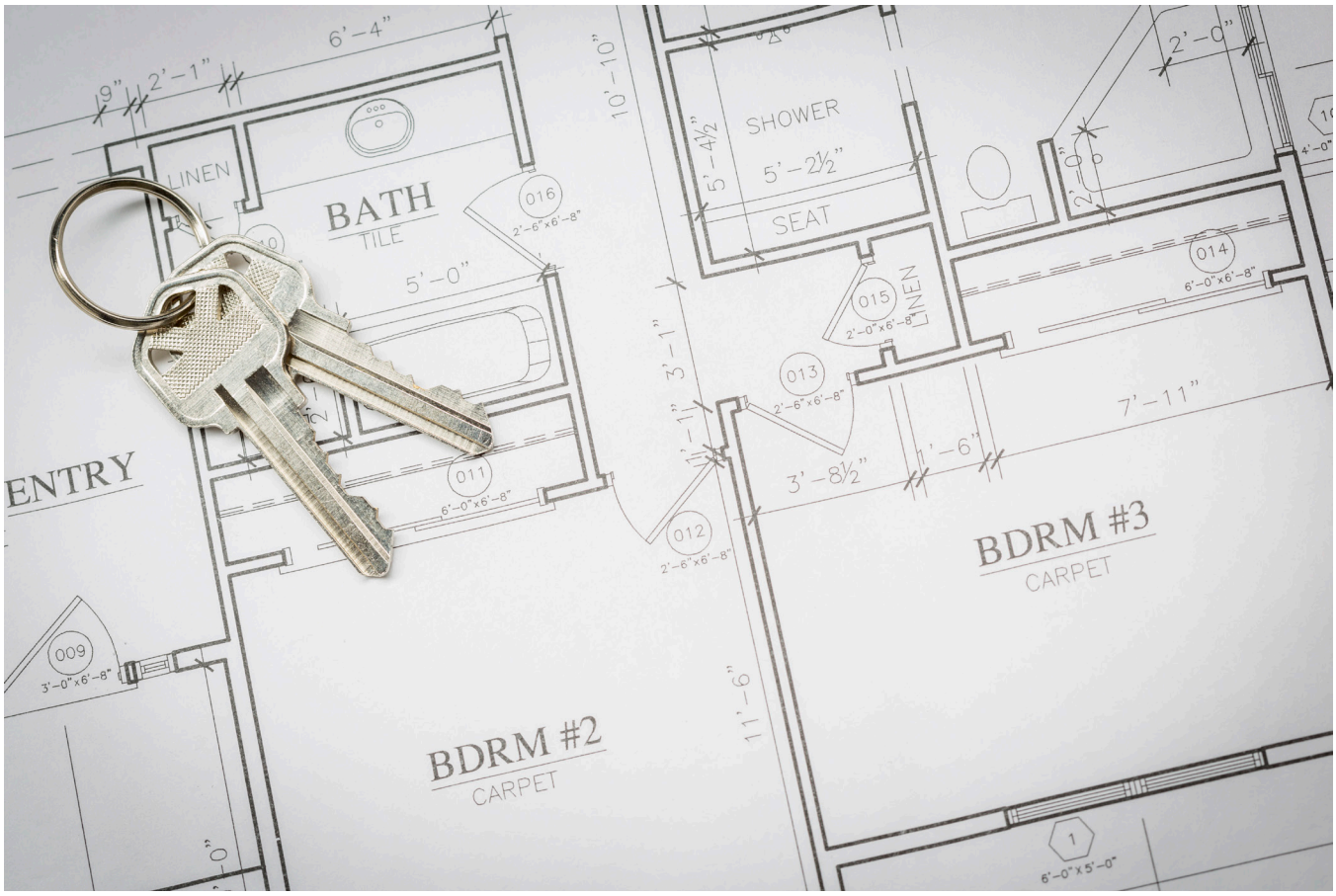
New house

Construction information for single family dwellings



Permit requirements

New houses need development and building permits.

A development permit establishes land use and confirms the location of a structure lines up with the zoning bylaw and other City requirements.

A building permit confirms the structure meets code requirements. It must match prior development permit approvals or applications.

Note: New single/two family dwellings in new greenfield subdivisions with prior development agreements on title will be processed under one combined development/building permit application.

Electrical and plumbing work require separate permits. Visit winnipeg.ca/electricalinstallations and winnipeg.ca/plumbinginstallations for more information.

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Construction information

Windows

1. Windows are not permitted in walls that are located less than 1.2 m (4’-0”) from the property line when facing a neighbouring property.
2. Each bedroom must have at least one outside window that provides an unobstructed opening of not less than 0.35 m2 (3.77 sq. ft.) in area and no dimension less than 380 mm (15 in.).
3. Maximum foundation window opening size is 1.2 m (4’-0”) and openings not to exceed 25 % of the wall length.

Unprotected openings and roof soffits

Unprotected openings are not permitted within 1.2 m (4’-0”) of the property line, including windows and mechanical services. This can affect exterior exhaust and intake openings. Where roof soffits project to less than 1.2 m (4’-0”) from the property line, they shall be protected by approved materials. Minimum roof space venting remains applicable, including 25 percent minimum openings required at the bottom of the space.

Smoke/carbon monoxide alarms

Smoke alarms must be installed on or near the ceiling in each dwelling, and there must be at least one smoke alarm on each floor level, including lower levels and one in each bedroom.

Where a dwelling contains a fuel burning appliance (e.g. gas furnace, fireplace, wood stove, gas hot water tank, gas appliance, etc.) or has an attached garage, a carbon monoxide alarm must be installed inside each bedroom or outside of each bedroom within 5 m (16’-0”) of the bedroom door, measured following corridors and doorways. Where a dwelling contains a solid fuel burning appliance (e.g. wood fireplace, wood stove), a carbon monoxide alarm is also required within the same room the appliance is installed.

Installers should refer to the manufacturer’s installation instructions.

Smoke and carbon monoxide alarms must be interconnected so that the activation of one alarm causes all alarms within the dwelling to sound.

Alarms may be connected to a ground fault circuit interrupter (GFCI) or arc fault circuit interrupter (AFCI) circuit as long as they have battery backup and are not interconnected to a heat sensor.

Foundations

The two basic types of foundations that can be used when constructing a new house are a full basement on a footing or a foundation supported on piles. All foundation types must be designed by an engineer. A wood basement design also requires an engineer to inspect and certify the installation.

If screw piles are being used to support a foundation, see the Information Bulletin on helical, augered and screw piles at: winnipeg.ca/informationbulletins

Ventilation

It is important to have a properly designed heating, ventilating, and air conditioning (HVAC) system to control condensation and maintain proper indoor air quality (IAQ).

This system design should be designed by an HRAI certified designer, engineer or other designer with formal training in residential HVAC design.

Heat or energy recovery ventilators (HRV’S) shall be installed in all single and two family dwelling units.

Attic space shall be vented in conformance to 9.19.1.1.

Material specifications

The material specification tables contained in this brochure are only a guide and do not cover all structural limitations available in the code. An engineer may be required for any variation from the minimum standards contained within these tables and in the Manitoba Building Code.

Minimum thickness of roof sheathing - MBC 9.23.16.7.A					
Maximum spacing of supports	Plywood		Waferboard and strandboard		Lumber
	Edges supported	Edges unsupported	Edges supported	Edges unsupported	
mm	mm	mm	mm	mm	mm
300	7.5	7.5	9.5	9.5	17.0
400	7.5	9.5	9.5	11.1	17.0
600	9.5	12.5	11.1	12.7	19.0

in.	in.	in.	in.	in.	in.
12	5/16	5/16	3/8	3/8	11/16
16	5/16	3/8	3/8	7/16	11/16
24	3/8	1/2	7/16	1/2	3/4

Thickness of wall sheathing - MBC 9.23.17.2.A				
Type of sheathing	Minimum thickness			
	Supports @ 16 in. o.c.	Supports @ 24 in. o.c.	Supports @ 400 mm o.c.	Supports @ 600 mm o.c.
	in.	in.	mm	mm
Lumber	11/16	11/16	17.0	17.0
Fibreboard	3/8	7/16	9.5	11.1
Plywood	1/4	5/16	6.0	7.5
Waferboard/ strandboard	1/4	5/16	6.35	7.9

Thickness of subflooring - MBC 9.23.15.5.A			
Maximum spacing of supports	Plywood	Waferboard and strandboard	Lumber
mm	mm	mm	mm
400	15.5	15.9	17.0
500	15.5	15.9	19.0
600	18.5	19.0	19.0

in.	in.	in.	in.
16	5/8	5/8	11/16
20	5/8	5/8	3/4
24	3/4	3/4	3/4

Ceiling joist spans - Table 9.23.4.2.-C									
	Grade	Member size (in)	Rafter spacing			Member size (mm)	Rafter spacing		
			12 in.	16 in.	24 in.		300 mm	400 mm	600 mm
			ft.-in.	ft.-in.	ft.-in.		m	m	m
Douglas fir-larch	No.1 and No. 2	2 x 4	10 - 9	9 - 9	8 - 6	38 x 89	3.27	2.97	2.59
		2 x 6	16 - 10	15 - 4	13 - 5	38 x 140	5.14	4.67	4.08
		2 x 8	22 - 2	20 - 2	17 - 7	38 x 184	6.76	6.14	5.36
		2 x 10	28 - 4	25 - 8	22 - 6	38 x 285	8.63	7.84	6.85
Spruce- pine- fir	No.1 and No. 2	2 x 4	10 - 3	9 - 3	8 - 1	38 x 89	3.11	2.83	2.47
		2 x 6	16 - 1	14 - 7	12 - 9	38 x 140	4.90	4.45	3.89
		2 x 8	21 - 1	19 - 2	16 - 9	38 x 184	6.44	5.85	5.11
		2 x 10	27 - 0	24 - 6	21 - 5	38 x 235	8.22	7.47	6.52

Roof rafter spans - Table 9.23.4.2.-F Rafter not supporting ceiling (Design roof snow loads for 1.5 kPa (30 psf)									
	Grade	Member size (in)	Rafter spacing			Member size (mm)	Rafter spacing		
			12 in.	16 in.	24 in.		300 mm	400 mm	600 mm
			ft.-in.	ft.-in.	ft.-in.		m	m	m
Douglas fir-larch	No.1 and No. 2	2 x 4	9 - 4	8 - 6	7 - 5	38 x 89	2.86	2.59	2.27
		2 x 6	14 - 9	13 - 5	10 - 11	38 x 140	4.49	4.08	3.34
		2 x 8	18 - 10	16 - 4	13 - 4	38 x 184	5.74	4.97	4.06
		2 x 10	23 - 0	19 - 11	16 - 3	38 x 235	7.02	6.08	4.96
Spruce- pine- fir	No.1 and No. 2	2 x 4	8 - 11	8 - 1	7 - 1	38 x 89	2.72	2.47	2.16
		2 x 6	14 - 0	12 - 9	11 - 2	38 x 140	4.28	3.89	3.40
		2 x 8	18 - 5	16 - 9	14 - 6	38 x 184	5.62	5.11	4.41
		2 x 10	23 - 7	21 - 5	17 - 8	38 x 235	7.18	6.52	5.39

Roof joist spans - Table 9.23.4.2.-D (Design roof snow loads for 1.5 kPa (30 psf)									
	Grade	Member size (in)	Rafter spacing			Member size (mm)	Rafter spacing		
			12 in.	16 in.	24 in.		300 mm	400 mm	600 mm
			ft.-in.	ft.-in.	ft.-in.		m	m	m
Douglas fir-larch	No.1 and No. 2	2 x 4	7 - 5	6 - 9	5 - 11	38 x 89	2.27	2.06	1.80
		2 x 6	11 - 8	10 - 8	9 - 3	38 x 140	3.57	3.24	2.83
		2 x 8	15 - 4	14 - 0	12 - 2	38 x 184	4.69	4.26	3.72
		2 x 10	19 - 8	17 - 10	15 - 7	38 x 235	5.98	5.44	4.74
Spruce- pine-fir	No.1 and No. 2	2 x 4	7 - 1	6 - 5	5 - 7	38 x 89	2.16	1.96	1.71
		2 x 6	11 - 2	10 - 1	8 - 10	38 x 140	3.40	3.08	2.69
		2 x 8	14 - 8	13 - 4	11 - 7	38 x 184	4.46	4.05	3.54
		2 x 10	18 - 8	17 - 0	14 - 10	38 x 235	5.70	5.18	4.52

Built-up floor beam spans - Table 9.23.4.2.-H

Supporting one floor in houses

Douglas fir-larch Grade No. 1 & 2

Size of beam	Supported joist length					Size of beam	Supported joist length				
	8 ft.	10 ft.	12 ft.	14 ft.	16 ft.		2.4 m	3.0 m	3.6 m	4.2 m	4.8 m
	ft.-in.	ft.-in.	ft.-in.	ft.-in.	ft.-in.		m	m	m	m	m
3 - 2 x 8	9 - 9	8 - 8	7 - 11	7 - 4	6 - 11	3 - 38 x 184	2.99	2.67	2.44	2.26	2.11
4 - 2 x 8	11 - 3	10 - 1	9 - 2	8 - 6	7 - 11	4 - 38 x 184	3.45	3.09	2.82	2.26	2.44
3 - 2 x 10	11 - 11	10 - 8	9 - 9	9 - 0	8 - 5	3 - 38 x 235	3.66	3.27	2.98	2.61	2.59
4 - 2 x 10	13 - 9	12 - 3	11 - 3	10 - 5	9 - 9	4 - 38 x 235	4.22	3.78	3.45	2.76	2.98
3 - 2 x 12	13 - 10	12 - 4	11 - 3	10 - 5	9 - 9	3 - 38 x 286	4.24	3.79	3.46	3.19	3.00
4 - 2 x 12	15 - 11	14 - 3	13 - 0	12 - 1	11 - 3	4 - 38 x 286	4.90	4.38	4.00	3.70	3.46

Spruce-pine-fir Grade No. 1 & 2

Size of beam	Supported joist length					Size of beam	Supported joist length				
	8 ft.	10 ft.	12 ft.	14 ft.	16 ft.		2.4 m	3.0 m	3.6 m	4.2 m	4.8 m
	ft.-in.	ft.-in.	ft.-in.	ft.-in.	ft.-in.		m	m	m	m	m
3 - 2 x 8	10 - 7	9 - 5	8 - 8	8 - 0	7 - 6	3 - 38 x 184	3.25	2.90	2.65	2.45	2.30
4 - 2 x 8	12 - 2	10 - 11	10 - 0	9 - 3	8 - 8	4 - 38 x 184	3.75	3.35	3.06	2.83	2.65
3 - 2 x 10	12 - 11	11 - 7	10 - 7	9 - 9	9 - 2	3 - 38 x 235	3.97	3.55	3.24	3.00	2.81
4 - 2 x 10	14 - 11	13 - 4	12 - 2	11 - 3	10 - 7	4 - 38 x 235	4.59	4.10	3.74	3.47	3.24
3 - 2 x 12	15 - 0	13 - 5	12 - 3	11 - 4	10 - 7	3 - 38 x 286	4.61	4.12	3.76	3.48	3.26
4 - 2 x 12	17 - 4	15 - 6	14 - 2	13 - 1	12 - 3	4 - 38 x 286	5.32	4.76	4.34	4.02	3.76

Built-up floor beam spans - Table 9.23.4.2.-I

Supporting two floors in houses

Douglas fir-larch Grade No. 1 & 2

Size of beam	Supported joist length					Size of beam	Supported joist length				
	8 ft.	10 ft.	12 ft.	14 ft.	16 ft.		2.4 m	3.0 m	3.6 m	4.2 m	4.8 m
	ft.-in.	ft.-in.	ft.-in.	ft.-in.	ft.-in.		m	m	m	m	m
3 - 2 x 8	7 - 5	6 - 7	6 - 0	5 - 7	5 - 3	3 - 38 x 184	2.27	2.03	1.85	1.71	1.60
4 - 2 x 8	8 - 6	7 - 8	7 - 0	6 - 5	6 - 0	4 - 38 x 184	2.62	2.34	2.14	1.98	1.85
3 - 2 x 10	9 - 0	8 - 1	7 - 4	6 - 10	6 - 5	3 - 38 x 235	2.77	2.48	2.26	2.10	1.96
4 - 2 x 10	10 - 5	9 - 4	8 - 6	7 - 11	7 - 4	4 - 38 x 235	3.20	2.86	2.62	2.42	2.26
3 - 2 x 12	10 - 6	9 - 4	8 - 7	7 - 11	7 - 5	3 - 38 x 286	3.22	2.88	2.63	2.43	2.28
4 - 2 x 12	12 - 1	10 - 10	9 - 11	9 - 2	8 - 7	4 - 38 x 286	3.72	3.32	3.03	3.03	2.63

Spruce-pine-fir Grade No. 1 & 2

Size of beam	Supported joist length					Size of beam	Supported joist length				
	8 ft.	10 ft.	12 ft.	14 ft.	16 ft.		2.4 m	3.0 m	3.6 m	4.2 m	4.8 m
	ft.-in.	ft.-in.	ft.-in.	ft.-in.	ft.-in.		m	m	m	m	m
3 - 2 x 8	8 - 0	7 - 2	6 - 7	6 - 1	5 - 9	3 - 38 x 184	2.46	2.20	2.01	1.86	1.74
4 - 2 x 8	9 - 3	8 - 3	7 - 7	7 - 0	6 - 7	4 - 38 x 184	2.85	2.55	2.32	2.15	2.01
3 - 2 x 10	9 - 10	8 - 9	8 - 0	7 - 5	6 - 10	3 - 38 x 235	3.01	2.70	2.46	2.28	2.11
4 - 2 x 10	11 - 4	10 - 2	9 - 3	8 - 7	8 - 0	4 - 38 x 235	3.48	3.11	2.84	2.63	2.46
3 - 2 x 12	11 - 5	10 - 2	9 - 4	8 - 7	7 - 9	3 - 38 x 286	3.50	3.13	2.85	2.64	2.38
4 - 2 x 12	13 - 2	11 - 9	10 - 9	9 - 11	9 - 4	4 - 38 x 286	4.04	3.61	3.30	3.05	2.85

Floor joist spans - Table 9.23.4.2.-A												
	Grade		Joist spacing with strapping			Joist spacing with bridging			Joist spacing with strapping & bridging		
			12 in.	16 in.	24 in.	12 in.	16 in.	24 in.	12 in.	16 in.	24 in.
			ft.-in.	ft.-in.	ft.-in.	ft.-in.	ft.-in.	ft.-in.	ft.-in.	ft.-in.	ft.-in.
Douglas fir-larch	No.1 and No. 2	2 x 4	6 - 7	6 - 0	5 - 5	6 - 10	6 - 3	5 - 5	6 - 10	6 - 3	5 - 5
		2 x 6	10 - 2	9 - 7	8 - 7	10 - 10	9 - 10	8 - 7	10 - 10	9 - 10	8 - 7
		2 x 8	12 - 2	11 - 7	11 - 0	13 - 1	12 - 4	11 - 3	13 - 9	12 - 10	11 - 3
		2 x 10	14 - 4	13 - 8	13 - 0	15 - 3	14 - 4	13 - 6	15 - 10	14 - 1	13 - 10
		2 x 12	16 - 5	15 - 7	14 - 10	17 - 2	16 - 2	15 - 3	17 - 10	16 - 7	15 - 6
		(mm)	300mm	400mm	600mm	300mm	400mm	600mm	300mm	400mm	600mm
			m	m	m	m	m	m	m	m	m
		38 x 89	2.00	1.85	1.66	2.09	1.90	1.66	2.09	1.90	1.66
		38 x 140	3.09	2.91	2.62	3.29	2.99	2.62	3.29	2.99	2.62
		38 x 184	3.71	3.53	3.36	3.98	3.75	3.44	4.19	3.90	3.44
		38 x 235	4.38	4.16	3.96	4.64	4.37	4.11	4.84	4.51	4.21
		38 x 286	4.99	4.75	4.52	5.24	4.93	4.64	5.43	5.07	4.72
Spruce-pine- fir	No.1 and No. 2	(in.)	12 in.	16 in.	24 in.	12 in.	16 in.	24 in.	12 in.	16 in.	24 in.
			ft.-in.	ft.-in.	ft.-in.	ft.-in.	ft.-in.	ft.-in.	ft.-in.	ft.-in.	ft.-in.
		2 x 4	6 - 1	5 - 8	5 - 2	6 - 6	5 - 11	5 - 2	6 - 6	5 - 11	5 - 2
		2 x 6	9 - 7	8 - 11	8 - 2	10 - 4	9 - 4	8 - 2	10 - 4	9 - 4	8 - 2
		2 x 8	11 - 7	11 - 0	10 - 6	12 - 5	11 - 9	10 - 9	13 - 1	12 - 2	10 - 9
		2 x 10	13 - 8	13 - 0	12 - 4	14 - 6	13 - 8	12 - 10	15 - 1	14 - 1	13 - 2
		2 x 12	15 - 7	14 - 10	14 - 1	16 - 4	15 - 5	14 - 6	17 - 0	15 - 10	14 - 9
		(mm)	300mm	400mm	600mm	300mm	400mm	600mm	300mm	400mm	600mm
			m	m	m	m	m	m	m	m	m
		38 x 89	1.86	1.72	1.58	1.99	1.81	1.58	1.99	1.81	1.58
		38 x 140	2.92	2.71	2.49	3.14	2.85	2.49	3.14	2.85	2.49
		38 x 184	3.54	3.36	3.20	3.79	3.57	3.27	3.99	3.72	3.27
		38 x 235	4.17	3.96	3.77	4.41	4.16	3.92	4.61	4.30	4.01
		38 x 286	4.75	4.52	4.30	4.99	4.10	4.42	5.17	4.82	4.50

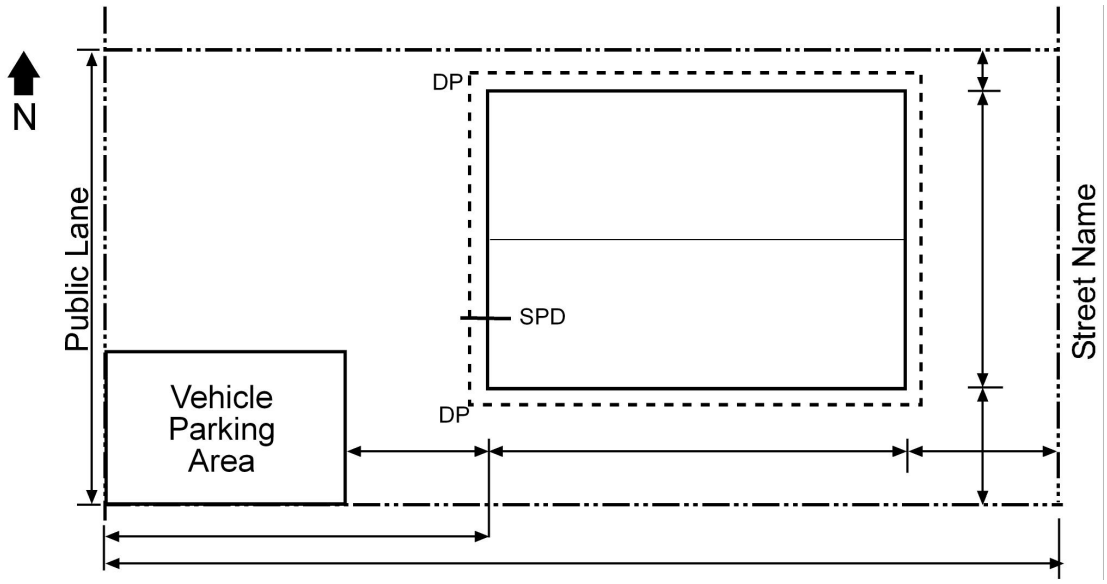
Inspections

The Housing Inspections Branch regulates construction for compliance with applicable codes, standards and bylaws. This monitoring is carried out through the permit approval process and periodic site inspections.

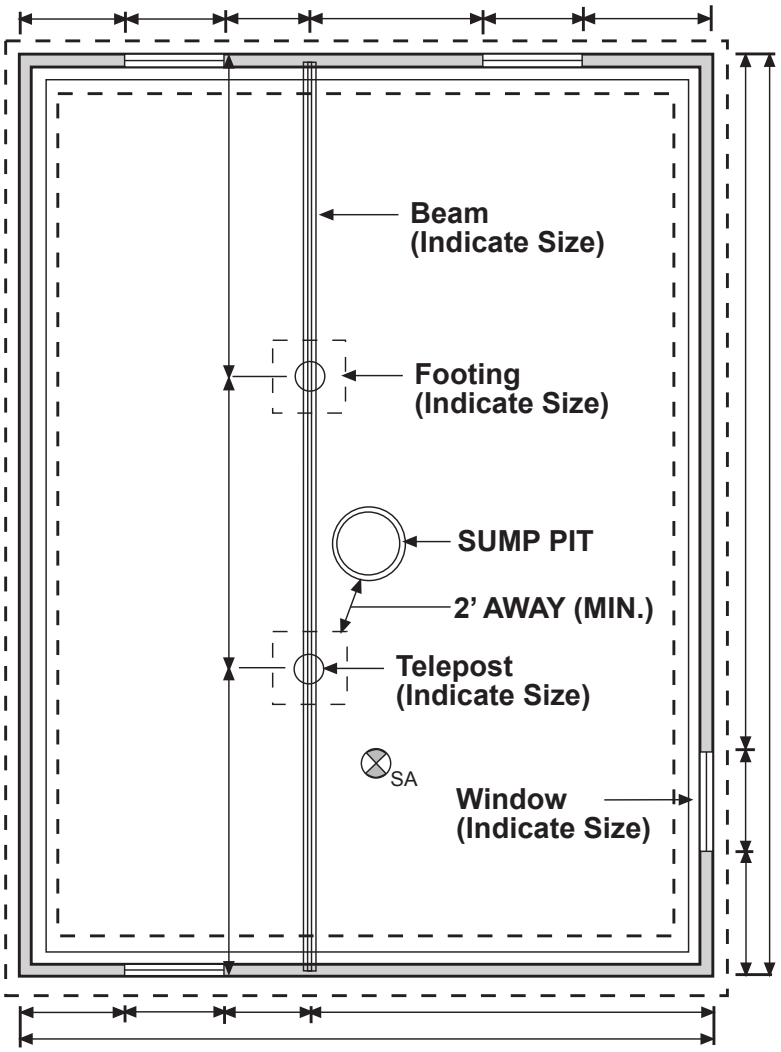
The responsibility for compliance rests with the property owner. Before covering any new work, you must schedule an inspection by submitting the housing inspection request form at: winnipeg.ca/housinginspectionrequest

Sample drawings

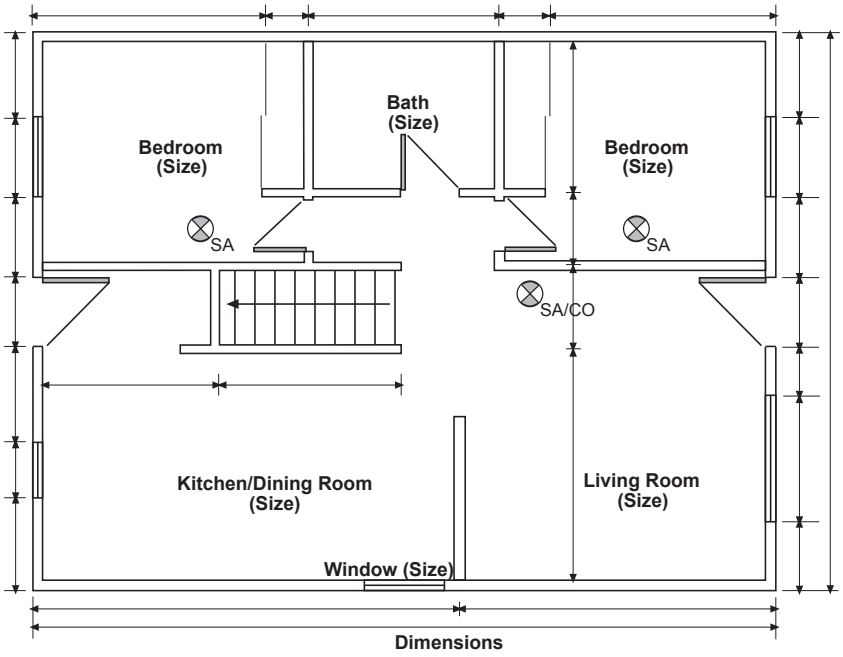
Site plan



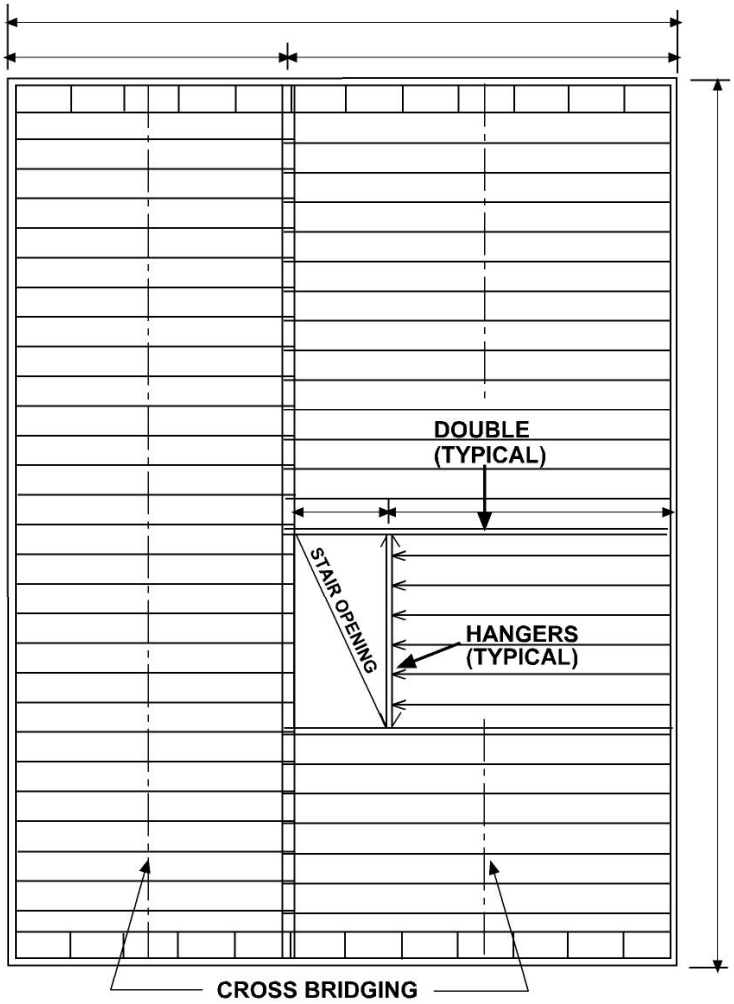
Foundation plan



Floor plan

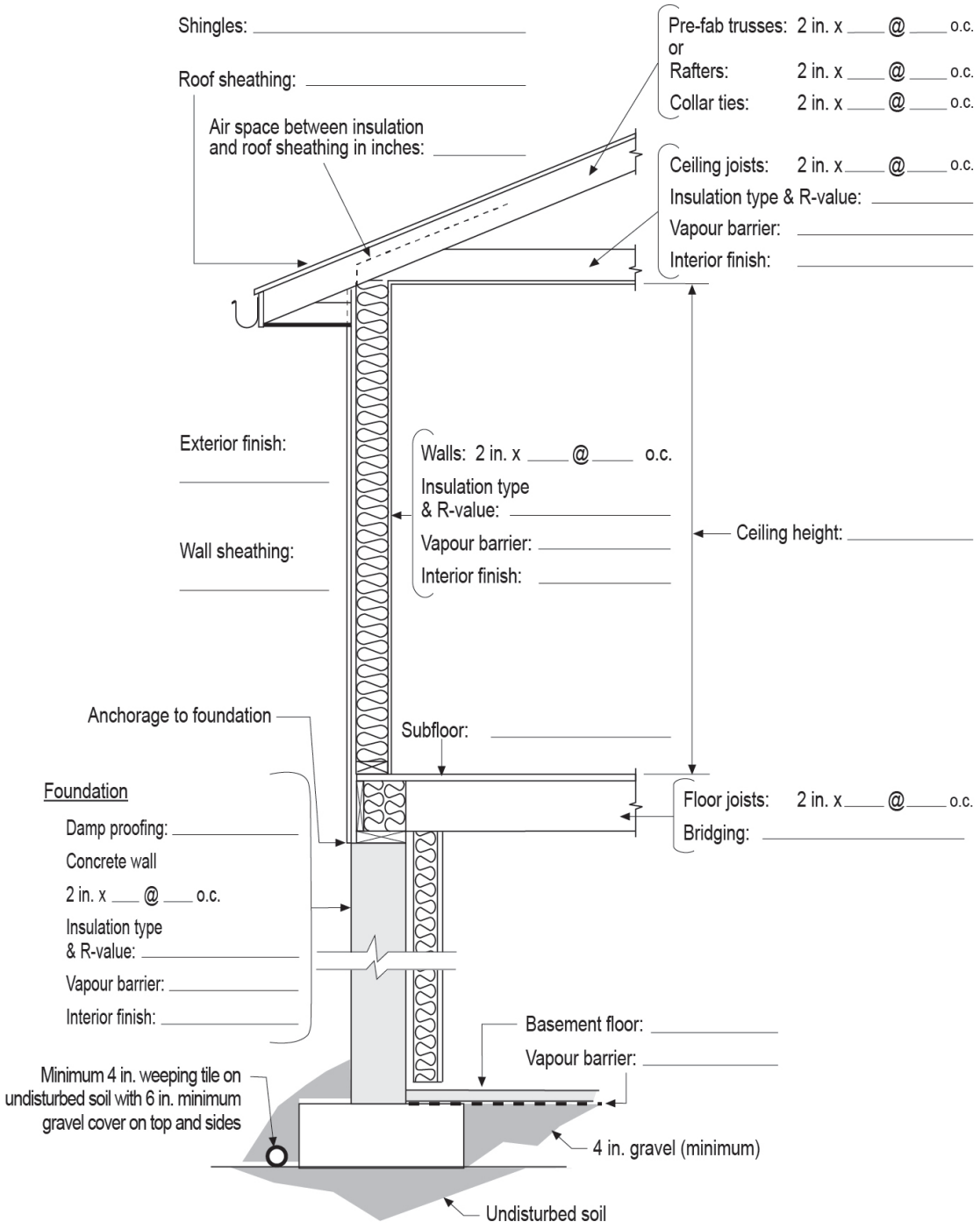


Floor framing plan



Section drawings

Provide material description details.

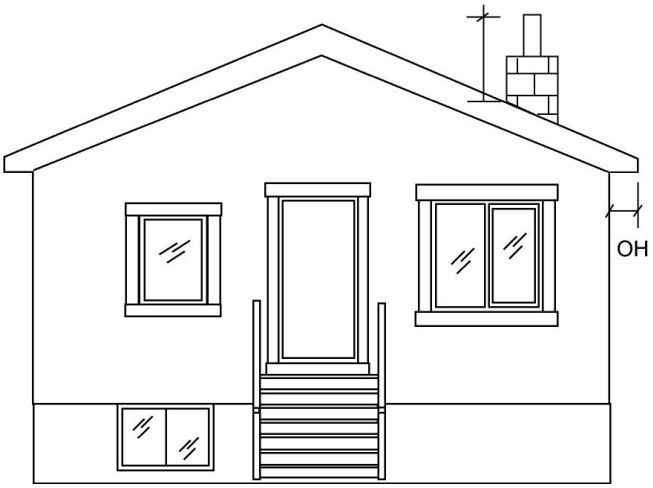


Notes:

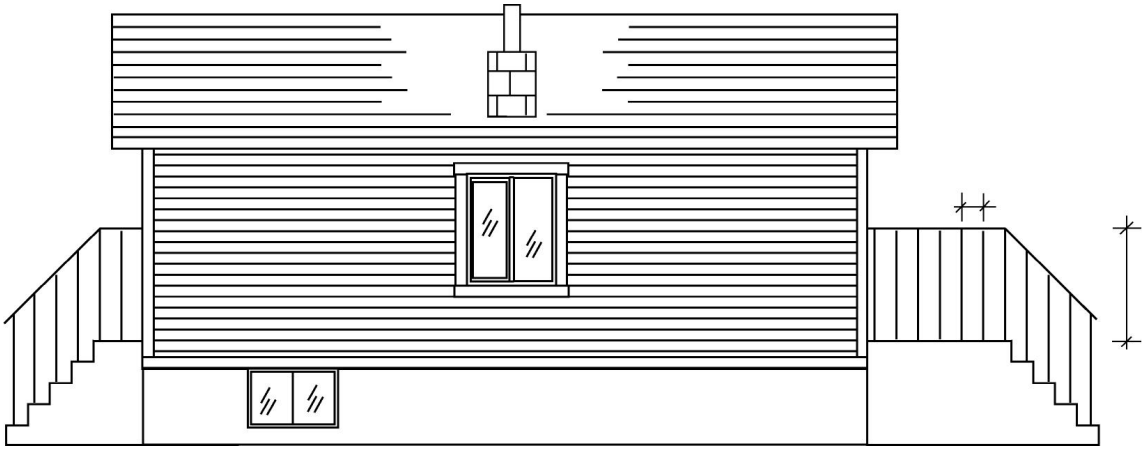
1. Attic space shall be vented in conformance to 9.19.1.1.
2. Joists are to be anchored to the foundation by embedment or sill plate in conformance to 9.23.6.1.

Elevations

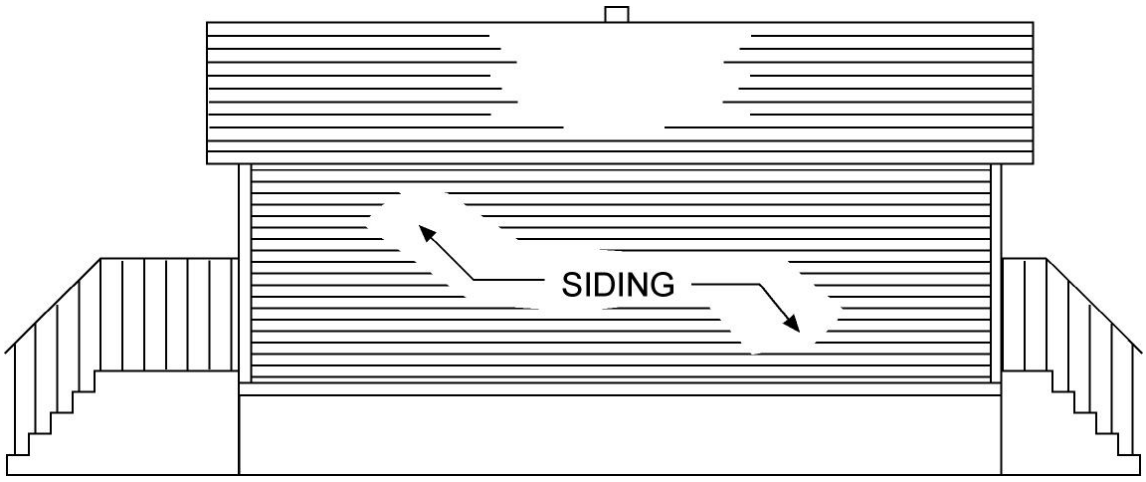
Front elevation



Rear elevation



Side elevation



Winnipeg

Zoning & Permits Branch
Unit 31 - 30 Fort Street, Winnipeg, Manitoba R3C 4X7 | winnipeg.ca/buildingdevelopment

Permits Direct Line
204-986-5140 | ppd-permit@winnipeg.ca

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