



## **TOWNSHIP OF NORTH DUMFRIES BUILDING PERMIT REQUIREMENTS FARM BUILDINGS**

The Township will approve building permit applications subject to the following criteria and documentation filed in our office.

<u>NO</u>	<u>ITEM</u>	<u>CHECK</u>
1.	Application for a Permit to Construct or Demolish	<input type="checkbox"/>
2.	Site Plan (See requirements) a. Building location and zoning information	<input type="checkbox"/>
3.	Two complete sets of construction drawings including. a. Floor Plans b. Elevations c. Cross Sections d. Professional engineer stamped drawings required if the total area exceeds 2 storeys in height and/or is >600m <sup>2</sup> (6460ft. <sup>2</sup> )	<input type="checkbox"/>
4.	Minimum Distance Separation details' sheet filled out	<input type="checkbox"/>
5.	Access Permit (from Region or Township) a. Regional Road – (519) 575-4811 (online applications can be completed online at <a href="http://www.regionofwaterloo.ca">www.regionofwaterloo.ca</a> ) b. Township Road – (519) 621-7885	<input type="checkbox"/>
6.	Septic Approval (Township of North Dumfries if Required)	<input type="checkbox"/>
7.	Grand River Conservation Authority approval (if in a regulated area)	<input type="checkbox"/>
8.	OMAF (Ministry of Agriculture and Food) Approval (if required)	<input type="checkbox"/>

Only complete applications will be accepted for permit approval. Please ensure that this checklist is submitted with your application showing all of the attached required information.

Please find the attached information to help you with your project.

- A. Minimum Distance Separation Detail's Sheet
- B. Nutrient Management Requirements sheet
- C. Nutrient Units Example Sheet
- D. OMAF contact information sheet
- E. Example Drawings & Span Charts for Farm Structures



**TOWNSHIP OF NORTH DUMFRIES  
BUILDING PERMIT REQUIREMENTS  
BARNs**

A building permit for a farm building is required when the area of the detached structure exceeds 108 sq.ft. When applying for a building permit, we require a complete *Application for a Permit to Construct or Demolish* and **2 copies** of the following:

1. Site plan drawn to scale showing your lot, property lines and all existing structures (house, garage, sheds, decks). Dimension the size of the lot and distances from the proposed structure to all property lines and any adjacent buildings (and septic tank and bed if applicable). All easements on your property must also be shown.
2. Construction drawings drawn to scale and dimensioned consisting of:
  - Plan view with overall dimensions, roof framing size, direction, span and spacing, door and window opening locations, sizes and lintel size. If framing a floor, a separate plan showing the floor is required.
  - Elevations from all sides showing grade location, floor height above grade, wall height, roof height, roof slope, cladding material, roofing material and window and door location and sizes.
  - Cross-section through the wall from footings to roof noting all materials in the foundation, wall and roof assembly. See example Detail 1 in the Accessory Structure Package.

If the structure exceeds 538 sq.ft in building area, the person who designs and takes responsibility of the structure (other than the owner) must successfully complete the Designer/Legal Process and the House Qualification Exams. The designer must also include the following information on all documents respecting the design activities as per Div. C.3.2.5.1.(1)(c) of the Ontario Building Code:

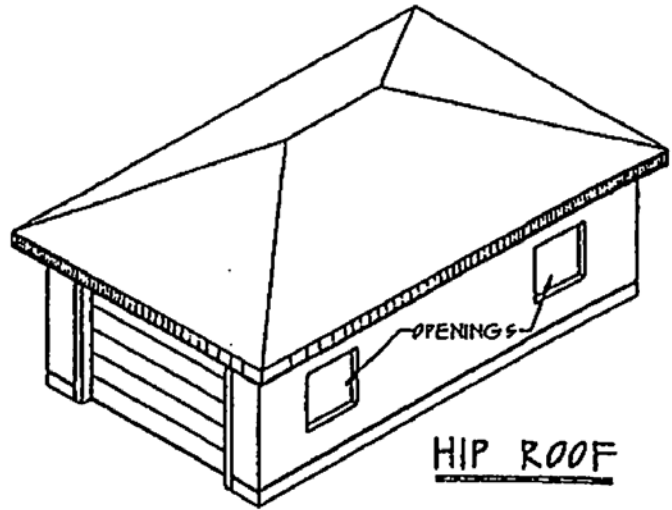
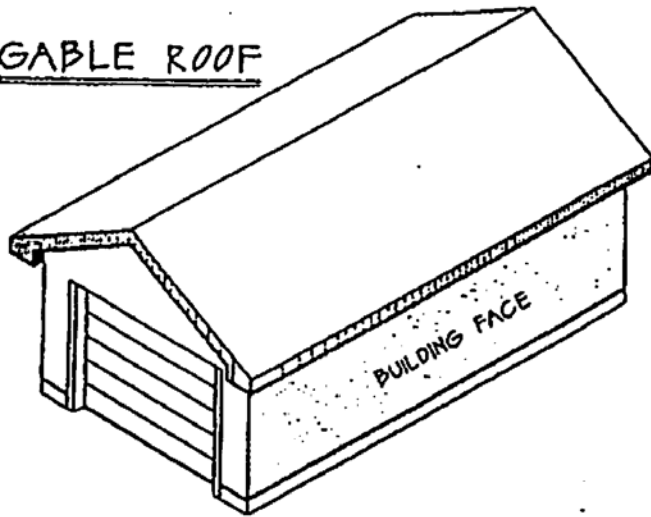
- a) The person's name and any identifying number issued by the Ministry of Housing
- b) A statement that the person has reviewed and taken responsibility for the design activities, and
- c) The person's signature

If farm buildings exceed 600m<sup>2</sup> (6460ft<sup>2</sup>), it requires an engineering design.

All structures must comply with the Zoning By-Law requirements even if the building permit is not required.

***Please call the Building Department at (519) 632-8800 if you have any further questions.***

GABLE ROOF



HIP ROOF

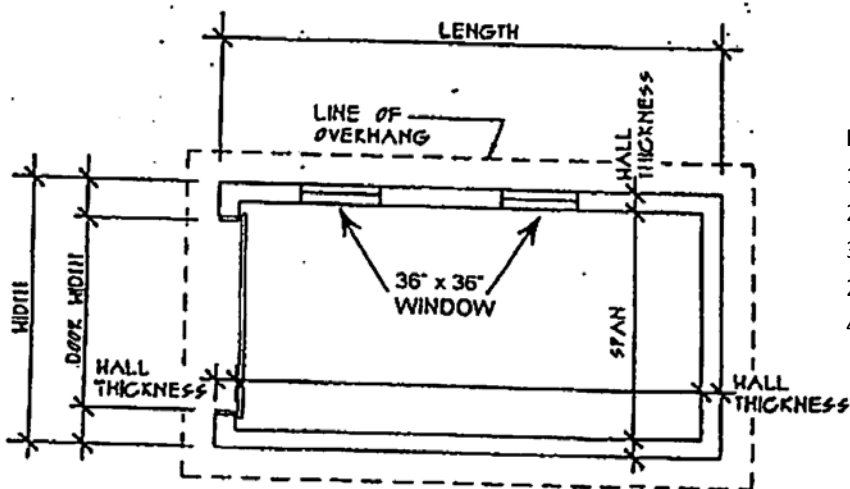
**SPECIFY ELEVATION TO BE USED**

☐ GABLE

☐ HIP

\* If Building Hip Roof, hip rafters to be one size larger lumber than jack an common rafters \*

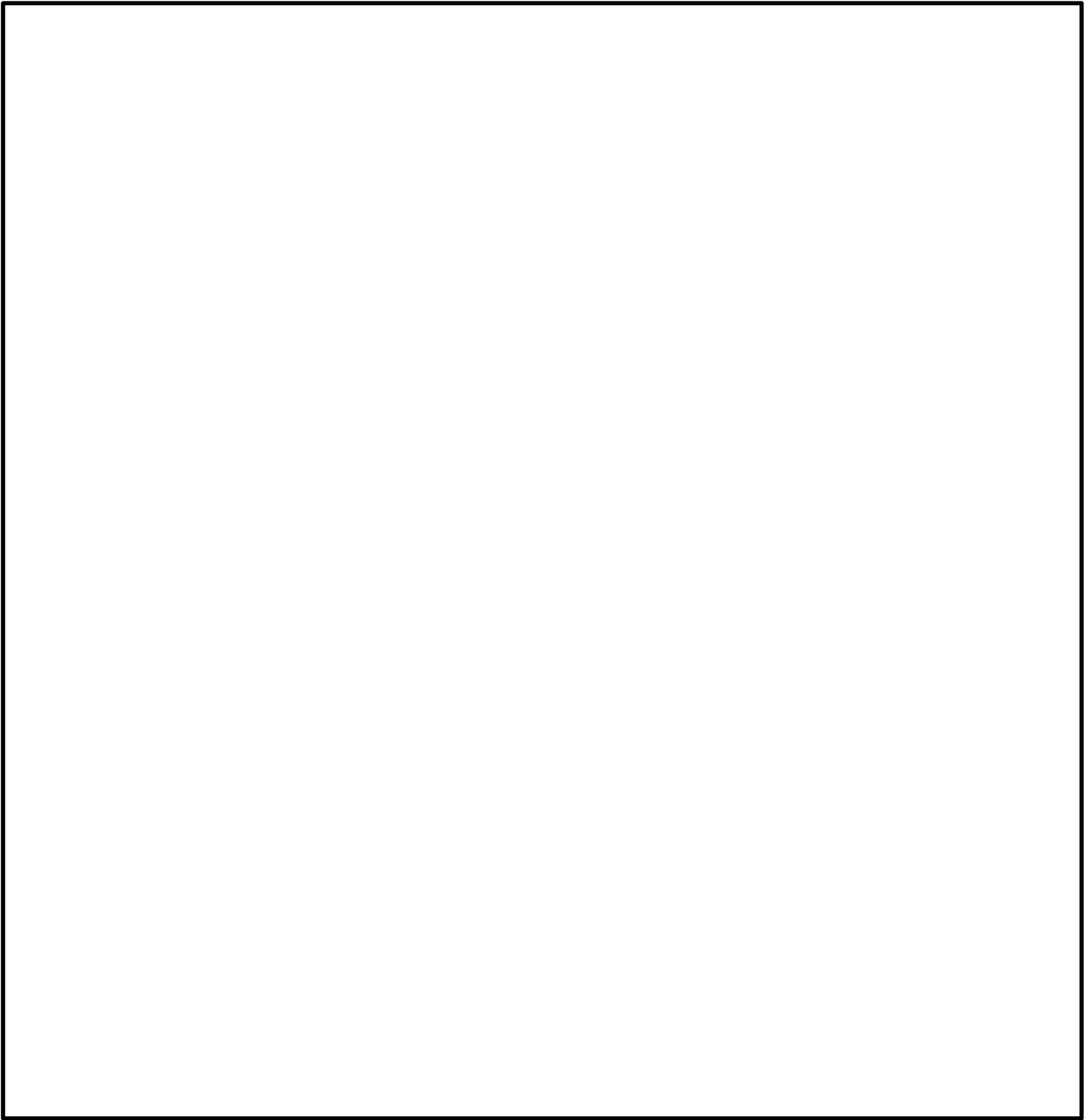
Maximum Percentage of Openings in Exterior Walls							
Max. Area Building Face sqft	Max. Distance from Side/Rear Lot Line						
	< 3'-11"	3'-11"	4'-11"	6'-7"	8'-4"	9'-10"	13'1"
107	0	8	12	21	33	55	96
160	0	8	10	17	25	37	67
215	0	8	10	15	21	30	53
267	0	8	9	13	19	26	45
323	0	7	9	12	17	23	39



EXAMPLE PLAN

**Notes:**

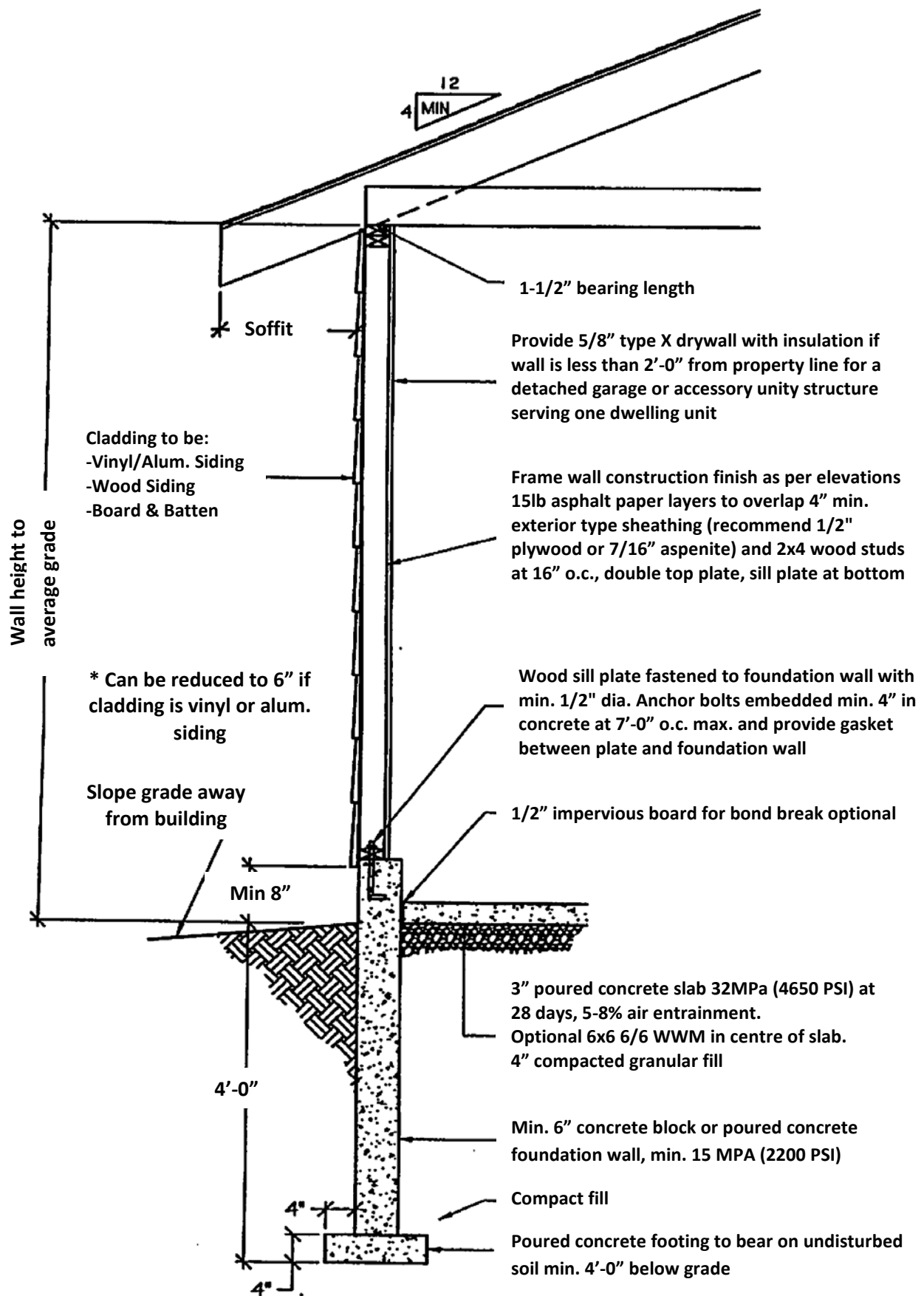
- 1) Show all openings (doors, windows) and note size.
- 2) Show all adjacent property lines.
- 3) Provide 5/89" type 'X' drywall if wall is less than 2'-0" from the property line.
- 4) Dimension plan as per Example Plan



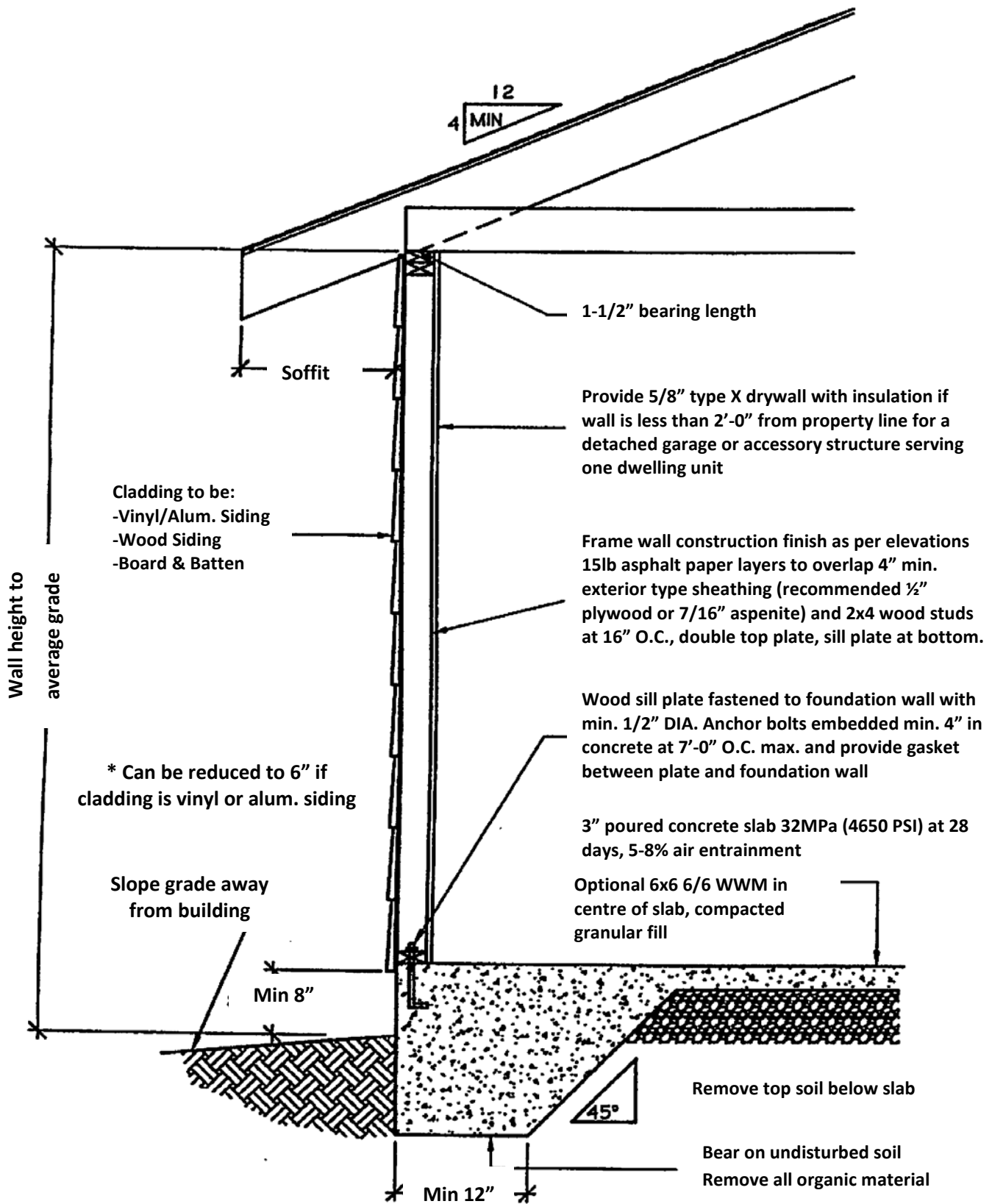
**Proposed Floor Plan – Drawn to Scale**

Ensure the following information is shown (see sample drawing on Pg. 1)

- Dimension all walls, openings
- Show lintel sizes over openings
- Ensure window, door openings shown
- Roof framing information



1 WALL SECTION



2

## FLOATING SLAB DETAIL

Maximum 592 sqft

Roof Rafter Span Table			
Member Size	Rafter Spacing		
	12 in	16 in	24 in
2 x 4	8-11	8-1	7-1
2 x 6	14-0	12-9	11-2
2 x 8	18-5	16-9	14-6
2 x 10	23-7	21-5	17-8
2 x 12	28-8	25-2	20-6

Spruce No.1 & No.2 Grade Lumber      Snow Load  
30 psf

Roof Joist Span Table			
Member Size	Joist Spacing		
	12 in	16 in	24 in
2 x 4	7-1	6-5	5-7
2 x 6	11-2	10-1	8-10
2 x 8	14-8	13-4	11-7
2 x 10	18-8	17-0	14-10
2 x 12	22-9	20-8	18-1

Spruce No.1 & No.2 Grade Lumber      Snow Load  
30 psf

Ceiling Joist Span Table			
Member Size	Rafter Spacing		
	12 in	16 in	24 in
2 x 4	10-3	9-3	8-1
2 x 6	16-1	14-7	12-9
2 x 8	21-1	19-2	16-9
2 x 10	27-0	24-6	21-5
2 x 12	32-9	29-10	26-0

Spruce No.1 & No.2 Grade Lumber

Lintels Over Doors and Windows		
Opening Width	Lintels for Wood Framing	
	Not Supporting Roof	Supporting Roof
Up to 6-4	2 ply 2 x 6	2 ply 2 x 6
Up to 9-5	2 ply 2 x 6	2 ply 2 x 10
Up to 16-0	2 ply 2 x 10	Design Req'D

Based on a Maximum of 12'-0" Supported Roof

Brick Veneer Lintels	
Opening Width	Steel Angle Size
Up to 8-1	3-1/2 x 3-1/2 x 1/4"
Up to 8-9	4 x 3-1/2 x 1/4"
Up to 10-10	5 x 3-1/2 x 5/16"
Up to 11-5	5 x 3-1/2 x 3/8"
Up to 13-6	6 x 4 x 7/16"
Up to 14-1	7 x 4x x 3/8"
Up to 15-1	7 x 4 x 1/2"

Wall Sheathing Thickness & Specifications For Typical Cladding System			
Type of Sheathing	Supports at 16"	Supports At 24"	Material Standards
Plywood (Exterior Type)	1/4"	5/16"	CSA 0121-M / CSA 0181-M / CSA 0153-M
OSB Grade 0-2	1/4"	5/16"	CSA 0437
Waferboard & OSB Grade R-1 & 0-1	1/4"	5/16"	CSA 0437

Roof Sheathing Thickness				
Maximum Spacing of Supports	Plywood and O-2 Grade Waferboard and OSB		Waferboard (Aspenite) & OSB R-1 & O-1 Grade	
	Edges Supported	Edges Unsupported	Edges Supported	Edges Unsupported
12"	5/16"	5/16"	3/8"	3/8"
16"	5/16"	3/8"	3/8"	7/16"
24"	3/8"	1/2"	7/16"	1/2"

All Plywood to be Stamped " Approved Exterior Grade

**General Notes:**

1. Assumed undisturbed soil bearing capacity 4000lb per square foot.
2. If building wall is closer than 4'-0" to property line, no openings are permitted.
3. If building wall is closer than 2'-0" to property line, provide 5/8" drywall interior finish and no openings are permitted.
4. Wood frame building less than 538sqft slab on grade can be used.
5. All spans measured horizontally from peak to supporting wall or collar tie if required
6. Wall ties are required when ridge is unsupported. See Rafter-to-Joist Nailing chart for minimum nailing requirements.



Cladding to be:  
-vinyl/alum. siding  
-wood siding  
-board & batten

\* Can be reduced to  
6" if cladding is vinyl  
or alum. siding

Slope grade away  
from building

8" Min

4'-0" Min

Existing beam and roof

Frame wall construction finish as per  
elevations 15lb asphalt paper layers to  
overlap 4" min. exterior type sheathing  
(recommend 1/2" plywood or 7/16"  
aspenite) and 2x4 wood studs at 16" o.c.,  
double top plat, sill plate at bottom

2 ply 2x10 p.t. beam attached to existing  
posts with a double hanger

Minimum 2" clearance above grade and floor

Existing carport floor

Existing concrete pier

3

WALL SECTION TO ENCLOSE  
AN EXISTING CARPORT

## STUD SIZES

for low human occupancy farm buildings (with second-storey loading)

No.1/No.2 S-P-F, (dressed lumber)

Second Storey Floor Load (psf)	Second Storey Wall Height (ft)	Wind load: q10 ≤ 0.30 kPa								Wind load: q10 ≤ 0.45 kPa							
		18 inch o.c.				24 inch o.c.				18 inch o.c.				24 inch o.c.			
		Building Width				Building Width				Building Width				Building Width			
		30'	40'	50'	60'	30'	40'	50'	60'	30'	40'	50'	60'	30'	40'	50'	60'
100 lb per sq ft	10'	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6
	12'	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6
	14'	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6
	16'	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6
50 lb per sq ft	10'	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4
	12'	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4
	14'	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4
	16'	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4
25 lb per sq ft	10'	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4
	12'	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4
	14'	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4
	16'	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4

No.1 S-P-F, dressed (Post and Timber Grades)

Building Width	Wall Height	For wind loading q10 ≤ 0.45 kPa											
		Post Spacing: 8'				Post Spacing: 12'				Post Spacing: 16'			
		Roof Load (psf)				Roof Load (psf)				Roof Load (psf)			
		30'	40'	50'	60'	30'	40'	50'	60'	30'	40'	50'	60'
30 ft	≤10'	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6
	12'	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6
	14'	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6
	16'	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6
40 ft	≤10'	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6
	12'	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6
	14'	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6
	16'	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6
50 ft	≤10'	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6
	12'	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6
	14'	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6
	16'	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6
60 ft	≤10'	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6
	12'	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6
	14'	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6
	16'	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6

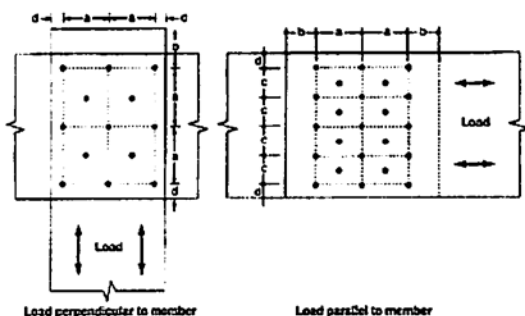
## LOAD CAPACITIES FOR COMMON NAIL SIZES

in single shear

Type	Nominal Length (Inches)	Diameter (Inches)	Service Lateral Resistance for S-P-F and Northern Species (lb/nail)
Common Wire Nails	3½	0.176	133
	4	0.192	191
	4½	0.212	225
	5	0.232	270
	5½	0.252	315
Common Spikes	6	0.276	371
	4	0.252	315
	6	0.300	416
Common Spiral Nails	8	0.324	506
	3	0.122	76
	3½	0.152	124
	4	0.170	157
	5	0.192	191

### Assumptions:

- Wood side plates, single shear, dry condition, standard load duration. To generate the listed lateral resistance, the nail must penetrate into the main member a minimum of 8 diameters.



Minimum Nail Spacing for nails and spikes in S-P-F and Northern Species

Dimension	Minimum spacing (nail diameters)
a - Parallel to grain	16
b - End distance	12
c - Perpendicular to grain	8
d - Edge Distance	4

Use Snow Loads of 31.4 lbs per Sq. Ft.

## POST SIZES

for diaphragm-braced, low human occupancy farm buildings

No.1 S-P-F, dressed (Post and Timber Grades)

Building Width	Wall Height	For wind loading q10 ≤ 0.30 kPa											
		Post Spacing: 8'				Post Spacing: 12'				Post Spacing: 16'			
		Roof Load (psf)				Roof Load (psf)				Roof Load (psf)			
		30'	40'	50'	60'	30'	40'	50'	60'	30'	40'	50'	60'
30 ft	≤10'	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6
	12'	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6
	14'	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6
	16'	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6
40 ft	≤10'	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6
	12'	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6
	14'	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6
	16'	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6
50 ft	≤10'	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6
	12'	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6
	14'	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6
	16'	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6
60 ft	≤10'	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6
	12'	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6	4x6
	14'	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6
	16'	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6	6x6

## PLATE NAILING FOR POST-FRAME BUILDINGS

(See notes below chart)

All nails, Barn side

Total number of 5-inch spiral nails or 4-inch spikes for 8-foot post spacing

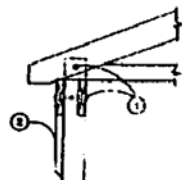
Building Width	Total Roof Load (pounds per square foot)							
	30		40		50		60	
	5" Spiral	4" Spike	5" Spiral	4" Spike	5" Spiral	4" Spike	5" Spiral	4" Spike
24'	17	11	23	14	29	18	35	21
28'	20	12	27	16	34	21	41	25
32'	23	14	31	19	39	24	47	28
36'	26	16	35	21	44	26	52	32
40'	29	18	39	24	49	29	58	35
44'	32	19	43	26	53	32	64	39
48'	35	21	47	28	58	35	70	42
52'	38	23	50	31	63	38	76	46
56'	41	25	54	33	68	41	82	49
60'	44	26	58	35	73	44	87	53

### RECOMMENDED FOUNDATION WALL THICKNESS

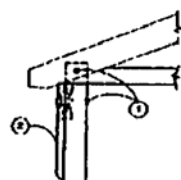
*for stud-wall farm buildings of low human occupancy*

Building Width	Total Allowable (psf) – unfactored				
	30'	40'	50'	60'	70'
30'	8"	8"	8"	8"	8"
40'	8"	8"	8"	8"	8"
50'	8"	8"	8"	10"	10"
60'	8"	8"	10"	10"	10"
70'	8"	10"	10"	10"	10"

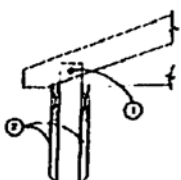
## TYPICAL PLATE CONFIGURATIONS



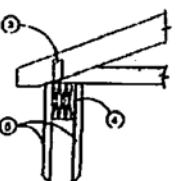
**Two-Member Plate**  
(sanded on outside, let-in 1/4" inside)



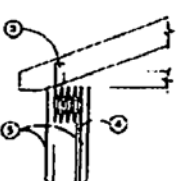
**Two-Member Plate**  
(scabbed and let-in on the outside)



**Two-Member Plate**  
(scabs below)



### Three-Member Plate



### Four-Member Plate

## FOOTING SIZES

**for post-frame buildings**

**Use this chart if the following conditions are met:**

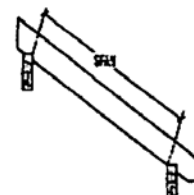
- Soil drainage is good
- Soil is consolidated (not fill material)
- Soil type is not loose sand
- Soil type is not soft or swelling clay
- There is no history of poor soil bearing capacity in the area

**Recommended diameter (inches) of concrete pads beneath poles**

Building Width	Post Spacing (feet)																			
	4'					8'					12'					16'				
	Total Roof Load (psf)					Total Roof Load (psf)					Total Roof Load (psf)					Total Roof Load (psf)				
	10	12	14	16	18	10	12	14	16	18	10	12	14	16	18	10	12	14	16	18
24'	10	12	13	15	16	15	17	19	21	22	18	21	23	25	27	21	24	27	29	31
28'	11	13	14	16	17	16	18	20	22	24	19	22	25	27	29	22	25	28	31	34
32'	12	14	15	17	18	17	19	22	24	26	21	24	27	29	31	24	27	31	34	36
36'	13	15	16	18	19	18	21	23	25	27	22	25	28	31	33	25	29	32	35	38
40'	13	15	17	19	20	19	22	24	27	29	23	27	30	32	35	27	31	34	38	41
44'	14	16	18	20	21	20	23	25	28	30	24	28	31	34	37	28	32	36	39	43
48'	15	17	19	21	22	21	24	27	29	31	25	29	32	36	38	29	34	38	41	44
52'	15	17	20	21	23	21	25	28	30	33	26	30	34	37	40	30	35	39	43	46
56'	16	18	20	22	24	22	26	29	31	34	27	31	35	38	42	31	36	41	44	48
60'	16	19	21	23	25	23	27	30	32	35	28	32	36	40	43	32	38	42	46	50

## COMMON RAFTER SIZES

for low human occupancy farm buildings



No. 1 No. 2 Spruce-Pine-Fir (S-P-F), (dressed lumber)

Rafter Spun	Rafter Spacing (inches)														
	12"					16"					24"				
	Live Load (psf)					Live Load (psf)					Live Load (psf)				
	30	40	50	60	70	30	40	50	60	70	30	40	50	60	70
3"	4	4	6	6	6	4	6	6	6	6	6	6	6	6	6
4"	6	6	6	6	6	6	6	6	6	8	6	6	8	8	10
12"	6	6	8	8	8	6	8	8	8	8	8	8	10	10	10
14"	6	8	8	8	8	8	8	8	10	10	8	10	10	12	12
18"	8	8	10	10	10	8	10	10	12	12	10	12	12	-	-
20"	8	10	10	10	12	10	10	12	12	-	12	12	-	-	-
24"	10	10	10	12	-	10	12	12	-	-	12	-	-	-	-

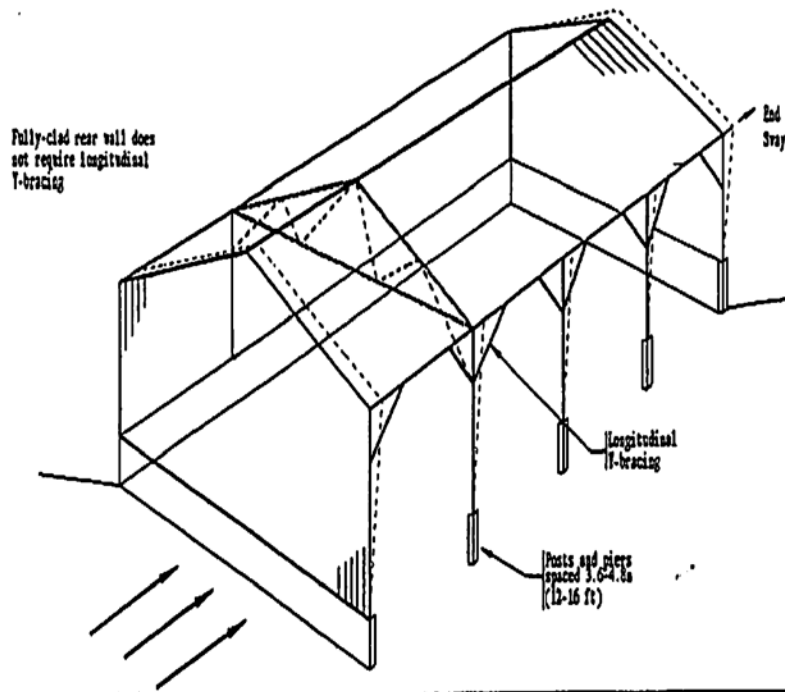
## STUD SIZES

*for low human occupancy single-storey farm buildings*

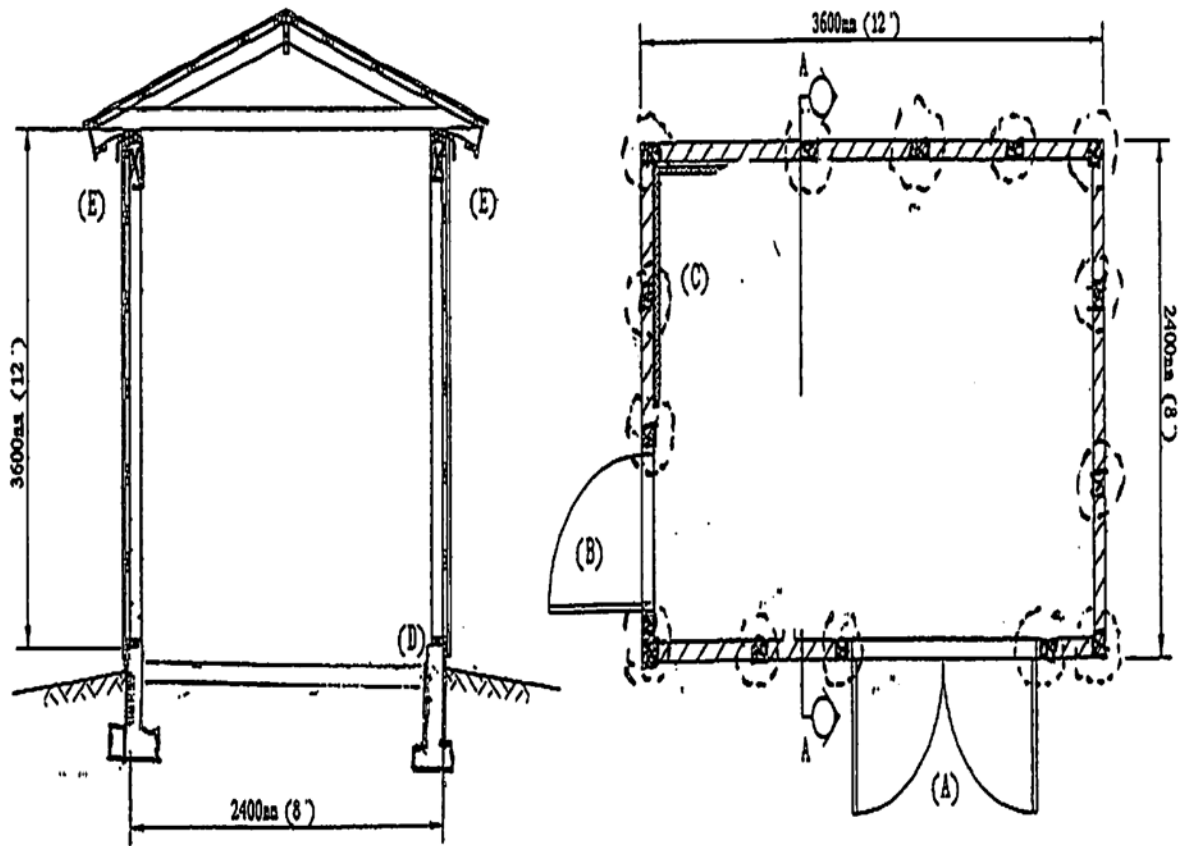
**No.1/No.2 S-P-F, (dressed lumber)**

Building SideWall Height	Total Roof Load (psf)	Wind load: $q_{10} \leq 0.30 \text{ kPa}$								Wind load: $q_{10} \leq 0.45 \text{ kPa}$							
		16 inch o.c.				24 inch o.c.				16 inch o.c.				24 inch o.c.			
		Building Width				Building Width				Building Width				Building Width			
		30'	40'	50'	60'	30'	40'	50'	60'	30'	40'	50'	60'	30'	40'	50'	60'
10'	40	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x6	2x4	2x4	2x4	2x4	2x4	2x4	2x4	2x4
	50	2x4	2x4	2x4	2x4	2x4	2x4	2x6	2x6	2x4	2x4	2x4	2x4	2x4	2x4	2x6	2x4
	60	2x4	2x4	2x4	2x4	2x4	2x4	2x6	2x6	2x4	2x4	2x4	2x4	2x4	2x6	2x6	2x4
	70	2x4	2x4	2x4	2x6	2x4	2x6	2x6	2x6	2x4	2x4	2x4	2x6	2x4	2x6	2x6	2x4
	80	2x4	2x4	2x4	2x6	2x4	2x6	2x6	2x6	2x4	2x4	2x4	2x6	2x4	2x6	2x6	2x4
14'	40	2x4	2x4	2x4	2x6	2x4	2x6	2x6	2x6	2x4	2x4	2x4	2x6	2x6	2x6	2x6	2x6
	50	2x4	2x4	2x6	2x6	2x6	2x6	2x6	2x6	2x4	2x4	2x6	2x6	2x6	2x6	2x6	2x6
	60	2x4	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x4	2x6	2x6	2x6	2x6	2x6	2x6	2x6
	70	2x4	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x4	2x6	2x6	2x6	2x6	2x6	2x6	2x6
	80	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6
18'	40	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6
	50	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6
	60	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6
	70	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6
	80	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6	2x6

## Example of Structure



## Example Floor Plans



a) Section A-A

b) Floor plan (example only)

[illegible]

FIGURE 5-3 Loads imposed on a concrete continuous strip footing of a two-storey barn

NOTE: In this example, hay is stored in upper storey in an exposed location in the Smiths Falls area of Ontario (see

**FIGURE 5-3** Loads imposed on a concrete continuous strip footing of a two-storey barn

**NOTE:** In this example, hay is stored in upper storey in an exposed location in the Smiths Falls area of Ontario (see Example 5.6,[1] in GUIDE SECTION 5.6)



## Minimum Distance Separation Details

### What is MDS?

1. Provides appropriate distance separation for both the building and manure storage based on type and number of livestock in a barn.
2. Separate incompatible land uses.
3. Reduce land use conflicts and nuisance complaints related to odor.
4. Noise and Dust are not addressed through MDS.

### Information We Require to Calculate MDS:

1. Please indicate the type of livestock (refer to attached sheet for types): \_\_\_\_\_
2. Please indicate the number of livestock prior to construction:  
\_\_\_\_\_
3. Please indicate the number of additional livestock sought:  
\_\_\_\_\_
4. What type of Manure is there? ☐ SOLID ☐ LIQUID
5. Indicate the type of storage ☐ 1 ☐ 2  
(Refer to attached sheet) ☐ 3 ☐ 4



# Minimum Distance Separation Factors

## TYPE OF LIVESTOCK

- Beef: Cows (barn confinement)
- Beef: Cows (barn with yard)
- Beef: Feeders (barn confinement)
- Beef: Feeders (barn with yard)
- Chicken: Caged Layers (manure stored in barn)
- Chicken: Caged Layers (daily manure removal)
- Chicken: Breeder Layers
- Chicken: Broilers/Roasters
- Chicken: Pullets (replacement layers)
- Dairy: Milking Cows (tie-stall)
- Dairy: Milking Cows (free-stall)
- Dairy: Heifers (barn confinement)
- Dairy: Heifers (barn with yard)
- Duck: Ducks
- Emus: Emus
- Fox: Adult Foxes
- Goat: Adult Goats
- Goat: Feeder Goats (>20kg)
- Horse: Horses
- Mink: Adult Mink
- Ostrich: Ostriches
- Rabbit: Adult Rabbits
- Sheep: Adult Sheep
- Sheep: Feeder Lambs (>20kg)
- Swine: Sows/Boars
- Swine: Feeder Hogs (30-120kg)
- Swine: Weaners (4-30kg)
- Turkey: Meat Turkeys (>10kg)
- Turkey: Meat Turkeys (5-10kg)
- Turkey: Breeder Layers
- Turkey: Meat Turkey (<5kg)
- Turkey: Pullets (replacement breeders)
- Veal: White Veal
- Veal: Red Veal (<300kg)
- Other

## TYPE OF MANURE STORAGE

1. Roofer or covered storages for manure, runoff, milkhous washwater. Includes any covered roofed concrete, steel or earthen storages, in-barn solid manure packs, and storages under fully slatted floors.
2. Open solid manure pile on concrete slab. Includes the runoff storages (concrete or earthen) used for capturing seepage liquids from solid manure storage or runoff liquids from yards. If yards are scraped into runoff storage, choose #3 when runoff storage is a concrete or steel tank and #4 when runoff storage is earthen. Milkhouse washwater may be added to runoff storage.
3. Open concrete or steel tanks used for storing liquid manure, milkhous washwater, or yard runoff where yard is scraped into storage.
4. Open earth-sided or earth-sided storage with concrete floor to be used for storing liquid manure or yard runoff when yard is scraped into storage or milkhous washwater.



## Nutrient Management Requirements

If your total number of Nutrient Units falls into one of the following categories, then you require approval from the **Ministry of Agriculture and Food**.

SIZE OF LIVESTOCK OPERATION	APPROVAL REQUIRED ?
New Operation – > 5 and < 150 NU	<b>NO</b>
New Operation – ≥ 150 NU	<b>YES</b>
Expanding Operations – ≥ 300 NU	<b>YES</b>

1. Please refer to the orange sheet for a quick reference as to the number of Nutrient Units you may have.
2. We will calculate an official NU number upon application.
3. Please refer to the blue sheet for **Ministry of Agriculture and Food** contact information.



## Farms Generating Manure: Nutrient Units

### Nutrient Management Act Regulation

July 2003

#### Table of Contents

1. [What are Nutrient Units?](#)
2. [Using Nutrient Units to Determine the Size of a Farm Unit](#)
3. [Using the Nutrient Unit Tables](#)
4. [Flexibility for Establishing Farm Unit\(s\)](#)
5. [We're Here to Help](#)

#### What are Nutrient Units?

A nutrient unit (NU) is a measure of the nitrogen and phosphorous in various types of manure. It has been created to ensure "apples-to-apples" comparisons between sizes and types of farm operations that generate manure.

A nutrient unit is *not* the same as a livestock unit (LU), which is used in calculating Minimum Distance Separation II (MDS) setbacks for animal buildings and manure storage facilities. The main difference between an NU and an LU is that an LU makes a connection between a land base and animal numbers, e.g., 2 LU per acre. The NU is not directly tied to a land base.

The regulation under the Nutrient Management Act 2002 defines an NU as:

**the amount of nutrients that give the fertilizer replacement value of the lower of 43 kilograms (95 lbs.) of nitrogen, or 55 kilograms (121 lbs.) of phosphate.**

Beyond this strict definition, it is important to know that NUs:

- relate only to manure that is generated on a farm unit
- help determine whether or not farms are subject to the regulation
- help determine whether an Outdoor Confinement Area is low or high density
- are not related to a fixed amount of land and therefore not used to establish land base requirements – the acreage needed for manure spreading is based on the specific, localized needs of the cropland, according to that farm unit's nutrient management plan.

#### Using Nutrient Units to Determine the Size of a Farm Unit

The regulation under the Nutrient Management Act refers to farms as farm units and has various standards for different sizes of farm units. For farms that generate manure, NU is used to determine whether the regulation applies. Existing farms less than 300 NU are not subject to the regulation.

The important thing to note is that for new operations greater than 5 NU, the phase-in date is September

30, 2003, regardless of the size of livestock operation. For operations that are expanding into the large category of 300 NU or greater, or expanding within that size category, the September 30, 2003 date will also apply. Existing large farms that are 300 NU or greater will be phased in on July 1, 2005.

[| Top of Page |](#)

## Using the Nutrient Unit Tables Based on Type of Animal

The Ontario Ministry of Agriculture and Food has developed tables that list, for most farm animal type, the number of animals it takes to make up a single NU. The tables help farmers to determine the size of their farm unit based on the number of animals on their farm.

	Type of Animal (based on highest design capacity of a new barn of the farm unit at one time)	# Animals per NU	Farm Units = 150, but <300 NU	Farm Units = 300 NU
1	Dairy cow (large-frame, 1200-1400 lbs., milking or dry, such as Holsteins)	0.7	=105 but <210	= 210
2	Dairy heifers (large-frame, 400-1200 lbs. such as Holsteins)	2.0	= 300 but < 600	= 600
3	Dairy calves (large-frame, 100-400 lbs., such as Holsteins)	6.0	= 900 but < 1800	= 1800
4	*Dairy cow (large-frame, 1200-1400 lbs., milking or dry (Holsteins); includes calves & heifers)	0.55*	= 82 but < 165	= 165
5	Dairy cow (medium-frame, 1000-1200 lbs., milking or dry, such as Guernseys)	0.85	= 109 but < 255	= 255
6	Dairy heifers (medium-frame, 325-1000 lbs., such as Guernseys)	2.4	= 360 but < 720	= 720
7	Dairy calves (medium-frame, 85-325 lbs., such as Guernseys)	7.0	= 1050 but < 2100	= 2100
8	*Dairy cow (medium-frame, 1000-1200 lbs., milking or dry (Guernseys); includes calves/heifers)	0.66*	= 99 but < 198	= 198
9	Dairy cow (small-frame, 800-1000 lbs., milking or dry, such as Jerseys)	1.0	= 150 but < 300	= 300
10	Dairy heifers (small-frame, 275-800 lbs., such as Jerseys)	2.9	= 435 but < 870	= 870
11	Dairy calves (small-frame, 65-275 lbs., such as Jerseys)	8.5	=1275 but < 2550	= 2550



12	*Dairy cow (small-frame, 800–1000 lbs., milking or dry (such as Jerseys); includes calves/heifers	0.77*	= 115 but < 231	= 231
13	Beef cows (includes unweaned calf and replacements)	1.0	= 150 but < 300	= 300
14	Beef shortkeepers (900–1300 lbs.)	2.0	= 300 but < 600	= 600
15	Beef backgrounders (575–900 lbs.)	3.0	= 450 but < 900	= 900
16	Beef feeders (575–1250 lbs.)	3.0	= 450 but < 900	= 900
17	SEW (segregated early weaning) sows (lactating-aged sows, includes weaners to 15 lbs.)	3.33	= 500 but < 1000	= 1000
18	SEW weaners (15–60 lbs.)	20.0	= 3000 but < 6000	= 6000
19	Sow farrow-wean (lactating-aged sows, includes weaners to 60 lbs.)	2.5	= 375 but < 750	= 750
20	Finishing pigs (60–230 lbs.)	6.0	= 900 but < 1800	= 1800
21	Horses, large-framed (mature at >1500 lbs.; incl. unweaned foal)	0.7	= 105 but < 210	= 210
22	Horses, medium-framed (mature at 500–1500 lbs.; incl. unweaned foal)	1.0	= 150 but < 300	= 300
23	Horses, small-framed (mature at < 500 lbs.; includes unweaned foal)	2.0	= 300 but < 600	= 600
24	Laying hens (after 2.9 lbs. pullet stage, until end of laying period at about 3.75 lbs.)	150	= 22,500 but < 45,000	= 45,000
25	Layer pullets (day-old pullets placed, raised to 2.9 lbs.)	500	= 75,000 but < 150,000	= 150,000
26	Chicken broilers, floor growing area (total square ft., regardless of quota cycle, or finishing weight)	267 sq. ft.	= 40,000 but < 80,000 sq.ft.	= 80,000 sq.ft.
27	Turkey broiler/hen/tom growing space (total square ft., regardless of finishing weight)	267 sq. ft.	= 40,000 but < 80,000 sq.ft.	= 80,000 sq.ft.
28	Chicken broiler breeder growers (females and males transferred out to layer barn)	300	= 45,000 but < 90,000	= 90,000
29	Chicken broiler breeder layers (females and males transferred in from grower barn)	100	= 15,000 but < 30,000	= 30,000

30	Sheep, breeding-aged ewes (sheep raised for meat production; includes lambs, replacements and rams)	8.0	= 1,200 but < 2,400	= 2,400
31	Feeder lambs, 70 to 125 lbs.	20	= 3,000 but < 6,000	= 6,000
32	Sheep, milking-aged ewes (sheep raised for milk production; includes lambs, replacements and rams)	6.0	= 900 but < 1,800	= 1,800
33	Goats, milking-aged goats (goats raised for milk production; includes kids, replacements and bucks)	8.0	= 1,200 but < 2,400	= 2,400
34	Milk-fed, or grain-fed veal calves	6.0	= 900 but < 1,800	= 1,800

\*It should be noted that for 100 Holstein milking and dry cows in a herd on the same farm unit, divide by 0.55 cows per Nutrient Unit to obtain 182 Nutrient Units for the entire herd including calves and heifers. If housed on separate farm units, do separate calculations, using the individual number of cows, heifers or calves per Nutrient Unit. There could be very slight discrepancies in the resulting number of NU because of the rounding of numbers.

[| Top of Page |](#)

#### Example 1. Farms with one type of farm animal

400 ewes (for meat production) are kept on an outdoor livestock feeding operation farm unit.

Using the table, follow row #30 across to fourth column, since the sheep flock fits below the "greater than or equal to 1200 (ewes), but less than 2,400 (ewes)."

If you want to know the number of NUs, divide 400 ewes by 8 ewes per NU to get 50 NUs.

This is a small farm unit, phased in later than 2008.

#### Example 2. Farms with more than one type of animal generating manure

A farmer has buildings on a farm unit that will house, at one time, 60 beef feeders raised from about 575 lbs. to 1250 lbs. The farmer wants to build a new barn that will house 9,000 laying hens.

Because there's more than one type of animal housed, the number of NUs for each type of animal must be calculated separately. Divide the number of animals by the "# per NU." Then, total the NUs.

Following row #15:

$$60 \text{ beef feeders} \div 3 \text{ beef feeders/NU} = 20 \text{ NU}$$

Following row #24:

$$9000 \text{ laying hens} \div 150 \text{ laying hens/NU} = 60 \text{ NU}$$



### **Total 80 NU**

Since the expansion is less than 300 NUs, the farm unit is not considered an expanding operation under the regulation. However, the new barn will be subject to the regulation if the building permit application is filed on or after September 30, 2003, as the second barn meets the definition of new.

#### **Example 3. Farms with more than one type of animal generating manure**

A farmer has buildings on a farm unit that will house, at one time, 60 beef feeders raised from about 575 lbs. to 1250 lbs., 1200 finishing pigs, and 9,000 laying hens.

Because there are more than one type of animal housed, the number of NUs for each type of animal must be calculated separately. Divide the number of animals by the "# per NU." Then, total the NUs.

Following row #15:

$$60 \text{ beef feeders} \div 3 \text{ beef feeders/NU} = 20 \text{ NUs}$$

Following row #20:

$$1200 \text{ finishing pigs} \div 6 \text{ finishing pigs/NU} = 200 \text{ NUs}$$

Following row #24:

$$9000 \text{ laying hens} \div 150 \text{ laying hens/NU} = 60 \text{ NUs}$$

### **Total 280 NUs**

This is a small farm unit, as it is "less than 300 NUs" to be phased in later than 2008.

#### **Example 4. Farms with more than one type of animal generating manure**

A farmer has buildings on his property that house 500 SEW sows that are lactating age with weaners up to 15 lbs., and a proposal to add a new barn to house 3000 weaners (15–60 lbs.).

Once again, because there are more than one type of animal housed, the number of NUs for each type of animal must be calculated separately. Divide the number of animals by the "# per NU." Then, total the NUs.

Following row # 17:

$$500 \text{ SEW sows} \div 3.33 \text{ sows/NU} = 150 \text{ NUs}$$

Following row # 18:

$$3000 \text{ weaners} \div 20 \text{ weaners/NU} = 150 \text{ NUs}$$

### **Total 300 NUs**

This is an expanding farm and thus subject to the regulation if the building permit is applied for on or after September 30, 2003.

## Flexibility for Establishing Farm Unit(s)

As you know, there is some flexibility in the farm unit system. Smaller farm units have later phase-in dates than larger farm units. It's up to you. Here are some basic requirements regarding farm units. Farm units that generate manure:

- can be no smaller than a single deed
- must include all the land receiving manure from the animals housed:
  - even if that includes land, which is on other deeds controlled by the owner, where the animals are not housed
  - unless the manure is removed from the farm unit through a broker agreement or other such method
- must include land on separate deeded properties if the manure generated on the first deed is applied to lands located in both deeded properties
- can include land at any distance away from the farm unit where the manure is generated.

## We're Here to Help

The Ontario Ministry of Agriculture and Food (OMAF) will be holding training courses, which will help develop your own NMS or NMP as well as the land application standards.

If you prefer, you can hire a consultant to develop the NMS/NMP for your farm, as long as that consultant has completed the appropriate course in Nutrient Management Planning from OMAF. You can also hire a custom applicator to apply your nutrients. The bottom line is that anyone developing the documents or applying the nutrients is required to have a minimum level of training from OMAF.

[| Top of Page |](#)

For more information on Nutrient Management

Toll Free: 1-866-242-4460

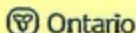
Email: [nman@omaf.gov.on.ca](mailto:nman@omaf.gov.on.ca)

---

[| Nutrient Management Home Page |](#)

---

[| Central Site | Feedback | Search | Site Map | Français |](#)  
[| Home | What's New | Calendar | Products | News Releases |](#)



This site is maintained by the Government of Ontario, Canada.

This information is provided as a public service, but we cannot guarantee that the information is current or accurate. Readers should verify the information before acting on it.

Feedback and technical inquiries to: [ag.info@omaf.gov.on.ca](mailto:ag.info@omaf.gov.on.ca)

© Copyright 2003 Queen's Printer for Ontario

Last Updated: June 30, 2003

## OMAF Locations in Rural Ontario

### Head Office

1 Stone Road West  
Guelph, Ontario  
N1G 4Y2  
1-888-466-2372 (Ontario only)  
(519) 826-3100 (outside Ontario)

---

### Southwest Region

Agronomy Building  
Box 400, 120 Main Street East  
University of Guelph, Ridgetown  
Campus

**Ridgetown**, ON NOP 2C0

Phone: (519) 674-1690

Fax: (519) 674-1564

667 Exeter Road

**London**, ON N6E 1L3

Phone: (519) 873-4070

Fax: (519) 873-4062

100 Don Street, Box 159

**Clinton**, ON N0M 1L0

Phone: (519) 482-3333

Fax: (519) 482-5031

581 Huron Street

**Stratford**, ON N5A 5T8

Phone: (519) 271-0280

Fax: (519) 273-5278

Unit 1 - 401 Lakeview Drive

**Woodstock**, ON N4T 1W2

Phone: (519) 537-6621

Fax: (519) 539-5351

---

### East Region

322 Kent Street West

**Lindsay**, ON K9V 4T7

Phone: (705) 324-6125

Fax: (705) 324-1638

R.R. # 3, 95 Dundas Street East

**Brighton**, ON K0K 1H0

Phone: (613) 475-1630

Fax: (613) 475-3835

Box 2004, 59 Ministry Road

**Kemptville**, ON K0G 1J0

Phone: (613) 258-8295

Fax: (613) 258-8392

Box 430, 31 St. Paul Street

**Alfred**, ON K0B 1A0

Phone: (613) 679-4411

Fax: (613) 679-0929

### Central Region

6484 Wellington Rd. 7

Unit 10

**Elora**, ON

N0B 1S0

Phone: (519) 846-0941

Fax: (519) 846-8178

Advisory Services Building

Box 8000, 4890 Victoria Avenue North

**Vineland**, ON L0R 2E0

Phone: (905) 562-4147

Fax: (905) 562-5933

Box 587, Blueline Road & Highway #  
3

**Simcoe**, ON N3Y 4N5

Phone: (519) 426-7120

Fax: (519) 428-1142

---

### North Region

Caldwell Township Building

11790 Highway 64, Box 521

**Verner**, ON POH 2M0

Phone: 1-800-461-6132 or (705) 594-  
2312

Fax: (705) 594-9675

5907 Hwy 11-71, Box 210

**Emo**, ON POW 1E0

Phone: 1-800-461-6132

Fax: (807) 482-2864

35 Meredith Street, Box 328

**Gore Bay**, ON POP 1H0

Phone: 1-800-461-6132

Fax: (705) 282-2792

280 Armstrong Street, Box 6008

**New Liskeard**, ON P0J 1P0

Phone: 1-800-461-6132

Fax: (705) 647-7993

1 Collver Road, R.R.#1

**Thessalon**, ON P0R 1L0

Phone: 1-800-461-6132

Fax: (705) 842-1583

Suite B012, 435 James St. South

**Thunder Bay**, ON P7E 6S7

Phone: 1-800-461-6132

Fax: (807) 475-1313