Detached Garages & Accessory Structures

Construction Information

Permit requirements

All detached garages and accessory structures larger than 10 m² (108 sq. ft.), 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.

While development and building permits are not required for accessory structures less than 10 m² (108 sq. ft.), they must be situated on the property in accordance with the Zoning By-law and constructed in accordance with the building code. If the proposed detached garage or accessory structure is to be built adjacent to a waterway, a waterway permit and/or approval for development and construction in a flood prone area may be required as part of the permit process. For more information see the Construction Regulations along City Waterways guide or contact Waterways at 204-986-5098.
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Note

The Winnipeg Building By-law is primarily an administrative document that adopts the Manitoba Building Code and related standards to provide construction requirements.

Throughout this publication, the Manitoba Building Code will be referred to as the building code.

Detached garages and accessory structures vary in size and area and it is beyond the scope of this publication to deal with every possible situation. The requirements and construction guidelines that follow are provided to assist you in designing and constructing a detached garage or accessory structure that will comply with the regulations. If the nature of your project is different than that contained in this publication and you are not familiar with the regulations that may be applicable, it is recommended that you contact someone who is knowledgeable in this area.
General information

Carports

Development and building permits are required to build a carport. Whether the carport stands alone or is attached to another structure, all zoning and building code regulations apply.

Construction plans are required for all carports and need to include detailed information regarding roof framing, posting and the posting foundations as well as the size and construction of the beams over the top of the posts.

Where the carport is attached to the house it must comply with all regulations for house additions. The zoning and building code regulations for house additions are different from those contained in this publication. Please contact Permits Direct Line at 204-986-5140 for more information.

Property lines

You cannot rely on sidewalks, laneways or fences to determine where your property line is located. The only accurate way to determine your property line is with a Manitoba Land Surveyor's Staking Certificate. If you do not have this certificate, you may need to retain the services of a Manitoba Land Surveyor. This is the best way to avoid property boundary disputes with neighbours.

Zoning

Clearance requirements (setbacks)

The zoning bylaw has side yard regulations which, together with the proposed width of the roof eaves, will affect the location of the structure relative to property lines.

In most cases, when a garage or storage shed is built to the rear of the dwelling, it can come as close as 600 mm (2'-0") to the side and rear property lines.

A garage or accessory structure located beside the dwelling or on a reverse corner lot* require different setbacks. See Figure 1.

A 300 mm (1'-0") overhang is permitted within the required setbacks from the property lines to the wall of the garage, shed or carport posts. Eavestroughing may be added to the permitted 300 mm (1'-0") overhang.

Note: If a wider overhang is desired, the garage or accessory structure wall must be set back further from the property line in order to maintain a clear separation of 300 mm (1'-0") from the property line to the eave as shown in Figure 2. In this example the 300 mm (1'-0") overhang requires that the garage wall be set back 600 mm (2'-0") from the property line.

Figure 1 - Property line setbacks

- a. 600 mm (2'-0")
- b. 600 mm (2'-0")
- c. Same as dwelling (usually 1.2 m (4'-0''))
- d. Same as dwelling (usually 2.7 m (9'-0''))
- e. 1 m (3'-0") clear of all projections
- f. 18 m (60'-0") to front property and behind rear wall of dwelling

* A reverse corner lot is a corner lot where its rear property line abuts the side lot line of an adjoining property.
Figure 2 - Setback from overhang

Maximum permissible height
The maximum height allowable for a garage or accessory structure is 4.0 m (13'-0") determined according to roof style as shown in Figure 3.

Figure 3 - Allowable roof heights

Maximum allowable height

Example: On a 40 ft. X 100 ft. (4,000 sq. ft.) lot, up to 500 sq. ft (12.5 per cent of 4,000) of accessory buildings may be constructed.

However, up to 45 m² (484 sq. ft) of accessory structures are permitted regardless of lot area.

Example: On a 25 ft. X 100 ft. (2,500 sq. ft.) lot, the maximum of 484 sq. ft. would be allowable.

If these maximums are not adequate, you must apply for a zoning variance.

Foundations

Foundation requirements – one-storey only

1. For a detached garage with a building area of less than 50 m² (538 sq. ft.), it is recommended that a concrete slab with a thickness of not less than 100 mm (4in) be used as shown in Figure 4a.

2. For a building area of 50 to 70 m² (538 to 753 sq. ft.) inclusive, it is recommended that a thickened edge concrete slab be used as shown in Figure 4b.

3. For foundations other than those shown in Figures 4a and 4b, or if the building area is greater than 70 m² (753 sq. ft.), or if the garage supports an upper floor or a roof with other than limited attic storage* floor area, the foundation must be designed by an engineer.

*Attic storage shall be limited to 1,066 mm (3'-6") in height, 2,590 mm (8'-6") in width and a 1.0 kPa (20 psf) storage live load. Storage can run the length of the building.

Note: Where the slope of a gable, gambrel, or hip roof, or any portion of such roof, is less than 1:3 (rise:run), the building height shall be measured as though the roof were flat.

Size limitations
Garages and accessory structures combined cannot exceed 12.5 per cent of the total area of the lot to a maximum of 81.75 m² (880 sq. ft).
Foundation for one-storey detached garages

**Concrete specification**

Concrete used for all detached garage or accessory structure foundation slabs must have a minimum compressive strength of 32 MPa (4600 psi) after 28 days and must have air entrainment of 5 to 8 per cent.

**Fire protection & framing**

**Fire ratings**

You must fire-rate only those walls that are closer than 600 mm (2’-0”) to any property line that faces an adjoining property other than the street or public lane.

**Note:** The zoning bylaw may not allow a wall closer than 600 mm (2’-0”) to a property line.

Required fire-ratings can be achieved by applying a layer of 15.9 mm (5/8 in.) standard non-rated drywall or 12.7 mm (1/2 in.) fire-rated (Type X) drywall or equivalent to the inside face of the wall.

**Openings in walls**

Windows and other openings, including doors, are only permitted in a wall if the wall is 1.2 m (4’-0”) or more from the property line of an adjoining property other than the street or public lane.

There are no distance restrictions between wall openings in a detached structure and a single-family dwelling on the same lot.

**Framing methods**

The framing details described in this publication are based on a one-storey wood-framed structure that do not include any additional superimposed loads and further design consideration may be required to address these loads.

Framing methods must be in accordance with good building practice. A detailed discussion of this aspect of construction is beyond the scope of this publication. However, some common framing details are indicated on the following pages. Refer to Figures 5, 6 and 7, and Tables 1 and 2.
For more detailed information refer to Canada Mortgage and Housing Corporation’s publications Canadian Wood Frame House Construction and Glossary of Housing Terms.

Where the structure will not be a standard wood frame structure, such as post and beam, concrete block, brick (including brick veneer), metal framing or where the framing members exceeds what is prescribed in this publication, the design must be engineered and drawings must be submitted under the seal and of an engineer.

Figure 5 - Wall framing and lintel detail

Notes to Figure 5:

1. Double top plate: Joints must be staggered at least one stud spacing and lapped or suitably tied at corners or intersecting walls.

2. Lintel: Refer to Table 1 to determine the size of lintel required for the opening width you select.

3. Through stud: Refer to Table 2 to determine the maximum spacing and maximum unsupported height of studs.

4. Cripple stud: The building code requires these studs to be a single full-length piece of lumber extending from the underside of the lintel to the bottom plate. Two cripples are required on both sides of opening when opening is greater than 3 m (9'-10")

5. Single bottom plate: To prevent uplift, this plate must be firmly anchored down using a minimum 12.7 mm (1/2 in.) diameter anchor bolts at each side of door openings, at each end of each wall, and at intervals not exceeding 2.4 m (7'-10").

Figure 6 - Exterior corner detail

Figure 7 - Exterior wall framing at gable end detail

Table 1 - Wood lintel spans for windows and man doors

<table>
<thead>
<tr>
<th>Size of lintels</th>
<th>Allowable spans</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 - 38 x 89 mm (2 - 2 x 4)</td>
<td>1.19 m (3'-11&quot;)</td>
</tr>
<tr>
<td>2 - 38 x 140 mm (2 - 2 x 6)</td>
<td>1.79 m (5'-10&quot;)</td>
</tr>
<tr>
<td>2 - 38 x 184 mm (2 - 2 x 8)</td>
<td>2.18 m (7'-2&quot;)</td>
</tr>
</tbody>
</table>

Notes to Table 1:

1. This table is for use with Spruce-Pine-Fir lumber grades 1 and 2.

2. Built-up lintels must be constructed of full-length members. No splicing of members is permitted between supports.
Table 2 - Size and spacing of studs

<table>
<thead>
<tr>
<th>Type of wall</th>
<th>Supported loads (including dead loads)</th>
<th>Minimum stud size</th>
<th>Maximum stud spacing</th>
<th>Maximum unsupported height</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exterior</td>
<td>Roof with or without attic storage</td>
<td>38 x 64 mm (2 x 3) 38 x 89 mm (2 x 4)</td>
<td>400 mm (16 in.) 600 mm (24 in.)</td>
<td>2.4 m (7'-10&quot;) 3.0 m (9'-10&quot;)</td>
</tr>
</tbody>
</table>

Note to Table 2:
This table is for use with all species of lumber and minimum grades of standard, stud, and No. 2.

Overhead door lintels

The size of lintel required depends entirely upon the load which it must support which, in this case, is determined by the style of roof. See Tables 3 and 4.

How are the tables used in determining the required overhead door lintel size?

If the roof style selected is Gable 1 as shown in Figure 8, then Table 3 is used to determine the lintel size. This table is used where the door opening does not support the roof (i.e. where the roof framing elements, such as trusses or rafters, run parallel to the door opening).

Figure 8 - Roof style with lintel not supporting roof framing

Table 3 - Wood lintels - not supporting roof loads

<table>
<thead>
<tr>
<th>Maximum door opening width</th>
<th>Lintel - Gable roof only (door in gable end)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.44 m (8'-0&quot;)</td>
<td>2 - 38 x 184 mm (2 - 2 x 8)</td>
</tr>
<tr>
<td>3.66 m (12'-0&quot;)</td>
<td>2 - 38 x 235 mm (2 - 2 x 10)</td>
</tr>
<tr>
<td>4.27 m (14'-0&quot;)</td>
<td>3 - 38 x 235 mm (3 - 2 x 10)</td>
</tr>
<tr>
<td>4.88 m (16'-0&quot;)</td>
<td>3 - 38 x 235 mm (3 - 2 x 10)</td>
</tr>
<tr>
<td>5.49 m (18'-0&quot;)</td>
<td>3 - 38 x 286 mm (3 - 2 x 12)</td>
</tr>
</tbody>
</table>

Notes to Table 3:
1. This table is for use with Spruce-Pine-Fir lumber grades 1 and 2.
2. Built-up lintels must be constructed of full-length members. No splicing of members is permitted between supports.

If the roof type selected is as shown in Figure 9 (i.e. gable 2, hip, mono, or flat) then Table 4 is used to determine the lintel size. This table is used where the lintel over the door opening supports the roof (i.e. where the roof framing elements, such as trusses or rafters, run perpendicular to the door opening).

To select a size of wood lintel simply match the door opening size with the appropriate supported length in Table 4 to find the minimum lintel size.

Figure 9 - Roof styles with lintel supporting roof framing
### Table 4 - Wood lintels – supporting roof loads

**Supported length (see note 3 below)**

<table>
<thead>
<tr>
<th>Width of opening (lintel span)</th>
<th>2.44 m (8'-0&quot;)</th>
<th>3.05 m (10'-0&quot;)</th>
<th>3.66 m (12'-0&quot;)</th>
<th>4.27 m (14'-0&quot;)</th>
<th>4.88 m (16'-0&quot;)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.44 m (8'-0&quot;)</td>
<td>3 - 38 x 184mm (3 - 2 x 8)</td>
<td>3 - 38 x 184mm (3 - 2 x 8)</td>
<td>3 - 38 x 184mm (3 - 2 x 8)</td>
<td>3 - 38 x 184mm (3 - 2 x 8)</td>
<td>3 - 38 x 235mm (3 - 2 x 10)</td>
</tr>
<tr>
<td>2.74 m (9'-0&quot;)</td>
<td>3 - 38 x 184mm (3 - 2 x 8)</td>
<td>3 - 38 x 184mm (3 - 2 x 8)</td>
<td>3 - 38 x 184mm (3 - 2 x 8)</td>
<td>3 - 38 x 235mm (3 - 2 x 10)</td>
<td>3 - 38 x 235mm (3 - 2 x 10)</td>
</tr>
<tr>
<td>3.05 m (10'-0&quot;)</td>
<td>3 - 38 x 184mm (3 - 2 x 8)</td>
<td>3 - 38 x 235mm (3 - 2 x 10)</td>
<td>3 - 38 x 235mm (3 - 2 x 10)</td>
<td>3 - 38 x 235mm (3 - 2 x 10)</td>
<td>3 - 38 x 286mm (3 - 2 x 12)</td>
</tr>
<tr>
<td>3.66 m (12'-0&quot;)</td>
<td>3 - 38 x 235mm (3 - 2 x 10)</td>
<td>3 - 38 x 235mm (3 - 2 x 10)</td>
<td>4 - 38 x 286mm (4 - 2 x 12)</td>
<td>4 - 38 x 286mm (4 - 2 x 12)</td>
<td>4 - 38 x 286mm (4 - 2 x 12)</td>
</tr>
<tr>
<td>4.27 m (14'-0&quot;)</td>
<td>3 - 38 x 286mm (3 - 2 x 12)</td>
<td>3 - 38 x 286mm (3 - 2 x 12)</td>
<td>Design required by engineer</td>
<td>Design required by engineer</td>
<td>Design required by engineer</td>
</tr>
<tr>
<td>4.88 m (16'-0&quot;)</td>
<td>3 - 38 x 286mm (3 - 2 x 12)</td>
<td>4 - 38 x 286mm (4 - 2 x 12)</td>
<td>Design required by engineer</td>
<td>Design required by engineer</td>
<td>Design required by engineer</td>
</tr>
</tbody>
</table>

**Notes to Table 4:**

1. The lintels in this table are Spruce-Pine-Fir lumber grades 1 and 2.

2. Built-up lintels must be constructed of full-length members. No splicing of members is permitted between supports.

3. Supported length means half the span of trusses, roof joists, or rafters supported by the lintel plus the length of the overhang beyond the lintel (see Figure 10).

4. If the supported length is between the sizes shown, use the column with the greater depth. For garages or storage sheds with a door width or supported length greater than shown on the tables, consult an engineer.

5. The spans shown in the table are the clear spans between the load bearing supports at each end of the lintel. To find the total length of lintel needed, add the two bearing lengths of the support to the clear span.

6. The minimum bearing length of the support at each end of the lintel must be 89 mm (3-1/2 in.).

7. Lintel sizes smaller than those shown on these tables may be used provided the lintel has been designed by an engineer and the lintel design and calculations are submitted and accepted.

8. The above noted lintels are not designed to carry masonry or floors above the overhead door. For these types of applications consult an engineer.

9. The deflection limit for lintels was set at a maximum 15 mm (0.6 in.) to ensure proper closure of garage doors.

For Wood Lintel Substitutions, see Table 5.

### Table 5 - Wood lintel substitutions

<table>
<thead>
<tr>
<th>From Table</th>
<th>Structural Composite Lumber (SCL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>3 - 2 x 8</td>
<td>2 - 13/4&quot; x 71/4&quot;</td>
</tr>
<tr>
<td>2 - 2 x 10</td>
<td>2 - 13/4&quot; x 71/4&quot;</td>
</tr>
<tr>
<td>3 - 2 x 10</td>
<td>2 - 13/4&quot; x 91/2&quot;</td>
</tr>
<tr>
<td>2 - 2 x 12</td>
<td>2 - 13/4&quot; x 91/2&quot;</td>
</tr>
<tr>
<td>3 - 2 x 12</td>
<td>3 - 13/4&quot; x 91/2&quot;</td>
</tr>
<tr>
<td>4 - 2 x 12</td>
<td>2 - 13/4&quot; x 117/8&quot;</td>
</tr>
</tbody>
</table>
Notes to Table 5:

1. To be used in dry service conditions and standard duration of load.
2. Working stress design properties:

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Modulus of Elasticity</td>
<td>$2.0 \times 10^6$ psi</td>
</tr>
<tr>
<td>Allowable Bending Stress</td>
<td>2800 psi</td>
</tr>
<tr>
<td>Allowable Shear Stress</td>
<td>250 psi (perpendicular to glueline or wide face of strand)</td>
</tr>
<tr>
<td>Allowable Bearing Stress</td>
<td>500 psi (parallel to glueline or wide face of strand)</td>
</tr>
</tbody>
</table>

Example

In order to select the correct size of lintel in cases where it is supporting the roof, three pieces of information are needed: size of the garage, width of the overhead door opening, and size of the roof overhang.

Assume a 7.32 m x 7.32 m (24'-0" x 24'-0") garage with a 2.74 m (9'-0") overhead door opening and a 600 mm (2'-0") overhang. Refer to Table 4.

Begin by selecting the row for a 2.74 m (9'-0") overhead door opening. Next, knowing that the supported length will be half the distance of the roof span plus the overhang (see Figure 10), we divide the 7.32 m (24'-0") roof span by 2 and add the 600 mm (2'-0") roof overhang to get the total supported length of 4.27 m (14'-0").

Now looking along the table to column 5 where the supported length is 4.27 m (14'-0"), we see that the proper size of lintel would be 3 - 38 x 235 mm (3 - 2 x 10). If there was no roof overhang over the door opening, we would look to column 4 where the supported length is 3.66 m (12'-0"). The correct lintel size, in this case, would be 3 - 38 x 184 mm (3 - 2 x 8).

Figure 10 - Supported length of wood lintel

Rafters & trusses

Roof framing methods

In wood framing, there are basically three methods for framing a roof. They are:

1. Framing with pre-manufactured trusses

   Truss manufacturers and suppliers will provide a truss framing plan (with layout and bracing details) that must be followed when installing the truss system. Note that these cannot be cut, notched or altered unless approved by the manufacturer.

2. Conventional framing

   This is also known as stick framing. Figure 11 shows a typical cross section of a gable roof and Table 6 indicates maximum rafter spans for various species and sizes of rafters. Note that Figure 11 makes use of collar ties as a means of reducing a full rafter span into two smaller spans. Collar ties can only be used in this fashion when the roof slope is 1 in 3 or greater.

   If you are framing a roof containing hip or valley rafters, the hip and/or valley rafters must be not less than 50 mm (2 in.) greater in depth than the common rafters and not less than 38 mm (1-1/2 in.) in thickness.

   Refer to the previously mentioned book available from Canada Mortgage and Housing Corporation (CMHC) for further information on roof framing.
Table 6 - Roof rafter spans - rafter not supporting ceiling

<table>
<thead>
<tr>
<th>Commercial designation</th>
<th>Grade</th>
<th>Member size (in.)</th>
<th>Rafter spacing</th>
<th>Member size (mm)</th>
<th>Rafter spacing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>12 in.</td>
<td>16 in.</td>
<td>24 in.</td>
<td>300 mm</td>
</tr>
<tr>
<td>Douglas Fir No. 1 and No. 2</td>
<td>2x4</td>
<td>9-4</td>
<td>8-6</td>
<td>7-5</td>
<td>38 x 89</td>
</tr>
<tr>
<td></td>
<td>2x6</td>
<td>14-9</td>
<td>13-5</td>
<td>10-11</td>
<td>38 x 140</td>
</tr>
<tr>
<td></td>
<td>2x8</td>
<td>18-10</td>
<td>16-4</td>
<td>13-4</td>
<td>38 x 184</td>
</tr>
<tr>
<td></td>
<td>2x10</td>
<td>23-0</td>
<td>19-11</td>
<td>16-3</td>
<td>38 x 235</td>
</tr>
<tr>
<td></td>
<td>2x12</td>
<td>26-9</td>
<td>23-2</td>
<td>18-11</td>
<td>38 x 286</td>
</tr>
<tr>
<td>Spruce Pine Fir No. 1 and No. 2</td>
<td>2x4</td>
<td>8-11</td>
<td>8-1</td>
<td>7-1</td>
<td>38 x 89</td>
</tr>
<tr>
<td></td>
<td>2x6</td>
<td>14-0</td>
<td>12-9</td>
<td>11-2</td>
<td>38 x 140</td>
</tr>
<tr>
<td></td>
<td>2x8</td>
<td>18-5</td>
<td>16-9</td>
<td>14-6</td>
<td>38 x 184</td>
</tr>
<tr>
<td></td>
<td>2x10</td>
<td>23-7</td>
<td>21-5</td>
<td>17-8</td>
<td>38 x 235</td>
</tr>
<tr>
<td></td>
<td>2x12</td>
<td>28-8</td>
<td>25-2</td>
<td>20-6</td>
<td>38 x 286</td>
</tr>
</tbody>
</table>

Figure 11 - Roof rafter and collar ties for gable roof

Continuous tie if span of cross member (collar tie or ceiling joints) exceeds 2.4 m (7'-10")
Minimum roof slope: 3
Span of collar tie: cross member
Rafter span without collar tie
Rafter span with collar tie
Rafter span with collar tie
Tie joist to provide lateral support for wall studs

Note to Table 6:

This table applies to roofs with a slope of 1 in 3 or greater. Roof slopes of less than 1 in 3 are subject to different loading conditions, e.g. adequate ridge support must be provided.

Example

In order to select the correct rafter size for a 6.72 m x 6.72 m (12'-0" x 12'-0") garage with a gable roof having a slope of 1 in 3 or greater, with spruce rafters (without collar ties) spaced 600 mm (24 in.) apart, we will proceed as follows.

First, we must know the rafter span – the horizontal distance from the outer edge of the wall to the peak of the roof. In this example the distance is 6.72 m (22'-0") divided by 2 or 3.36 m (11'-0").

Next, we look to Table 6 in the Spruce-Pine-Fir section for a 600 mm (24 in.) rafter spacing for a dimension that equals or exceeds 3.36 m (11'-0").

In this case the value is 3.89 m (12'-9"). We now look at the member size column to determine the size of rafter needed. In this case it is a 38 x 184 mm (2 x 8 in.) rafter. This rafter size is the minimum size of rafter required for the span of 3.36 m (11'-0") for this particular gable style roof.

If collar ties are permitted and are used, the required span would be less than 3.36 m (11'-0") and a smaller member size could be looked up in the table.

3. Framing with homemade trusses

This is not recommended for complicated roofs having complex angles or roofs having hips and/or valley rafters. For simple gable roofs, wood trusses must be constructed in accordance with an accepted truss design.

Truss designs vary depending upon spans, roof slope, etc. Before manufacturing your own trusses, obtain an accepted truss design drawing showing the span, the size of the members, the size and thickness of the plywood gussets, and the nailing patterns. Do not copy truss designs used on other buildings.

These designs may be inadequate for your application.

Alternatively, the truss may be designed by an engineer.
Note: The use of gang nails (metal plates) in manufacturing homemade trusses is not permitted. These types of fasteners are only intended for use under the design and quality control of a truss manufacturer.

Edge support for roof sheathing

When using trusses or rafters at 600 mm (24 in.) spacings with panel-type roof sheathing of less than 12.7 mm (1/2 in.) thickness, support must be provided to all edges of each roof sheathing panel including those that meet at the ridge. This can be accomplished with the use of ‘H’ clips as shown in Figure 12 and/or solid blocking.

Figure 12 - ‘H’ clip detail

Additional code requirements

There are various other requirements concerning framing, sheathing materials, sheathing paper, flashing, siding, shingling, and stucco application, etc. Most of these aspects of construction are dealt with in the previously mentioned book Canadian Wood Frame Construction or the current edition of the building code.

Electrical requirements

The information provided in this section is not intended to cover all electrical regulations for wiring. Refer to the Winnipeg Electrical By-law for complete electrical requirements.

All detached garages and carports require an electrical permit. Refer to winnipeg.ca/electricalinstallations for more information.

The permit applicant assumes full responsibility for electrical work indicated on the permit and must ensure that the work is carried out in accordance with all requirements of the Winnipeg Electrical By-law.

Wire trenching requirements

There are required minimum installation depths for underground wiring and they are shown in Table 7. A typical underground wiring plan is shown in Figure 13.

Table 7 - Minimum installation depth for underground conductors

<table>
<thead>
<tr>
<th>Wiring Method</th>
<th>Minimum depth non-vehicular areas</th>
<th>Minimum depth vehicular areas</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No mechanical protection</td>
<td>With</td>
</tr>
<tr>
<td>Conductors or cable Not having a metal sheath or armour. e.g. NMWU</td>
<td>600 mm (24 in.)</td>
<td>450 mm (18 in.)</td>
</tr>
<tr>
<td>Conductor or cables having a metal sheath or armour. e.g. TECK 90</td>
<td>450 mm (18 in.)</td>
<td>300 mm (12 in.)</td>
</tr>
<tr>
<td>Raceway (PVC conduit)</td>
<td>450 mm (18 in.)</td>
<td>300 mm (12 in.)</td>
</tr>
</tbody>
</table>

Notes to Table 7:

1. Mechanical protection may be afforded by treated planking, e.g. 2 x 4s or 2 x 6s with a wood preservative other than creosote.

2. Conductors drawn in underground raceways and cables that are installed underground must be approved for wet locations, e.g. TW, RW, Teck 90 or NMWU.

3. The trench can also be used for other purposes provided a minimum horizontal separation of not less than 300 mm (1'-0") is maintained between the direct buried power conductors and any gas, water or sewer line and any VDVA (cable TV or communication cable) not having a metal sheath.
Minimum electrical requirements – detached garage

A panelboard is not required in a detached garage. However, if one is to be installed, the ampacities (current rating) of the larger conductor sizes that may be required to supply this panelboard are listed in Table 8. When a panel is installed, it must be surface mounted with 6 mil polyethylene behind a minimum 20 mm (3/4 in.) backer board.

Required circuits and receptacles

All detached garages and carports require the following:

1. At least one receptacle, supplied by a separate branch circuit, must be provided outdoors for the use of electrical appliances.
2. At least one receptacle, supplied by a separate branch circuit, shall be provided for each driveway.
3. At least one receptacle, supplied by a separate branch circuit, must be provided for each car space within a garage or carport. Garage/carport light fixtures and a garage door opener may also be connected to this circuit.
4. A receptacle must be installed for garage overhead door openers even if no opener is installed.
5. Arc fault protection is not required for detached structures.
6. All receptacles located within 2 m (6’-0”) of grade must be tamper resistant.
7. All receptacles located outdoors and within 2.5 m (8’-0”) of ground or grade level must be protected by a ground fault circuit interrupter (GFCI) of the Class A type. GFCI devices should be tested occasionally to ensure proper operation.

Existing overhead power supply conductors

Overhead power supply conductors must be maintained at least 1 m (3’-3”) above the peaked roof of any detached garage or accessory structure, and at least 2.5 m (8’-2”) above the highest point of a flat roof or roof that can be readily walked upon.

For more information, contact Manitoba Hydro.
Table 8 - Typical copper conductor ampacities & over-current protection

<table>
<thead>
<tr>
<th>NMWU cable type for direct earth burial</th>
<th>NMD-90 cable type for indoor use only</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire size</td>
<td>Ampacity (60˚C)</td>
</tr>
<tr>
<td>#14 AWG</td>
<td>15 Amp</td>
</tr>
<tr>
<td>#12 AWG</td>
<td>20 Amp</td>
</tr>
<tr>
<td>#10 AWG</td>
<td>30 Amp</td>
</tr>
<tr>
<td>#8 AWG</td>
<td>55 Amp</td>
</tr>
<tr>
<td>#6 AWG</td>
<td>70 Amp</td>
</tr>
<tr>
<td>#4 AWG</td>
<td>110 Amp</td>
</tr>
</tbody>
</table>

Note to Table 8:
The ampacities shown in the table above are based on NMWU and NMD-90 cable types. For ampacities of other types of conductors and cables, reference should be made to the City of Winnipeg Electrical By-law.

Electrical inspection requirements
The underground cables or raceway between the house and the garage or shed must be installed in a trench. If mechanical protection is used, it must be in position. The trench must be left open for inspection purposes. Before the walls or ceiling of the garage or shed are insulated or covered with wallboard or other material, an inspection of the rough wiring is required.

Note: The following information is provided to assist in avoiding some of the common errors that are made in residential wiring. This information is not intended to cover all applicable electrical regulations. More detail regarding these regulations can be found in the City of Winnipeg Electrical By-law.

Wiring duplex receptacles
All duplex receptacles are polarized (see Figure 14). That is, the black or “hot” wire must be connected to the brass coloured screw terminal and the white or neutral conductor must be attached to the nickel-plated screw terminal. The bare bond conductor must terminate under the bond screw in the back of the outlet box and then must be carried out and be terminated under the green bonding screw on the receptacle.
**Cable support**

Cable must be secured within 300 mm (12 in.) of the outlet box and approximately every 1.5 m (5'-0") throughout the run (see Figure 16).

Figure 16 - Cable support

**Light fixtures and switches**

For fixtures with screw terminals, the black or “hot” wire must be terminated under the brass coloured screw terminal and the white or neutral conductor must be terminated under the nickel plated screw terminal. For light fixtures in general, you must ensure that the white conductor is connected to the fixture screw shell (see Figures 17 and 18).

Switches must always be connected to the “hot” conductor.

**Mounting outlet boxes**

Mounting nails or screws can pass through the interior of an outlet box only if the nails or screws are located within 6.4 mm (1/4 in.) of the back or ends of the box and they do not interfere with conductors or connectors (see Figure 17).

If you are planning on insulating and finishing the interior of the garage in the future, or where 2x6 walls are constructed, you must install an approved vapour barrier behind each outlet box.

Openings placed through vapour barriers for the installation of outlet boxes must be effectively sealed to maintain the integrity of the vapour barrier.

**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](http://winnipeg.ca/housinginspection).

**Notice**

Precautions should be taken to avoid gas service lines from being enclosed in or under buildings as per CSA Z184 Gas Pipelines Systems Standards. Additionally, care should be taken when excavating to avoid disturbing other underground service lines including telephone cables and electrical power cables.

Before proceeding with construction or any underground excavation, contact [www.clickbeforeyoudigmb.com](http://www.clickbeforeyoudigmb.com).
Appendix A

Permit applications requiring additional information

Listed below are certain instances where additional information, including plans, may be required for a permit application to build a detached accessory structure.

An asterisk (*) indicates situations where a design (plans or letter) under seal of an engineer will also be required.

Additional information for the construction of an accessory structure will be required when:

1. The area of the new accessory structure’s foundation will be greater than 70 sq. m. (753 sq. ft.). * Note: Refer to the foundation section for more information on the foundation requirements for accessory structures, including those for an addition to an existing accessory structure.

2. The accessory structure will be supported on wood mud-sills (e.g. no concrete floor). The method of anchorage of the accessory structure to the ground in order to prevent wind uplift must be indicated. *

3. The foundation is to include retaining walls (wood or concrete) in order to hold back earth because the lot where the accessory structure will be located is not level. Or other instances where concrete walls higher than six inches will be constructed on top of a slab. *

4. If the accessory structure will have an irregular shape (i.e. not square or rectangular), beam and foundation details may be required. Engineering design may also be necessary.

5. The accessory structure will not be standard wood frame construction. Any of several alternative construction methods including: post and beam, concrete block, brick (including brick veneer) or metal frame construction (including steel studs), must be designed by an engineer.*

6. The wall height of the accessory structure will be greater than 3.0 m (9’-10”).*

7. A steel lintel will be used instead of a wood lintel for the overhead door of the accessory structure.*

8. The roof of the accessory structure is to be framed with “homemade” trusses. * In this case, the design must be sealed by an engineer.

9. The accessory structure will have a gambrel or a mansard roof type. *Plans will also be required for a roof that has an octagonal or similar circular shape.

10. The accessory structure will have attic storage space. Plans will be required.*

11. A dormer will be constructed on the roof of a new or existing accessory structure. Plans will be required.

12. A beam will be located in the interior of an accessory structure to support a roof with slope of less than 1 in 3 or for support of hoist. * (Or similarly, where an interior wall or interior posts will provide support for the structure.*)

13. A deck is to be located on the roof of a new or existing accessory structure, such as a detached garage. All building code requirements for decks will have to be met. Zoning requirements for building height and location must also comply. Plans for the entire structure, including the foundation, will be required. The foundation design must be determined to be adequate.*

14. The accessory structure will be two-storey. In this case, plans for the entire structure, including the foundation, will be required. Additionally, the foundation design must be engineered. *Zoning requirements for height must also comply.

15. A detached accessory gazebo or similarly occupied structure is to be located on top of an existing deck. The plans must indicate the design of the new gazebo. It must show how the existing deck joists, beams and foundation will provide proper support under the new gazebo walls and will also anchor down the new structure to prevent wind uplift.
16. Construction plans will be required for all detached carports. Detailed information must be provided on the roof framing, the number of posts, the post foundation and the size of the beams over top of the posts. *Engineering may be required.

17. An accessory structure is to be constructed adjacent to an “up and down” duplex. Limiting distance calculations will be required. The limiting distance calculations are required in order to limit the spread of fire between an accessory structure and dwellings on the same property. The limiting distance calculations will determine how close the accessory structure can come to the dwelling units and what materials can be used in the construction of the accessory structure.

Construction plans will be required for this type of accessory structure including elevation drawings. The elevation drawings must show window locations, type of cladding (e.g. stucco, siding, etc.) and dimensions of the wall facing the dwelling. Information will also be required for the wall of the dwelling that faces the accessory structure. The information that will be required for the dwelling wall includes an elevation drawing showing: wall height, wall width and area, type of wall construction (e.g. wood frame), size of all windows in the wall and type of wall cladding.

Notes:

In order to determine what the necessary limiting distance requirements will be for your particular project and provide the required plans, applicants are advised to retain the services of an engineer, architect, or other qualified person.

Other accessory structure construction designs that are not specifically identified above may also require additional information, including engineering. For more information, contact plan examination at ppd-hpx@winnipeg.ca.