and components are approved or rejected with a line-item-veto approach. Although that method can squeeze increments of capital cost out of a design, in actuality it undermines both long-term value and engineering integrity. A component-focused approach erodes design integration (and often function) and negates whole-systems benefits. Paying more for one component can often downsize or eliminate others, reducing total system capital cost as well as operating cost. Optimizing components for single benefits, not whole systems or multiple benefits, “pessimizes” the system. A first-cost approach might benefit one department’s budget one time but imposes increased operating

costs on the firm for decades to come. Look for the cheapest total cost of owning and operating the entire system of which the device is a component.

Whole-system, life-cycle costing incorporates both capital and operating costs (as well downtime costs, changes in output, the value of reliability, and other factors). It allows companies to assess the actual total cost of ownership, a better reflection of the financial impact of decisions on a company and its shareholders. Those techniques should credit savings from reduced infrastructure (recall the “big pipes, small pumps” example).

Some designers try to save money by using standard rules of thumb and even copying old designs without improving upon them. That helps them offer low bids to secure work. Facilities owners might find such practices appealing to reduce short-run costs or to help reduce construction project timelines. Although facilities construction timing is critical to some industries’ profit model (e.g., electronics), fast-track design should not become standard procedure because speed comes at the price of lost efficiency and project value. Evaluate and improve upon past designs using operator feedback and careful measurement. Often the perceived need for fast design and construction is caused by lack of planning and preparation. Over time, fast design can inadvertently become a substitute for these vital steps.

Prioritization of Improvements

Whole-systems investment criteria are relevant to how proposed improvements are implemented. Green design consultants and champions often rank their suggestions according to their cost and **return on investment (ROI)**. Managers are tempted to go for the “low-hanging fruit” and select the most financially attractive measures first (or only), to reduce costs. This is also true of energy savings companies (ESCOs), which consult to firms on efficiency opportunities and often help implement the measures. Many ESCOs upgrade lighting, share the savings resulting from reduced bills with their clients—and stop there. But “cream-skimming” the most attractive savings only can render less financially attractive measures uneconomical when they are considered individually rather than as part of a systemic set of upgrades. This can make larger potential total savings of the whole set of opportunities difficult or impossible to attain. Maximize cost-effective improvements by considering all proposed green measures as a package, and reinvest the resources freed up via the larger cost reduction projects into other, less individually attractive projects. Only in that way will you be able to attain large systemic improvements cost effectively.

Investment Criteria: Payback and ROI

Retrofit improvements are often blocked by nonsensical financial hurdles. Upgrades are commonly held to higher ROI standards than are purchases of new equipment. Reexamine investment criteria to avoid distortions and inconsistencies. Most companies seem to apply an eighteen-month to two-year cap on payback periods for investments in efficiency, although the rationale for doing so remains unclear. This provides a much stricter standard than typical investment criteria for new capacity or supply investments, which is closer to the cost of capital (e.g., about 11–15 percent ROI). Harmonize payback and ROI requirements so that operating and financial people speak a common language; otherwise they can’t compare investment opportunities on a level playing field. There are multiple approaches to calculating payback and ROI. Simplified methods are used here for the purposes of discussion.

The payback period for implementing an energy-efficiency measure can be calculated as the implementation costs divided by the energy savings in dollars. The resulting payback number represents the number of years of operation that is required to fully recover the capital investment costs. The ROI method used by the Department of Energy examines the projected annual cost after (CA) implementing a project, compared to a baseline annual cost before (CB) implementing the project. Expressed as a formula, ROI is the ratio of anticipated cost savings ($CB - CA$) to projected implementation cost (CI), expressed as a percentage.

Let us consider a hypothetical example of lighting and HVAC improvements. CA are energy costs after the energy-efficiency project is implemented, CB are the energy costs before implementing the project, and CI is the cost of the project. Using this calculation method, the ROI for the measures are shown in Table 7.4.

Table 7.4 Sample ROI

	Savings (US\$)	Costs (US\$)	ROI (%)
HVAC measures	85,600	262,800	33
Lighting measures	37,200	100,800	37
Average	122,800	363,600	34

The ROI is 33 percent and 37 percent for HVAC and lighting measures, respectively. That means that each year an average of 34 percent of the original investment is recovered through energy savings—several times higher than the typical ROI requirement for investments in new productive capacity. If a company's marginal cost of capital is, for example, 15 percent per year, that implies that the company is willing to accept a payback in the six- to seven-year range for additional capacity. Insisting that energy efficiency pay as much as \$0.04 to \$0.08 per kilowatt hour more for negawatts than for new electricity supply deprives shareholders of profits.

Figure 7.14 is the US Environmental Protection Agency's suggested ranking system for prioritizing efficiency investments. Each box represents a category of equivalent payback and qualitative ROI criteria. Investments for both new equipment and upgrade improvements can be assessed on this equivalent basis with an eye toward added value to the firm.

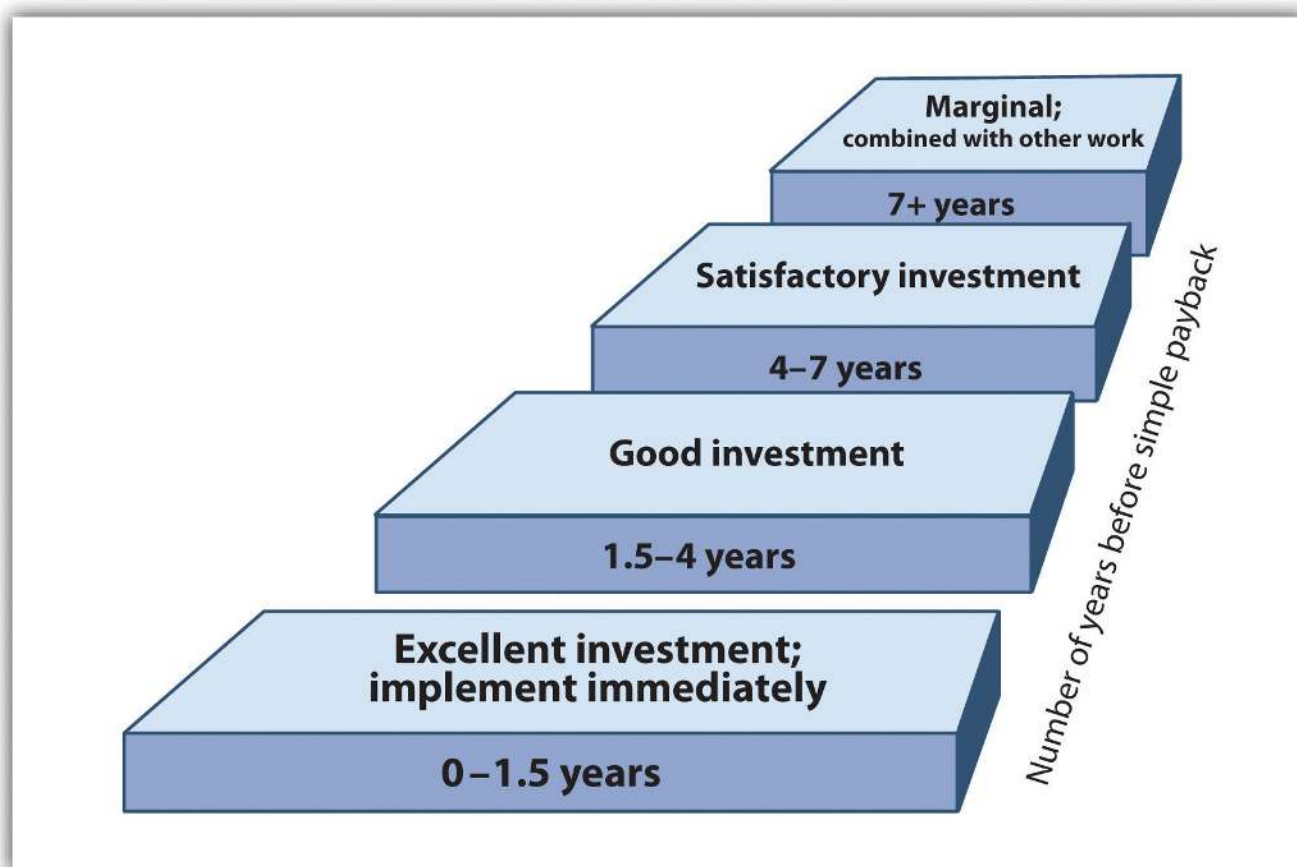


Figure 15.2.3: Payback Ranking. Source: US Environmental Protection Agency.

While building green may require collaboration among many different people at multiple points in the process, the effort can be well worth it. For little to no additional upfront costs, green buildings save operating costs and improve occupant productivity. The key, however, is to optimize the entire system rather than to view the design, construction, and operation of a building as unrelated parts.

Key Takeaways

- A systems approach can significantly improve building designs and ongoing operating costs by optimizing performance across all aspects of the building system.
- Some barriers remain to green building, such as inadequate funding models and lack of knowledge, but those barriers are decreasing steadily.

Exercises

1. What are the major challenges facing Heather Glen?
2. What obstacles did she confront in the past, and how did those help prepare her for her current task?
3. What can she do to successfully implement this new project?

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15.3: Shaw Industries - Sustainable Business, Entrepreneurial Innovation, and Green Chemistry

Learning Objectives

1. Analyze strategies to spur and sustain innovation within a mature industry.
2. Understand how a variety of innovations can accumulate to a significant breakthrough.
3. Examine how cradle-to-cradle design is implemented.

The carpet industry is the battlefield where the war for sustainability is being waged.

- Architect William McDonough

The Shaw Industries case examines the production of a cradle-to-cradle carpet product in which a waste stream becomes a material input stream. This case was written by Alia Anderson and Karen O'Brien under the supervision of author Andrea Larson and developed under a cooperative effort by the Batten Institute, the American Chemical Society, and the Environmental Protection Agency's Office of Pollution Prevention. Alia Anderson, Andrea Larson, and Karen O'Brien, *Shaw Industries: Sustainable Business, Entrepreneurial Innovation, and Green Chemistry*, UVA-ENT-0087 (Charlottesville: Darden Business Publishing, University of Virginia, 2006). Note can be accessed through the Darden Case Collection at <https://store.darden.virginia.edu>. Unless otherwise noted, quotations in this section refer to this case. In this situation we look at innovation challenges faced by a large global competitor.

In 2003 Shaw's EcoWorx carpet tiles won a US Green Chemistry Institute's Presidential Green Chemistry Challenge Award. The company had earned the award by combining the application of green chemistry and engineering principles (Table 7.5) with a cradle-to-cradle design. See William McDonough and Michael Braungart, *Cradle to Cradle: Remaking the Way We Make Things* (New York: North Point Press, 2002) for extensive discussion of the C2C frame of reference. The field of industrial ecology provides a conceptual basis for this discussion; see Thomas E. Graedel and Braden R. Allenby, *Industrial Ecology* (Englewood Cliffs, NJ: Prentice Hall, 1995). (often called C2C) approach to create a closed-loop carpet tile system, a first in the industry. The product met the rising demand for "sustainable" innovations, helping to create a new market space in the late 1990s and 2000s as buyers became more cognizant of human health and ecosystem hazards associated with interior furnishings.

At the time, Steve Bradfield, Shaw's contract division vice president for environmental development, commented on the process of creating the EcoWorx innovation, a process that by no means was over: "The 12 Principles and C2C provide a framework for development of EcoWorx that incorporates anticipatory design, resource conservation, and material safety." Alia Anderson, Andrea Larson, and Karen O'Brien, *Shaw Industries: Sustainable Business, Entrepreneurial Innovation, and Green Chemistry*, UVA-ENT-0087 (Charlottesville: Darden Business Publishing, University of Virginia, 2006). The framework was part of a larger sustainability strategic effort that the contract division was leading at Shaw. The company also needed to explain the benefits of the EcoWorx system and educate the marketplace on the desirability of sustainable products as qualitatively, economically, and environmentally superior replacements for a product system that had been in place for thirty years. Change was difficult, especially when the gains from a substitute product were not well understood by the end user or the independent distributor. It was also difficult internally for a Shaw culture that didn't fully comprehend the need to move beyond conservation.

Table 7.5 The Twelve Principles of Green Chemistry and Green Engineering

Green Chemistry	
1	Prevention. It is better to prevent waste than to treat it or clean it up after it has been created..
2	Atom Economy. Synthetic methods should be designed to maximize the incorporation of all materials used in the process into the final product.
3	Less Hazardous Chemical Syntheses. Wherever practicable, synthetic methods should be designed to use and generate substances that possess little or no toxicity to human health and the environment.
4	Designing Safer Chemicals. Chemical products should be designed to effect their desired function while minimizing their toxicity.
5	Safer Solvents and Auxiliaries. The use of auxiliary substances (e.g., solvents, separation agents, etc.) should be made unnecessary wherever possible and innocuous when used.
6	Design for Energy Efficiency. Energy requirements of chemical processes should be recognized for their environmental and economic impacts and should be minimized. If possible, synthetic methods should be conducted at ambient temperature and pressure.
7	Use of Renewable Feedstocks. A raw material or feedstock should be renewable rather than depleting whenever technically and economically practicable.
8	Reduce Derivatives. Unnecessary derivatization (use of blocking groups, protection/deprotection, temporary modification of physical/chemical processes) should be minimized or avoided, if possible, because such steps require additional reagents and can generate waste.
9	Catalysis. Catalytic reagents (as selective as possible) are superior to stoichiometric reagents.
10	Design for Degradation. Chemical products should be designed so that at the end of their function they break down into innocuous degradation products and do not persist in the environment.
11	Real-Time Analysis for Pollution Prevention. Analytical methodologies need to be further developed to allow for real-time, in-process monitoring and control prior to the formation of hazardous substances.
12	Inherently Safer Chemistry for Accident Prevention. Substances and the form of a substance used in a chemical process should be chosen to minimize the potential for chemical accidents, including releases, explosions, and fires.
Green Engineering	
1	Inherent Rather Than Circumstantial. Designers need to strive to ensure that all materials and energy inputs and outputs are as inherently nonhazardous as possible.

2	Prevention Instead of Treatment. It is better to prevent waste than to treat or clean up waste after it is formed.
3	Design for Separation. Separation and purification operations should be designed to minimize energy consumption and materials use.
4	Maximize Efficiency. Products, processes, and systems should be designed to maximize mass, energy, space, and time efficiency.
5	Output Pulled versus Input Pushed. Products, processes, and systems should be “output pulled” rather than “input pushed” through the use of energy and materials.
6	Conserve Complexity. Embedded entropy and complexity must be viewed as an investment when making design choices on recycling, reuse, or beneficial disposition.
7	Durability Rather Than Immortality. Targeted durability, not immortality, should be a design goal.
8	Meet Need, Minimize Excess. Design for unnecessary capacity or capability (e.g., “one size fits all”) solutions should be considered a design flaw.
9	Minimize Material Diversity. Material diversity in multicomponent products should be minimized to promote disassembly and value retention.
10	Integrate Material and Energy Flows. Design of products, processes, and systems must include integration and interconnectivity with available energy and materials flows.
11	Design for Commercial “Afterlife.” Products, processes, and systems should be designed for performance in a commercial “afterlife.”
12	Renewable Inputs. Material and energy inputs should be renewable rather than depleting.

Source: P. T. Anastas and J. C. Warner, *Green Chemistry: Theory and Practice* (New York: Oxford University Press, 1998), 30; and P. T. Anastas and J. B. Zimmerman, “Design through the 12 Principles of Green Engineering,” *Environmental Science and Technology* 37, no. 5 (2003): 95–101. Used by permission.

The US Carpet Industry

World War II demanded wool, then the dominant carpet material, for military uniforms and blankets, providing an incentive for companies to research and create alternative fibers. This move toward alternatives was part of the general wartime drive that culminated in the introduction of synthetic materials (man-made) for many uses. After the war, manufacturers continued to develop various new natural and synthetic materials. By the 1960s, DuPont and Chemstrand’s man-made nylon and acrylic materials supplied most of the growing carpet industry’s textile fiber needs. An average American household could now afford machine-tufted synthetic carpets that replaced the expensive woven wool carpets of the past. By 2004 nylon accounted for 68 percent of the fibers used in carpet manufacturing, followed by 22 percent polypropylene and 9 percent polyester, with wool constituting less than 0.7 percent of the total.

By the 1970s, carpet flooring was the dominant aesthetic standard in a high proportion of industrialized countries for residential and commercial flooring markets. Historically, woven wool carpets (in which the carpet surface and backing were essentially one layer) gave way to tufted (fibers pulled through a matrix web) and needle-punched carpets bonded by a latex backing layer using an

array of synthetic face fibers and backing materials. Carpet tiles, the fastest growing segment of the commercial carpeting industry, were expected to steadily replace much of the rolled broadloom carpet used historically in offices and other commercial locations. Regardless of design, all carpeting had traditionally been a complex matrix of dissimilar materials constructed without any thought of disassembly for recycling. It was not until 1994 that the industry began to take a more serious look at sustainability. One early adopter was the carpet tile innovator Interface Inc., which took steps to integrate sustainability throughout the company from top to bottom, reducing scrap waste, identifying operational inefficiencies, lowering energy use through solar and other innovations, and introducing a carpet leasing program through which it collected and recycled end-of-use carpet. Independently, however, other carpet producers began developing their own programs and initiatives, programs that some would contend exceeded the solutions Interface devised.

Shaw Industries, Mohawk Industries, and Beaulieu of America were the three largest carpet producers in 2004. Interface was the largest carpet tile manufacturer. Invista, a fiber spin-off of DuPont, and Solutia were the sole US producers of Nylon 6.6, a type suitable for carpet. Honeywell and vertically integrated carpet giant Shaw Industries were the major producers of Nylon 6 for carpet use. Price competition, economic downturn, and overcapacity had taken a heavy toll on American fiber and carpet companies. Unlike the broader textile industry, the nylon fiber and carpet producers did not see an influx of low-cost imports due to high transportation costs, relatively low labor costs associated with US fiber and carpet production, and the difficulties in finding viable US distribution channels for imports. The industry was consolidating and companies vertically integrated, formed alliances, or organized around market niches as lower carpet and floor covering sales tracked personal income insecurity and general economic turbulence. The first few years of the twenty-first century witnessed the loss of more than 90,000 US textile jobs and 150 plant closings. The carpets and rugs sector experienced sluggish growth. Growth rebounded by 2005, but competition was fierce and buyers would not tolerate higher prices or lower product performance.

Shaw Industries

In 2006, Shaw Industries of Dalton, Georgia, was the world's largest carpet manufacturer, selling in Canada, Mexico, and the United States and exporting worldwide. The company's historic carpet brand names, including Cabin Crafts, Queen Carpet, Salem, Philadelphia Carpets, and ShawMark, were de-emphasized relative to the consolidated Shaw brand. Shaw sold residential products to large and small retailers and to the much smaller distributor channel. Shaw offered commercial products primarily to commercial dealers and contractors, including its own Spectra commercial contracting locations, through Shaw Contract, Patcraft, and Designweave. The company also sold laminate, ceramic tile, and hardwood flooring through its Shaw Hard Surfaces division, and rugs through the Shaw Living division. Shaw Industries was publicly traded on the New York Stock Exchange (NYSE) until 2000, when it was purchased by Warren Buffet's Berkshire Hathaway Inc. Shaw's stock had been one of the best-performing stocks on the NYSE in the 1980s, but Wall Street's dot-com focus of the 1990s depressed the stock price of Shaw and other manufacturers. The Berkshire buyout took the Wall Street factor out of Shaw's management strategy, and 2001 through 2006 were record earnings years for the company.

Between 1985 and 2006, Shaw Industries made a string of acquisitions, including other large carpet makers, fiber-dyeing facilities, and fiber extrusion and yarn mills, moving steadily toward broad vertical integration of inputs and processes. The firm's expensive forays into retail stores ended, and Shaw concentrated on shifting its outside purchases of fiber to internal fiber production. Shaw polymerized, extruded, spun, twisted, and heat-set its own yarn and tufted, dyed, and finished the carpet. Several key acquisitions included the following:

- **Amoco's polypropylene operations, 1992.** Polypropylene fiber, used mainly in berber-style residential products, reached a high-water mark of approximately 30 percent of the fiber usage in the carpet industry. By purchasing the Amoco plants in Andalusia, Alabama, and Bainbridge, Georgia, in 1992, Shaw became the world's largest polypropylene carpet fiber producer, extruding all the fiber for its polypropylene carpets.
- **Queen Carpet, 1998.** Shaw purchased the fourth-largest manufacturer of carpets, Queen Carpet, which had \$800 million in sales the previous year.
- **The Dixie Group, 2003.** The Dixie Group, one of the nation's biggest manufacturers of carpets for the mobile home and manufactured housing industry, sold six yarn-tufting, dyeing, finishing, and needlebond mills and distribution factories to Shaw for \$180 million in October 2003. Included in the sale was a carpet recycling facility.
- **Honeywell Nylon 6 operations, 2005.** Shortly after its acquisition of the BASF carpet nylon business, Honeywell decided to exit the Nylon 6 carpet fiber business by selling to Shaw its South Carolina fiber mills at Anderson, Columbia, and Clemson.

This made Shaw the world's largest producer of Nylon 6 carpet fiber. Honeywell's 50 percent interest in the Evergreen postconsumer Nylon 6 depolymerization facility was included in the deal.

- **Evergreen Nylon Recycling Facility, 2006.** Within two months of closing the Honeywell acquisition, Shaw purchased the remaining 50 percent interest in the Augusta, Georgia, Evergreen caprolactam monomer recovery facility from Dutch State Mines (DSM). (Caprolactam was the monomer building block of Nylon 6.) This gave Shaw 100 percent ownership of the postconsumer Nylon 6 depolymerization facility, which had been closed since late 2001 due to low monomer prices. Shaw moved quickly to refurbish and restart the facility for production of thirty million pounds of caprolactam monomer by early 2007. This gave Shaw the only source of postconsumer Nylon 6 monomer, which could be continuously returned to carpet production.

Carpet Tile

For Shaw, the obvious place to start thinking about product redesign was at the top of the carpet hierarchy: carpet tile. Its high price in comparison with broadloom carpets, its thermoplastic polyvinyl chloride (PVC) plastisol backing, and its relative ease of recovery from commercial buildings where large volumes of product could be found made it the best hope for early success. That may have been the first and last point of agreement among fiber and carpet manufacturers as sustainability began to take on widely differing meanings. Given that lack of definition and standard measures of sustainability, marketing literature could be confusing for specifiers and end users looking to compare the environmental impacts of competitive carpet tiles.

Carpet tile as a product category bridged most commercial market segments (e.g., offices, hospitals, and universities). On the market for more than thirty years, it was introduced originally as a carpet innovation that enabled low-cost replacement of stained or damaged tiles, rotation of tiles in zones of high wear, and easy access to utility wiring beneath floors. Carpet tile's higher cost, high mass and embodied energy, more stringent backing adhesion performance specifications compared with broadloom, and double-digit market growth rate made it a logical focus for exploring alternative tile system designs.

Carpet tile was composed of two main elements, the face fiber and the backing. The face was made from yarn made of either Nylon 6 or Nylon 6.6 fiber, the only viable nylons in carpet use. US carpet tile was traditionally made with PVC plastisol backing systems, which provided the tile's mechanical properties and its dimensional stability. PVC was under suspicion, however, due to the potential of the plasticizer to migrate from the material, potentially causing health problems and product failures. The vinyl chloride monomer in PVC was also a source of health concern for many. Most carpet tiles were made with a thin layer of fiberglass in the PVC backing to provide dimensional stability. These tiles ranged from eighteen inches to thirty-six inches square and required high dimensional stability to lay flat on the floor.

Backing provided functions that were subject to engineering specifications, such as compatibility with floor adhesives, dimensional stability, securing the face fibers in place, and more. Selecting backing materials and getting the chemistry and physical attributes right for the system's performance took time and resources, and added cost. Since the mid-1980s, the backing problems associated with PVC had led several companies, including Milliken, to seek PVC-alternative backings. In 1997, Shaw asked the Dow Chemical Company to provide new metallocene polyolefin polymers to meet Shaw's performance specifications for a thermoplastic extruded carpet tile backing. Shaw added a proprietary compounding process to complete the sustainable material design. Seeking every way possible to reduce materials use and remove hazardous inputs, yet maintain or improve product performance, Shaw made the following changes:

- Replacement of PVC and phthalate plasticizer with an inert and nonhazardous mix of polymers, ensuring material safety throughout the system (third-party tested for health and safety through the McDonough Braungart Design Chemistry toxicity protocol, which PVC cannot meet).
- Elimination of antimony trioxide flame retardant associated in research with harm to aquatic organisms (and replacement with benign aluminum trihydrate).
- Dramatic reduction of waste during the processing phases by immediate recovery and use of the technical nutrients resulting from on-site postindustrial recycling of backing waste. (The production waste goal is zero.)
- A life-cycle inventory and mass flow analysis that captures systems impacts and material efficiencies compared with PVC backing. (Carpet tile manufacturing energy was slightly lower for polyolefin, but polyolefin supply chain-embodied energy was more than 60 percent lower than PVC.)

- Efficiencies (energy and material reductions) in production, packaging, and distribution—40 percent lighter weight of EcoWorx tiles over PVC-backed carpet tiles yielded cost savings in transport and handling (installation and removal/demolition cost savings).
- Use of a minimum number of raw materials, none of which lose value, because all can be continuously disassembled and remanufactured through a process of grinding and airflow separation of fiber and backing, facilitating recycling of both major components.
- Use of a closed-loop, integrated, plantwide cooling water system providing chilled water for the extrusion process as well as the heating and cooling system (HVAC).
- Provision of a toll-free number on every EcoWorx tile for the buyer to contact Shaw for removal of the material for recycling at no cost to the consumer (supported by a written Shaw Environmental Guarantee).

Although Shaw had yet not begun to get carpet tiles back for recycling because of the minimum ten years of useful life, models assessing comparative costs of the conventional feedstock versus the new system indicated the recycled components would be less costly to process than virgin materials.

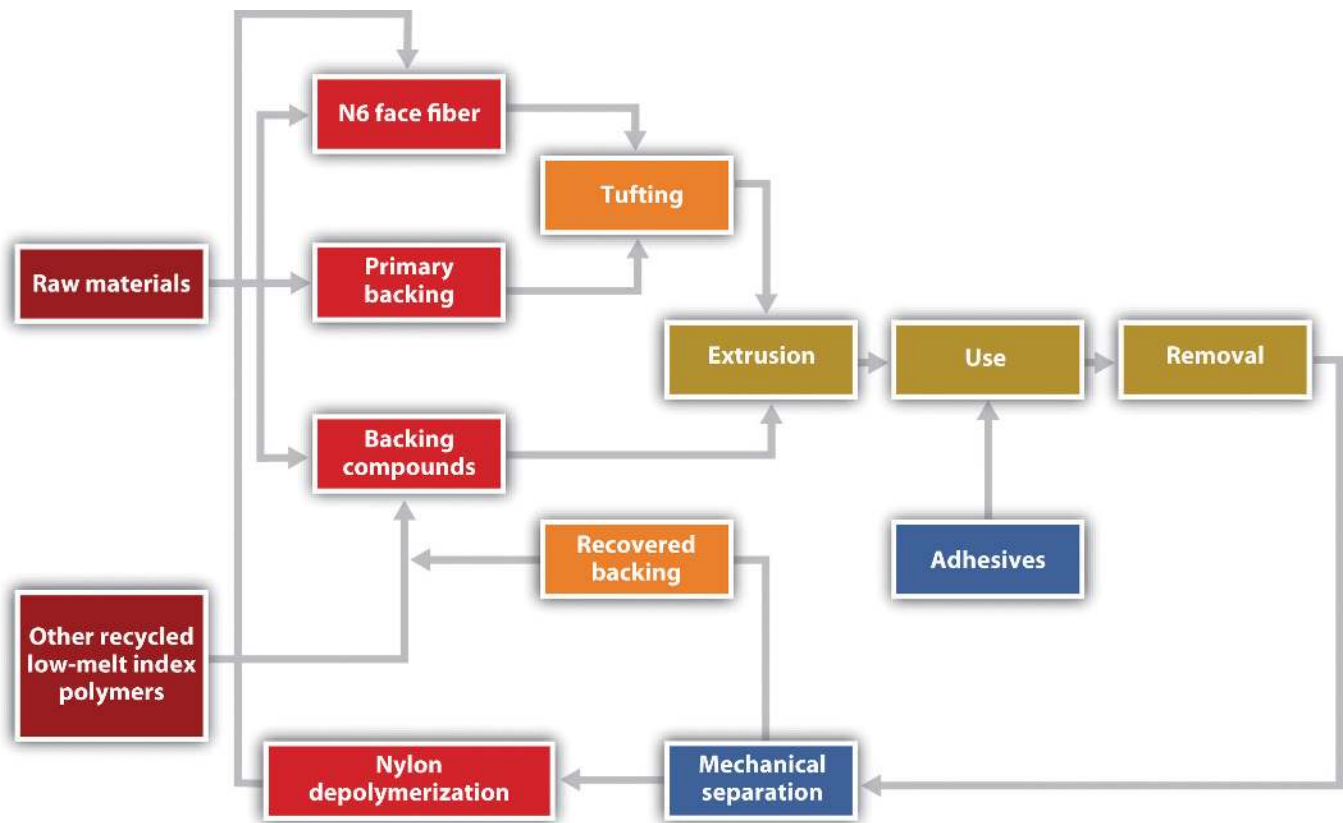


Figure 15.3.1: EcoWorx Carpet Tile Operations and Flows Diagram. Source: Alia Anderson, Andrea Larson, and Karen O'Brien, Shaw Industries: Sustainable Business, Entrepreneurial Innovation, and Green Chemistry, UVA-ENT-0087 (Charlottesville: Darden Business Publishing, University of Virginia, 2006).

EcoWorx Innovation

The EcoWorx system developed by Shaw Industries offered a way to analyze and refine the C2C design of a carpet tile system without regard to technology constraints of the past. The Twelve Principles of Green Chemistry and Green Engineering and C2C provided a detailed framework in which to evaluate a new technology for engineering a successful carpet tile production, use, and recovery system. The EcoWorx system also utilized Shaw's EcoSolution Q Nylon 6 premium-branded fiber system, which was designed to use recycled Nylon 6 and in 2006 embodied 25 percent postindustrial recycled content in its makeup from blending and processing Nylon 6 fiber waste.

The EcoSolution Q Nylon 6 branded fiber system could be recycled as a technical nutrient through a reciprocal recovery agreement with Honeywell's Arnprior depolymerization facility in Canada without sacrificing performance or quality or increasing cost. But Shaw's original intention to take the Nylon 6 waste stream through the Evergreen Nylon Recycling Facility at Augusta, Georgia, was made possible with Shaw's purchase of the Honeywell/DSM joint venture. The depolymerization process was restarted in February 2007. That allowed Shaw's carpet tile products to make a cradle-to-cradle return to manufacturing, with nylon fiber from tile made into more nylon fiber and backing returned to backing.

Shaw's objective was to create technology for an infinitely recyclable carpet tile, one that could be entirely recycled with no loss in quality from one life cycle to the next. The notion of closed-cycle carpet tiles forced the complex issue of compatibility between face fiber (the soft side on which people walk) and the backing. As for which face fiber to use, current technology allowed only Nylon 6 fiber to be reprocessed. The Nylon 6 material retained its flexibility and structure through multiple reprocessing cycles by disassembling the Nylon 6 molecules with heat and pressure to yield the monomer building block, caprolactam. This recycled monomer was identical in chemical makeup to virgin caprolactam. In contrast, Nylon 6.6 could not be economically depolymerized due to its molecular structure. Nylon 6.6 incorporated two monomer building blocks resulting in greater disassembly cost and complexity.

In 1997 Bradfield and Shaw chemist Von Moody discussed a particular method of processing polyolefin resins that produced flexible, recyclable polymers. Polyolefins were an intriguing material for Shaw to explore as carpet backing, given the company's purchase of Amoco polypropylene (a type of polyolefin) extrusion facilities. After nearly \$1 million invested in research and development and a pilot backing line, the tests suggested that polyolefins could be melted and separated from Nylon 6 and therefore successfully recycled into like-new materials. Shaw created the pilot backing line with the intention of "fast-prototyping" the polyolefin backing by modeling the performance attributes of Shaw's PVC backings. This prototyping risk might easily have failed but was instead the start of EcoWorx.

Shaw first introduced EcoWorx commercially in 1999. As a polyolefin-backed carpet tile, EcoWorx offered an alternative to the industry standard PVC backing at comparable cost, 40 percent less weight, and equal or improved effectiveness across all performance categories. EcoWorx earned the 1999 Best of Neocon Gold Award at the prestigious and largest annual interior furnishings and systems show in the United States. In 2002 the company's EcoWorx tile called "Dressed to Kill" won the carpet tile Neocon Gold Award for design, effectively mainstreaming the new material. By 2002, Shaw had announced EcoWorx as the standard backing for all its new carpet tile introductions. Indeed, customers preferred the new product; consequently, by 2004 EcoWorx accounted for 80 percent of carpet tile sold by Shaw—faster growth than anticipated. At the end of 2004, Shaw left PVC in favor of the EcoWorx backing, accomplishing a complete change in backing technology in a brief four years.

EcoWorx as a system of materials and processes proved significantly more efficient. The backing was dramatically lighter than that of PVC-backed tiles. The EcoWorx process, which used electric thermoplastic extrusion rather than a traditional gas-fired or forced-air oven, was more energy-efficient. The process combined an ethylene polymer base resin (developed by Dow Chemical) with high-density polyethylene (HDPE), fly ash for bulk (instead of the virgin calcium carbonate traditionally used), oil that improved the product's compatibility with the floor glue, antimicrobial properties, and black pigment in a proven nontoxic construction. This compound was applied to the carpet backs using a low-odor adhesive to maintain high indoor air quality standards. The backing material was combined with a nonwoven fiberglass mat for stability. Shaw's agreement with customers at the point of sale was that Shaw would pay to have the carpet returned to it. Back in its plant Shaw would shred the carpet and separate the backing stream from the fiber stream. The "infinitely recyclable" duo of Shaw's Nylon 6 fibers (marketed as EcoSolution Q) and EcoWorx backing received acclaim throughout the industry. Shaw's competitive cost and exceptional performance compared with traditional products allowed it to step beyond the limits of the "green" niche market. Especially important, Shaw's research showed that the cost of collection, transportation, elutriation, Elutriation refers to the process of shredding returned tiles and their purification by washing, straining, or separating by weight. and return to the respective nylon and EcoWorx manufacturing processes was less than the cost of using virgin raw materials. Steve Bradshaw (Shaw Industries), in discussion with author, March 2005. Shaw tripled the production capacity in 2000, and by the end of 2002, shipments of EcoWorx tiles exceeded those of PVC-backed styles. Steve Bradshaw (Shaw Industries), in discussion with author, March 2005. Shaw continued to expand its collection and recycling capacity in preparation for 2009, when the first round of EcoWorx carpet that was released in 1999 would reach the end of its *first* life cycle. It appeared that Shaw would be the first to close the industrial loop in the carpet tile industry.

The Recycling Challenge: Fits and Starts

Recycling carpet was a complex endeavor because carpet was composed of a complex composite of face fibers, glues, fillers, stabilizers, and backings, each with varying capacity to be melted and reused. Approximately 70 percent of the face fiber used in carpets was made of either Nylon 6 or Nylon 6.6, with each of these two types comprising an equal share of the nylon carpet fiber market. Neither fiber had the production capacity to serve the entire carpet industry.

Both nylons made excellent carpet. Although recovered Nylon 6.6 could be recycled into other materials (not carpeting), such as car parts and highway guard rails, the economic incentives for companies were low, and many people argued that “downcycling” in this way only postponed discarding the product in a landfill by one life cycle.

The development of technology for recycling Nylon 6 fibers into new carpet face fiber represented a major shift. Honeywell International Inc., a major supplier of the Nylon 6 fiber used by carpet manufacturers, was so confident about the market potential for recycled Nylon 6 fiber that it developed the \$80 million Evergreen Nylon Recycling Facility in Augusta, Georgia, in 1999. Unfortunately, the cost of recycled caprolactam was not competitive with virgin caprolactam (used in making Nylon 6) at that point in time, and the plant closed in 2001. Katherine Salant, “Carpet Industry Makes Strides in Reducing Footprint, but Path Includes Several Obstacles,” *Washington Post*, January 31, 2004.

The Honeywell Evergreen Nylon 6 depolymerization unit was restarted in early 2007, but it was Shaw’s purchase of Honeywell’s carpet fiber facilities in 2006 that ultimately made that happen. After purchasing the Honeywell interest in Evergreen, negotiations for the DSM portion of the joint venture gave Shaw 100 percent ownership. In February 2007, Shaw reopened the Evergreen facility to produce caprolactam for Shaw Nylon 6 polymerization operations. In 2007, Shaw owned and operated the only commercially scaled postconsumer Nylon 6 monomer recycling facility in the world. Invista and Solutia, the only producers of Nylon 6.6, had a long history of technical development and response to competitive challenges. Promising work was under way in dissolution technologies that would allow postconsumer Nylon 6.6 to be recycled in an economical manner, restoring the uneasy balance between the two nylon types on the environmental front. Nylon 6.6 was here to stay, and industry observers said large-scale recycling of Nylon 6.6 was a matter of when, not if, the process was perfected. However, in 2007 no hint of plans for a Nylon 6.6 recycling facility had yet surfaced.

Environmental and Health Concerns Associated with Carpeting

After World War II, the design and manufacture of products from man-made and naturally occurring chemicals provided a wide range of inexpensive, convenient, and dependable consumer goods on which an increasing number of people relied worldwide. Behind the valuable medicines, plastics, fuels, fertilizers, and fabrics lay new chemicals and processes that were not time tested but appeared to have superior performance relative to prewar materials. Most of the polymer building blocks were developed by chemists between 1950 and 2000 as a result of and a driver of the post–World War II economic boom.

By the 1990s the growing rate of carpet usage had led to serious concern over waste disposal; 95 percent of carpet ended up in landfills. In 2001, this waste stream was reported at 4.6 billion pounds the United States. Carpet America Recovery Effort, “Memorandum of Understanding for Carpet Stewardship (MOU),” accessed January 31, 2011, www.carpetrecovery.org/mou.php#goals. Growing water quality, cost, and land-use issues related to carpet disposal generated significant pressure from government and commercial buyers for the development of carpet recycling technology. In January 2002, carpet and fiber manufacturers signed the National Carpet Recycling Agreement together with the Carpet and Rug Institute (the industry trade association), state governments, nongovernmental organizations (NGOs), and the EPA. This voluntary agreement established a ten-year schedule to increase the levels of recycling and reuse of postconsumer carpet and reduce the amount of waste carpet going to landfills. The agreement set a national goal of diverting 40 percent of end-of-life carpet from landfill disposal by 2012.

One result of the national agreement was the 2002 creation of the Carpet America Recovery Effort, a partnership of industry, government, and NGOs designed to enhance the collection infrastructure for postconsumer carpet and report on progress in the carpet industry toward meeting the national goals defined in the National Carpet Recycling Agreement. Carpet America Recovery Effort, “Memorandum of Understanding for Carpet Stewardship (MOU),” accessed January 31, 2011, www.carpetrecovery.org/mou.php#goals. In the late 1990s Presidential Executive Order 13101, a purchasing guide, was fueling demand for “environmentally preferable products” by government and by purchasers that received federal funds. This program

introduced the idea of multiple-environmental-impact purchasing evaluations as a replacement for the outdated practice of relying solely on recycled content as the measure of product sustainability.

However, the problems with carpeting would not be addressed so easily. As monitoring equipment capabilities advanced between 1990 and 2005, new health and ecological impact hazards associated with certain widely used chemicals were identified. “Environment” was a topic that historically related to on-site toxins and compliance activity, with “health” referring to effects that surfaced *after* the product left the company; both concerns were relegated to the environment, health, and safety office inside a corporation. But scientists, design engineers, and increasingly middle and senior management needed to incorporate a broader understanding of such concerns into the ways products were designed and made. This was particularly true in the construction and home furnishing sectors, where greater use of chemicals combined with less than adequate ventilation and more architecturally tight building designs to create health problems.

As far back as 1987, the US Consumer Product Safety Commission, the federal agency that monitors commercial product safety, received more than 130 complaints about flu and allergy symptoms and eye and throat irritations that began directly following the installation of new carpet. Although that was a small number, this data often represented the tip of a health problem iceberg. Over the next few years, air quality research led to the well-publicized concept of “sick building syndrome”—a condition in which occupants experienced acute illness and discomfort linked to poor indoor air quality. Carpets were not the only culprits. Wall materials and wall coverings (paint and wallpaper) as well as various hardwood floor treatments also were implicated. To the industry’s dismay, the EPA listed “chemical contaminants from indoor sources, including adhesives [and] carpeting...that may emit volatile organic compounds (VOCs)” as contributors to sick building syndrome. American Lung Association, American Medical Association, US Consumer Product Safety Commission, and US Environmental Protection Agency, *Indoor Air Pollution: An Introduction for Health Professionals*, accessed January 26, 2011, http://www.epa.gov/iaq/pdfs/indoor_air_pollution.pdf. It was not the building that was sick. At the time, the US Centers for Disease Control reported “body burdens” of chemicals in people’s bloodstreams from unidentified sources. Under increasing study were babies’ body burdens—the pollutants in infants’ blood and organ tissues—later known to result from placental cycling of blood, oxygen, and nutrients between mother and child.

Simultaneously, concern was building throughout the 1990s concerning PVC plastic that contained phthalate plasticizers. Phthalates were added to PVC during processing to make the resulting plastic soft and flexible; however, researchers discovered that phthalate molecules did not structurally bind to PVC, which therefore leached out of products. Though there was debate about the level of harm that leaching caused humans, reputable studies linked phthalates to reproductive and endocrine disorders in animals. Environmental health science reports and concerns over PVC plasticizers grew steadily between 1995 and 2005. California planned to add di-2-ethylhexyl phthalate (DEHP) to a list of chemicals known to cause birth defects or reproductive harm. The list, contained in Proposition 65, followed on the heels of warnings from the Food and Drug Administration, National Toxicology Program, and Health Canada that DEHP may cause birth defects and other reproductive harm. Furthermore, incineration of PVC released highly toxic organochlorine by-products, including microscopic dioxins, into the atmosphere, where they moved with regional weather patterns, returning to the lower atmosphere and eventually to earth through the hydrologic cycle. Breathing in dioxins had been linked to cancer, growth disruptions, and developmental problems in humans for many years from laboratory and production worker data. By July 2005, links between commonly used chemicals, even in very low doses, and human health deficiencies were being discussed on the front page of the *Wall Street Journal*. Despite the evidence against PVC, the California Department of General Services (DGS) approved PVC carpet tile in its 2006 California Gold Carpet Standard and instituted a 10 percent postconsumer recycled content requirement for all state carpet purchases, which virtually guaranteed increased purchases of PVC carpets. The DGS also refused to allow exemptions for non-PVC materials that had not been on the market long enough to be recovering adequate quantities of postconsumer material.

Many carpet manufacturers focused their early environmental efforts on reducing trim waste from industrial and installation processes (eco-efficiency). Trim waste cost the industry an estimated \$25 million per year in unused carpet production and disposal fees, but this represented only 2 percent of total carpet production and, though important, made a relatively small impact on the end-of-life waste volume issue. As efficiency strategies became more systems oriented, a competitive market grew for technology to recover and recycle postconsumer carpet.

Indeed, for many years real solutions to the problems of end-of-life recycling of carpet were lost in the clutter of the first and easiest step in environmental stewardship—reduction of materials, water, energy usage, and waste. Capabilities were developed—typically under a company’s environment, health, and safety office—that essentially absorbed a quality and cost-cutting issue under

the compliance function. With respect to carpeting materials, efforts were concentrated on the 2 percent of all carpet materials that remained as scrap in the manufacturing plants. More than 98 percent of all materials entering the carpet manufacturing stream were shipped to the customer as finished carpet. Once used and in need of replacement, this postconsumer carpet traditionally ended its life in landfills.

Other environmental efforts in the carpet industry focused on converting or recycling products such as polyethylene terephthalate (PET) plastic bottles (waste streams from other industries) into carpet fiber, incorporating the recovered materials into new products. This effort was encouraged by the Comprehensive Procurement Guideline (CPG) program (RCRA 6002, 1998), which required federal agencies to purchase items containing recovered and reused postconsumer materials. Of the forty-nine items listed in the program, PET carpet face fiber, carpet backing, and carpet cushioning were included. US Environmental Protection Agency, "Indoor Air Quality: Indoor Air Facts No. 4 (Revised) Sick Building Syndrome," last updated September 30, 2010, accessed January 26, 2011, <http://www.epa.gov/iaq/pubs/sbs.html>. EPA provided lists that gave priority to products containing a high percentage of postconsumer material. Shaw EcoWorx was not included on the vendor list because while it was an innovative breakthrough that would achieve a 100 percent recovery rate, it had yet to complete its initial life cycle. The CPG proposed designation of nylon carpets (fiber and backing). However, due to the lack of postconsumer nylon availability in the market, the CPG designation would boost federal purchases of PVC carpets at a time when non-PVC carpets were increasing their market share but had not yet had time to see postconsumer material returned and to therefore achieve CPG compliance.

In 2006, recycled plastic remained more costly than virgin fibers, which limited the carpet industry's enthusiasm for this measure. But plastic came from oil, a feedstock source increasingly subject to price volatility and unstable supply. Crude oil prices rose from about \$25 per barrel in the 1990s to more than \$60 in 2006. In the face of this price uncertainty and consistent high oil prices, Shaw concentrated on and eventually achieved systems economics that resulted in the recovered EcoWorx materials coming back as feedstock under the price of virgin materials. Standards such as the CPG may have served as a disincentive to material innovation if first-generation products such as EcoWorx had to have significant postconsumer recycled content to qualify. The irony was that EcoWorx had won an EPA-sponsored Presidential Green Chemistry Challenge Award in 2003 in the safer chemicals category, yet an EPA nylon carpet CPG designation would effectively prevent federal agencies from purchasing it. Shaw and others devoted significant resources over a four-year period to persuade EPA to abandon the nylon carpet CPG designation in favor of a multiple impact assessment of carpet.

Green Building Council and LEED

Steve Bradfield was an early supporter of the US Green Building Council's (USGBC) Leadership in Energy and Environmental Design (LEED) program, which established standards for environmentally preferred building materials and construction. Bradfield had participated for several years in the architecture and building industries' movement to reduce and eliminate problematic materials that were increasingly linked with respiratory, allergy, and other human health problems. In 2003, Bradfield talked about Shaw's sustainability policy. (The following year, he would testify before Congress in support of green legislation.) Shaw's policy, Bradfield explained, articulated the firm's corporate strategy to move steadily toward a cradle-to-cradle and a solar-powered future.

The Green Chemistry Research and Development Act of 2004

House Committee on Science Hearing, March 17, 2004

Steve Bradfield, Vice President for Environmental Development, Shaw Industries, Representing the Carpet and Rug Institute
(Excerpt)

Imagine a future when no carpet goes to a landfill, but is separated into its constituent parts at the end of its useful life to be sustainably recycled over and over again. This is happening today with some carpet types, but not enough as yet to significantly divert the 4.5 billion pounds of carpet that went to our nation's landfills in 2003. *Green chemistry can help to develop beneficial uses for the materials used to make carpet today and assure that steady progress is made toward sustainable materials that can go directly back into carpet production in the future.*

Perhaps the most compelling reason to support green chemistry and the growth of sustainable materials and processes in carpet is jobs. Annual carpet production and consumption in the U.S. of \$12 billion is equal to the rest of world carpet production and consumption combined. Carpet jobs will stay in the U.S. if we can develop ways to keep postconsumer carpet materials in

sustainable closed-loop recycling systems that reduce the need for virgin raw materials and lower the energy embodied in successive generations of carpet products. *Why would any U.S. company choose to manufacture overseas if their valuable raw materials are being collected and recycled at lower cost, with no sacrifice of performance, from American homes and businesses in close proximity to the means of production?*

The economic benefits of green chemistry are quantifiable in each of the example given herein. As an industry, green chemistry has helped to reduce the water required for dyeing a square yard of carpet from 14.9 gallons in 1995 to 8.9 gallons in 2002. The energy required from thermal fuels to make a square yard of carpet has fallen from 14.5 million BTUs in 1995 to

10.3 million BTUs in 2002. Today the carpet industry has the same level of CO₂ emissions it reported in 1990 yet it produces 40% more carpet.

Shaw's experience with green chemistry is representative of the developments that are ongoing in the industry. By way of illustration, Shaw's polyolefin carpet tile backing has fueled an average annual growth rate in carpet tile of almost 15% per year over the last four years. This growth provides 440 jobs in our Cartersville, Georgia, carpet tile facility and generates more than \$100 million in revenue. It has reduced packaging costs by 70%, shipping costs by 20% and resulted in more than \$100,000 in annual postindustrial scrap recovery. The recovery of the postconsumer carpet tile will result in even more second-generation savings. *Other manufacturers can share economic success stories that are just as compelling.*

In 1950 the carpet industry shipped 97 million square yards of carpet. In 2001 we shipped 1.879 billion square yards. Between 1965 and 2001 carpet increased in price by 90.4% while the same time period saw an automobile increase 180.4% and a combined total of all commodities increased 315.4%. More than 80% of the U.S. carpet market is supplied by mills located within a 65-mile radius of Dalton, Georgia. *Carpet is important to the economy of Georgia and the United States. Green chemistry is an important tool to facilitate its continued growth.*

In conclusion, we support the adoption of the *Green Chemistry Research and Development Act of 2004* with the suggestions that Congress encourage a cooperative effort among government, academia, and business; that Congress seek additional incentives to reward those companies that commercialize green chemistry developments; that obstacles to the green chemistry discovery process be removed from current federal environmental programs; and that adoption of green chemistry in the broader context of sustainable product development should become a primary instrument of pollution prevention policy in the United States with the additional goals of job creation and economic improvement. Testimony accessed March 7, 2011, <http://www.gpo.gov/fdsys/pkg/CHRG-108hhrg92512/html/CHRG-108hhrg92512.htm>.

In 2006 LEED requirements did not factor in EcoWorx's recovery and reuse benefits in awarding points to companies looking to achieve higher LEED rankings. But the USGBC had begun a dialogue on how to incorporate multiple metrics, including cradle-to-cradle design points, into the 2007 version of LEED. At the same time, many corporations that were committed to sustainability practices, or at least wanted to gain positive publicity for their efforts, were setting LEED certification levels among their goals for their headquarters buildings.

Environmental pressure had been mounting for several years in the carpet industry. Said William McDonough, architect, environmentalist, and promoter of the cradle-to-cradle design approach with Michael Braungart, "The carpet industry is the battlefield where the war for sustainability is being waged." Alia Anderson, Andrea Larson, and Karen O'Brien, *Shaw Industries: Sustainable Business, Entrepreneurial Innovation, and Green Chemistry*, UVA-ENT-0087 (Charlottesville: Darden Business Publishing, University of Virginia, 2006). Indeed, so many carpet companies seemed to be actively marketing carpet sustainability in comparison with other industries that the question of "Why carpet?" is often asked. With Presidential Executive Order 13101, the purchasing mandate, and others fueling the demand for "environmentally preferable products" in government, a new breed of environmentalist had appeared by the late 1990s, ready to constructively engage with industry but still offering conflicting views of what constituted sustainable design in the absence of consensus on a national standard.

The first LEED Green Building Rating System was completed in 2000 and grew quickly into an internationally recognized certification program for environmentally sensitive design. Recognizing that buildings account for 30 percent of raw materials use and 30 percent of waste output (136 million tons annually) in the United States, US Green Building Council, *An Introduction to the US Green Building Council*, accessed January 31, 2011, www.usgbc.org/Docs/About/usgbc_intro.ppt. the USGBC, an organization affiliated with the American Association of Architects, gathered representatives from all sectors of the building industry to develop this voluntary and consensus-based rating system. By adhering to an extensive point system with categories such as Indoor

Environmental Quality, Materials and Resources, and Water Efficiency, both new buildings and interior renovations could become LEED certified at different levels of excellence (Basic, Silver, Gold, and Platinum). Carpet selection became an integral element of LEED certification through materials requirements such as “Recycled Content,” “Low-Emitting Materials–Flooring Systems,” and Low-Emitting Materials–Adhesives and Sealants.” See, for instance, US Green Building Council, “LEED 2009,” accessed January 31, 2011, <http://www.usgbc.org/ShowFile.aspx?DocumentID=5719>. But LEED offered few incentives for other important environmental impact reductions.

Between 2000 and 2004, the LEED Green Building Rating System gathered more than 3,500 member organizations and certified projects in 49 states and 11 countries. US Green Building Council, *An Introduction to the US Green Building Council*, accessed January 31, 2011, www.usgbc.org/Docs/About/usgbc_intro.ppt. LEED’s continued influence in the building industry was secured by policies in the US Department of the Interior, EPA, General Services Administration, Department of State, Air Force, Army, and Navy, mandating differing levels of LEED standards for future buildings. By 2005 California, Maine, Maryland, New Jersey, New York, Oregon, and many cities across the United States also had legislated LEED standards for construction and procurement at various levels, either through mandates on capital developments or tax credits to developers who met the requirements. US Green Building Council, *LEED Initiatives in Government by Type*, May 2007, accessed January 31, 2011, <https://www.usgbc.org/ShowFile.aspx?DocumentID=1741>.

Certifiers

Third-party organizations, both for profit and not for profit, were proliferating in 2005–6 in a bid to gather the critical mass necessary to be recognized as the certifier of choice for many different aspects of the environmental patchwork of metrics defining that elusive goal called sustainability. Even self-certification programs from various industry associations have attempted to build consensus. Recycled content seemed to be the path of least resistance, but life-cycle analysis, embodied energy studies, and variations on the complex theme of “closing the loop” proliferated and jockeyed for position in the new “industry” of environmental and health performance. Unfortunately, an inevitable “unintended consequence” of these efforts was confusion and controversy among stakeholders.

What Next?

As Steve Bradfield reflected on challenges in the near future, he said he hoped the innovations required to implement the EcoWorx strategy would continue to draw on the extensive capabilities of Shaw and its partner firms. Certainly whatever transpired had to be consistent with Shaw’s Environmental Vision Statement. Questions went through his mind. Did the company fully anticipate the requirements of reverse logistics systems design? Had they identified the probable challenges and bottlenecks? Was the Shaw culture changing quickly enough to execute the strategy successfully? Would the company have sufficient capacity for the disassembly stage? The capacity of the elutriation system initially would allow Shaw to recycle 1.8 million square yards of carpet per year. This equipment enabled separation of the backing and fiber in a single pass and was expected to meet the anticipated future growth capacity requirement of the returned postconsumer material over the next five to ten years. But would the economics of the system meet the organization’s expectations?

Shaw's Environmental Vision Statement

Environmental sustainability is our destination and cradle-to-cradle is our path. Our entire corporation and all stakeholders will value and share this vision.

Through eco-effective technology we will continuously redesign our products, our processes, and our corporation.

We will take responsibility for all that we do and strive to return our products to technical nutrient cycles that virtually eliminate the concept of waste.

We will plan for generations, while accepting the urgency of the present. We are committed to the communities where we live and work. Our resources, health, and diversity will not be compromised.

We look forward to a solar-powered future utilizing the current solar income of the earth, anticipating declining solar costs and rising fossil fuel costs as technology and resource depletion accelerate.

We will lead our industry in developing and delivering profitable cradle-to-cradle solutions to our free-market economy. Economy, equity, and ecology will be continually optimized.

Honesty, integrity, and hard work remain our core values. We will continue to deliver unsurpassed safety, quality, design, performance, and value to our customers. Shaw Industries, “Shaw Industries Announces New Environmental Policy to Drive Manufacturing Processes,” press release, December 4, 2003, accessed March 7, 2011, www.shawcontractgroup.com/Contentpress_releases/pr_031204_Environmental.pdf.

In 2007, Bradfield knew that EcoWorx had become a major driver in the phenomenal growth of Shaw’s carpet tile business. In late 2006, the company had introduced EcoWorx broadloom, a twelve-foot roll version of the EcoWorx technology that brought cradle-to-cradle design to the staid broadloom business. Bradfield’s recent promotion to corporate director of environmental affairs for the \$5.8 billion Shaw organization signaled the adoption of cradle-to-cradle goals across every division and functional area—a major achievement given the humble beginnings of what had started out as a commercial carpet initiative. A new Shaw environmental website, <http://www.shawgreenedge.com>, offered a single destination for anyone interested in the initiatives driving Shaw’s sustainability efforts.

Key Takeaways

- There are many drivers behind sustainability innovation changes in a large flooring firm.
- Cradle-to-cradle thinking can inform redesign and manufacturing of new flooring.
- Sustainability practices provide financial and strategic advantages.

Exercises

1. Create a graphic representation of the reverse supply chain. What challenges do you think Shaw will have going forward?
2. Describe what you see as innovative in the case and list the factors you believe were drivers of that innovation.
3. Analyze and assess Shaw’s EcoWorx story as a strategy. What are the arguments in favor of it? Against it?
4. Explain the benefits to the firm of sustainable design using green chemistry principles and cradle-to-cradle thinking.
5. What, if any, accounting consideration must be given a product that is expected to return perpetually as a new raw material?
6. What use might the EcoWorx product, cradle-to-cradle, and green chemistry principles have to inform product and process design in other product markets? Bring an illustration to class to discuss.

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