

Building Permit Application Checklist

AGRICULTURAL Construction & Renovation

Did you know

The Ontario Building Code, 2006, allows farm building construction to be regulated by the National Farm Building Code of Canada, 1995 (NFBC).



This checklist provides property owners with a summary of the Building Permit submission requirements to apply for an agricultural building project.

Requirements at time of submission:

- ☐ Provincial Building Permit Application:
 - ☐ i) Application for a Permit to Construct or Demolish (2 sides)
 - ☐ ii) Schedule 1: Designer Information
- ☐ Site Plan (showing distances to: property lines, existing and proposed structures, neighbouring dwellings, villages or subdivisions, any major land features such as rivers, ponds, etc.)
- ☐ Entrance Permit / Civic Number Application *and/or* County Setback Permit (*if applicable*) www.sdg.on.ca
- ☐ Two (2) copies of building drawings showing proposed construction and Engineering where required (*buildings over 600m², silos, large slabs, etc.*)
- Nutrient Management Plan (*if applicable*)
 - ☐ i) Nutrient Management Plan or Strategy
 - ☐ ii) Minimum Distance Calculation (MDS II)
- ☐ All Applicable Fees
- ☐ Ministry of Labour *Notice of Project* form required when project value is over \$50,000.⁰⁰ (<http://www.labour.gov.on.ca/english/hs/forms/index.php>)

Office Use

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Sample farm structure drawings can be found at: www.cps.gov.on.ca

Please note a building permit is **NOT** required for the following agricultural construction:

- A) A structure less than 10m² (108 ft²) that is not attached to an existing structure.
- B) Demolition of a farm building which does not contain a residential occupancy and which is associated with and located on land devoted to the practice of farming.
- C) Installation of a fence.
- D) Installation of a communication tower not exceeding 16.6 metres (54.5 feet) above ground level.

**** Please allow ten (10) business days for the review of your application. If more information is required you will be contacted by the building department. A permit will not be issued until all relevant documentation is received. ****

Application for a Permit to Construct or Demolish

This form is authorized under subsection 8(1.1) of the Building Code Act.

For use by Principal Authority			
Application number:		Permit number (if different):	
Date received:		Roll number:	
<p>Application submitted to: TOWNSHIP OF NORTH DUNDAS</p> <p>(Name of municipality, upper-tier municipality, board of health or conservation authority)</p>			
A. Project information			
Building number, street name		Unit number	Lot/con.
Municipality	Postal code	Plan number/other description	
Project value est. \$		Area of work (m ²)	
B. Purpose of application			
<input type="checkbox"/> New construction <input type="checkbox"/> Addition to an existing building <input type="checkbox"/> Alteration/repair <input type="checkbox"/> Demolition <input type="checkbox"/> Conditional Permit			
Proposed use of building		Current use of building	
Description of proposed work			
C. Applicant			
Applicant is: <input type="checkbox"/> Owner or <input type="checkbox"/> Authorized agent of owner			
Last name		First name	Corporation or partnership
Street address		Unit number	Lot/con.
Municipality	Postal code	Province	E-mail
Telephone number ()	Fax ()	Cell number ()	
D. Owner (if different from applicant)			
Last name		First name	Corporation or partnership
Street address		Unit number	Lot/con.
Municipality	Postal code	Province	E-mail
Telephone number ()	Fax ()	Cell number ()	

E. Builder (if different from applicant)				
Last name		First name	Corporation or partnership (if applicable)	
Street address			Unit number	Lot/con.
Municipality	Postal code	Province	E-mail	
Telephone number ()	Fax ()		Cell number ()	
F. Tarion Warranty Corporation (Ontario New Home Warranties Program)				
i. Is proposed construction for a new home as defined in the <i>Ontario New Home Warranties Plan Act</i> ? If no, go to section G.			<input type="checkbox"/> Yes	<input type="checkbox"/> No
ii. Is registration required under the <i>Ontario New Home Warranties Plan Act</i> ?			<input type="checkbox"/> Yes	<input type="checkbox"/> No
iii. If yes to (ii) provide registration number(s): _____				
G. Required Schedules				
i) Attach Schedule 1 for each individual who reviews and takes responsibility for design activities.				
ii) Attach Schedule 2 where application is to construct on-site, install or repair a sewage system.				
H. Completeness and compliance with applicable law				
i) This application meets all the requirements of clauses 1.3.1.3 (5) (a) to (d) of Division C of the Building Code (the application is made in the correct form and by the owner or authorized agent, all applicable fields have been completed on the application and required schedules, and all required schedules are submitted). Payment has been made of all fees that are required, under the applicable by-law, resolution or regulation made under clause 7(1)(c) of the <i>Building Code Act, 1992</i> , to be paid when the application is made.			<input type="checkbox"/> Yes	<input type="checkbox"/> No
ii) This application is accompanied by the plans and specifications prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the <i>Building Code Act, 1992</i> .			<input type="checkbox"/> Yes	<input type="checkbox"/> No
iii) This application is accompanied by the information and documents prescribed by the applicable by-law, resolution or regulation made under clause 7(1)(b) of the <i>Building Code Act, 1992</i> which enable the chief building official to determine whether the proposed building, construction or demolition will contravene any applicable law.			<input type="checkbox"/> Yes	<input type="checkbox"/> No
iv) The proposed building, construction or demolition will not contravene any applicable law.			<input type="checkbox"/> Yes	<input type="checkbox"/> No
I. Declaration of applicant				
<p>I _____ declare that:</p> <p>(print name)</p> <p>1. The information contained in this application, attached schedules, attached plans and specifications, and other attached documentation is true to the best of my knowledge.</p> <p>2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.</p> <p>_____</p> <p>Date Signature of applicant</p>				

Personal information contained in this form and schedules is collected under the authority of subsection 8(1.1) of the *Building Code Act, 1992*, and will be used in the administration and enforcement of the *Building Code Act, 1992*. Questions about the collection of personal information may be addressed to: a) the Chief Building Official of the municipality or upper-tier municipality to which this application is being made, or, b) the inspector having the powers and duties of a chief building official in relation to sewage systems or plumbing for an upper-tier municipality, board of health or conservation authority to whom this application is made, or, c) Director, Building and Development Branch, Ministry of Municipal Affairs and Housing 777 Bay St., 2nd Floor. Toronto, M5G 2E5 (416) 585-6666.

Schedule 1: Designer Information

Use one form for each individual who reviews and takes responsibility for design activities with respect to the project.

A. Project Information				
Building number, street name			Unit no.	Lot/con.
Municipality	Postal code	Plan number/ other description		
B. Individual who reviews and takes responsibility for design activities				
Name		Firm		
Street address			Unit no.	Lot/con.
Municipality	Postal code	Province	E-mail	
Telephone number ()	Fax number ()		Cell number ()	
C. Design activities undertaken by individual identified in Section B. [Building Code Table 3.5.2.1. of Division C]				
<div style="display: flex; flex-wrap: wrap;"> <div style="width: 33%;"><input type="checkbox"/> House</div> <div style="width: 33%;"><input type="checkbox"/> HVAC – House</div> <div style="width: 33%;"><input type="checkbox"/> Building Structural</div> <div style="width: 33%;"><input type="checkbox"/> Small Buildings</div> <div style="width: 33%;"><input type="checkbox"/> Building Services</div> <div style="width: 33%;"><input type="checkbox"/> Plumbing – House</div> <div style="width: 33%;"><input type="checkbox"/> Large Buildings</div> <div style="width: 33%;"><input type="checkbox"/> Detection, Lighting and Power</div> <div style="width: 33%;"><input type="checkbox"/> Plumbing – All Buildings</div> <div style="width: 33%;"><input type="checkbox"/> Complex Buildings</div> <div style="width: 33%;"><input type="checkbox"/> Fire Protection</div> <div style="width: 33%;"><input type="checkbox"/> On-site Sewage Systems</div> </div>				
Description of designer's work				
D. Declaration of Designer				
<p>I _____ declare that (choose one as appropriate):</p> <p style="text-align: center;">(print name)</p> <p><input type="checkbox"/> I review and take responsibility for the design work on behalf of a firm registered under subsection 3.2.4. of Division C, of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.</p> <p style="margin-left: 40px;">Individual BCIN: _____</p> <p style="margin-left: 40px;">Firm BCIN: _____</p> <p><input type="checkbox"/> I review and take responsibility for the design and am qualified in the appropriate category as an "other designer" under subsection 3.2.5. of Division C, of the Building Code.</p> <p style="margin-left: 40px;">Individual BCIN: _____</p> <p style="margin-left: 40px;">Basis for exemption from registration: _____</p> <p><input type="checkbox"/> The design work is exempt from the registration and qualification requirements of the Building Code.</p> <p style="margin-left: 40px;">Basis for exemption from registration and qualification: _____</p> <p>I certify that:</p> <ol style="list-style-type: none"> 1. The information contained in this schedule is true to the best of my knowledge. 2. I have submitted this application with the knowledge and consent of the firm. <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 30%;">_____</div> <div style="width: 70%;">_____</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 30%;">Date</div> <div style="width: 70%;">Signature of Designer</div> </div>				

NOTE:

1. For the purposes of this form, "individual" means the "person" referred to in Clause 3.2.4.7(1) d). of Division C, Article 3.2.5.1. of Division C, and all other persons who are exempt from qualification under Subsections 3.2.4. and 3.2.5. of Division C.
2. Schedule 1 is not required to be completed by a holder of a license, temporary license, or a certificate of practice, issued by the Ontario Association of Architects. Schedule 1 is also not required to be completed by a holder of a license to practise, a limited license to practise, or a certificate of authorization, issued by the Association of Professional Engineers of Ontario.

Schedule 2: Sewage System Installer Information

A. Project Information					
Building number, street name				Unit number	Lot/con.
Municipality	Postal code	Plan number/ other description			
B. Sewage system installer					
Is the installer of the sewage system engaged in the business of constructing on-site, installing, repairing, servicing, cleaning or emptying sewage systems, in accordance with Building Code Article 3.3.1.1, Division C?					
<input type="checkbox"/> Yes (Continue to Section C)		<input type="checkbox"/> No (Continue to Section E)		<input type="checkbox"/> Installer unknown at time of application (Continue to Section E)	
C. Registered installer information (where answer to B is "Yes")					
Name				BCIN	
Street address				Unit number	Lot/con.
Municipality	Postal code	Province		E-mail	
Telephone number ()	Fax ()			Cell number ()	
D. Qualified supervisor information (where answer to section B is "Yes")					
Name of qualified supervisor(s)			Building Code Identification Number (BCIN)		
E. Declaration of Applicant:					
I _____ declare that: (print name)					
<input type="checkbox"/> I am the applicant for the permit to construct the sewage system. If the installer is unknown at time of application, I shall submit a new Schedule 2 prior to construction when the installer is known;					
<u>OR</u>					
<input type="checkbox"/> I am the holder of the permit to construct the sewage system, and am submitting a new Schedule 2, now that the installer is known.					
I certify that:					
1. The information contained in this schedule is true to the best of my knowledge.					
2. If the owner is a corporation or partnership, I have the authority to bind the corporation or partnership.					
_____			_____		
Date			Signature of applicant		

FREQUENTLY ASKED QUESTIONS??

This is a guide only and is intended to help you, the homeowner/builder, to better understand the steps to follow in obtaining a Building Permit, it is not a substitute for the Municipal Building By-law. It also outlines what is expected of you during the course of construction. If you have any doubts or questions, please contact the Building Inspector, at the Municipal Office, 636 St. Lawrence Street, Winchester, (613) 774-2105.

Fees and Permit requirements are regulated by the Township's Building By-law 99-12.

When Do I Need a Building Permit?

Building Permits are required for the following:

- Any new buildings including farm buildings and structures
- Adding a carport, garage, rooms or another storey to an existing building
- Adding structural features such as a balcony, decks, a canopy or dormer, or enclosing a porch
- Excavating to construct a new or full basement under an existing house
- Constructing any accessory building over 10 sq. metres (100 sq. ft.) such as a garage or utility building
- Doing renovations or repairs of any kind, including the addition of a bedroom in a basement, or undertaking structural changes such as removing a load bearing partition or wall
- Signs having structural components or over 7.5 metres in height, retaining walls over 1 metre in height, antennas or towers over 16 metres, pools deeper than 3.5 metres, and dishes or solar collectors over 5 metres²
- Changing the use or occupancy of a building
- Installation of wood burning equipment and/or chimneys
- Installation of a public pool
- Installation or alteration of any building system such as plumbing, heating, ventilation or any life safety systems
- When a building or structure is to be moved

A demolition permit is required if you are tearing down a building or part of a building. A farm building (located on a farm) does not require a demolition permit.

Why Do I Need a Building Permit?

To ensure that construction within the municipality meets with standards set out in the Ontario Building Code, and in doing so protects the Public's Health, Safety and Welfare. Building Officials use Building Permits as a vital step in their enforcement of codes. The value of your home or business investment could be reduced if it does not meet with the code requirements.

How Do I Apply?

You will be required to complete and sign an application form. This form is available at the Municipal Office. You may also be required to submit other information depending on the type of construction project you propose (refer to the check list provided to determine what common types of information are required for various projects).

What Is A Site Plan? (A plot plan or survey showing a "bird's eye" view of the property)

- Municipal address
- Lot and Concession number
- Use of building
- Location of all buildings
- Lot dimensions
- Set backs from rivers, ponds, property lines
- North Arrow
- Vehicle access (drive way)
- Retaining walls (if applicable)
- Right-of-way (if applicable)
 - Easements
 - Location of septic system

- Location of well
- Location of ground source heat pump (if applicable)
- Drainage plan showing how the water will be draining away from the building
- Location and discharge of sump pump

Can I Draw My Own Building Plans Or Drawings?

Yes, plans are required for new buildings, additions, accessory buildings and structural alterations, the following information must be included for each of the plans:

- 2 sets of plans to be submitted; one set will be returned to you to be kept on the construction site at all times
- Measurements may be in metric or imperial
- Plans may vary depending on the type of construction but generally should include:

A. Foundation Plan

- All dimensions
- Floor framing, size and spacing
- Beams, columns (sizes)
- Stair location, number of steps or height of steps
- Foundation wall
- Footings
- Partitions
- Door, windows (sizes)
- Plumbing fixtures
- Furnace
- Floor drain
- Lintels
- Cross bridging
- Use of space
- Scale of plans

B. Floor Plan

- All dimensions
- Floor framing, size and direction (Submit Manufacturers Floor Layouts)
- Beams, lintels, and columns (sizes)
- Stair location, number of steps or height of steps
- Partitions
- Doors, windows (size)
- Plumbing fixtures
- Cross bridging
- Intended use of spaces (names of rooms)
- Roof framing (upper floor), size and direction of framing, include ridge lines and valleys
- Fireplace/stove and chimney locations
- Scale of plans

C. Fire Separations

- Plans to show locations, rating and construction detail

D. Roof Plans

- Truss and Floor Layouts from the Manufacturer must be submitted with your application. The engineered shop drawings for trusses and manufactured floor joists may be provided at the time of your framing inspection.

E. Building Elevations

- Finishing details of the exterior
- Accurate grade location

- Steps and handrails
- Deck and porch construction details
- Windows, doors
- Roof Pitch
- Chimney height

F. **Plumbing Drawings** (except for detached dwelling units)

- Schematic of all drains and vents
- Fixture locations and details of grab bars and stall sizes for Barrier Free washrooms

G. **Cross Sections**

- Scale of plans
- Vertical height dimensions
- Identify all materials used in walls, roof and floor construction
- Stair sections (dimensions)
- Roof pitch
- Construction details
- Exterior grade
- Lintels, Beams, columns
- Roof overhang
- Dimensions of materials

What Do I Need For My Water And Sewage Systems?

Certificate of Approval for Sewage System

- Certificates are required for the installation or enlargement of any private sewage system i.e. septic tank and tile field
- Copy of certificate must be submitted to the Building Inspector before a Building Permit can be issued
- In the case of an addition, change of use, etc., a letter of approval is required (form enclosed)

Do I Need A Plumbing Permit?

- A Building Permit is required for the installation of any plumbing fixtures or modification to any plumbing and drainage systems
- Plumbing inspections are required

Do I Need A New Home Warranty Registration Number?

A registration number is required for new house construction where a person other than the homeowner is the builder or general contractor (form enclosed). You are not a builder or general contractor unless you are specifically arranging, organizing, and paying for each of the trades.

What Does A Building Permit Cost?

Building Permit fees are set by By-law, you may ask for a copy of the By-law or call the department to get an estimate of costs. The types of fees will vary but include building inspections, entrance permits, civic addresses, development charges, health permits, electrical permits, etc.

When Do I Need To Contact The Conservation Authority?

Whenever you plan to build within the flood plane or in an area that is likely to flood once in a 100 years. This can be difficult to tell because this flood line is not usually visible on the ground. If you are not sure then call either the South Nation Conservation Authority or the Rideau Valley Conservation Authority depending on which river takes the water run off from your property.

What Are Development Fees?

Development fees are established by By-law for new development on a property, the fees help offset the costs of

municipal infrastructure effected by expanding development. The fees are due before a Building Permit may be issued.

Are There Any Other Matters I Should Consider?

- Bell Canada - for telephone connections and the location of buried cable
- Insurance - contact your own agent for coverage during construction
- Ontario Hydro - electrical permits and inspections are required for any electrical wiring
 - information about a hydro service for your property or the location of buried cable is available by contacting Hydro One.
- Location of - Make sure that location of services will not affect future plans, ie. Garages, decks, pools, additions, sewage/water systems, play ground equipment, fencing, etc.

What Are My Obligations During Construction?

1. POST your Building Permit so that it is visible from the street.
2. KEEP a copy of your Building plans on the construction site.
3. NOTIFY the Building Inspector at least 48 hours in advance of the stage of construction requiring notice indicated on the Building Permit.
4. NOTIFY the Building Inspector of any proposed changes to your building plans. These will require approval prior to changes.

When Can I Occupy The Building?

When notice of the date of completion is given to the Chief Building Official and a final inspection has been made.

Can I Occupy an Unfinished Building?

Occupancy of an unfinished building may be granted provided the conditions of the Ontario Building Code are met, e.g. Fire and Life Safety components, water & sewage components, etc.

Why Do I Need Inspections?

Proper inspections will help ensure that construction is safe and that it meets code requirements. This will help protect your investment and contribute to a better standard of development for the community.

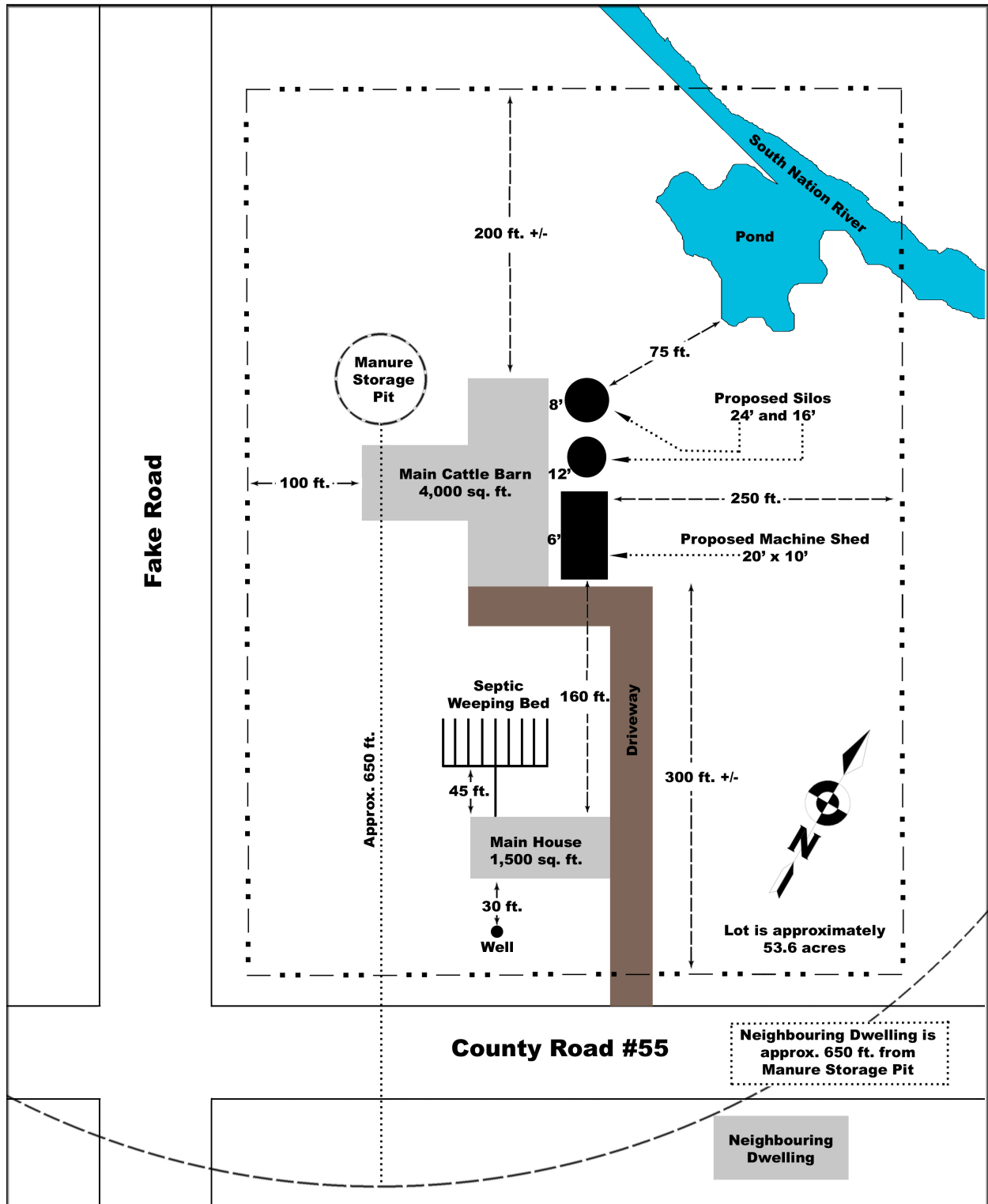
What Happens If I Build Without A Permit?

Building without a permit is against the law and is subject to fines or penalties set out in the *Building Code Act* and the *Provincial Offences Act*. Furthermore, the cost of issuing a permit where construction has begun is double the standard permit fee. The Chief Building Official may also ask for engineering inspections on the existing building or parts thereof before a permit can be issued. This is an unwise and expensive proposition, don't do it.

NOTE: The issuing of a Building Permit doesn't in any way relieve the Owner or his agent from complying with all the rules and regulations of the Zoning By-laws, the Ontario Building Code, or any other applicable law.

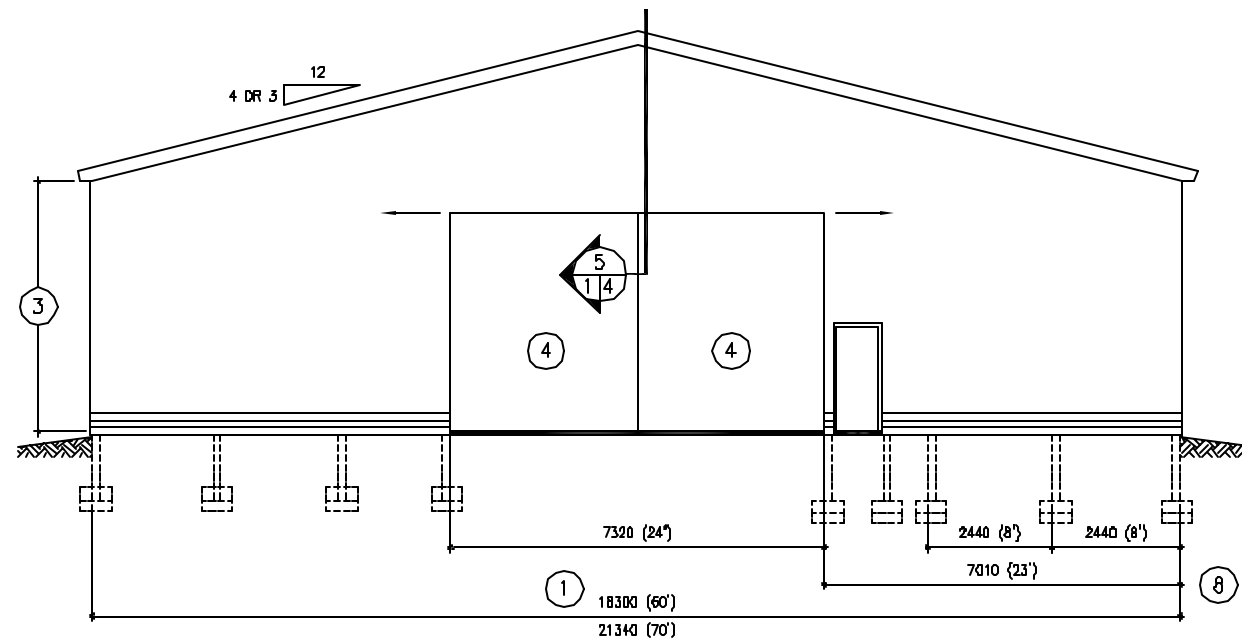
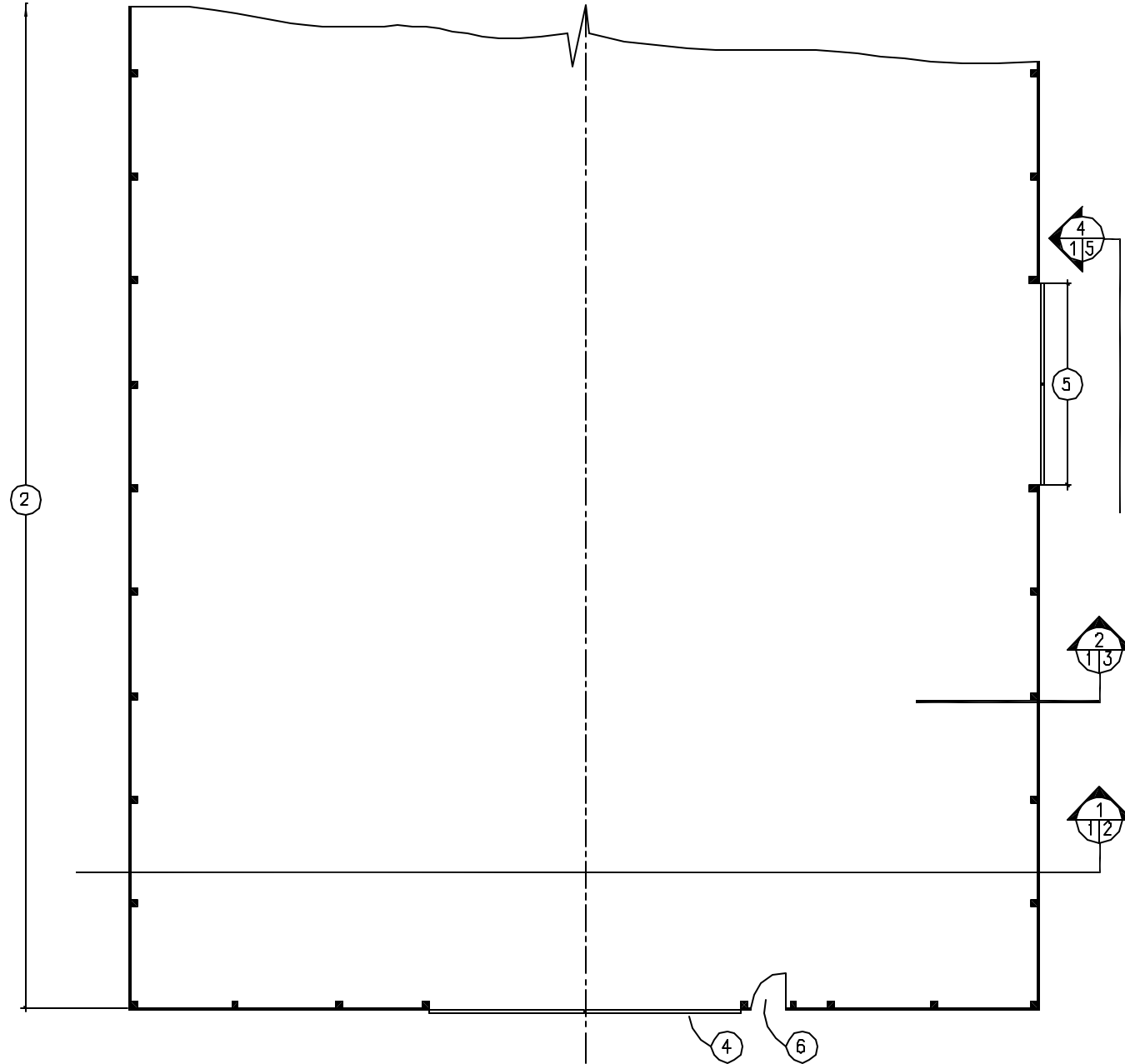
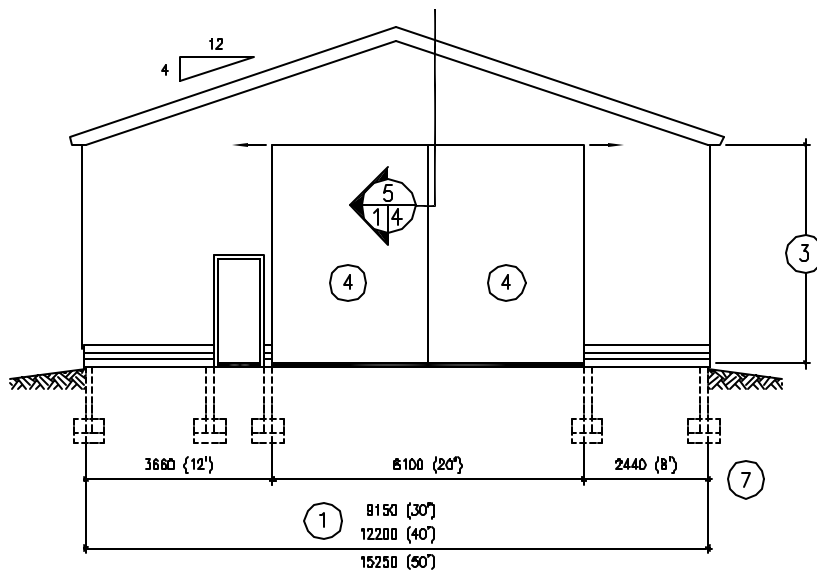
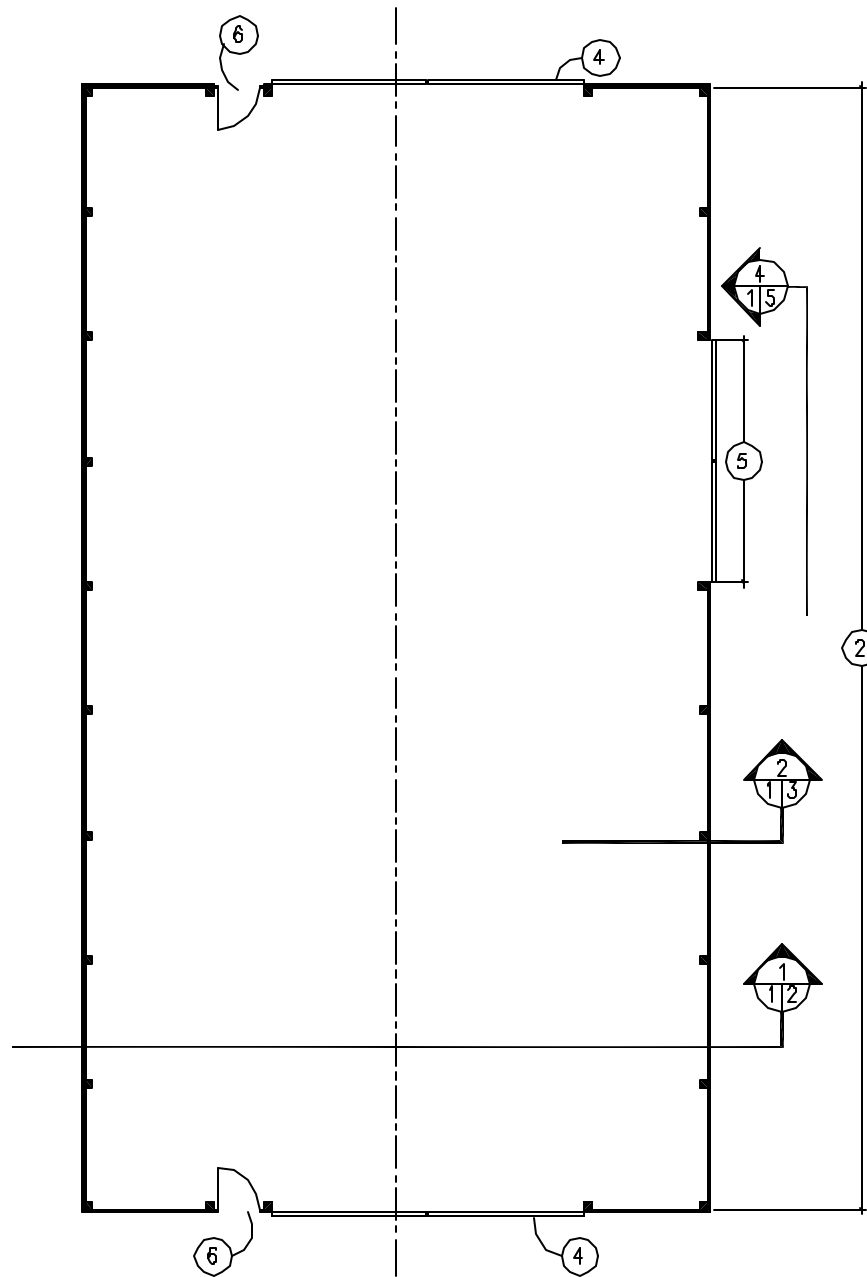
Sample Agricultural Site Plan

19548 County Road #55 (Part of Lot 19, Concession 8)



Information to include on an agricultural site plan:

- Municipal address
- Lot and Concession number
- Use of buildings
- Location of all buildings
- Lot dimensions / size
- Set backs from property lines
- Set backs from rivers, ponds and/or other natural features
- North Arrow
- Vehicle access (driveway)
- Retaining walls (*if applicable*)
- Right of Way & Easements (*if applicable*)
- Location of septic system & well
- Location of ground source heat pump (Geothermal) (*if applicable*)
- Drainage plan showing where water will drain from buildings
- Location and discharge of sump pump



Funding for this project has been provided under the Canada-Quebec Agreement for the Ice Storm Economic Recovery/Relief Program, Area 4, Assistance for the Agricultural Sector and Rural Communities in Eastern Ontario. This program is jointly funded by the Government of Canada and the Government of Ontario.

- Optional roof truss spans 9150 to 21350mm in 3050mm increments (30' to 70' in 10' increments); see truss manufacturer for truss design and spacing to suit local snow + rain + roof dead load (see National Building Code of Canada 1995)
- Length in 2440mm (8') increments
- Truss clear height 4270 or 4880mm (14' or 16')
- Sliding doors, see CPS Plan M9341
- Optional sidewall doors up to 4880mm (16") nominal width; see special door jamb and steel lintel details, Sheet 5
- Man door/fire exit 3' 7"
- Dimensions correspond only to the 12200mm (40') span
- Dimensions correspond only to the 21340mm (70') span

MATERIALS

Cast-in-place concrete to be min. 25MPa @ 28 days, 6% air entrained.

Reinforcing steel to be min. 400MPa deformed bars; provide 50mm (2") concrete cover over reinforcing steel, and 75mm (3") cover between steel and earth.

All wood indicated 'pressure treated' is CCA pressure-treated to 'ground contact specification', CSA-080 Wood Preservation.

All nails exposed to weather, treated wood, concrete or soil to be hot-dip galvanized.

All framing lumber, except 'pressure-treated' wood, is No.1/No.2 S-P-F species group

Exterior cladding steel to be minimum 0.34mm (29ga.) base metal thickness (ASTM-A-446, grade A, Z275 (G-90)); profiles to be as intended for farm roofing/siding as appropriate

APPLICATION


This plan conforms to the requirements of the National Farm Building Code of Canada 1995. The user of this plan must ensure that the design criteria indicated herein will meet all local design conditions, building regulations and special requirements. The user is responsible to ensure that all required changes are made.

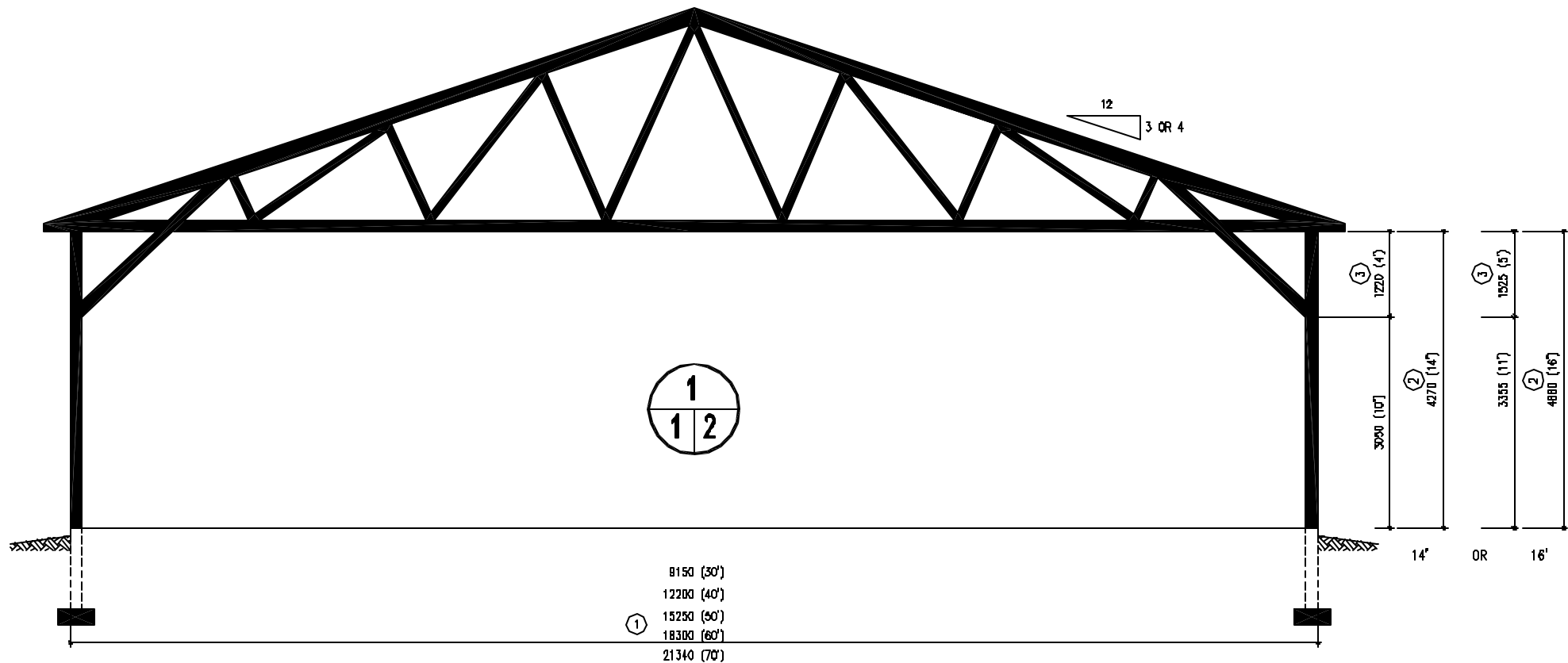
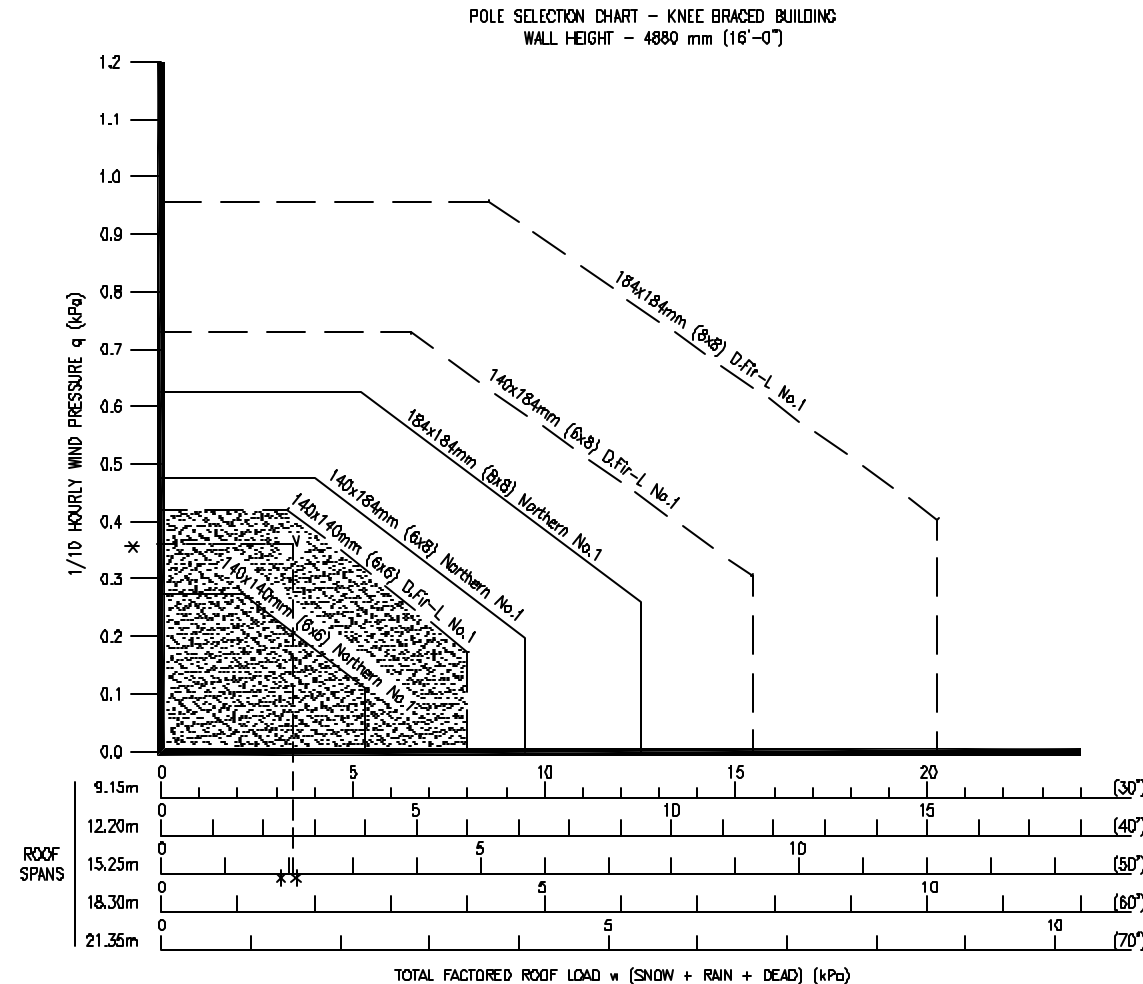
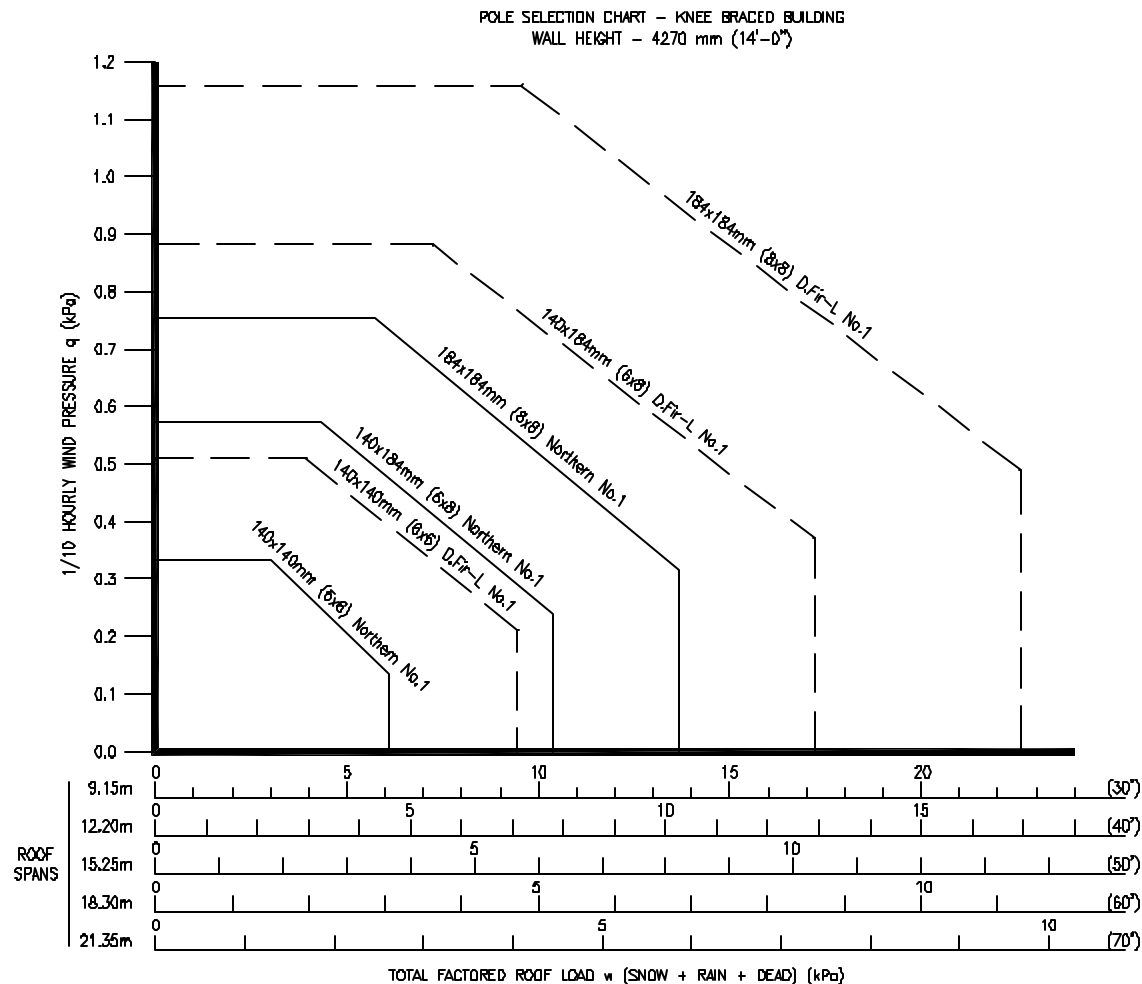
WARNING

DOORS - This structure is designed assuming all doors are closed and remain intact in the event of a severe wind.

TRUSS BRIDGING & BRACING - Install all bridging and bracing as specified by truss manufacturer.

Argue & Associates
Consulting Engineers
Design in Canada

SYM		REVISIONS		CHECKED	DATE	APPROVED
<div></div>				<div>Pole Frame Machinery Storage Knee Braced For Wind</div>		
DESIGNED	JET	DATE	DEC. 1999		<div>PLAN</div> <div>8311</div> <div>SHEET 1 OF 5</div>	
DRAWN	JBA	REVISED				
SCALE	NO SCALE	<div><div><div>A</div><div>B</div><div>C</div></div><div>DETAIL NUMBER _____ A ORIGINATES ON SHEET _____ B DRAWN ON SHEET _____ C</div></div>				
CHECKED	BEM					



- Optional roof truss spans; see truss manufacturer for truss design and spacing to suit local snow + rain + roof dead load (see National Building Code of Canada 1995)
- Optional wall heights
- Corresponding knee brace-to-truss heights

EXAMPLE:

To select sawn poles for a knee-braced pole frame storage building at London, Ontario.

Given - roof truss span 15.25m (50')
- roof slopes 18.4' (4/12)
- building wall height 4.88m (16')
- building will be 'wind sheltered' by a row of spruce trees that will soon grow higher than the roof
- from the National Building Code of Canada 1995, ground snow $S_s = 1.7$ kPa
1-day rain $S_R = 0.4$ kPa
1/10 hourly wind $q = 0.36$ kPa

STEP 1:

Calculate the "total factored roof load"; from Table 3, Sheet 4 the appropriate formula is

$$w = 0.75 S_s + 1.2 S_R + 0.3$$
$$= 0.75 (1.7) + 1.2 (0.4) + 0.3$$
$$= 1.27 + 0.48 + 0.3$$
$$w = 2.05 \text{ kPa}$$

STEP 2:

Go to the Pole Selection Chart, building height 4880mm (16'). On the horizontal scale for roof span 15.25m (50'), locate ** 2.05 kPa 'total factored roof load'. From the %, draw a vertical line up into this chart.


STEP 3:

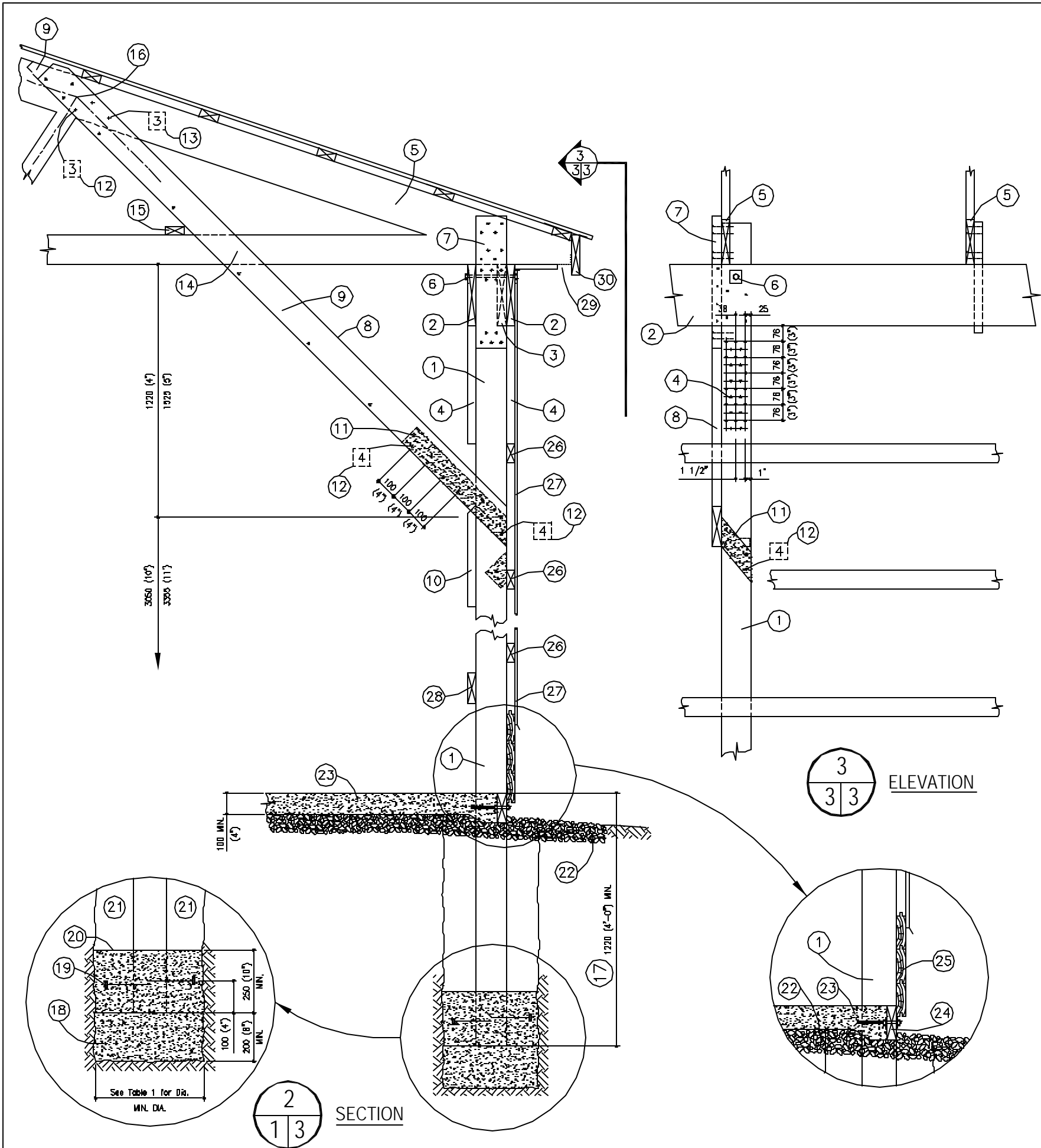
On the vertical scale for 1/10 hourly wind pressure, locate * 0.36 kPa, then draw a horizontal line across into the chart until it intersects with the vertical line from Step 2 (see V on chart).

STEP 4:

Select the poles. Because the V is beyond the line for '140x140mm (6x6) Northern No.1', this pole is not strong enough; therefore choose the '140x140mm (6x6) D.Fir-L No.1'. If you want to use the 'Northern' species, go to the next size, that is '140x184mm (6x8) Northern No.1'.

Argue & Associates
Consulting Engineers
Greater Toronto Area

SYM		REVISIONS		CHECKED	DATE	APPROVED
				<div>Section Pole Selection Charts</div>		
DESIGNED	JET		DATE	DEC. 1999		<div>PLAN 8311</div>
DRAWN	JBA		REVISED			
SCALE	NO SCALE		<div><div><div>A</div><div>B</div><div>C</div></div><div>DETAIL NUMBER _____ ORIGINATES ON SHEET _____ DRAWN ON SHEET _____</div></div>			
CHECKED	BEM					
SHEET 2 OF 5						



- Pressure treated sawn poles 2440mm (8') c/c; see Pole Selection Chart (sheet 2) for size
- Double (or triple) plate beam, lengths 4880mm (16'), ends staggered 2440mm (8') at poles; see Plate Beam Selection Table 4, Sheet 4 for size
- Where third plate beam is required, notch pole to fit flush
- 38x140mm (2x6) scabs to pole, tight fit under (2); see Plate Beam Nailing Schedule Table 2, Sheet 4 for number of 102mm (4") spiral nails to pole; typical min. nail spacings as shown
- Manufactured wood roof trusses, spaced 1220, 813 or 610mm (48", 32" or 24") c/c; notch pole 38mm (1 1/2") in way of truss
- 1/2" bolt, plate beam to pole; oversized washers 76x76x6mm (3"x3"x1/4") or equivalent
- 38x610mm (2"x24") scab to pole and truss, fit tight between plates (2); 102mm (4") spiral nails to truss and pole
- 38x140 (2x6) knee brace 2440mm (8') c/c at poles (1)
- 38x140mm (2x6) knee brace stiffener, notched 38mm (1 1/2") in way of truss upper and lower chords; end bears on (9)
- 38x140mm (2x6) butt block, top end cut to fit (8)
- 100x914x1.21mm (4"x36"x18ga.) galv. steel strap sandwiched between stiffener (8) and knee brace (11), hammer-bend and nail tight around pole
- 102mm (4") spiral common nails, predrill 4mm (5/32") dia. through steel strap (10); No. of nails at each location shown thus []
- Nails not penetrating the third member to be clinched
- Do not nail knee bracing to lower chord of truss
- 38x89mm (2x4) truss lower chord stiffener; see manufacturer's drawing for location and add stiffener at knee brace if none is shown
- Centrelines of truss members and knee brace (8) to coincide here
- Or to below frost
- Concrete footing placed in dense, undisturbed soil; for soft soils and/or truss spans greater than 1220mm (40"), increase diameter of post hole to 610mm (2"); see Table 1 for diameter
NOTE: if top of all footings can be precisely levelled when placing concrete footings, poles can be more easily notched and top-cut BEFORE erecting
- Hot-dip galvanized spikes 204x8.23mm (8"x1/8ga.) driven 76-100mm (3-4") into butt of poles 4 sides; for areas of high winds, increase to 8 spikes each pole
- Concrete anchor to resist wind uplift
- Soil or crushed stone backfill, well compacted
- Crushed stone under (23), extend to beyond drainage from roof

- Optional concrete floor
- 38x140mm (2x6) pressure treated form plank fitted between poles to slide vertically if floor heaves; 3-3/8"x8" bolts each plank to (23)
- 3-38x140mm (2x6) T&G pressure treated planking, ends staggered 2440mm (8') at poles; 2-125mm (5") galv. spiral nails each plank to pole
- 38x89mm (2x4) wall girts not greater than 610mm (24") c/c; nail to each pole with 2-102mm (4") spiral nails
- Vertical steel siding
- Optional 38x140mm (2x6) guard plank midway between (25) and (26)
- 50mm (2") continuous eave vent; screen with 12x12mm (1/2"x1/2") galvanized hardware cloth pre-bent to L-shape before installing (30)
- 38x190mm (2x8) or wider face board

TABLE 1
Concrete Footing Diameter Under Each Pole
Based on Soil Bearing Capacity 120 kPa (2500 psf)

Truss Span mm (ft)	* Total Roof Load, w, kPa (psf)					
	1.5 (31)	2.0 (42)	2.5 (52)	3.0 (63)	3.5 (73)	4.0 (84)
Footing Diameter, mm (in)						
9150(30)	450(18)	520(20)	570(22)	620(24)	670(26)	710(28)
12200(40)	510(20)	590(23)	650(26)	710(28)	780(30)	810(32)
15250(50)	570(22)	650(26)	720(28)	790(31)	850(33)	910(36)
10300(60)	620(24)	710(28)	790(31)	860(34)	930(37)	990(39)
21350(70)	670(26)	760(30)	850(33)	930(37)	1000(39)	1060(42)

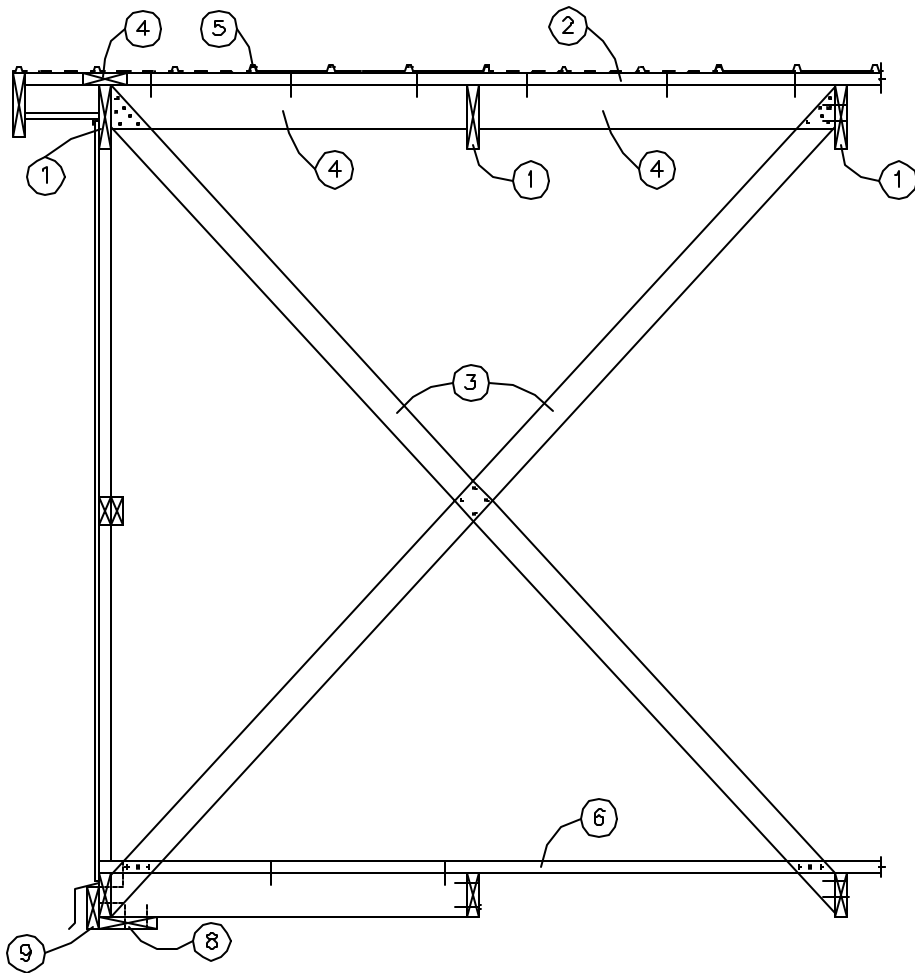
* See Example Step 1 and Table 3 (Sheet 4) to calculate "total factored roof load, w"

NOTE: Footing diameters may be reduced where soil investigation reveals higher bearing capacity.

For Design Tables
And Example,
See Sheet 4

SYM	REVISIONS	CHECKED	DATE	APPROVED
		Structural Details		
DESIGNED	JET	DATE	DEC. 1999	PLAN 8311 SHEET 3 OF 5
DRAWN	JBA	REVISED		
SCALE	NO SCALE	DETAIL NUMBER ORIGINATES ON SHEET DRAWN ON SHEET		
CHECKED	BEM	A B C		

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Notes to Tables 3 and 4

1. Ground snow (S_g) and rain (S_R) are tabled in the National Building Code of Canada, 1995.
2. For 4/12 roof slope, a slippery metal roof without obstructions to snow sliding is assumed; for roof areas above roof valleys, ice guards or other obstructions to snow sliding, use only the 3/12 (14.0°) adjustment formulas.
3. Add one more matching plate beam member to end spans of plate beam.

TABLE 2
Plate Beam Nailing Schedule

Plate Beam Nominal Size	Total No. of 4" spiral nails at (2) & (4) Sheet 3
38 x 140mm (2x6)	11
38 x 184mm (2x8)	17
38 x 235mm (2x10)	28
38 x 286mm (2x12)	35

TABLE 3
Total Factored Roof Load, w = snow + rain + dead (kPa)

Gable Roof Slope	Wind - Sheltered	Wind - Exposed
4/12 (18.4°)	$w = 0.75S_g + 1.2S_R + 0.3$	$w = 0.56S_g + 1.2S_R + 0.3$
3/12 (14.0°)	$w = 0.96S_g + 1.2S_R + 0.3$	$w = 0.71S_g + 1.2S_R + 0.3$

TABLE 4
Plate Beam Selection for Total Factored Roof Load, w (kPa)

Plate Beam Size	Roof Span, mm (ft)				
	9150 (30 ft)	12200 (40 ft)	15250 (50 ft)	18300 (60 ft)	21350 (70 ft)
Trusses Spaced @ 1220mm (48") c/c					
2-38x140 (2-2x6)	1.59	1.19	---	---	---
2-38x184 (2-2x8)	2.35	1.77	1.41	1.18	---
3-38x184 (3-2x8)	3.53	2.65	2.12	1.77	---
2-38x235 (2-2x10)	3.52	2.64	2.11	1.76	1.51
3-38x235 (3-2x10)	5.28	3.96	3.17	2.64	2.26
2-38x286 (2-2x12)	---	3.55	2.84	2.37	2.03
3-38x286 (3-2x12)	---	---	4.26	3.55	3.05
Trusses Spaced @ 813mm (32") c/c					
2-38x184 (2-2x8)	2.56	1.92	1.53	1.28	---
3-38x184 (3-2x8)	3.84	2.88	2.30	1.92	1.64
2-38x235 (2-2x10)	3.82	2.87	2.29	1.91	1.64
3-38x235 (3-2x10)	5.73	4.30	3.44	2.87	2.46
2-38x286 (2-2x12)	---	3.86	3.09	2.57	2.21
3-38x286 (3-2x12)	---	5.79	4.63	3.86	3.31
Trusses Spaced @ 610mm (24") c/c					
2-38x184 (2-2x8)	1.88	1.41	1.13	---	---
3-38x184 (3-2x8)	2.82	2.12	1.69	1.41	1.21
2-38x235 (2-2x10)	2.81	2.11	1.69	1.41	1.21
3-38x235 (3-2x10)	4.22	3.17	2.53	2.11	1.81
2-38x286 (2-2x12)	3.79	2.84	2.27	1.89	1.62
3-38x286 (3-2x12)	5.68	4.26	3.41	2.84	2.44

1. Truss upper chord
2. 38x89mm (2x4) roof purlins, 4880mm (16'-0") lengths, end joints staggered 2440mm (8'-0") at trusses; nail each purlin to each truss with 2-102mm (4") spiral nails
3. 38x89mm (2x4) permanent X-bracing at each truss stiffener (6) but not more than 2440mm (8'-0") c/c
4. 38x140mm (2x6) blocking between trusses at (2); nail with 102mm (4") spiral nails @ 300mm (12") c/c
5. Steel roofing is galvanized sheet, minimum thickness 0.34mm (29ga), screw-fastened; typical Canadian farm roofing profiles
6. 38x89mm (2x4) truss lower chord stiffener, spaced as per truss manufacturer but in no case greater than 2440mm (8'-0") c/c
7. 38x140mm (2x6) blocking between trusses at each X-brace (3)
8. 38x184mm (2x8) door head jamb
9. Track board and galvanized steel flashing to suit endwall door and hardware

EXAMPLE - Use Tables 3 and 4 to select a plate beam combination for a pole frame building at London, Ontario

- Given**
- truss span 15250mm (50'-0")
 - truss slope 4/12 (18.4°)
 - sidewall pole spacing 2440mm (8'-0")
 - truss spacing 1220mm (48")
 - building is fully exposed to wind (no taller building or trees nearby)
 - from National Building Code of Canada 1995:
 - ground snow $S_g = 1.7$ kPa
 - 1-day rain $S_R = 0.4$ kPa

- Step 1**
- calculate total snow + rain + dead roof load
 - from Table 3 the appropriate formula is
 - $w = 0.56S_g + 1.2S_R + 0.3$
 - then $w = 0.56 (1.7) + 1.2 (0.4) + 0.3$
 - and $w = 1.73$ kPa (40 lb/ft²)

- Step 2**
- go to Table 4, trusses @ 1220mm (48") c/c and roof span 15250mm (50'-0")
 - note that either 2-2x10 or 3-2x8 plate beam will support 2.11 or 2.12 kPa respectively, both safely greater than 1.73 kPa (from Step 1).

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Structural Details
Plate Beam

SYM	REVISIONS	CHECKED	DATE	APPROVED
DESIGNED	JET	DATE	DEC. 1999	PLAN 8311 SHEET 4 OF 5
DRAWN	JBA	REVISED		
SCALE	NO SCALE			
CHECKED	BEM			

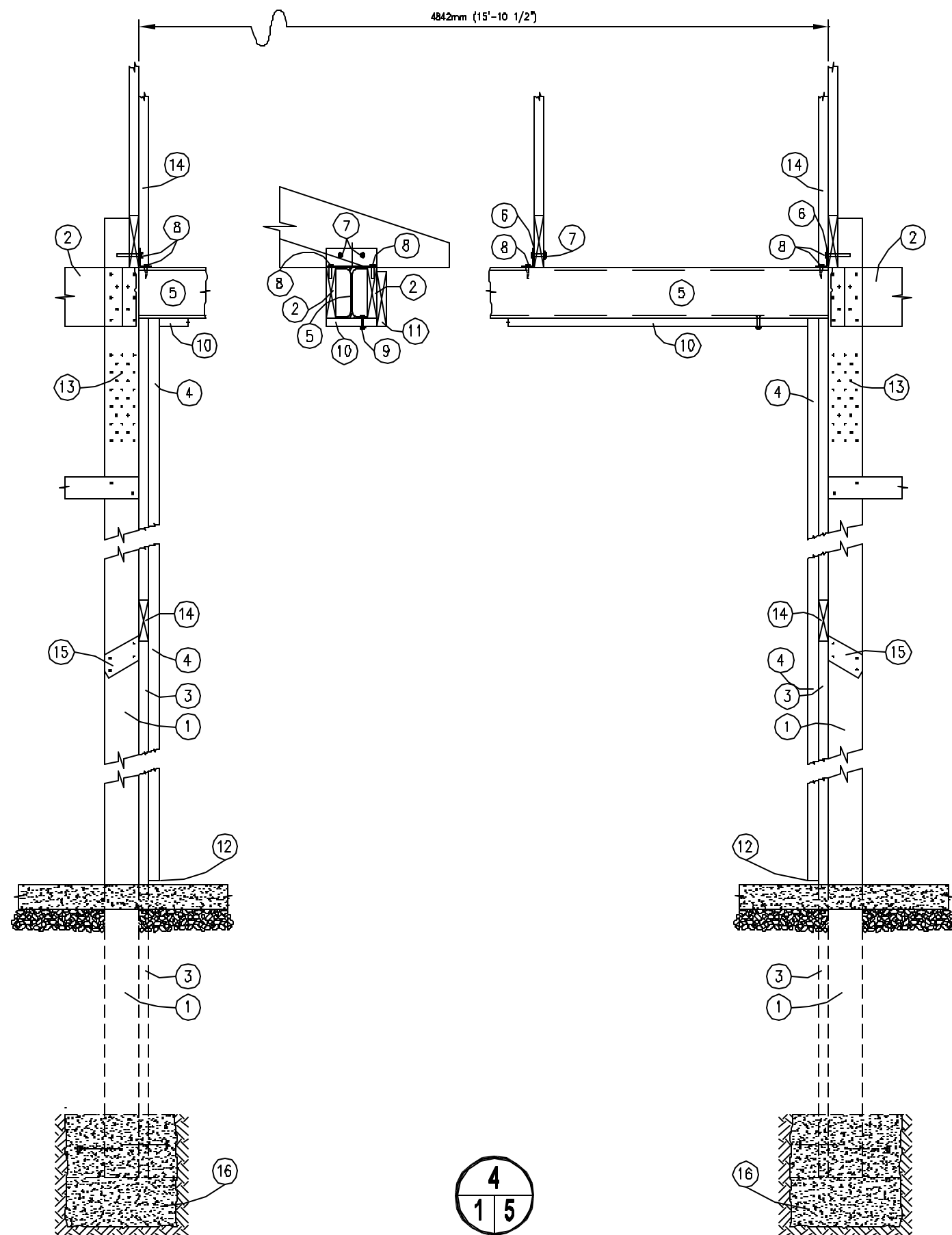


TABLE 5
Steel Beam Total Factored Roof Loads, w (kPa), Door Span 4880mm (16')

Steel Beam Size - metric (Imperial)	Roof Span, mm (ft)				
	9150 (30 ft)	12200 (40 ft)	15250 (50 ft)	18300 (60 ft)	21350 (70 ft)
*W250x39 (W10x26)	---	---	6.13	5.10	4.37
W200x42 (W8x28)	---	---	5.29	4.40	3.78
W250x33 (W10x22)	---	6.28	5.03	4.18	3.59
W200x36 (W8x24)	---	5.68	4.54	3.78	3.24
W200x31 (W8x21)	6.64	4.98	3.99	3.32	2.84
W200x27 (W8x18)	5.53	4.15	3.32	2.76	2.37
W250x24 (W10x16)	5.39	4.05	3.24	2.70	2.31
W200x21 (W8x14)	3.82	2.87	2.29	1.91	1.64

*means 'Wide Flange', 250mm deep by 39 kg/m of length
(10" deep by 26 lb/ft of length)

EXAMPLE - To select a steel beam lintel for a 4880mm (16') sidewalk doorway at London, Ontario.

Given: - truss span 15250mm (50'-0")
- truss slope 4/12 (18.4")
- building is close to a row of spruce trees that will soon grow to be higher than the new building, therefore the roof must be considered 'wind-sheltered'.
- from the National Building Code of Canada 1995:
- ground snow $S_s = 1.7$ kPa
- maximum one-day rain $S_r = 0.4$ kPa

Step 1: - calculate 'total factored roof load'
- from Table 3, Sheet 4 the appropriate formula is
 $w = 0.75S_s + 1.2S_r + 0.3$
- then $w = 0.75(1.7) + 1.2(0.4) + 0.3$
- and $w = 2.06$ kPa (43 lb/ft²)

Step 2: - go to Table 5 and column under roof span 15250mm (50 ft), then down to $w = 2.29$ kPa. This corresponds to a steel beam lintel size W200x21 (W8x14) which is safe for London, Ontario.

- Pressure treated sawn pole; see Pole Selection Chart (Sheet 2)
- 38mm (1 1/2") plate beam, see (2/13)
- Reinforce door jamb poles with 38mm (1 1/2") pressure treated plank 50mm (2") wider than pole; extends from knee brace (14) to concrete footing; outside edge flush with (2)
- 38mm (1 1/2") side door jamb, 100mm (4") wider than pole (1) notch in way of (2), outside edge flush with (11); (3) and (4) combine to give 76mm (3") end-grain bearing under beam (5)
- Steel beam 4842mm (15'-10 1/2") long, see Table 5 for size; beam ends each to bear on 76mm (3") of end grain at side jambs
- Weld truss anchor clips 50x75x6mm (2x3x1/4") steel angle to (5) drill clips for 3/8" bolts and/or lag screws as shown
- 3/8" bolts, truss to (8)
- 3/8" x 4" lag screws to truss/pole and to plate beams (2)
- 3/8" x 2 1/2" carriage bolts, head jamb (10) to beam @ 600mm (24") c/c; alternate left/right of beam centerline
- 38mm (1 1/2") door head jamb, width to fit (2)
- 38mm (1 1/2") track board (optional for sliding door hardware)
- 12mm (1/2") gap from (4) to concrete floor
- Increase scab nailing 1.5 times for extra roof load as compared with Table 2, Sheet 4
- Knee brace 38x140mm (2x6), stiffened with 38x89mm (2x4) same as in (2/13), except left pole is reversed
- Knee brace steel strap anchor at pole, same as in (2/13)
- Increase effective area of concrete pads at door jambs by 150% as compared with pads for poles at 8'-0" centres

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SYM	REVISIONS	CHECKED	DATE	APPROVED
		Details of Optional Sidewall Door Frame		
DESIGNED	JET	DATE	DEC. 1998	
DRAWN	JBA	REVISED		
SCALE	NO SCALE	DETAIL NUMBER _____ ORIGINATES ON SHEET _____ DRAWN ON SHEET _____		
CHECKED	BEM	PLAN 8311 SHEET 5 OF 5		