



City of Duluth

Preparation for 2015 Residential Code Changes

Discussion with Local Builders and Designers

Thank you for taking the time to join us today. We know you are busy and your time is valuable.

Our objective today is to share some of the changes to the residential building and energy codes that will affect how you plan, bid and build homes. We will discuss how we anticipate the code changes being applied to the work and the permitting, review and inspection process. *There are many other changes, we have chosen only a few to discuss today.*

We want to hear your thoughts and ideas about how we can make the application of the code and the processes work for you, so, please, share!

29 January, 2015

2015 Minnesota State Building Code

Minnesota's new Residential Code went into effect January 24, 2015. The new Residential Energy Code goes into effect February 14, 2015.

The codes provide building standards to regulate the design, construction, addition, alteration, repair, use and location of buildings and structures. They are based on the 2012 International Code Council (ICC) model codes and contain Minnesota-specific construction provisions for structural, life-safety, fire-safety and moisture protection. Minnesota's state building code has not been updated since 2007.

2015 Minnesota State Building Codes	Effective date
Minnesota Accessibility Code	Jan. 24, 2015
Minnesota Building Code Administration	Jan. 24, 2015
Minnesota Conservation Code for Existing Buildings	Jan. 24, 2015
Minnesota Elevator and Related Devices Code	Jan. 24, 2015
Minnesota Mechanical and Fuel Gas Code	Jan. 24, 2015
Minnesota Provisions to the State Building Code	Jan. 24, 2015
Minnesota Residential Code	Jan. 24, 2015
Minnesota Residential Energy Code	Feb. 14, 2015
Minnesota Radon Code	Feb. 14, 2015
Minnesota Building Code	Pending
Minnesota Commercial Energy Code	Pending

2015 Minnesota State Building Code

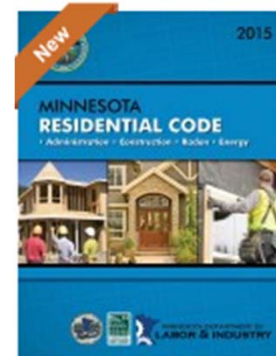
Get a copy of the code, or get it online.

Please. This will make your work and our work much easier over the next three years. AND, you don't even have to purchase the book, unless you want to.

For the 2015 Minnesota Building Codes, the Minnesota Department of Labor and Industry (DLI) contracted with ICC to produce Minnesota-specific code books to include only those chapters from the model codes used in Minnesota and state-specific amendments. The residential energy, residential construction, radon, special provisions and administrative provisions are available in one volume.

The code books can be viewed online at no cost at:

www.dli.mn.gov/CCLD/Codes15.asp



2015 Minnesota State Building Code

Purchase code books at:

- **International Code Council**



<http://shop.iccsafe.org/codes/state-and-local-codes/minnesota.html>

- **Minnesota's Bookstore**



<http://www.comm.media.state.mn.us/bookstore/mnbookstore.asp>

*Minnesota's Bookstore
660 Olive St.
St. Paul, MN 55155
Open M - F 8 am - 3 pm
651.297.3000 or 800.657.3757
Fax: 651.215.5733
Relay Service: 711
GPS: N 44° 57.53' W 93° 5.22'*

Other Sources of Code and Permitting Information

Check out our website:

<http://www.duluthmn.gov/construction-services-inspections/>



You'll find handouts, code information, permit applications, and the latest news from Construction Services.

You can also subscribe to our website...

Go to http://www.duluthgov.info/db_frames/web_subscriptions and select the Construction Services and Inspections category to be notified by email when we add new web content or make important changes.

One more thing

Use eTRAKiT to apply for some types of permits AND find information and status about projects that have been submitted for review. Go to:

<https://etrakit.duluthmn.gov/eTRAKiT3/Search/permit.aspx>



You'll need to call our office (218-730-5240) to get your login info set up. Our Land Use Techs will help you navigate your first visit to eTRAKiT.

eTRAKiT Online Permit Access

Once you log in, you can search for permits by contractor, address, status, etc. With the help of our Land Use Techs, you can pay permit fees online using your credit card.

ADDRESS	PERMITTYPE	PERMITSUBTYPE	APPLIED	STATUS	ISSU
330 E 3RD ST	BS BLDG COM	ALTERATION	07/14/2014	UNDER REVIEW	
508 E 7TH ST	BS BLDG RES	ADDITION	07/23/2014	UNDER REVIEW	
7401 GRAND AVE	BS BLDG COM	NEW PRINCIPLE BLDG	08/04/2014	UNDER REVIEW	
000 NOADDRESS	BS BLDG COM		08/05/2014	UNDER REVIEW	

Once you find the permit you are looking for, click on it to see specific information. See status of reviews, inspections, as well as reviewer and inspector notes.

Permit #BBLDG1412-064

Permit #BBLDG1412-064

Permit Info Site Info Contacts (6) Fees \$2,379.82 Inspections Chron

Reviews (4)

Type	Reviewer	Status	Submitted	Completed	Due Date	More
FIRST BLDG C...	Robert Aho	APPROVED	12/17/2014	12/19/2014	12/26/2014	More
FIRST MONITOR	Armella Monahan	APPROVED	12/17/2014	1/13/2015	12/26/2014	More
FIRST FIRE	Marnie Grondahl	APPROVED	12/18/2014	12/19/2014	12/26/2014	More
FIRST ZONING	Kyle Deming	APPROVED	12/18/2014	12/22/2014	12/26/2014	More

Inspection - FRAMING**

Inspection Type: FRAMING**
 Order#: 0
 Result: APPROVED
 Scheduled Date: 1/20/2015
 Scheduled Time: 11:30 AM
 Completed Date: 1/20/2015
 Completed Time:
 Inspector: mlowry
 Remarks:
 Notes: (1/20/2015 12:27 PM ml) Framing for wall, ok

Contact the Land Use Techs at 730-5240 to learn more about eTRAKiT.



Now, on to the code changes...

Fences, Detached Garages, and other Accessory Buildings

- Permits required for fences over 7 feet high.
This is a change from 6 ft. Measurement is from top of fence (not post) to grade at any point. *MBCA 1300.0120*
- Accessory buildings like sheds over 200 sf require permits.
This is a change from 120 sf. *MBCA 1300.0120*
- Slabs-on-grade, like for detached garages over 1000 sf require design by MN licensed engineer
This is a change from 3000 sf. Handouts will be updated. *MPMSBC 1301.1600*

Separation

- **Separation between dwelling and garage**

TABLE R302.6
DWELLING/GARAGE SEPARATION

SEPARATION	MATERIAL
From the residence and attics	Not less than 1/2-inch gypsum board or equivalent applied to the garage side. Vertical separation between the garage and the residence attic shall extend to the roof sheathing or rafter blocking.
From all habitable rooms above the garage	Not less than 5/8-inch Type X gypsum board or equivalent
Structural members supporting floor/ceiling assemblies or garage ceiling used for separation required by this section	Not less than 1/2-inch gypsum board or equivalent applied to the garage side of structural members supporting the floor/ceiling assemblies or garage ceiling. Structural members include, but are not limited to: walls, columns, beams, girders, and trusses.
Garages located less than 3 feet from a dwelling unit on the same lot	Not less than 1/2-inch gypsum board or equivalent applied to the interior side of exterior walls that are within this area. This provision does not apply to garage walls that are perpendicular to the adjacent dwelling unit wall.

- **Floor assemblies including unfinished areas**, when not required elsewhere in the code to be fire-resistance rated, must be provided with a 1/2 inch gypsum wallboard, 5/8 inch wood structural panel or equivalent membrane on the underside of floor framing. Several exceptions, include wood floor assemblies using nominal dimensional lumber or structural composite lumber equal to or greater than 2 x 10 inch and over areas protected with automatic sprinkler system *MRC R501.3*

Smoke and CO Alarms

- **Carbon monoxide alarms** are required for new construction in one- and two- family dwellings and townhouses when one of the following occurs:
 1. Fuel-fired appliances are installed, or
 2. Have attached garages.

They shall be installed within 10' outside of each separate sleeping area or bedroom.

In **existing units** where items 1 or 2 above are applicable and work requiring a building permit occurs, CO alarms shall be provided, as above. *MRC R315*

- **Smoke alarms in existing buildings** are required for alterations, repairs and additions, including new or replacement windows or doors or the addition of any sleeping room.

NEW for Minnesota: In existing areas, where attic, basement with unfinished ceiling or crawl space available, must be hard wired.

Where work only involves work on the exterior surface such as roofing, siding, open porches, decks or chimneys or for installation, alteration or repair of plumbing, electrical or mechanical systems, the addition of smoke alarms is not required.

MRC R314



Concrete Footings

Footings require a compressive strength of 5000 psi or a minimum of 2500 psi with an approved admixture that provides a water and vapor resistance at least equivalent to 5000 psi. *MRC 1309.0402.2*



Windows and Glazing

- **Window fall protection** requirement applies to all residential windows where the lowest part of an opening is more than 72 inches above finished grade or surface below, and the lowest part of the window opening is less than 36 inches above the floor. Many manufacturers can provide a small device that prevents the window from opening more than 4 inches, until released. Replacement windows, not increasing the rough-opening size, are not required to comply with fall protection requirements. Control must allow window to be opened fully and not reduce clear opening to less than required for emergency egress. *MRC R312*
- **Emergency escape and rescue openings** adds exceptions, including in some instances where sprinkler system provided. Carries over requirements for replacement windows, and specifies replacement window requirements for MN licensed or registered facilities. *MRC R310*



Safety Glazing

Safety glazing is required for all walls, enclosures and fences containing or facing hot tubs, spas, whirlpools, saunas, steam rooms, bathtubs, showers, and indoor or outdoor swimming pools where the bottom edge of the glazing is less than 60 inches measured vertically above any standing or walking surface. This applies to single glazing and *all panes* in multiple glazing. Exception: Where the glazed area is more than 60 inches, measure horizontally and in a straight line, from the water's edge of a bathtub, hot tub, spa, whirlpool or swimming pool.

MRC R308.4.5



Radon

- **Extension of radon control** required to additions when the existing dwelling has a radon system.
- **Insulation of radon vent pipes** that are routed through unconditioned spaces required, minimum R-4 insulation with a vapor barrier for active and passive systems.
- **Separate radon gas vent pipes required** for combination foundation systems (ie: basement/crawl space.)
- **Power source for future vent fan required**, must be installed in unconditioned space in the anticipated fan location.

MPSMSBC 1303.2403



Energy Code

- **Basement insulation:** At least R-10 required at the exterior, another R-5 required either inside or outside. *MREC R402.2.8*
- **Conditioned spaces:** Attached garages that are heated or cooled are considered a conditioned space and must meet the buildings thermal envelope provisions of the code. *MREC 1322.0100 Subp. 4 (B)*
- **Sunroom definition:** A one-story structure attached to a dwelling with a glazed area in excess of 40 percent of the gross area of the structure's exterior walls and roof. Specific insulation and fenestration requirements added for sunrooms. *MREC R402.2.12*

Energy Code

- **Insulation Markers:** The thickness of blown or sprayed roof/ceiling insulation shall be written, in inches, on markers that are installed at least one for every 300 sq. ft. of attic space. (formerly 100 sq. ft.) Required markers shall be attached to trusses or joists, shall identify the initial thickness of insulation, using numbers not less than 1 inch in height and shall face the attic access opening. The manufacturer's R-value shall be readily visible for inspection on insulating materials.

MREC R303

- **Waterproofing** of cast in place concrete and masonry block foundation walls must comply with IRC 406 and shall extend from the top interior wall edge, across the top of the wall and down the exterior face to the top of the footing; unless a full width, closed-cell material is installed that creates a seal between the sill plate and the top of the foundation. *MREC 1322.0402.1.1*

Energy Code

Comparison of required R-values and U- factors

Table N1102.1 and Table R402.1.1
Insulation and Fenestration Requirements by
Component^{(a)a}

	2009 Minnesota Residential Energy Code (2006 IECC), Chapter 1322	2015 Minnesota Residential Energy Code (2012 IECC), Chapter 1322
Climate Zone	Northern	7
Fenestration U-Factor	0.35	0.32
Skylight U-Factor	0.60	0.55
Ceiling R-Value	44	49
Wood Frame Wall R-Value	19	21
Mass Wall R-Value	15	19/21
Floor R-Value	30	38
Foundation Wall and Rim Joist R-Value	10	15
Slab R-Value and Depth	10, 5 ft	10, 5 ft
Crawl Space Wall R-Value	10	15



Energy Code

- **Lighting equipment:** A minimum of 75 percent of the lamps in permanently installed lighting fixtures shall be high-efficacy lamps, with the exception of low-voltage lighting.



Energy Code (Systems)

- **A balanced mechanical ventilation system is required** that is +/- 10% of the system's design capacity and meets the code requirements for continuous and total mechanical ventilation for dwelling units. *MREC 1322.0405.3*

Energy Code (Systems)

- **Mechanical system piping insulation** capable of carrying fluids above 105 or below 55 degrees shall be insulated to R-3. *MREC R403.3*
- **Service hot water system pipe insulation**

R403.4.2 Hot water pipe insulation (Prescriptive).

Insulation for hot water pipe with a minimum thermal resistance of R-3 shall be applied to the following:

1. Piping that is larger than $\frac{3}{4}$ inch nominal diameter.
2. Piping serving more than one dwelling unit.
3. Piping from the water heater to kitchen outlets.
4. Piping located outside the conditioned space.
5. Piping from the water heater to a distribution manifold.
6. Piping located under a floor slab.
7. Buried piping.
8. Supply and return piping in recirculation systems other than demand recirculation systems.
9. Piping with run lengths greater than the maximum run lengths for the nominal pipe diameter given in Table R403.4.2.

All remaining piping shall be insulated to at least R-3 or meet the run length requirements of Table R403.4.2.

TABLE R403.4.2 MAXIMUM RUN LENGTH (feet)^a

Nominal Pipe Diameter of Largest Diameter Pipe in the Run (inch)	$\frac{3}{8}$	$\frac{1}{2}$	$\frac{3}{4}$	$> \frac{3}{4}$
Maximum Run Length	30	20	10	5

- a. Total length of all piping from the distribution manifold or the recirculation loop to a point of use.



Energy Code (Systems)

- **Sealing of ducts, air handlers and filter boxes** is required unless the ducts and air handlers are located totally within the building thermal envelope. Duct tightness shall be verified by either a post construction test or a rough-in test, with registers or boots sealed during the test. *MREC R403.2.2*
- **Building framing cavities** may not be used as ducts or plenums. *MREC R403.2.3*



Energy Code

Blower Door Test: The building or dwelling unit shall be tested and verified for a leakage rate not exceeding 3 air changes per hour for Climate Zone 7.

- Construction Services shall witness the blower door test, which will be a required inspection.
- Testing shall be performed after creation of all penetrations of the building thermal envelope.
- Test shall be conducted using a blower door at a pressure of 0.2 inches wg (50 pascals).
- Testing shall be conducted by the permit applicant or his subcontractor after the drywall is installed and prior to final inspection.
- A certificate of occupancy will not be issued until the requirements of this section are completed and approved by CSI.

MREC R402.4.1.2



Sprinklers

Automatic fire sprinkler systems installed in accordance with NFPA 13D or IRC P2904 are required in the following:

- All single-family dwellings which contain 4,500 sf or more of floor area, including basements and all floors, but excluding attached garages.
- All two-family dwellings and townhouse buildings. In two-family dwellings and townhouses, attached garages must be provided with one dry sprinkler head located within 5 linear feet of each door installed in the common wall separating the dwelling unit and its garage. In two-family dwellings and townhouses, attached covered patios, decks, porches and similar structures are required to be provided with a minimum of one dry head for every 20 linear feet of common wall between the dwelling unit and the covered structure except where attached roofs cover a floor area of 40 sf or less.

State licensed or registered facilities in one- and two- family dwellings and townhouses must be provided with automatic fire sprinkler systems in accordance with the applicable licensing and registration or MN Residential Code whichever is more restrictive.

MRC R313

Sprinklers

Information available at MN DOLI at links shown below. The FAQs are included in this packet.

Please contact us early in the planning process to discuss your first project requiring residential sprinklers.



Enter search terms

About DLI Construction Codes and Licensing OSHA Wage and Hour Workers' Compensation

<http://www.dli.mn.gov/CCLD/codes15.asp>

Helpful resources (PDFs)

- Residential fire sprinkler fact sheet
- Residential fire sprinkler requirements



Frequently asked questions (PDFs)

- Residential fire sprinkler systems





Sprinklers

Two types of residential fire sprinkler systems:

- **Multipurpose potable water piping system:** A multipurpose fire sprinkler system shall provide domestic water to both fire sprinklers and plumbing fixtures.
- **Stand-alone sprinkler system:** A stand-alone sprinkler system shall be separate and independent from the water distribution system

MRC P2904

Sprinklers

Type of Residential Fire Sprinkler System

Multi-purpose Potable Water Piping System

Who Can Install?

A **multi-purpose potable water system contractor** who is also a **plumbing contractor**

Owner-occupant of one- or two- family dwelling

Stand-alone System

Fire protection contractor

Licensed engineer competent in fire protection system design

Licensed alarm and communication contractor

Owner-occupant of one- or two- family dwelling

Type of License or Certificate

Multi-purpose potable water system installer

Multi-purpose potable water system contractor

Journeyman sprinkler fitter certificate

Fire protection contractor license

Licensing agency

State Fire Marshal Division MS 299M.03, MR 7512.0400

<https://dps.mn.gov/divisions/sfm/programs-services/Pages/fire-Sprinkler.aspx>



State Fire Marshal

A Division of the Minnesota Department of Public Safety

Plumbing contractor

Department of Labor and Industries MS 326B.46

<http://www.dli.mn.gov/cclid/Forms.asp>



MINNESOTA DEPARTMENT OF
LABOR & INDUSTRY

2015 Minnesota State Building Code

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www.dli.mn.gov/CCLD/Codes15.asp

Or purchase from Minnesota's Bookstore or
the ICC store. Contact information on slide 4.

