INTERIOR DESIGN

VISUAL PRESENTATION

A Guide to Graphics, Models & Presentation Methods

FIFTH EDITION 5

MAUREEN MITTON

WILEY

Interior Design Visual Presentation

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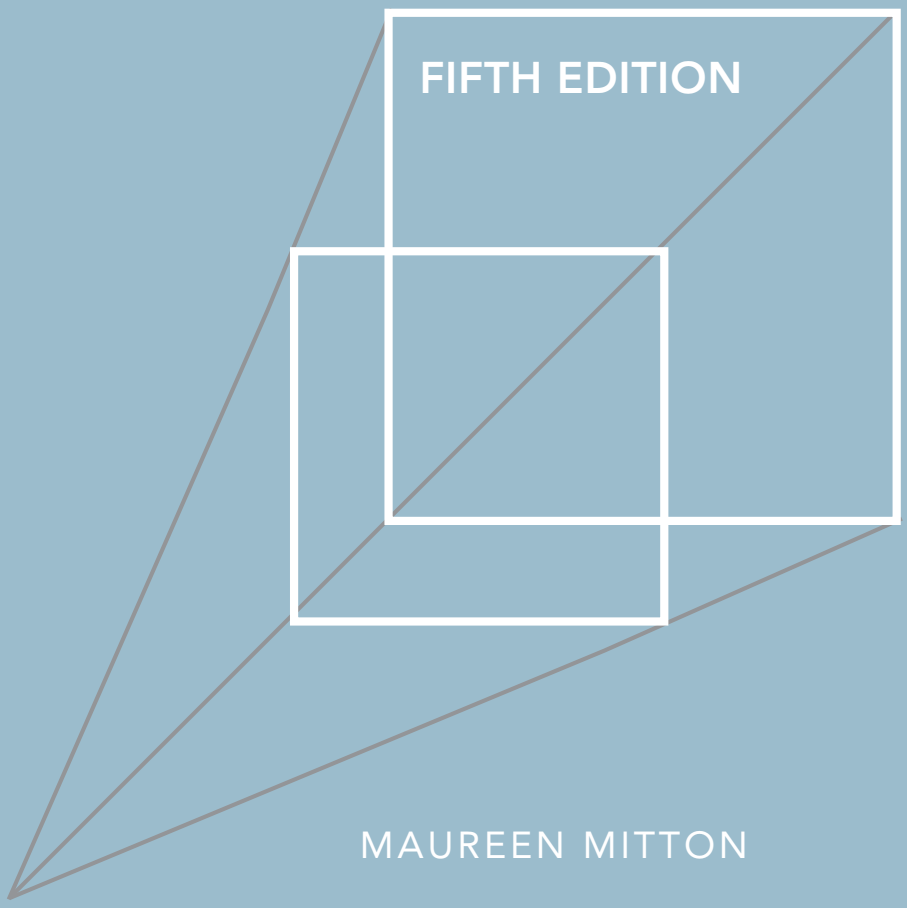
A Guide to Graphics, Models, and Presentation Methods



MAUREEN MITTON

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Introduction

The first edition of this book was intended as a primer on visual communication in interior design with a range of styles and techniques presented. The goal with that and each later edition has been to provide students and practitioners with up-to-date information on visual presentation techniques. Like earlier editions, this book identifies methods used in the visual presentation of interior spaces and articulates them in written and visual language. Various phases of the design process are discussed in order to reveal the connection between process and presentation.

Research for this edition made clear that interior designers working today are expected to know more than ever before and are expected to have an incredibly broad skill-set. Skills and knowledge related to hand drawing, digital drawing and rendering, and a range of CAD, image editing, and graphics programs are all considered necessary for current design practice—not to mention actual design talent, product knowledge, project experience, and the ability to communicate with a range of individuals throughout a project. Expectations are quite high for today's entry-level and practicing designer.

In thinking about how to approach this edition, given the wide range of skills required of today's design professional, it became clear that I should continue to focus on some of the quicker “go to” skills necessary for success in the current workplace. By focusing on drawing, rendering, and modeling options that are approachable and can be used every day in a wide range of work settings, this edition can provide a toolkit for current students and professionals.

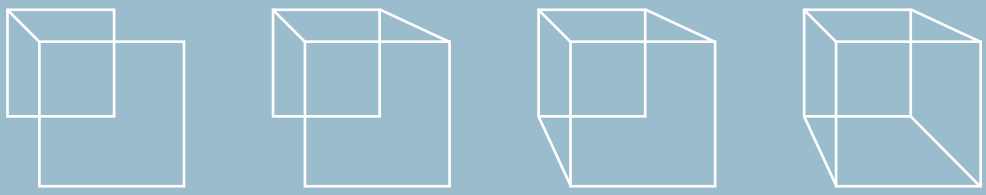
The focus here is on quick, estimated sketching and quick modeling (using SketchUp) because I believe these skills are useful for all designers. My approach with rendering is similar: all designers need “go to” quick rendering skills that are serviceable in a range of situations. My goal is for this book to provide an overview of accessible approaches to drawing, modeling, and rendering that will serve as a foundation for design students. The goal then is to create a comfort level with drawing and rendering so that those skills can be used throughout the design process.

As this edition goes into production, designers continue to present projects using traditional physical presentation boards, and yet many designers are creating completely

digital and virtual presentations. Both physical and digital presentations are covered in detail in this edition.

As with earlier editions, many of the examples included here were executed by undergraduate design students. Work done by professional illustrators, industrial designers, digital illustrators, and model makers is also included in order to demonstrate what is being done in current practice.

In completing this edition, I once again came to the conclusions that, while much has changed since the first edition—particularly related to digital technology, many things have stayed the same, particularly the process of design and the complex, yet flexible ways of thinking required of a professional designer. This continues to be a profession populated by bright, creative individuals, who are required to call upon a broad range of talents and skills in everyday practice. While technology has made many things easier—and faster—today's designers are required to know more and to possess more skills than at any time previously. I hope this book will help today's designers in their acquisition of some of the many skills required in current practice.



1

An Introduction to Drawing for Interior Design

Interior design is a multifaceted and ever-changing discipline. The practice of interior design continues to evolve due to technological as well as societal changes.

The sentences above were written many years ago in the introduction to the first edition of this book, and they continue to hold true today. Digital technology continues to influence—and to catalyze—the ongoing evolution of design practice. Current interior design practice has evolved to require the use of software throughout the design process, and yet manual drawing and sketching continue to be seen as highly useful as well.

While the profession continues to evolve, in many ways, the design process itself is a constant, whether it is practiced with a pencil or a powerful computer running special software. There are many stories about designers drawing preliminary sketches on

cocktail napkins or on scratch paper, and these anecdotes lead us to a simple truth: design drawing is a key part of the design process.

Professional designers conduct research and generate piles of information, then wrap this all together with inspiration and hard work in what is referred to as the *design process* to create meaningful and useful environments. An enduring and key factor in interior design is that human beings—and other living creatures—occupy and move within interior spaces. To create interior environments, professional designers must engage in a process that involves *research, understanding, idea generation, evaluation*, and *documentation*—all significant constants in an ever-changing world.

This book covers the drawing and presentation elements used in *design communication* throughout the design process. These processes and basic concepts are consistent, whether generated manually or by computer. Practicing designers currently use computers for most finalized design drawings as well as for many in-process drawings. Manual drawings are usually used earlier in the design process or to create quick, idea-oriented sketches throughout the process as needed.

This chapter covers what is often referred to as drafting, as well as other forms of two-dimensional graphics. The term *drafting* refers to measured drawings done with specialized drawing tools or computers.

Drawings created in the preliminary stages of the design process are often rough, or schematic, sketches and might be done by hand. As designs are refined, there is a need for highly accurate, measured, and detailed drawings, and these are most commonly generated via computer. Put another way, as a design is refined, the drawings for that design are also refined: the design process is one of refinement, as is the drawing process. Figures 1-1a, b, and c illustrate drawing refinement occurring during the design process.

This chapter presents an overview of the most common drawings used in interior design practice. The information presented is meant as an overview, not a definitive drawing or drafting reference. Subsequent chapters cover the other forms of drawing and design graphics used in sketching, as well as other forms of idea generation.

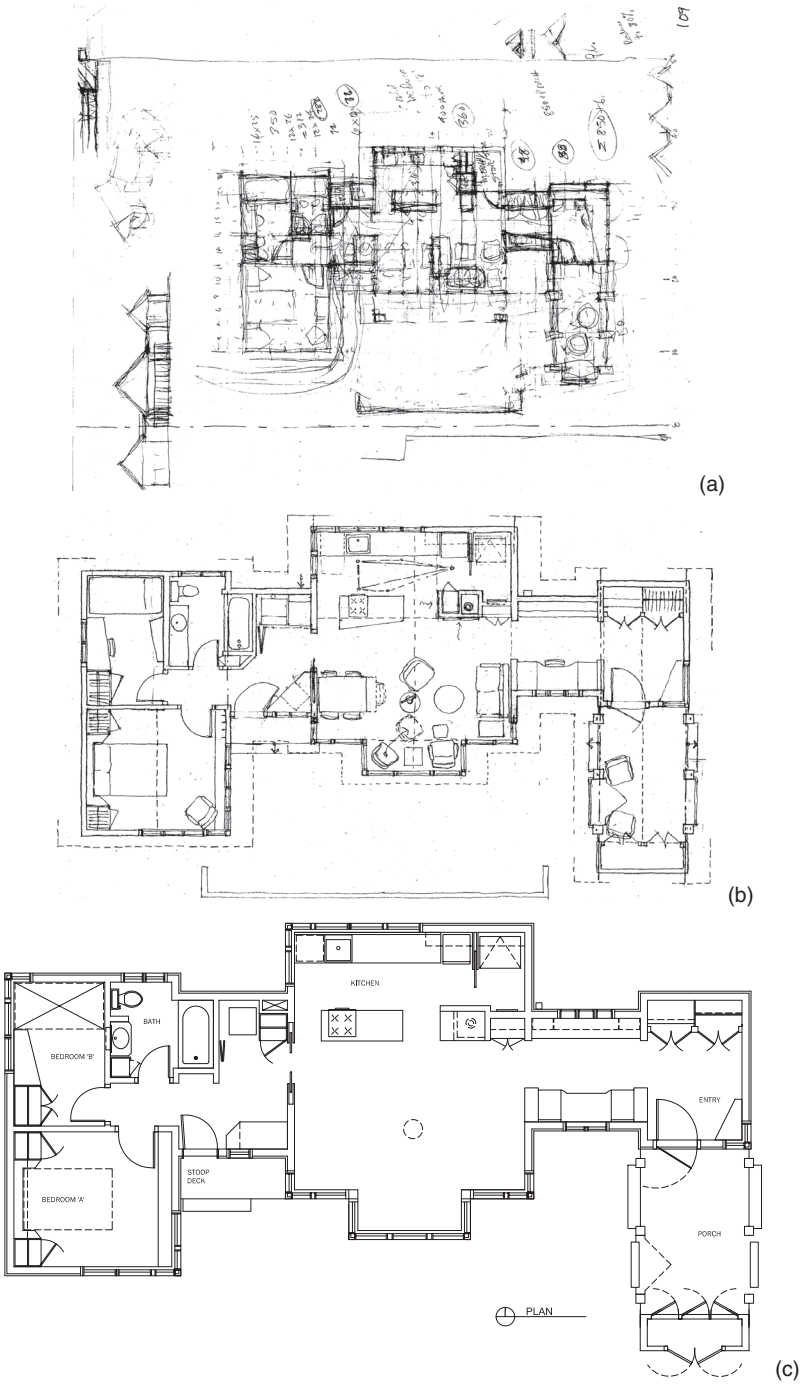


FIGURE 1-1A THROUGH 1-1C
Drawings are refined as the design process moves forward in a continual process of refinement, as one can see from early hand-drawn exploration sketches (1-1a), to more refined (1-1b) to the finalized design drawn using AutoCAD (1-1c). DESIGN AND SKETCHES BY COURTNEY NYSTUEN; AUTOCAD DRAWING BY SHELLEY PECHA

The practice of interior design requires the creation and use of various types of drawings. These can be divided into three broad categories based on purpose.

Interior Design Drawings Types and Purposes

1. Ideation

   Conceptual or preliminary drawings that allow the designer to explore ideas and work conceptually, often in the form of sketches.

2. Communication

   These drawings allow the designer to communicate to others, including members of the design team, the client, end users, consultants, and other professionals, usually through presentation drawings.

3. Construction

   This type of drawing conveys the technical information required for construction through construction documents or working drawings.

This book focuses on the first two types of drawing: those used for exploration and presentation or for graphic communication of ideas.

To create the appropriate type of drawing with the level of detail required, one can begin by asking what the purpose of the drawing is. For example, if ideation is the goal, then the drawings should be sketchy and executed quickly by hand, using few (or no) drawing tools.

Interestingly, as modeling software becomes more advanced, students and designers are well served by quick sketches generated by hand as a means of developing ideas. These sketches can then be used use as a reference when refining the design and modeling the project digitally.

For example, using software such as Revit requires having a clear understanding of the finished form while modeling and therefore may require one to commit to the final design early. It can be difficult to fully explore ideas visually if one becomes bogged down in the software. Hand sketching can aid in generating and developing ideas quickly prior to committing the ideas to software. The need for skills related to hand sketching is the reason that this book emphasizes quick sketching techniques.

This chapter focuses on the drawings used most for communication and construction, but designers do many other types of drawings, from diagrams to perspective

sketches all of which are covered in subsequent chapters: diagrams are covered in chapter 2, and perspective drawing is covered in chapters 3 and 4.

Understanding Orthographic Projection Drawings

Presentation drawings and construction documents use certain standard drawing conventions in order to clearly communicate and delineate the proposed design; these often involve drafting in scale. Design drawings are highly standardized and follow specific conventions so that they can carry universal meaning. Or as one early reviewer of this book put it, "Design drawing is much like a language; the drawings must convey the designer's meaning clearly."

The design drawings most commonly used in scaled delineation of interior environments are *floor plans, interior elevations, sections*, and *reflected ceiling plans*. These drawings, called *multiview orthographic projections*, are created by projecting information about an object onto an imaginary plane known as the *picture plane*. This direct projection of an object's dimensions allows orthographic projections to retain both shape and proportion, making these drawings accurate and precise.

Multiview orthographic projections create *fragmentary* views of an object, resulting in the need for multiple drawings (hence the "multiview" portion of the name). Because of their fragmentary nature, orthographic projections therefore become parts of a system and are mutually dependent on one another. By their nature, these orthographic projections appear flat and lack the three-dimensional quality of perspective drawings. One way to visualize orthographic projection is to imagine an object enclosed in a transparent box. Each transparent plane of the enclosing box serves as the picture plane for that face of the object.

The view through the top plane of the enclosing box is called a plan. In a *plan* view, only those elements seen when looking directly down at the object are drawn. Figure 1-2 depicts a roof plan.

The views through the picture planes that form the sides of the enclosing box are called *elevations*. Elevations depict only what is visible when the object is viewed directly through the side picture planes. Figure 1-3 is an exterior elevation.

A *section* portrays a view of the object or building with a vertical plane sliced through it and removed. One way of understanding section views is to imagine that a very sharp plane has been inserted into the object or building, cutting neatly into it and revealing the structure and complexity of the object's form (see Figure 1-4).

A *floor plan*, also known as a *horizontal section*, portrays a view of the building with a horizontal plane sliced through it and removed, exposing the thickness of the walls and the elements below the cut line, such as floor finishes and furniture (see Figure 1-5).

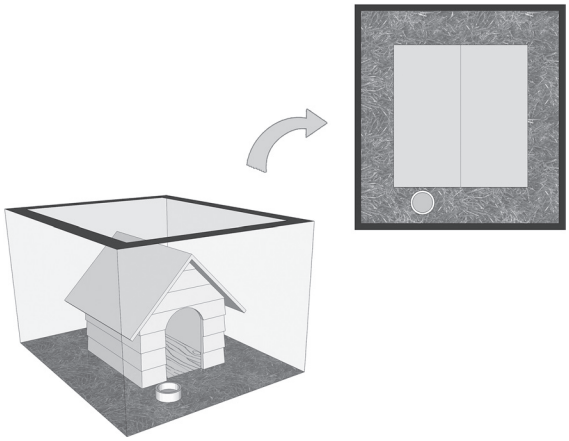


FIGURE 1-2

Roof plan. When an object is enclosed in a glass box, each plane of the box can serve as a picture plane. The view drawn through the top plane (picture plane) creates a plan view—in this case a roof plan.

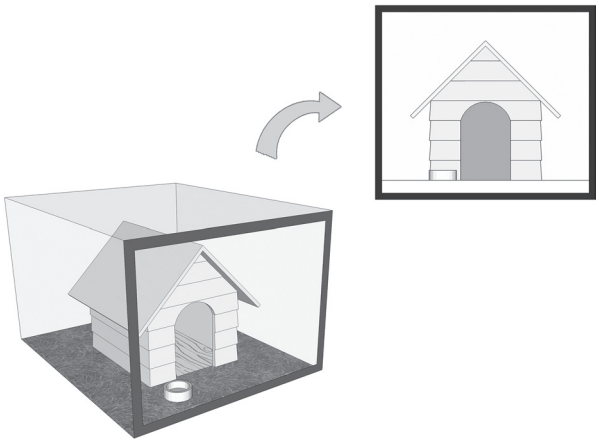


FIGURE1-3

Elevation. The view drawn through the picture plane enclosing the side of the box is called an elevation. This view shows the front elevation.

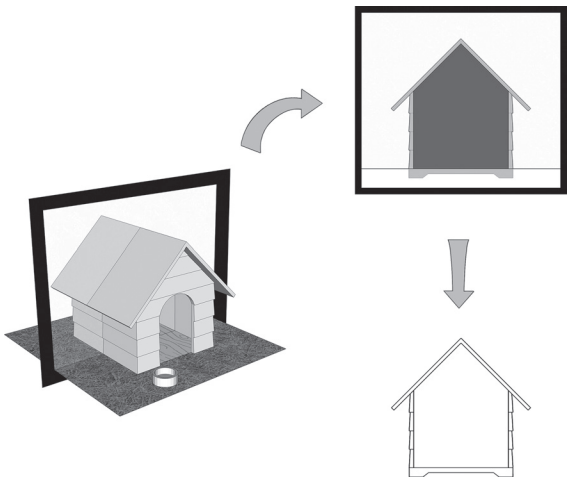


FIGURE 1-4

Section. A section is a view of an object with the picture plane slicing neatly through it.

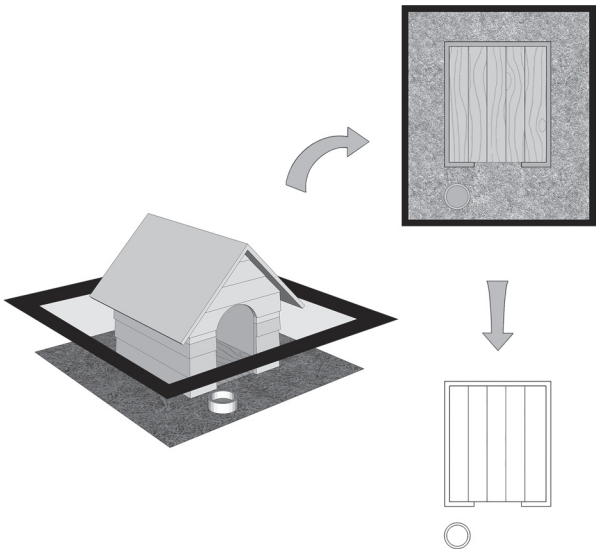


FIGURE 1-5

Floor plan. A view of the building from above, with a horizontal plane sliced through it and removed to expose the thickness of the walls is called a floor plan. FIGURES 1-2 THROUGH 1-5 DRAWN WITH CIARAH COENEN

Orthographic Projection Drawings for Interior Environments

The special orthographic projection drawings used in the delineation of interior environments are based on the concepts discussed above. These drawings impart information particular to interior construction.

Floor Plans

Floor plans are also called *horizontal building sections* because they are drawn as though a horizontal cut has been made through the building (typically between 3′-6″ and 5′-6″ above the floor), as shown in Figure 1-6. Cutting into the building at this location exposes the thickness of walls and other structural elements, shows windows and doors, and can reveal floor finishes and furnishings, all of which are located below the location of the cut.

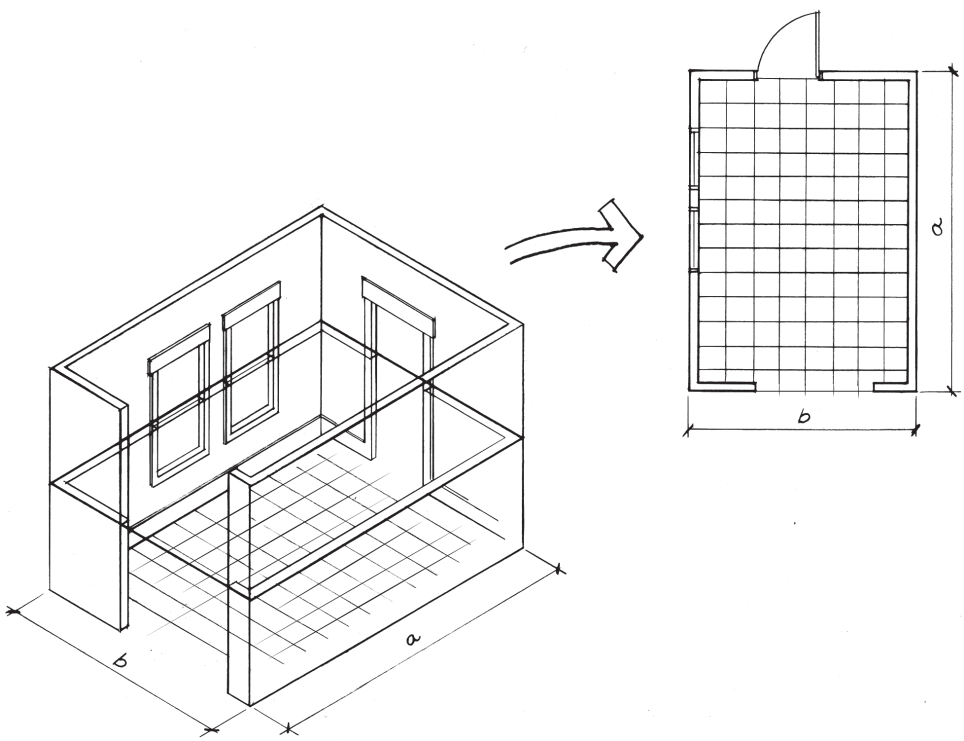


FIGURE 1-6
A floor plan is created when the picture plane cuts through the building horizontally, at 3′-6″ and 5′-6″ above floor level.

In the United States, floor plans are most often drawn at a scale of 1/8″ = 1′-0″ or ¼″ = 1′-0″, although this varies according to project conditions. Larger-scale floor plans are useful for the presentation of complex or highly detailed spaces. Smaller-scale floor plans are required for large projects and are also used as key plans in complex presentations. In creating floor plans using metric measurements, a scale of 1:50 is relatively common; it is somewhat similar to ¼″ = 1′-0″ scale (the ratio is precisely 1:48). Architectural drawings—other than small-scale interior-related drawings such as the floor plans mentioned—are commonly drawn using a metric scale of 1:100.

Floor plans must convey significant spatial relationships with consistent graphic conventions. The conventions for those are listed below.

Floor Plan Drawing and Line Weight Conventions (See also Figures 1-7, 1-8, and 1-9)

Various line weights are used to convey depths and qualities of form.

In standard floor plans, the boldest line weight is used to outline those elements that have been cut through and are closest to the viewer (such as full-height wall lines).

An intermediate line weight is employed to outline objects that lie below the plane of the cut but above the floor plane, such as fixtures, built-ins, and furnishings.

A finer line weight is used to outline the surface treatment of floors and other horizontal planes, such as tile and wood grain.

Objects that are hidden (such as shelves) or above the plane of the cut are dashed or ghosted in a manner that is consistent throughout the presentation.

Standard doors are drawn open at 90 degrees to the wall and are often shown with the arc of their swing. The door frame and the space it requires must be considered in the drawing of the door system; the dimensions of the frame itself must be dealt with as well.

Nonstandard doors, such as smaller swinging closet doors, bifold doors, sliding doors, and pocket doors are drawn in a manner consistent with their construction.

Windowsills are typically outlined, often with a lighter line weight at the sill only. Window frames and sheets of glass are shown at various level of detail, as the scale allows.

Stairs are generally shown broken off past the height of the plane of the cut; this is signified with a special cut or break line, as shown in Figure 1-10a. An arrow should be included to indicate the direction of the stairs from the level of the floor plan, with the word up (UP) or down (DN) adjacent to the directional arrow.

A title, north arrow, and some type of scale notation should be included on all floor plans. Scale notation can be stated numerically (e.g., ¼″ = 1′-0″). The use of a graphic scaling device, which allows for the reduction, enlargement, and electronic transmission of drawings, is often necessary.

Symbols relating the floor plan to additional orthographic views or details are often drawn on the floor plan and serve as cross-references.

Figures 1-7 and 1-8 are examples of town house floor plans drawn using AutoCAD and employing standard conventions and reference symbols. Figure 1-9 is an enlarged portion of the floor plan showing detailed information. Figures 1-10a and 1-10b are examples of the same town house floor plans drawn using Revit.

Successful floor plan presentation drawings require an understanding of drafting conventions. Presentation floor plans may be drawn fastidiously with tools or sketched freehand. Regardless of the drawing style, presentation floor plans must be accurate and drawn to the appropriate scale so that they communicate the design and can be used by the designer as the project progresses. Presentation floor plans are enhanced by the use of tone, value, color, and other graphic devices. The graphic enhancement of floor plans is discussed in greater detail in Chapters 5 and 7. Additional examples of plans for commercial projects can be found at the end of this chapter.

Interior Elevations

Just as exterior elevations are created to reveal exterior elements and features, interior elevations reveal a building's interior features. To understand the creation of interior elevations, imagine yourself inside the room you are drawing, directly facing one wall, with a large sheet of glass (the picture plane) inserted between you and the wall. The interior elevation is then created by outlining (i.e., projecting onto the picture plane) the wall's significant features. Each wall of the room can be drawn in elevation by projecting what is visible as you face that wall directly, as illustrated in Figure 1-11.

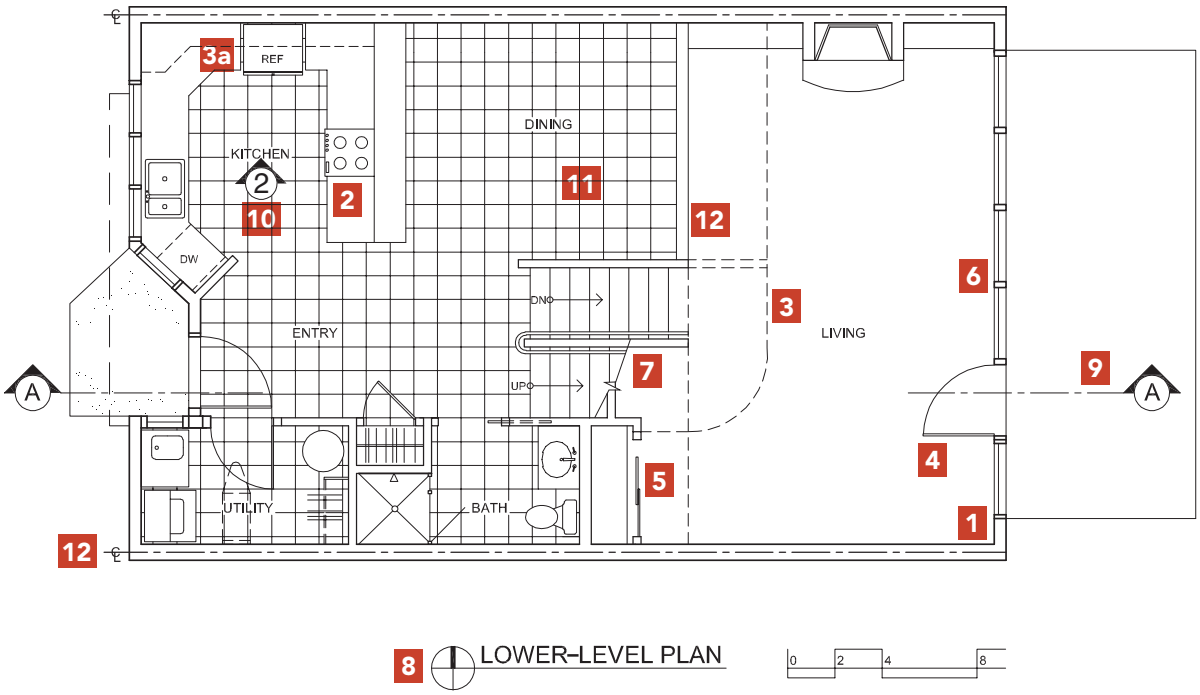


FIGURE 1-7

The lower-level floor plan of a town house employing standard drafting conventions as noted.

1. Boldest lines indicate the location of cut, meaning full-height walls are bold. Lower walls may be shown with lighter line weights (1a).
2. Fixtures, cabinetry, and finish materials are drawn with progressively lighter lines as they recede from the cut location.
3. Elements that are above or below the cut line—such as cabinets (3a) and soffits—or hidden such as dishwashers, are indicated with dashed lines.
4. Standard doors are drawn open at 90 degrees with the arc of swing shown; showing the full swing can ensure that nothing impedes the full swing of the door.
5. Specialized doors, such as smaller closet doors (shown), bifold doors, sliding doors, and pocket doors, are drawn in a way that indicates size and construction.
6. Window glass and sill lines are shown, often with a lighter-weight line than walls.
7. Stairs are drawn as broken off past the line of the cut; a special breakline is used. See also Figure 1-8, item 7.
8. A title, north arrow, and scale notation are required on all plans. Because this drawing was reduced, a standard written scale was omitted; instead, a graphic scale device is included.
9. This is a section reference symbol. The arrow indicates the direction of the view of the section.
10. This is an elevation reference symbol. The arrow indicates the direction of the elevation view. The number indicates the particular drawing that is referenced.
11. Flooring materials may be shown as required (using a light line weight).
12. This is a centerline, indicating the centerline of the shared wall in the town house.

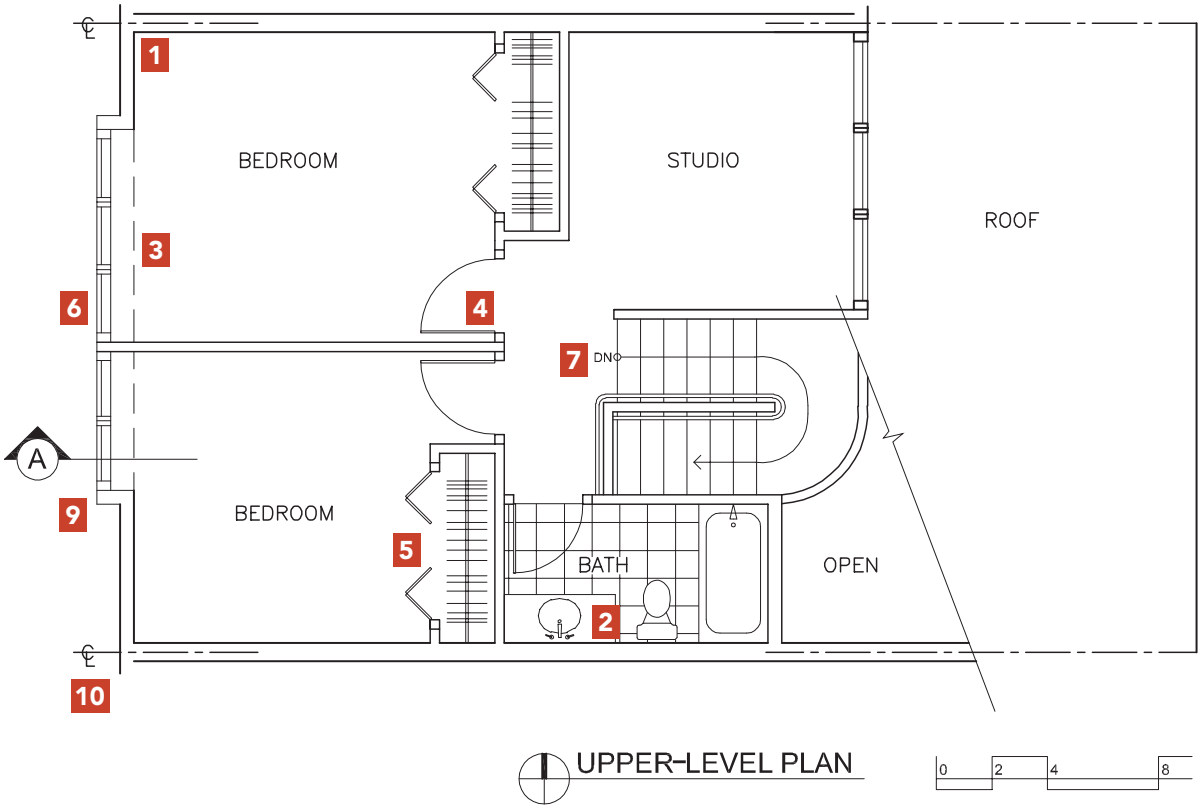
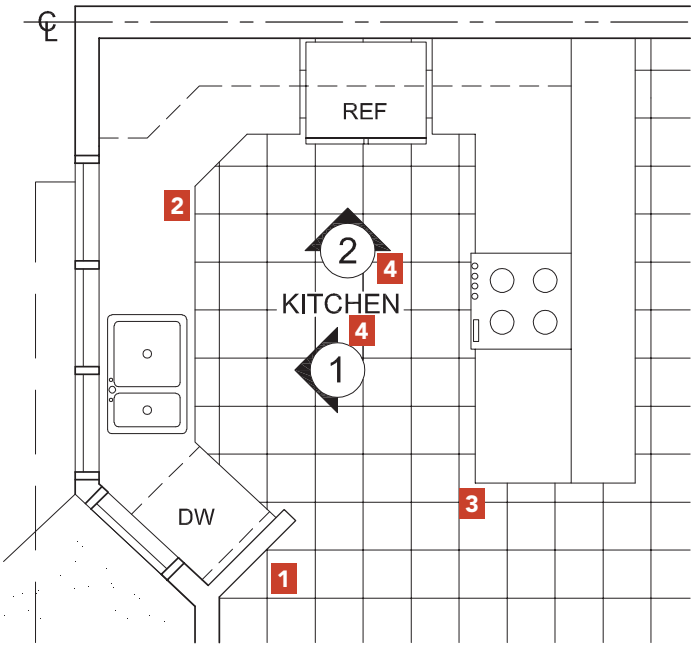


FIGURE1-8

The upper-level floor plan of a town house employing standard drafting conventions as noted

1. Boldest lines indicate the location of cut, meaning full-height walls are bold. Lower walls may be shown with lighter line weights (1a).
2. Fixtures, cabinetry, and finish materials are drawn with progressively lighter lines as they recede from the cut location.
3. Elements that are above or below the cut line—such as cabinets and soffits (shown) are indicated with dashed lines.
4. Standard doors are drawn open at 90 degrees with the arc of swing shown; the full swing can be shown ensure that nothing impedes the full swing of the door.
5. Specialized doors, such as smaller closet doors (shown), bifold doors, sliding doors, and pocket doors, are drawn in a way that indicates size and construction.
6. Window glass and sill lines are shown, often with a lighter-weight line than walls.
7. Stairs are drawn as broken off past the line of the cut; stairs from lower floors are shown.
8. A title, north arrow, and scale notation are required on all plans. Because this drawing was reduced, a standard written scale was omitted; instead, a graphic scale device is included.
9. This is a section reference symbol. The arrow indicates the direction of the view of the section. See Figure 1-9 for an example of a section reference symbol.
10. These are elevation reference symbols. The arrow indicates the direction of the view of the elevation.
11. This is a centerline, indicating the centerline of the shared wall in the town house.

FIGURE 1-9
A detailed view of varying line weights for floor plans with elevation symbols. FIGURES 1-7 THROUGH 1-9: DESIGN BY COURTNEY NYSTUEN; DRAWN BY SHELLEY PECHA

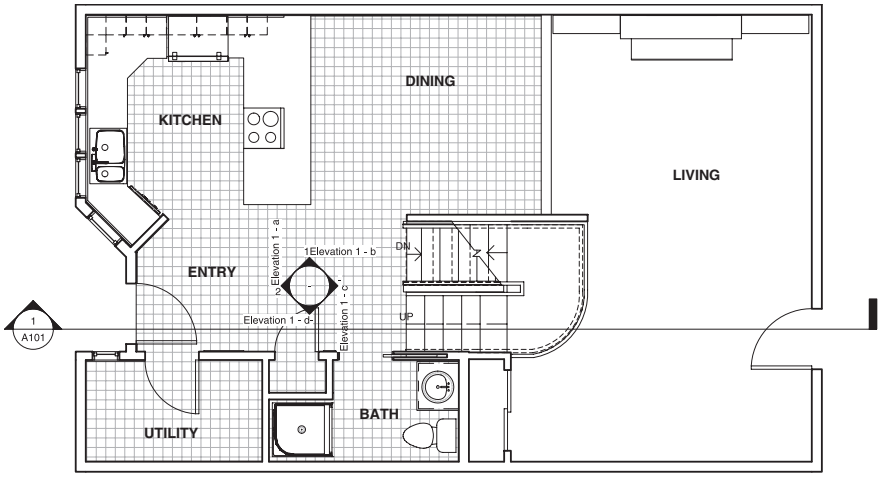


1. Boldest line
2. Secondary line weights
3. Lighter line weight.
4. These are elevation reference symbols. Arrows indicate the direction of the view.

ENLARGED PLAN

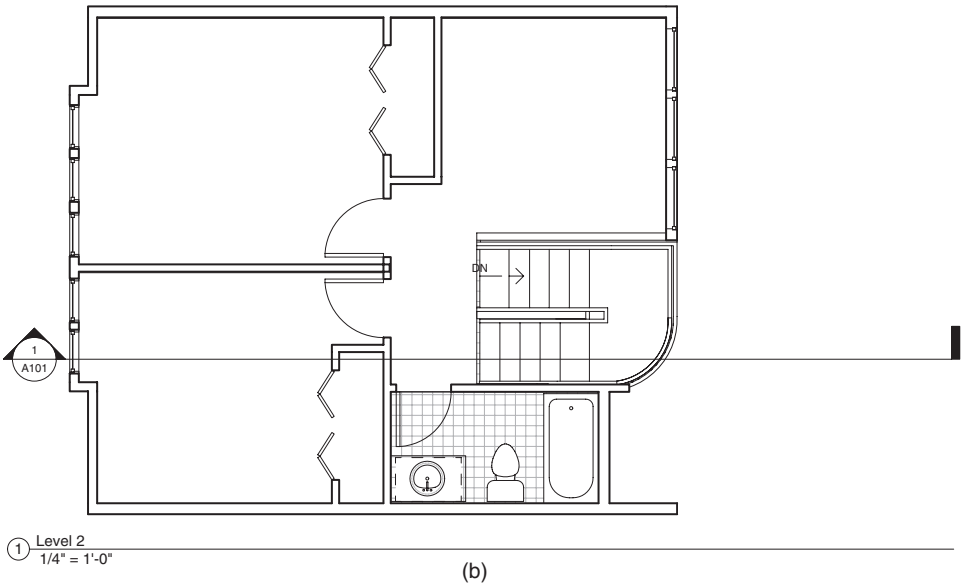
0 1 2 4

FIGURE 1-10A and 1-10B
Revit-generated floor plans of the town house project shown in Figures 1-7 through 1-9 DRAWN BY KATEY FORTUN



1 Level 1
1/4" = 1'-0"

(a)



(b)

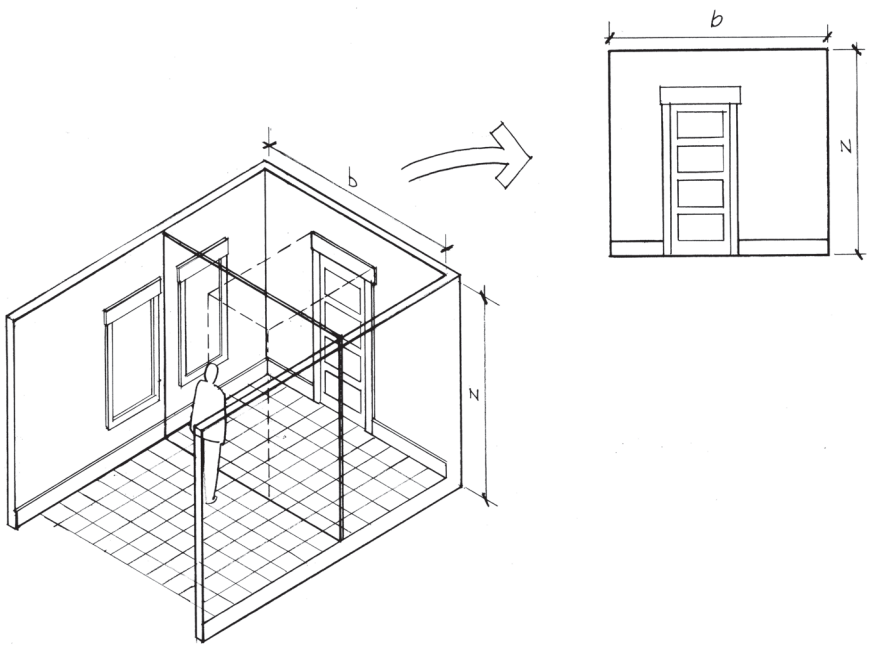


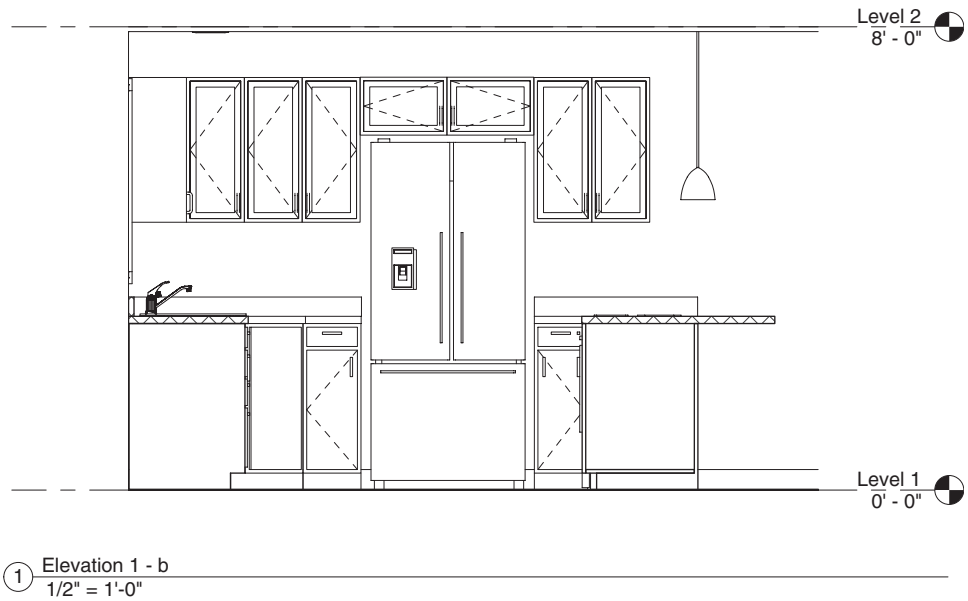
FIGURE 1-11
In drawing interior elevations, the picture plane is inserted between the viewer and wall(s). What is visible through the picture plane is drawn in elevation.

Successful elevations must follow the drafting conventions in the following list and illustrated in Figures 1-12 and 1-13.

FIGURE 1-12
Kitchen elevations for the town house shown in Figures 1-7–1-10b. DRAWN BY SHELLEY PECHA

1. Portions of walls cut into or closest to viewer are bold.
2. Receding elements are drawn with progressively lighter lines.
3. In elevations cabinetry and millwork, details such as countertops, door frames, and hardware should be included.
4. Interior elevations require titles, reference symbols (names or numbers), and scale notation.

FIGURE 1-13
This elevation was created using Revit. It represents the area shown in Figure 1-12: elevation 1. While a properly created Revit model can generate accurate interior elevations, the correct placement of the elevation symbol relative to the viewing location is a key to accuracy. DRAWN BY KATEY FORTUN



Interior Elevation Drawing and Line Weight Conventions (See also Figures 1-13 and 1-14.)

Interior elevations must clearly depict all interior architectural elements in a consistent scale.

Interior elevations are typically drawn in a scale ranging from ¼″ = 1′-0″ to 1″ = 1′-0″. Elevations drawn to depict accessories, equipment, cabinetry, fixtures, and design details are often drawn at ⅜″ = 1′-0″ or ½″ = 1′-0″. Millwork and other highly complicated elevations are often drawn at ½″ = 1′-0″ or larger.

Elevations require the use of differing line weights to clearly communicate spatial relationships.

Typically, any portion of walls cut through, as well as those closest to the viewer, are drawn using a bold line weight.

Elements become progressively lighter in line weight as they recede from the picture plane.

Some designers draw the ground line the boldest, with those lines representing the top and sides of the wall drawn just slightly lighter in weight.

Drawing interior elevations by hand or digitally using two-dimensional drafting programs requires a clear understanding of the concepts mentioned here and can be difficult for beginning students to master; therefore, additional examples are presented at the end of this chapter (see Figures 1-23 through 1-28). Revit and other parametric modeling programs can create highly accurate interior elevations. Although these modeling programs basically draw the elevations for you, an understanding of elevations is nonetheless required to obtain the intended view, as indicated in Figure 1-13.

Interior elevations are an excellent vehicle for developing and refining interior details. For elevations to work well in visual presentations, they must be clearly keyed, noted, or referenced to the floor plan. Regardless of the referencing method, titles must be included beneath all elevations, and the scale should always be noted. Like floor plans, elevations used for design presentations vary greatly from those used for construction. Figure 1-14 is a preliminary elevation sketch, created to convey design elements in the early phases of a professional project.

Elevations used for construction drawings must contain significant dimensions and appropriate technical information, as illustrated at the end of this chapter.

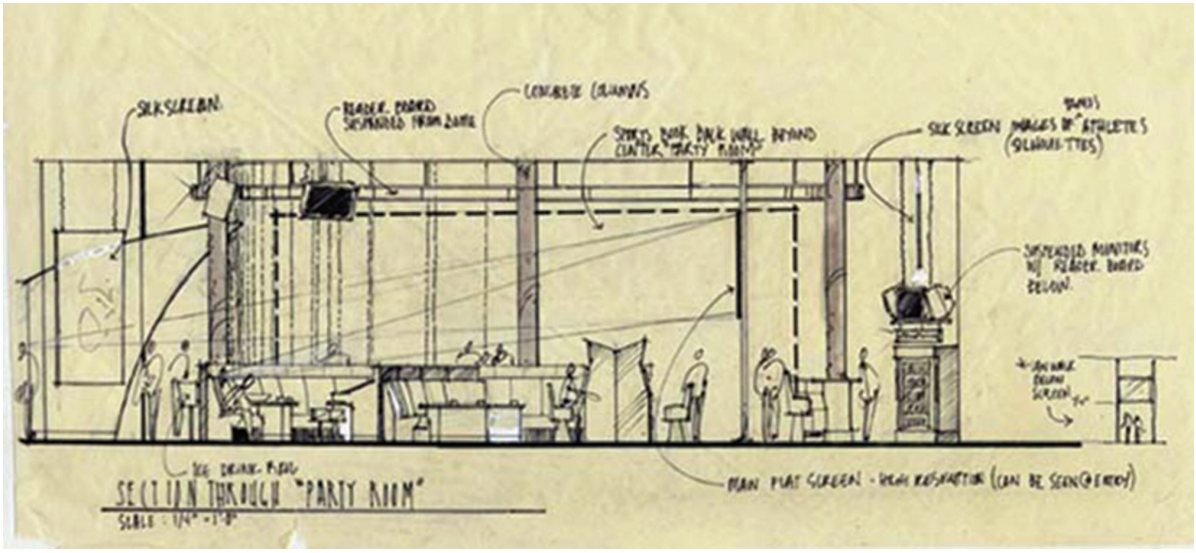


FIGURE 1-14
A preliminary hand-drawn elevation sketch for a professional project, drawn on tracing paper with markers.
BY THE CUNINGHAM GROUP

Sections

As previously described, a building section is a view created as though a vertical plane has cut through the building and been removed. Unlike interior elevations, which depict only what appears inside the interior, sections can expose the structure of the building. Section drawings should include the outline of the structural elements as well as the internal configuration of the interior space. Sections require varied line weights to describe depths and spatial relationships. It is typical to show what is cut through, and therefore closest to the viewer, in the boldest line weight; receding features and details are drawn using progressively lighter line weights.

Carefully consider the most useful location(s) of a building to show in section. The section should be cut through the building as a single continuous plane. Sections should expose and convey important interior relationships and details such as doors, windows, changes in floor level, ceiling heights, and, in some cases, finish material locations.

Design and presentation sections differ greatly from construction sections, which include technical information about building systems. In contrast, design and presentation sections focus on form, finish materials, and the definition of interior space. For sections to work well in visual presentations, they must be clearly keyed, noted, or referenced to the appropriate floor plan. Generally, sections are referenced to the floor plan through the use of a symbol that denotes the locations of the vertical cut. Figure 1-15 is an example design section for the town house project.

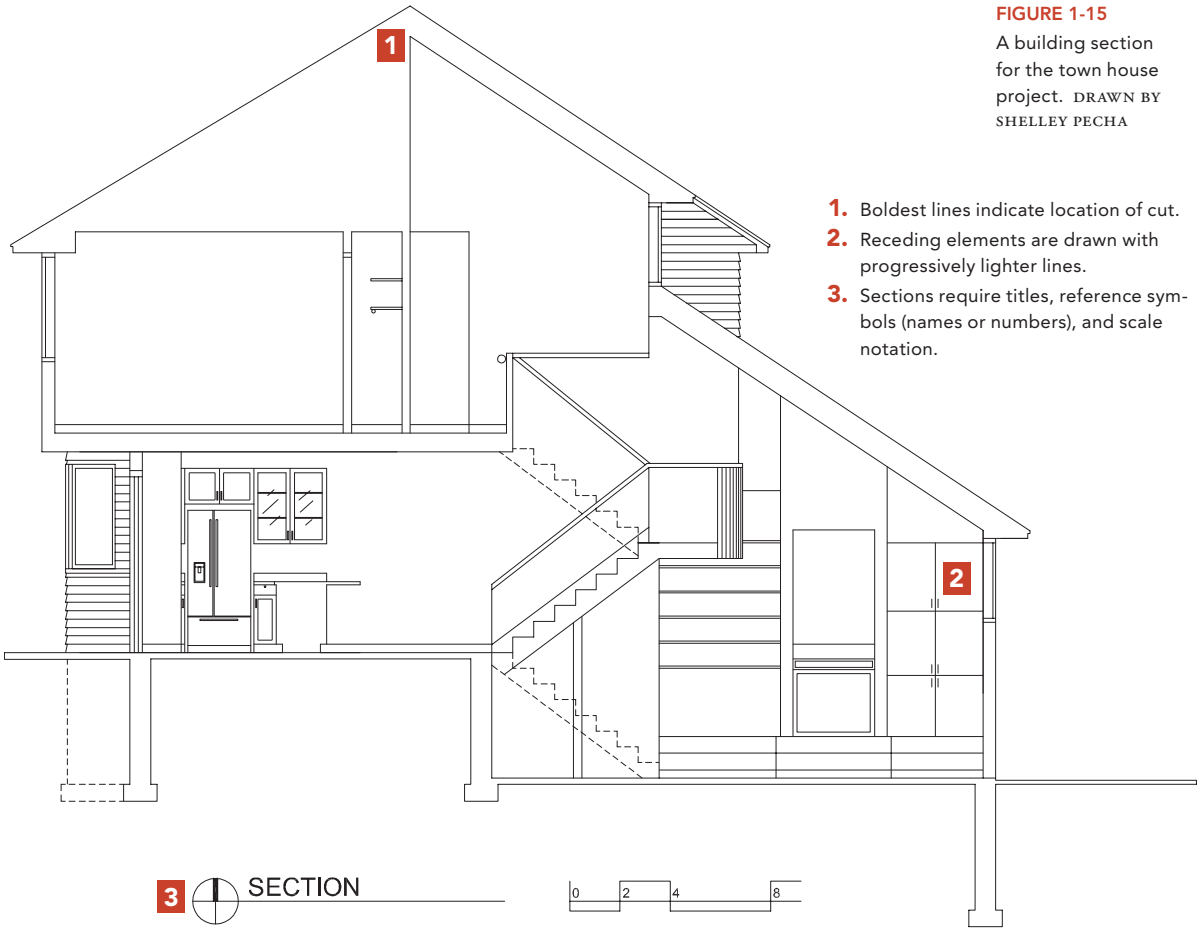


FIGURE 1-15
A building section for the town house project. DRAWN BY SHELLEY PECHA

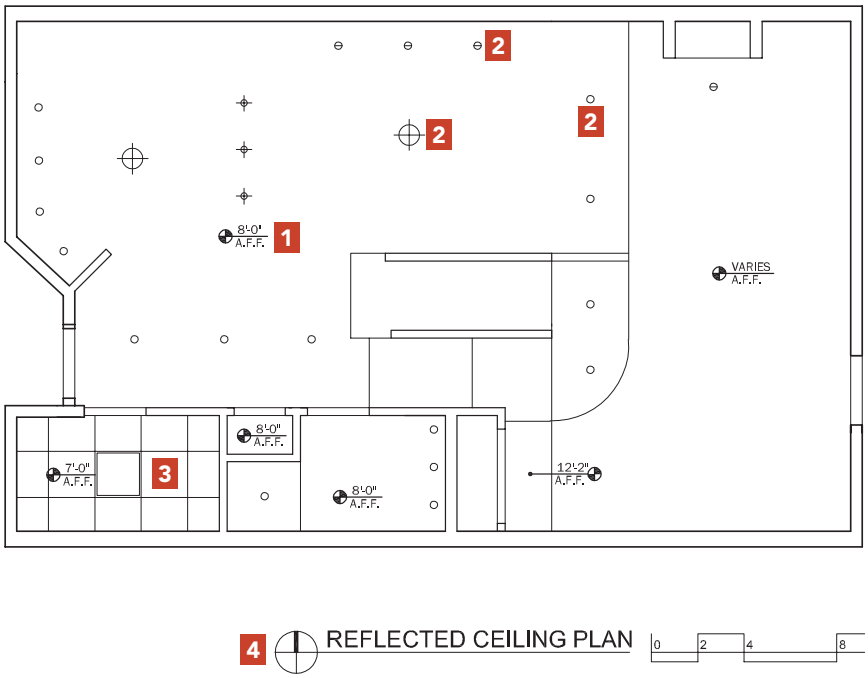
1. Boldest lines indicate location of cut.
2. Receding elements are drawn with progressively lighter lines.
3. Sections require titles, reference symbols (names or numbers), and scale notation.

Reflected Ceiling Plans

Reflected ceiling plans are often used in conjunction with floor plans, elevations, and sections to communicate interior design. Reflected ceiling plans convey important information about the design of the ceiling, such as materials; the layout and locations of light fixtures; items such as sprinklers, diffusers, and grilles; and ceiling heights. A reflected ceiling plan is drawn as though a giant mirror on the floor were reflecting the elements located on the ceiling. Using reflective imagery means the ceiling plan will have exactly the same orientation as the floor plan.

Ceiling plans used for presentation and those used for construction differ. Ceilings plans created for construction are typically highly technical and include a great deal of information. Reflected ceiling plans used in design presentations can be simplified to include basic ceiling lighting information, ceiling heights, and finish materials, as shown in Figure 1-16. Precisely measured, complex technical ceiling plans are required for construction (as illustrated at the end of this chapter).

FIGURE 1-16
A simple reflected ceiling plan for the town house project. DRAWN BY SHELLEY PECHA



1. Ceiling heights are noted (A.F.F. means above finished floor).
2. Light fixture locations are noted with various symbols and are keyed to a legend.
3. Finish materials such as gypsum board, wood, and ceiling tiles are indicated in scale.
4. Reflected ceiling plans require titles, north arrows, and scale notation. Note: reflected ceiling plans require legends (keyed to symbols used); in this example, the legend has been omitted.