

## ADDITION

This document is a guide to the most common questions and problems. It is not intended, nor shall it be considered a complete set of requirements.

### Building Permits

- A. **Survey and scale drawing** must be submitted by the owner or applicant. The following must be indicated:
  1. Lot size and all adjacent public streets.
  2. Exact location and dimensions of all existing and proposed buildings and impervious surfaces on lot.
  3. Owner must be able to show corner irons on the site to the satisfaction of the building inspector.
  4. Statement of elevation where elevation is not shown on survey.
- B. **Two sets of plans** – Submitted plans should have sufficient detail to build the addition from them. One set of approved plans must be on site and accessible at all times during construction, the second set on file with the Building Department.
- C. **Permit application** must be completed. Be sure to include contact name and daytime phone.
- D. **Certificate of Occupancy** is issued to owner upon completion and approval of the Building Official. Addition must not be occupied until the Certificate of Occupancy is received.
- E. **Fees**
  1. **Building Permit fee** is based on a published fee schedule available at the Building and Inspection Division.
  2. **Surcharge** on all building permits is required by the State of Minnesota and is calculated:  $\$0.0005 \times \text{valuation up to } \$1,000,000$ .
  3. **Plan Checking fee** equal to 65% of the building permit fee is required when valuation of proposed construction exceeds \$1,000.00 and a plan is required to be submitted.

### Setback Requirements

Setbacks in Feet				
	Front	Side	Side (adjacent to street)	Rear
Dwelling	30	10	30	30
Screen Porch	30	10	30	30
3-Season Porch	30	10	30	30

Note: The maximum area of the front or rear yard that may be used for parking or driveway purposes is 30 percent.

## Framing Requirements

- A. **Base Plates** on concrete shall be of approved treated wood.
- B. **Studs** Minimum 2 x 4 studs, not more than 10' in length, single top plate supporting ceiling and roof only, may be spaced 24" O.C. with framing above centered over studs.
- C. **Rafters and roof sheathing** shall be designed for a 35 lbs./sq. ft. snow load.
1. Rafters shall be nailed to adjacent ceiling joists to form a continuous tie between exterior walls when such joists are parallel to the rafters. When not parallel, rafters shall be tied to 2 x 2 minimum cross ties. Rafter ties shall not be spaced more than four feet O.C.
  2. Trusses must be engineered by an approved manufacturer. Truss specs must be on-site.
- D. **Allowable Header Spans** for openings in outside bearing walls on one story frame buildings, assuming a 16' wide addition and a 2' overhang. Spans are both Spruce-Pine-Fir and Hem-Fir.

Quantity	Size in Inches	Maximum Span of Header
2	2 x 4	3 feet
2	2 x 6	4 feet
2	2 x 8	6 feet
2	2 x 10	7 feet
2	2 x 12	8 feet

- E. **Allowable Rafter Spans** for roofs with a pitch of 3-12 or greater: assumes a "dead load" of seven pounds per square foot (PSF) and a deflection limit of 1/180 (span in inches divided by 180).

Spruce-Pine-Fir (SPF) #2 or better

Rafter Size	Ceiling Type					
	Vaulted		Flat		Vaulted	
	12" O.C.	12" O.C.	16" O.C.	16" O.C.	24" O.C.	24" O.C.
2 x 6	12'-8"	11'-9"	10'-2"	10'-2"	9'-0"	8'-4"
2 x 8	16'-1"	14'-10"	12'-11"	12'-11"	11'-5"	10'-6"
2 x 10	19'-8"	18'-2"	15'-9"	15'-9"	13'-11"	12'-10"
2 x 12	22'-9"	21'-1"	18'-3"	18'-3"	16'-1"	14'-11"

Hem-Fir #2 or better

Rafter Size	Ceiling Type					
	Vaulted		Flat		Vaulted	
	12" O.C.	12" O.C.	16" O.C.	16" O.C.	24" O.C.	24" O.C.
2 x 6	12'-6"	11'-5"	10'-10"	10'-0"	8'-10"	8'-2"
2 x 8	15'-10"	14'-8"	13'-9"	12'-8"	11'-3"	10'-4"
2 x 10	19'-4"	17'-11"	16'-9"	15'-6"	13'-8"	12'-8"
2 x 12	22'-6"	29'-9"	19'-5"	18'-0"	15'-11"	14'-8"

## F. Allowable Ceiling Joist Spans

Assumes limited attic storage (20 PSF) and drywall ceilings.

Joist Size	Spruce-Pine-Fir #2		Hem-Fir #2	
	16" O.C.	24" O.C.	16" O.C.	24" O.C.
2 x 4	8'-7"	7'-2"	8'-4"	7'-1"
2 x 6	12'-10"	10'-6"	12'-8"	10'-4"
2 x 8	16'-3"	13'-3"	16'-0"	13'-1"
2 x 10	19'-10"	16'-3"	19'-7"	16'-0"

## G. Allowable Floor Joist Spans

Joist Size	Spruce-Pine-Fir #2			Hem-Fir #2		
	12" O.C.	16" O.C.	24" O.C.	12" O.C.	16" O.C.	24" O.C.
2 x 6	10'-3"	9'-4"	8'-1"	10'-0"	9'-1"	7'-11"
2 x 8	13'-6"	12'-3"	10'-3"	13'-2"	12'-0"	10'-2"
2 x 10	17'-3"	15'-5"	12'-7"	16'-10"	15'-2"	12'-5"
2 x 12	20'-7"	17'-10"	14'-7"	20'-4"	17'-7"	14'-4"

## Sheathing

**Subfloor and Roof Sheathing** may be of approved wood structural panels (plywood, oriented strand board). Panels must be installed continuous over two or more spans with long dimension perpendicular to supports.

Panel ID Index	Plywood Thickness In Inches	Maximum in Inches		
		Roof Span (with Edges)		Floor Span
		Blocked	Unblocked	
24/0	3/8	24	16	0
24/0	1/2	24	24	0
30/12	5/8	30	26	12
32/16	1/2, 5/8	32	28	16
36/16	3/4	36	30	16

Refer to UBC Table 23-II-E-1 for more complete information.

**Wall Sheathing** may be of approved plywood, fiber board, gypsum, hardboard panels, or 1" boards which would require diagonal bracing at corners and at 25' intervals. Fiberboard may not be used where studs are 24" O.C.

## Light, Ventilation and Ceiling Height

All habitable rooms shall have a window area equal to at least 8 percent of the floor area. One half the window shall be operable. Windows shall open directly onto a street, public alley, yard, or court located on the same lot as the building.

To determine light and ventilation, any room may be considered a portion of an adjoining room when half of the area of the common wall is open and unobstructed. The opening must be greater than one-tenth of the interior room's floor area or 25 square feet, whichever is greater.

Minimum ceiling height for habitable spaces is 7 feet. Kitchens, hallways, and bathrooms may have ceilings at 7'-0".

## **Energy Code Requirements**

The Minnesota State Building Code (which incorporates the 2012 edition of the International Residential Code by reference) is mandatory, statewide, and applicable to all residential and commercial construction. The updated Residential Energy Code became effective February 14, 2012. For more information, check the Minnesota Department of Labor and Industry construction codes and licensing web page for Chapter 1322 Residential Energy Code.

## **Crawl Space**

Minimum depth between joist bottom and ground is 18". Ground must be covered with an approved vapor barrier. Space shall be ventilated either to the basement or outside. If the crawl space is vented to the outside, the floor below the heated space must be insulated to R-30.

Minimum net free access to the crawl space must be at least 18" x 24". This access, if unobstructed, may also serve as a vent for areas up to 250 sq. ft. provided the perimeter foundation wall is insulated. If foam plastic insulation is used, it must be of an approved type or be covered with gypsum wallboard or equivalent thermal barrier.

## **Attic Ventilation**

Attics above heated spaces must be provided with ventilation equivalent to 1/300th of the attic area, equally distributed between soffit vents and high roof or ridge vents.

## **Flashing**

Required over all exterior exposed openings. Flashing must be designed to shed water **away** from the building wall. When installing vinyl siding, manufacturer's installation instructions **must** be followed.

## **Valley Flashing**

Minimum 28-gauge galvanized sheet extending at least eight inches from center line each way. Provide an underlay of not less than 15 pound felt extending 18" each way from center line.

Valley flashing shall consist of not less than 28-gauge galvanized sheet of corrosion resistant metal. The metal shall extend at least eight inches from the center line each way. Sections of flashing shall have an end lap of not less than four inches. Alternately, the valley may consist of woven asphalt shingles or closed-cut styled applied in accordance with the manufacturer's instructions.

A 36" wide strip of 15 pound felt shall be centered in the valley on top of the underlayment required for the entire roof. For roof slopes of less than 7:12, an approved manufactured ice dam protection membrane must be installed directly to the sheathing for the entire length of the valley.

## **Shingles**

Shall not be installed on roofs with a slope of less than 2-12. *(Refer to the roofing handout for special requirements for roofs with low pitch from 2-12 to 4-12.)*

## Roof Starter Strip

For ice dam protection, a manufactured ice dam protection membrane should be installed to a point no less than 24" inside the interior heated wall line. This product **must** be installed per the manufacturer's instructions.

## Sleeping Rooms

Every sleeping room shall have an exterior door or at least an egress window meeting all these requirements:

- A. Sill height – not more than 44" above the floor.
- B. Openable area – not less than 5.7 square feet.
- C. Opening height – not less than 24".
- D. Opening width – not less than 20".

If this egress window is below exterior grade, then a window well is required. The well must provide a minimum nine square feet net clear opening with the window open and a minimum 36" x 36" area from the **open** window to the well. (*See basement finishing handout.*)

## Foam Plastic Insulation

Shall be an approved type or covered with an approved material. Exposed foam plastic insulation is not allowed in any room, including crawl spaces and attics.

## Fire Alarm System

When alterations, repairs or additions requiring a permit, or when one or more sleeping rooms are added or created within existing homes, the entire building shall be provided with smoke detectors as required for new homes. This includes the installation of a smoke detector in the basement of houses having a stairway which opens from the basement into the dwelling. Smoke detectors may be battery operated when installed in additions or existing buildings unless walls and ceilings are open and new wiring is being installed. In that case, smoke detectors must be "hard wired".

## Other Permits

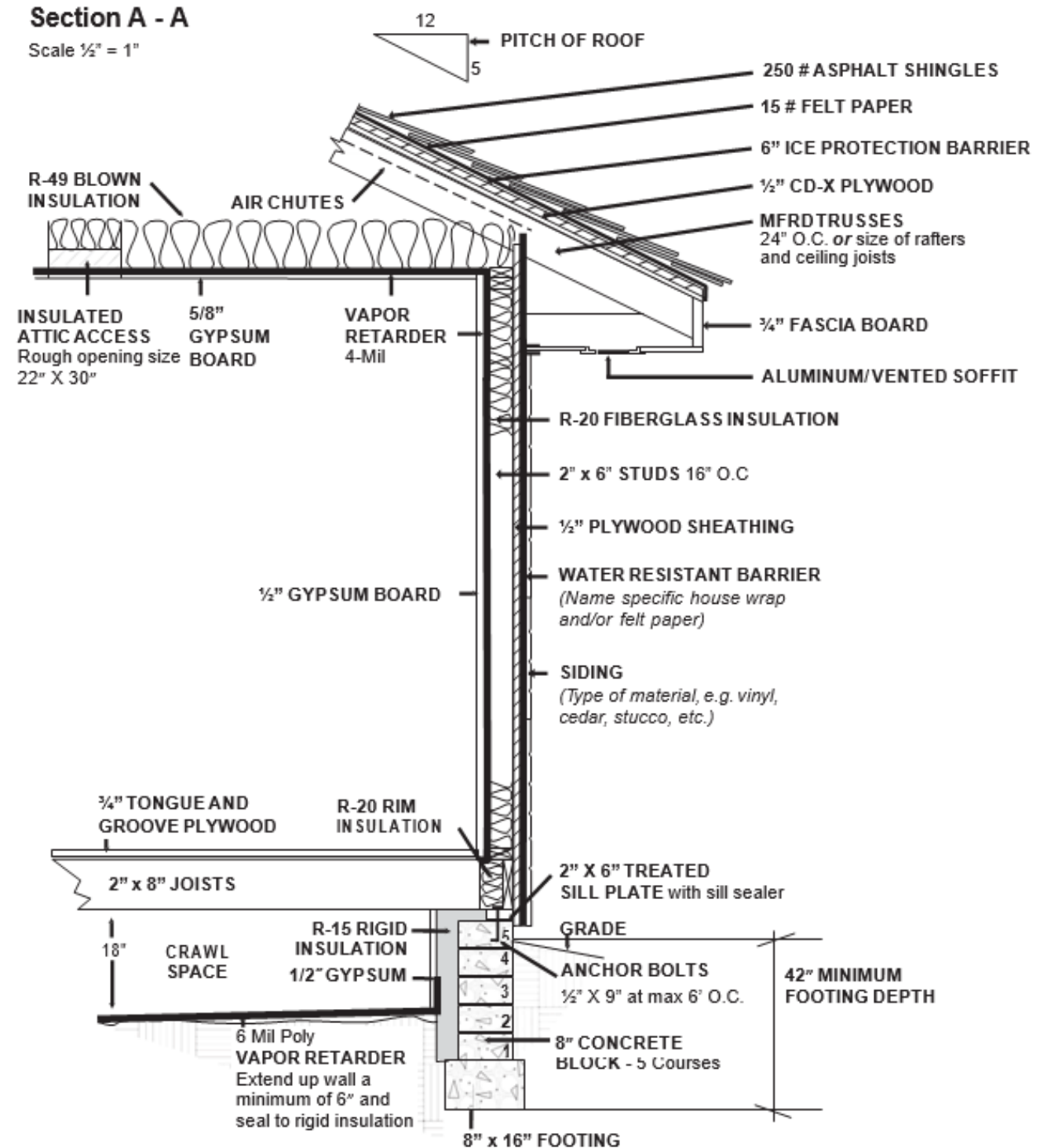
Separate plumbing, mechanical, and electrical permits are required for each type of work being done.

## Inspections Needed

- **Footing:** When footing is excavated and formed, or slab is formed, and sand cushion and reinforcement are in place but before placement of any concrete.
- **Rough-in:** For any plumbing, heating, or electrical work that is involved.
- **Framing:** When all framing is complete, all mechanical installed, but before insulating.
  - **Note:** Rough-in inspections for all trades must be approved and signed off on the permit card before a framing inspection will be performed.
- **Insulation:** When all wall insulation is in place and ceiling and wall vapor barriers are in place.
- **Fireplace:** Masonry smoke chamber inspections are required before the placement of flues.
- **Final:** When all work is complete and before occupancy.
  - **Note:** Final inspections for all trades must be approved and signed off on the permit card before a building final inspection will be performed.

## Section view

If more than one area is being built, provide one section view for each area. See graphic below.  
 (Note: Materials, types and sizes are given for example only.)



Note: Include soil type at residence. (e.g. clay, gravel, sand.)