DETACHED GARAGES & ACCESSORY STRUCTURES
(WOOD FRAME)

Construction, zoning, and electrical requirements for detached garages, storage sheds and other accessory buildings that serve single family dwellings.
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 booklet 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 booklet 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 which will comply with the regulations. If the nature of your project is different than that contained in this booklet and you are not familiar with the regulations which may be applicable, it is recommended that you contact someone who is knowledgeable in this area.

Every effort has been made to ensure the accuracy of information contained in this publication. However, in the event of a discrepancy between this publication and the City of Winnipeg Building By-law, the By-law will take precedence.
Permit Requirements

Every detached accessory structure that is larger than 10 sq. m. (108 sq. ft.), including metal frame, fabric covered storage facilities, requires a building permit. Permits are obtained by submitting the required information to the Planning, Property and Development Department, Unit 31 - 30 Fort Street.

While a building permit is not required for accessory structures less than 10 sq. m. (108 sq. ft.) in area, 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 waterways permit and/or approval for construction in a flood prone area may be required prior to proceeding with construction. For more information see the pamphlet entitled Construction Regulations Along City Waterways or contact the Waterways Section at 986-5098.

Foundation Slabs

A building permit is not required for pouring the concrete slab for your future garage or accessory structure but you need to ensure that the slab meets all applicable building code and zoning regulations with respect to:

   a. allowable size;
   b. appropriate thickness and reinforcing; and
   c. allowable distances from property lines and the dwelling

as explained in other sections of this booklet.

The building code has specific requirements for foundation slabs for structures greater than 50 sq. m. (538 sq. ft.) or larger in area—see page 8.

As well, the Zoning By-law 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. Please refer to the section on Zoning requirements for further information regarding acceptable locations and allowable size for your detached garage or accessory structure.

Be sure to obtain your building permit before proceeding with the construction of the garage or accessory structure.
Permit Application Requirements

You must provide the a copy of a Surveyor’s Building Location Certificate. Alternatively a well-drawn, scaled, site plan showing all property dimensions; locations of all buildings; and the location and size of the proposed structure (including doors & windows) may be acceptable at the discretion of the Zoning and Permits Branch.

While no construction plans are required if you are building a one-storey conventional wood framed detached garage (commonly referred to as a ‘garage package’) structure, in some instances, additional information including plans or design by a structural engineer may be required.

Carports

A building permit is 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 booklet. Please contact the Zoning and Permits Branch at 204-986-5140 for 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 a copy of this certificate, you may need to retain the services of a qualified Land Surveyor – this is the best way to avoid property boundary disputes with neighbours.
Clearance Requirements (Setbacks)

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 ft.) 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.

**FIGURE 1 - Property Line Setbacks**

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

* A reverse corner lot is a corner lot where it’s rear property line abuts the side lot line of an adjoining property.
A 300 mm (1 ft.) 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 ft.) 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 ft.) from the property line to the eave as shown in FIGURE 2. In this example the 300 mm (1 ft.) overhang requires that the garage wall be set back 600 mm (2 ft.) from the property line.

**FIGURE 2 - Setback From Overhang**
Maximum permissible height

The maximum height allowable for a garage or accessory structure is 4.0 m (13 ft.) determined according to roof style as shown in FIGURE 3.

**FIGURE 3 - Allowable Roof Heights**

Maximum allowable height

*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% of the total area of the lot to a maximum of 81.75 m² (880 ft²).

*Example:* On a 40 ft. X 100 ft. (4,000 ft²) lot up to 500 ft² (12.5% of 4,000) of accessory buildings may be constructed.

However, up to 45 m² (484 ft²) of accessory structures are permitted regardless of lot area.

*Example:* On a 25 ft. X 100 ft. (2,500 ft²) lot the maximum of 484 ft² would be allowable.

If these maximums are not adequate, you must apply for a zoning variance. This application can be made at Unit 31 - 30 Fort Street.
Foundation Requirements – 1 Storey Only

1. For a detached garage having a building area of less than 50 m² (538 ft²) it is recommended that a concrete slab with a thickness of not less than 100 mm (4 in.) be used as shown in FIGURE 4a.

2. For a building area of 50 to 70 m² (538 to 753 ft²) 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 ft²), 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 a professional engineer.

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

Foundation for 1-Storey Detached Garages

FIGURE 4a

FIGURE 4b
Additions to existing detached structures

For a garage, shed or carport addition to an existing structure, the entire foundation, both the existing and the addition, must be made to comply with the foundation requirements shown inFIGURES 4a and 4b or alternatively the foundation must be designed by a professional engineer.

Note:
The details and standards in the pamphlet are considered non-engineered details and are based on past “good construction practice”. Variations from these design standards are ONLY permitted where the design is by a professional engineer. Some variations that will require an engineer are:

1. Wood mudsill foundation and anchorage details to prevent uplift due to wind.
2. Foundation slab that includes a curb of more than 150 mm (6 in.) of retaining wall to hold back the earth where the lot is not level.
3. Foundation slab that is greater than 70 m² (753 ft²)
4. Foundation slab that supports a second floor or roof attic storage with a height of more than 1,066 (3 ft. 6 in.) and/or supports a load more than 1.0 kPa (20 psf.).

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 Ratings

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

Note: The Zoning By-law may not allow a wall to closer than 600 mm (24 in.) 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 ft.) 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 pamphlet are based on a 1-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 & 7, and TABLES 1 & 2.

For more detailed information refer to Canada Mortgage and Housing Corporation’s publications Canadian Wood Frame House Construction and Glossary of Housing Terms available at no cost here:


These are excellent, comprehensive publications that are also available for iOS at the App Store and Android at Google Play.
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 booklet, the design must be engineered and drawings must be submitted under the seal and signature of a professional engineer, licenced to practice in Manitoba.

**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 ft. 10 in.)

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 ft. 10 in.).
Corner Studs

This stud is optional, it is necessary only if interior finish is being installed.

Bottom Plate

Rafter

Stud

Double Top Plate

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 ft. 11 in.)</td>
</tr>
<tr>
<td>2 - 38 x 140 mm (2 - 2 x 6)</td>
<td>1.79 m (5 ft. 10 in.)</td>
</tr>
<tr>
<td>2 - 38 x 184 mm (2 - 2 x 8)</td>
<td>2.18 m (7 ft. 2 in.)</td>
</tr>
</tbody>
</table>

Notes to TABLE 1:
1. This table is for use with Spruce-Pine-Fir lumber grades 1 & 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)</td>
<td>400 mm (16 in.)</td>
<td>2.4 m (7ft. 10 in.)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>38 x 89 mm (2 x 4)</td>
<td>600 mm (24 in.)</td>
<td>3.0 m (9ft. 10in.)</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 Lintel

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 & 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**

![Diagram of Gable #1 with lintel over door opening and wall supports 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 ft.)</td>
<td>2 - 38 x 184 mm (2 - 2 x 8)</td>
</tr>
<tr>
<td>3.66 m (12 ft.)</td>
<td>2 - 38 x 235 mm (2 - 2 x 10)</td>
</tr>
<tr>
<td>4.27 m (14 ft.)</td>
<td>3 - 38 x 235 mm (3 - 2 x 10)</td>
</tr>
<tr>
<td>4.88 m (16 ft.)</td>
<td>3 - 38 x 235 mm (3 - 2 x 10)</td>
</tr>
<tr>
<td>5.49 m (18 ft.)</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 & 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.**

- **Gable #2**
  - Lintel over door opening
- **Hip**
  - Lintel over door opening
- **Mono (Shanty)**
  - Lintel over door opening
- **Flat (no upper deck)**
  - Lintel over door opening
# TABLE 4 - Wood Lintels - SUPPORTING Roof Loads

<table>
<thead>
<tr>
<th>Width of opening (Lintel Span)</th>
<th>Supported Length (see note 3 below)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>2.44 m (8 ft.)</td>
</tr>
<tr>
<td>2.44 m (8 ft.)</td>
<td>3 - 38 x 184mm (3 - 2 x 8)</td>
</tr>
<tr>
<td>2.74 m (9 ft.)</td>
<td>3 - 38 x 184mm (3 - 2 x 8)</td>
</tr>
<tr>
<td>3.05 m (10 ft.)</td>
<td>3 - 38 x 184mm (3 - 2 x 8)</td>
</tr>
<tr>
<td>3.66 m (12 ft.)</td>
<td>3 - 38 x 235mm (3 - 2 x 10)</td>
</tr>
<tr>
<td>4.27 m (14 ft.)</td>
<td>3 - 38 x 286mm (3 - 2 x 12)</td>
</tr>
<tr>
<td>4.88 m (16 ft.)</td>
<td>3 - 38 x 286mm (3 - 2 x 12)</td>
</tr>
<tr>
<td>COL. 1</td>
<td>2</td>
</tr>
</tbody>
</table>

Notes to TABLE 4:

1) The lintels in this table are Spruce-Pine-Fir lumber grades 1 & 2, except those marked * which are Douglas Fir lumber grades 1 & 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 a Professional 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 a Professional 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 a Professional 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 please see TABLE 8 on Page 32.

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

Assume a 7.32 m x 7.32 m (24 ft x 24 ft) garage with a 2.74 m (9 ft.) overhead door opening and a 600 mm (2 ft.) overhang. Refer to TABLE 4.

Begin by selecting the row for a 2.74 m (9 ft.) 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 ft.) roof span by 2 and add the 600 mm (2 ft.) roof overhang to get the total supported length of 4.27 m (14 ft.).

Now looking along the table to column 5 where the supported length is 4.27 m (14 ft.), 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 ft.). 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

![Figure 10](image-url)
Roof Framing Methods

In wood framing, there are basically three methods for framing roofs. 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.

2. Conventional Framing
   This is also known as stick framing. FIGURE 11 shows a typical cross section of a gable roof and TABLE 5 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.

FIGURE 11 - Roof Rafter and Collar Ties for Gable Roof.
### TABLE 5 - 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></td>
<td>12 in.</td>
<td>16 in.</td>
<td>24 in.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>ft.- in.</td>
<td>ft.- in.</td>
<td>ft.- in.</td>
</tr>
<tr>
<td>Douglas Fir</td>
<td>No. 1</td>
<td>2x4</td>
<td>9-4</td>
<td>8-6</td>
<td>7-5</td>
</tr>
<tr>
<td></td>
<td>No. 2</td>
<td>2x6</td>
<td>14-9</td>
<td>13-5</td>
<td>10-11</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2x8</td>
<td>18-10</td>
<td>16-4</td>
<td>13-4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2x10</td>
<td>23-0</td>
<td>19-11</td>
<td>16-3</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2x12</td>
<td>26-9</td>
<td>23-2</td>
<td>18-11</td>
</tr>
<tr>
<td>Spruce Pine Fir</td>
<td>No. 1</td>
<td>2x4</td>
<td>8-11</td>
<td>8-1</td>
<td>7-1</td>
</tr>
<tr>
<td></td>
<td>No. 2</td>
<td>2x6</td>
<td>14-0</td>
<td>12-9</td>
<td>11-2</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2x8</td>
<td>18-5</td>
<td>16-9</td>
<td>14-6</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2x10</td>
<td>23-7</td>
<td>21-5</td>
<td>17-8</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2x1</td>
<td>28-8</td>
<td>25-2</td>
<td>20-6</td>
</tr>
</tbody>
</table>

**Note to TABLE 5:**
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 (22 ft. x 22 ft.) 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 ft.) divided by 2 or 3.36 m (11 ft.).

Next, we look to TABLE 5 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 ft.). In this case the value is 3.89 m (12 ft. 9 in.). 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 ft.) 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 ft.) 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 a professional engineer registered in the Province of Manitoba.

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.

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 Manitoba Building Code.
The information provided in this section is not intended to cover all of the electrical regulations for wiring. Complete electrical requirements are covered in the City of Winnipeg Electrical By-law.

An electrical permit must be obtained prior to the construction, alteration, repair, or extension of any electrical installation.

An electrical permit can only be issued only to:

1. a person who holds an Electrical Contractor’s License from the City of Winnipeg authorizing that person to carry out business or trade in the City of Winnipeg;

   OR

2. the owner of the detached single family dwelling who is also the occupant. The permit would be issued to the owner provided the Manager of Development and Inspections is confident the work will be performed competently.

**Permit Application**

To obtain an electrical permit, the applicant must present a wiring diagram for the proposed installation indicating the location of receptacles, lights, switches, and all other electrical equipment to be installed.

Specific information must be provided for the underground portion of any wiring installation with respect to the type and size of all conductors, cables, and conduits used, along with the depth of the installation and type of any mechanical protection provided.

If a panelboard is to be installed then the diagram must show the method of grounding used and the size of the overcurrent device protecting the panelboard.

Where larger electrical loads are intended to be supplied from this panelboard, such as compressors, arc welders, electric heaters, etc., then the wiring diagram should indicate the overcurrent protection, wire size, and rating in watts for each piece of equipment.
Permit Information

The permit will expire if active work is not started within six (6) months of the date of permit issuance. In addition, the Manager of Development and Inspections may cancel any electrical permit if, in the Manager’s opinion, the privileges granted by that permit are being misused.

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 6. A typical underground wiring plan is shown in FIGURE 13.

TABLE 6 - Minimum Installation Depth for Underground Conductors

<table>
<thead>
<tr>
<th>WIRED 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 Mechanical Protection(1)</td>
</tr>
<tr>
<td>Conductor 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(2) e.g. Rigid metal conduit or Rigid PVC conduit</td>
<td>450 mm (18 in.)</td>
<td>300 mm (12 in.)(3)</td>
</tr>
</tbody>
</table>
Notes to TABLE 6:
1) Mechanical protection must consist of one of the following:
   a) planking e.g. 2 x 4s or 2 x 6s with a wood preservative other than creosote; or
   b) polyethylene pipe.
2) Conductors or cables installed in underground conduits must be approved for wet locations, e.g. TW, RW, NMW, OR NMWU.
3) Raceways installed at a depth of 300 mm (12 in.) in non-vehicular areas and at 450 mm (18 in.) in vehicular areas must have mechanical protection such as treated planking described in note 1 above. 21

The trench can also be used for other purposes provided a minimum horizontal separation of not less than 300 mm (1 ft.) 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.

FIGURE 13 - Wiring Plan for Underground Cable to Detached Garage or Shed.
Note to FIGURE 13:
This is a diagram of an acceptable installation of NMWU underground cable between the house and a detached garage or shed. Note that the cable, when installed at a depth of 450 mm (18 in.), must be protected in the ground by planking at least 50 mm (2 in.) nominal thickness which is treated with a wood preservative other than creosote. As an alternative, the conductor may be protected by running it in a length of polyethylene water pipe from the house to the garage. Where the conductors emerge from the trench, they must be protected against mechanical damage by a piece of rigid metal conduit or rigid PVC conduit. The cable loops at each end of the trench are to prevent damage from ground movement. These loops should be installed whenever a cable emerges from a conduit into direct contact with the earth.

Existing Overhead Conductors
Manitoba Hydro requires service conductors to be maintained at least 1 m (39 in.) above the roof of any detached garage or accessory structure.

If you feel this is not possible, you will need to contact your local Manitoba Hydro District Operating Centre at the phone number listed on your Manitoba Hydro bill.

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 7. 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 & 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 garage and sheds.

6) All receptacles located within 2 m (6 ft. 6 in.) of grade must be tamper resistant.

7) All receptacles located outdoors and within 2.5 m (8 ft.) 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.

**TABLE 7 - Typical Copper Conductor Ampacities & Over-Current Protection**

<table>
<thead>
<tr>
<th>Wire Size</th>
<th>NMWU Conductor Type</th>
<th>NMD-90 Conductor Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>#14 AWG</td>
<td>ampacity (60˚C) 15 Amp</td>
<td>Circuit breaker or Fuse 15 Amp</td>
</tr>
<tr>
<td>#12 AWG</td>
<td>20 Amp</td>
<td>#12 AWG 20 Amp</td>
</tr>
<tr>
<td>#10 AWG</td>
<td>30 Amp</td>
<td>#10 AWG 30 Amp</td>
</tr>
<tr>
<td>#8 AWG</td>
<td>40 Amp</td>
<td>#8 AWG 50 Amp</td>
</tr>
<tr>
<td>#4 AWG</td>
<td>70 Amp</td>
<td>#6 AWG 65 Amp</td>
</tr>
<tr>
<td>#1 AWG</td>
<td>110 Amp</td>
<td>#3 AWG 100 Amp</td>
</tr>
</tbody>
</table>

**Note to TABLE 7:**
The ampacities shown in the table above are based on NMWU and NMD-90 conductor types. For ampacities of other types of conductors, reference should be made to the City of Winnipeg Electrical By-law.
**Inspection Requirements**

The underground conductors 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. To schedule an inspection complete and submit the housing inspection request form found at [winnipeg.ca/housinginspection](https://winnipeg.ca/housinginspection) or by calling 204-986-5300, Monday to Friday, between 8:30 am and 4:00 pm. Be aware that wait times vary for phone-in requests.

**NOTE:** The following information is provided to assist you in avoiding some of the common errors that are made in residential wiring. This information is not intended to cover all of the 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 ground conductor must terminate under the ground screw in the back of the outlet box and then must be carried out and be terminated under the green grounding screw on the receptacle.

**FIGURE 14 - Duplex Receptacle Connections**

![Diagram of Duplex Receptacle Connections](image)

- Connect white conductor (neutral) to nickel plated screw
- Connect black conductor (“hot”) to brass screw
- Connect bare conductor (ground) to the green screw
- Note the difference on the face of the receptacle – the ‘neutral’ side has a wider slot than the ‘hot’ side

**All standard receptacles configured 5-15R and 5-20R shall be tamper resistant.**
Cable Protection

Cables running through structural members must be kept at least 32 mm (1 1/4 in.) from any face of the member. If this distance cannot be maintained, protection must be provided to the area where the wiring passes through the stud. This protection is usually provided by the installation of a minimum 16 gauge metal plate (see FIGURE 15).

FIGURE 15 - Cable Protection.
Cable Support

Cable must be secured within 300 mm (12 in.) of the outlet box and approximately every 1.5 m (5 ft.) throughout the run (see FIGURE 16).

FIGURE 16 - Cable Support

Drive staples as shown: within 300 mm (12 in.) of connector in box

Suggested mounting height of outlet box is 300-400 mm (12 in.-14 in.) or greater
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 you should 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.

---

**FIGURE 17 - Light Switch Control Method**
FIGURE 18 - Typical Outlet Box Installation.

Outlet box secured with screws or nails

Black conductor

Bonding (bare) conductor

Minimum 150 mm (6 in.) of conductor inside the box

White conductor

NMD – 90

Staple within 300 mm (12 in.) of outlet box
Code and By-law Enforcement

The Housing Inspections Branch of the City of Winnipeg Planning, Property and Development Department is assigned the responsibility of monitoring construction for compliance with the various Building Codes and By-laws. This monitoring is carried out by means of the permit approval process and periodic site inspections.

The ultimate responsibility for compliance rests with the property owner and/or contractor.

The Housing Inspection Branch does not have the authority to waive code or by-law requirements but it does have the authority to accept equivalencies which meet the intent of the code or by-law. If you feel you can satisfy a code or by-law requirement by using an equivalent material or construction method, contact the Housing Inspections Branch at http://clickbeforeyoudigmb.com/ or 204-986-5300.

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, please contact: www.clickbeforeyoudigmb.com/ for gas/hydro lines MTS at 1-800-837-6448 for telephone lines Shaw Cable at 1-866-DIG-SHAW (344-7429)
## APPENDIX A

### TABLE 8 - 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” x 71/4”</td>
</tr>
<tr>
<td>2 - 2 x 10</td>
<td>2 - 13/4” x 71/4”</td>
</tr>
<tr>
<td>3 - 2 x 10</td>
<td>2 - 13/4” x 91/2”</td>
</tr>
<tr>
<td>2 - 2 x 12</td>
<td>2 - 13/4” x 91/2”</td>
</tr>
<tr>
<td>3 - 2 x 12</td>
<td>3 - 13/4” x 91/2”</td>
</tr>
<tr>
<td>4 - 2 x 12</td>
<td>2 - 13/4” x 117/8”</td>
</tr>
</tbody>
</table>

### Notes to TABLE 8

1) To be used in dry service conditions and standard duration of load.

2) Working stress design properties:

   Modulus of Elasticity   2.0 x 10^6 psi Allowable
   Bending Stress          2800 psi Allowable Shear
   Stress                  250 psi (perpendicular to glueline or wide face of strand)
   Allowable Bearing Stress 500 psi (parallel to glueline or wide face of strand)
APPENDIX B

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 a registered professional 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: For more information on the foundation requirements for accessory structures including those for the foundation of an addition to an existing accessory structure see page 9.

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 will have to 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), will have to be designed by an engineer.*

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

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 will have to be sealed by a registered professional engineer.
9. The accessory structure will have a gambrel or a mansard roof type. *Plans will also be required for roofs that have 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. Also, the Zoning requirements for building height and location will have to comply. Plans for the entire structure, including the foundation, will be required. The foundation design will have to 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 will have to 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. Here the plans will have to indicate the design of the new gazebo. It will have to be shown 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. Contact the Plan Examination Branch for more details at 204-986-5300.
For more information on the regulations for detached garages and storage sheds please contact:

Housing Inspections Branch
PPD-Housing@Winnipeg.ca
204-986-5300

Zoning and Permits Branch & Plan Examination Branch
204-986-5140
or
311

Planning, Property & Development Department
Unit 31 - 30 Fort Street
Winnipeg, Manitoba
R3C 4X7
www.winnipeg.ca/ppd