Preface

The Uniform Building Code™ is dedicated to the development of better building construction and greater safety to the public by uniformity in building laws. The code is founded on broad-based principles that make possible the use of new materials and new construction systems.

The Uniform Building Code was first enacted by the International Conference of Building Officials at the Sixth Annual Business Meeting held in Phoenix, Arizona, October 18-21, 1927. Revised editions of this code have been published since that time at approximate three-year intervals. New editions incorporate changes approved since the last edition.

The Uniform Building Code is designed to be compatible with related publications to provide a complete set of documents for regulatory use. See the publications list following this preface for a listing of the complete family of Uniform Codes and related publications.

Code Changes. The ICBO code development process has been suspended by the Board of Directors and, because of this action, changes to the Uniform Building Code will not be processed. For more information, write to the International Conference of Building Officials, 5360 Workman Mill Road, Whittier, California 90601-2298. An analysis of changes between editions is published in the Analysis of Revisions to the Uniform Codes.

Marginal Markings. Solid vertical lines in the margins within the body of the code indicate a change from the requirements of the 1994 edition except where an entire chapter was revised, a new chapter was added or a change was minor. Where an entire chapter was revised or a new chapter was added, a notation appears at the beginning of that chapter. The letter F repeating in line vertically in the margin indicates that the provision is maintained under the code change procedures of the International Fire Code Institute. Deletion indicators (●) are provided in the margin where a paragraph or item listing has been deleted if the deletion resulted in a change of requirements.

Three-Volume Set. Provisions of the Uniform Building Code have been divided into a three-volume set. Volume 1 accommodates administrative, fire- and life-safety, and field inspection provisions. Chapters 1 through 15 and Chapters 24 through 35 are printed in Volume 1 in their entirety. Any appendix chapters associated with these chapters are printed in their entirety at the end of Volume 1. Excerpts of certain chapters from Volume 2 are reprinted in Volume 1 to provide greater usability.

Volume 2 accommodates structural engineering design provisions, and specifically contains Chapters 16 through 23 printed in their entirety. Included in this volume are design standards that have been added to their respective chapters as divisions of the chapters. Any appendix chapters associated with these chapters are printed in their entirety at the end of Volume 2. Excerpts of certain chapters from Volume 1 are reprinted in Volume 2 to provide greater usability.

Volume 3 contains material, testing and installation standards.

Metrication. The Uniform Building Code was metricated in the 1994 edition. The metric conversions are provided in parenthesis following the English units. Where industry has made metric conversions available, the conversions conform to current industry standards.

Formulas are also provided with metric equivalents. Metric equivalent formulas immediately follow the English formula and are denoted by “For SI:” preceding the metric equivalent. Some formulas do not use dimensions and, thus, are not provided with a metric equivalent. Multiplying conversion factors have been provided for formulas where metric forms were unavailable. Tables are provided with multiplying conversion factors in subheadings for each tabulated unit of measurement.
CODES AND RELATED PUBLICATIONS

The International Conference of Building Officials (ICBO) publishes a family of codes, each correlated with the Uniform Building Code to provide jurisdictions with a complete set of building-related regulations for adoption. Some of these codes are published in affiliation with other organizations such as the International Fire Code Institute (IFCI) and the International Code Council (ICC). Reference materials and related codes also are available to improve knowledge of code enforcement and administration of building inspection programs. Publications and products are continually being added, so inquiries should be directed to Conference headquarters for a listing of available products. Many codes and references are also available on CD-ROM or floppy disk. These are denoted by (*). The following publications and products are available from ICBO:

CODES

*Uniform Building Code*. Volumes 1, 2 and 3. The most widely adopted model building code in the United States, the performance-based Uniform Building Code is a proven document, meeting the needs of government units charged with the enforcement of building regulations. Volume 1 contains administrative, fire- and life-safety and field inspection provisions; Volume 2 contains structural engineering design provisions; and Volume 3 contains material, testing and installation standards.

*Uniform Mechanical Code*. Provides a complete set of requirements for the design, construction, installation and maintenance of heating, ventilating, cooling and refrigeration systems; incinerators and other heat-producing appliances.

International Plumbing Code*. Provides consistent and technically advanced requirements that can be used across the country to provide comprehensive regulations of modern plumbing systems. Setting minimum regulations for plumbing facilities in terms of performance objectives, the IPC provides for the acceptance of new and innovative products, materials and systems.

International Private Sewage Disposal Code*. Provides flexibility in the development of safety and sanitary individual sewage disposal systems and includes detailed provisions for all aspects of design, installation and inspection of private sewage disposal systems.

International Mechanical Code*. Establishes minimum regulations for mechanical systems using prescriptive and performance-related provisions. It is founded on broad-based principles that make possible the use of new materials and new mechanical designs.

Uniform Zoning Code*. This code is dedicated to intelligent community development and to the benefit of the public welfare by providing a means of promoting uniformity in zoning laws and enforcement.

*Uniform Fire Code*. Volumes 1 and 2. The premier model fire code in the United States, the Uniform Fire Code sets forth provisions necessary for fire prevention and fire protection. Published by the International Fire Code Institute, the Uniform Fire Code is endorsed by the Western Fire Chiefs Association, the National Association of Fire Chiefs and ICBO. Volume 1 contains code provisions compatible with the Uniform Building Code, and Volume 2 contains standards referenced from the code provisions.

*Urban-Wildland Interface Code*. Promulgated by IFCI, this code regulates both land use and the built environment in designated urban-wildland interface areas. This newly developed code is the only model code that bases construction requirements on the fire-hazard severity exposed to the structure. Developed under a grant from the Federal Emergency Management Agency, this code is the direct result of hazard mitigation meetings held after devastating wildfires.

Uniform Housing Code*. Provides complete requirements affecting conservation and rehabilitation of housing. Its regulations are compatible with the Uniform Building Code.

Uniform Code for the Abatement of Dangerous Buildings*. A code compatible with the Uniform Building Code and the Uniform Housing Code which provides equitable remedies consistent with other laws for the repair, vacation or demolition of dangerous buildings.

Uniform Sign Code*. Dedicated to the development of better sign regulation, its requirements pertain to all signs and sign construction attached to buildings.

Uniform Administrative Code*. This code covers administrative areas in connection with adoption of the Uniform Building Code, Uniform Mechanical Code and related codes. It contains provisions which relate to site preparation, construction, alteration, moving, repair and use and occupancies of buildings or structures and building service equipment, including plumbing, electrical and mechanical regulations. The code is compatible with the administrative provisions of all codes published by the Conference.

Uniform Building Security Code*. This code establishes minimum standards to make dwelling units resistant to unlawful entry. It regulates swinging doors, sliding doors, windows and hardware in connection with dwelling units of apartment houses or one- and two-family dwellings. The code gives consideration to the concerns of police, fire and building officials in establishing requirements for resistance to burglary which are compatible with fire and life safety.

Uniform Code for Building Conservation*. A building conservation guideline presented in code format which will provide a community with the means to preserve its existing buildings while achieving appropriate levels of safety. It is formatted in the same manner as the Uniform Building Code, is compatible with other Uniform Codes, and may be adopted as a code or used as a guideline.

 Dwelling Construction under the Uniform Building Code*. Designed primarily for use in home building and apprentice training, this book contains requirements applicable to the construction of one- and two-story dwellings based on the requirements of the Uniform Building Code. Available in English or Spanish.

 Dwelling Construction under the Uniform Mechanical Code*. This publication is for the convenience of the homeowner or contractor interested in installing mechanical equipment in a one- or two-family dwelling in conformance with the Uniform Mechanical Code.

Supplements to UBC and related codes. Published in the years between editions, the Supplements contain all approved changes, plus an analysis of those changes.


One and Two Family Dwelling Code. Promulgated by ICC, this code eliminates conflicts and duplications among the model codes to achieve national uniformity. Covers mechanical and plumbing requirements as well as construction and occupancy.

Application and Commentary on the One and Two Family Dwelling Code. An interpretative commentary on the One and Two Family Dwelling Code intended to enhance uniformity of interpretation and application of the code nationwide. Developed by the three model code organizations, this document includes numerous illustrations of code requirements and the rationale for individual provisions.

Model Energy Code. This code includes minimum requirements for effective use of energy in the design of new buildings and structures and additions to existing buildings. It is based on American Society of Heating, Refrigeration and Air-Conditioning Engineers Standard 90A-1980 and was originally developed jointly by ICBO, BOCA, SBCCI and the National Conference of States on Building Codes and Standards under a contract funded by the United States Department of Energy. The code is now maintained by ICC and is adopted by reference in the Uniform Building Code.

National Electrical Code®. The electrical code used throughout the United States. Published by the National Fire Protection Association, it is an indispensable aid to every electrician, contractor, architect, builder, inspector and anyone who must specify or certify electrical installations.
TECHNICAL REFERENCES AND EDUCATIONAL MATERIALS

Analysis of Revisions to the Uniform Codes. An analysis of changes between the previous and new editions of the Uniform Codes is provided. Changes between code editions are noted either at the beginning of chapters or in the margins of the code text.

*Handbook to the Uniform Building Code. The handbook is a completely detailed and illustrated commentary on the Uniform Building Code, tracing historical background and rationale of the codes through the current edition. Also included are numerous drawings and figures clarifying the application and intent of the code provisions. Also available in electronic format.

*Handbook to the Uniform Mechanical Code. An indispensable tool for understanding the provisions of the current UMC, the handbook traces the historical background and rationale behind the UMC provisions, includes 160 figures which clarify the intent and application of the code, and provides a chapter-by-chapter analysis of the UMC.

Uniform Building Code Application Manual. This manual discusses sections of the Uniform Building Code with a question-and-answer format, providing a comprehensive analysis of the intent of the code sections. Most sections include illustrative examples. The manual is in loose-leaf format so that code applications published in Building Standards magazine may be inserted. Also available in electronic format.

Uniform Mechanical Code Application Manual. As a companion document to the Uniform Mechanical Code, this manual provides a comprehensive analysis of the intent of a number of code sections in an easy-to-use question-and-answer format. The manual is available in a loose-leaf format and includes illustrative examples for many code sections.

Uniform Fire Code Applications Manual. This newly developed manual provides questions and answers regarding UFC provisions. A comprehensive analysis of the intent of numerous code sections, the manual is in a loose-leaf format for easy insertion of code applications published in IFIC’s Fire Code Journal.

Quick-Reference Guide to the Occupation Requirements of the 1997 UBC. Code requirements are compiled in this publication by occupancy groups for quick access. These tabulations assemble requirements for each occupancy classification in the code. Provisions, such as fire-resistive ratings for occupancy separations in Table 3-B, exterior wall and opening protection requirements in Table 5-A-1, and fire-resistive ratings for types of construction in Table 6-A, are tabulated for quick reference and comparison.

Plan Review Manual. A practical text that will assist and guide both the field inspector and plan reviewer in applying the code requirements. This manual covers the nonstructural and basic structural aspects of plan review.

Field Inspection Manual. An important fundamental text for courses of study at the community college and trade or technical school level. It is an effective text for those studying building construction or architecture and includes sample forms and checklists for use in the field.

Building Department Administration. An excellent guide for improvement of skills in departmental management and in the enforcement and application of the Building Code and other regulations administered by a building inspection department. This textbook will also be a valuable aid to instructors, students and those in related professional fields.

Building Department Guide to Disaster Mitigation. This new expanded guide is designed to assist building departments in developing or updating disaster mitigation plans. Subjects covered include guidelines for damage mitigation, disaster-response management, immediate response, mutual aid and inspections, working with the media, repair and recovery policies, and public information bulletins. This publication is a must for those involved in preparing for and responding to disaster.

Building Official Management Manual. This manual addresses the unique nature of code administration and the managerial duties of the building official. A supplementary insert addresses the budgetary and financial aspects of a building department. It is also an ideal resource for those preparing for the management module of the CABO Building Official Certification Examination.

Legal Aspects of Code Administration. A manual developed by the three model code organizations to inform the building official on the legal aspects of the profession. The text is written in a logical sequence with explanation of legal terminology. It is designed to serve as a refresher for those preparing to take the legal module of the CABO Building Official Certification Examination.

Illustrated Guide to Conventional Construction Provisions of the UBC. This comprehensive guide and commentary provides detailed explanations of the conventional construction provisions in the UBC, including descriptive discussions and illustrated drawings to convey the prescriptive provisions related to wood-frame construction.

Introduction to the Uniform Building Code. A workbook that provides an overview of the basics of the UBC.

Uniform Building Code Update Workbook. This manual addresses many of the changes to the administrative, fire- and life-safety, and inspection provisions appearing in the UBC.

UMC Workbook. Designed for independent study or use with instructor-led programs based on the Uniform Mechanical Code, this comprehensive study guide consists of 16 learning sessions, with the first two sessions reviewing the purpose, scope, definitions and administrative provisions and the remaining 14 sessions progressively exploring the requirements for installing, inspecting and maintaining heating, ventilating, cooling and refrigeration systems.

UBC Field Inspection Workbook. A comprehensive workbook for studying the provisions of the UBC. Divided into 12 sessions, this workbook focuses on the UBC combustible construction requirements for the inspection of wood-framed construction.

Concrete Manual. A publication for individuals seeking an understanding of the fundamentals of concrete field technology and inspection practices. Of particular interest to concrete construction inspectors, it will also benefit employees of concrete producers, contractors, testing and inspection laboratories and material suppliers.

Reinforced Concrete Masonry Construction Inspector’s Handbook. A comprehensive information source written especially for masonry inspection covering terminology, technology, materials, quality control, inspection and standards. Published jointly by ICBO and the Masonry Institute of America.

You Can Build It! Sponsored by ICBO in cooperation with CABO, this booklet contains information and advice to aid “do-it-yourselfers” with building projects. Provides guidance in necessary procedures such as permit requirements, codes, plans, cost estimation, etc.

Guidelines for Manufactured Housing Installations. A guideline in code form implementing the Uniform Building Code and its companion code documents to regulate the permanent installation of a manufactured home on a privately owned, nonrental site. A commentary is included to explain specific provisions, and codes applying to each component part are defined.

Accessibility Reference Guide. This guide is a valuable resource for architects, interior designers, plan reviewers and others who design and enforce accessibility provisions. Features include accessibility requirements, along with detailed commentary and graphics to clarify the provisions; cross-references to other applicable sections of the UBC and the Americans with Disabilities Act Accessibility Guidelines; a checklist of UBC provisions on access and usability requirements; and many other useful references.

Educational and Technical Reference Materials. The Conference has been a leader in the development of texts and course material to assist in the educational process. These materials include vital information necessary for the building official and subordinates in carrying out their responsibilities and have proven to be excellent references in connection with community college curricula and higher-level courses in the field of building construction technology and inspection and in the administration of building departments. Included are plan review checklists for structural, nonstructural, mechanical and fire-safety provisions and a full line of videotapes and automated products.
Table of Contents—Volume 1
Administrative, Fire- and Life-Safety, and Field Inspection Provisions

Effective Use of the Uniform Building Code .......................... 1-xvii
Sample Ordinance for Adoption of the Uniform Building Code, Volumes 1, 2 and 3 .............. 1-xix

Chapter 1 Administration ............................................. 1-1
Section 101 Title, Purpose and Scope ................................ 1-1
Section 102 Unsafe Buildings or Structures ......................... 1-1
Section 103 Violations .................................................. 1-1
Section 104 Organization and Enforcement ......................... 1-1
Section 105 Board of Appeals ......................................... 1-2
Section 106 Permits ..................................................... 1-2
Section 107 Fees ......................................................... 1-4
Section 108 Inspections .................................................. 1-5
Section 109 Certificate of Occupancy ................................ 1-6

Chapter 2 Definitions and Abbreviations ............................... 1-7

Chapter 3 Use or Occupancy ............................................. 1-13
Section 301 Occupancy Classified .................................... 1-13
Section 302 Mixed Use or Occupancy ................................ 1-13
Section 303 Requirements for Group A Occupancies ............... 1-14
Section 304 Requirements for Group B Occupancies ............... 1-15
Section 305 Requirements for Group E Occupancies ............... 1-16
Section 306 Requirements for Group F Occupancies ............... 1-18
Section 307 Requirements for Group H Occupancies ............... 1-19
Section 308 Requirements for Group I Occupancies ............... 1-24
Section 309 Requirements for Group M Occupancies ............... 1-26
Section 310 Requirements for Group R Occupancies ............... 1-26
Section 311 Requirements for Group S Occupancies ............... 1-28
Section 312 Requirements for Group U Occupancies ............... 1-31

Chapter 4 Special Use and Occupancy ................................ 1-41
Section 401 Scope ...................................................... 1-41
Section 402 Atria .......................................................... 1-41
Section 403 Special Provisions for Group B Office Buildings and Group R, Division 1 Occupancies ...................................................... 1-41
Section 404 Covered Mall Buildings .................................. 1-43
Section 405 Stages and Platforms ..................................... 1-46
Section 406 Motion Picture Projection Rooms ....................... 1-47
Section 407 Cellulose Nitrate Film .................................... 1-48
Section 408 Amusement Buildings .................................... 1-48
Section 409 Pedestrian Walkways ..................................... 1-48
Section 410 Medical Gas Systems in Groups B and I Occupancies ...................................................... 1-49
Section 411 Compressed Gases ........................................ 1-49
Section 412 Aviation Control Towers .................................. 1-49
Section 413 Detention and Correction Facilities ..................... 1-49
Section 414 Agricultural Buildings .................................... 1-49
Section 415 Group R, Division 3 Occupancies ......................... 1-49
Section 416 Group R, Division 4 Occupancies ......................... 1-49
Section 417 Barriers for Swimming Pools ............................ 1-49
Section 418 Reserved .................................................... 1-49

Chapter 5 General Building Limitations ................................ 1-51
Section 501 Scope ...................................................... 1-51
Section 502 Premises Identification ................................... 1-51
Section 503 Location on Property ..................................... 1-51
Section 504 Allowable Floor Areas .................................... 1-52
Section 505 Allowable Area Increases ................................. 1-53
Section 506 Maximum Height of Buildings and Increases ........... 1-53
Section 507 Mezzanines ................................................. 1-53
Section 508 Fire-resistant Substitution ................................. 1-54
Section 509 Guardrails .................................................. 1-54

Chapter 6 Types of Construction ....................................... 1-61
Section 601 Classification of All Buildings by Types of Construction and General Requirements .................. 1-61
Section 602 Type I Fire-resistant Buildings .......................... 1-62
Section 603 Type II Buildings ......................................... 1-63
Section 604 Type III Buildings ......................................... 1-63
Section 605 Type IV Buildings ......................................... 1-64
Section 606 Type V Buildings ......................................... 1-65

Chapter 7 Fire-resistant Materials and Construction .................. 1-67
Section 701 Scope ...................................................... 1-67
Section 702 Definitions .................................................. 1-67
Section 703 Fire-resistant Materials and Systems .................... 1-67
Section 704 Protection of Structural Members ....................... 1-68
Section 705 Projections .................................................. 1-69
Section 706 Fire-resistant Joint Systems ............................... 1-69
Section 707 Insulation ................................................... 1-69
Section 708 Fire Blocks and Draft Stops ................................ 1-69
Section 709 Walls and Partitions ....................................... 1-70
Section 710 Floor Ceilings or Roof Ceilings .......................... 1-72
Section 711 Shaft Enclosures .......................................... 1-72
Section 712 Usable Space under Floors ............................... 1-73
Section 713 Fire-resistant Assemblies for Protection of Openings ...................................................... 1-73
Section 714 Through-penetration Fire Stops ......................... 1-75

Chapter 8 Interior Finishes .............................................. 1-91
Section 801 General ..................................................... 1-91
Section 802 Testing and Classification of Materials .................. 1-91
Section 803 Application of Controlled Interior Finish ............... 1-91
Section 804 Maximum Allowable Flame Spread ....................... 1-91
Section 805 Textile Wall Coverings .................................... 1-91
Section 806 Insulation ................................................... 1-92
Section 807 Sanitation .................................................. 1-92

Chapter 9 Fire-protection Systems ..................................... 1-93
Section 901 Scope ...................................................... 1-93
Section 902 Standards of Quality ...................................... 1-93
Section 903 Definitions .................................................. 1-93
Section 904 Fire-extinguishing Systems ............................... 1-94
Section 905 Smoke Control ............................................. 1-96
Section 906 Smoke and Heat Venting .................................. 1-102

1-vii
Chapter 10 Means of Egress .......................... 1-105
  Section 1001 Administrative ................... 1-105
  Section 1002 Definitions ....................... 1-105
  Section 1003 General ......................... 1-105
  Section 1004 The Exit Access .................. 1-111
  Section 1005 The Exit ......................... 1-115
  Section 1006 The Exit Discharge ............... 1-118
  Section 1007 Means of Egress Requirements Based on Occupancy .................. 1-119
  Section 1008 Reviewing Stands, Grandstands, Bleachers, and Folding and Telescoping Seating .................. 1-122
  Section 1009 Building Security ................ 1-124

Chapter 11 Accessibility .......................... 1-127
  Section 1101 Scope ............................. 1-127
  Section 1102 Definitions ...................... 1-127
  Section 1103 Building Accessibility .......... 1-127
  Section 1104 Egress and Areas of Refuge ...... 1-129
  Section 1105 Facility Accessibility .......... 1-130
  Section 1106 Type B Dwelling Units .......... 1-131

Chapter 12 Interior Environment .................. 1-135
  Section 1201 General .......................... 1-135
  Section 1202 Light and Ventilation in Groups A, B, E, F, H, I, M and S Occupancies .... 1-135
  Section 1203 Light and Ventilation in Group R Occupancies .................. 1-136
  Section 1204 Eaves ............................ 1-136
  Section 1205 Alternate Ventilation when Applicable ......... 1-136

Chapter 13 Energy Conservation ................... 1-139
  Section 1301 Solar Energy Collectors .......... 1-139

Chapter 14 Exterior Wall Coverings ................. 1-141
  Section 1401 General .......................... 1-141
  Section 1402 Weather Protection ............... 1-141
  Section 1403 Veneer ........................... 1-141
  Section 1404 Vinyl Siding ..................... 1-143

Chapter 15 Roofing and Roof Structures ............. 1-145
  Section 1501 Scope ............................ 1-145
  Section 1502 Definitions ...................... 1-145
  Section 1503 Roofing Requirements .......... 1-146
  Section 1504 Roofing Classification .......... 1-146
  Section 1505 Attics: Access, Draft Stops and Ventilation ......... 1-146
  Section 1506 Roof Drainage .................... 1-146
  Section 1507 Roof-covering Materials and Application ......... 1-147
  Section 1508 Valley Flashing ................... 1-147
  Section 1509 Other Flashing ................... 1-148
  Section 1510 Roof Insulation ................... 1-148
  Section 1511 Penthouses and Roof Structures ......... 1-148
  Section 1512 Towers and Spires ............... 1-148
  Section 1513 Access to Rooftop Equipment ...... 1-148

Excerpts from Chapter 16 Structural Design Requirements ............. 1-157

Excerpts from Chapter 17 Structural Tests and Inspections ............. 1-165

Excerpts from Chapter 18 Foundations and Retaining Walls ............. 1-169

Excerpts from Chapter 19 Concrete Masonry .................. 1-177

Excerpts from Chapter 21 Masonry .................. 1-193

Excerpts from Chapter 22 Steel .......................... 1-203

Excerpts from Chapter 23 Wood .......................... 1-205

Chapter 24 Glass and Glazing .......................... 1-257
  Section 2401 Scope ............................. 1-257
  Section 2402 Identification .................... 1-257
  Section 2403 Area Limitations .................. 1-257
  Section 2404 Glazing Support and Framing .......... 1-257
  Section 2405 Louvered Windows and Jalousies ......... 1-257
  Section 2406 Safety Glazing ..................... 1-257
  Section 2407 Hinged Shower Doors ............... 1-258
  Section 2408 Racquetball and Squash Courts ...... 1-258
  Section 2409 Sloped Glazing and Skylights .......... 1-259

Chapter 25 Gypsum Board and Plaster ................. 1-261
  Section 2501 Scope ............................. 1-261
  Section 2502 Materials .......................... 1-261
  Section 2503 Vertical Assemblies ............... 1-262
  Section 2504 Horizontal Assemblies .......... 1-262
  Section 2505 Interior Lath .......................... 1-262
  Section 2506 Exterior Lath .......................... 1-262
  Section 2507 Interior Plaster ..................... 1-263
  Section 2508 Exterior Plaster ..................... 1-263
  Section 2509 Exposed Aggregate Plaster .......... 1-264
  Section 2510 Pneumatically Placed Plaster (Gunite) ......... 1-264
  Section 2511 Gypsum Wallboard ..................... 1-264
  Section 2512 Use of Gypsum in Showers and Water Closets ......... 1-265
  Section 2513 Shear-resisting Construction with Wood Frame .......... 1-265

Chapter 26 Plastic .................................. 1-273
  Section 2601 Scope ............................. 1-273
  Section 2602 Foam Plastic Insulation .......... 1-273
  Section 2603 Light-transmitting Plastics .......... 1-274
  Section 2604 Plastic Veneer ..................... 1-276

Chapter 27 Electrical Systems ....................... 1-279
  Section 2701 Electrical Code .................... 1-279

Chapter 28 Mechanical Systems ....................... 1-281
  Section 2801 Mechanical Code .................... 1-281
  Section 2802 Refrigeration System Machinery Room ......... 1-281

Chapter 29 Plumbing Systems ......................... 1-283
  Section 2901 Plumbing Code ..................... 1-283
  Section 2902 Number of Fixtures .................. 1-283
  Section 2903 Alternate Number of Fixtures .......... 1-283
  Section 2904 Access to Water Closet Stool .......... 1-283
TABLE OF CONTENTS—VOLUME 1

Appendix Chapter 13 Energy Conservation in New Building Construction 1-333
Section 1302 General 1-333

Appendix Chapter 15 Reroofing 1-335
Section 1514 General 1-335
Section 1515 Inspection and Written Approval 1-335
Section 1516 Reroofing Overlays Allowed 1-335
Section 1517 Tile 1-336
Section 1518 Metal Roof Covering 1-336
Section 1519 Other Roofing 1-336
Section 1520 Flashing and Edging 1-336

Excerpts from Appendix Chapter 16 Structural Forces 1-337

Excerpts from Appendix Chapter 18 Waterproofing and Dampproofing Foundations 1-343

Excerpts from Appendix Chapter 19 Protection of Residential Concrete Exposed to Freezing and Thawing 1-345

Excerpts from Appendix Chapter 21 Prescriptive Masonry Construction in High-wind Areas 1-347

Excerpts from Appendix Chapter 23 Conventional Light-frame Construction in High-wind Areas 1-391

Appendix Chapter 29 Minimum Plumbing Fixtures 1-397
Section 2905 General 1-397

Appendix Chapter 30 Elevators, Dumbwaiters, Escalators and Moving Walks 1-399
Section 3008 Purpose 1-399
Section 3009 Scope 1-399
Section 3010 Definitions 1-399
Section 3011 Permits—Certificates of Inspection 1-399
Section 3012 ANSI Code Adopted 1-399
Section 3013 Design 1-399
Section 3014 Requirements for Operation and Maintenance 1-399
Section 3015 Unsafe Conditions 1-400

Appendix Chapter 31 Special Construction 1-401
Division I Flood-resistant Construction 1-401
Section 3104 General 1-401
Section 3105 Manufactured Structures 1-401
Section 3106 Protection of Mechanical and Electrical Systems 1-401
Section 3107 Flood Hazard Zones—A Zones 1-401
Section 3108 Coastal High Hazard Zones—V Zones 1-401
Section 3109 Elevation Certification 1-402
Section 3110 Design Requirements 1-402
Division II Membrane Structures 1-403
Section 3111 General 1-403

Section 3112 Type of Construction and General Requirements 1-403
Section 3113 Inflation Requirements 1-403
Section 3114 Section Provisions 1-404
Section 3115 Engineering Design 1-404

Division III Patio Covers 1-405
Section 3116 Patio Covers Defined 1-405
Section 3117 Design Loads 1-405
Section 3118 Light and Ventilation 1-405
Section 3119 Footings 1-405

Appendix Chapter 33 Excavation and Grading 1-407
Section 3304 Purpose 1-407
Section 3305 Scope 1-407
Section 3306 Permits Required 1-407
Section 3307 Hazards 1-407
Section 3308 Definitions 1-407
Section 3309 Grading Permit Requirements 1-408
Section 3310 Grading Fees 1-409
Section 3311 Bonds 1-410
Section 3312 Cuts 1-410
Section 3313 Fills 1-410
Section 3314 Setbacks 1-410
Section 3315 Drainage and Terracing 1-410
Section 3316 Erosion Control 1-411
Section 3317 Grading Inspection 1-411
Section 3318 Completion of Work 1-411

Appendix Chapter 34 Existing Structures 1-413

Division I Life-safety Requirements for Existing Buildings Other than High-rise Buildings 1-413
Section 3406 General 1-413
Section 3407 Exits 1-413
Section 3408 Enclosure of Vertical Shafts 1-414
Section 3409 Basement Access or Sprinkler Protection 1-414
Section 3410 Standpipes 1-414
Section 3411 Smokepipes 1-414
Section 3412 Separation of Occupancies 1-414

Division II Life-safety Requirements for Existing High-rise Buildings 1-415
Section 3413 Scope 1-415
Section 3414 General 1-415
Section 3415 Compliance Data 1-415
Section 3416 Authority of the Building Official 1-415
Section 3417 Appeals Board 1-415
Section 3418 Specific Provisions and Alternates 1-415

Division III Repairs to Buildings and Structures Damaged by the Occurrence of a Natural Disaster 1-419
Section 3419 Purpose 1-419
Section 3420 General 1-419
Section 3421 Structural Repairs 1-419
Section 3422 Nonstructural Repairs to Light Fixtures and Suspended Ceilings 1-419

UNIT CONVERSION TABLES 1-421

INDEX 1-425
# Table of Contents—Volume 2

## Structural Engineering Design Provisions

- **Effective Use of the Uniform Building Code** .................................................. 2-xxxiii
- **Chapter 16 Structural Design Requirements** .............................................. 2-1
  - Division I General Design Requirements .................................................. 2-1
    - Section 1601 Scope .................................................................................. 2-1
    - Section 1602 Definitions ......................................................................... 2-1
    - Section 1603 Notations ........................................................................... 2-1
    - Section 1604 Standards ........................................................................... 2-1
    - Section 1605 Design ................................................................................. 2-1
    - Section 1606 Dead Loads ........................................................................ 2-2
    - Section 1607 Live Loads ......................................................................... 2-2
    - Section 1608 Snow Loads ........................................................................ 2-3
    - Section 1609 Wind Loads ........................................................................ 2-3
    - Section 1610 Earthquake Loads .............................................................. 2-3
    - Section 1611 Other Minimum Loads ....................................................... 2-3
    - Section 1612 Combinations of Loads ...................................................... 2-4
    - Section 1613 Deflection .......................................................................... 2-5
  - Division II Snow Loads .................................................................................. 2-6
    - Section 1614 Snow Loads ........................................................................ 2-6
  - Division III Wind Design ............................................................................ 2-7
    - Section 1615 General .............................................................................. 2-7
    - Section 1616 Definitions .......................................................................... 2-7
    - Section 1617 Symbols and Notations ....................................................... 2-7
    - Section 1618 Basic Wind Speed ............................................................... 2-7
    - Section 1619 Exposure ............................................................................. 2-7
    - Section 1620 Design Wind Pressures ....................................................... 2-7
    - Section 1621 Primary Frames and Systems ............................................. 2-7
    - Section 1622 Elements and Components of Structures ....................... 2-8
    - Section 1623 Open-frame Towers ............................................................ 2-8
    - Section 1624 Miscellaneous Structures .................................................. 2-8
    - Section 1625 Occupancy Categories ...................................................... 2-8
  - Division IV Earthquake Design .................................................................. 2-9
    - Section 1626 General ............................................................................. 2-9
    - Section 1627 Definitions .......................................................................... 2-9
    - Section 1628 Symbols and Notations ....................................................... 2-10
    - Section 1629 Criteria Selection ............................................................... 2-11
    - Section 1630 Minimum Design Lateral Forces and Related Effects ....... 2-13
    - Section 1631 Dynamic Analysis Procedures ......................................... 2-16
    - Section 1632 Lateral Force on Elements of Structures, Nonstructural Components and Equipment Supported by Structures ...... 2-18
    - Section 1633 Detailed Systems Design Requirements .......................... 2-19
    - Section 1634 Nonbuilding Structures ..................................................... 2-21
    - Section 1635 Earthquake-recording Instrumentations ............................ 2-22
  - Division V Soil Profile Types ..................................................................... 2-23
    - Section 1636 Site Categorization Procedure ......................................... 2-23
- **Chapter 17 Structural Tests and Inspections** ......................................... 2-39
  - Section 1701 Special Inspections ............................................................... 2-39
  - Section 1702 Structural Observation ......................................................... 2-40
  - Section 1703 Nondestructive Testing ......................................................... 2-41
  - Section 1704 Prefabricated Construction ................................................... 2-41
- **Chapter 18 Foundations and Retaining Walls** ....................................... 2-43
  - Division I General ..................................................................................... 2-43
    - Section 1801 Scope ................................................................................ 2-43
    - Section 1802 Quality and Design ............................................................ 2-43
    - Section 1803 Soil Classification—Expansive Soil ................................. 2-43
    - Section 1804 Foundation Investigation .................................................. 2-43
    - Section 1805 Allowable Foundation and Lateral Pressures .................. 2-44
    - Section 1806 Footings .......................................................................... 2-44
    - Section 1807 Piles—General Requirements ............................................ 2-45
    - Section 1808 Specific Pile Requirements ................................................. 2-46
    - Section 1809 Foundation Construction—Seismic Zones 3 and 4 ............ 2-48
  - Division II Design Standard for Treated Wood Foundation System ........ 2-51
    - Section 1810 Scope .............................................................................. 2-51
    - Section 1811 Materials .......................................................................... 2-51
    - Section 1812 Drainage and Moisture Control ......................................... 2-51
    - Section 1813 Design Loads .................................................................... 2-52
    - Section 1814 Structural Design .............................................................. 2-52
  - Division III Design Standard for Design of Slab-on-ground Foundations to Resist the Effects of Expansive Soils and Compressible Soils .................................................................................. 2-54
    - Section 1815 Design of Slab-on-Ground Foundations [Based on Design of Slab-on-Ground Foundations of the Wire Reinforcement Institute, Inc. (August, 1981)] ........................................ 2-54
    - Section 1816 Design of Posttensioned Slabs on Ground (Based on Design Specification of the Posttensioning Institute) ......................................................... 2-55
    - Section 1817 Appendix A (A Procedure for Estimation of the Amount of Climate Controlled Differential Movement of Expansive Soils) .......................................................... 2-60
    - Section 1818 Appendix B (Simplified Procedures for Determining Cation Exchange Capacity and Cation Exchange Activity) .................................................. 2-60
    - Section 1819 Design of Posttensioned Slabs on Compressible Soils (Based on Design Specifications of the Posttensioning Institute) .................................................. 2-61
- **Chapter 19 Concrete** .............................................................................. 2-97
  - Division I General ..................................................................................... 2-97
    - Section 1900 General ........................................................................... 2-97
  - Division II .................................................................................................. 2-98
    - Section 1901 Scope .............................................................................. 2-98
    - Section 1902 Definitions ......................................................................... 2-98
    - Section 1903 Specifications for Tests and Materials .............................. 2-99
    - Section 1904 Durability Requirements .................................................... 2-101
    - Section 1905 Concrete Quality, Mixing and Placing ................................ 2-102
    - Section 1906 Formwork, Embedded Pipes and Construction Joints .... 2-105
    - Section 1907 Details of Reinforcement ................................................... 2-106
    - Section 1908 Analysis and Design .......................................................... 2-110
    - Section 1909 Strength and Serviceability Requirements ....................... 2-112
### TABLE OF CONTENTS—VOLUME 2

**Division I General**

- Section 2001 Material Standards and Symbols .................................. 2-185
- Section 2002 Allowable Stresses for Members and Fasteners .......... 2-186
- Section 2003 Design ................................................................. 2-187
- Section 2004 Fabrication and Erection ........................................ 2-187

**Division II Design Standard for Aluminum Structures** ..................... 2-192

- Section 2005 Scope .................................................................. 2-192
- Section 2006 Materials .............................................................. 2-192
- Section 2007 Design ................................................................. 2-192
- Section 2008 Allowable Stresses ................................................ 2-192
- Section 2009 Special Design Rules .............................................. 2-192
- Section 2010 Mechanical Connections ......................................... 2-195
- Section 2011 Fabrication ......................................................... 2-196
- Section 2012 Welded Construction ............................................. 2-197
- Section 2013 Testing ................................................................. 2-198

**Chapter 20 Lightweight Metals** .................................................. 2-185

**Division III Design Standard for Anchorages to Concrete** ............... 2-168

- Section 2021 Flexure and Axial Loads ......................................... 2-115
- Section 2022 Shear and Torsion ................................................... 2-121
- Section 2023 Development and Splices of Reinforcement .............. 2-131
- Section 2024 Two-way Slab Systems ........................................... 2-136
- Section 2025 Walls .................................................................. 2-141
- Section 2026 Footings ............................................................... 2-142
- Section 2027 Precast Concrete .................................................... 2-144
- Section 2028 Composite Concrete Flexural Members ....................... 2-146
- Section 2029 Prestressed Concrete .............................................. 2-147
- Section 2030 Shells and Folded Plates .......................................... 2-151
- Section 2031 Strength Evaluation of Existing Structures ............... 2-153
- Section 2032 Reinforced Concrete Structures Resisting Forces Induced by Earthquake Motions ........................................... 2-154

**Division IV Design and Construction Standard** .............................. 2-165

- Section 2032 Structural Plain Concrete ......................................... 2-165

**Division V Design Standard for Reinforced Gypsum Concrete** .......... 2-171

- Section 2032 Reinforced Gypsum Concrete ................................... 2-171

**Division VI Alternate Design Method** ......................................... 2-172

- Section 2032 Alternate Design Method ......................................... 2-172

**Division VII Unified Design Provisions** ....................................... 2-176

- Section 2032 Unified Design Provisions for Reinforced and Prestressed Concrete Flexural and Compression Members ........................................... 2-176

**Division VIII Alternative Load-factor Combination and Strength Reduction Factors** .................................................. 2-178

- Section 2032 Alternative Load-factor Combination and Strength Reduction Factors ........................................... 2-178

**Chapter 21 Masonry** ................................................................ 2-203

- Section 2032 Mortar and Grout ................................................... 2-206
- Section 2104 Construction .......................................................... 2-207

**Section 2105 Quality Assurance ..................................................... 2-209
- Section 2106 General Design Requirements ................................... 2-210
- Section 2107 Working Stress Design of Masonry .......................... 2-214
- Section 2108 Strength Design of Masonry ..................................... 2-219
- Section 2109 Empirical Design of Masonry ................................... 2-225
- Section 2110 Glass Masonry ........................................................ 2-227
- Section 2111 Chimneys, Fireplaces and Barbecues ...................... 2-228

**Chapter 22 Steel** ..................................................................... 2-237

**Division I General** ................................................................... 2-237

- Section 2201 Scope .................................................................. 2-237
- Section 2202 Standards of Quality .............................................. 2-237
- Section 2203 Material Identification ............................................ 2-237
- Section 2204 Design Methods ..................................................... 2-237
- Section 2205 Design and Construction Provisions ....................... 2-237

**Division II Design Standard for Load and Resistance Factor Design** Specification for Structural Steel Buildings ........................................... 2-239

- Section 2206 Adoption ............................................................... 2-239
- Section 2207 Amendments .......................................................... 2-239


- Section 2208 Adoption ............................................................... 2-240
- Section 2209 Amendments .......................................................... 2-240

**Division IV Seismic Provisions for Structural Steel Buildings** ........ 2-241

- Section 2210 Amendments .......................................................... 2-241
- Section 2211 Adoption ............................................................... 2-243

**Division V Seismic Provisions for Structural Steel Buildings for Use with Allowable Stress Design** .................................................. 2-255

- Section 2212 General ................................................................. 2-255
- Section 2213 Seismic Provisions for Structural Steel Buildings in Seismic Zones 3 and 4 .................................................. 2-255
- Section 2214 Seismic Provisions for Structural Steel Buildings in Seismic Zones 1 and 2 .................................................. 2-261

**Division VI Load and Resistance Factor Design Specification for Cold-formed Steel Structural Members** ........................................... 2-264

- Section 2215 Adoption ............................................................... 2-264
- Section 2216 Amendments .......................................................... 2-264

**Division VII Specification for Design of Cold-formed Steel Structural Members** .................................................. 2-265

- Section 2217 Adoption ............................................................... 2-265
- Section 2218 Amendments .......................................................... 2-265

**Division VIII Lateral Resistance for Steel Stud Wall Systems** ........ 2-266

- Section 2219 General ................................................................. 2-266
- Section 2220 Special Requirements in Seismic Zones 3 and 4 .......... 2-266

**Division IX Open Web Steel Joists** ............................................. 2-268

- Section 2221 Adoption ............................................................... 2-268

**Division X Design Standard for Steel Storage Racks** ..................... 2-269

- Section 2222 General Provisions .................................................. 2-269
- Section 2223 Design Procedures and Dimensional Limitations ........ 2-270
- Section 2224 Allowable Stresses and Effective Widths .................... 2-270
- Section 2225 Pallet and Stacker-rack Beams .................................. 2-270
- Section 2226 Frame Design ........................................................ 2-270
- Section 2227 Connections and Bearing Plates ............................ 2-270
<table>
<thead>
<tr>
<th>Division</th>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>2301</td>
<td>General</td>
<td>2-273</td>
</tr>
<tr>
<td></td>
<td>2302</td>
<td>Definitions</td>
<td>2-273</td>
</tr>
<tr>
<td></td>
<td>2303</td>
<td>Standards of Quality</td>
<td>2-274</td>
</tr>
<tr>
<td></td>
<td>2304</td>
<td>Minimum Quality</td>
<td>2-274</td>
</tr>
<tr>
<td></td>
<td>2305</td>
<td>Design and Construction Requirements</td>
<td>2-275</td>
</tr>
<tr>
<td>II</td>
<td>2306</td>
<td>General Requirements</td>
<td>2-276</td>
</tr>
<tr>
<td></td>
<td>2307</td>
<td>Wood Supporting Masonry or Concrete</td>
<td>2-277</td>
</tr>
<tr>
<td></td>
<td>2308</td>
<td>Wall Framing</td>
<td>2-277</td>
</tr>
<tr>
<td></td>
<td>2309</td>
<td>Floor Framing</td>
<td>2-277</td>
</tr>
<tr>
<td></td>
<td>2310</td>
<td>Exterior Wall Coverings</td>
<td>2-277</td>
</tr>
<tr>
<td></td>
<td>2311</td>
<td>Interior Paneling</td>
<td>2-278</td>
</tr>
<tr>
<td></td>
<td>2312</td>
<td>Sheathing</td>
<td>2-278</td>
</tr>
<tr>
<td></td>
<td>2313</td>
<td>Mechanically Laminated Floors and Decks</td>
<td>2-278</td>
</tr>
<tr>
<td></td>
<td>2314</td>
<td>Post-Beam Connections</td>
<td>2-278</td>
</tr>
<tr>
<td></td>
<td>2315</td>
<td>Wood Shear Walls and Diaphragms</td>
<td>2-279</td>
</tr>
<tr>
<td>III</td>
<td>2316</td>
<td>Design Specifications for Allowable Stress Design of Wood Buildings</td>
<td>2-291</td>
</tr>
<tr>
<td></td>
<td>2317</td>
<td>Plywood Structural Panels</td>
<td>2-293</td>
</tr>
<tr>
<td></td>
<td>2318</td>
<td>Timber Connectors and Fasteners</td>
<td>2-293</td>
</tr>
<tr>
<td></td>
<td>2319</td>
<td>Wood Shear Walls and Diaphragms</td>
<td>2-294</td>
</tr>
<tr>
<td>IV</td>
<td>2320</td>
<td>Conventional Light-frame Construction Design Provisions</td>
<td>2-299</td>
</tr>
<tr>
<td>V</td>
<td>2321</td>
<td>Design Standard for Metal Plate Connected Wood Truss Design</td>
<td>2-339</td>
</tr>
<tr>
<td></td>
<td>2322</td>
<td>Plywood Stressed Skin Panels</td>
<td>2-340</td>
</tr>
<tr>
<td></td>
<td>2323</td>
<td>Plywood Curved Panels</td>
<td>2-340</td>
</tr>
<tr>
<td></td>
<td>2324</td>
<td>Plywood Beams</td>
<td>2-342</td>
</tr>
<tr>
<td></td>
<td>2325</td>
<td>Plywood Sandwich Panels</td>
<td>2-344</td>
</tr>
<tr>
<td></td>
<td>2326</td>
<td>Fabrication of Plywood Components</td>
<td>2-345</td>
</tr>
<tr>
<td></td>
<td>2327</td>
<td>All-plywood Beams</td>
<td>2-349</td>
</tr>
<tr>
<td>VI</td>
<td>2328</td>
<td>Design Standard for Span Tables for Joists and Rafters</td>
<td>2-357</td>
</tr>
<tr>
<td></td>
<td>2329</td>
<td>Design Criteria for Joists and Rafters</td>
<td>2-357</td>
</tr>
<tr>
<td></td>
<td>2330</td>
<td>Lumber Stresses</td>
<td>2-357</td>
</tr>
<tr>
<td></td>
<td>2331</td>
<td>Moisture Content</td>
<td>2-357</td>
</tr>
<tr>
<td></td>
<td>2332</td>
<td>Lumber Size</td>
<td>2-357</td>
</tr>
<tr>
<td></td>
<td>2333</td>
<td>Span Tables for Joists and Rafters</td>
<td>2-357</td>
</tr>
<tr>
<td>VII</td>
<td>2334</td>
<td>Scope</td>
<td>2-374</td>
</tr>
<tr>
<td></td>
<td>2335</td>
<td>Definition</td>
<td>2-374</td>
</tr>
<tr>
<td>VIII</td>
<td>2336</td>
<td>Design</td>
<td>2-374</td>
</tr>
<tr>
<td>IX</td>
<td>2337</td>
<td>Excerpts from Chapter 24</td>
<td>2-379</td>
</tr>
<tr>
<td></td>
<td>2338</td>
<td>Glass and Glazing</td>
<td>2-379</td>
</tr>
<tr>
<td>X</td>
<td>2339</td>
<td>Excerpts from Chapter 25</td>
<td>2-381</td>
</tr>
<tr>
<td></td>
<td>2340</td>
<td>Uniform Building Code Standards</td>
<td>2-383</td>
</tr>
<tr>
<td>XI</td>
<td>2341</td>
<td>Common Definitions</td>
<td>2-383</td>
</tr>
<tr>
<td></td>
<td>2342</td>
<td>Common Parameters</td>
<td>2-383</td>
</tr>
<tr>
<td></td>
<td>2343</td>
<td>Common Notes</td>
<td>2-383</td>
</tr>
<tr>
<td></td>
<td>2344</td>
<td>Common Abbreviations</td>
<td>2-383</td>
</tr>
<tr>
<td></td>
<td>2345</td>
<td>Common Symbols</td>
<td>2-383</td>
</tr>
<tr>
<td></td>
<td>2346</td>
<td>Common Formulae</td>
<td>2-383</td>
</tr>
<tr>
<td>IX</td>
<td>2347</td>
<td>Appendix Chapter 16</td>
<td>2-387</td>
</tr>
<tr>
<td></td>
<td>2348</td>
<td>Structural Forces</td>
<td>2-387</td>
</tr>
<tr>
<td>I</td>
<td>2349</td>
<td>Snow Load Design</td>
<td>2-387</td>
</tr>
<tr>
<td></td>
<td>2350</td>
<td>Ground Snow Loads</td>
<td>2-387</td>
</tr>
<tr>
<td></td>
<td>2351</td>
<td>Roof Snow Loads</td>
<td>2-387</td>
</tr>
<tr>
<td></td>
<td>2352</td>
<td>Unbalanced Snow Loads, Gable Roofs</td>
<td>2-388</td>
</tr>
<tr>
<td></td>
<td>2353</td>
<td>Unbalanced Snow Load for Curved Roofs</td>
<td>2-388</td>
</tr>
<tr>
<td></td>
<td>2354</td>
<td>Special Eave Requirements</td>
<td>2-388</td>
</tr>
<tr>
<td></td>
<td>2355</td>
<td>Drift Loads on Lower Roofs, Decks and Roof Projections</td>
<td>2-388</td>
</tr>
<tr>
<td></td>
<td>2356</td>
<td>Rain on Snow</td>
<td>2-389</td>
</tr>
<tr>
<td></td>
<td>2357</td>
<td>Deflections</td>
<td>2-389</td>
</tr>
<tr>
<td></td>
<td>2358</td>
<td>Impact Loads</td>
<td>2-389</td>
</tr>
<tr>
<td></td>
<td>2359</td>
<td>Vertical Obstructions</td>
<td>2-389</td>
</tr>
<tr>
<td>II</td>
<td>2360</td>
<td>Earthquake Recording Instrumentation</td>
<td>2-400</td>
</tr>
<tr>
<td></td>
<td>2361</td>
<td>General</td>
<td>2-400</td>
</tr>
<tr>
<td></td>
<td>2362</td>
<td>Location</td>
<td>2-400</td>
</tr>
<tr>
<td></td>
<td>2363</td>
<td>Maintenance</td>
<td>2-400</td>
</tr>
<tr>
<td></td>
<td>2364</td>
<td>Instrumentation of Existing Buildings</td>
<td>2-400</td>
</tr>
<tr>
<td>III</td>
<td>2365</td>
<td>Seismic Zone Tabulation</td>
<td>2-401</td>
</tr>
<tr>
<td></td>
<td>2366</td>
<td>For Areas Outside the United States</td>
<td>2-401</td>
</tr>
<tr>
<td>IV</td>
<td>2367</td>
<td>Earthquake Regulations for Seismic-isolated Structures</td>
<td>2-405</td>
</tr>
<tr>
<td></td>
<td>2368</td>
<td>General</td>
<td>2-405</td>
</tr>
<tr>
<td></td>
<td>2369</td>
<td>Definitions</td>
<td>2-405</td>
</tr>
<tr>
<td></td>
<td>2370</td>
<td>Symbols and Notations</td>
<td>2-405</td>
</tr>
<tr>
<td></td>
<td>2371</td>
<td>Criteria Selection</td>
<td>2-407</td>
</tr>
<tr>
<td></td>
<td>2372</td>
<td>Static Lateral Response Procedure</td>
<td>2-407</td>
</tr>
<tr>
<td></td>
<td>2373</td>
<td>Dynamic Lateral-Response Procedure</td>
<td>2-409</td>
</tr>
<tr>
<td></td>
<td>2374</td>
<td>Lateral Load on Elements of Structures and Nonstructural Components</td>
<td>2-410</td>
</tr>
<tr>
<td></td>
<td>2375</td>
<td>Detailed Systems Requirements</td>
<td>2-411</td>
</tr>
<tr>
<td></td>
<td>2376</td>
<td>Nonbuilding Structures</td>
<td>2-412</td>
</tr>
<tr>
<td></td>
<td>2377</td>
<td>Foundations</td>
<td>2-412</td>
</tr>
<tr>
<td></td>
<td>2378</td>
<td>Design and Construction Review</td>
<td>2-412</td>
</tr>
<tr>
<td></td>
<td>2379</td>
<td>Required Tests of Isolation System</td>
<td>2-412</td>
</tr>
<tr>
<td></td>
<td>2380</td>
<td>Waterproofing and Dampproofing Foundations</td>
<td>2-417</td>
</tr>
<tr>
<td></td>
<td>2381</td>
<td>Scope</td>
<td>2-417</td>
</tr>
<tr>
<td></td>
<td>2382</td>
<td>Groundwater Table Investigation</td>
<td>2-417</td>
</tr>
<tr>
<td></td>
<td>2383</td>
<td>Dampproofing Required</td>
<td>2-417</td>
</tr>
<tr>
<td></td>
<td>2384</td>
<td>Floor Dampproofing</td>
<td>2-417</td>
</tr>
<tr>
<td></td>
<td>2385</td>
<td>Wall Dampproofing</td>
<td>2-417</td>
</tr>
</tbody>
</table>
Section 1825  Other Dampproofing Requirements . . . 2-417
Section 1826  Waterproofing Required ............. 2-417
Section 1827  Floor Waterproofing ................. 2-418
Section 1828  Wall Waterproofing ................. 2-418
Section 1829  Other Dampproofing and Waterproofing
Requirements .................................. 2-418

Appendix Chapter 19  Protection of Residential
Concrete Exposed to Freezing and Thawing ....... 2-419
Section 1928  General .................................. 2-419

Appendix Chapter 21  Prescriptive Masonry
Construction in High-wind Areas ............... 2-421
Section 2112  General .................................. 2-421

Appendix Chapter 23  Conventional Light-frame
Construction in High-wind Areas ............... 2-465
Section 2337  General .................................. 2-465

UNIT CONVERSION TABLES ...................... 2-471
INDEX ...................................................... 2-475
## Table of Contents—Volume 3

**Material, Testing and Installation Standards**

<table>
<thead>
<tr>
<th>Standard</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>UBC 2-1</td>
<td>Noncombustible Material—Tests</td>
<td>3-1</td>
</tr>
<tr>
<td>UBC 4-1</td>
<td>Proscenium Firesafety Curtains</td>
<td>3-3</td>
</tr>
<tr>
<td>UBC 7-1</td>
<td>Fire Tests of Building Construction</td>
<td>3-9</td>
</tr>
<tr>
<td>UBC 7-2</td>
<td>Fire Tests of Door Assemblies</td>
<td>3-19</td>
</tr>
<tr>
<td>UBC 7-3</td>
<td>Tinclad Fire Doors</td>
<td>3-23</td>
</tr>
<tr>
<td>UBC 7-4</td>
<td>Fire Tests of Window Assemblies</td>
<td>3-37</td>
</tr>
<tr>
<td>UBC 7-5</td>
<td>Fire Tests of Through-penetration Fire Stops</td>
<td>3-39</td>
</tr>
<tr>
<td>UBC 7-6</td>
<td>Thickness, Density Determination and Cohesion/Adhesion for Spray-applied Fire-resistive Material</td>
<td>3-45</td>
</tr>
<tr>
<td>UBC 7-7</td>
<td>Methods for Calculating Fire Resistance of Steel, Concrete, Wood, Concrete Masonry and Clay Masonry Construction</td>
<td>3-49</td>
</tr>
<tr>
<td>UBC 7-8</td>
<td>Horizontal Sliding Fire Doors Used in a Means of Egress</td>
<td>3-89</td>
</tr>
<tr>
<td>UBC 8-1</td>
<td>Test Method for Surface-burning Characteristics of Building Materials</td>
<td>3-91</td>
</tr>
<tr>
<td>UBC 8-2</td>
<td>Standard Test Method for Evaluating Room Fire Growth Contribution of Textile Wall Covering</td>
<td>3-105</td>
</tr>
<tr>
<td>UBC 9-1</td>
<td>Installation of Sprinkler Systems</td>
<td>3-117</td>
</tr>
<tr>
<td>UBC 9-2</td>
<td>Standpipe Systems</td>
<td>3-241</td>
</tr>
<tr>
<td>UBC 9-3</td>
<td>Installation of Sprinkler Systems in Group R Occupancies Four Stories or Less</td>
<td>3-273</td>
</tr>
<tr>
<td>UBC 10-1</td>
<td>Power-operated Egress Doors</td>
<td>3-289</td>
</tr>
<tr>
<td>UBC 10-2</td>
<td>Stairway Identification</td>
<td>3-291</td>
</tr>
<tr>
<td>UBC 10-3</td>
<td>Exit Ladder Device</td>
<td>3-293</td>
</tr>
<tr>
<td>UBC 10-4</td>
<td>Panic Hardware</td>
<td>3-295</td>
</tr>
<tr>
<td>UBC 14-1</td>
<td>Kraft Waterproof Building Paper</td>
<td>3-297</td>
</tr>
<tr>
<td>UBC 14-2</td>
<td>Vinyl Siding</td>
<td>3-299</td>
</tr>
<tr>
<td>UBC 15-1</td>
<td>Roofing Aggregates</td>
<td>3-301</td>
</tr>
<tr>
<td>UBC 15-2</td>
<td>Test Standard for Determining the Fire Retardancy of Roof Assemblies</td>
<td>3-303</td>
</tr>
<tr>
<td>UBC 15-3</td>
<td>Wood Shakes</td>
<td>3-311</td>
</tr>
<tr>
<td>UBC 15-4</td>
<td>Wood Shingles</td>
<td>3-317</td>
</tr>
<tr>
<td>UBC 15-5</td>
<td>Roof Tile</td>
<td>3-321</td>
</tr>
<tr>
<td>UBC 15-6</td>
<td>Modified Bitumen, Thermoplastic and Thermoset Membranes Used for Roof Coverings</td>
<td>3-323</td>
</tr>
<tr>
<td>UBC 15-7</td>
<td>Automatic Smoke and Heat Vents</td>
<td>3-325</td>
</tr>
<tr>
<td>UBC 18-1</td>
<td>Soils Classification</td>
<td>3-327</td>
</tr>
<tr>
<td>UBC 18-2</td>
<td>Expansion Index Test</td>
<td>3-331</td>
</tr>
<tr>
<td>UBC 19-1</td>
<td>Welding Reinforcing Steel, Metal Inserts and Connections in Reinforced Concrete Construction</td>
<td>3-333</td>
</tr>
<tr>
<td>UBC 19-2</td>
<td>Mill-mixed Gypsum Concrete and Poured Gypsum Roof Diaphragms</td>
<td>3-335</td>
</tr>
<tr>
<td>UBC 21-1</td>
<td>Building Brick, Facing Brick and Hollow Brick (Made from Clay or Shale)</td>
<td>3-337</td>
</tr>
<tr>
<td>UBC 21-2</td>
<td>Calcium Silicate Face Brick</td>
<td>3-343</td>
</tr>
<tr>
<td>UBC 21-3</td>
<td>Concrete Building Brick</td>
<td>3-345</td>
</tr>
<tr>
<td>UBC 21-4</td>
<td>Hollow and Solid Load-bearing Concrete Masonry Units</td>
<td>3-347</td>
</tr>
<tr>
<td>UBC 21-5</td>
<td>Nonload-bearing Concrete Masonry Units</td>
<td>3-349</td>
</tr>
<tr>
<td>UBC 21-6</td>
<td>In-place Masonry Shear Tests</td>
<td>3-351</td>
</tr>
<tr>
<td>UBC 21-7</td>
<td>Tests of Anchors in Unreinforced Masony Walls</td>
<td>3-353</td>
</tr>
<tr>
<td>UBC 21-8</td>
<td>Pointing of Unreinforced Masony Walls</td>
<td>3-355</td>
</tr>
<tr>
<td>UBC 21-9</td>
<td>Unburned Clay Masonry Units and Standard Methods of Sampling and Testing Unburned Clay Masonry Units</td>
<td>3-357</td>
</tr>
<tr>
<td>UBC 21-10</td>
<td>Joint Reinforcement for Masony</td>
<td>3-359</td>
</tr>
<tr>
<td>UBC 21-11</td>
<td>Cement, Masonry</td>
<td>3-363</td>
</tr>
<tr>
<td>UBC 21-12</td>
<td>Quicklime for Structural Purposes</td>
<td>3-367</td>
</tr>
<tr>
<td>UBC 21-13</td>
<td>Hydrated Lime for Masonry Purposes</td>
<td>3-369</td>
</tr>
<tr>
<td>UBC 21-14</td>
<td>Mortar Cement</td>
<td>3-371</td>
</tr>
<tr>
<td>UBC 21-15</td>
<td>Mortar for Unit Masonry and Reinforced Masonry Other than Gypsum</td>
<td>3-375</td>
</tr>
<tr>
<td>UBC 21-16</td>
<td>Field Tests Specimens for Mortar</td>
<td>3-377</td>
</tr>
<tr>
<td>UBC 21-17</td>
<td>Test Method for Compressive Strength of Masonry Prisms</td>
<td>3-379</td>
</tr>
<tr>
<td>UBC 21-18</td>
<td>Method of Sampling and Testing Grout</td>
<td>3-381</td>
</tr>
<tr>
<td>UBC 21-19</td>
<td>Grout for Masonry</td>
<td>3-383</td>
</tr>
<tr>
<td>UBC 21-20</td>
<td>Standard Test Method for Flexural Bond Strength of Mortar Cement</td>
<td>3-385</td>
</tr>
<tr>
<td>UBC 22-1</td>
<td>Material Specifications for Structural Steel</td>
<td>3-391</td>
</tr>
<tr>
<td>UBC Standard 23-1</td>
<td>Classification, Definition, Methods of Grading and Development of Design Values for All Species of Lumber</td>
<td>3-395</td>
</tr>
<tr>
<td>------------------</td>
<td>------------------------------------------------------------</td>
<td>-------</td>
</tr>
<tr>
<td>UBC Standard 23-2</td>
<td>Construction and Industrial Plywood</td>
<td>3-397</td>
</tr>
<tr>
<td>UBC Standard 23-3</td>
<td>Performance Standard for Wood-based Structural-use Panels</td>
<td>3-425</td>
</tr>
<tr>
<td>UBC Standard 23-4</td>
<td>Fire-retardant-treated Wood Tests on Durability and Hygroscopic Properties</td>
<td>3-427</td>
</tr>
<tr>
<td>UBC Standard 23-5</td>
<td>Fire-retardant-treated Wood</td>
<td>3-429</td>
</tr>
<tr>
<td>UBC Standard 24-1</td>
<td>Flat Glass</td>
<td>3-433</td>
</tr>
<tr>
<td>UBC Standard 24-2</td>
<td>Safety Glazing</td>
<td>3-437</td>
</tr>
<tr>
<td>UBC Standard 25-1</td>
<td>Plastic Cement</td>
<td>3-447</td>
</tr>
<tr>
<td>UBC Standard 25-2</td>
<td>Metal Suspension Systems for Acoustical Tile and For Lay-in Panel Ceilings</td>
<td>3-451</td>
</tr>
<tr>
<td>UBC Standard 26-1</td>
<td>Test Method to Determine Potential Heat of Building Materials</td>
<td>3-457</td>
</tr>
<tr>
<td>UBC Standard 26-2</td>
<td>Test Method for the Evaluation of Thermal Barriers</td>
<td>3-459</td>
</tr>
<tr>
<td>UBC Standard 26-3</td>
<td>Room Fire Test Standard for Interior of Foam Plastic Systems</td>
<td>3-463</td>
</tr>
<tr>
<td>UBC Standard 26-5</td>
<td>Chamber Method of Test for Measuring the Density of Smoke from the Burning or Decomposition of Plastic Materials</td>
<td>3-481</td>
</tr>
<tr>
<td>UBC Standard 26-6</td>
<td>Ignition Properties of Plastics</td>
<td>3-487</td>
</tr>
<tr>
<td>UBC Standard 26-7</td>
<td>Method of Test for Determining Classification of Approved Light-transmitting Plastics</td>
<td>3-491</td>
</tr>
<tr>
<td>UBC Standard 26-8</td>
<td>Room Fire Test Standard for Garage Doors Using Foam Plastic Insulation</td>
<td>3-493</td>
</tr>
<tr>
<td>UBC Standard 26-9</td>
<td>Method of Test for the Evaluation of Flammability Characteristics of Exterior, Nonload-bearing Wall Assemblies Containing Combustible Components Using the Intermediate-scale, Multistory Test Apparatus</td>
<td>3-507</td>
</tr>
<tr>
<td>UBC Standard 31-1</td>
<td>Flame-retardant Membranes</td>
<td>3-533</td>
</tr>
<tr>
<td>UNIT CONVERSION TABLES</td>
<td></td>
<td>3-535</td>
</tr>
</tbody>
</table>
The following procedure may be helpful in using the *Uniform Building Code*:

1. **Classify the building:**
   - **OCCUPANCY CLASSIFICATION:** Compute the floor area and occupant load of the building or portion thereof. See Sections 207 and 1002 and Table 10-A. Determine the occupancy group which the use of the building or portion thereof most nearly resembles. See Sections 301, 303.1.1, 304.1, 305.1, 306.1, 307.1, 308.1, 309.1, 310.1, 311.1 and 312.1. See Section 302 for buildings with mixed occupancies.
   - **TYPE OF CONSTRUCTION:** Determine the type of construction of the building by the building materials used and the fire resistance of the parts of the building. See Chapter 6.
   - **LOCATION ON PROPERTY:** Determine the location of the building on the site and clearances to property lines and other buildings from the plot plan. See Table 5-A and Sections 602.3, 603.3, 604.3, 605.3 and 606.3 for fire resistance of exterior walls and wall opening requirements based on proximity to property lines. See Section 503.
   - **ALLOWABLE FLOOR AREA:** Determine the allowable floor area of the building. See Table 5-B for basic allowable floor area based on occupancy group and type of construction. See Section 505 for allowable increases based on location on property and installation of an approved automatic fire sprinkler system. See Section 504.2 for allowable floor area of multistory buildings.
   - **HEIGHT AND NUMBER OF STORIES:** Compute the height of the building, Section 209, and determine the number of stories, Section 220. See Table 5-B for the maximum height and number of stories permitted based on occupancy group and type of construction. See Section 506 for allowable story increase based on the installation of an approved automatic fire-sprinkler system.

2. Review the building for conformity with the occupancy requirements in Sections 303 through 312.

3. Review the building for conformity with the type of construction requirements in Chapter 6.

4. Review the building for conformity with the exiting requirements in Chapter 10.

5. Review the building for other detailed code regulations in Chapters 4, 7 through 11, 14, 15, 24 through 26, and 30 through 33, and the appendix.

6. Review the building for conformity with structural engineering regulations and requirements for materials of construction. See Chapters 16 through 23.
SAMPLE ORDINANCE FOR ADOPTION OF THE
UNIFORM BUILDING CODE,
VOLUMES 1, 2 AND 3
ORDINANCE NO. ________

An ordinance of the ________ (jurisdiction) ________ adopting the 1997 edition of the Uniform Building Code, Volumes 1, 2 and 3, regulating the erection, construction, enlargement, alteration, repair, moving, removal, demolition, conversion, occupancy, equipment, use, height, area and maintenance of all buildings or structures in the ________ (jurisdiction) ________; providing for the issuance of permits and collection of fees therefor; providing for penalties for the violation thereof, repealing Ordinance No. ________ of the ________ (jurisdiction) ________ and all other ordinances and parts of the ordinances in conflict therewith.

The ________ (governing body) ________ of the ________ (jurisdiction) ________ does ordain as follows:

Section 1. That certain documents, three (3) copies of which are on file and are open for inspection of the public in the office of the ________ (jurisdiction’s keeper of records) ________ of the ________ (jurisdiction) ________, being marked and designated as:

Uniform Building Code, 1997 Edition, published by the International Conference of Building Officials, including the generic fire-resistant assemblies listed in the Fire Resistance Design Manual, Fourteenth Edition, dated April 1994, published by the Gypsum Association as referenced in Tables 7-A, 7-B and 7-C (also reference Appendix Chapter 12, Division II, if adopted) of the specified Uniform Building Code, including Appendix Chapters ________. [Fill in the applicable appendix chapters (see Uniform Building Code Section 101.3, last paragraph). If reference is made to Appendix Chapter 30, an additional reference to ANSI/ASME A17.1, 1987, Safety Code for Elevators and Escalators, including Supplements A17.1a-1988, A17.1b-1989, and to ANSI/ASME A17.3a-1986, Safety Code for Existing Elevators and Escalators, including Supplements A17.3a-1989, published by the American Society of Mechanical Engineers, should be added and three (3) copies of this code should also be on file (see Appendix Sections 3010 and 3012), and

Structural Welding Code—Reinforcing Steel, AWS D1.4-92 (UBC Standard 19-1); American National Standard for Accessible and Useable Buildings and Facilities, A117.1-1992 (Uniform Building Code Section 1101.2), published by the Council of American Building Officials; Load and Resistance Factor Design Specifications for Structural Steel Buildings, December 1, 1993 (Chapter 22, Division II); Specification for Structural Steel Buildings Allowable Stress Design and Plastic Design, June 1, 1989 (Chapter 22, Division III); Load and Resistance Factor Design Specification for Cold Formed Steel Structural Members, 1986 (with December, 1989 Addendum) (Chapter 22, Division VI); Specification for Design of Cold-Formed Steel Structural Members, 1986 (Chapter 22, Division VII); Standard Specification for Steel Joists, K-Series, LH-Series, DLH-Series and Joist Girders, 1994 (Chapter 22, Division IX); Structural Applications of Steel Cables for Buildings, ASCE 17-95 (Chapter 22, Division XI); and National Design Specification for Wood Construction, Revised 1991 Edition (Chapter 22, Division III, Part I), as modified or amended in the Uniform Building Code referenced herein:

be and the same are hereby adopted as the code of the ________ (jurisdiction) ________ for regulating the erection, construction, enlargement, alteration, repair, moving, removal, demolition, conversion, occupancy, equipment, use, height, area and maintenance of all buildings or structures in the ________ (jurisdiction) ________ providing for issuance of permits and collection of fees therefor; and each and all of the regulations, provisions, conditions and terms of such Uniform Building Code, 1997 Edition, Volumes 1, 2 and 3, published by the International Conference of Building Officials, and the secondary publications referenced above, all of which are on file in the office of the ________ (jurisdiction) ________ are hereby referred to, adopted and made a part hereof as if fully set out in this ordinance.

Section 2. (Incorporate penalties for violations. See Section 103.)

Section 3. That Ordinance No. ________ of ________ (jurisdiction) ________ entitled (fill in the title of building ordinance or ordinances in effect at the present time) and all other ordinances or parts of ordinances in conflict herewith are hereby repealed.

Section 4. That if any section, sentence, clause or phrase of this ordinance is, for any reason, held to be invalid or unconstitutional, such decision shall not affect the validity or constitutionality of the remaining portions of this ordinance. The ________ (governing body) ________ hereby declares that it would have passed this ordinance, and each section, clause or phrase hereof, irrespective of the fact that any one or more sections, sentences, clauses and phrases be declared unconstitutional.

Section 5. That the ________ (jurisdiction’s keeper of records) ________ is hereby ordered and directed to cause this ordinance to be published. (An additional provision may be required to direct the number of times the ordinance is to be published and to specify that it is to be in a newspaper in general circulation. Posting may also be required.)

Section 6. That this ordinance and the rules, regulations, provisions, requirements, orders and matters established and adopted hereby shall take effect and be in full force and effect ________ (time period) ________ from and after the date of its final passage and adoption.
SECTION 101 — TITLE, PURPOSE AND SCOPE

101.1 Title. These regulations shall be known as the Uniform Building Code, may be cited as such and will be referred to herein as “this code.”

101.2 Purpose. The purpose of this code is to provide minimum standards to safeguard life or limb, health, property and public welfare by regulating and controlling the design, construction, quality of materials, use and occupancy, location and maintenance of all buildings and structures within this jurisdiction and certain equipment specifically regulated herein.

The purpose of this code is not to create or otherwise establish or designate any particular class or group of persons who will or should be especially protected or benefited by the terms of this code.

101.3 Scope. The provisions of this code shall apply to the construction, alteration, moving, demolition, repair, maintenance and use of any building or structure within this jurisdiction, except work located primarily in a public way, public utility towers and poles, mechanical equipment not specifically regulated in this code, and hydraulic flood control structures.

For additions, alterations, moving and maintenance of buildings and structures, see Chapter 34. For temporary buildings and structures see Section 3103 and Appendix Chapter 31.

Where, in any specific case, different sections of this code specify different materials, methods of construction or other requirements, the most restrictive shall govern. Where there is a conflict between a general requirement and a specific requirement, the specific requirement shall be applicable.

Wherever in this code reference is made to the appendix, the provisions in the appendix shall not apply unless specifically adopted.

SECTION 102 — UNSAFE BUILDINGS OR STRUCTURES

All buildings or structures regulated by this code that are structurally unsafe or not provided with adequate egress, or that constitute a fire hazard, or are otherwise dangerous to human life are, for the purpose of this section, unsafe. Any use of buildings or structures constituting a hazard to safety, health or public welfare by reason of inadequate maintenance, dilapidation, obsolescence, fire hazard, disaster, damage or abandonment is, for the purpose of this section, an unsafe use. Parapet walls, cornices, spires, towers, tanks, statuary and other appendages or structural members that are supported by, attached to, or a part of a building and that are in deteriorated condition or otherwise unable to sustain the design loads that are specified in this code are hereby designated as unsafe building appendages.

All such unsafe buildings, structures or appendages are hereby declared to be public nuisances and shall be abated by repair, rehabilitation, demolition or removal in accordance with the procedures set forth in the Dangerous Buildings Code or such alternate procedures as may have been or as may be adopted by this jurisdiction. As an alternative, the building official, or other employee or official of this jurisdiction as designated by the governing body, may institute any other appropriate action to prevent, restrain, correct or abate the violation.

SECTION 103 — VIOLATIONS

It shall be unlawful for any person, firm or corporation to erect, construct, enlarge, alter, repair, move, improve, remove, convert or demolish, equip, use, occupy or maintain any building or structure or cause or permit the same to be done in violation of this code.

SECTION 104 — ORGANIZATION AND ENFORCEMENT

104.1 Creation of Enforcement Agency. There is hereby established in this jurisdiction a code enforcement agency which shall be under the administrative and operational control of the building official.

104.2 Powers and Duties of Building Official.

104.2.1 General. The building official is hereby authorized and directed to enforce all the provisions of this code. For such purposes, the building official shall have the powers of a law enforcement officer.

The building official shall have the power to render interpretations of this code and to adopt and enforce rules and supplemental regulations to clarify the application of its provisions. Such interpretations, rules and regulations shall be in conformance with the intent and purpose of this code.

104.2.2 Deputies. In accordance with prescribed procedures and with the approval of the appointing authority, the building official may appoint such number of technical officers and inspectors and other employees as shall be authorized from time to time. The building official may deputize such inspectors or employees as may be necessary to carry out the functions of the code enforcement agency.

104.2.3 Right of entry. When it is necessary to make an inspection to enforce the provisions of this code, or when the building official has reasonable cause to believe that there exists in a building or upon a premises a condition that is contrary to or in violation of this code that makes the building or premises unsafe, dangerous, or hazardous, the building official may enter the building or premises at reasonable times to inspect or to perform the duties imposed by this code, provided that if such building or premises be occupied that credentials be presented to the occupant and entry requested. If such building or premises be unoccupied, the building official shall first make a reasonable effort to locate the owner or other person having charge or control of the building or premises and request entry. If entry is refused, the building official shall have recourse to the remedies provided by law to secure entry.

104.2.4 Stop orders. Whenever any work is being done contrary to the provisions of this code, or other pertinent laws or ordinances implemented through the enforcement of this code, the building official may order the work stopped by notice in writing served on any persons engaged in the doing or causing such work to be done, and any such persons shall forthwith stop such work until authorized by the building official to proceed with the work.