



Objectives

Course Title: General: Minnesota Residential Code Review

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Below are the learning objectives for this course. Each objective outlines the specific, measurable outcomes that learners are expected to achieve upon completion of the relevant module or section.

- **General 1.1:** The objective of this module is to review key requirements of the Minnesota Residential Code for contractor continuing education. This module, presented by Sterling Professional Education, is designed to help contractors meet their continuing education requirements in the general building category. It focuses specifically on the 2018 Minnesota Residential Code, particularly the construction code section (book number four). The course aims to address areas where contractors commonly face challenges, as identified by the Department of Labor, by guiding participants through important code provisions and practical applications. The goal is to ensure contractors understand statewide code requirements, including both general standards and relevant local ordinances, so they can build to at least the minimum code and maintain compliance in their work.

- **General 1.2:** The objective of this module is to help learners evaluate different soil types for building suitability. This module aims to guide students through the classification and assessment of various soil types based on their physical characteristics and suitability for construction. It explains how to interpret soil tables, understand classification codes, and evaluate factors such as compressive strength, frost heave potential, and volume change. By the end of the module, learners should be able to visually assess soils, determine their appropriateness for building foundations, and recognize when further testing or special construction measures are necessary to ensure structural stability and compliance with building codes.

- **General 1.3:** The objective of this module is to teach proper site drainage practices to protect building foundations. This module focuses on the importance of managing drainage around structures to prevent issues like frost heave, soil expansion, and water intrusion into basements. It explains how proper grading, swales, and hardscape slopes help direct water away from the house without impacting neighboring properties. The content emphasizes compliance with local regulations, the need for a minimum 6-inch drop in grade over 10 feet from the foundation, and the use of appropriate slopes for both soil and hard surfaces to ensure long-term structural integrity and occupant safety.

- **General 1.4:** This module aims to explain key site planning and structural requirements for residential buildings under the Minnesota Residential Code. The objective of this module is to help learners understand the essential rules and considerations for placing and designing residential buildings. It covers topics such as required setbacks, fire separation distances, safe building placement on slopes, and the structural design criteria that must be met—including snow and wind loads, weathering, frost depth, and flood hazards. By the end of the module, students should be

able to identify and apply these code requirements to ensure safe, compliant, and durable residential construction in Minnesota.

- **General 1.5:** The objective of this module is to explain the requirements for structural loads and material weights in residential construction under the Minnesota Residential Code. This module aims to help learners understand the different types of loads (such as live, dead, snow, and roof loads) that buildings must support, and how these loads apply to various spaces like attics, decks, garages, and living areas. It also covers the minimum load requirements for different building components, the significance of material weights (e.g., brick, drywall, concrete), and how these factors influence design decisions. By the end, participants should be able to interpret code requirements for structural loads, assess the adequacy of building materials, and ensure compliance with safety standards in residential construction.

- **General 1.6:** The objective of this module is to explain the concept of deflection in building materials and its significance in residential construction under Minnesota building codes. This module aims to help learners understand how loads cause materials like walls, floors, and ceilings to bend or move, and how building codes set maximum allowable deflection limits for different structural components. It covers the importance of meeting both code requirements and client expectations, the consequences of excessive deflection, and the calculation methods for determining allowable movement in various building elements. By the end, participants should be able to interpret code tables for deflection, perform basic deflection calculations, and recognize when exceeding code minimums may be necessary to ensure client satisfaction and structural performance.

- **General 1.7:** The objective of this module is to explain the concept of wind exposure categories as they relate to building design and construction under Minnesota building codes. This module aims to help learners identify and differentiate between Exposure B, C, and D, understand how each category affects wind design criteria, and recognize the impact of surrounding terrain and obstructions on a building's exposure classification. It covers the definitions, typical examples (such as urban, suburban, open country, and waterfront locations), and the practical implications for product selection, braced wall design, and compliance with code requirements. By the end, participants should be able to determine the appropriate wind exposure category for a given site and apply this knowledge to ensure code-compliant and resilient building practices.

- **General 1.8:** The objective of this module is to explain the Minnesota Residential Code requirements for snow loads and foundation systems. This module aims to help learners identify the two snow load zones in Minnesota, understand how to determine the appropriate ground and roof snow loads for different counties, and apply the correct calculations for roof design. It also covers the types of foundation materials permitted by code—including concrete, masonry, wood, and crushed stone—and discusses the minimum standards set by the code versus best practices for durability and safety. By the end, participants should be able to interpret code provisions for snow loads and foundations, select compliant materials, and recognize the rationale behind these requirements in residential construction.

- **General 1.9:** The objective of this module is to explain the minimum specified compressive strength requirements for concrete in residential construction under the Minnesota Residential Code. This module aims to help learners understand how to interpret code tables for concrete strength, the impact of severe weathering potential in Minnesota, and the

rationale behind different PSI requirements for various structural elements such as footings, basement walls, slabs, and exterior walls. It also covers the importance of proper footing depth for frost protection, the consequences of inadequate design (such as frost heave), and the need for engineering approval when using alternative systems. By the end, participants should be able to identify code-compliant concrete specifications, assess site conditions, and communicate effectively with contractors to ensure durable, code-compliant foundations and slabs.

- **General 1.10:** The objective of this module is to explain Minnesota's frost depth requirements and their application to building foundations across different counties and zones. This module aims to help learners identify which counties fall into each frost depth zone, understand the rationale behind these requirements, and recognize exceptions where engineering evidence or site conditions (such as bedrock) may alter standard practices. It also covers the importance of proper backfill, undisturbed soil, and grading for foundation stability, as well as the practical implications of frost depth on construction decisions. By the end, participants should be able to determine the correct frost depth for a given location, apply best practices for foundation preparation, and ensure compliance with code requirements to protect structures from frost-related damage.

- **General 1.11:** The objective of this module is to explain the code requirements and best practices for residential strip footings in Minnesota. This module aims to help learners understand the minimum standards for footing slope, thickness, and reinforcement, as well as the rationale behind these requirements. It covers the differences between code minimums and recommended practices, the implications of building strictly to code, and the risks of inadequate footings. The lesson also clarifies the concepts of interpolation and extrapolation as they apply to code compliance, and discusses how to communicate footing decisions and code limitations to

clients. By the end, participants should be able to interpret footing code tables, recognize when to exceed minimum standards, and make informed decisions to ensure structural integrity and client satisfaction.

- **General 1.12:** The objective of this module is to explain the requirements and best practices for foundation drainage and waterproofing under the Minnesota Residential Code. This module aims to help learners understand when drainage systems such as drain tile, gravel, or perforated pipe are required, and the importance of proper grading and soil management to prevent water intrusion and foundation movement. It covers the code distinctions between crawl spaces and basements, the impact of soil types (like clay), and the rationale for waterproofing standards as outlined in both the building and energy codes. The lesson also addresses practical considerations for drainage system installation, discharge methods, and regional differences due to climate. By the end, participants should be able to identify compliant drainage solutions, explain the reasoning behind code requirements, and make informed decisions to protect structures from water-related issues.

- **General 1.13:** The objective of this module is to explain the requirements for waterproofing foundations under current building and energy codes. This module aims to help learners understand the distinction between dampproofing and waterproofing, the reasons for the shift to waterproofing after 2015, and the specific code requirements for where and how waterproofing must be applied. It covers the relevant sections of the building and energy codes, the types of materials permitted, and the practical implications for construction and compliance. By the end, participants should be able to identify code-compliant waterproofing methods, understand the rationale behind these requirements, and apply best practices to ensure durable, moisture-resistant foundations.

- **General 1.14:** The objective of this module is to explain the code requirements for protecting waterproofing systems on exterior foundation walls in Minnesota residential construction. This module aims to help learners understand the necessity of rigid, opaque, and weather-resistant protective coverings to prevent degradation of waterproofing, as well as the correct installation practices—including coverage below grade and proper flashing in accordance with current code sections. It also addresses the differences between energy code references and the actual building code, clarifies updates and discrepancies in code sections, and reviews the approved materials and systems for foundation waterproofing. By the end, participants should be able to identify compliant waterproofing protection methods, recognize code updates, and apply best practices for foundation wall protection in residential projects.

- **General 1.15:** The objective of this module is to help learners interpret and apply the labeling, treatment, and modification requirements for structural wood products as specified in the Minnesota Residential Code. This module aims to ensure that contractors and building professionals can accurately read and understand the information printed on panel goods (such as OSB and plywood), including panel grade, span rating, exposure rating, thickness, manufacturer identification, and relevant engineering standards. It also covers the evolution and current standards for treated lumber, including chemical treatments and their applications above and at grade. Additionally, the lesson explains the code requirements for cutting, boring, and notching dimensional lumber floor joists, including maximum allowable sizes and locations for notches and holes. By the end, participants should be able to select appropriate materials, verify compliance with labeling and treatment standards, and perform code-compliant modifications to structural wood members.

- **General 1.16:** The objective of this module is to explain the rules and limitations for drilling and notching wall studs in residential construction, as specified by Minnesota building codes. This module aims to help learners understand how much of a stud can be notched or drilled, the differences between bearing and non-bearing walls, and the requirements for reinforcing studs when larger holes are needed. It covers the maximum allowable depths for notching and drilling, the conditions under which double studs are required, and the correct placement of holes and notches to maintain structural integrity. By the end, participants should be able to apply these standards to ensure code-compliant wall framing and avoid common structural mistakes.

- **General 1.17:** The objective of this module is to explain the requirements and options for deck footings under the 2020 Minnesota Residential Code. This module aims to help learners understand the types of approved deck footings, including concrete footings, diamond piers, and helical piers, and the authority of building officials to approve alternative systems. It covers footing sizing, load requirements, minimum depth for frost protection, and the relevant code sections and figures. The lesson also addresses regional variations in footing depth, the rationale behind frost line requirements, and practical considerations for installation and inspection. By the end, participants should be able to identify compliant deck footing solutions and apply code requirements to real-world scenarios.

- **General 1.18:** The objective of this module is to explain how to determine the correct size and type of footings required for deck construction under building code standards. This module aims to help learners understand the concept of tributary area, how different footings support varying loads, and how to use code tables to select appropriate footing dimensions based on soil conditions and live loads. It covers the calculation of tributary areas for both corner and interior posts, the impact of reinforcement (such as rebar)

on footing size, and the practical construction methods for forming and pouring footings. The lesson also reviews various code-compliant footing and post assemblies, highlighting their strengths and potential risks. By the end, participants should be able to confidently design and specify deck footings that ensure structural safety and code compliance.

- **General 1.19:** The objective of this module is to explain the code requirements for sizing and supporting deck posts, ledgers, and rim joists in residential construction under the Minnesota Residential Code. This module aims to help learners understand how to determine the correct post sizes and maximum heights, interpret code tables and footnotes, and apply the rules for deck ledger and rim joist attachment. It covers material specifications, prohibited support conditions (such as attaching ledgers to masonry veneer or OSB), and the importance of proper structural support for safety and code compliance. By the end, participants should be able to evaluate deck support systems, identify common code violations, and ensure that deck construction meets current standards.

- **General 1.20:** The objective of this module is to explain the code requirements for deck ledger-to-band joist connections under the Minnesota Residential Code. This module aims to help learners understand the proper selection, placement, and installation of fasteners for deck ledgers, including the use of hot-dipped galvanized or stainless steel fasteners, and the importance of following manufacturer instructions for engineered products. It covers the minimum end and edge distances, row spacing, and the differences between ledger boards and band (rim) joists, as well as the use of code tables and figures for visual guidance. The lesson also addresses alternative ledger details, the role of engineering in non-standard configurations, and the responsibilities of building officials versus licensed engineers. By the end, participants should be able to apply

code-compliant fastening practices for deck ledgers and interpret relevant tables and figures to ensure safe, durable deck construction.

- **General 1.21:** The objective of this module is to explain the updated requirements for lateral (horizontal) connections for decks under the Minnesota Residential Code, focusing on the 2015 code changes. This module aims to help learners understand why lateral connections are necessary for deck safety, the specific hardware options available (such as the Simpson Strong-Tie DTT1Z), and the code-mandated installation procedures. It covers the required load capacities, placement of hold-down devices, and the importance of proper attachment to the house's structural framing. The lesson also introduces the wall fastening schedule, discussing the rationale for using different stud sizes and spacings in residential construction. By the end, participants should be able to identify compliant deck connection methods, interpret code tables for wall framing, and apply these standards to real-world inspection or construction scenarios.

- **General 1.22:** The objective of this module is to guide learners through the selection and sizing of wood studs and headers in residential construction according to the Minnesota Residential Code. This module aims to help participants understand how to use code tables to determine the appropriate stud size, height, and spacing based on the number of supported floors, wall height, and load conditions. It also covers the prescriptive requirements for header sizing, including how to account for factors such as span, snow load, wind speed, and building width. By the end of this lesson, learners should be able to confidently apply code tables to select compliant framing members and explain the rationale behind these choices in typical residential building scenarios.

- **General 1.23:** The objective of this module is to review foundational concepts and requirements for site preparation and structural loads under the 2020 Minnesota Residential Code. This module aims to help learners

understand the minimum standards for construction, the types of loads (dead, live, roof, wind, snow, and seismic) that affect residential structures, and the importance of proper load paths from the roof to the soil. It covers soil suitability, classification, and loadbearing pressures, as well as drainage and grading requirements to ensure safe and compliant building practices. By the end, participants should be able to identify critical site and structural considerations, interpret relevant code tables, and apply best practices for foundation and site preparation in Minnesota residential construction.

- **General 1.24:** The objective of this module is to explain the key site and structural requirements for residential construction under the Minnesota Residential Code. This module aims to help learners understand the importance of setbacks, fire safety, and privacy as dictated by zoning regulations, as well as the required distances from steep slopes. It covers critical code provisions such as roof snow loads, wind design speeds, frost depth, termite requirements, flood hazards, and live load calculations for various building areas. The lesson also addresses wind exposure categories, deflection limits, and the rationale behind structural design standards. By the end, participants should be able to interpret and apply these code requirements to ensure safe, compliant, and durable residential structures.

- **General 1.25:** The objective of this module is to explain the Minnesota Residential Code requirements for snow load zones, foundation types, footing and foundation design, and moisture protection. This module aims to help learners understand how to determine the correct snow load and frost depth for different regions, select appropriate foundation and footing materials, and apply code-compliant construction practices. It covers the minimum compressive strength for concrete, footing sizing based on load and soil conditions, drainage and waterproofing standards, and the use of approved materials for moisture protection. By the end, participants should

be able to interpret code tables, ensure structural integrity, and implement best practices for foundation construction and protection in Minnesota.

- **General 1.26:** The objective of this module is to explain the structural requirements and code limitations for cutting, boring, and notching floor joists and wall studs, as well as the proper sizing and installation of deck footings, posts, ledger boards, and headers under the Minnesota Residential Code. This module aims to help learners understand how to maintain structural integrity when modifying framing members, interpret code references (such as R502.8, R602.6, and R507), and apply best practices for deck construction and wall framing. It also covers the rationale behind code limitations, the selection of appropriate materials, and the importance of compliance for safety and inspection. By the end, participants should be able to identify code-compliant methods for framing modifications and deck construction, and confidently apply these standards in residential projects.
