COCHRAN STANDARD TERMS AND CONDITIONS

1. Unless expressly stated in the attached proposal letter ("Proposal"), the Proposal must be accepted in writing within thirty days or the Proposal is void and unenforceable.

2. The acceptance of the Proposal is conditioned upon these Terms and Conditions and the terms of the Proposal, which shall be the only terms and conditions applicable to any agreement between Cochran and Client. Requesting performance of the work by Cochran, sending a notice to proceed with the work, or an acknowledgment of the Proposal by the issuance of a purchase order by Client, notwithstanding any terms additional to or different from those contained herein, shall be deemed to be an acceptance of these Terms and Conditions by Client.

3. The Proposal and these Terms and Conditions constitute the entire agreement ("Contract") between Cochran and the Client for the services identified in the Proposal. All prior proposals, negotiations, representations, recommendations, statements or agreements made or entered into prior to or contemporaneously with this Contract, whether oral or in writing, are superseded by this Contract unless they are expressly incorporated herein by reference. Any terms contained in any communication from Client which are inconsistent with the Contract shall not be binding upon Cochran.

4. Cochran may submit invoices on not less than a monthly basis. Cochran's invoices are due and payable within fifteen (15) days of the submission of each invoice. Interest will accrue at the rate of one and one-half percent (1.5%) per month on all unpaid invoices from the date payment was due. In the event that Client disputes an invoice, Client will pay the undisputed portion of the invoice and provide a written explanation to Cochran of the basis for Client's dispute. If Client fails to pay in full any of Cochran's invoices, Cochran may immediately, without waiving any other rights it may have, suspend work pending resolution of the payment dispute. Client's failure to pay any of Cochran's invoices in full shall be considered a material breach of this Contract.

5. Unless specifically stated to the contrary in the Proposal, reimbursable expenses are in addition to the amounts identified for Cochran's fees for basic and additional services. Reimbursable expenses shall include, but are not limited to: Client-authorized out-of-town travel, transportation, and subsistence expenses; fees paid for securing approval of jurisdictional authorities; postage, courier, or other delivery fees; material costs for models, mock-ups, or other presentation media; photographic film and development expenses.

6. This Contract is binding upon the heirs, successors and assigns of the parties hereto and may not be assigned by either party without the prior written consent of the other party.

7. Nothing in this Contract is intended to create any enforceable third party rights against Client or Cochran.

8. Cochran will perform all of its services consistent with that degree of skill and learning ordinarily used under the same or similar circumstances by the members of Cochran's profession working in the same locale.

9. If, and to the extent that Cochran's scope of work includes construction phase services, any such services shall be provided in accordance with and governed by the applicable terms of AIA Document A201 General Conditions of the Contract for Construction, 2007 Edition ("General Conditions") If there is a conflict between the General Conditions and this Contract, this Contract will control.

10. When making any interpretation or decision as required by the General Conditions, Cochran will not show partiality to any party, and shall not be liable for interpretations or decisions rendered in good faith.

11. Cochran has no responsibility or obligation to supervise or direct the work activities of the Client's employees and representatives, or any construction contractors, sub-contractors or any of their employees, or other persons not employed by Cochran.

12. Cochran will abide by any job-site safety programs identified in writing by the Client but will not be responsible for job-site safety of any persons not directly employed by Cochran.

13. Cochran has no responsibility or obligation with respect to the construction means, methods, sequencing or procedures of any construction contractors, sub-contractors or any of their employees.

14. Cochran is not responsible for the failure of any contractor to perform work properly and in accordance with any applicable documents, plans, specifications, codes or standards.

15. Cochran is not responsible for the identification of unsafe conditions, nor for the identification, handling, or removal of hazardous and/or toxic substances found on or brought to the site. Prior to the start of work, the Client shall disclose and identify in writing to Cochran, to the best of Client's knowledge, all hazardous and/or toxic substances located on the site. Client agrees to defend, indemnify and hold Cochran harmless from and against all claims, demands and liabilities of any kind or nature resulting from any hazardous and/or toxic substances that are found on the site and which were not identified by Client – even if not known by Client.

Initials: _____

16. Cochran will have no obligation to commence its work until receipt of a written notice-to-proceed from Client and all other information required to be provided by Client. Cochran shall complete its work within any time limits identified in the Proposal. Cochran shall be entitled to an extension of time for performance of its work due to any delays that are due to any cause beyond Cochran's reasonable control. In no event will Client be entitled to any costs, losses, expenses or damages (including, but not limited to, claims or damages attributable to home office overhead costs, loss of profits, loss of business opportunities and/or additional financing costs) as a result of any delay caused or attributable to Cochran.

17. Cochran and Client waive any and all claims against each other for consequential, indirect, incidental and special damages arising out of or relating to this Contract, the alleged breach thereof, and/or Cochran's work; including, but not limited to, lost profits, loss of business, financing costs, extended home office overhead and similar types of damages.

18. Provided that written notice of a material breach of this Contract has been provided to the defaulting party and the defaulting party has failed to cure or taken reasonable efforts to cure its default within seven (7) calendar days of its receipt of the notice, the non-defaulting party may terminate this Contract by sending notice of termination to the defaulting party.

19. If the Contract is terminated for any reason not attributable to Cochran, Client will pay for the work performed by Cochran up to the date of termination plus all of Cochran's costs related to the termination (e.g., close-out costs, costs of terminating contracts with consultants, etc.).

20. In the event that there are any changes in applicable laws, codes or regulations after the Contract is executed that result in the need for Cochran to perform additional services and/or incur additional costs, Client shall pay Cochran for said services and costs at the rates set forth in the Proposal.

21. All documents and electronic media produced by Cochran under this Contract ("Instruments of Service") shall remain the property of Cochran, and Cochran shall retain all rights to the same, including copyrights, and they may be used by the Client only for the project identified in the Proposal. In the event of the termination of this Contract, the Client shall return the Instruments of Service to Cochran, and the Instruments of Service may not be used by the Client or a third party to complete the project without the written consent of Cochran.

22. Client and Cochran waive all rights against each other, any contractors and other professionals, and any of their respective consultants, contractors, suppliers, subcontractors, agents and employees, for damages caused by perils to the extent covered by insurance, except such rights as they may have to the insurance proceeds.

23. This Contract and the rights of the parties shall be governed by the laws of the State of Missouri.

24. In the event of any dispute, claim, arbitration or litigation arising out of or relating to this Contract, the alleged breach thereof, and/or Cochran's work, the prevailing party shall be awarded its attorney's fees, expert witness fees, expenses, arbitration fees and expenses, and court costs at the trial and all appellate levels; including costs and fees related to collection efforts. Determination of which party prevailed shall be made by the judge or arbitrator(s). The determination shall be made by reviewing the claims resolved at trial or arbitration (which excludes any claims resolved prior to the taking of evidence), and then determining which party achieved the greater success by quantifying the amounts awarded the party recovering damages or obtaining relief and comparing that result to the relief and/or damages requested by that party at the trial or arbitration. If that party received less than 50% of the relief and/or damages it sought, then the other party prevailed. If that party receives more than 50% of the relief and/or damages it sought, then it prevailed. The judge or arbitrator(s) may consider the percentage of recovery when determining the amount of fees and expenses to be awarded to the prevailing party. If more than one claim is presented, then the judge or arbitrator(s) may elect to evaluate who is the prevailing party on a claim by claim basis, or in the aggregate as they deem appropriate. In making the determination of which party prevailed, the judge or arbitrator(s) shall take into consideration any settlement offers or demands made prior to trial or arbitration.

Initials:

Staff Report

February 27, 2025

To: Board of Aldermen
From: David Bova
Re: Proposed Building Code Changes from 2018 to 2021

Issue:
Our building codes were updated to the 2018 ICC codes in 2022; ICC has since adopted 2021 and 2024 codes; we typically adopt the codes succeeding our previous adoption since they have been better vetted by inspectors and builders. The building department reviewed the codes in conjunction with multiple departments and builders. Keeping our building codes updated helps us to maintain a safe and secure built environment. Also, the BCEGS (Building Code Effectiveness Grading Schedule) requires us to continually update our building codes in order to maintain our ISO rating. Our permit fees have not been updated since 2007; proposed updates reflect a better representation of the cost of issuance and inspection. Updating these code sections will allow us to better account for improved systems and costs, and maintain our current BCEGS class rating.

Recommendation:
Approval of building code updates with proposed amendments.

BILL NO. 4660 **ORDINANCE NO.**

AN ORDINANCE AMENDING CHAPTER 500: BUILDINGS AND BUILDING REGULATIONS; ARTICLE II "BUILDING CODE," SECTION 500.110 CODES & SECTION 500.360 BUILDING PERMIT FEES IN ITS ENTIRETY.

WHEREAS, Section 500.110 Codes has not been updated since 2022 with the exception of a few minor changes; and

WHEREAS, a review revealed the importance of updating to the 2021 ICC Building Codes with revisions; and

WHEREAS, a simpler permit fee structure is recommended by staff to be adopted; and

WHEREAS, The Board of Aldermen have reviewed the proposed changes recommended and find them to be in the best interests of the City and its residents.

NOW THEREFORE, BE IT ORDAINED BY THE BOARD OF ALDERMEN OF THE CITY OF STE. GENEVIEVE, MISSOURI AS FOLLOWS:

SECTION 1. Section 500.110 Codes is hereby repealed and replaced with the following:

Section 500.110 **Codes**

A. *International Building Code Adopted.* The Building Code of the City of Ste. Genevieve shall consist of the ICC Building Code, 2021 Edition, published by the International Code Council, Inc. (the "Building Code") which is incorporated by reference and made a part hereof.

1. *Amendments to the International Building Code.* The Building Code is hereby amended as follows:

a. Section 101.1, Title, (Amended) These regulations shall be known as the Building Code of the City of Ste. Genevieve hereinafter referred to as "this code".

b. Section 104.6 Right of Entry (Deleted)

c. Section 105.2, Work exempt from permit. (Amended) Building: is hereby amended by removing "2. Fences not over 7 feet (2134 mm) high."

d. Section 113, Means of Appeals (Deleted and Amended)

113.1 Board of Appeals. To hear and decide appeals of orders, decisions or determinations made by the Building Official relating to the application and

interpretation of this code, the Board of Adjustment of the City shall sit as the Board of Appeals having the authority set forth in this code and shall adopt rules of procedure for the conduct of such appeals in accordance with applicable law. Any person directly impacted by an action or decision of the code official such that the person would have standing in a court of law to challenge the action may petition the Board of Adjustment for a review of any final decision of any City officer under the Building Code, provided that a written application for appeal is filed within thirty (30) business days after the day of the decision or order served. An application for appeal shall be based solely on a claim that:

1. The true intent of the code or the rules legally adopted thereunder have been incorrectly interpreted;

2. The provisions of this code do not fully apply; or

3. The requirements of the code are adequately satisfied by other means.

The Board of Adjustment shall have no authority to waive the requirements of this code. The decision of the Board of Adjustment may be further appealed to the Circuit Court of Ste. Genevieve County as provided in Section 67.430, RSMo.

e. Section 312.1, General (Amended) "Fences more than 6 feet (1829 mm) in height" to "Fences."

f. Section 423.1, General (Deleted and Amended)

"In addition to other applicable requirements in this code, storm shelters shall be constructed in accordance with ICC 500, where economically feasible."

g. Section 1612.3, Establishment of Flood Hazard Areas (Amended) by substituting "City of Ste. Genevieve" for the words "[NAME OF JURISDICTION]" and "February 15, 2019" for the words "[DATE OF ISSUANCE]."

B. *International Residential Building Code Adopted.* The residential code of the City of Ste. Genevieve shall consist of the ICC International Residential Code, 2021 Edition, published by the International Code Council, Inc., (the "Residential Code"), including appendixes AA, AB, AC, AD, AE, AG, AH, & AJ as published by the International Code Council, which is incorporated herein by reference and made a part hereof.

1. *Amendments to the International Residential Code.* The Residential Code is hereby amended as follows:

a. Section R101.1 Title. (Amended) These provisions shall be known as the Residential Code for One- and Two-Family Dwellings of the City of Ste.

Genevieve and shall be cited as such and will be referred to herein as "this code".

b. Section 104.6, Right of Entry. (Deleted)

c. Section R105.2, Work exempt from permit. (Amended) Building: is hereby amended by removing "2. Fences not over 7 feet (2134 mm) high."

d. Section R105.2.1 Emergency Repairs. (Amended) Where equipment or system replacements and/or repairs must be performed in an emergency situation, the permit application shall be submitted within the next two (2) business days to the building official.

e. Section R105.7 Placement of Permit. (Amended) The building permit authorization card and stamped approved plans shall be kept on the construction site until completion of the work. The authorization card shall be placed in a window visible from the street upon which the structure or structures face or located on the exterior of the structure facing the street in a clear waterproof container.

f. Section R106.3.1 Approval of construction documents. (Amended) Where the building official issues a permit, the construction documents shall be approved in writing or by a stamp that states "REVIEWED FOR CODE COMPLIANCE." One set of construction documents so reviewed shall be retained by the building official. The other set shall be returned to the applicant, may be kept at the site of work or made available at the time of inspection and shall be open to inspection by the building official or a duly authorized representative.

g. Section R108.6 Work commencing before permit issuance. (Amended) Any person who commences work requiring a permit on a building, structure, electrical, gas, mechanical or plumbing system before obtaining the necessary permits shall be subject to a fee established by the applicable governing authority that shall be in addition to the required permit fees.

Exceptions:

1. Earthwork
2. Stakeouts and other necessary planning procedures

h. Section R112, Board of Appeals (deleted and amended)

To hear and decide appeals of orders, decisions or determinations made by the Building Official relating to the application and interpretation of this code, the Board of Adjustment of the City shall sit as the Board of Appeals having the authority set forth in this code and shall adopt rules of procedure for the conduct of such appeals in accordance with applicable law. Any person directly impacted by an action or decision of the code official such that the person would have standing in a court of law to challenge the action may

petition the Board of Adjustment for a review of any final decision of any City officer under the Building Code, provided that a written application for appeal is filed within thirty (30) business days after the day of the decision or order served. An application for appeal shall be based solely on a claim that:
1. The true intent of the code or the rules legally adopted thereunder have been incorrectly interpreted;
2. The provisions of this code do not fully apply; or
3. The requirements of the code are adequately satisfied by other means.
The Board of Adjustment shall have no authority to waive the requirements of this code. The decision of the Board of Adjustment may be further appealed to the Circuit Court of Ste. Genevieve County as provided in Section 67.430, RSMo.
i. Section R113.4 Violation penalties. (Amended) Any person who violates a provision of this code or fails to comply with any of the requirements thereof or who erects, constructs, alters or repairs a building or structure in violation of the approved construction documents or directive of the building official, or of a permit or certificate issued under the provisions of this code, shall be subject to the penalties of Section 500.350 of the Code of Ordinances of the City of Ste. Genevieve. Each day that a violation continues after due notice has been served shall be deemed a separate offense.
j. Section R113.5 Method of Service. (Added) Such notice shall be deemed to be properly served upon the owner, owner's agent or upon the person responsible for the structure if a copy thereof is:

1. Delivered personally by leaving the notice with a responsible party of suitable age and discretion;
2. Delivered by regular mail, certified mail, first class mail, registered mail, courier service, UPS, FedEx, Amazon, or any similar service with delivery confirmation, to the most recent known address or the mailing address according to the real estate property records of Ste. Genevieve County Missouri.
3. A copy thereof may be posted in a conspicuous place in or about the structure affected by such notice.

k. Section 202 DEFINITIONS, STORY ABOVE GRADE PLANE. (Amended) Any story having its finished floor surface entirely above grade plane, or in which the finished surface of the floor next above is:

1. More than 6 feet (1829 mm) above grade plane, and

2. more than 6 feet (1829 mm) above the finished ground level for more than 50 percent of the total building perimeter, and
3. more than 12 feet (3658 mm) above the finished ground level at any point.

l. Section R301.2 Climatic and geographic design criteria, to include:

1. **Table R301.2 Climatic and Geographic Design Criteria.**[1]

[1]Editor's Note: Table R301.2(1), Climate and Geographic Design Criteria is included as an attachment to this chapter.

2. Notes a-o to Table R301.2 remain the same except: Table Note (f) is hereby amended to state: "D-0 is the default setting. Applicants that demonstrate that professional soil testing would result in a lower rating may apply the seismic rating for that parcel."

m. Section R302.1 Exterior walls. (Amended) Construction, projections, openings and penetrations of exterior walls of dwellings and accessory buildings shall comply with Table R302.1 (1) as amended; or dwellings equipped throughout with an automatic sprinkler system installed in accordance with Section P2904 shall comply with Table R302.1(2). Exceptions:

1. Walls, projections, openings or penetrations in walls perpendicular to the line used to determine the fire separation distance.
2. Walls of individual dwelling units and their accessory structures located on the same lot.
3. Detached tool sheds and storage sheds, playhouses and similar structures exempted from permits are not required to provide wall protection based on location on the lot. Projections beyond the exterior wall shall not extend over the lot line.
4. Detached garages accessory to a dwelling located within 2 feet (610 mm) of a lot line are permitted to have roof eave projections not exceeding 4 inches (102 mm).
5. Foundation vents installed in compliance with this code are permitted.
6. Cantilevered manufactured fireplaces.
7. Roof eave overhangs.
8. Uncovered decks.

n. Section R302.5.1 Opening protection. (Amended) Openings from a private garage directly into a room used for sleeping purposes shall not be

permitted. Other openings between the garage and residence shall be equipped with solid wood doors not less than 1 3/8 inches (35 mm) in thickness, solid or honeycomb-core steel doors not less than 1 3/8 inches (35 mm) thick, or 20- minute fire- rated doors and door shall be self-latching.

o. Section R302.5.2 Duct penetration. (Amended) Ducts in the garage and ducts penetrating the walls or ceilings separating the dwelling from the garage shall be constructed of a minimum No. 28 gage (0.378 mm) sheet steel or other approved material and shall not have openings into the garage.

p. Section R302.13 Fire protection of floors. (Amended) Floor assemblies that are not required elsewhere in this code to be fire-resistance rated, shall be provided with a 1/2-inch (12.7 mm) gypsum wallboard membrane, 5/8-inch (16 mm) wood structural panel membrane, or equivalent on the underside of the floor framing member. Penetrations or openings for ducts, vents, electrical outlets, lighting, devices, luminaires, wires, speakers, drainage, piping and similar openings or penetrations shall be permitted. Fire blocking, draft stopping, fire taping, and/or additional framing is not required.

Exceptions:

1. Floor assemblies located directly over a space protected by an automatic sprinkler system in accordance with Section P2904, NFPA 13D, or other approved equivalent sprinkler system.
2. Floor assemblies located directly over a crawl space not intended for storage or for the installation of fuel-fired or electric-powered heating appliances.
3. Portions of floor assemblies shall be permitted to be unprotected where complying with the following:
    - 3.1 The aggregate area of the unprotected floor assembly does not exceed 100 square feet per HVAC zone.
    - 3.2 Areas of the floor assembly covered by HVAC metal plenum, trunk lines, and steel structural beams shall be considered protected. Gypsum wallboard membrane shall be within 2 inches of all previously listed items.
4. Wood floor assemblies using dimension lumber or structural composite lumber equal to or greater than 2-inch by 10-inch (50.8 mm by 254 mm) nominal dimension, or other approved floor assemblies demonstrating equivalent fire performance.

q. Section R303.5.2 Exhaust openings. (Amended) Exhaust air shall not be directed below 6 feet and 8 inches onto public walkways.

r. Section R309.5 Fire sprinklers. (Amended) Private garages shall be protected by fire sprinklers where the garage wall has been designed based on Table 302.1(2), Note a., and the homeowner has opted to purchase a fire sprinkler system for their residence, as per Missouri Revised Statutes 67.281. Sprinklers in garages shall be connected to an automatic sprinkler system that complies with Section P2904. Garage sprinklers shall be residential sprinklers or quick-response sprinklers, designed to provide a density of 0.05 gpm/ft^2. Garage doors shall not be considered obstructions with respect to sprinkler placement.

s. Section R311.7.5.2 Treads. (Amended) The tread depth shall be not less than 10 inches (254 mm). The tread depth shall be measured horizontally between the vertical planes of the foremost projection of adjacent treads and at a right angle to the tread's leading edge. The greatest tread depth within any flight of stairs shall not exceed the smallest by more than 3/8 inch (9.5 mm).

Exceptions:

1. For remodeling projects, such as in existing homes, homes in urban, infill or high- density developments, or historical buildings or dwellings, riser height of not more than 8 1/4 inches (210 mm) and tread depth of not less than 9 inches (229 mm) will be allowed.
2. For remodeling projects in existing homes, stair tread and riser will be allowed to mimic previous or existing conditions.

t. Section R312.1.1 Where required. (Amended) Guards shall be provided for those portions of open-sided walking surfaces, including floors, stairs, ramps and landings that are located more than 30 inches (762 mm) measured vertically to the floor or grade below. Insect screening shall not be considered as a guard.

u. Section R312.1.5 Retaining wall protection (Added). Guards shall be provided where retaining walls with differences in grade level on either side of the wall in excess of 30 inches are located closer than 2 feet to a walk, path, parking lot or driveway on the high side of the retaining wall.

v. Section R312.2 Window fall protection. (Deleted)

w. Section R313, Automatic Fire Sprinkler Systems (deleted and amended)

Abide by Missouri Revised Statutes, Chapter 67 Section 67.281 dated August 28, 2016. A builder of one- or two-family dwellings or townhouses shall offer to any purchaser on or before the time of entering into the purchase contract the option, at the purchaser's cost, to install or equip fire sprinklers in the dwelling or townhouse. Notwithstanding any other provision of law to the contrary, no purchaser of such a one- or two-family dwelling or townhouse shall be denied the right to choose or decline to install a fire sprinkler system in such dwelling or townhouse being purchased by any code, ordinance, rule, regulation, order, or resolution by any county or other political subdivision.

R313.1, Two-family dwellings. Dwelling units in two-family dwellings shall be separated from each other by wall and/or floor assemblies having not less than a one-hour fire-resistance rating when tested in accordance with ASTM E 119. Fire-resistance-rated floor-ceiling and wall assemblies shall extend to and be tight against the exterior wall, and wall assemblies shall extend to the underside of the roof sheathing.

Exceptions:

1. A fire-resistance rating of one-half (1/2) hour shall be permitted in buildings equipped throughout with an automatic sprinkler system installed in accordance with NFPA 13.

2. Wall assemblies need not extend through attic spaces when the ceiling is protected by not less than five-eighths-inch (15.9 mm) Type X gypsum board and an attic draft stop constructed as specified in Section R502.12.1 is provided above and along the wall assembly separating the dwellings. The structural framing supporting the ceiling shall also be protected by not less than one-half-inch (12.7 mm) gypsum board or equivalent.

R313.1.1 Supporting construction. When floor assemblies are required to be fire-resistance-rated by Section R313.1, the supporting construction of such assemblies shall have an equal or greater fire-resistive rating.

R313.2 Townhouses. Each townhouse shall be considered a separate building and shall be separated by fire — resistance-rated wall assemblies meeting the requirements of Section R302 for exterior walls.

Exception: A common two-hour fire-resistance-rated wall is permitted for townhouses if such walls do not contain plumbing or mechanical equipment, ducts or vents in the cavity of the common wall. Electrical installations shall be installed in accordance with Chapters 34 through 43. Penetrations of electrical outlet boxes shall be in accordance with Section R313.3.

R313.2.1 Continuity. The fire-resistance-rated wall or assembly separating townhouses shall be continuous from the foundation to the underside of the roof sheathing, deck or slab. The fire-resistance rating shall extend the full

length of the wall or assembly, including wall extensions through and separating attached enclosed accessory structures.

R313.2.2 Parapets. Parapets constructed in accordance with Section R313.2.3 shall be constructed for townhouses as an extension of exterior walls or common walls in accordance with the following:

1. Where roof surfaces adjacent to the wall or walls are at the same elevation, the parapet shall extend not less than thirty (30) inches (762 mm) above the roof surfaces.

2.Where roof surfaces adjacent to the wall or walls are at different elevations and the higher roof is not more than thirty (30) inches (762 mm) above the lower roof, the parapet shall extend not less than thirty (30) inches (762 mm) above the lower roof surface

Exception: A parapet is not required in the two (2) cases above when the roof is covered with a minimum Class C roof covering, and the roof decking or sheathing is of noncombustible materials or approved fire-retardant-treated wood for a distance of four (4) feet (1,219 mm) on each side of the wall or walls, or one (1) layer of five-eighths-inch (15.9 mm) Type X gypsum board is installed directly beneath the roof decking or sheathing, supported by a minimum of nominal two-inch (51 mm) ledgers attached to the sides of the roof framing members, for a minimum distance of four (4) feet (1,220 mm) on each side of the wall or walls. A parapet is not required where roof surfaces adjacent to the wall or walls are at different elevations and the higher roof is more than thirty (30) inches (762 mm) above the lower roof. The common wall construction from the lower roof to the underside of the higher roof deck shall have not less than a one-hour fire-resistance rating. The wall shall be rated for exposure from both sides.

R313.2.3 Parapet construction. Parapets shall have the same fire-resistance rating as that required for the supporting wall or walls. On any side adjacent to a roof surface, the parapet shall have noncombustible faces for the uppermost eighteen (18) inches (457 mm), to include counter flashing and coping materials. Where the roof slopes toward a parapet at slopes greater than two (2) units vertical in twelve (12) units horizontal (16.7% slope), the parapet shall extend to the same height as any portion of the roof within a distance of three (3) feet (914 mm), but in no case shall the height be less than thirty (30) inches (762 mm).

R313.2.4 Structural independence. Each individual townhouse shall be structurally independent.

Exceptions:

1. Foundations supporting exterior walls or common walls.

2. Structural roof and wall sheathing from each unit may fasten to the common wall framing.
3. Nonstructural wall coverings.
4. Flashing at termination of roof covering over common wall.
5. Townhouses separated by a common two-hour fire-resistance-rated wall as provided in Section R317.2
x. Section R323.1 General. (Amended) This section applies to storm shelters where, constructed as separate detached buildings or where, constructed as safe rooms within buildings for the purpose of providing refuge from storms that produce high winds, such as tornadoes and hurricanes. In addition to other applicable requirements in this code, storm shelters shall be constructed in accordance with ICC 500, except when located below grade or if basement walls are fully constructed with concrete.
y. Section R401.1 Application (Amended). The provisions of this chapter shall control the design and construction of the foundation and foundation spaces for buildings. In addition to the provisions of this chapter, the design and construction of foundations in flood hazard areas as established by Table R301.2(1) shall meet the provisions of Section R322. Wood foundations shall be designed and installed in accordance with AWC PWF.
Exceptions: The provisions of this chapter shall be permitted to be used for wood foundations only in the following situations:

1. In buildings that have not more than two floors and a roof.
2. Where interior basement and foundation walls are constructed at intervals not exceeding 50 feet (15240 mm).
3. (Added) The provisions of this chapter shall not be required for detached accessory structure foundations under two hundred (200) square feet.

Wood foundations in Seismic Design Category D0, D1 or D2 shall be designed in accordance with accepted engineering practice.
z. Section R403.1.7 Footings on or adjacent to slopes. (Amended) The placement of buildings and structures on or adjacent to slopes steeper than 1 unit vertical in 3 units horizontal (33.3- percent slope) shall conform to Sections R403.1.7.**1** through R403.1.7.4 or plans as signed and sealed by a registered engineer / design professional licensed in the State of Missouri.
aa. Section R404.1.3.2 Reinforcement for foundation walls. (Amended) Concrete foundation walls shall be laterally supported at the top and bottom. Horizontal reinforcement shall be provided in accordance with Table R404.1.2(1). Vertical reinforcement shall be provided in accordance with

Table R404.1.2(2), R404.1.2(3), R404.1.2(4), R404.1.2(5), R404.1.2(6), R404.1 .2(7) or
R404.1.2(8). Vertical reinforcement for flat basement walls retaining 4 feet (1219 mm) or more of unbalanced backfill is permitted to be determined in accordance with Table R404.1.2(9). For basement walls supporting above-grade concrete walls, vertical reinforcement shall be the greater of that required by Tables R404.1.2(2) through R404.1.2(8) or by Section R608.6 for the above- grade wall. In buildings assigned to Seismic Design Category D0, D1 or D2, concrete foundation walls shall also comply with Section R404.1.4.2.

Exception: Where unstable soil or ground water conditions do not exist, concrete foundation walls may be constructed in accordance with Table R404.1.2(10).

bb. Table R404.1.2(10) CONCRETE FOUNDATION WALLS (Added)

Maximum Wall Height	Maximum Depth of Unbalanced Backfill	Minimum Nominal Wall Thickness
8'-0"	7'-6" or less	8" (Note a)
9'-0"	8'-6" or less	10" (Note b)
10'0"	9'-6" or less	12" (Note c)

Note a: Concrete foundation walls may be constructed a minimum of nominal 8 inches thick where the wall height from the top of the footing to the top of the wall does not exceed 8 feet. A minimum of two #4 reinforcing bars shall be placed horizontally in the top and bottom of the foundation wall. A minimum of two #5 reinforcing bars shall be provided around all window and door openings in concrete foundation and basement walls; bars shall extend a minimum of 24 inches beyond the corners of the openings.

Note b: Concrete foundation walls may be constructed a minimum of nominal 10 inches thick. A minimum of two #5 reinforcing bars shall be placed horizontally in the top, middle, and bottom of the foundation wall. A minimum of two #5 reinforcing bars shall be provided around all window and door openings in concrete foundation and basement walls; bars shall extend a minimum of 24 inches beyond the corners of the openings.

Note c: Concrete foundation walls may be constructed a minimum of nominal 12 inches thick. A minimum of three #5 reinforcing bars shall be placed horizontally in the top, middle, and bottom of the foundation wall. A minimum of two #5 reinforcing bars shall be provided around all

window and door openings in concrete foundation and basement walls; bars shall extend a minimum of 24 inches beyond the corners of the openings.

Note d: The concrete minimum wall thickness shall be 8 inches for foundation walls in soil classes SC, MH, ML-CL and inorganic CL when maximum wall height is 8 feet.

Note e: The concrete minimum wall thickness shall be 10 inches for foundation walls in soil classes SC, MH, ML-CL and inorganic CL when the maximum wall height is 9 feet.

Note f:The concrete minimum wall thickness shall be 12 inches for foundation walls in soil classes SC, MH, ML-CL and inorganic CL when the maximum wall height is 10 feet.

cc. Section 405.1 Concrete or masonry foundations. (Amended) Drains shall be provided around concrete or masonry foundations that retain earth and enclose habitable or usable spaces located below grade. Drainage tiles, gravel or crushed stone drains, perforated pipe or other approved systems or materials shall be installed at or below the top of the footing or below the bottom of the slab and shall discharge by gravity or mechanical means into an approved drainage system. Gravel or crushed stone drains shall extend not less than 1 foot (305 mm) beyond the outside edge of the footing and 6 inches (152 mm) above the top of the footing and be covered with an approved filter membrane material. The top of open joints of drain tiles shall be protected with strips of building paper. Except where otherwise recommended by the drain manufacturer, perforated drains shall be surrounded with an approved filter membrane or the filter membrane shall cover the washed gravel or crushed rock covering the drain. Drainage tiles or perforated pipe shall be placed on not less than 2 inches (51 mm) of washed gravel or crushed rock not less than one sieve size larger than the tile joint opening or perforation and covered with not less than 6 inches (152 mm) of the same material.

Exceptions:

1. A drainage system is not required where the foundation is installed on well- drained ground or sand-gravel mixture soils according to the Unified Soil Classification System, Group I soils, as detailed in Table R405.1.
2. Drains provided as detailed in Section R405.1.2 are approved as an alternative method to meet the requirements of this section.

dd. Section R405.1.2 Soil evaluations. (Added) An evaluation of the soil for the presence or absence of groundwater is required. The evaluation report shall be based on either a subsurface soil investigation or satisfactory data from adjacent areas together with an inspection of the excavation prior to pouring concrete.

ee. Section R405.1.2.1 Groundwater present. (Added) Provide drain tile, perforated pipe or other approved foundation drainage systems (such as water channel system) around perimeter of the outside of the foundation and inside the foundation. Drain discharge shall be by gravity to daylight or be connected to a basement floor sump.

ff. Section R405.1.2.2 No groundwater present. (Added) Provide drain tile, perforated pipe or other approved foundation drainage systems (such as water channel system) around perimeter of the outside of the foundation or inside the foundation. Drain discharge shall be by gravity to daylight or be connected to a basement floor sump.

gg. Section R405.1.2.3 Filter membranes. (Added) An approved filter membrane shall be placed over the top of the joints/pipe perforations. The tile/pipe shall be placed on 2 inches minimum of gravel or crushed stone and have 6 inches of minimum cover.

hh. Section R405.1.2.4 Drainage system. (Added) A drainage system shall discharge by gravity to daylight or be connected to an approved sump (15 inches in diameter x 18 inches deep with fitted cover). A sump pump shall be provided if the basement is finished or partially finished with pump discharge by an approved method.

ii. Section R506.2.3 Vapor retarder. (Amended) A minimum 6 mil (0.006 inch; 0.152 mm) vapor retarder conforming to ASTM E1745 Class A requirements with joints lapped not less than 6 inches (152 mm) shall be placed between the concrete floor slab and the base course or the prepared subgrade where a base course does not exist.

jj. Section R602.12 Simplified wall bracing. (Amended) Buildings meeting all of the following conditions shall be permitted to be braced in accordance with this section as an alternative to the requirements of Section R602.10. The entire building shall be braced in accordance with this section; the use of other bracing provisions of Section R602.10, except as specified herein, shall not be permitted.

1. There shall be not more than three stories above the top of a concrete or masonry foundation or basement wall. Permanent wood foundations shall not be permitted.
2. Floors shall not cantilever more than 24 inches (607 mm) beyond the foundation or bearing wall below.
3. Wall height shall not be greater than a nominal 12 feet when using the minimum required bracing lengths specified in Table 602.12.4.

Exception: Structural calculations and details are not required when there are no braced wall panels in that portion of a wall where the height exceeds a nominal 12 feet and that greater wall height segment is part of a prescriptive braced wall line on each of the adjacent stories.

4. The building shall have a roof eave-to-ridge height of 15 feet (4572 mm) or less.
5. Exterior walls shall have gypsum board with a minimum thickness of½ inch (12.7 mm) installed on the interior side fastened in accordance with Table R702.3.5.

Exception: Gypsum board is not required for wall bracing on exterior walls in garages.

6. The structure shall be located where the ultimate design wind speed is less than or equal to 130 mph (58 m/s), and the exposure category is B or C.
7. The structure shall be located in Seismic Design Category A, B or C for detached one- and two-family dwellings or Seismic Design Category A, B or C for townhouses.
8. Cripple walls shall not be permitted in three-story buildings.

kk. Section R602.12.2 Sheathing materials. (Amended) The following sheathing materials installed on the exterior side of exterior walls shall be used to construct a bracing unit as defined in Section R602.12.3. Mixing materials is prohibited.

1.Wood structural panels with a minimum thickness of 7/16 inch fastened in accordance with Table R602.3(3).

2.Structural fiberboard sheathing with a minimum thickness of 1/2 inch (12.7 mm) fastened in accordance with Table R602.3(1).

ll. Section R602.12.3 Bracing unit. (Amended) A bracing unit shall be a full-height sheathed segment of the exterior wall without openings or vertical or horizontal offsets and a minimum length as specified herein. Interior walls shall not contribute toward the amount of required bracing. Mixing of Items 1 and 2 is prohibited on the same story.

1.Where all framed portions of all exterior walls are sheathed in accordance with Section R602.12.2, including wall areas between bracing units, above and below openings and on gable end walls, the minimum length of a bracing unit shall be 3 feet (914 mm). For walls with heights greater than a nominal 10 feet, the minimum length of a bracing unit shall be 4 feet (1219 mm).

2.Where the exterior walls are braced with sheathing panels in accordance with Section R602.12.2 and areas between bracing units are covered with

other materials, the minimum length of a bracing unit shall be 4 feet (1219 mm).

mm. Section R602.13 Alternate simplified bracing method for one- and two-family dwellings when the entire structure is sheathed with wood structural panels and located in wind exposure A or B. (Added) The construction documents shall detail the locations and widths of all braced wall panels in accordance with this section.

nn. Section R602.13.1 Wood structural sheathing. (Added) The building exterior walls shall be sheathed with 7/16 inch (11.1 mm) or thicker plywood or OSB wood structural panels. The wood structural panels shall be applied to all exterior walls, gable ends and band boards. All vertical joints between panels shall be blocked. Horizontal joints in braced wall panels shall be blocked.

oo. Section R602.13.2 Braced wall panel locations. (Added) Braced wall panels shall be located in every exterior braced wall line in accordance with the following criteria:

1. The outside edge of the first braced wall panel meeting the width established in Table R602.13.3 shall be a maximum of 12.5 feet (3810 mm) or less from each end of the braced wall line. The outside stud of the first braced wall panels closest to the end of the braced wall line shall be secured with a hold- down device securing the end stud to the foundation with a minimum uplift design value of 800 pounds.

Exception: The 800 pound hold-down device is not required when the braced wall panel is placed at the end of the braced wall line and there is a 24 inch (610 mm) wide full height sheathed wall placed 90 degrees to the end of the braced wall line and panel.

2. The centerline spacing of braced wall panels in a braced wall line may not exceed 25 feet (7620 mm).

pp. Section R602.13.3 Braced wall panel widths. (Added) Braced wall panel locations shall be shown on the floor plans or elevation views and meet the widths established in Table R602.13.3.

qq.Table 602.13.3 SIMPLIFIED BRACING PANEL WIDTHS
(Added)

Width of Solid Panel [a, b]

		8' wall height	9' wall height	10' wall height	12' wall height
Plywood/OSB Panel	3:1	32"	36"	40"	48"
Simplified Portal Wall[c]	6:1	16"[d]	18"[d]	20"[d]	24"[d]

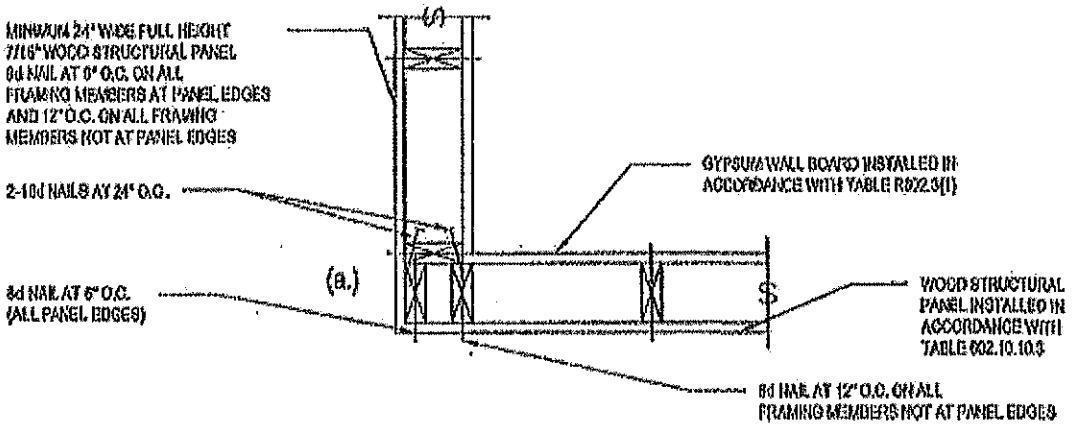
a. Linear interpolation is permitted.
b. Wall height is the vertical distance from the bottom of the sole/sill plate to the top of the double top plate. An additional 2 inch (50.8 mm) variation in height is allowed for pre-cut stud framing.
c. The Simplified Portal Wall, if applicable, shall be constructed in accordance with the applicable detail in Figure R602.13.3. The designer shall provide this detail on the construction documents.
d. The Simplified Portal Wall width assumes the beam is placed under the top plate of the wall. A smaller width may be calculated for a lower top of beam height using the 6:1 height to width ratio.

rr. Section R602.13.4 Corner framing. (Added) The exterior wall corners shall be constructed in accordance with the applicable detail in Figure R602.10.10.4.

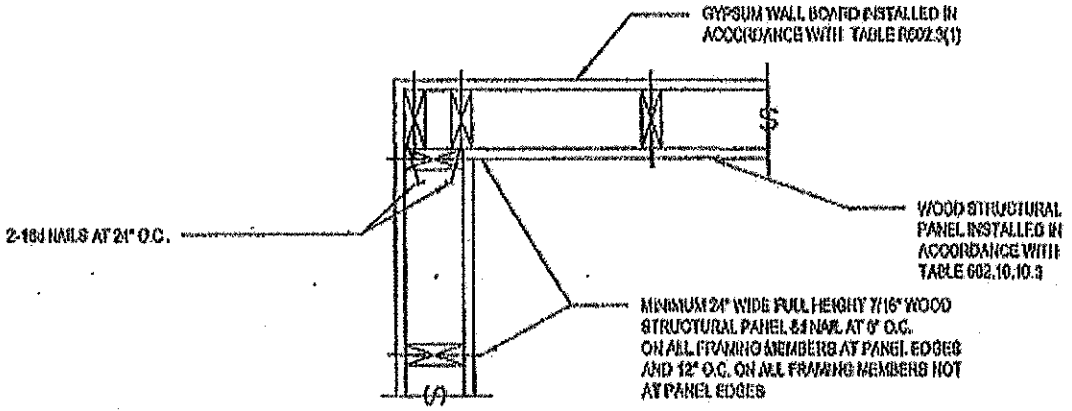
Exception: Braced wall panels located in accordance with Section R602.13.2.

ss. Section R602.13.5 Braced wall line spacing. (Added) When the perpendicular distance between the exterior braced wall lines exceeds 50 feet (15240 mm), the registered design professional shall include the following certification on the drawings: The interior and exterior wall configuration braces for the structure in accordance with or equivalent to the lateral bracing provisions of Section R602.10 of the International Residential Code, 2009 edition or Section 2305 of the International Building Code, 2009 edition.

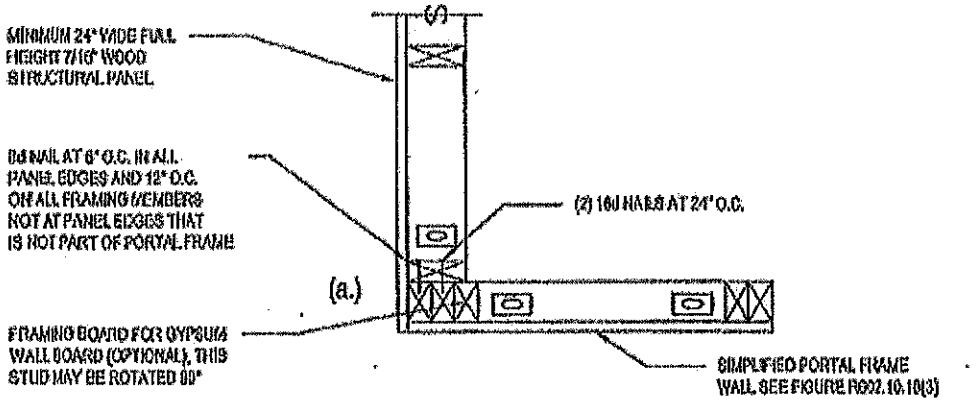
tt. Section R602.13.6 Maximum wall height. (Added) Walls greater than 12 feet (3658 mm) (12 feet 2 inches (3708 mm) actual) in height and 12 feet (3658 mm) in width shall be designed and detailed by the registered design professional to resist wind loads in both the longitudinal and transverse directions.



OUTSIDE CORNER DETAIL



INSIDE CORNER DETAIL



CORNER DETAIL
USED IN CONJUNCTION WITH SIMPLIFIED PORTAL WALL

FIGURE R602.10.10.4
SIMPLIFIED BRACING EXTERIOR CORNER FRAMING

a. END STUD INDICATED ON THE ABOVE DETAILS MAY BE SHIFTED 7/16" TO ALLOW STUD FACE TO BE ALIGNED WITH SHEATHING, OR AN OPTIONAL NON-STRUCTURAL FILLER PANEL MAY BE USED.

uu. Section R905.2.8.2 Valleys. (Amended) Valley linings shall be installed in accordance with the manufacturer's instructions before applying shingles. Valley linings of the following types shall be permitted:
1. For open valleys (valley lining exposed) lined with metal, the valley lining shall be not less than 24 inches (610 mm) wide and of any of the corrosion-resistant metals in Table R905.2.8.2.
2. For open valleys, valley lining of two plies of mineral-surfaced roll roofing, complying with ASTM D3909 or ASTM D6380 Class M, shall be permitted. The bottom layer shall be 18 inches (457 mm) and the top layer not less than 36 inches (914 mm) wide.
3. For closed valleys (valley covered with shingles), valley lining of two-ply No.15 felt complying with ASTM D226 Type I, ASTM D4869 Type I, or ASTM D6757, and not less than 18" wide, or valley lining as described in Item 1 and 2 shall be permitted. Self-adhering polymer modified bitumen underlayment complying with ASTM DI970 shall be permitted in lieu of the lining material.
vv. Section R905.2.8.5 Drip Edge. (Amended) A drip edge shall be provided at eaves of shingle roofs. Adjacent segments of drip edge shall be overlapped not less than 2 inches (51 mm). Drip edges shall extend not less than 1/4 inch (6.4 mm) below the roof sheathing and extend up back onto the roof deck not less
than 2 inches (51 mm). Drip edges shall be mechanically fastened to the roof deck at not more than 12 inches (305 mm) o.c. with fasteners as specified in Section R905.2.5. Underlayment shall be installed over the drip edge along eaves and under the drip edge along rake edges.
Exception: Unless the drip edge is specifically required by the manufacturer's installation instructions, metal wrapped fascia extending 1 inch under the roof covering with the underlayment installed over it shall be deemed to meet the requirements of this section.
ww. Section R1005.7 Factory-built chimney offsets. (Amended) Where a factory-built chimney assembly incorporates offsets, no part of the chimney shall be at an angle of more than 30 degrees (0.52 rad) from vertical at any point in the assembly and the chimney assembly shall not include more than four elbows.
Exception: When chimneys are installed per manufacturer's installation instructions.
xx. R1006.1.1 Factory-built fireplaces. Exterior combustion air ducts for factory-built fireplaces shall be a listed component of the fireplace or equivalent and shall be installed according to the fireplace manufacturer's instructions.

yy. R1006.2 Exterior air intake. The exterior air intake on masonry fireplaces shall be capable of supplying combustion air from the exterior of the dwelling or from spaces within the dwelling ventilated with outdoor air such as nonmechanically ventilated crawl or attic spaces. The exterior air intake shall not be located within the garage or basement of the dwelling. The exterior air intake, for other than listed factory- built fireplaces, shall not be located at an elevation higher than the firebox. The exterior air intake shall be covered with a corrosion-resistant screen of 1/4-inch (6.4 mm) mesh.

zz. Section N1101.5 (R103.2) Information on construction documents. (Deleted)

aaa. Section N1101.6 (R202) Defined terms. (Added) **PROJECTION FACTOR.** The ratio of the horizontal depth of an overhang, eave, or permanently attached shading device, divided by the distance measured vertically from the bottom of the fenestration glazing to the underside of the overhang, eave, or permanently attached shading device.

bbb. Section N1101.13 (R401.2) Application. (Amended) Residential buildings shall comply with Section N1101.13.1, N1101.13.2, N1101.13.3 or N1101.13.4.

ccc. Section N1101.13.5 (R401.2.5) Additional energy efficiency. (Deleted)

ddd. Section N1101.14 (R401.3) Certificate. (Deleted)

eee. Table N1102.1.3 (R402.1.3) INSULATION MINIMUM R-VALUES AND FENESTRATION REQUIREMENTS BY COMPONENT[a] (Amended)

Climate Zone	Fenestration U-Factor[b, i]	Skylight[b] U-Factor	Glazed Fenestration SHGC[b, e]	Ceiling R-Value	Wood Frame Wall R-Value[g]	Mass Wall R-Value[h]	Floor R-Value	Basement[c, g] Wall R-Value	Slab[d] R-Value & Depth	Crawl Space[c, g] Wall R-Value
0	NR	0.75	0.25	30	13 or 0 + 10	3/4	13	0	0	0
1	NR	0.75	0.25	30	13 or 0 + 10	3/4	13	0	0	0
2	0.40	0.65	0.25	49	13 or 0 + 10	4/6	13	0	0	0
3	0.30	0.55	0.25	49	20 or 13 + 5ci or	8/13	19	5ci or 13[f]	10ci, 2 ft	5ci or 13[f]

					0 + 15					
4 except Marine	0.40	0.55	NR	38	13	8/13	19	0-unfinished 13 - finished	10ci, 4 ft	10ci or 13
5 and Marine 4	0.30	0.55	0.40	60	20+5 or 13 + 10ci or 0 + 15	13/17	30	15ci or 19 or 13 + 5ci	10ci, 4 ft	15ci or 19 or 13 + 5ci
6	0.30	0.55	NR	60	20 + 5ci or 13 + 10ci or 0 +20	15/20	30	15ci or 19 or 13 + 5ci	10ci, 4 ft	15ci or 19 or 13 + 5ci
7 and 8	0.30	0.55	NR	60	20 + 5ci or 13 + 10ci or 0 +20	19/21	38	15ci or 19 or 13 + 5ci	10ci, 4 ft	15ci or 19 or 13 + 5ci

For SI: 1 foot = 304.8mm.

NR = Not Required. ci = continuous insulation.

a. R-values are minimums. U-factors and SHGC are maximums. Where insulation is installed in a cavity that is less than the label or design thickness of the insulation, the installed R- value of the insulation shall be not less than the R-value specified in the table.

b. The fenestration U-factor column excludes skylights. The SHGC column applies to all glazed fenestration.

Exception: In Climate Zones 0 through 3, skylights shall be permitted to be excluded from glazed fenestration SHGC requirements provided that the SHGC for such skylights does not exceed 0.30.

c. "5ci or 13" means R-5 continuous insulation (ci) on the interior or exterior surface of the wall or R-13 cavity insulation on the interior side of the wall. "10ci or 13" means R-10 continuous insulation (ci) on the interior or exterior surface of the wall or R-13 cavity insulation on the interior side of

the wall. "15ci or 19 or 13 + 5ci" means R-15 continuous insulation (ci) on the interior or exterior surface of the wall; or R-19 cavity insulation on the interior side of the wall; or R-13 cavity insulation on the interior of the wall in addition to R-5 continuous insulation on the interior or exterior surface of the wall.

d. R-5 insulation shall be provided under the full slab area of a heated slab in addition to the required slab edge insulation R-value for slabs, as indicated in the table. The slab edge insulation for heated slabs shall not be required to extend below the slab.
e. There are no SHGC requirements in the Marine Zone.
f. Basement wall insulation shall not be required in Warm Humid locations as defined by Figure N1101.7 and Table N1101.7.
g. The first value is cavity insulation; the second value is continuous insulation. Therefore, as an example, "13 + 5" means R-13 cavity insulation plus R-5 continuous insulation.
h. Mass walls shall be in accordance with Section N1102.2.5. The second R-value applies where more than half of the insulation is on the interior of the mass wall.
i. A maximum U-factor of 0.32 shall apply in Climate Zones 3 through 8 to vertical fenestration products installed in buildings located either:
    1. Above 4,000 feet in elevation, or
    2. In windborne debris regions where protection of openings is required by Section R301.2.1.2.

fff. Section N1102.1.4 (R402.1.4) R-value computation. (Amended) Cavity insulation alone shall be used to determine compliance with the cavity insulation R-value requirements in Table N1102.1.3. Where cavity insulation is installed in multiple layers, the R-values of the cavity insulation layers shall be summed to determine compliance with the cavity insulation R-value requirements. The manufacturer's settled R-value shall be used for blown-in insulation. Continuous insulation (ci) alone shall be used to determine compliance with the continuous insulation R-value requirements in Table N1102.1.3. Where continuous insulation is installed in multiple layers, the R-values of the continuous insulation layers shall be summed to determine compliance with the continuous insulation R-value requirements. Cavity insulation R-values shall not be used to determine compliance with the continuous insulation R-value requirements in Table N1102.1.3. Computed R-values may include an R-value for other building materials or air films. Where insulated siding is used for the purpose of complying with the continuous

insulation requirements of Table N1102.1.3, the manufacturer's labeled R-Value for insulated siding shall be reduced by R-0.6.

ggg. Section N1102.1.5 (R402.1.5) Total UA alternative. (Amended) Where the total building thermal envelope UA, the sum of U-factor times assembly area, is less than or equal to the Total UA resulting from multiplying the U-factors in Table N1102.1.2 by the same assembly area as in the proposed building, the building shall be considered to be in compliance with Table N1102.1.2. The UA calculation shall be performed using a method consistent with the ASHRAE Handbook of Fundamentals and shall include the thermal bridging effects of framing materials. In addition to UA compliance, the SHGC requirements of Table N1102.1.2 and the maximum fenestration U- factors of Section N1102.5 shall be met.

Exception: Glazed fenestration SHGC. In Climate Zone 4, permanently shaded vertical fenestration shall be permitted to satisfy SHGC requirements. The projection factor of an overhang, eave, or permanently attached shading device shall be greater than or equal to the value listed in Table N1102.2.2.1 for the appropriate orientation. The minimum projection shall extend beyond each side of the glazing a minimum of 12 inches. Each orientation shall be rounded to the nearest cardinal orientation (+/- 45 degrees or 0.79 rad) for purposes of calculations and demonstrating compliance.

hhh. Table N1102.1.5 MINIMUM PROJECTION FACTOR REQUIRED BY ORIENTATION BOR SHGC EXEPTION. (Added)

Orientation	Projection Factor
North	>=0.40 [a]
South	>=0.20
East	>=0.50
West	>=0.50

a. For the north orientation, a vertical projection located on the west-edge of the fenestration with the equivalent of PF>=0.15 shall also satisfy the minimum projection factor requirement.

iii. Section N1102.2.4 (R402.2.4) Access hatches and doors. (Amended) Access hatches and doors from conditioned to unconditioned spaces such as attics and crawl spaces shall be insulated to R- 38.

Exceptions:

1. Vertical doors providing access from conditioned spaces to unconditioned spaces that comply with the fenestration requirements of Table N1102.1.3 based on the applicable climate zone specified in Chapter 3.
2. Horizontal pull-down, stair-type access hatches in ceiling assemblies that provide access from conditioned to unconditioned spaces in Climate Zones 0 through 4 shall not
be required to comply with the insulation level of the surrounding surfaces provided that the hatch meets all of the following:

2.1. The average U-factor of the hatch shall be less than or equal to U-0.10 or have an average insulation R-value of R-10 or greater. Not less than 75 percent of the panel area shall have an insulation R-value of R-13 or greater.

2.2. The net area of the framed opening shall be less than or equal to 13.5 square feet (1.25 m^2).

2.3. The perimeter of the hatch edge shall be weather-stripped.

jjj. Section N1102.4 (R402.4) Air leakage. (Amended) The building thermal envelope may be designed and constructed to limit air leakage in accordance with the requirements of Sections N1102.4.1 through N1102.4.5.

kkk. Section N1102.4.1.2 (R402.4.1.2) Testing. (Amended) Any building or dwelling unit may be tested for air leakage. The maximum design air leakage rate for any building or dwelling unit under any compliance path shall not exceed 5.0 air changes per hour or 0.28 cubic feet per minute (CFM) per square foot [0.0079 $m^3/(s \times m^2)$] of dwelling unit enclosure area. For any building or dwelling unit designed for 3.0 or less air changes per hour, testing shall be conducted in accordance with ANSI/RESNET/ICC 380, ASTM E779 or ASTM E1827 and reported at a pressure of 0.2 inch w.g. (50 Pascals). Where required by the code official, testing shall be conducted by an approved third party. A written report of the results of the test shall be signed by the party conducting the test and provided to the code official. Testing shall be performed at any time after creation of all penetrations of the building thermal envelope have been sealed.

Exception: For heated, attached private garages and heated, detached private garages accessory to one-and two-family dwelling and townhouses not more than three stories above grade plane in height, building envelope tightness and insulation installation shall be considered acceptable where the items in Table N1102.4.1.1, applicable to the method of construction, are field verified. Where required by the code official, an approved third party, independent from the installer shall inspect both the air barrier and insulation installation criteria. Heated, attached private garage space shall be thermally

isolated from all other conditioned spaces in accordance with Sections N1102.2.12 and N1102.3.5, as applicable.
During testing:

1. Exterior windows and doors, fireplace and stove doors shall be closed, but not sealed, beyond the intended weatherstripping or other infiltration control measures.
2. Dampers including exhaust, intake, makeup air, backdraft and flue dampers shall be closed, but not sealed beyond intended infiltration control measures.
3. Interior doors, where installed at the time of the test, shall be open.
4. Exterior or interior terminations for continuous ventilation systems shall be sealed.
5. Heating and cooling systems, where installed at the time of the test, shall be turned off.
6. Supply and return registers, where installed at the time of the test, shall be fully open.

Exception: When testing individual dwelling units, an air leakage rate not exceeding 0.30 cubic feet per minute per square foot [0.008m^3/(s x m^2)] of the dwelling unit enclosure area, tested in accordance with ANSI/RESNET/ICC 380, ASTM E779 or ASTM E1827 and reported at a pressure of 0.2 inch water gauge (50 Pa), shall be permitted in all climate zones for:

1. Attached single- and multiple-family building dwelling units.
2. Buildings or dwelling units that are 1,500 square feet (139.4m^2) or smaller.

Mechanical ventilation shall be provided in accordance with Section M1505 of this code or Section 403.3.2 of the International Mechanical Code, as applicable, or with other approved means of ventilation.
lll. Section N1102.4.1.3 (R402.4.1.3) Leakage rate. (Amended) Where complying with Section N1101.13.1. the building or dwelling unit shall have a design air leakage rate not exceeding 5.0 air changes per hour.
mmm. Table N1102.4.1.1 (402.4.1.l)[a] AIR BARRIER, AIR SEALING AND INSULATION INSTALLATION. (Amended)

Component	Air Barrier Criteria	Insulation Installation Criteria

General Requirements	A continuous air barrier shall be installed in the building envelope. Breaks or joints in the air barrier shall be sealed.	Air-permeable insulation shall not be used as a sealing material.
Ceiling/attic	The air barrier in any dropped ceiling or soffit shall be aligned with the insulation and any gaps in the air barrier sealed. Access openings, drop-down stairs or knee wall doors to unconditioned attic spaces shall be weather-stripped.	The insulation in any dropped ceiling/soffit shall be aligned with the air barrier.
Walls	The junction of the foundation and sill plate shall be sealed.	Cavities within corners and headers of frame walls shall be insulated by completely filling the cavity with a material having a thermal resistance, R-value, of not less than R-3 per inch. Exterior thermal envelope insulation for framed walls shall be installed in substantial contact and continuous alignment with the air barrier.
Windows, skylights and doors	The space between framing and skylights, and the iambs of windows and doors, shall be sealed	
Rim joists	Rim joists shall include an exterior air barrier.[b]	Rim joists shall be insulated.
Floors, including cantilevered floors and floors above garages	The air barrier shall be installed at any exposed edge of insulation.	Floor framing cavity insulation shall be installed to maintain permanent contact with the underside of subfloor decking. Alternatively, floor framing cavity insulation shall be in contact with the top side of sheathing, or continuous insulation installed on the underside of floor framing and extending from the bottom to the top of all perimeter floor framing members.

Basement crawl space, and slab foundations	Exposed earth in unvented crawl spaces shall be covered with Class I vapor retarder/air barrier in accordance with Section R402.2.10. Penetrations through concrete foundation walls and slabs shall be air sealed. Class 1 vapor retarders shall not be used as an air barrier on below-grade walls and shall be installed in accordance with Section R702.7	Crawl space insultation, where provided instead of floor insulation, shall be installed in accordance with Section R402.2.10.
Shafts, penetrations	Duct and flue shafts and other similar penetrations to exterior or unconditioned space shall be sealed to allow for expansion, contraction and mechanical vibration. Utility penetrations of the air barrier shall be caulked, gasketed or otherwise sealed and shall allow for expansion, contraction of materials and mechanical vibration.	Insulation shall be fitted tightly around utilities passing through shafts and penetrations in the building thermal envelope to maintain required R-value.
Narrow cavities	Narrow cavities of 1 inch or less that are not able to be insulated shall be air sealed.	Batts to be installed in narrow cavities shall be cut to fit or narrow cavities shall be filled with insulation that on installation readily conforms to the available cavity space.
Garage separation	Air sealing shall be provided between the garage and conditioned spaces.	Insulated portions of the garage separation assembly shall be installed in accordance with Sections R303 and R402.2.7.

For SI: 1 inch= 25.4 mm.

a. Inspection of log walls shall be in accordance with the provisions of ICC 400.

b. Air barrier and insulation full enclosure is not required in unconditioned/ventilated attic spaces and at rim joists.

nnn. Section N1102.4.4 (R402.4.4) Rooms containing fuel-burning appliances. (Amended) In Climate Zones 3 through 8, where open combustion airducts provide combustion air to open combustion fuel-burning appliances, the appliances and combustion air opening shall be located outside the building thermal envelope or enclosed in a room that is isolated