

Screen Porches and 3 Season Porches

REQUIRED INFORMATION WHEN APPLYING FOR A PERMIT:

- Submit 2 copies of a Certificate of Survey or 2 copies of a plot plan drawn to scale indicating the lot dimensions, the location and ground coverage area of existing structure (s), and the location and area of the proposed structure. Indicate the setbacks from property line.
- Submit 2 copies of drawings showing proposed designs and materials. Drawings shall be drawn to scale and shall include the following information.
- Floor Plans shall include the following:
 - Indicate proposed porch size.
 - Indicate size and spacing of floor joists.
 - Indicate size, location, and spacing of posts.
 - Indicate size of headers.
 - Indicate size and spacing of roof supports.
- Cross Section of either a rear or side view shall include the following:
 - Diameter and depth of footings.
 - Size of posts.
 - Header size supporting floor joists.
 - Floor joist size and spacing.
 - Flooring material.
 - Guardrail height (if any).
 - Ceiling height.
 - Type of sheathing and siding.
 - Header size and spacing of rafter material.
 - Type of roof covering.
 - Type of lumber to be used.
 - Pitch of roof.
- Elevations which show what proposed structure will look like.

BUILDING CODE REQUIREMENTS:

- All footings to be a minimum of 42" below grade (see footing sizing chart).
- Individual concrete or masonry piers shall project at least 8" above exposed ground unless the columns or posts which they support are of redwood, cedar or approved treated material.
- Wood joists 18" or closer to grade, or wood beams 12" or closer to grade and their supports shall be redwood, cedar or approved treated material.
- Redwood, cedar, or approved treated material shall be used for those portions of wood members which form the structural supports of buildings, balconies, porches or similar permanent building appurtenances when such members are exposed to weather without adequate protection from a

SCREEN PORCHES AND 3 SEASON PORCHES

roof, eave, overhang, or other covering to prevent moisture or water accumulation on the surface or at joints between members. Depending on local experience, such members may include: horizontal members such as girders, joists, and decking; or vertical member such as posts, poles, and columns; or both horizontal and vertical member (stairways are included).

- All unenclosed floor openings, open and glazed sides of landings and ramps, balconies and porches which are more than 30" above grade or floor below, shall be protected by a guardrail not less than 36" in height. Open guardrails and stair railing shall have intermediate rails or an ornamental pattern such that a sphere 4" in diameter cannot pass through.
- If stairway is to be provided, the minimum width shall not be less than 36" in width. Stairways may be constructed having an 8" maximum rise and 9" minimum run.
- A handrail shall be provided to all stairways having 3 or more risers.
- Handrails shall be placed not less than 34" nor more than 38" above the nosing of treads. They shall be continuous the full length of stairs and shall extend not less than 6" beyond the top and bottom riser.
- Handrails projecting from a wall shall have a space of not less than 1-1/2" between the wall and the handrail. The handgrip portion of handrails shall not be less than 1-1/4" nor more than 2" in cross-sectional dimension and shall have a smooth surface with no sharp corners.
- Floor joist spacing at 24" on center requires 2 x decking, and floor joist spacing at 16" on center requires 1 x decking.

For additional City information, please check the website or contact City Hall at:

www.stmichaelmn.gov

11800 Town Center Drive NE, Suite 300, St. Michael, MN 55376

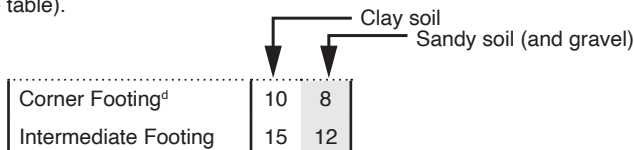
planning@stmichaelmn.gov (Email) 763-497-2041 (Phone)

BEAM AND FOOTING SIZES ^{a, e, f}

Based on No. 2 or better Southern pine lumber (also known as Southern Yellow Pine)

		Post spacing												
		4'	5'	6'	7'	8'	9'	10'	11'	12'	13'	14'		
Joist Length ^g	6'	Beam Size	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10 ^b	2-2x10 ^b	3-2x10 ^c	3-2x10 ^c	3-2x10	3-2x12	
		Corner Footing ^d	8 8	8 8	8 8	8 8	9 8	9 8	10 8	10 8	10 8	10 9	11 9	11 9
		Intermediate Footing ^d	9 8	10 8	10 9	11 9	12 10	13 10	14 11	14 11	14 12	15 12	15 13	16 13
	7'	Beam Size	2-2x6	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10 ^b	2-2x12	3-2x10 ^c	3-2x10	3-2x10	3-2x12	3-2x12
		Corner Footing ^d	8 8	8 8	8 8	9 8	9 8	10 8	10 8	11 9	11 9	11 9	12 10	12 10
		Intermediate Footing ^d	9 8	10 8	11 9	12 10	13 11	14 11	15 12	15 13	16 13	16 13	17 14	17 14
	8'	Beam Size	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10 ^b	2-2x10 ^b	3-2x10 ^c	3-2x10	3-2x10	3-2x12	3-2x12	Eng Bm ^h
		Corner Footing ^d	8 8	8 8	9 8	9 8	10 8	10 8	11 9	12 9	12 9	12 10	13 10	13 11
		Intermediate Footing ^d	10 8	11 9	12 10	13 11	14 11	15 12	16 13	16 13	16 13	17 14	18 15	18 15
	9'	Beam Size	2-2x6	2-2x6	2-2x8	2-2x8	2-2x10 ^b	3-2x8	3-2x10 ^c	3-2x10	3-2x12	3-2x12	Eng Bm ^h	Eng Bm ^h
		Corner Footing ^d	8 8	8 8	9 8	10 8	10 8	11 9	12 10	12 10	12 10	13 10	13 11	14 11
		Intermediate Footing ^d	10 9	12 10	13 10	14 11	15 12	16 13	17 14	17 14	17 14	18 15	19 15	20 16
	10'	Beam Size	2-2x6	2-2x6	2-2x8	2-2x10 ^b	2-2x10 ^b	3-2x10 ^c	3-2x10	3-2x12	3-2x12	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h
		Corner Footing ^d	8 8	9 8	10 8	10 8	11 9	12 10	12 10	13 11	14 11	14 11	14 12	15 12
		Intermediate Footing ^d	11 9	12 10	14 11	15 12	16 13	17 14	17 14	18 15	18 15	19 16	20 16	21 17
	11'	Beam Size	2-2x6	2-2x6	2-2x8	2-2x10 ^b	2-2x10	3-2x10 ^c	3-2x12	3-2x12	3-2x12	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h
		Corner Footing ^d	8 8	9 8	10 8	11 9	12 9	12 10	13 11	14 11	14 11	14 12	15 12	15 13
		Intermediate Footing ^d	12 9	13 11	14 12	15 13	16 13	17 14	18 15	19 15	20 16	21 17	22 18	22 18
12'	Beam Size	2-2x6	2-2x8	2-2x8	2-2x10 ^b	3-2x10 ^c	3-2x10	3-2x12	3-2x12	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	
	Corner Footing ^d	9 8	10 8	10 9	11 9	12 10	13 10	14 11	14 12	15 12	15 12	15 13	16 13	
	Intermediate Footing ^d	12 10	14 11	15 12	16 13	17 14	18 15	19 16	20 16	21 17	22 18	23 18	23 18	
13'	Beam Size	2-2x6	2-2x8	2-2x10 ^b	2-2x10 ^b	3-2x10 ^c	3-2x12	3-2x12	3-2x12	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	
	Corner Footing ^d	9 8	10 8	11 9	12 10	13 10	13 11	14 12	15 12	15 12	15 13	16 13	17 14	
	Intermediate Footing ^d	13 10	14 12	15 13	17 14	18 15	19 15	20 16	21 17	22 18	23 19	24 19	24 19	
14'	Beam Size	2-2x6	2-2x8	2-2x10	3-2x8	3-2x10 ^c	3-2x12	3-2x12	3-2x12	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	
	Corner Footing ^d	9 8	10 8	11 9	12 10	13 11	14 11	15 12	15 13	16 13	16 13	17 14	17 14	
	Intermediate Footing ^d	13 11	15 12	16 13	17 14	18 15	20 16	21 17	22 18	23 18	23 18	24 19	24 20	
15'	Beam Size	2-2x6	2-2x8	2-2x10 ^b	3-2x10 ^c	3-2x10	3-2x12	3-2x12	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	
	Corner Footing ^d	10 8	11 9	12 10	13 10	14 11	14 12	15 12	16 13	17 14	17 14	17 14	18 15	
	Intermediate Footing ^d	14 11	15 12	17 14	18 15	19 16	20 17	21 17	22 18	23 19	24 20	25 21	25 21	
16'	Beam Size	2-2x6	2-2x8	2-2x10 ^b	3-2x10 ^c	3-2x12	3-2x12	3-2x12	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	
	Corner Footing ^d	10 8	11 9	12 10	13 11	14 11	15 12	16 13	16 13	17 14	18 15	18 15	18 15	
	Intermediate Footing ^d	14 11	16 13	17 14	18 15	20 16	21 17	22 18	23 19	24 20	25 21	26 21	26 21	
17'	Beam Size	2-2x6	2-2x8	2-2x10 ^b	3-2x10 ^c	3-2x12	3-2x12	3-2x12	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	
	Corner Footing ^d	11 9	12 10	13 10	14 11	15 12	16 13	17 13	17 14	18 15	19 15	19 16	19 16	
	Intermediate Footing ^d	15 12	17 13	18 14	19 16	20 17	22 18	23 19	24 20	25 20	26 21	27 22	27 22	
18'	Beam Size	2-2x6	2-2x8	2-2x10 ^b	3-2x10 ^c	3-2x12	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	Eng Bm ^h	
	Corner Footing ^d	11 9	12 10	13 11	14 12	15 12	16 13	17 14	18 14	19 15	19 16	20 16	20 16	
	Intermediate Footing ^d	15 12	17 14	18 15	20 16	21 17	23 18	24 19	25 20	26 21	27 22	28 23	28 23	

- a. All footing sizes are the minimum diameters (in inches) of the footings/ supporting foundations for the support posts. The various footing diameters are listed for two soil types (see example below for use of the table).



- b. 3-2x8 may be substituted for these beams.
 c. 2-2x12 may be substituted for these beams.
 d. Minimum diameter of foundation for 6x6 posts is 10".

- e. When joists extend (cantilevers) beyond support beams by 18" or more, add 1" to the footing dimensions shown.
 f. The following requirements are for use when future construction of a 3-season porch or a screen porch (each with gable-end roofs and either flat or vaulted ceilings) is being considered:
1. Increase corner footing size shown by 90%. (multiply size by 1.9)
 2. Increase center footing size shown by 55%. (multiply size by 1.55)
 3. Locate all footings at extremities of deck (no cantilevers).
 4. Beam sizes indicated need not be altered.
- g. The Joist Length indicated is the clear span between supporting ledgers, beams, etc.
 h. Engineered Beam required.

PORCHES AND THE 2020 MINNESOTA RESIDENTIAL CODE

Minnesota Department of Labor and Industry

PERMITS

Building permits are required for construction of all porches. Heated porches may need to conform to the Minnesota Energy Code. All porches must comply with the land-use requirements of the community's zoning code. Direct questions about setbacks from property lines to the local planning and zoning department.

PERMIT FEES, PLAN REVIEW, INSPECTIONS

Building permit fees are established by the municipality for plan review and inspection. The building official completes the plan review to spot potential problems and may make notes on the plan for your use. Inspections are performed at various stages of construction to verify code compliance.

Permit costs can be obtained by calling your local building inspection department with your estimated construction value.

Note: Setbacks from property lines vary depending on the city and zoning districts. Other zoning provisions may include lot coverage or screening.

The building inspector will need:

- application for permit
- site plan or survey
- foundation plan
- floor plan
- section
- elevation
- energy calculation worksheet if required

REQUIRED INSPECTIONS

- **Footings:** After excavation, but prior to the pouring of concrete.
- **Framing:** Inspected after framing is complete and construction is accessible for building inspection. The framing inspection is scheduled after other required rough-in inspections are completed and approved.
- **Energy:** Energy efficiency inspection.
- **Final:** The project is inspected upon completion.
- **Other:** The inspector may require other inspections to ensure code compliance or to assist with any questions.

GENERAL BUILDING CODE REQUIREMENTS

The Minnesota State Building Code is the standard of construction for the entire state (Minnesota Statute 326B.121). The 2020 Minnesota Residential Code adopts the 2018 International Residential Code (2018 IRC). The 2020 Minnesota Residential Code can be viewed at <https://codes.iccsafe.org/content/document/1581>.

- Footings must be extended to frost depth and located at extremities of the porch, or engineering may be required.
- Treated wood or wood with natural resistance to decay (cedar heartwood or redwood) must be used for joists 18 inches or closer to grade, beams 12 inches or closer to grade and their supports as well as all exterior members.
- Columns and posts in contact with the ground or embedded in concrete or masonry must be of pressure-treated wood.
- A guard of at least 36 inches in height must protect all porches, decks and open sides of landings and stairs that are more than 30 inches above grade or the floor below. Guards on open sides of stairways, raised floor areas and porches must have intermediate rails or ornamental closures that do not allow the passage of a 4-inch diameter sphere.
Exception: The triangular openings formed by the riser, tread and bottom rail of a guard at the open side of a stairway are permitted to be of such a size that a 6-inch diameter sphere cannot pass through.



- Openings for required guards on the sides of stair treads must not allow the passage of a 4-3/8-inch diameter sphere.
- Stairways must not be less than 36 inches in width with a 7-3/4-inch maximum riser (height) and a 10-inch minimum run (depth). The greatest riser height and greatest tread depth must not exceed the smallest corresponding riser height or tread depth by more than 3/8 inch. Stairway illumination is required.
- Open risers are permitted, provided the opening between the treads does not permit the passage of a 4-inch diameter sphere.
- Handrails are required on all stairways having four or more risers. Handrails must be graspable and be one of the following types:
- Valley or hip rafters must be not less than two inches (nominal) thickness and not less in depth than the cut of the rafter. Hip and valley rafters must be supported at the ridge by a brace to a bearing partition or designed to carry and distribute the specific load at that point.
- Wall framing studs must be placed with their wide dimension perpendicular to the wall and at least three studs must be installed at each corner of an exterior wall. Studs must be at least 2 inches by 4 inches and spaced not more than 24 inches on center.
- Bearing- and exterior-wall studs must be capped with double-top plates installed to provide overlapping at corners and at intersections with other partitions. End joints in double top plates must be offset at least 24 inches.

Type I handrails with a circular cross section must have an outside diameter of at least 1-1/4 inches but not greater than 2 inches. If the handrail is not circular its perimeter dimension must be at least 4 inches but not greater than 6- 1/4 inches with a maximum cross section of dimension of 2- 1/4 inches.

Type II handrails with a perimeter greater than 6- 1/4 inches must provide a graspable finger recess area on both sides of the profile. The finger recess must begin within 3/4 inch measured vertically from the tallest portion of the profile and achieve a depth of at least 5/16 inch within 7/8 inch below the widest portion of the profile. This required depth must continue for at least 3/8 inch to a level that is not less than 1 3/4 inches below the tallest portion of the profile. The minimum width of the handrail above the recess must be 1 1/4 inches to a maximum of 2 3/4 inches. Edges must have a minimum radius of 0.01 inch.

Handrail height is measured vertically from the sloped plane adjoining the tread nosing or finished surface of ramp slope and must be at least 34 inches and not more than 38 inches.

- Hand-framed roofs require a ridge board at least 1-inch (nominal) thickness and not less in depth than the (plumb) cut end of the rafter.



- Approved wall sheathing, siding, roof sheathing and roof coverings must be installed according to the manufacturer's instructions.
- Roofs over porches must have an ice and water barrier consisting of two layers of 15-pound roofing felt solidly mopped together or of approved ice and water shield underlayment materials.
- Size and spacing of conventional lumber used for roof framing depends on the roof pitch, span, type of material used, and the loading characteristics imposed.

- Porches must be designed for local snow load requirements. Contact your local inspection department for details.
- Rafters must be framed directly opposite each other at the ridge.
- A properly sized and supported ridge beam may be used as an alternative to a ridge board with ties for a vaulted ceiling (see sample). If manufactured trusses are used, submit one copy of truss plans signed by a registered engineer.
- Porch design should take into consideration the existing location of outside meters, wells and septic systems.

PLANS: SITE, FLOOR AND ELEVATION SECTION

The text and sample drawings display the minimum detail expected to ensure the permit process can proceed smoothly.

Plans do not need to be professionally drawn. However, plans should be drawn to scale and include all the information requested.

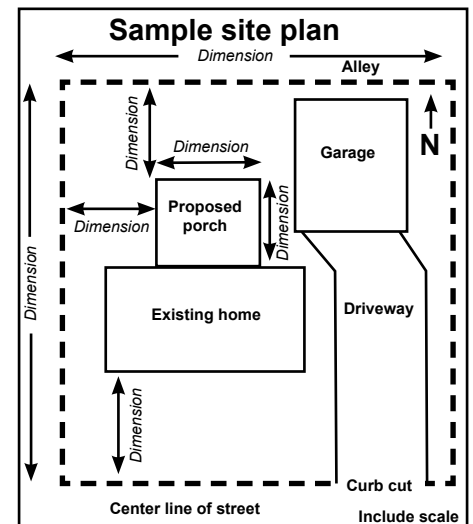
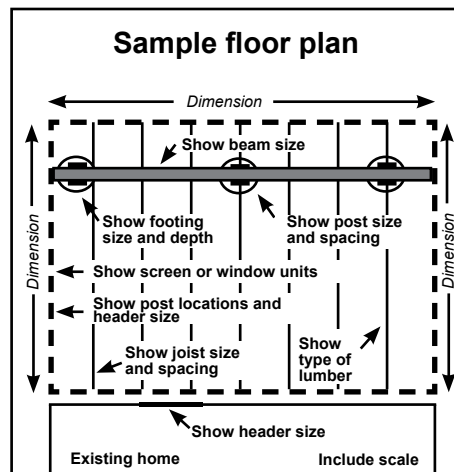
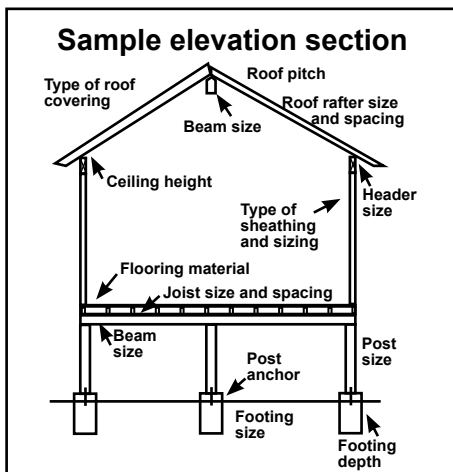
The application for permit can be filled out at the time you drop off your plans or make electronic submittals where permitted.

Submit two copies of a certificate of survey or site plan. The building plan must be drawn to scale indicating the lot dimensions, the location and size of the existing structure(s), and the location and a size of the proposed structure. Indicate the setbacks from property lines of the existing and proposed structure(s). Include the septic-system location and wells if applicable.

FLOOR PLANS SHOWING PROPOSED DESIGN, MATERIALS

At minimum, plans submitted for permits should include:

- Proposed size of porch.
- Location and size of windows. Safety glazing may be required due to size and location.
- Size of headers over all doors and window openings.
- Size, spacing, and direction of rafter (roof) materials.
- Size and spacing of floor joists.
- Size, location, and spacing of posts or applicable foundation details.
- Type (grade and species) of lumber to be used.
- Additional information, such as a sectional drawing or elevations, may be required.



Note: Illustrations are examples only.

Be sure your scale site plan includes:

- lot dimensions
- location and size of existing structures
- location and size of the proposed structure
- setbacks from property lines of proposed and existing structures
- septic-system area and wells if applicable