

1. Record Nr.	UNINA9910795814003321
Autore	Allen Edward
Titolo	Fundamentals of Building Construction : Materials and Methods
Pubbl/distr/stampa	New York : , : John Wiley & Sons, Incorporated, , 2013 ©2014
ISBN	9781118419199 9781118138915
Edizione	[6th ed.]
Descrizione fisica	1 online resource (1026 pages)
Altri autori (Persone)	IanoJoseph
Disciplina	690
Soggetti	Building Building materials Electronic books.
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di contenuto	Intro -- Fundamentals of Building Construction -- Contents -- Preface to the Sixth Edition -- 1 Making Buildings -- Learning to Build -- Buildings and the Environment -- Sustainable Building Materials -- Assessing Sustainable Buildings -- The Work of the Design Professional -- Zoning Ordinances -- Building Codes -- Other Constraints -- Construction Standards and Information Resources -- The Work of the Construction Professional -- Providing Construction Services -- Construction Scheduling -- Managing Construction -- Trends in the Delivery of Design and Construction Services -- Increasing Collaboration Among Team Members -- Improving Efficiency in Production -- Improving Information Management -- Key Terms -- Review Questions -- Exercises -- Selected References -- Web Sites -- 2 Foundations and Sitework -- Foundation Requirements -- Earth Materials -- Classifying Earth Materials -- Properties of Soils -- Soils for Building Foundations -- Subsurface Exploration and Soils Testing -- Earthwork and Excavation -- Excavation -- Excavation Support -- Dewatering -- Foundations -- Shallow Foundations -- Deep Foundations -- Seismic Base Isolation -- Underpinning -- Up-Down Construction -- Protecting Foundations from Water, Heat Flow, and Radon Gas -- Waterproofing and Drainage -- Basement Insulation --

Radon Gas Control -- Sitework -- Retaining Walls -- Filling and Finish Grading -- Designing Foundations -- Foundation Design and the Building Code -- Key Terms -- Review Questions -- Exercises -- Selected References -- Web Sites -- 3 Wood -- Trees -- Tree Growth -- Softwoods and Hardwoods -- Environmentally Certified Wood -- Lumber -- Sawing -- Seasoning -- Surfacing -- Lumber Defects -- Lumber Grading -- Structural Properties of Lumber -- Lumber Dimensions -- Veneer -- Wood Products -- Glue-Laminated Wood -- Cross-Laminated Timber.

Structural Composite Lumber -- Wood I-Joists -- Wood-Plastic Composites -- Plastic Lumber -- Wood Panel Products -- Structural Panel Types -- Plywood Production -- Specifying Structural Panels -- Other Wood Panel Products -- Non-Wood Fiber Panels -- Wood Chemical Treatments -- Preservative Chemicals -- Naturally Decay-Resistant Woods -- Durable Construction Techniques -- Wood Fasteners -- Nails -- Screws -- Bolts -- Timber Connectors -- Toothed Plates -- Sheet Metal and Metal Plate Framing Devices -- Wood Adhesives -- Prefabricated Wood Components -- Trusses -- Prefabricated Panels -- Factory-Built Housing -- Types of Wood Construction -- Key Terms -- Review Questions -- Exercises -- Selected References -- Web Sites -- FROM CONCEPT TO REALITY -- 4 Heavy Timber Frame Construction -- Fire-Resistive Heavy Timber Construction -- Managing Wood Shrinkage -- Anchoring Beams and Walls -- Floor and Roof Decks -- Heavy Timber in Other Construction Types -- Lateral Bracing -- Cross-Laminated Timber Construction -- Accommodating Building Services -- Wood-Concrete Composite Construction -- Longer Spans in Heavy Timber -- Large Beams -- Rigid Frames -- Trusses -- Arches and Domes -- Heavy Timber and the Building Codes -- Uniqueness of Heavy Timber Framing -- Key Terms -- Review Questions -- Exercises -- Selected References -- Web Sites -- 5 Wood Light Frame Construction -- History -- Platform Frame -- Foundations for Light Frame Structures -- Other Foundation Materials -- Building the Frame -- Planning the Frame -- Erecting the Frame -- Attaching the Frame to the Foundation -- Floor Framing -- Wall Framing -- Lateral Force Resistance and Shear Walls -- Upper-Level Floor and Wall Framing -- Roof Framing -- Variations on Wood Light Frame Construction -- Framing for Increased Thermal Efficiency -- Framing for Optimal Lumber Usage -- Prefabricated Framing Assemblies.

Wood Light Frame Construction and the Building Codes -- Uniqueness of Wood Light Frame Construction -- Key Terms -- Review Questions -- Exercises -- Selected References -- Web Sites -- 6 Exterior Finishes for Wood Light Frame Construction -- Protection from the Weather -- Roofing Underlayment -- Wall Moisture Barrier -- Roofing -- Finishing the Eaves and Rakes -- Roof Drainage -- Roof Overhangs and Rain Protection -- Ventilated Roofs -- Unventilated Roofs -- Roof Shingling -- Windows and Doors -- Flashings -- Installing Windows and Doors -- Siding -- Board Siding -- Plywood Siding -- Shingle Siding -- Metal and Plastic Siding -- Stucco -- Masonry Veneer -- Artificial Stone -- Fiber-Cement Panel Siding -- Corner Boards and Exterior Trim -- Sealing Exterior Joints -- Exterior Painting, Finish Grading, and Landscaping -- Exterior Construction -- Key Terms -- Review Questions -- Exercises -- Selected References -- Web Sites -- 7 Interior Finishes for Wood Light Frame Construction -- Completing the Building Enclosure -- Insulating the Building Frame -- Increasing Levels of Thermal Insulation -- Radiant Barriers -- Vapor Retarders -- Air Barriers -- Infiltration and Ventilation -- Wall and Ceiling Finish -- Millwork and Finish Carpentry -- Interior Doors -- Window Casings and

Baseboards -- Cabinets -- Finish Stairs -- Miscellaneous Finish
Carpentry -- Flooring and Ceramic Tile Work -- Finishing Touches --
Key Terms -- Review Questions -- Exercises -- Selected References --
Web Sites -- 8 Brick Masonry -- History -- Mortar -- Mortar
Ingredients -- Mortar Mixes -- Lime Mortar -- Mortar Hydration --
Mortar Admixtures -- Brick Masonry -- Brick Forming -- Firing Bricks
-- Fly Ash Brick -- Brick Sizes -- Brick Classifications -- Choosing
Bricks -- Laying Bricks -- Spanning Openings in Brick Walls --
Reinforced Brick Masonry -- Masonry Wall Construction.
Key Terms -- Review Questions -- Exercises -- Selected References --
Web Sites -- 9 Stone and Concrete Masonry -- Stone Masonry -- Types
of Building Stone -- Quarrying and Milling of Stone -- Selecting Stone
for Buildings -- Stone Masonry -- Concrete Masonry -- Manufacture of
Concrete Masonry Units -- Laying Concrete Masonry -- Dry-Stacked
Unit Masonry -- Decorative Concrete Masonry Units -- The Economy
and Utility of Concrete Masonry Construction -- Other Types of
Masonry Units -- Masonry Wall Construction -- Key Terms -- Review
Questions -- Exercises -- Selected References -- Web Sites -- 10
Masonry Wall Construction -- Types of Masonry Walls -- Composite
Masonry Walls -- Masonry Cavity Walls -- Masonry Loadbearing Walls
-- Spanning Systems for Masonry Bearing Wall Construction --
Ordinary Joisted Construction -- Heavy Timber or Mill Construction --
Steel and Concrete Decks with Masonry Bearing Walls -- Detailing
Masonry Walls -- Cavity Drainage and Flashings -- Thermal Insulation
-- Some Special Problems of Masonry Construction -- Expansion and
Contraction -- Efflorescence -- Mortar Joint Deterioration -- Moisture
Resistance of Masonry -- Cold- and Hot-Weather Construction --
Masonry Paving -- Masonry and the Building Codes -- Uniqueness of
Masonry -- Key Terms -- Review Questions -- Exercises -- Selected
References -- Web Sites -- 11 Steel Frame Construction -- History --
The Material Steel -- Steel -- Steel Alloys -- Production of Structural
Shapes -- Cast Steel -- Cold-Worked Steel -- Open-Web Steel Joists --
Joining Steel Members -- Rivets -- Bolts -- Welding -- Details of Steel
Framing -- Typical Connections -- Stabilizing the Building Frame --
Shear Connections and Moment Connections -- The Construction
Process -- The Fabricator -- The Erector -- Floor and Roof Decking --
Architectural Structural Steel -- Fire Protection of Steel Framing.
Longer Spans and High-Capacity Columns in Steel -- Improved Beams
-- Trusses -- Arches -- Tensile Structures -- Composite Columns --
Industrialized Systems in Steel -- Steel and the Building Codes --
Uniqueness of Steel -- Key Terms -- Review Questions -- Exercises --
Selected References -- Web Sites -- 12 Light Gauge Steel Frame
Construction -- The Concept of Light Gauge Steel Construction --
Light Gauge Steel Framing -- Other Uses of Light Gauge Steel Framing
-- Insulating Light Gauge Steel Frame Structures -- Advantages and
Disadvantages of Steel Framing -- Light Gauge Steel Framing and the
Building Codes -- Finishes for Light Gauge Steel Framing -- Key Terms
-- Review Questions -- Exercises -- Selected References -- Web Sites
-- 13 Concrete Construction -- History -- Cement and Concrete --
Cement -- Aggregates and Water -- Supplementary Cementitious
Materials -- Admixtures -- Making and Placing Concrete --
Proportioning Concrete Mixes -- Handling and Placing Concrete --
Curing Concrete -- Formwork -- Reinforcing -- The Concept of
Reinforcing -- Steel Bars for Concrete Reinforcement -- Fabrication
and Erection of Reinforcing Bars -- Reinforcing a Simple Concrete Beam
-- Reinforcing a Continuous Concrete Beam -- Reinforcing Structural
Concrete Slabs -- Two-Way Slab Action -- Reinforcing Concrete
Columns -- Fibrous Reinforcing -- Concrete Creep -- Prestressing --

Pretensioning -- Posttensioning -- ACI 301 -- Innovations in Concrete Construction -- Key Terms -- Review Questions -- Exercises -- Selected References -- Web Sites -- 14 Sitecast Concrete Framing Systems -- Casting a Concrete Slab on Grade -- Pouring and Finishing -- Controlling Cracking -- Casting a Concrete Wall -- Insulating Concrete Forms -- Casting a Concrete Column -- One-Way Floor and Roof Framing Systems -- One-Way Solid Slab -- One-Way Concrete Joist (Ribbed Slab).
Wide-Module Concrete Joist.

Sommario/riassunto

Note from the publisher: Now in its sixth edition, this bestselling reference focuses on the basic materials and methods used in building construction. Emphasizing common construction systems such as light wood frame, masonry bearing wall, steel frame, and reinforced concrete construction, the new edition includes new information on building materials properties; the latest on "pre-engineered" building components and sustainability issues; and reflects the latest building codes and standards. It also features an expanded series of case studies along with more axonometric detail drawings and revised photographs for a thoroughly illustrated approach.
