

SEVENTH EDITION

Architectural Drafting & Design

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Seventh Edition

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Preface

For over 28 years, students have relied on *Architectural Drafting and Design* for easy-to-read, comprehensive coverage of architectural drafting and design instruction that complies with and reinforces architectural, engineering, and construction industry standards and practices.

This seventh edition of *Architectural Drafting and Design* is a practical, comprehensive textbook that is easy to use and understand. The content can be used as presented by following a logical sequence of learning activities for residential and light commercial architectural drafting and design, or the chapters can be rearranged to accommodate alternate formats for traditional or individualized instruction.

 **American Design
Drafting Association
(ADDA) Approved Publication**

The content of this text is considered a fundamental component to the design-drafting profession by the American Design Drafting Association. This publication covers topics and related material, as stated in the ADDA Curriculum Certification Standards and the ADDA Certified Drafter Examination Review Guide. Although this publication is not conclusive, with respect to ADDA standards, it should be considered a key reference tool in pursuit of a professional design-drafting career.

 **About the International
Code Council**

The International Code Council is a member-focused association. It is dedicated to developing model codes and standards used in the design, build and compliance process to construct safe, sustainable, affordable and resilient structures. Most U.S. communities and many global markets choose the International

Codes. ICC Evaluation Service (ICC-ES) is the industry leader in performing technical evaluations for code compliance fostering safe and sustainable design and construction.

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Approach

Architectural Drafting and Design provides a practical and realistic approach to solving problems that are encountered in the world of architectural design.

Practical

Architectural Drafting and Design provides a practical approach to architectural drafting and design as it relates to current standard practices. The emphasis on standardization is an excellent and necessary foundation for drafting training as well as for implementing a common approach to drafting nationwide. After students become professional drafters, this text will serve as a valuable desk reference.

Realistic

Chapters contain professional examples, illustrations, step-by-step layout techniques, drafting problems, and related tests. The examples demonstrate recommended drafting presentation with actual architectural drawings used for reinforcement. The correlated text explains drafting practices and provides useful information for knowledge building and skill development. Step-by-step layout methods provide a logical approach to beginning and finishing complete sets of working drawings.

Practical Approach to Problem Solving

The responsibility of the professional architectural drafter is to convert architects', engineers', and designers' sketches and ideas into formal drawings. This textbook explains how to prepare formal drawings from design sketches by providing the learner with basic guidelines for drafting layout and minimum design and code requirements in a knowledge-building format. One concept is learned before the next is introduced. The concepts and skills learned from one chapter to the next allow students to prepare complete sets of working drawings for residential and light commercial construction projects. Problem assignments are presented in order of difficulty and in a manner that provides students with a wide variety of architectural drafting experiences.

Real-World Architectural Problems

The problems are presented as preliminary designs or design sketches in a manner that is consistent with actual architectural office practices. It is not enough for students to duplicate drawings from given assignments. Students must be able to think through the process of drawing development with a foundation based on how drawing and construction components are put into practice. The goals and objectives of each problem assignment are consistent with recommended evaluation criteria based on the progression of learning activities. The drafting problems and chapter tests recommend that work be done using drafting skills with actual drafting materials using computer-aided drafting applications. A problem solution or test answer should be accurate and demonstrate proper drafting practice.

Team Problems

Problems can be assigned as team problems. Team problems that involve designing and drawing a set of plans for a home can be used as projects that help foster leadership and cooperation between team members. Teams are established with any desired number of members based on the project and curriculum goals. Teams can select a manager by voting in a democratic process, by selecting the person with the highest course evaluation, or as determined by the instructor. A manager is the person in charge of the project. The manager coordinates the teamwork, monitors the progress, and provides answers and instructions to

the team members in cooperation with the instructor. The manager divides the project into tasks and assigns portions of the project to the drafting team members. The manager works with team members to establish design alternatives. Team members are drafters, with one drafter responsible for sheet layout and reproduction. Each drafter is assigned specific drawings for the completion of the entire set of drawings. The manager provides coordination between team members to confirm all parts of the project match. Final team assignments and members are determined by your instructor.

Team project evaluation includes:

- Project coordination: organization of project assignments.
- Project completion: complete set of working drawings finished.
- Team member cooperation.
- Project quality: drawings completed accurately and in a professional manner

Architectural artistic decisions include:

- Project properly interpreted.
- Design decisions properly evaluated and completed.

Features of the Textbook

Major features of this textbook guide you through the world of architectural design and drafting, including: realistic application of the information presented throughout each chapter, professional illustrations of each concept to be explored, CADD applications of each type of working drawing, and exploration of the 2015 building codes and standards produced by the *International Code Council*, the *National Association of Home Builders (NAHB)*, and *Leadership in Energy and Environmental Design (LEED)*.

Chapter Tests

Chapter tests are found at the end of each chapter. Select the Chapter Tests link on the Student Companion Website to access chapter tests using Microsoft Word. The chapter tests allow you to review or test your knowledge of the related chapter content, depending on your course objectives. Open the related link and answer the questions electronically, unless otherwise directed by your instructor.

Real-World Problems

Special emphasis has been placed on providing realistic drafting problems. Problems are presented as design layouts or preliminary drawings in a manner that is consistent with architectural practices. The problems have been supplied by architects, engineers, and architectural designers. Each problem solution is based on the step-by-step layout procedures provided in chapter content.

Problems are given in order of complexity to expose students to a variety of drafting experiences. Problems require students to go through the same thought and decision-making processes that a professional drafter faces daily, including scale and sheet size selection, view layout, dimension placement, section placement, and many other activities. Problems are solved using computer-aided drafting, as determined by individual course guidelines. Chapter tests provide complete coverage of each chapter and can be used for student evaluation or as review.

Illustrations

Drawings and photos are used liberally throughout this textbook to strengthen the concepts presented. Full-color treatment enhances the clarity. Abundant step-by-step instructions and illustrations take students through the detailed stages of the drafting process for each application. The step-by-step illustrations are created using computer-aided drafting for the highest accuracy and quality.

Computer-Aided Design and Drafting (CADD)

CADD is presented as a valuable tool that has revolutionized the architectural design and drafting industry. The complete discussion of CADD introduces terminology, drafting techniques, and sample drawings. Drawings displayed throughout this textbook are created using CADD.

Construction Techniques and Building Codes

Construction techniques differ throughout the country. This text clearly acknowledges the difference in construction methods and introduces the student to the format used to make a complete set of working drawings for each method of construction. Students

can learn to prepare drawings for each construction method or, more commonly, for the specific construction techniques that are used in their locality. The problem assignments are designed to provide drawings that involve a variety of construction alternatives.

To provide oversight of the wide range of construction methods and materials used throughout the country, the 2015 model codes written by the *International Code Council (ICC)* are referenced throughout this textbook. The major ICC codes addressed in this textbook include the *International Residential Code (IRC)* in Chapter 1 through Chapter 41, the *International Building Code (IBC)* in Chapter 42 through Chapter 44, and the *International Energy Conservation Code (IECC)* and the *International Green Construction Code (IgCC)* in Chapters 9 and 41. Although many municipalities have adopted their own versions of these codes, the use of these model codes provides a firm background before exploring local variations.

Codes and Standards Compliance

Each chapter is based on information provided by the following major industry leaders:

- 2015 editions of the *International Residential Code* and the *International Building Code* published by the *International Code Council*. The *International Energy Conservation Code (IECC)* and the *International Green Construction Code (IgCC)* will be explored in Chapter 9 and Chapter 41.
- National CAD Standards® V6.
- *MasterFormat* and *UniFormat* published by The Construction Specifications Institute (CSI) and Construction Specifications Canada (CSC).
- LEED rating system published by the U.S. Green Building Council (USGBC).
- Model Green Home Building Guidelines (MGHBG) developed by the National Association of Home Builders (NAHB) and the *International Code Council (ICC)*, which publishes the *International Residential Code (IRC)*.

Going Green

Protecting the environment is one of the most important worldwide issues today. A flagship feature called *Going Green* is found throughout this textbook, providing current, practical, and experimental energy-efficient architectural design and construction techniques that result in a significant reduction in energy consumption. As the building industry grows to meet the demands of our

increasing population, we must take care of the environment and allow for current and future development.

As a student, and when you enter the architecture profession, it is very important for you to learn what is available today and to find ways to improve energy efficiency in architectural design and construction in the future in an effort to protect the earth. National and local programs have been established to meet this need. A leading program is often referred to as *green building*. The U.S. Green Building Council (USGBC) is a key organization developed to promote building design and construction that is environmentally responsible and healthy, while allowing construction to remain profitable. Modern advances in building construction are available to designers, builders, and owners who want to “build green” and make the most of environmental protection in the architectural and construction industries. The following is an example of one of the *Going Green* features found in this edition:




The Construction Specifications Institute has established *GreenFormat: The Construction Product Sustainability Information Reporting Guide*. *GreenFormat* is a CSI format allowing manufacturers to accurately report the sustainability measuring properties of their products, and providing designers, contractors, and building operators with basic information to help meet green requirements. When using *GreenFormat*, construction product manufacturers complete an online *GreenFormat* reporting questionnaire that collects the sustainability information about their product. Data from the questionnaires are displayed in a standardized style designed to ease sustainable design decision making. Access to the *GreenFormat* report and the resulting data is provided through <http://www.greenformat.com>.

Those using the website can print reports on specific products based on their questions within the database. Sustainable information reported in *GreenFormat* is grouped into categories, each containing individual topics and questions about product sustainability. The categories are organized with topics more likely to be important to design decisions first. This flexible structure can adapt to anticipated changes in the industry. As sustainability issues evolve, new topics and questions are added in the appropriate category, and existing topics and questions that become obsolete or change are dropped if necessary. The structure can be applied to all construction products and product categories. Refer to www.greenformat.com to see the categories and their contents and to view additional information about *GreenFormat*.

CADD Applications

CADD Applications is a special boxed feature that provides a variety of real-world examples, professional presentations, software applications, tips, standards, and procedures used with computer-aided design and drafting. The following is an example of one of the *CADD Applications* found in the seventh edition:



Using a computer to draw sections has some advantages: Standard sections and details can be brought into the drawing from a library, and placing notes on the section is easy with CADD. Also, some architectural CADD packages automatically draw a preliminary section from information you provide in relationship to the floor plan. This type of parametric design requires that an imaginary cutting-plane line be placed through the floor plan in the desired section location. This is followed by computer prompts requesting information such as roof pitch and structural floor thicknesses. In programs of this type, the floor plan walls are drawn with heights established, so these dimensions automatically convert to wall height information in the sectional view. All you do

to complete the section is add material symbols, dimensions, and notes.

Some architectural CADD packages contain typical section elements such as details, materials, and tags. After architects have used the CADD system for a while, they begin to save all typical or standard construction details as blocks. These blocks are commonly placed in a library manual for easy reference and can be called up and displayed at any time in any drawing. The standard details should be clearly labeled with an identification code for easy reference. Each CADD user should have a copy of the library reference manual, and every time a new detail is drawn, the reference manual should be updated with a drawing of the detail and the reference code. ■

Note

The Note feature is provided throughout this textbook to provide brief information related to the specific content where the note is found. The following is an example of a seventh edition note:

Note: Although both groups have produced “guidelines,” many municipalities are starting to move beyond the recommendation stage and are incorporating portions of these guidelines into their design and building requirements. The 2015 edition of the ICC codes, the NGBS-ICC 700, has moved from guidelines to law. Verify with the municipality that will govern each specific building project to determine whether specific aspects of a green guideline are required. The ICC has also developed a green building code for buildings that are not covered by the NGBS-ICC 700, titled International Green Construction Code (IgCC).

Supplemental Chapter Readings

Students are directed to supplemental chapter readings that are found on the Student Companion Website and are identified by a website icon in appropriate locations throughout this textbook. The supplemental reference material provides optional learning opportunities. The supplemental material ranges from commonly known topics available for students desiring a review, to advanced information that is beyond the scope of this textbook for students interested in further exploration. The supplemental chapter readings are identified within chapter content in the following manner.

The Student Companion Website

Although not new to the seventh edition, the Student Companion Website has new and improved content.

A website icon found throughout this textbook guides students to features found on the website. Refer to the Prologue for a complete description of each component and how to use the Student Companion Website.

The following features are found on the Student Companion Website:

- Supplemental Chapter Readings
- Step-by-Step Layout Drawings

- Chapter Tests
- Drawing Checklists
- Drawing Problems
- Drawing Templates
- Architectural Blocks and Symbols
- Related Web Links
- Workbook
- Video Clips of Major Concepts
- Review Questions

Organizing Your Course

Architectural drafting is the primary emphasis of many technical drafting curricula, while some schools offer only an exploratory course in this field. This textbook is appropriate for either application, as the content reflects common elements in any architectural drafting curriculum.

Prerequisites

An interest in architectural drafting and design, plus basic arithmetic, written communication, and reading skills are the only prerequisites required. Basic drafting skills, and layout techniques are presented as appropriate. Students with an interest in architectural drafting who begin using this text can end with the knowledge and skills required to prepare complete sets of working drawings for residential and light commercial architectural construction projects.

Fundamental through Advanced Coverage

This textbook can be used in an architectural drafting and design curriculum that covers the basics of residential architecture in a one-, two-, or three-semester sequence. In this application, students use the chapters directly associated with the preparation of a complete set of working drawings for a residence, where the emphasis is on the use of fundamental skills and techniques. The rest of the textbook can remain as a reference for future study or as a valuable desk reference.

This textbook can also be used in the comprehensive architectural drafting and design program where a four- to six-semester sequence of residential and light commercial architectural drafting and design is required. In this application, students can expand on the primary objective of preparing a complete set of working drawings for the design of residential and light commercial projects with the coverage of any one or all of the following areas: energy-efficient construction techniques,

solar and site orientation design applications, heating and cooling thermal performance, structural load calculations, and presentation drawings.

Section Length

Chapters are presented in individual learning segments that begin with fundamental concepts and build until each chapter provides complete coverage of every topic. Instructors can choose to present content in short, 15-minute discussions or divide each chapter into 40- to 50-minute discussions.

Drafting Equipment and Materials

Identification and use of computer-aided drafting equipment is described in a supplement. Students need an inventory of equipment available for use as listed in the content. Professional drafting materials are explained, and it is recommended that students prepare problem solutions using actual drafting materials.

Supplements

Instructor Companion Website

The Instructor Companion Website, found on cengagebrain.com, includes the following components to help minimize instructor preparation time and engage students.

- **Syllabus:** Lesson plans created by chapter. You have the option of using these lesson plans with your own course information.
- **Chapter Hints:** Objectives and teaching hints that provide the basis for a lecture outline that helps you to present concepts and material. Key points and concepts can be graphically highlighted for student retention.
- **PowerPoint Presentation:** Slides for each chapter of the text provide the basis for a lecture outline that helps you to present concepts and material. Key points and concepts can be graphically highlighted for student retention.
- **Solutions Manual:** Contains answers to end-of-chapter review questions and solutions to end-of-chapter problems.

Cengage Learning Testing Powered by Cognero is a flexible online system that allows you to:

- Author, edit, and manage test bank content from multiple Cengage Learning solutions.

- Create tests from your LMS, your classroom, or wherever you want.

MindTap for Architectural Drafting & Design

MindTap is a personalized teaching experience with relevant assignments that guide students to analyze, apply, and improve thinking, allowing you to measure skills and outcomes with ease.

- **Personalized Teaching:** Becomes YOURS with a Learning Path that is built with key student objec-

tives. Control what students see and when they see it—match your syllabus exactly by hiding, rearranging, or adding your own content.

- **Guide Students:** Goes beyond the traditional “lift and shift” model by creating a unique learning path of relevant readings, multimedia, and activities that move students up the learning taxonomy from basic knowledge and comprehension to analysis and application.
- **Measure Skills and Outcomes:** Analytics and reports provide a snapshot of class progress, time on task, engagement, and completion rates.



Acknowledgments

The authors would like to thank and acknowledge the many professionals who reviewed this and previous editions of *Architectural Drafting and Design*. A special acknowledgment is due the instructors who reviewed the chapters in detail.

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Contributing Companies

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Chief Architect Software

Special thanks are given to Derek Pedersen, the Sales Manager of Chief Architect Software. Mr. Pedersen has an AKBD and a background in real estate sales, development, and construction. Derek provided CADD content, images, and a technical review.

Chief Architect® was created in 1992 for the professional Home Design Software market and was the first object-based 3D CAD system with smart object design principles; known as building information modeling (BIM). Chief Architect is the market-leading home design software product for residential design.

Chief Architect Software is professional 3D architectural design software for architects, builders, remodelers, kitchen and bath designers, and interior designers. The software is specifically designed for residential and light commercial projects. The software's powerful building, drafting, construction document, and 3D tools provide a design process that flows naturally and allows the designer to complete the design process quickly and efficiently.

Chief Architect includes design tools for photo-realistic renderings, artistic renderings and virtual tours to help clients visualize designs. Visit the Chief Architect website to download a free trial version of Chief Architect Software at www.chiefarchitect.com/freetrial.

Energy-models.com

Special thanks are given to Bob Fassbender for Building Energy-Modeling (BEM) content. Bob is the owner of Energy-models.com, with the goal of more efficiently teaching the world about energy modeling. Bob continues training and energy modeling as a LEED accredited professional. He has worked with multiple universities teaching energy-modeling, and worked as adjunct professor for the University of Philadelphia. Energy-models.com is the world's largest website devoted to building energy simulation and allows users to learn energy-modeling from anywhere in the

tool while in school, and take it along as a desk reference when you enter the profession. The amount of written text is complete but kept to a minimum. Examples and illustrations are used extensively. Drafting is a graphic language, and most drafting students learn best by observation of examples. Here are a few helpful hints for using this textbook:

1. *Read the text.* The text content is intentionally designed for easy reading. Content is given in as few, easy-to-understand words as possible. You should do the reading because the content can help you to understand the drawings clearly.
2. *Look carefully at the examples.* The figure examples are presented in a manner that is consistent with architectural drafting standards and the U.S. National CAD Standard. Look at the examples carefully in an attempt to understand specific applications. If you are able to understand why something is done a certain way, it will be easier for you to apply the concepts to the drawing problems in this textbook and to similar issues when working as an architectural drafter. Drafting is a precise technology based on standards and guidelines. The goal of a drafter is to prepare drawings that are easy to read and understand. There are times when rules need to be altered to handle a unique situation. Rely on judgment based on your knowledge of accepted standards in these situations. Drafting is often like a puzzle—there is often more than one way to solve a problem.
3. *Use the text as a reference.* Few drafters know everything about drafting standards, techniques, and concepts. Always be ready to use this textbook as the reference if you need to verify how a specific application is handled. Become familiar with the definitions and use of technical terms. It is difficult to memorize everything in this text, but architectural drafting applications should become second nature as you gain experience.
4. *Learn each concept and skill before you continue to the next.* The text is presented in a logical learning sequence. Each chapter is designed for learning development, and chapters are sequenced so drafting knowledge grows from one chapter to the next. Problem assignments are presented in the same learning sequence as the chapter content and also reflect progressive levels of difficulty.
5. *Practice.* Development of good computer-aided drafting skills depends to a large extent on practice. Some individuals have an inherent talent for drafting, and some people are readily compatible with

computers. If you fit into either group, great! If you have difficulty, then practice may be all you need. Practice computer skills to improve your skills and efficiency with communication and drafting.

6. *Use sketches or preliminary drawings.* Even when drawing with a CADD program, the proper use of a sketch or preliminary drawing can save a lot of time in the long run. Prepare a layout sketch or preliminary layout for each problem. This preliminary step gives you a chance to organize your thoughts about drawing scale, view selection, dimension and note placement, and sheet size. After you become an experienced drafter, you may be able to design a sheet layout in your head, but until then, you should use sketches.

About the Authors

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Alan Jefferis is Faculty Emeritus of Drafting Technology at the Autodesk Premier Training Center at Clackamas Community College in Oregon City, Oregon. He was an architectural drafting and CAD instructor at Clackamas Community College for over 30 years. He also taught at Mt. Hood Community College in Gresham, Oregon, for four years. In addition to community college experience, Alan had eight years of experience drawing for architects, engineers, and residential designers prior to working for 35 years as the principal of Residential Designs, a design firm specializing in custom, energy-efficient homes. He is also a former member of the American Institute of Building Designers. In addition to his design work, he is a coauthor of several standard reference works from Cengage Delmar Learning including *Residential Design Drafting and Detailing*; *Print Reading for Architectural Construction Technology*; *Commercial Drafting and Detailing*; and *AutoCAD® for Architecture*.

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technology instructor at Centennial High School in Gresham, Oregon. David is a former member of the American Design and Drafting Association (ADDA) Board of Directors, and was honored by the ADDA with Director Emeritus status at the annual conference in 2005. David is an Autodesk Authorized Author. David has extensive experience in mechanical drafting, architectural design and drafting, and building construction. David holds a master of education degree in vocational administration and a bachelor of science degree in industrial education. David is the author of *Engineering Drawing and Design*; *Geometric Dimensioning and Tolerancing*; *Print Reading for Engineering and Manufacturing Technology*; and coauthor of *Architectural AutoCAD*; *Architectural Desktop and its Applications*; *Architectural Drafting and Design*; *Architectural Drafting Using AutoCAD*; *AutoCAD and Its Applications: Basics, Advanced, and Comprehensive*; *AutoCAD Architecture and Its Applications*; *AutoCAD Essentials*; *Civil Drafting Technology*; and *Print Reading for Architecture and Construction Technology*.

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drafting and design consultation and training for all disciplines. Dave is an Autodesk Authorized Author. Dave has been a professional design drafter since 1996, and has extensive experience in a variety of drafting, design, and engineering disciplines. Dave has provided drafting and computer-aided design and drafting instruction to secondary and post-secondary learners since 1999 and has considerable curriculum, program coordination, and development experience. Dave holds a master of science degree in educational policy, foundations, and administrative studies with a specialization in post-secondary, adult, and continuing education; a bachelor of science degree in technology education; and an associate of science degree in general studies and drafting technology. Dave is the author of *Inventor and Its Applications*, and coauthor of *Architectural Drafting and Design*; *Architectural Drafting Using AutoCAD*; *AutoCAD and Its Applications: Basics and Comprehensive*; *Civil Drafting Technology*; *Engineering Drawing and Design*; *Geometric Dimensioning and Tolerancing*; *Print Reading for Architecture and Construction Technology*; and *Print Reading for Engineering and Manufacturing Technology*.



Prologue

Student Companion Website

To access the Student Companion Website:

- Open your browser and go to www.cengagebrain.com.
- Type the author's name, or the title or ISBN of this book in the search window. (The ISBN is on the back cover.)
- Click the book title in the list of search results.
- When the book's main page is displayed, click on the link at the bottom of the page for Student Companion Website.
- On the next screen, click on Student Downloads.

The following is a list and description of each component found under the Student Downloads button.

Supplemental Chapter Readings

Throughout this textbook, a Student Companion Website icon guides you to chapter-related content provided for additional reading and research. The Supplemental Chapter Reading features found on the Student Companion Website include chapter-related content, basic information, advanced content that is beyond the scope of the main textbook, and commonly used abbreviations.

Step-by-Step Layout Drawings

Several chapters throughout this textbook use the same model home to describe step-by-step techniques for laying out drawings required in a set of residential working drawings. Click the Step-by-Step Drawings link to view Acrobat Portable Document Format (PDF) files of many of the textbook figures related to the step-by-step layout process. Use the files to display the figures on your computer screen, and to look more closely at the layout steps and details.

Chapter Tests

Chapter tests are found at the end of each chapter. Pick the Chapter Tests link to access chapter tests using

Microsoft Word. The chapter tests allow you to review or test your knowledge of the related chapter content, depending on your course objectives. Open the related link and answer the questions electronically, unless otherwise directed by your instructor.

Drawing Checklists

Drawing checklists are provided for the model home layout chapters on the Student Companion Website. The checklists allow you to check your work to be sure everything is included in the drawing that you are completing.

Drawing Problems

The Chapter 18 drawing problems are found on the Student Companion Website. These problems are identified in the textbook with a website icon. The Chapter 18 drawing problems can be used for creating the floor plans of the selected or assigned house that continue throughout this textbook to create a set of working drawings.

Drawing Templates

Select the Drawing Templates link to access a page containing a link to architectural and civil AutoCAD drawing template (.dwt) files. Use the Drawing Templates link and the available drawing template files to create new drawings, as a resource for drawing content, or for inspiration when developing your own templates. The architectural drafting templates are set up to allow you to prepare architectural drawings, whereas the civil drafting templates include preset civil drawing content for site plans and other civil drafting projects. Use the U.S. templates to draw using U.S. customary, or feet and inch, units. Use the metric templates to draw using metric units. Each template includes a variety of appropriate drawing settings and content, such as layers, layouts, and object styles. You can also use a utility

such as DesignCenter to add content from the drawing templates to your own drawings and templates. Consult with your instructor to determine which template drawing and drawing content to use.

Architectural Blocks and Symbols

The Architectural Symbols link provides access to an AutoCAD drawing (.dwg) file that contains several common architectural drafting symbols. These symbols are stored in folders named for the drawings in which they are most typically used. Many of the symbols are in AutoCAD block form and are drawn on the 0 layer; others are common symbols that should be made into blocks before inserting into the drawing. Use a utility such as DesignCenter, or copy and paste, to add the blocks to your own drawings. Use the blocks as desired or as directed by your instructor. Additional symbols are available through a variety of resources. Some software programs, such as AutoCAD, include and allow you to access many architectural symbols. Many other symbols are available through the Internet for free download or purchase. The U.S. National CAD Standard (NCS) includes separate .dwg files of the symbols presented in the standard.

Related Web Links

Internet research is an excellent way to gain additional knowledge about architectural drafting and the professional organizations related to architectural drafting and design. The Related Web Links section contains a variety of related website links for you to explore as preferred or as directed by your instructor. The website links are provided in alphabetical order covering the entire textbook content, and chapter by chapter. Click a link to go automatically to the designated website.

Workbook

Additional problems have been provided to reinforce the knowledge and skills introduced throughout the

textbook. These problems are divided into these sections and chapters:

Section I: Basic Residential Projects

Chapter 1 Basic Architectural Drafting Practices

Chapter 2 Site Plans

Chapter 3 Floor Plan Fundamentals

Chapter 4 Basic Floor Plan Problems

Chapter 5 Floor Plan Dimensions

Chapter 6 Electrical Plans

Chapter 7 Plumbing and HVAC Plans

Chapter 8 Roof Plans

Chapter 9 Elevations

Chapter 10 Cabinet Elevations

Chapter 11 Foundation Plans

Chapter 12 Details

Chapter 13 Sections

Chapter 14 Stair Sections

Chapter 15 Fireplace Sections

Chapter 16 Design Criteria for Structural Loading

Chapter 17 Construction Specifications, Permits, and Contracts

Chapter 18 Presentation Drawings

Section II: Advanced Residential Projects

Section III: Additional Advanced Residential Projects

Section IV: Advanced Research Projects

Review Questions

This feature provides you with review questions that are in addition to the chapter-by-chapter test questions provided throughout the textbook. Use the review questions for additional opportunities to test your knowledge and review textbook content.



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