

Residential ADDITIONS
Building Permit Requirements
 (Per the 2015-IRC amended by St. Louis County Ordinances for 1-& 2-Family Dwellings and Townhouses)



SAINT LOUIS COUNTY
 Transportation and Public Works

This **Room Additions Checklist** is based on St. Louis County's (SLCO) policies, construction codes amended and adopted by ordinance. See list below. It is not a substitute for those codes and ordinances, but serves as a guide to reading them. For large or more complex new work Additions, also obtain and refer to St. Louis County's **Single-Family Dwelling Design Checklist for reference** in preparing your drawings.



List of Applicable Codes and Ordinances:

- 2015 International Residential Code (IRC)** & Ordinance #27,654-Ch.1116 ("R" "G", "N", and "M" references and Appendix K - Sound Transmission).
- 2015 International Building Code (IBC)** & Ordinance #27,654-Ch.1116/5 ("B" references).
- 2015 International Property Maintenance Code (IPMC)** & Ord. #27,617-Ch.1110 ("PM" refs.).
- 2014 National Electrical Code (NEC)** aka NFPA 70 & Ordinance #27,430-Ch.1102 ("E" refs.).
- 2015 Uniform Plumbing Code (UPC)** & Ordinance #27,424-Ch.1103 ("P" references).
- 2015 Land Disturbance Code** of St. Louis County, Missouri, Ordinance #21,578; 22,468; 24,084; 25,494 -Ch.1114 ("LD" references).

For inquiries regarding the information provided in this guide, please contact:

St. Louis County Permit Processing _____ (314) 615-5184
 St. Louis County Zoning Review _____ (314) 615-3763
 St. Louis County Building Plan Review _____ (314) 615-5485

Right-of-Way Owner

State _____ (888) 275-6636
 County _____ (314) 615-8517
 Municipality _____ Call the project site's Municipality

St. Louis County's Municipal Contracts Matrix shows those municipalities that currently contract for its Code Enforcement services. The Matrix is on our web site at <https://stlouiscountymo.gov/st-louis-county-departments/transportation-and-public-works/residential-building/>

For the electronic plan review, scan QR code or visit us online at <https://stlouiscountymo.gov/st-louis-county-departments/transportation-and-public-works/electronic-plan-review/>



Sections from the Codes, their Referenced Standards, and St. Louis County Ordinances, are shown at ends of statements and are *italicized* in parentheses (.).

NOTICES Regarding Permits



- The applicant (property owner or the owner's authorized agent) is responsible for contacting those agencies that may have legal oversight separate from St. Louis County. Where their requirements conflict, the most restrictive shall govern. Contact them before starting any work approved under a permit issued by St. Louis County. Such agencies may include:
 1. The project site's Municipality - *submit their site plans approval with a building permit application.*
 2. The Electric Company,
 3. The Sewer District,
 4. Subdivision Trustees.
- Building permit issuance does not authorize construction access to the work site. If a driveway does not exist or cannot be used, the owner/contractor must apply for a permit with the owner of the Right-of-Way to construct somewhere else a temporary entrance into the work site. So provide item 1 or 2 noted below on the site plan:
 1. Draw existing driveway with an arrow on it pointing into the lot and labeled "construction entrance";
OR
 2. Show and label an alternate access with an arrow pointing into the lot and labeled "construction entrance". Note on the site plan: "A separate special use permit shall be obtained from the street right-of-way owner for a construction entrance before any construction accesses the work site".
- All plumbing and electrical work must be performed in accordance with St. Louis County Code and ordinances by licensed master plumbers, licensed electrical contractors, or by a pre-authorized homeowner who by examination has demonstrated the knowledge and ability to perform the work. All mechanical work must be performed by a licensed Mechanical Contractor authorized to do mechanical work. Homeowners may perform their own mechanical work within their own dwelling with no requirement to be licensed.
- Each contractor must sign the permit application form in the appropriate location. Signatures must be provided to Public Works before the permit can be issued.
- **Any structural alterations proposed** to the existing building must be drawn and submitted as an **electronic** set properly sealed by a Missouri registered Design Professional. Be aware properly sealed structural calculations may also be required by the Plan Reviewer, depending on the alterations proposed and adequacy and completeness of sealed drawings submitted.
- Only alterations as shown in approved and issued permit drawings shall be provided in the field. If the Field Inspector finds otherwise, a separate permit application submitted with properly sealed structural drawings and calculations shall be required for Building Plan Review-and-comment-or-approval of the outside-work scope alterations.
- **Properly sealed drawings means** the first sheet of the **electronic submitted set is electronically** sealed, signed, dated by a Missouri registered engineer or architect, with subsequent sheets of the set bearing the registered design professional's **electronic** seal. The first sheet, or the title block of each sheet in each set submitted, is to note the design professional's business address and contact number, and include the project address, owner name(s) and a description of the new work proposed. Any revisions to drawings are to be highlighted by clouding or by another easily recognized method.
- **Properly sealed calculations** means the cover sheet shall be **electronically** sealed, signed, dated by a Missouri registered professional engineer or architect, with subsequent pages sequentially numbered and totaled, and starting with the cover as page 1. The design professional shall include on the cover

his/her contact number and business address, as well as the project's description of work, the project address and the property owner name(s); and shall provide in the calculations the Code Basis of Design.

- **The Plan Reviewer** may determine the proposed work, construction, or conditions require additional drawings and information be submitted to Code Enforcement-Plan Review for review, beyond the minimum submittal requirements noted in this Checklist.

Submittal Requirements: Zoning Approval, Construction-Ready Drawings, & Their General Notes of Construction



Submit the following for a permit to build a Residential Addition in Unincorporated St. Louis County, and in those Municipalities that contract with St. Louis County for Residential Code Enforcement Services. Code and Ordinance Sections *are at ends of statements in parentheses and italicized (.)*.

- **Electronic Building Permit Application** filled out, and signed and dated by the applicant.
- Submit an **electronic** set of scaled, labeled, and dimensioned drawings and other documents as noted below (*B107.2.1; SLCO Policy*):
 1. **Municipality Zoning approval: Submit electronic site plans electronically** stamped-**Approved**, signed dated by the Zoning Officer, and/or the completed Zoning application form **Approved**, signed and dated by Zoning Officer.
OR
 2. **Unincorporated St. Louis County Zoning approval:** Provide **electronic** set of site plans with the new work addition dimensioned and highlighted to distinguish it from the existing dwelling's footprint:
 - a. Draw lot layout and dimension the property lines, show North with an arrow. Note the lot number and subdivision name. Dimension and label setbacks and easements.
 - b. Show and label on the lot the existing dwelling and any existing buildings named by their use or function.
 - c. Show, label, dimension, and highlight by shading or heavy line the proposed Addition. Dimension the Addition's distance from at least 2 lot lines, and from other structures existing on the lot. Dimension any new work roof overhangs projecting more than 18".
 - d. **NOTE:** Addition walls less than 3-ft from a property line must be shown in drawings to be a tested and approved 1-hour fire-resistance rated assembly from both sides and have no openings.
 - e. Note on the drawing the grade slope away from the Addition's foundation at a minimum of a 6" drop within the first 10', or slopes away to a swale. Note the existing and proposed finished grade elevations at the addition's corners and in relation to the addition's first floor level. Using arrows, show the surface drainage direction away from the new work Addition and existing dwelling.
 - f. Where applicable, show and label the location of the existing on-site sanitary sewage disposal system (leach field of septic system) and well.
 3. **Architectural/Structural Drawings:**
NOTICE: Where the sum total of Addition(s) square footage proposed under 1 permit exceeds 50 % of the existing total floor area, or where the Addition(s) total area exceeds 1000-sq.ft, drawing sets submitted must be ****properly sealed** by a Missouri Registered Architect or Professional Engineer. Consider only the finished spaces of the existing structure when calculating existing total floor area.

- a. Foundation plans with foundation thickness shown solid line and dimensioned, and the footing supporting it shown in dashed line and its overall width dimensioned. Foundation is to be centered on footing. Label as full basement and note slab thickness, or as crawl space with ground exposed or covered. Full basement may require emergency escape well. Drawing scale 1/4" = 1'-0" typical.
 - b. **Framing Plans** of each floor and of the ceiling and roof construction. Show and label framing members, their size(s), quantities, spacing, and grades. Drawing scale 1/4" = 1'-0" typical.
 - c. **Bracing Plans, Elevations and Details** showing the addition construction and affected existing structure are adequate to resist lateral forces, usually for wind. Depending on the work proposed, drawings and calculations ****properly sealed** by a Missouri registered Design professional may be required for submittal. See **Wall Bracing** section in this handout.
 - d. **Interior Finish** Plans with Plumbing, **Electrical and Mechanical** work shown and labeled. Dimension the overall new work extent and dimension the individual rooms and spaces. Dimension the width x length depth of any new work built-in cabinets, scale 1/4" = 1'-0" typical.
 - e. **Exterior Building Elevations**, scale 1/4" = 1'-0" typ.
 - f. **Foundation-Wall-Roof Construction/Assembly Section(s)**, shown from bottom of footing to top of roof finish, scale 1/2" to 3/4" = 1'-0".
 - g. **Construction/Assembly & Structural Connection Details**, scale 1/2" to 1-1/2" = 1'-0".
4. See **Electrical Requirements Section** in this checklist for minimum information to be provided in the **electronic** drawings required.
 5. See **Plumbing Requirements Section** in this checklist for minimum information to be provided in the **electronic** drawings required.
 6. See **General Mechanical, Fuel Gas, & HVAC Requirements Section** in this checklist for minimum for information to be provided in the **electronic** drawings and documents required.
- **See the example drawings at the end of this checklist for reference** in completing your own project-specific drawings. The lists below are Code and Ordinance requirements for Residential Kitchen and Bath Remodeling with Laundry that are to be provided in your drawings and notes.

Concrete, Footings & Foundations



- Concrete slab-on-ground floors shall be minimum 3-1/2" thick and shall be placed over 4" minimum thick gravel or crushed stone base course. Between the concrete floor slab and base course, place 6 mil polyethylene barrier with joints lapped 6" minimum.
Exception: Polyethylene barrier not required under exterior flatwork that is not intended to be enclosed in the future (*R506; R506.1*).
- Minimum compressive strength of concrete shall be for **Severe** weather potential (*Table R402.2*):
2500 PSI – Basement Slabs & Footings.
3000 PSI – Basement Walls, Foundation Walls & Exterior or Exposed Vertical Work.
3500 PSI – Porches, Walks, Patios, Steps, Garage and Carport Slabs & Driveways.
- Concrete shall be air-entrained for all basement walls, foundations, porches, walks, patios, steps, garage and carport floor slabs and driveways. Basement slabs and interior slabs shall be air entrained if subject to freezing and thawing (*Table R402.2*).

Footings

- The bottom of exterior footings shall extend 12" minimum into undisturbed soil, shall be minimum 2'-6" below finished grade and shall bear on undisturbed soil (*R403.1.4; SLCO Rev. Ord. Table R301.2(1)*).
- The foundation wall shall be centered on the footing. Footings shall be keyed to, or held with vertical reinforcing extending into, the foundation(s) they support (*SLCO Policy*).
- Footing thickness shall be minimum 6" and not less than footing's projection past the face of the foundation wall (*R403.1.1*).
- Footings shall project minimum 2" past both sides of foundation, and each projection shall not exceed the thickness of the footing. This means footing thickness must be increased to at least match the length of the projection needed for the footing size required (*R403.1.1*).
- The following Table provides minimum footing widths based on the Default or Certified soil-bearing capacity of the dwelling's construction site. See the numbered notes below the Table for related requirements (*R403; Tables R403.1(1)(2)(3); SLCO Policy*):

MINIMUM FOOTING WIDTH SIZES REQUIRED FOR BEARING:				
	1500-PSF SOIL BEARING DEFAULT ON UNDISTURBED SOIL		2000-PSF SOIL BEARING CERTIFIED BY A MISSOURI PROFESSIONAL ENGINEER ¹	
	Framed Wall	Framed Wall with Brick Veneer	Framed Wall	Framed Wall with Brick Veneer
1 Story slab on Grade	12"	12"	12"	12"
1 Story w/Basement	21"	24"	16"	18"
2 Story slab on Grade	15"	21"	12"	16"
2 Story w/Basement	24"	30"	18"	23"
3 Story Slab on Grade	23"	32"	17"	24"
3 Story w/Basement	27"	36"	21"	27"

1. A Missouri registered professional engineer with geotechnical expertise shall provide a dated, sealed and signed certification letter on a per lot(s) basis, or provide a dated, properly sealed and signed compaction report for the entire subdivision.

1. Stepped footing lengths shall be labeled and dimensioned in plans and elevations. Include structural section details of construction (*R403.1.5; SLCO Policy*).
2. Interior footings integral with a concrete slab shall be minimum 12" deep x 16" wide x 16" long, unless properly sealed calculations submitted verify adequacy of smaller size (*SLCO Policy*).

Foundations

- **Notice:** For foundations of masonry, wood or ICF, see Chapter 4 of the 2015 International Residential Code (IRC) and St. Louis County Ordinances for minimum design requirements.
- Concrete foundation thickness shall be equal to or greater than the thickness of the wall the foundation supports (*R404.1.5; R404.1.5.2*).
- Where a concrete foundation thickness is reduced to provide shelf support of masonry veneer, the

reduced thickness shall be equal to or greater than the thickness of the wall in the *story* above it (R404.1.5; R404.1.5.2).

- See the **Single-Family Dwelling Design Checklist** for requirements of foundations constructed with different thicknesses and heights (SLCO Rev. Ord. R404.1.3.2; Table R404.1.2(10)).
- **For 1-and 2-family** foundation anchorage requirements:
 1. Minimum 1/2" diameter anchor bolts spaced maximum 6'-0" o.c. around entire foundation.
 2. Extend bolts 7" minimum into foundation through minimum 2x4 treated wood sill plate, and secure to sill plate with 1-1/2" dia. washers and nuts.
 3. Grout sill plate level or provide sill sealer with approved shim materials and methods.
 4. Place anchor bolt 4"-12" from the end of each sill plate, and in the middle 1/3 of the plate width.
 5. Minimum 2 bolts required per sill plate segment of any length.
 6. **Note:** 2"x2"x3/16" square washers required at anchor bolts securing portal frame panel construction (R403.1.6; R602.10.6; R602.11; SLCO Policy).
- **For Townhouse** foundation anchorage, follow all of the requirements above, except where noted otherwise below:
 1. The 1/2" diameter anchor bolt spacing shall be reduced to 4'-0" o.c. max. for townhouse additions more-than-2-stories in height.
 2. Secure the bolts to the sill plate with 3"x3"x0.229" plate washers and nuts. Provide the same anchorage requirements at interior sole plates on continuous footings supporting bearing walls. (R403.1.6; R403.1.6.1; R602.11.1).
- Provide 1 anchor bolt in the middle 1/3 of a wall, 24" or less in length, that is the 'offset' between the 1st braced wall panel and a corner (R403.1.6-Exception 1).
- For **Additions to be** supported on piers, submit calculations and corresponding structural drawings, all properly sealed by a Missouri Registered Design Professional, that justify structure and connections proposed are adequate to resist gravity and lateral forces (R301.1.3).

Design, Construction & Finish Requirements



Room Dimensions

- Each habitable room, except kitchens and those rooms noted otherwise, shall be 70 sq. ft. minimum and shall not be less than 7'-0" in any horizontal dimension (R304.1; R304.2).
- A living room shall be 120 sq. ft. minimum, and a bedroom 70 sq. ft. minimum. For multiple bedroom occupants, provide minimum 50 sq. ft. per occupant (PM404.4.1).
- Ceiling heights shall be minimum 7'-0" in habitable spaces, hallways and finished basement habitable rooms. Provide minimum 6'-8" ceiling height in bathrooms, laundry, and toilet rooms (R305.1).
- Passage between habitable spaces and bathrooms must have minimum opening wide enough to accommodate a 2'-4" door leaf.
- Hallway minimum clear width is 3'-0" (R311.1; R311.6; SLCO Policy).

Structural Framing

- Existing walls removed or modified must be shown and labeled as bearing or non-load bearing. Alterations to bearing walls and their consequent load-pass to soils must be submitted in structural

drawings and calculations **professionally sealed** by a Missouri architect or engineer. Deflection analysis may be required of beams within the load pass to soils of the altered structure (**R301.1; R301.1.1; R301.1.3**).

- Provide in drawings the size, weight and spacing of all steel beams and columns. Provide the size, fiber stress, type and grade of lumber of wood beams and columns. Show and label direction of floor joists, their size, spacing, fiber stress, species and grade of lumber shown.
- **Non-load bearing partitions** shall be minimum 2x4 framing at 16" or 24" o.c. with minimum 1 bottom and 1 top plate and minimum 1/2" gypsum board finish both sides (**R702.3; R702.3.2**).
- Exterior wall framing to be constructed in accordance with the following Table. The grade of studs shall be standard grade or better.

STUD SIZE (inches)	Laterally unsupported stud height (feet)	Maximum spacing when supporting roof and ceiling only (inches)	Maximum spacing when supporting one floor, and roof and ceiling (inches)	Maximum spacing when supporting two floors, roof and ceiling (inches)	Maximum spacing when supporting one floor only (inches)
2 x 4	10	24 ^a	16 ^a	---	24
2 x 6	10	24	24	16	24

Wall Bracing to Resist Lateral Wind Forces

Alternative Foundation Systems

- For any addition that does not have its exterior walls prescriptively bearing on and connected to a continuous perimeter footing and foundation (as is an addition built on a post-and-pier system), submit ***/**properly sealed** by a Missouri registered Engineer or Architect the following: a) **electronic** set of structural calculations and; b) **electronic** set of corresponding structural drawings including structural connection details that address how the lateral wind loads from the room addition are transferred to and resisted by the alternate foundation system's elements.

New Walls of the Room Addition

- The room addition walls shall be shown in the drawings are to be braced to resist expected lateral wind forces in compliance with 1 of the following 'systems', as applicable to the construction proposed:
 - a. St. Louis County's own "**Basic Bracing Guideline for 1-and 2-Family Dwellings**" included in this Checklist. This Guide can be downloaded from St. Louis County's website at: <https://www.stlouisco.com/Your-Government/Public-Works/Guides>. **NOTICE:** Cannot be used on construction that exceeds the limits of this 'recipe' bracing method;
 - OR**
 - b. **Sections R602.10 or R602.12 of the 2015 International Residential Code.** **NOTICE:** Cannot be used on construction that exceeds the limits of its 'recipe' bracing methods;
 - OR**
 - c. St. Louis County's own "**Appendix A1 Wind and Seismic Bracing Guideline For 1- & 2-Family Dwellings and Townhouses**". This Guide can be downloaded from St. Louis County's website at: <https://www.stlouisco.com/Your-Government/Public-Works/Guides>. **NOTICE:** Cannot be used on construction that exceeds the limits of its 'recipe' bracing methods;
 - OR**
 - d. '**Accepted Engineering Practice**' is required for the bracing of unique/performance-based, 'no-longer-recipe-based'/prescriptive construction to adequately resist lateral wind forces. This requirement is noted in **Sections R301.1.3, R602.10, and R301.1 of the 2015-International Residential Code (2015-IRC)**. Accepted Engineering Practice shall comply with the performance-based requirements of the 2015 IBC, its referenced standard ASCE 7-10, and St. Louis County Ordinances, and shall be submitted ***/**properly sealed in electronic** set of structural calculations and **electronic** set of corresponding structural drawings and details.

- A **Braced Wall Line** is a location of lateral-force resistance construction and is typically a straight-line wall, but may include some offsets. A single offset of 4'-0" maximum, or multiple offsets that are each 4'-0" maximum, is allowed in a single braced wall line, as long as the sum of all the offsets is 8'-0" maximum (See **Figure 1** below):

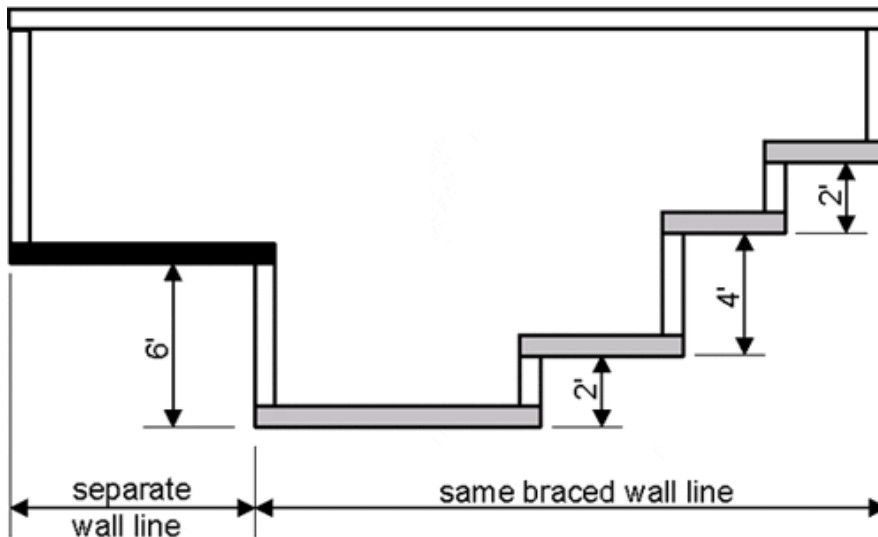


Figure 1

Alterations to Existing Wall Openings with construction of an Adjacent Addition

- Existing openings that shall not have their widths increased may have their heights altered. For example, window openings may be changed into door openings by removing of their knee walls.
- Alterations to existing **openings** in the building's exterior walls are allowed as follows, without requiring ***sealed** structural calculations be submitted to justify the altered wall will resist lateral wind forces:
 - a. Either 1 new opening, or a sum total of new openings that total 6'-0" or less in width, in a braced wall line (defined below) of the existing building;

OR

 - b. Either 1 new opening, or a sum total of new openings, exceeding 6'-0" width but not more than 20'-0" width and totaling with existing openings less than 50% of the braced wall line (defined below) length in which they are located.
- Existing braced wall line(s) that have alterations made to their openings - other than those noted in a. and b. above – must be shown in plans and elevations to be braced to resist the lateral wind loads using 1 of the method(s) systems noted under **New Walls of the Room Addition** section above.
- If 'Accepted Engineering Practice' is the method chosen, the Missouri Registered Design Professional must provide **electronically *sealed** structural calculations that correspond to and justify the required ****sealed** structural drawings with connection details submitted. In place of the sealed calculations, however, the **Missouri Registered Design Professional may submit electronically sealed, signed, and dated structural certification** that unequivocally states the affected existing wall lines, with the modifications proposed as shown in the ****sealed** drawings, comply(ies) with the lateral bracing provisions of **Section R602.10 of the 2015 International Residential Code OR Section 2305 of the 2015 International Building Code.**

Existing Stories upon which Vertical Addition(s) is/are to be Constructed

- **NOTICE:** Vertical Additions are actually beyond the intended scope of this guide for simple additions. So be aware a **Vertical Addition** submittal must show the existing story supporting the addition is

structurally adequate to resist the increased lateral wind loads, using 1 of the methods noted in the Section above titled **New Walls of the Room Addition**.

- If 'Accepted Engineering Practice' is the method chosen, the Missouri Registered Design Professional must provide **electronically *sealed** structural calculations that correspond to and justify the required ****sealed** structural drawings with connection details submitted. In place of the sealed calculations, however, the **Missouri Registered Design Professional may submit electronically sealed, signed, and dated structural certification** that unequivocally states the existing story(ies), with the proposed addition and the addition's associated modifications as shown in the ****sealed** drawings, comply(ies) with the lateral bracing provisions of **Section R602.10 of the 2015 International Residential Code OR Section 2305 of the 2015 International Building Code**.
- Drawings submitted for **Vertical Additions** construction must also address other structural issues beyond wall bracing. The structural adequacy of existing footings, foundations, headers and/or other framing to support the existing and additional work loads must be verified or provided. Structural drawings and supporting structural calculations or structural certification must be submitted, all of which shall be provided ***/**properly sealed** by a Missouri registered Design Professional.

Roof Framing

- Show in plan and section roof rafters and ceiling joists framing layout and note member sizes, spacing, species, and fiber stress or grade of wood. **Note a minimum 3:12 roof slope is required** to use rafters and ceilings joists **Tables R802.4(1)(2) and Tables R802.5(1)-(9)** in the 2015-IRC. For roof framing slopes less than 3:12, submit gravity load and deflection calculations to justify structural adequacy of solid sawn framing. Calculations may be required to be properly sealed by a Missouri engineer or architect (**R802, esp. R802.2; R802.4; R802.5; Tables R802.4(1)(2); R802.5.1(1)-(9); Figure R802.5.1**).
- Provide conventional and truss roof framing assemblies to **resist uplift** per 2015-IRC requirements, or per structural calculations and drawings properly sealed by a Missouri engineer or architect. Assemblies spaced 24" o.c. maximum, with uplift force determined at 200-lbs maximum, may attach to supporting wall structure assemblies per **Table R602.3(1)**. Toe-nailing trusses to wall top plates with 3-16d nails shall not split wood members (**R602.3; R802.11; Table R802.11; SLCO Policy**).
- Provide roof framing design that supports the following minimum loads:
 1. **Truss top chord or roof rafter:**
 - a. Snow Load: 20 lb. per sq. ft. (**R301.2; R301.6**).
 - b. Dead Load: Use actual dead load including weight of 2 layers roof covering (**R301.4; R908**).
 2. **Truss Bottom chord or ceiling joist:**
 - a. Shall support a live load of 20-lb. per sq. ft. where attic storage is possible. Attic storage is possible when a 42" high x 24" wide rectangle can be placed perpendicular to the rafter/ceiling joists or trusses. Use 10 lb. per sq. ft. live load for no attic storage where rectangle-space dimensions are less. **Note:** The live load design on the ceiling joist or bottom chord of a truss shall not be required if **all** of the following conditions are adhered to (**R301.5; SLCO Policy**):
 - a. Dwelling attic access opening with maximum 22"x 30" through finished ceiling with no pull-down stairway.
 - b. Attach on each side of the attic access opening warning signs at least 36" above the bottom chord and within 18" of the edge of the opening. Each sign shall be metal or other approved durable materials suitable for attic conditions; shall be at least 40 sq. inches with letters 3/4" high on a contrasting background that reads "WARNING-TRUSSES NOT DESIGNED FOR ATTIC STORAGE".
 - c. In attic around the access opening over a garage with finished ceiling, provide a horizontal railing attached to the trusses on each side of the access opening 24" - 36"

above the bottom chord. The railing shall be made of 1x4's, 2x4's or 3/8"x 6" plywood and shall obstruct easy access for storage Railing may be shop or field applied

- b. Dead Load: Use actual dead load (**R301.4**).
- Metal-plate-connected wood truss design and manufacture shall comply with ANSI/TPI 1.
 - Submit roof and floor truss design drawings **electronically** sealed by a Missouri registered engineer that include the required spacing and slope or depth of the truss span shown. Provide the truss manufacturer's assembly layout that identifies locations of the sealed truss drawings, identifies girder truss locations (**SLCO Rev. Ord. R107; B107.2.1; R502.11 esp. R502.11.4; R802.10.1; R802.10.2; SLCO Policy**).
 - The Project's Design Professional shall review and coordinate the truss forces' load pass to soils through adequately sized building structure including lintels, beams, bearing walls, columns, truss-to-bearing-plate connections, truss-to-truss connections, etc. The Project Design Professional shall incorporate the truss framing layout and girder locations into sealed structure framing plans (**B107.1; B107.2.1; B107.2.6; R801.2; SLCO Rev. Ord. R107; SLCO Policy**).
 - Roof wood structural panel sheathing with 24/0 span rating and fastened to trusses or rafters spaced 24" o.c. shall be minimum 15/32" thick without edge support, or minimum 3/8" thick with edge support. Edge support shall be tongue-and-groove joints, 2x lumber blocking, or panel edge clips at mid-point between each support (**Table R503.2.1.1(1); R803.2.1; Ref. Std. APA Pub. N335P, D481**).

Roofing & Underlayment

- Class A, B, or C roofing is required where roof edge is less than 3' from a lot line (**R902.1**).
- Minimum required underlayment is Type I (also called 15# specification felt) per ASTM D 226; D 1970; D 4869; or D 6757 (**R905.1.1**)
- Provide corrosion-resistant flashing at roof intersections, at changes in roof slope or direction at walls and chimneys, around roof openings, and at abutments with porches and decks. Follow St. Louis County Ordinances for valley flashing requirements (**R903.2; SLCO Rev. Ord. R905.2.8.2**).
- Drip edge is required at eaves and rakes of shingle roofs. Extend drip edge minimum 2" onto roof sheathing and minimum 1/4" below roof sheathing. Install roof underlayment over the drip edge along eaves and under the drip edge at rakes (**R905.2.8.5**).
- **Notice:** Roofing replacement requires roof ventilation be provided and/or made compliant with **Section R806** of the **2015-IRC**. This means any existing ducts terminating in enclosed attic or rafter spaces shall be made to discharge directly to the exterior. Only bathroom exhaust ducts may terminate at the attic gable vent or roof soffit vent (**R908.3; SLCO Rev. Ord. R908.7**).
- **Underlayment for asphalt shingles:**
 1. Minimum roof slope is 2:12 for asphalt shingles. 2 layers of underlayment required on slopes of 2:12 to less than 4:12. Starting at and parallel with the eaves, fasten a 19" strip of underlayment felt. Starting at the eave, apply 36" wide sheets of underlayment. Successive 36" wide sheets of underlayment shall overlap the previous 36" wide sheet by 19". Adequately fasten underlayment to hold in place (**R905.1.1; R905.2; Table 905.1.1(2)**).
 2. 1 layer of underlayment required on slopes minimum 4:12. Apply underlayment shingle fashion, so it is parallel to and starting from the eave and is lapped 2". Adequately fasten to hold in place. End laps shall be 4" and offset 6-ft (**R905.1.1; Table 905.1.1(2)**).
- Ice Barriers are **not** required by St. Louis County (**R905.1.2; SLCO Rev. Ord. Table R301.2(1)**).
- Mineral-surfaced roll roofing requires 1:12 slope minimum (**R905.5**).

- Built-up roofing requires 1/4:12 slope minimum. Exception: Coal-Tar built-up roofing requires 1/8:12 slope minimum (**R905.9; Table 905.9.2**).
- Thermoset and Thermoplastic single-ply roofing requires 1/4:12 slope minimum (**R905.12; R905.13**).

Wall Assemblies

Interior

Notice: Where **Kitchen, Bath, or Laundry** new work is proposed as part of the **Addition**, see St. Louis County's **Kitchen/Bath/Laundry Remodel Checklist** for their **interior finish** requirements. Provide those requirements applicable to the new work in your submittal drawings and documents.

- **Interior finish materials** shall have maximums 200 flame spread index and 450 smoke development index (**R302.9**).

Exterior

- A weather-resistant exterior wall envelope is required with (**R703.1; R703.1.1**):
 1. A water-resistant barrier behind exterior veneer;
 2. A means to drain to the exterior water that enters the exterior wall assembly;
 3. A means to prevent condensation within the exterior wall assembly.
- Provide water-resistant barrier of minimum 1 layer Type I/No.15 asphalt felt per ASTM D226, or other approved material, over exterior studs or sheathing of all exterior walls (**R703.2**).

Siding

- Exterior wall coverings, siding, backing materials and their attachments shall be provided to resist wind loads in accordance with **Tables R301.2(2)** and **R301.2(3)**.
- Nominal thickness and attachment of exterior wall coverings shall comply with **Table R703.3(1)**, the Code's requirements for different materials, and the manufacturer's installation instructions (**R703.3**).

Anchored Masonry Veneer

- Provide masonry veneer with minimum 3/16" diameter weepholes maximum 33" apart and directly above corrosion-resistant flashing. Provide flashing between the first course of masonry and the structure supporting the veneer assembly (**R703.8.6**).
- Masonry veneer maximum wall height is 30'-0" measured from top foundation. Maximum 38'-0" height is allowed when measured to the top of gable-end walls (**R703.8; Table R703.8(1)**).
- **Townhouses with masonry veneer shall have** braced wall panel lengths in exterior and interior walls at stories above the 1st floor that are 50% more or 1.5 times the amount noted as required in **Table R602.10.3(4)**. The requirement applies to all prescriptive bracing methods.
- Anchor masonry veneer to wall studs with minimum No. 22 gage x 7/8" corrosion-resistant corrugated metal ties spaced maximum 32" o.c. horizontally [x 12" vertically = 2.67-sf] and maximum 24" o.c. vertically [x 16" horizontally = 2.67-sf]. Each tie shall support maximum 2.67 square feet of wall. Provide 1" airspace between veneer and wall sheathing (**R703.8.4; R703.8.4.1; Table R703.8.4**).
- **Exception:** On **townhouses**, each masonry veneer tie shall support maximum 2.0 sq. ft. of wall, spaced maximum 32" o.c. horizontally [x 9" vertically = 2.0-sf] and maximum 24" o.c. vertically [x 12" horizontally = 2.0-sf] (**R703.8.4.1**).
- Any opening greater than 16" in either direction in a masonry veneer wall shall have additional metal ties spaced maximum 3'-0" o.c. around and within 12" of the opening (**R703.8.4.1.1**).
- Masonry veneer above openings shall be supported on lintels of non-combustible materials. Lintels shall have minimum 4" bearing length each end. Provide steel lintels with protection from rust. Lintel construction and spans shall comply with **Section R703.8.3** and **Table R703.8.3.1**.

Adhered Masonry Veneer

- On stud frame walls, provide minimum clearances 4" above the earth; 2" above paved areas; 1/2" above exterior walking surfaces where adhered masonry is supported by the same foundation as the wall; OR as required in the manufacturer's installation instructions (**R703.12**).
- On stud frame walls, provide minimum 26-gage corrosion-resistant metal or 0.019" plastic flashing or screed with minimum 3-1/2" vertical attachment flange that extends minimum 1" below the foundation plate (**R703.12.2**).
- Provide water-resistive barrier that laps over screed's attachment flange or flashing (**R703.12.3**).

Fireblocking

- **Provide fireblocking** of 2" lumber, 23/32" structural wood panel or other approved materials at the following locations (**R302.11**; **R302.11.1**):
 1. Vertically-placed at frame ceiling and floor levels.
 2. Horizontally-placed at 10'-0" maximum intervals along the top and bottom of conventional, double stud, furred spaces and staggered stud frame walls.
 3. Vertical and horizontal concealed connections in soffits, dropped and cove ceilings.
 4. Between stairway stringers at the top and bottom of the run. Provide in accessible enclosure under stairs 1/2" gypsum board on the underside stair surface, walls and any soffits (**R302.7**).
 5. Openings around vent, pipe, duct, cable and wire penetrations of ceilings and floors.
 6. Spaces between a chimney and the floor or ceiling assembly through which the chimney passes. Fireblocking shall be approved noncombustible material, such as batt or blanket mineral wool or glass fiber, securely fastened, self-supporting or on metal or metal lath strips (**R1003.19**).

Attic & Crawl Space Access

- Provide minimum 16" x 24" access opening in crawl space perimeter walls and minimum 18" x 24" opening in floor. See **M1305.1.4** for access to mechanical equipment in crawl space (**R408.4**).
- Provide in an accessible location or hallway an attic access opening minimum 22" x 30" in the ceiling or wall. Attic area over opening shall be minimum 30-sq. ft. area and have minimum 30" clear height. See **M1305.1.4** for access to mechanical equipment in attic (**R807**).
- Provide a hold-back or baffle around door and hatch horizontal/ceiling access openings that are surrounded by loose-fill insulation. The door or hatch shall be weather-stripped (**N1102.2.4**).
- Provide vertical access doors with insulation required for Fenestration per **Table N1102.1.2**.

Stairs, Landings & Guards – Interior & Exterior

- Stairway minimum clear width is 36". Minimum clear width at and below handrail height is 31-1/2" with handrail on 1 side, and 27" with handrail on both sides (**R311.7.1**).
- Stairway headroom minimum height is 6'-8", measured vertically from the tread nosing and from the floor surface of a landing or platform. See **R311.7.10.1** for spiral stairs headroom (**R311.7.2**).
- Show quantity and stringer size (2 x12 minimum) and note tread material and its thickness. Stairs must support a 40-psf live load or 300-lbs. concentrated load acting on 4 sq. inches at mid-span of tread, whichever produces the greater stresses and deflections (**Table R301.5**; **SLCO Policy**).
- Maximum riser height is 7-3/4" and the minimum tread depth (measured horizontally from tread nosing to tread nosing) is 10". The greatest riser height shall not exceed the smallest by more than 3/8" within a single flight of stairs. A nosing projection of at least 3/4" and not more than 1-1/4" is required on stairways with solid risers (**R311.7.5**).

Exception: A nosing projection is not required where the tread depth is at least 11" (**R311.7.5.3**).

- Provide winder stairs with a 10" minimum tread depth measured 12" from the narrow end with at least 6" tread depth at the narrow end (**R311.7.5.2.1**).
- Spiral stairways are allowed; see **R311.7.10.1**. Ships ladders are allowed but shall not serve as a required means of egress; see **R311.7.12**.
- Open risers are allowed as long as openings located more than 30" above adjoining floor or grade do not allow passage of a 4" sphere (**R311.7.5.1**).
- In the enclosed accessible space under stairs, provide walls, the under-stair surface, and any soffits with minimum 1/2" gypsum board (**R302.7**).
- Provide a landing on both sides of each exterior door. Landing width shall not be less than the door served and shall be 36" minimum in the direction of travel. Landing slope shall exceed ¼:12 (**SLCO Rev. Ord. R311.3**).
- **Primary egress door** landings both sides shall be 1-1/2" maximum below the door threshold. Deck or porch surfaces may serve as the door's exterior landing.
Exceptions:
 1. An exterior landing may be 7-3/4" maximum below the **primary egress/entry** door threshold, as long as the door does not swing outward over the landing. A secondary exterior storm or screen door may swing outward (**R311.3.1; R311.3.3; SLCO Policy**).
 2. Landings for exterior doors **other than** the primary means of egress may be:
 - a. Maximum 7-3/4" below the door threshold;
 - b. Located at the bottom of a stair flight of 4 risers maximum and 7-3/4" maximum riser height. The door to the stair shall not swing outward over the stair. Its exterior storm or screen door may swing outward (**R311.3.2**).
- Show and note in plan and section 1 continuous handrail 34" to 38" above nosing for stairs with 4 or more risers. Show and note the handrail ends return to the wall or newel post.
- Handrails and projections below handrail shall project 4-1/2" maximum into required stairway width.
- Guards shall be minimum 34" high above the leading edge of the tread, and minimum 36" high at stair landings, where open-sided stairs are more than 30" above the adjoining floor or grade.
- Provide minimum 36" high guards along balconies, areaways, mezzanines and open-sided walking surfaces that are more than 30" above the adjoining floor.
- Open guards shall have intermediate vertical balusters spaced less than 4" apart.
Exception: Openings on the side(s) of a stair shall have balusters spaced less than 4-3/8" apart.

Doors

- Locks with thumb turns on the inside are permitted. Inside key operation is permitted provided the key cannot be removed from the lock when locked from the inside.
- Minimum width of an interior egress door leaf is 28" (2'-4" door leaf).

Decks

- Please obtain the St. Louis County Sundecks-Building Permit Requirements Checklist for additional information and example details that are required to be provided in drawings submitted for a permit.

Insulation & Energy Conservation

- Indicate type, thickness and "R" values of all insulating materials.
- Insulation already existing in exposed exterior framing may remain. If NO insulation exists, then provide **minimum R-15 insulation** with vapor retarder in exterior frame walls, and minimum R-38 insulation in ceilings with unconditioned space (**R702.7; SLCO Rev. Ord. N1101.5; Table N1102.1.2**).

- Show and note the type, thickness and R-value of insulating materials at locations required by the Code (**N1101.5; N1101.5.1; SLCO Policy**).
- Provide batt or blanket insulation and their facings like vapor retarders or other vapor permeable membranes left exposed in areas like unfinished basements with a maximum 25 flame spread rating and a maximum 450 smoke development rating. Facings that are verified as installed in substantial contact with the concealed finish surface of a ceiling, floor, or wall need not comply with flame spread and smoke development limits (**R302.10**).
- Provide foam plastics with a maximum flame spread rating of 75 and a maximum smoke development rating of 450 per ASTM E84 or UL 723 (**R316.3; R316.6**).
- Show foam plastic insulation is separated from the building interior by an approved thermal barrier, like 1/2" gypsum wallboard or 23/32" wood structural panel (**R316.4**).
- Show and label in wall and building sections the type, thickness and "R" value of insulating materials. Note the "U" values of windows, doors, and skylights in the drawings. R-values noted must be only for the insulation material used, not for the total system assembly (**N1101.5**).

MINIMUM INSULATION (R-Values) & MAXIMUM FENESTRATION (U-factors & SHGCs) REQUIREMENTS (SLCO Rev. Ord. Table N1102.1.2)	
Roof/ Ceiling	R-38
Wood Frame Walls & Band Joists/Boards adjoining exterior or unconditioned spaces	R-15
Floor over exterior space or unconditioned space or unheated Crawl Space	R-19
Concrete/Masonry Basement Foundation Walls: For Unfinished Basement Areas For Finished Basement Areas	R-5¹ R-13
Slab-On-Grade Floors ²	R-10 no ductwork in slab R-15 ductwork in slab
Crawl Space Wall (No Insulation Required if Naturally Vented)	R-5
Access ^{3,4} Doors & Hatches (SLCO Rev. Ord. N1102.2.4)	Insulate Equal to R-Value of Surrounding Wall or Ceiling Insulation R-value
Fenestration U-Factor (Includes Doors; Excludes Skylights)	0.34 Max.
Skylight U-Factor	0.55 Max.

1. **Exception:** Unfinished basements shall not have more than 20% of the total basement wall area as exposed un-insulated concrete foundations above the outside finished grade/ground level:
 - a. Determine the foundation wall area above outside grade allowed to be un-insulated, using **the formula $0.20 \times H_{max} \times P_{bew}$** . See next item for explanation.

b. Translation: **20% of the maximum height 'H' of all** basement exterior walls, including insulated exterior frame walls for walk-out basements and walls common to both basement and attached garages - **x the perimeter 'P' of the 'bew' basement exterior walls.**

c. In unfinished basement areas, foundation walls exposed above outside finished grade in excess of 20% of the total basement wall area shall have minimum R-5 insulation. Extend the insulation down to the basement floor slab, or extend at least 24" below the outside grade that is above the floor slab.

2. Insulation under a slab-on-grade shall be at the foundation perimeter/slab edge and extend 24" minimum horizontally under the slab, or downward 24" minimum directly behind the foundation.
 3. Provide a hold-back or baffle around horizontal/ceiling door and hatch access openings that are surrounded by loose-fill insulation, and weather-strip the opening (**N1102.2.4**).
 4. Provide vertical access doors with insulation required for Fenestration per **Table N1102.1.2**.
- Show and label an approved **air barrier** separating **showers and tubs** from adjacent exterior wall framing and its insulation (**SLCO Rev. Ord. Table N1102.4.1.1**).

Light & Ventilation

- Glass area in habitable and occupiable rooms shall be minimum 8% of floor area served. Area required to open to the outdoors shall be 4% of the floor area served (**R303.1; R303.2**).
- Attic and enclosed rafter space net free ventilation area shall be at 1/150 of the area served. Provide 2 remote vents minimum for cross-ventilation of each attic space (**R806.1; R806.2**).

Exception: Reduce ventilation required to 1/300 of the area served where 40%-50% of the required ventilating area is provided by ventilators located in the upper portion of the attic or rafter space. Ventilators shall be maximum 3'-0" below the ridge or highest point of the space, measured vertically. Provide the balance of required ventilation with eave or cornice vents. Provide ventilators per the manufacturer's installation instructions (**R806.2; R806.4**).

- Provide minimum 1" clearance between top of insulation and underside of roof sheathing when ventilation is provided at eave or cornice vents (**R806.3**).
- Provide minimum 18" clear height in foundation crawl spaces and provide a vent opening within 3'-0" of each corner. Total vent area shall be at least 1/150 of the area served (**R408.1; R408.2**).

Exceptions:

- a. Reduce the required vent area to 10% of the above (1/1500) where an approved Class I vapor retarder is provided over crawl space exposed ground. Vents with operable louvers are allowed.
 - b. Clear height less than 18" shall have wood floor structure preservative-treated in accordance with AWPA U1 or provide naturally durable wood framing (**R317.1-Item 1**).
- Ventilate enclosed crawl space areas as follows (**R408.3**):
 1. Cover exposed earth with approved Class I vapor retarder, seams overlapped 6" taped and sealed, and extended up perimeter walls 6" taped and sealed.
 2. Provide mechanical exhaust and supply air system of 0.02 cfm/sq. ft. of horizontal area that operates continuously.
 3. Cover inside of crawl space walls with R-5 insulation. See the 'Insulation & Energy Conservation' section for restrictions on exposed insulation.
 - Provide natural ventilation/net free air area to unfinished basements and utility rooms, required at the ratio of 1% of the floor area served. OR provide mechanical ventilation with outdoor air, NOT recirculated air, in compliance with the International Mechanical Code at a rate of .05 cfm/sq. ft. of area (**SLCO Policy**).

- Unfinished basements and utility rooms require natural ventilation (net openable area) at the ratio of 1% of the square footage floor area served. Mechanical ventilation with outdoor air (not recirculated air) in accordance with the mechanical code may be substituted at a rate of .05 cfm/sq. ft. of area.

Emergency Escape Openings

- Each basement, habitable attic, and sleeping room shall have at least 1 emergency escape opening that meets the following minimums (**R310**):
 1. Maximum height to bottom of clear opening - 44"
 2. Minimum clear opening width - 20"
 3. Minimum net clear opening height - 24"
 4. Minimum net clear opening area - 5.7 sq. ft.
 5. The required net clear opening area shall be met by normal window operation from inside dwelling, and shall not require the use of keys, tools or special knowledge;
 6. Grade floor or below-grade windows may have a net clear opening of minimum 5 sq. ft.
- Show in the drawings compliance with the above by 1 of the following methods (Only showing the rough frame opening for windows is not acceptable):
 1. A window schedule noting the net window openings, net glass area and each window type, and number and key each to its location in the plans; OR
 2. Note on the plans at each location the net opening, net glass area and window type; OR
 3. Note on the plans at each location the specific manufacturer and window's sizing Code Number.
- Indicate clear opening height above the floor level and size of all windows on elevation drawings.
- The emergency escape well shall be minimum 9 sq. ft. in horizontal area, minimum 36" x 36" clear in width and in projection from window escape opening. It must be large enough to allow the emergency escape window to fully open. Where located under decks or porches, provide minimum 36" clear height over the entire well and continuous to an open yard or court. See **this Guide's Plumbing Section** for window well drain requirements (**R310.2.3; R310.2.4**).
- Provide sizes of all windows and note sill height above floor in elevation or plan views (**SLCO Policy**).

Safety Glazing

- Glazing in locations noted below shall be tested and marked/identified in accordance with CPSC 16 CFR Part 1201 Standard as a Type I or II category. Provide safety glazing in sliding doors and for any glazing more than 9 square feet. Glazing in doors and enclosures for hot tubs, whirlpools, saunas, steam rooms, bathtubs, and showers shall be a **Type II category** and so noted on the sealed plans (**R308**).
- Provide sizes of glazed openings, the dimensioned height of glazing bottom edge above the floor, and the horizontal distance from glazing to door edge, to verify required **Type I or II** safety glazing locations as follows (**B107.2.1; R308.3.1; R308.4; Table R308.3.1(1); SLCO Policy**):
 1. Glazing material less than 60" above the floor and a) in the same plane as, and within 24" of, either side of a closed door **OR** b) is in a wall perpendicular to a closed door and within 24" of the hinge-side of an in-swinging door (**R308.4.2; SLCO Policy**).

Exceptions:

 - a. Decorative glass.
 - b. A wall or other permanent barrier is between the door and the glazing.
 - c. Glazing adjacent to a closet door serving a storage area 3'-0" or less in depth. Glazing shall comply with **Section R308.4.3**.
 - d. Glazing adjacent to the fixed panel of patio doors.
 - e. Glazing in walls on latch side of, and perpendicular to, the plane of a closed door.
- Glazing in fixed or operable panels that meet **all** of the following (**R308.4.3; Table R308.3.1(1)**):
 - a. Individual pane larger than 9 sq. ft. **and**;

- b. Bottom edge less than 18" above floor **and**;
- c. Top edge more than 36" above floor **and**;
- d. Walking surface within 36" measured horizontally.

Exceptions:

- a. Decorative glass.
- b. A 1-1/2" height rail placed 34"-38" above walking surface on accessible side of glass. Rail shall withstand minimum 50-lbs. per linear foot horizontal load with no glass contact.

- Glazing in all doors fixed or operable, swinging, sliding, or bi-fold (**R308.4.1**):

Exceptions:

- a. Glazed opening in a door through which a 3" diameter sphere cannot pass.
- b. Decorative glass.

- Glazing in guards and railings, regardless of area or height above a walking surface (**R308.4.4**).
- Glazing with bottom edge less than 36" above, and adjacent to, the walking surface of stairways, landings between stairs, and ramps (**R308.4.6**).

Exception: A 1-1/2" height rail placed 34"-38" above walking surface on accessible side of glass. Rail shall withstand minimum 50-lbs. per linear foot horizontal load with no glass contact.

- Glazing with bottom edge less than 36" above, and adjacent to, bottom landing of stairs, and within a 60" horizontal arc that is less than 180-degrees from the bottom tread nosing (**R308.4.7**).

Exception: A Guard complying with **R312** is provided on the accessible side of the glass, and is located more than 18" away from the glass plane.

- Glazing **exempted** from requirements for hazardous locations are louvered windows and jalousies minimum 3/16" thick, maximum 48" long, with smooth exposed edges (**R308.2; R308.3; R308.4**).
- Site-built windows shall comply with **B2404**.
- Glazing in skylights shall comply with **R308.6**.

Fireplaces & Chimneys

Notice: Where a **Factory-Built Fireplace** and/or **Chimney or Fireplace Stove** is proposed as part of the **Addition**, see St. Louis County's **Residential Factory-Built Fireplaces, Chimneys, & Fireplace Stoves Checklist** for their requirements. Provide those requirements applicable to the new work in your submittal drawings and documents.

NOTICE: See the St. Louis County checklist **Residential Decorative Gas Log Appliances** for requirements.

NOTICE: See the St. Louis County checklist **Single Family Dwelling Design** for its drawings and documents submittal requirements for **All-Masonry Fireplaces and Chimneys**.

- Provide plan and section drawings of construction and assembly of prefab fireplace installation and its enclosing walls interior and exterior, and any new work hearth. Provide insulation in exterior walls.
- Extend chimney at least 3'-0" above the roof it penetrates. The chimney outlet shall be 2'-0" higher than any portion of the building within 10'-0" measured horizontally.
- Show and note chimney locations on the exterior elevations.
- Show and label chimney cricket construction required where the chimney side parallel to the roof ridge is more than 30". Show and label intersections, flashing, and counter-flashing (**R1003.20**).

Smoke & Carbon



Monoxide Alarms

- Additions require the dwelling's smoke and carbon monoxide alarm systems be provided throughout the residence as follows:
 1. Smoke alarms AC powered with battery backup, compliant with NFPA 72, and listed per UL 217 (**R314.1; R314.1.1**).
 2. Smoke alarms outside each sleeping area in the immediate vicinity of the bedrooms and in each sleeping room. Bedroom hallway alarm upstream from any return air grille. Smoke alarms on floor levels without bedrooms, including basements and habitable attics. In split level dwellings without a door between the levels, a smoke alarm placed on the upper level will cover an adjacent lower level that is less than 1 full story below the upper level. Provide a smoke alarm on both levels where a door intervenes between them, or the levels are 1 full story apart (**R314.3**).
 3. Interconnect devices so activation of 1 alarm will activate all alarms in the dwelling (**R314.4**).
 4. Carbon monoxide alarm outside each sleeping area and bedroom; between sleeping area and fuel-fired appliance in same room or in a bathroom that opens to sleeping area (**R315.2; R315.3**).
 5. Carbon monoxide alarms listed per UL 2034, wired to the dwelling's power system served from a commercial source, and with battery backup. Combination carbon monoxide/smoke alarms listed per UL 217 (**R315.1.1**).

General Mechanical, Fuel Gas & Heating, Ventilation, Air Conditioning (HVAC) Requirements



Notice: Where **Kitchen, Bath, or Laundry** new work is proposed as part of the **Addition**, see St. Louis County's **Kitchen/Bath/Laundry Remodel Checklist** for the **mechanical** requirements. Provide those requirements applicable to the new work in your submittal drawings and documents.

- **HVAC**
 1. Provide a heating/cooling plan layout of **an Addition less than 25% of the existing finished area of the house**, and show the Addition's proposed heating/cooling conditioning and distribution system. Show and label the locations and sizes of any new work ducts extending off of the existing residence HVAC system and their S/A & R/A diffusers.
 2. If **PTACs, mini-splits, baseboard units, or other acceptable heating/cooling systems** are proposed, provide plan layouts of their location(s) and complete plan/ sections of their installation into/through the building structure. Also submit heat gain/loss load calculations for the area to be served and the capacity with specifications for the heating/cooling system proposed.
 3. For an **Addition more than 25%** of the existing finished area of the house, provide the following:
 - a. **Electronic set** of the heating and air conditioning plans for the addition (separate system) or for entire house including proposed addition (combined system).
 - b. **Electronic set** of heat loss/heat gain calculations for the addition (separate system) or for the entire house including proposed addition (combined system).
 4. Provide listed and labeled household cooking appliances in accordance with manufacturer's installation instructions, and with anti-tip device where instructions require (**M1901.2**).
 5. For new or altered windows, show the sum of glass area is at least 8% of the floor area (use 3% for bathroom areas). Show at least 1/2 of this glass area is openable to outside air for unobstructed ventilation with screens included. **Exception:** Whole house mechanical ventilation system, and artificial light adequately replace natural ventilation and light required (**R303.1; M1507**).

Electrical Requirements



Show in the floor plan the location of all receptacles, switches, lights, ceiling fans, and exhaust fans. Note/identify the 240 volt receptacles/circuits. Draw curved lines from each wall switch to the lighting/outlets they each control (*B107.2.1; SLCO Policy*).

- **Notice:** Where **Kitchen, Bath, or Laundry** new work is proposed as part of the **Addition**, see St. Louis County's **Kitchen/Bath/Laundry Remodel Checklist** for the **electrical** requirements. Provide those requirements applicable to the new work in your plans.

Receptacles

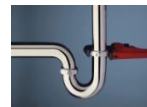
- Provide receptacles applicable to the new work as follows (*E210.52*):
 1. In habitable rooms (bathrooms not included), place receptacles so no space along a wall is more than 6'-0" from a receptacle. Fixed panels of glass doors and fixed room dividers are to be included in the wall space measured. Free standing bar-type counters or railings are examples of fixed room dividers. Also provide a receptacle in a wall 2'-0" wide or more.
 2. In hallways 10'-0" or more in length. A foyer is considered a hallway, for entry.
 3. Outdoor weather-proof receptacle at dwelling front and back and accessible from 6'-6" max. above adjoining grade (*E210.52(E)(1)*).
 4. A **floor outlet** must be within 18" of wall or fixed room divider and in a box listed for the purpose.
 5. A receptacle in a new work or changed attic, crawl space, basement or utility room used for storage or containing heating, air-conditioning or other equipment that requires service. Locate the receptacle near the attic entry and within 25'-0" of the equipment for service (**E_____**).
- Provide **ground-fault circuit-interrupter (GFCI) protection** to 125 volt, single phase, 15- and 20-ampere receptacles (*(E210-52(A)(B)(C)(D); E210.8(B)(2); E210.8(D)); SLCo Rev. Ord. E210.8*):
 1. At a wet bar, where the receptacle is within 6'-0" of a sink rim.
 2. Outdoors; must be weather-protected.
- Provide **arc-fault circuit interrupter (AFCI) protection** to 120-volt, single phase, 15- and 20-ampere receptacles in a bedroom (*SLCO Rev. Ord. E_____*).

Lighting

- Provide lighting applicable to new work (*E210.70; M1305.1.3.1; SLCO Rev. Ord. M1305.1.4.3*):
 1. A wall switch at the entrance to each habitable room added and/or changed, where the switch controls the room's lighting outlet. Required includes a kitchen, bathroom, hallway, each floor level of an interior stairway, exterior entryway, and at an exterior door.
 2. Occupancy sensors in habitable rooms, kitchen, or bathrooms may be provided in addition to a wall switch at the entryway, or the sensor is to be equipped with a manual override located at the customary wall switch location.
 2. A lighting outlet in a new work or changed attic, crawl space, basement or utility room used for storage or containing heating, air-conditioning or other equipment that requires service. Locate light switch at the room or space entry.
- 1. At new or changed interior stairs, provide at least 1 foot-candle of light measured at the centers of treads and landings. Stairs with 6 or more risers must have a wall light switch at each floor level, unless remote, central, or automatic light control is provided (*R303.7; E210.70*).

2. A light for and very near a new or changed exterior stair landing. Where a stair has multiple landings, light the landing closest to the house (*E210.70; SLCO Rev. Ord. R303.8*).
 3. Lighting in clothes closets (*E410.16*):
 - a. Locate fixtures on ceiling or on wall above door and from the nearest storage space as follows:
 - 1) 12" minimum clearance: Surface-mounted incandescent or LED fixtures.
 - 2) 6" minimum clearance: Surface mounted fluorescent fixtures and recessed fixtures.
 - 3) **Notice:** In clothes closets, incandescent fixtures with open or partially enclosed lamps and pendant fixtures are prohibited.
- Provide Insulation Contact (I.C.) -rated luminaires, labeled with an air leakage limit of 2.0 cfm per ASTM E283, where recessed into the building thermal envelope. Their housing may be sealed with a gasket or caulk at the interior finish ceiling or wall (*R302.14; SLCO Rev. Ord. N1102.4.5*).

Plumbing Requirements



- **Notice:** Where **Kitchen, Bath, or Laundry** new work is proposed as part of the **Addition**, provide plumbing drawings and notes as required in St. Louis County's **Kitchen/Bath/Laundry Remodel Checklist**.

Exterior

- **NOTICE:** Where an additional bedroom is proposed to a dwelling with a septic system, a separate permit application with drawings and documents must be submitted to St. Louis County Plumbing Inspections. Click on the link following to access Plumbing Inspections' permit application submittal requirements on St. Louis County's website - **Septic System Application** – or go to <https://stlouiscountymo.gov/st-louis-county-departments/transportation-and-public-works/residential-building/>. Plumbing Inspections will verify or require the existing septic system capacity be adequately sized with the additional bedroom.
- Provide gutters and downspouts are provided on roof overhangs projecting less than 36". Note downspouts shall not connect to a sanitary sewer (*P1101.3; P1103.2; P1103.3; SLCO Rev. Ord. P1101.12.1; P1101.16.2; SLCO Policy*).
- Note any foundation drain tiles provided shall not connect to a sanitary sewer.

Interior

- Show and label in the finish plans the locations of a proposed kitchen sink, dishwasher, refrigerator, bar sink, lavatory, water closet, bathtub, shower, hot water heater, floor drain, hose bib, plumbing chase, or any other fixture proposed (*B107.2.1; SLCO Rev. Ord. P1103.P-136; SLCO Policy*).
- Provide drawings and notes as required in the Residential Kitchen/Bath/Laundry Remodel Checklist.

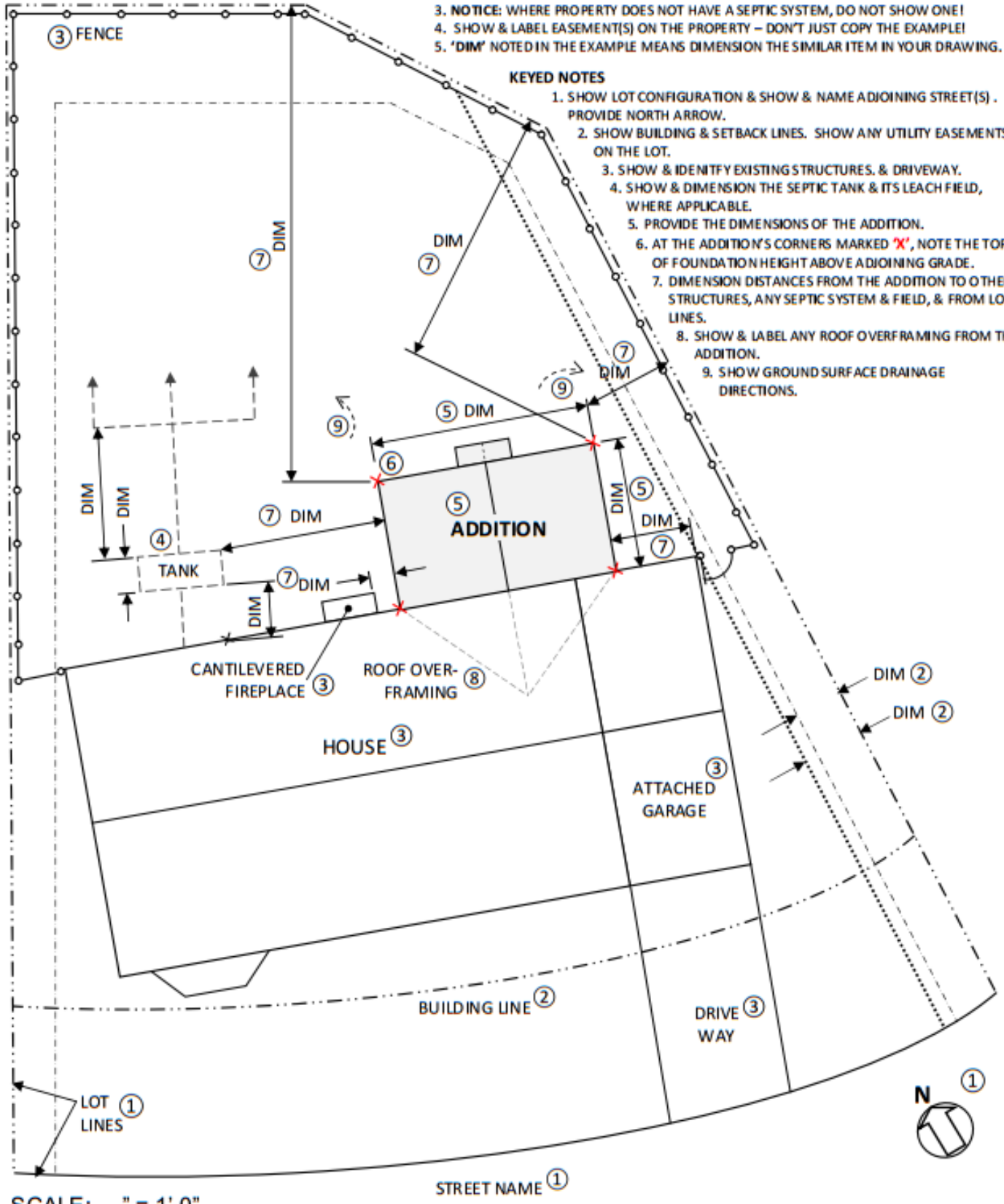
Notice: The preceding requirements apply to most simple **Habitable Room Addition** projects for single-family residences. However, the Plan Reviewer may determine the actual new work shown in the drawings requires additional information be submitted to verify code compliance of the new work proposed. The above requirements are based on the construction codes in effect at the time this checklist was last updated. Please be aware St. Louis County Code Enforcement updates its construction codes every few years.

INSTRUCTIONS

1. SHOW & LABEL ON YOUR SITE PLAN THE LAYOUT & LOCATIONS OF THE ITEMS SHOWN & LABELED IN THIS EXAMPLE.
2. DRAW TO A SCALE & PROVIDE AN ARROW THAT SHOWS THE DIRECTION OF NORTH.
3. **NOTICE:** WHERE PROPERTY DOES NOT HAVE A SEPTIC SYSTEM, DO NOT SHOW ONE!
4. SHOW & LABEL EASEMENT(S) ON THE PROPERTY – DON'T JUST COPY THE EXAMPLE!
5. 'DIM' NOTED IN THE EXAMPLE MEANS DIMENSION THE SIMILAR ITEM IN YOUR DRAWING.

KEYED NOTES

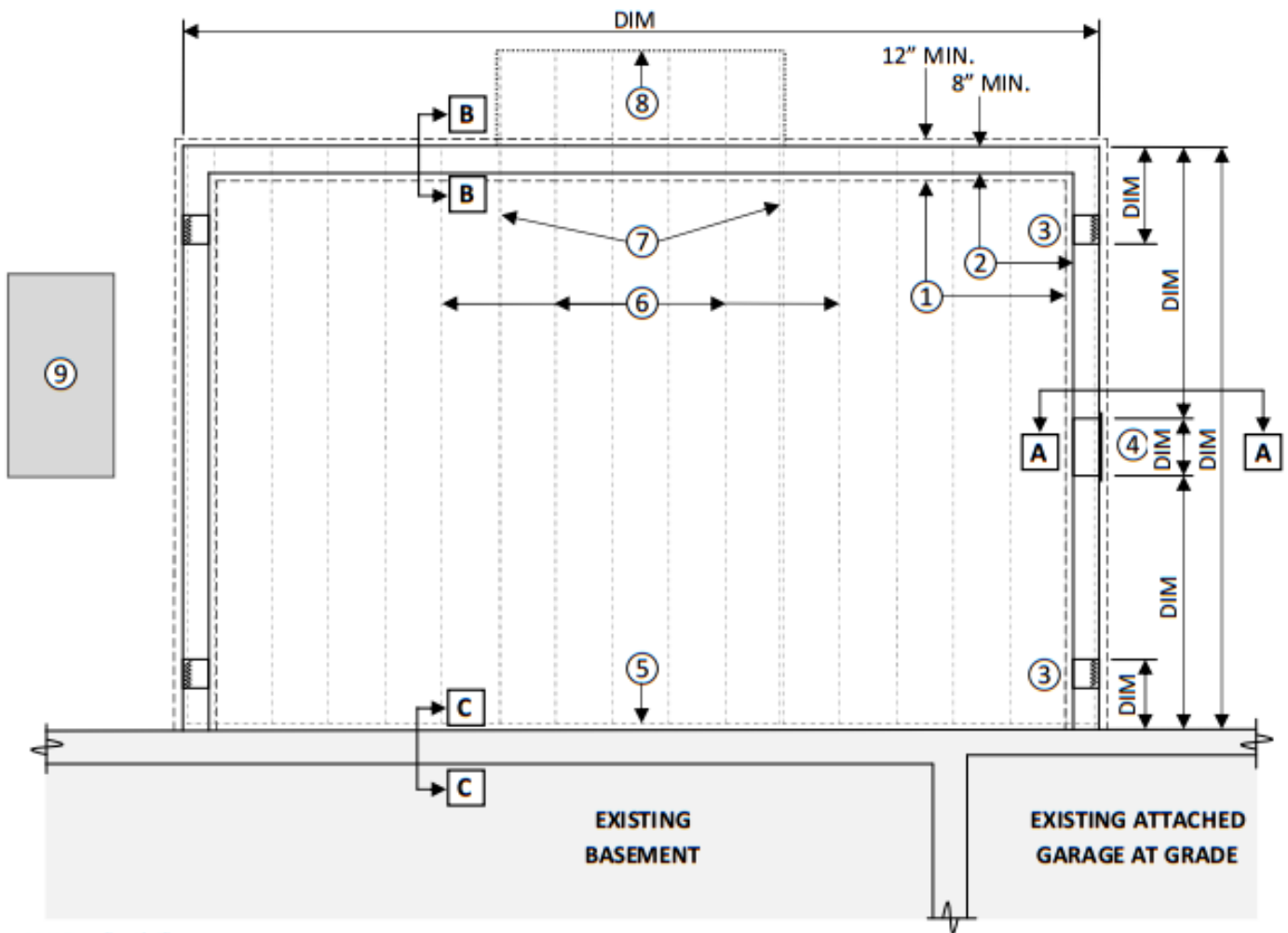
1. SHOW LOT CONFIGURATION & SHOW & NAME ADJOINING STREET(S). PROVIDE NORTH ARROW.
2. SHOW BUILDING & SETBACK LINES. SHOW ANY UTILITY EASEMENTS ON THE LOT.
3. SHOW & IDENTIFY EXISTING STRUCTURES, & DRIVEWAY.
4. SHOW & DIMENSION THE SEPTIC TANK & ITS LEACH FIELD, WHERE APPLICABLE.
5. PROVIDE THE DIMENSIONS OF THE ADDITION.
6. AT THE ADDITION'S CORNERS MARKED 'X', NOTE THE TOP OF FOUNDATION HEIGHT ABOVE ADJOINING GRADE.
7. DIMENSION DISTANCES FROM THE ADDITION TO OTHER STRUCTURES, ANY SEPTIC SYSTEM & FIELD, & FROM LOT LINES.
8. SHOW & LABEL ANY ROOF OVERFRAMING FROM THE ADDITION.
9. SHOW GROUND SURFACE DRAINAGE DIRECTIONS.



SCALE: ___" = 1'-0"

STREET NAME (1)

EXAMPLE SITE PLAN FOR AN ADDITION



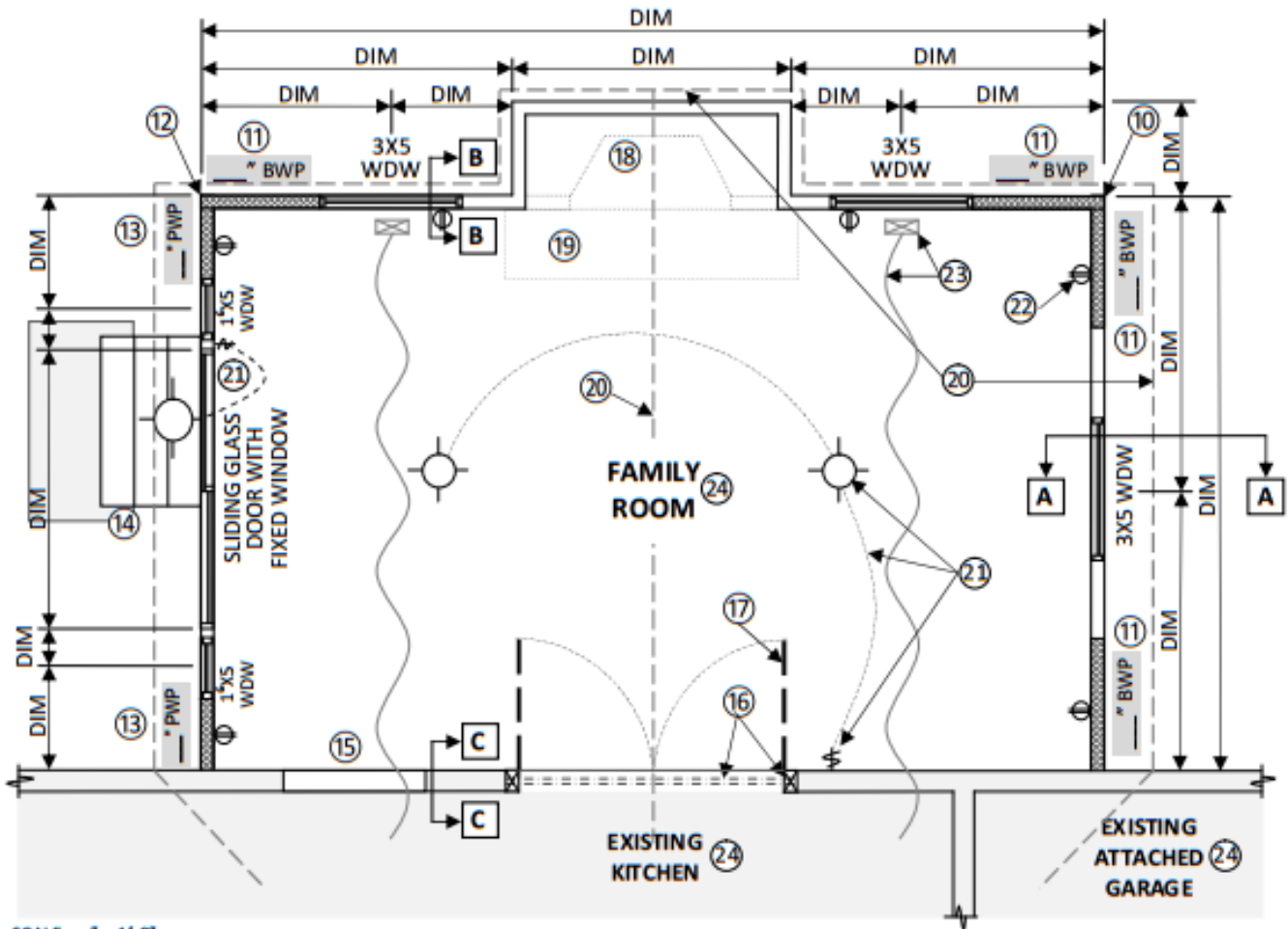
SCALE: $\frac{1}{4}'' = 1'-0''$

KEYED NOTES

FOUNDATION & FLOOR FRAMING

1. **NOTICE:** ALL FRAMING MUST BE MINIMUM #2 GRADE OR BETTER, AS REQUIRED TO ADEQUATELY SUPPORT LOADS.
2. MINIMUM 6" X 12" FOOTING AT LEAST 30" BELOW GRADE FOR 1-STORY ADDITION.
3. MINIMUM 8" THICK FROSTWALL/FOUNDATION.
4. PROVIDE NATURAL VENTILATION OPENINGS WITHIN 3'-0" OF CORNERS FOR CRAWLSPACE.
5. MINIMUM 16" X 24" FOUNDATION OPENING REQUIRED FOR CRAWLSPACE ACCESS.
6. PROVIDE LEDGER BOARD SIZE. MUST BE MINIMUM #2 SOLID SAWN LUMBER THAT AT LEAST MATCHES SIZE OF FLOOR JOISTS. SEE ST. LOUIS COUNTY'S **RESIDENTIAL DECKS CHECKLIST** FOR FURTHER INFORMATION.
7. PROVIDE SIZE & ON-CENTER SPACING OF FLOOR JOISTS.
8. PROVIDE QUANTITY OF BUILT-UP FLOOR JOISTS & THEIR FASTENER TYPE & SPACING REQUIRED TO ADEQUATELY SUPPORT CANTILEVER LOADS.
9. PROVIDE MINIMUM 4" THICK CONCRETE PAD ON-GRADE AT BASE OF EXTERIOR STAIRS. SEE **ST. LOUIS COUNTY'S RESIDENTIAL DECKS CHECKLIST** FOR FURTHER INFORMATION.

EXAMPLE FOUNDATION & FRAMING PLAN



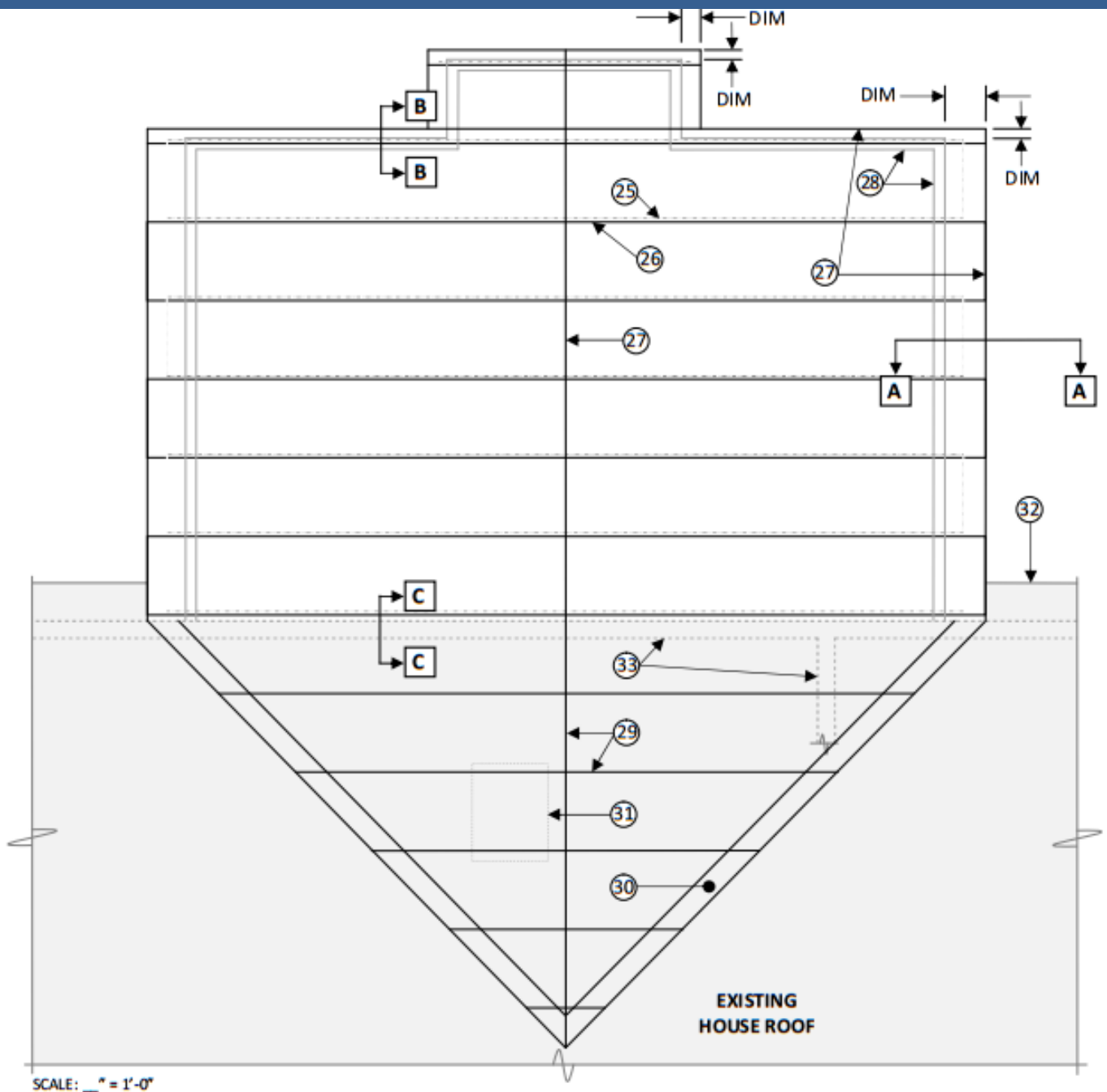
SCALE: $\frac{1}{4}'' = 1'-0''$

KEYED NOTES

FINISH PLAN

10. SHOW CORNER FRAMING FROM BASIC BRACING METHOD, & PROVIDE CORNER DETAIL IN DRAWING SUBMITTAL. SEE ST. LOUIS COUNTY'S **BASIC BRACING METHOD CHECKLIST** FOR DETAILS.
11. PROVIDE LENGTH OF BRACED WALL PANEL (BWP). SEE ST. LOUIS COUNTY'S **BASIC BRACING METHOD CHECKLIST** FOR PANEL LENGTH REQUIREMENTS.
12. SHOW CORNER FRAMING FOR BASIC PORTAL WALL FROM THE BASIC BRACING METHOD, & PROVIDE CORNER DETAIL IN DRAWING SUBMITTAL. SEE ST. LOUIS COUNTY'S **BASIC BRACING METHOD CHECKLIST** FOR DETAILS.
13. PROVIDE LENGTH OF BASIC PORTAL WALL PANEL (PWP). SEE ST. LOUIS COUNTY'S **BASIC BRACING METHOD CHECKLIST** FOR BASIC PORTAL WALL PANEL LENGTH REQUIREMENTS.
14. EXTERIOR STAIRS. PROVIDE CONSTRUCTION DETAILS IN DRAWING SUBMITTAL. SEE ST. LOUIS COUNTY'S **RESIDENTIAL DECKS CHECKLIST** FOR WOOD STAIRS CONSTRUCTION DETAILS.
15. PROVIDE CONSTRUCTION DETAILS OF INFILL OF OPENINGS IN EXISTING WALLS.
16. SHOW & LABEL IN PLAN & SECTION HEADER & JACK STUD FRAMING SIZE, QUANTITY, & GRADE(S).
17. SHOW & LABEL TYPE(S) & SIZE(S) OF DOORS.
18. SHOW & LABEL FIREPLACE TYPE & SIZE IN PLAN, & PROVIDE CONSTRUCTION/ASSEMBLY SECTION. SUBMIT 2 COMPLETE MANUFACTURER'S INSTALLATION MANUALS FOR PREFABRICATED UNITS. SEE ST. LOUIS COUNTY'S **FACTORY-BUILT FIREPLACES, CHIMNEYS & FIREPLACE STOVES CHECKLIST** FOR FURTHER
19. SHOW & LABEL THE MATERIAL AND SIZE OF ANY FIREPLACE HEARTH. SEE **CHECKLIST** NOTED IN KEYED NOTE 18.
20. SHOW & LABEL OUTLINE OF ROOF PERIMETER/OVERHANG & THE ROOF RIDGE.
21. SHOW & LABEL LIGHTS & SWITCHES & LINK EACH SWITCH TO THE LIGHTS THEY OPERATE.
22. SHOW & LABEL ELECTRICAL OUTLETS.
23. SHOW & LABEL LOCATIONS & SIZES OF BRANCH DUCT EXTENSIONS & THEIR SUPPLY AIR GRILLES.
24. LABEL ROOMS & SPACES BY THEIR FUNCTION.

EXAMPLE FINISH PLAN



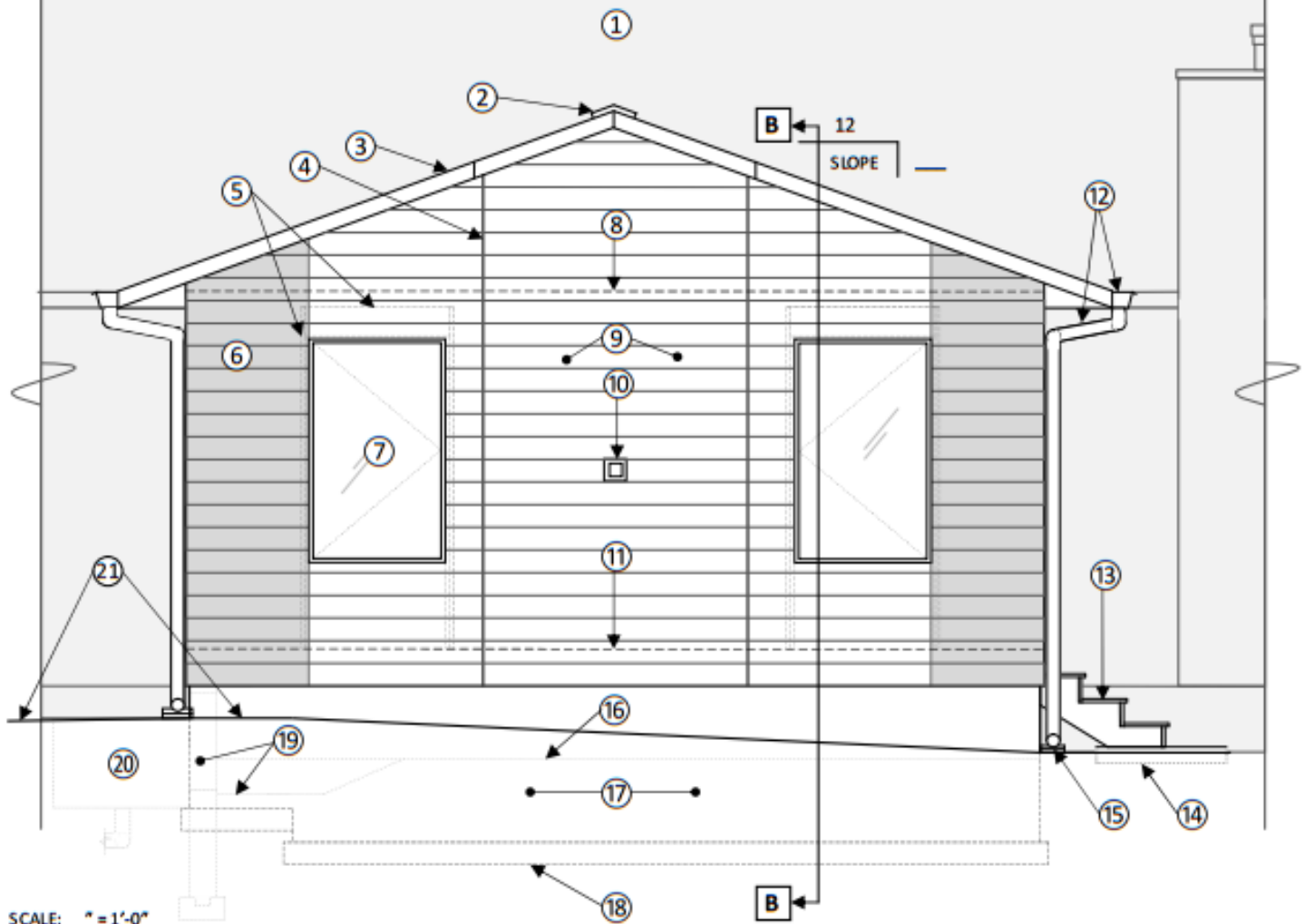
SCALE: $\frac{1}{4}'' = 1'-0''$

KEYED NOTES

ROOF FRAMING PLAN

- | | |
|--|--|
| <p>25. SHOW & LABEL CEILING JOIST SIZE. CEILING JOIST FASTENS TO RAFTER AT/OVER EXTERIOR WALL FRAMING.</p> <p>26. SHOW & LABEL RAFTER SIZE & ON-CENTER SPACING.</p> <p>27. SHOW & LABEL OUTLINE OF ROOF PERIMETER/OVERHANG & THE ROOF RIDGE.</p> <p>28. SHOW OUTLINE OF EXTERIOR WALLS BELOW.</p> <p>29. SHOW & LABEL SIZES & ON-CENTER SPACING OF OVERFRAMING RIDGE & RAFTERS.</p> <p>30. SHOW & LABEL SIZE(S) OF THE 2X NAILER PLATE(S) UPON WHICH RAFTER OVERFRAMING SHALL BEAR. NAILER PLATES SHALL BE AS WIDE AS RAFTER CUT BEARING ON THE PLATE.</p> <p>31. SHOW & LABEL MINIMUM 16" X 24" ACCESS OPENING TO OVERFRAMING SPACE IS PROVIDED IN EXISTING ROOF.</p> | <p>32. SHOW EDGE/OVERHANG OF EXISTING ROOF ADJOINING ADDITION.</p> <p>33. SHOW OUTLINE OF EXISTING HOUSE WALLS TO ORIENT LOCATION OF ROOF FRAMING.</p> |
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EXAMPLE ROOF FRAMING PLAN



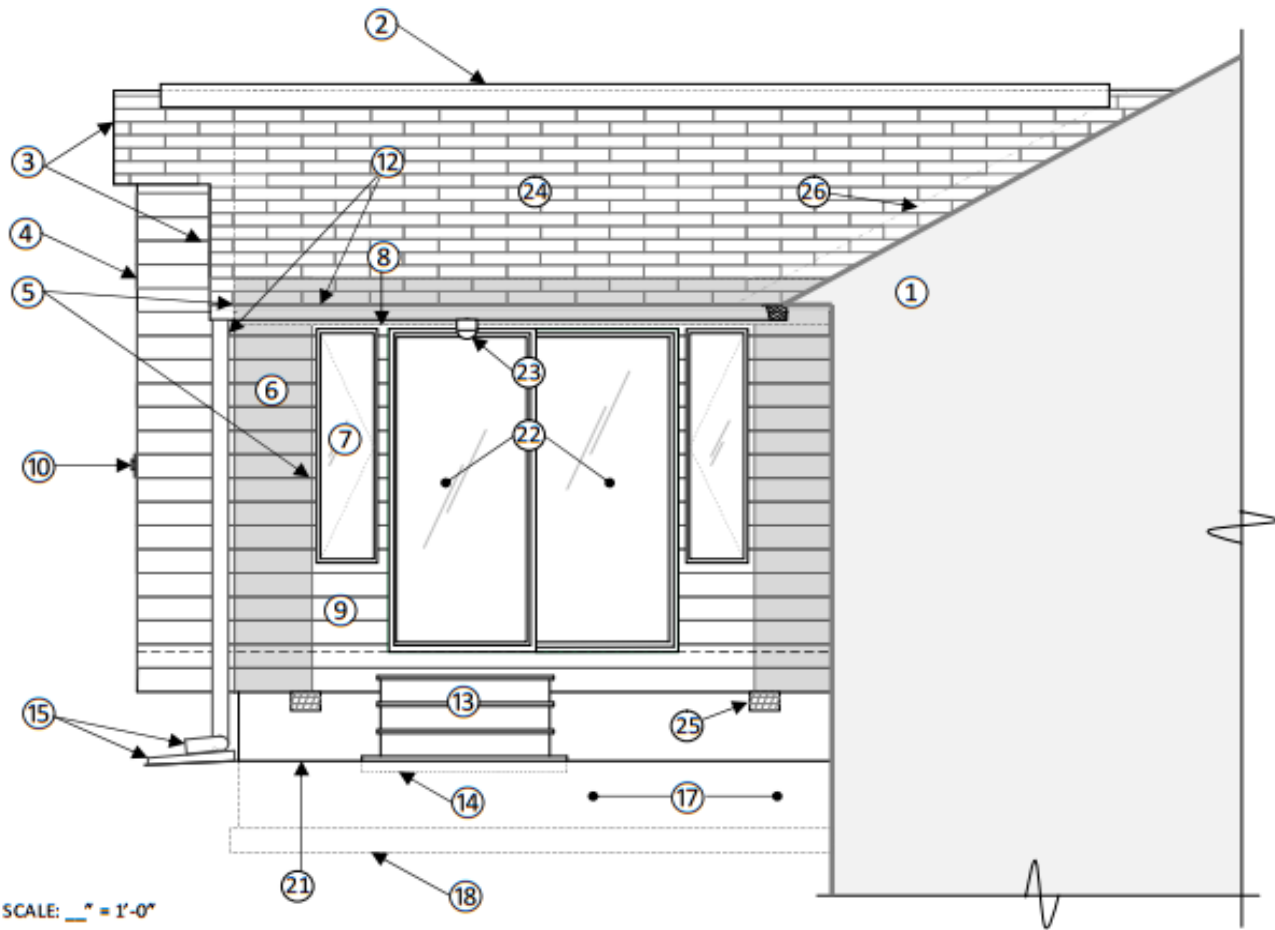
KEYED NOTES

ADDITION END ELEVATION

SHOW & LABEL ITEMS LOCATED IN THE ELEVATIONS. SIMILAR TO THAT PROVIDED IN THE EXAMPLE ELEVATIONS.

1. EXISTING HOUSE TO WHICH ADDITION IS ATTACHED.
2. ROOF CONTINUOUS RIDGE VENT. GABLE END VENT MAY ALSO BE USED IN PLACE OF THE RIDGE VENT.
3. ROOF RAKE BOARD MUST. PROVIDE WITH A CONTINUOUS DRIP EDGE.
4. LINE OF CANTILEVERED EXTERIOR WALL.
5. HEADER, JACK & KING STUDS EACH SIDE OF HEADER. NOTE THE QUANTITY, SIZE, & GRADE OF HEADER MEMBERS. NOTE JACK STUD QUANTITY FOR EACH SIDE OF OPENING.
6. BRACED WALL PANEL. NOTE WIDTH OF EACH PANEL ON THE ELEVATIONS & PLANS.
7. WINDOW. SHOW THE WINDOW TYPE & NOTE ITS DIMENSIONS.
8. INTERIOR CEILING LINE.
9. SIDING AS EXTERIOR FINISH. NOTE FINISH MATERIAL & SIZE.
10. THROUGH-WALL VENT OPENING FOR GAS FIREPLACE.
11. INTERIOR FLOOR LINE.
12. GUTTER & DOWNSPOUT.
13. EXTERIOR WOOD STAIRS. STAIRS HEIGHT MORE THAN 30" REQUIRES GUARDRAIL BOTH SIDES.
14. MINIMUM 4" THICK CONCRETE SLAB AT STAIRS AT GRADE.
15. SPLASHBLOCK AT DOWNSPOUT OUTLET.
16. CRAWLSPACE FLOOR.
17. MINIMUM 8" THICK CONCRETE FOUNDATION/FROSTWALL.
18. MINIMUM 6" X 12" CONCRETE FOOTING.
19. SLOPE & LEVEL CRAWLSPACE FLOOR SO IT IS LOWER THAN BOTTOM OF ACCESS OPENING.
20. MINIMUM 30" X 36" CLEAR WELL AREA AT ACCESS OPENING TO CRAWLSPACE.
21. TOP-OF-GRADE.

EXAMPLE ADDITION END ELEVATION



SCALE: 1/4" = 1'-0"

KEYED NOTES

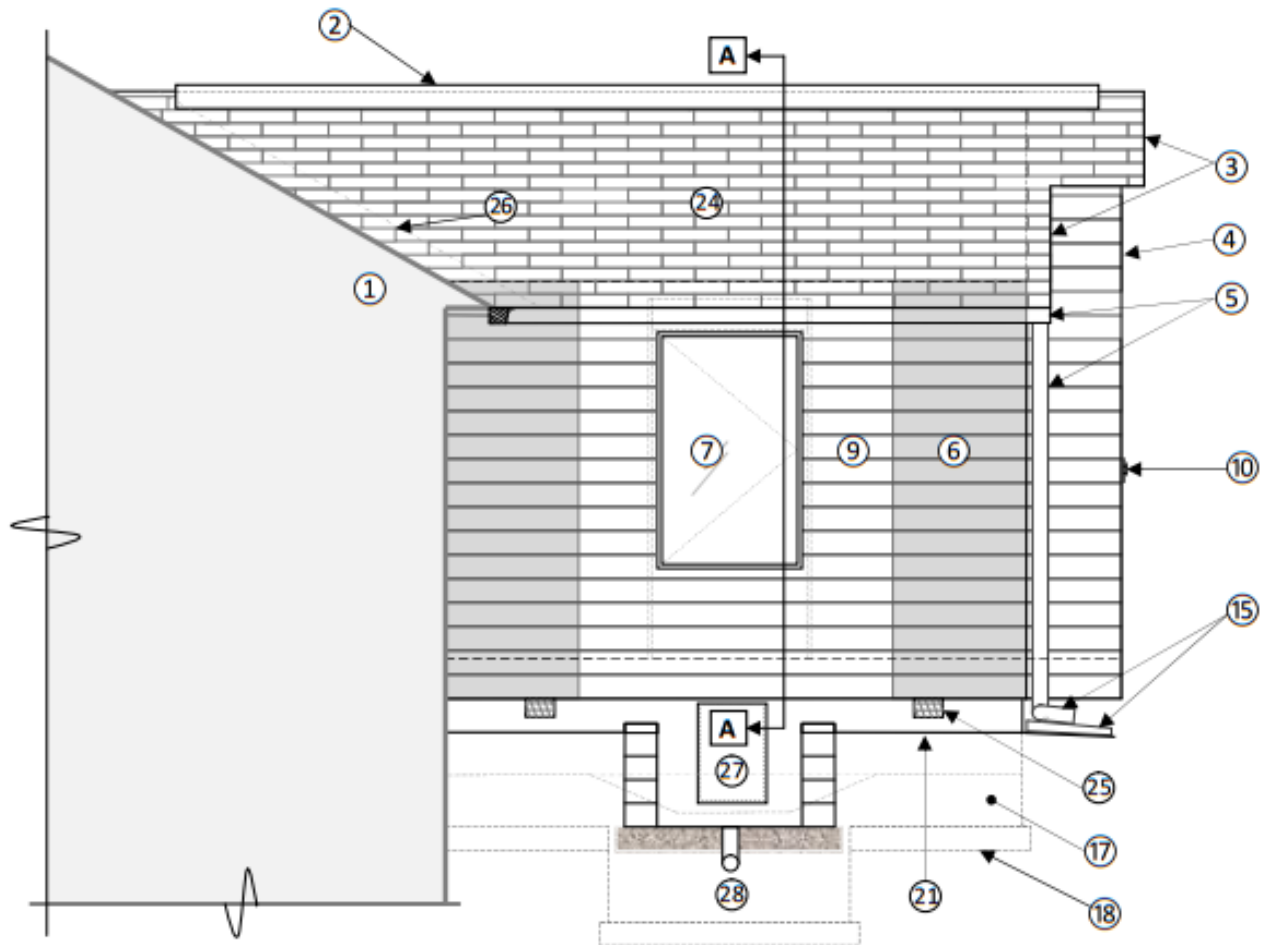
ADDITION LEFT ELEVATION

SHOW & LABEL ITEMS LOCATED IN THE ELEVATIONS. SIMILAR TO THAT PROVIDED IN THE EXAMPLE ELEVATIONS.

- 1. EXISTING HOUSE TO WHICH ADDITION IS ATTACHED.
- 2. ROOF CONTINUOUS RIDGE VENT. GABLE END VENT MAY ALSO BE USED IN PLACE OF THE RIDGE VENT.
- 3. ROOF RAKE BOARD MUST. PROVIDE WITH A CONTINUOUS DRIP EDGE.
- 4. LINE OF CANTILEVERED EXTERIOR WALL.
- 5. HEADER, JACK & KING STUDS EACH SIDE OF HEADER. NOTE THE QUANTITY, SIZE, & GRADE OF HEADER MEMBERS. NOTE JACK STUD QUANTITY FOR EACH SIDE OF OPENING.
- 6. BRACED WALL PANEL. NOTE WIDTH OF EACH PANEL ON THE ELEVATIONS & PLANS.
- 7. WINDOW. SHOW THE WINDOW TYPE & NOTE ITS DIMENSIONS.
- 8. INTERIOR CEILING LINE.
- 9. SIDING AS EXTERIOR FINISH. NOTE FINISH MATERIAL & SIZE.
- 10. THROUGH-WALL VENT OPENING FOR GAS FIREPLACE.
- 11. INTERIOR FLOOR LINE.
- 12. GUTTER & DOWNSPOUT.

- 13. EXTERIOR WOOD STAIRS. STAIRS HEIGHT MORE THAN 30" REQUIRES GUARDRAIL BOTH SIDES.
- 14. MINIMUM 4" THICK CONCRETE SLAB AT STAIRS AT GRADE.
- 15. SPLASHBLOCK AT DOWNSPOUT OUTLET.
- 16. CRAWLSPACE FLOOR.
- 17. MINIMUM 8" THICK CONCRETE FOUNDATION/FROSTWALL.
- 18. MINIMUM 6" X 12" CONCRETE FOOTING.
- 19. SLOPE & LEVEL CRAWLSPACE FLOOR SO IT IS LOWER THAN BOTTOM OF ACCESS OPENING.
- 20. MINIMUM 30" X 36" CLEAR WELL AREA AT ACCESS OPENING TO CRAWLSPACE.
- 21. TOP-OF-GRADE.
- 22. 6'-0" WIDE SLIDING GLASS DOOR ASSEMBLY.
- 23. EXTERIOR LIGHTING AT ENTRANCE.
- 24. ASPHALT SHINGLES AS ROOF FINISH.
- 25. CRAWLSPACE VENTS WITHIN 3'-0" OF CORNERS.
- 26. CORROSION-RESISTANT FLASHING UNDER ROOF SHINGLES AT VALLEYS & ROOF INTERSECTIONS.

EXAMPLE ADDITION LEFT ELEVATION



SCALE: $\frac{1}{4}'' = 1'-0''$

KEYED NOTES

ADDITION RIGHT ELEVATION

SHOW & LABEL ITEMS LOCATED IN THE ELEVATIONS. SIMILAR TO THAT PROVIDED IN THE EXAMPLE ELEVATIONS.

1. EXISTING HOUSE TO WHICH ADDITION IS ATTACHED.
2. ROOF CONTINUOUS RIDGE VENT. GABLE END VENT MAY ALSO BE USED IN PLACE OF THE RIDGE VENT.
3. ROOF RAKE BOARD MUST. PROVIDE WITH A CONTINUOUS DRIP EDGE.
4. LINE OF CANTILEVERED EXTERIOR WALL.
5. HEADER, JACK & KING STUDS EACH SIDE OF HEADER. NOTE THE QUANTITY, SIZE, & GRADE OF HEADER MEMBERS. NOTE JACK STUD QUANTITY FOR EACH SIDE OF OPENING.
6. BRACED WALL PANEL. NOTE WIDTH OF EACH PANEL ON THE ELEVATIONS & PLANS.
7. WINDOW. SHOW THE WINDOW TYPE & NOTE ITS DIMENSIONS.
8. INTERIOR CEILING LINE.
9. SIDING AS EXTERIOR FINISH. NOTE FINISH MATERIAL & SIZE.
10. THROUGH-WALL VENT OPENING FOR GAS FIREPLACE.
11. INTERIOR FLOOR LINE.
12. GUTTER & DOWNSPOUT.
13. EXTERIOR WOOD STAIRS. STAIRS HEIGHT MORE THAN 30" REQUIRES GUARDRAIL BOTH SIDES.
14. MINIMUM 4" THICK CONCRETE SLAB AT STAIRS AT GRADE.
15. SPLASHBLOCK AT DOWNSPOUT OUTLET.
16. CRAWLSPACE FLOOR.
17. MINIMUM 8" THICK CONCRETE FOUNDATION/FROSTWALL.
18. MINIMUM 6" X 12" CONCRETE FOOTING.
19. SLOPE & LEVEL CRAWLSPACE FLOOR SO IT IS LOWER THAN BOTTOM OF ACCESS OPENING.
20. MINIMUM 30" X 36" CLEAR WELL AREA AT ACCESS OPENING TO CRAWLSPACE.
21. TOP-OF-GRADE.
22. 6'-0" WIDE SLIDING GLASS DOOR ASSEMBLY.
23. EXTERIOR LIGHTING AT ENTRANCE.
24. ASPHALT SHINGLES AS ROOF FINISH.
25. CRAWLSPACE VENTS WITHIN 3'-0" OF CORNERS.
26. CORROSION-RESISTANT FLASHING UNDER ROOF SHINGLES AT VALLEYS & ROOF INTERSECTIONS.
27. MINIMUM 16" X 24" VERTICAL ACCESS OPENING TO CRAWLSPACE.
28. DRAIN FLOOR OF ACCESS WELL TO DAYLIGHT OR TO SUMP.

EXAMPLE ADDITION RIGHT ELEVATION

ASPHALT SHINGLES ON
MIN. TYPE I UNDERLAYMENT ON
3/4" NOMINAL PLYWOOD OR OSB SHEATHING ON
2X SOLID SAWN FRAMING

MIN. 1" AIR GAP

KEYED NOTES

1. SEE PLANS AND ELEVATIONS FOR REFERENCE TO THE LOCATIONS OF THE WALL ASSEMBLY SECTION CUTS.

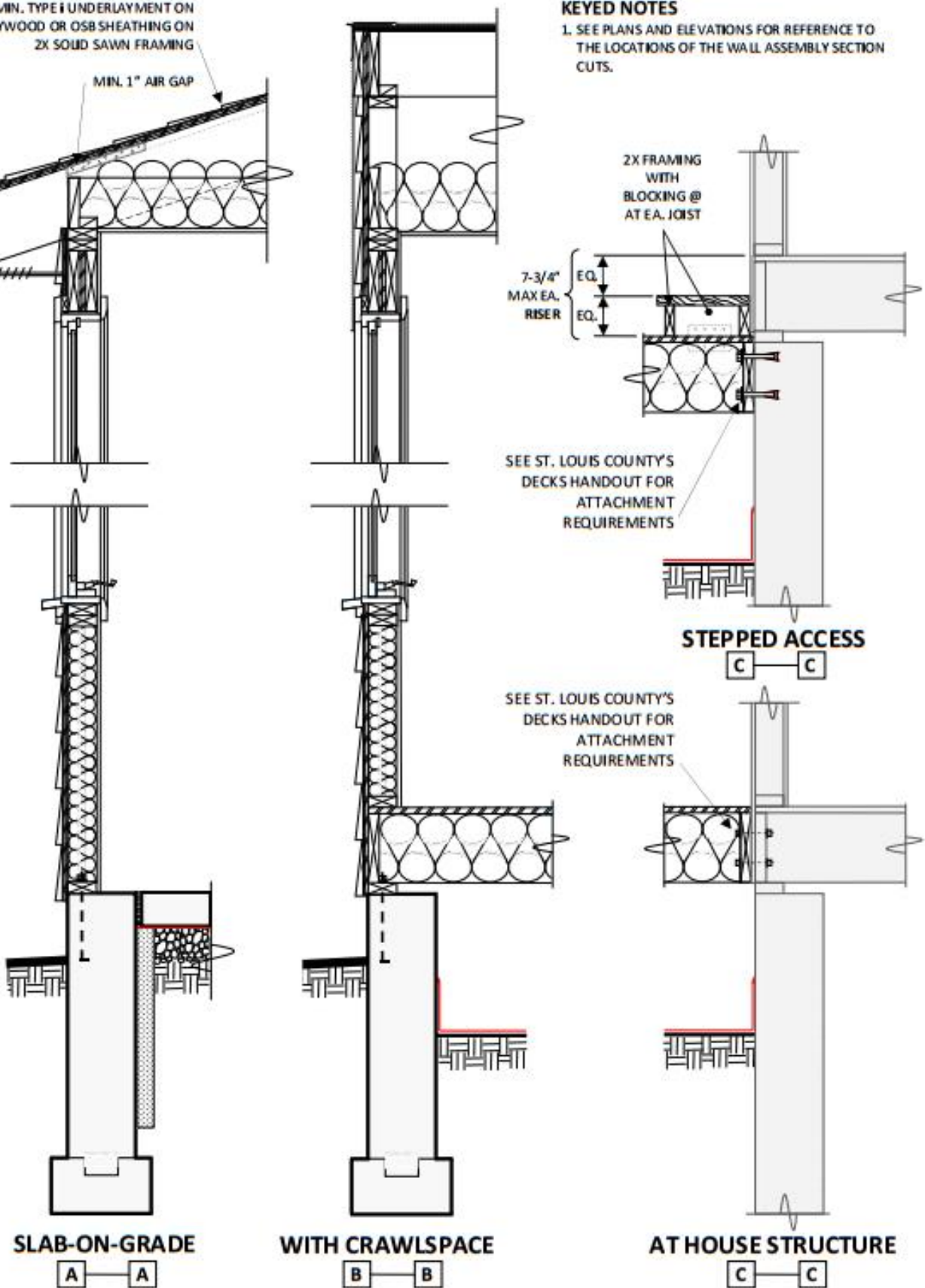
2X FRAMING
WITH
BLOCKING @
AT EA. JOIST

7-3/4"
MAX EA.
RISER

SEE ST. LOUIS COUNTY'S
DECKS HANDOUT FOR
ATTACHMENT
REQUIREMENTS

STEPPED ACCESS

SEE ST. LOUIS COUNTY'S
DECKS HANDOUT FOR
ATTACHMENT
REQUIREMENTS



SLAB-ON-GRADE

A — A

WITH CRAWLSPACE

B — B

AT HOUSE STRUCTURE

C — C

SCALE: 1/4" = 1'-0"

EXAMPLE CONSTRUCTION-ASSEMBLY SECTIONS