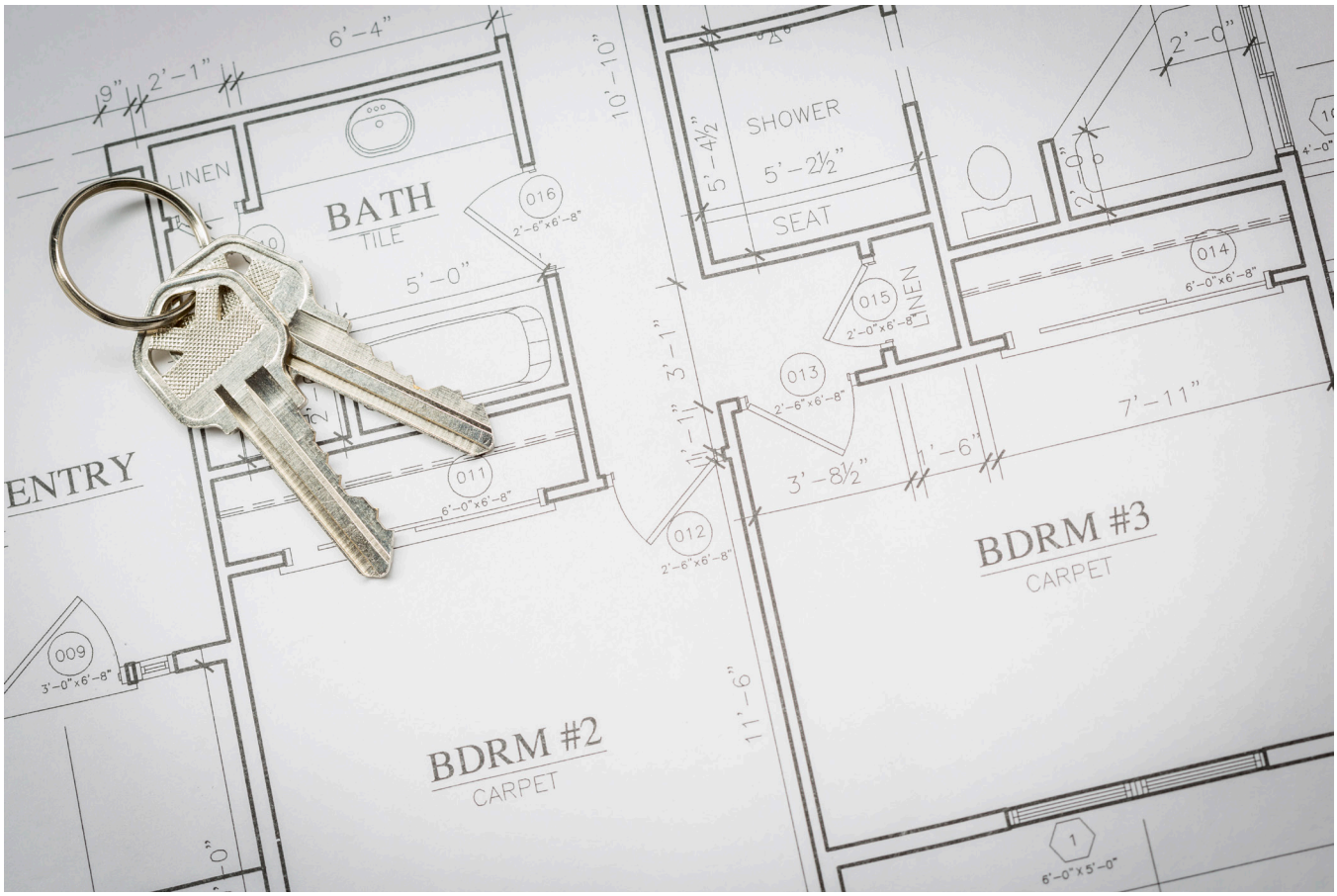
New House

Construction Information



Permit requirements

All new homes require development and building permits.

A development permit establishes land use and confirms the structure is located on the property in accordance with the zoning bylaw and other City departments' requirements.

A building permit confirms the structure meets code requirements. Building permits must align with prior development permit approvals.

Note: New homes in new subdivisions with prior development agreements on title do not require prerequisite development permit approval. Instead, the development permit will be processed as part of the building permit application.

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

Table of contents

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 window opening size is 1.2 m (4’-0”) and openings not to exceed 25 per cent of the wall length.

Smoke/carbon monoxide alarms

1. At least one wired-in smoke/carbon monoxide alarm is required per floor level, in each bedroom, and at locations between the bedroom and the remainder of the floor level (i.e. hallways).

Foundations

An engineer is not required if the foundation meets the minimum code standards for wall length, wall thickness and reinforcement as shown in Figures 1 and 2. However, if a variation of the design is used, such as in Figures 1 and 2, or any of several other alternative designs, including for example piles, insulated concrete forms or a wood basement, an engineer must be retained to design and seal the plans. Additionally, a wood basement design will require that an engineer be retained to inspect and certify the installation.

Figure 1 - Laterally supported foundation walls

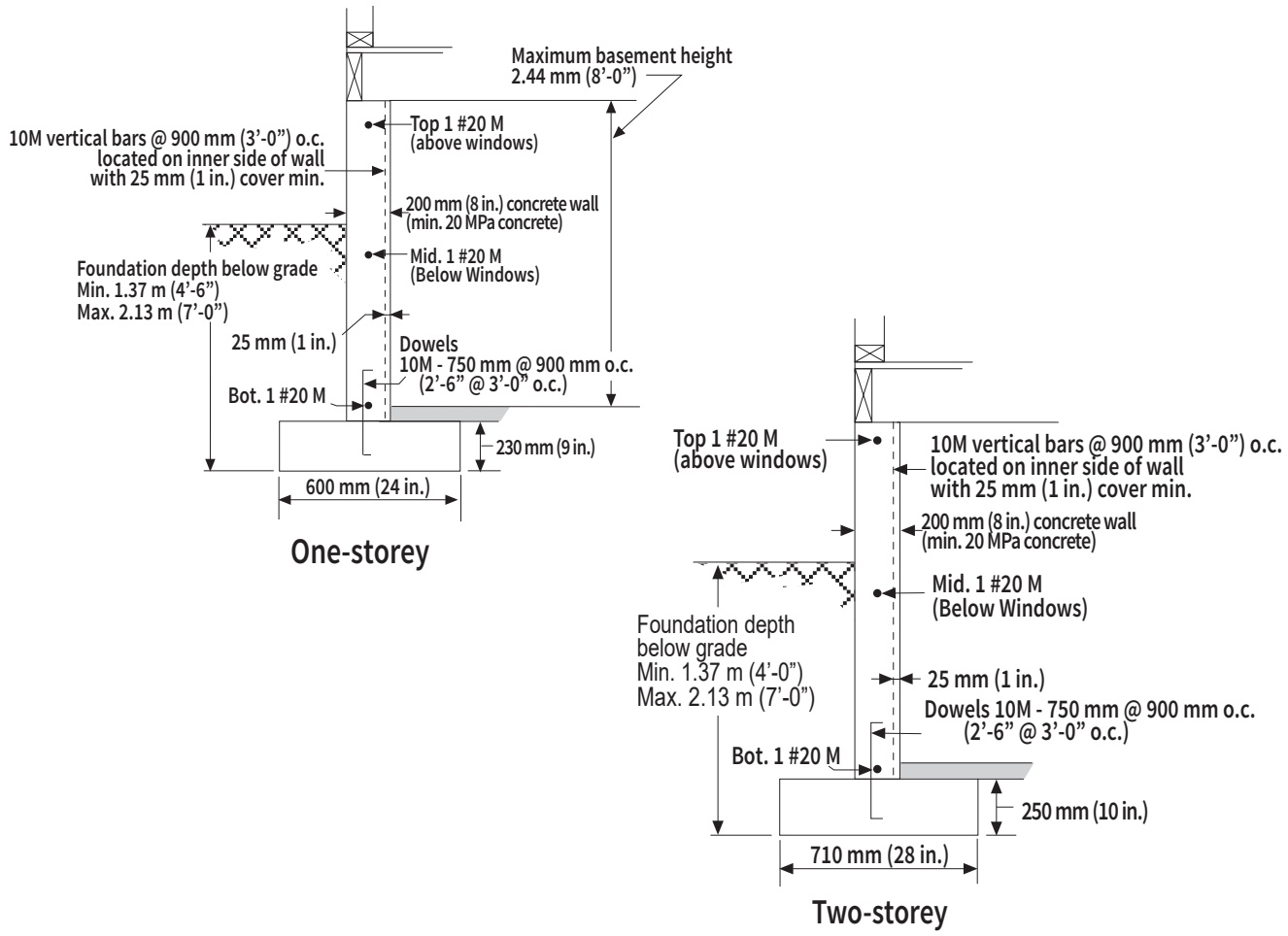
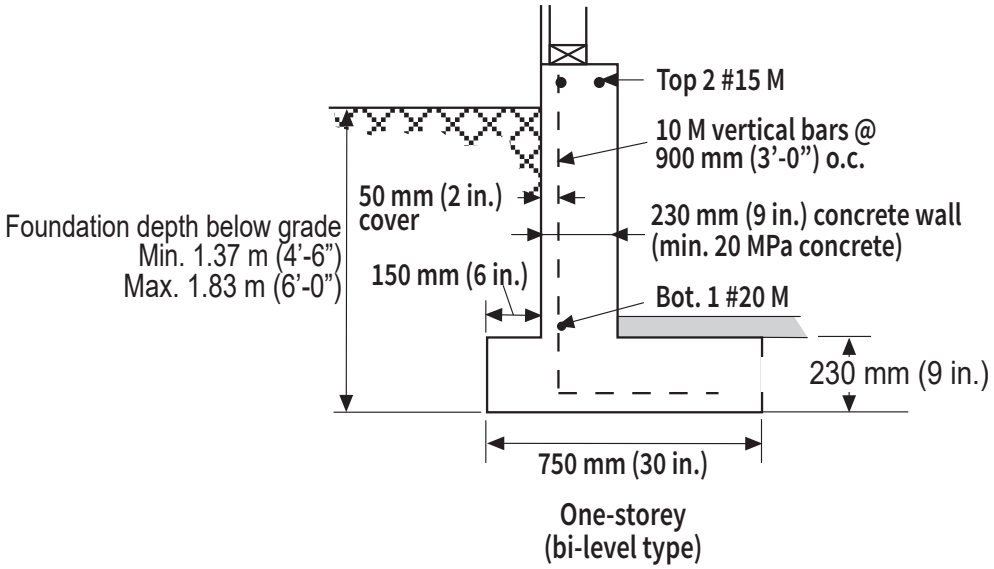


Figure 2 - Laterally unsupported foundation walls



Notes to Figures 1 and 2:

1. Top of foundation shall be at least 150 mm (6 in.) above finished ground level.
2. Walls over 12 m (40'-0") in length shall be designed by an engineer.
3. Length of supported joists shall not exceed 4.9 m (16'-0").
4. Joists are to be anchored to the foundation by embedment or sill plate in conformance to 9.23.6.1.

Interior footing sizes

One-storey - 750 mm x 750 mm x 250 mm deep (30 in. x 30 in. x 10 in. deep)

Two-storey - 900 mm x 900 mm x 300 mm deep (36 in. x 36 in. x 12 in. deep)

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					
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
Column 1	2	3	4	5	6

Thickness of wall sheathing				
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
Column 1	2	3	4	5

Thickness of subflooring			
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
Column 1	2	3	4

Ceiling joist spans									
Commercial designation	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
Col. 1	2	3	4	5	6	7	8	9	10

Roof rafter spans Rafter not supporting ceiling (Design roof snow loads for 1.5 kPa (30 psf)									
Commercial designation	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
Col. 1	2	3	4	5	6	7	8	9	10

Roof joist spans (Design roof snow loads for 1.5 kPa (30 psf)									
Commercial designation	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
Col. 1	2	3	4	5	6	7	8	9	10

Built-up floor beam spans
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
1	2	3	4	5	6	7	8	9	10	11	12

Built-up floor beam spans
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
1	2	3	4	5	6	7	8	9	10	11	12

Floor joist spans											
Commercial designation	Grade	Member size (in)	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
Col. 1	2	3	4	5	6	7	8	9	10	11	12

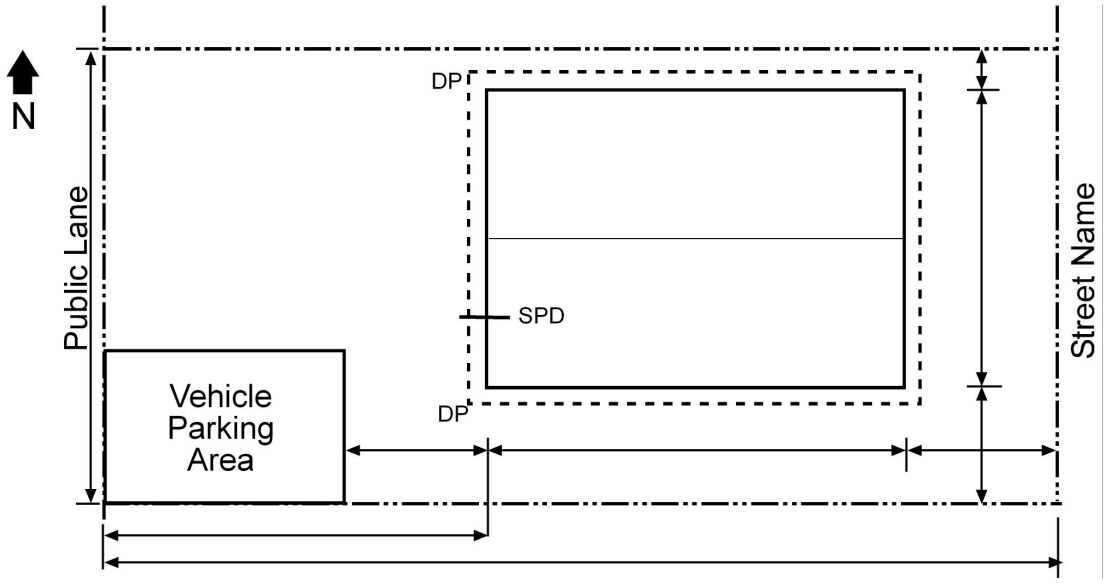
Inspections

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.

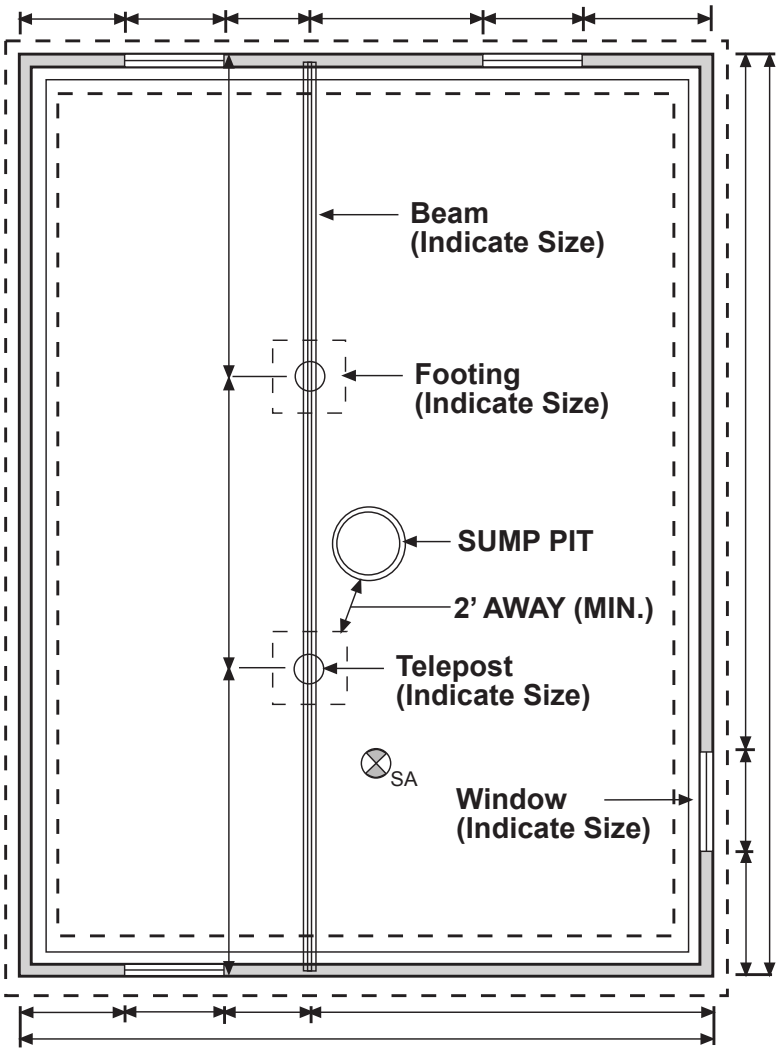
The responsibility for compliance rests with the property owner. Prior to covering any new work, you must schedule an inspection by submitting the housing inspection request form at winnipeg.ca/housinginspection

Sample drawings

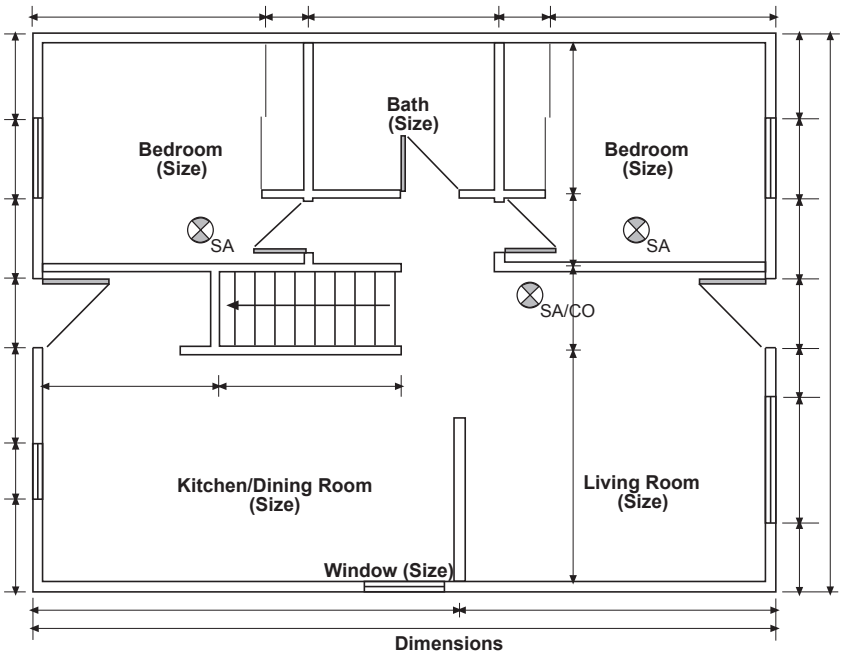
Site plan



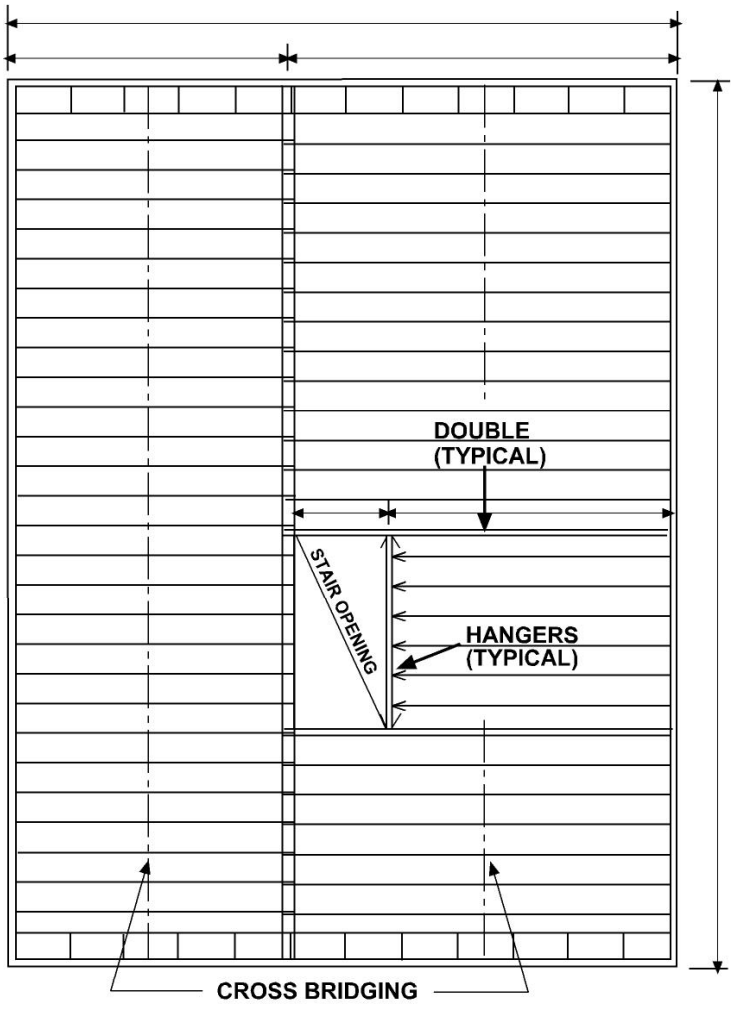
Foundation plan



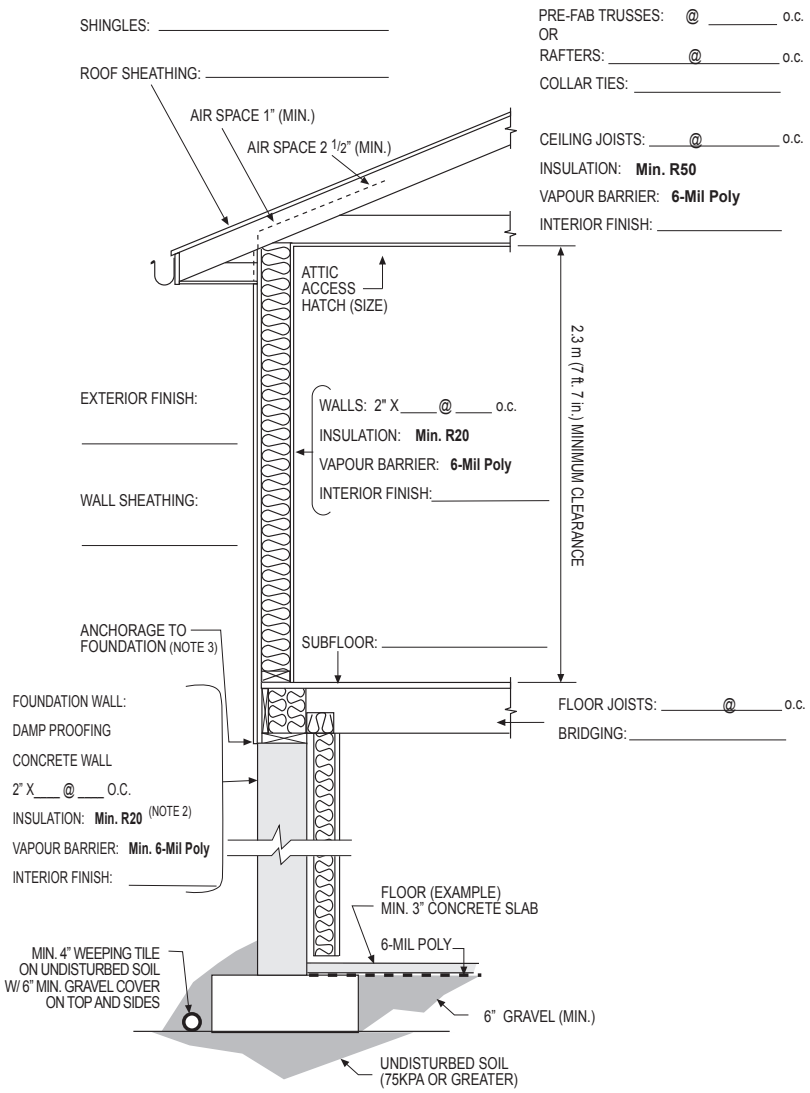
Floor plan



Floor framing plan



Section drawings

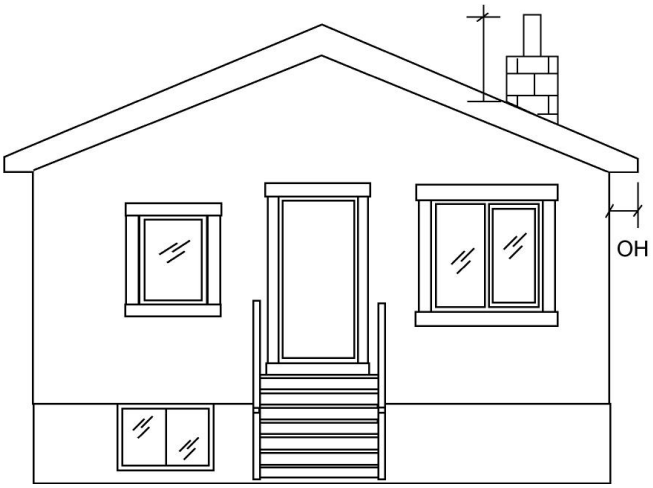


Note:

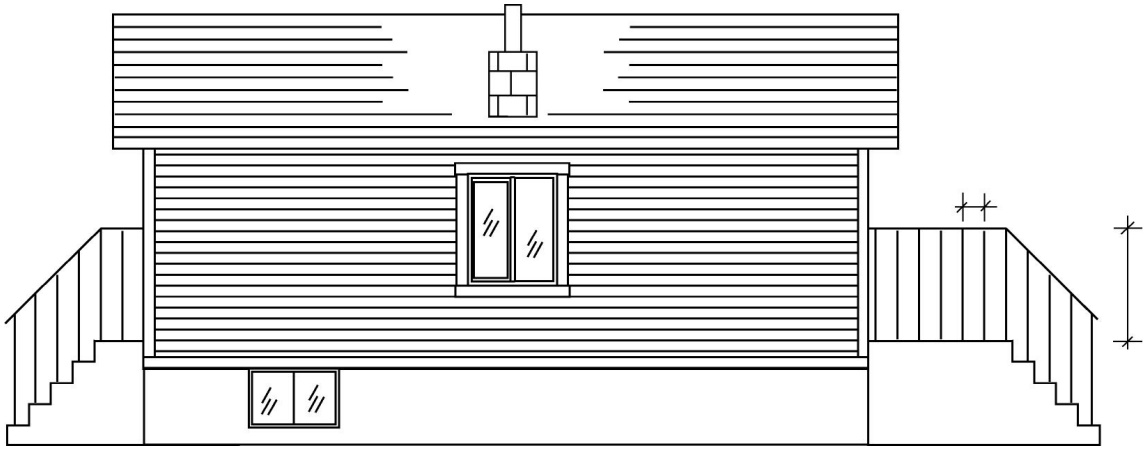
1. Attic space shall be vented in conformance to 9.19.1.1.
2. Insulation required for dwellings where the foundation wall does not extend more than 1.2 m (4'-0") above ground level and where natural gas is used as a heating source.
3. Joists are to be anchored to the foundation by embedment or sill plate in conformance to 9.23.6.1.

Elevations

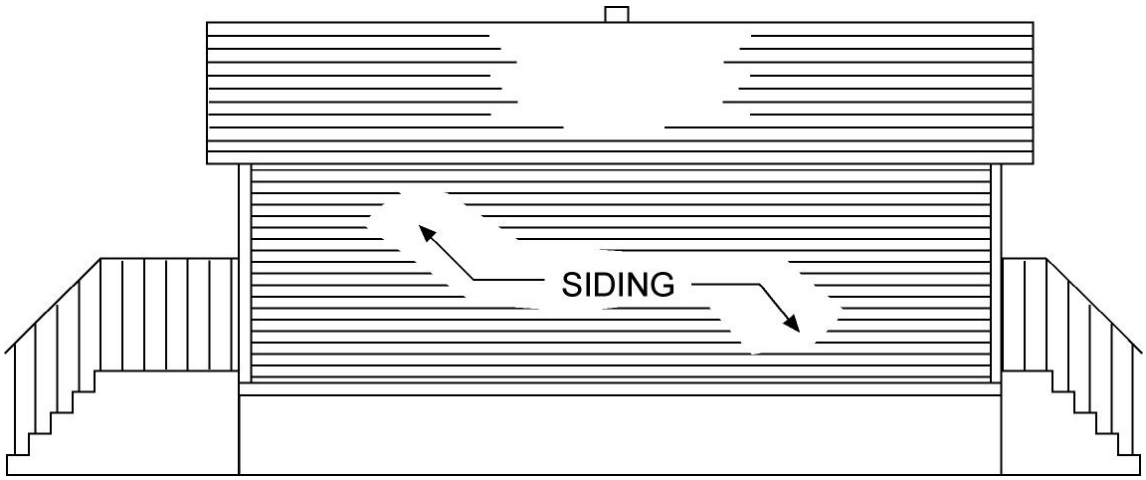
Front elevation



Rear elevation



Side elevation



Side elevation

Winnipeg | **Planning, Property & Development**
Urbanisme, biens et aménagement

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

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

Updated: November 2022