City of Wayzata
Building Inspection Department

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ENERGY CODE REQUIREMENTS - IRC 1100, SBC 1322.1100

Insulation Certificate and Passive Radon system required for new buildings. Minimum 6 inch energy heel on roof/ceiling rafters.

	U-Factor	R-Value	Notes
Window fenestration	0.32		Total weighted area of exterior window and doors
Skylight	0.55		Not included in weighted area
Ceiling	0.026	49	R-38 vaulted ceiling max 500 sq ft. or 20% of space.
Wall - wood framed	0.048	20 or 13+5	R-13 cavity plus R-5 sheathing
Mass wall	0.060	15/20	Log type construction or concrete
Floor	0.033	30	
Foundation wall	0.050	15	
Rim joist	0.048	20	Same as framed wall above
Crawl space wall	0.060	15	R-10 outside, R-5 inside
Slab	0.10	10	Insulate 42 inches below grade, add R-5 to slab edge
Basement insulation	0.050	15	Requirements for sealing, vapor barrier, R10 exterior

U-Factor = Maximum allowable R-Value = Minimum requirement

Fenestration is defined as *a product that fills an opening in a building envelope such as windows, doors, skylights, etc., designed to permit the passage of air, light, vehicles, or people.*

EXTERIOR ENVELOPE COMPONENTS:

Access hatches and doors. *Attic access form conditioned to unconditioned space*.

- Must be weatherstripped and insulated to R-49

Below Grade Vapor and Soil-Gas Retarder *Impedes the flow of soil gases into the building*.

- 6mil polyethylene is a minimum requirement for under-slab locations, with seams lapped 12".

Exterior Wall Vapor Retarder *Prevents diffusion of moisture into wall cavities*.

- Required on warm side of walls, ceilings and floor rim joist areas.
- 4 mil polyethylene used as interior air barrier also serves as vapor retarder if sealed.

Interior Air Barrier *Prevents leakage of moisture laden air into the building envelope.*

- Required continuous on warm side of insulated ceilings, overhangs, walls and at floor rim joist shall be sealed.
- All electrical, plumbing, mechanical and other penetrations must be sealed.
- 4 mil polyethylene used as vapor barrier also serves as air barrier if sealed.

Exterior Wind Wash Barrier *Prevents the intrusion of outdoor airborne moisture and water into building envelope.* Typically, this term is referred to as a house wrap or a building felt.

- Shall be installed:
  1. Between attached garage and interior conditioned spaces (tightly fit), and

2. At the exterior edge of the exterior wall top plate extending vertically to the underside of the truss top cord, of for non-truss wood framing to within 3-1/2" of the roof deck, or to the top of the ceiling insulation (tightly fit), and
3. At all exterior walls and all rim joist areas (tightly fit), and
4. At all cantilevers, cantilevered rims, and floors over unconditioned spaces (sealed).

- Shall be sealed to prevent the intrusion of water and airborne moisture.

Floor Insulation *R-30*

- Must be installed to maintain contact with underside of the subfloor decking.

Foundation Walls *R-15*

- R-10 outside, R-5 inside
- Insulation required from top of wall to the top of the footing
- Where foundation insulation is on the exterior, a rigid coating finish or protection board is required from the top of the insulation to 6 inches below grade to protect insulation from sun and physical abuse.
- Where foundation insulation is interior with rigid insulation or framed walls, locate waterproofing between the insulation and the foundation wall. See specific rules, per N1102.2.6 regarding interior foundation insulation.

Wall Insulation *R-20*

- R-value for walls represents the sum of cavity insulation plus insulated sheathing, if any.

Loose Fill Attic Insulation *R-49*

- Insulation I.D. must be provided and thickness markers or tags from bags attached to the attic card.
- Install attic insulation thickness markers every 100sf, facing towards the attic access.

Mechanical Systems:

- Each heating and cooling system requires at least one thermostat as a control, per N1103.1.
- Supply ducts in attics shall be sealed and insulated to a minimum of R-8. All other ducts shall be sealed and insulated to aR-6. Ducts located completely inside the building thermal envelope are exempt from insulation requirements. See N1103.2.1 for specific requirements.
- Supply ducts shall be continuously ducted according to the Minnesota Mechanical Code, chapter 1346, from the point of origin to the point of discharge in the habitable spaces.
- The building framing cavities and building components shall not be used as supply or return ducts.

HVAC Piping.

- Hydronic, steam, and condensate piping in all locations shall be insulated in accordance with the Minnesota Mechanical Code, chapter 1346.
  - Exceptions:
    1. Piping installed within HVAC equipment.
    2. Piping installed in basements, crawl spaces, and cellars.