Garage Design Guide

Township of North Glengarry

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This Guide is for informational purposes only. It is the responsibility of the Applicant / Designer to review the building code to ensure all information is complete, accurate, and up to date

Definitions

Stud: An upright support in a wall to which sheathing, drywall etc. are attached.

Lintel: A horizontal support comprised of timber, stone concrete or steel across the top of a window or door opening.

Rafter: Dimensional lumber extending from the eaves to the peak that frames the roof system.

Truss: An engineered structural framework at forms the roof system.

Collar Tie: Dimensional lumber used to reduce the overall span of rafters.

Ceiling Joist: Dimensional lumber used in conjunction with rafters located on top of the wall to prevent blow out.

OBC: Refers to the current amended version of the Ontario Building Code.

Important notes

The design and construction of a garage must comply with the Zoning By-Law as well as OBC Section 9.35.

Building permit application checklist	
Completed application for a 'Permit to Construct or Demolish	
Completed Schedule 1: Designer Information	
Completed Applicable Law checklist	
Site survey indicating	
Refer to Figure A	
Location of garage in relation to house	
Dimensions of proposed garage	
Distance to property line(s)	
Other buildings ie. shed or septic system	
Drainage control	
Plans & Section drawings indicating	
Refer to Figures B, C, D, E & F	
Floor plans including dimensions	
Footing & foundation construction	
Location of windows & doors	
Elevation drawings	
Wall construction including height	
Building height from finished grade	
Roof construction ie. trusses or rafters	
Cross section detail	

General information

Foundation: Foundations for detached garages shall be constructed on either frost walls & footings or a 'floating' slab. Floating slabs greater than 592 ft^2 (55m^2) shall be designed by a Professional Engineer.

Concrete: Poured concrete with a minimum compressive strength of 4641 psi (32 MPa) after 28 days shall be used for garage floors and shall have air entrainment of 5 to 8% **[OBC 9.3.1.6.]**.

Frost Wall Depth: Where frost walls & footings are used, the footings shall be at a minimum depth of at least 48" (1.2m) **[OBC 9.12.2.2]**.

Studs: Loadbearing wall studs shall be not less than 2x4 (38x89) spaced more than 24" (610mm) on centre. These studs shall have a maximum height of 9'-10" (3.0m) **[OBC 9.23.10.1.]**. Studs outside of this parameter shall be addressed on a case by case basis.

Lintels: Openings in loadbearing walls greater than the required stud spacing shall be framed with lintels designed to carry the superimposed loads **[OBC 9.23.12.2.]**.

Maximum spans for spruce-pine-fir lintels (SPF No1 or No2)*		
	Lintel size	Maximum span**, (ft)
Supporting roof and ceiling only	2-2x4	3'-7 3/4"
	2-2x6	5'-5 3/8"
	2-2x8	6'-7 1/2"
	2-2x10	8'-1 1/4"
	2-2x12	9'-5"

*Maximum span based on a specified snow load of 1.5kPa.
** Spans based on a maximum roof joist or rafter span of 16'-1" and a maximum roof truss span of 32'-1 3/4".

Anchor bolts: Anchor bolts shall have a minimum diameter of 1/2" (12.7mm) spaced not more than 7'-10 1/2" (2.4m) **[OBC 9.23.6.1]**.

Roof Trusses: Roof trusses shall be designed in accordance with Part 4 and sealed by a Professional Engineer **[OBC 9.23.13.11.]**.

Roof Rafters: Roof rafters shall be continuous **[OBC 9.23.13.1.]** with a minimum end bearing not less than 1 1/2" (38mm) **[OBC 9.23.13.3.]**.

Maximum span for spruce-pine-fir rafters (SPF No1 or No2)*, (ft)			
	12" on centre	16" on centre	24" on centre
2x4	8'-11"	8'-1 1/4"	7'-1"
2x6	14'-0 1/2"	12'-9 1/8"	11'-1 7/8"
2x8	18'-5 1/4"	16'-9 1/4"	14'-5 5/8"
2x10	23'-6 3/4"	21'-4 3/4"	17'-8 1/4"
2x12	28'-8 1/8"	25'-1 1/2"	20'-6"

*Maximum span based on a specified snow load of 1.5kPa.

Ceiling Joists: When rafters are used ceiling joists not less than 2x4 (38x89) are permitted to be assumed to provide intermediate support to reduce rafter spans **[OBC 9.23.13.7.]**.

Maximum span for spruce-pine-fir ceiling joists (SPF No1 or No2)*, (ft)			
Attic not accessible by a stairway			
	12" on centre	16" on centre	24" on centre
2x4	10'-2 1/2"	9'-3 1/2"	8'-1 1/4"
2x6	16'-1"	14'-7 1/4"	12'-9 1/8"
2x8	21'-1 1/2"	19'-2 1/4"	16'-9 1/4"
2x10	26'-11 5/8"	24'-6 1/8"	21'-4 3/4"
2x12	32'-9 3/4"	29'-9 7/8"	26'-0 58"

Collar Ties: When rafters are used, collar ties not less than 2x4 (38x89) are permitted to be assumed to provide intermediate support to reduce rafter spans **[OBC 9.23.13.7.]**.

Ridge Support: Ridge support can either be in the form of a ridge board or a ridge beam. Ridge boards shall be a minimum of one size greater than the rafters and shall be used in conjunction with appropriately sized ceiling joists. Ridge beams shall have a minimum bearing of 1 1/2" (89mm) **[OBC 9.23.13.8. (1)(b)]**.

Maximum span for spruce-pine-fir ridge beams (SPF No1 or No2)*, (ft)	
3-2x8	8'-1 5/8"
4-2x8	9'-4 5/8"
5-2x8	10'-2"
3-2x10	9'-11 3/8"
4-2x10	11'-5 7/8"
5-2x10	12'-10"
3-2x12	11'-6 1/2"
4-2x12	13'-3 7/8"
5-2x12	14'-10 3/4"

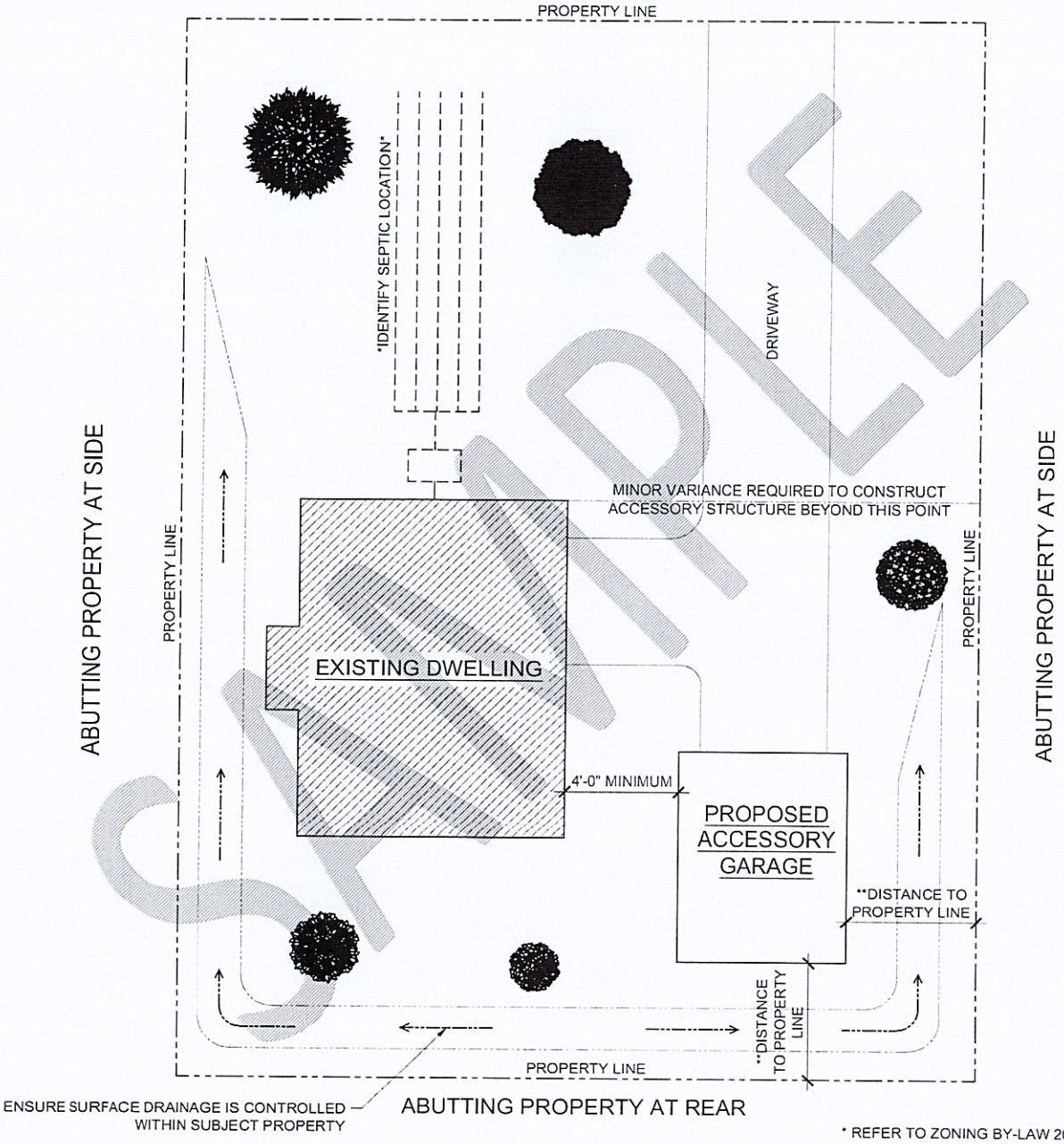
*Maximum span based on a specified snow load of 1.5kPa.

Nailing: Refer to OBC Table 9.23.3.4. for nailing of framing elements.

NOTE:

BASIC RECTANGULAR PROPERTY & ACCESSORY GARAGE SHOWN
FOR REPRESENTATION PURPOSES ONLY.
SIZE AND SHAPE OF ACCESSORY GARAGE TO BE DETERMINED
BY APPLICANT AND LOT SIZE.

ROAD ALLOWANCE

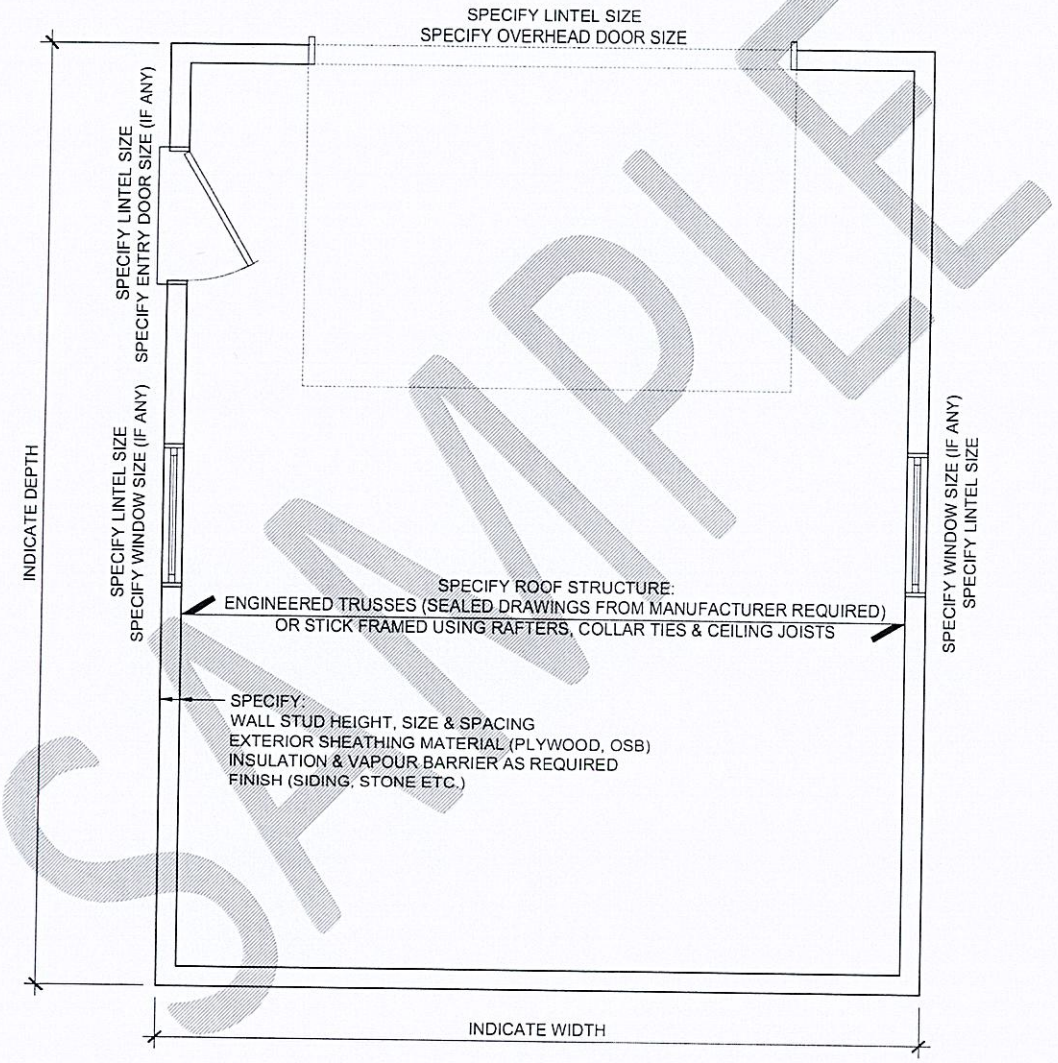


* REFER TO ZONING BY-LAW 2001-58
FOR ZONE SPECIFIC LOT COVERAGES
** REFER TO ZONING BY-LAW 2001-58
FOR ZONE SPECIFIC SETBACK ALLOWANCES

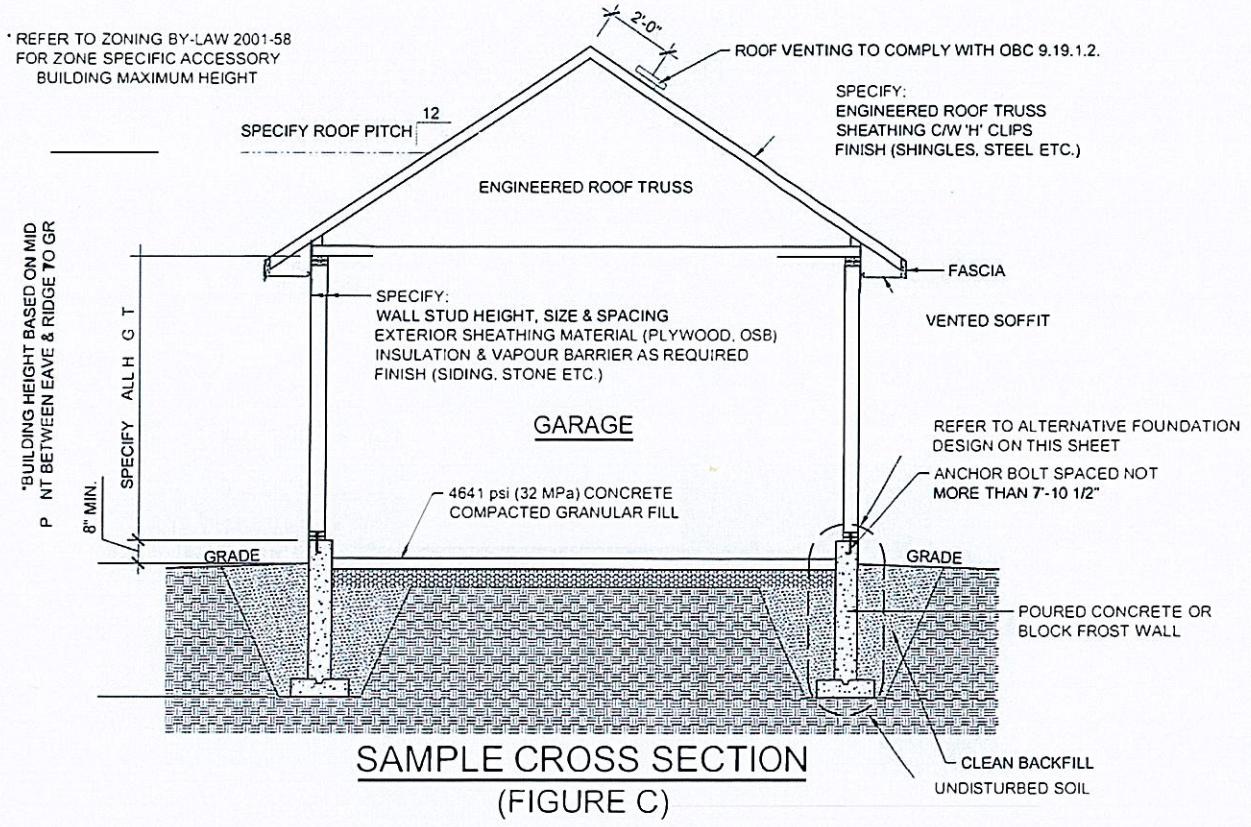
SAMPLE SITE PLAN
(FIGURE A)

NOTE:

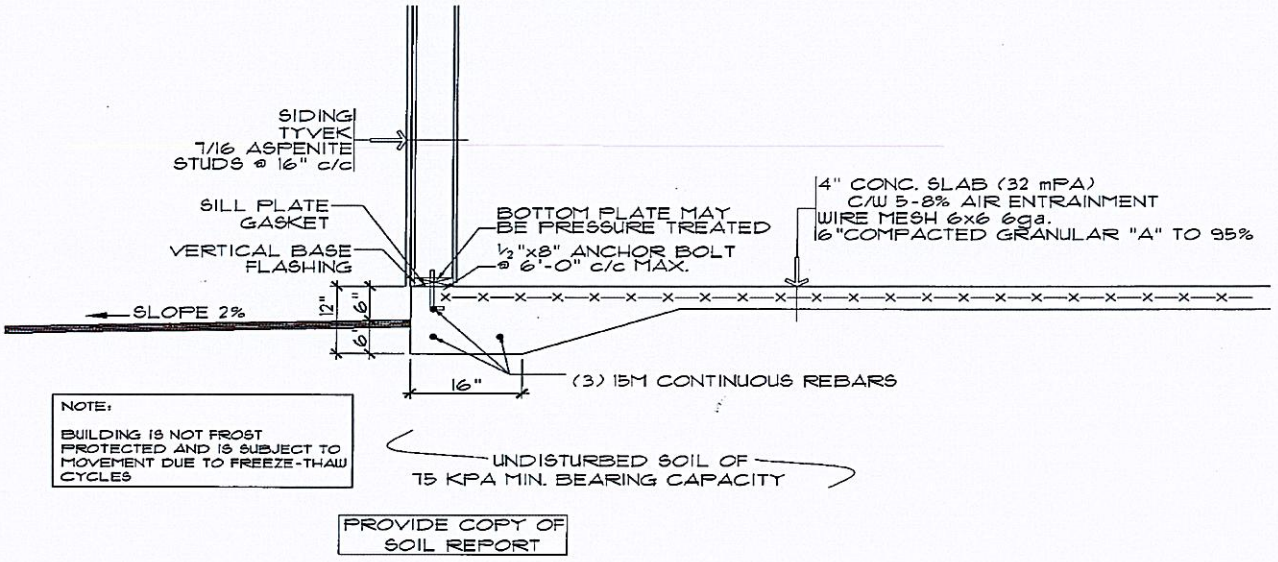
BASIC RECTANGULAR ACCESSORY GARAGE SHOWN
FOR REPRESENTATION PURPOSES ONLY.
SIZE AND SHAPE OF ACCESSORY GARAGE TO BE DETERMINED
BY APPLICANT AND LOT SIZE.



SAMPLE FLOOR PLAN
(FIGURE B)

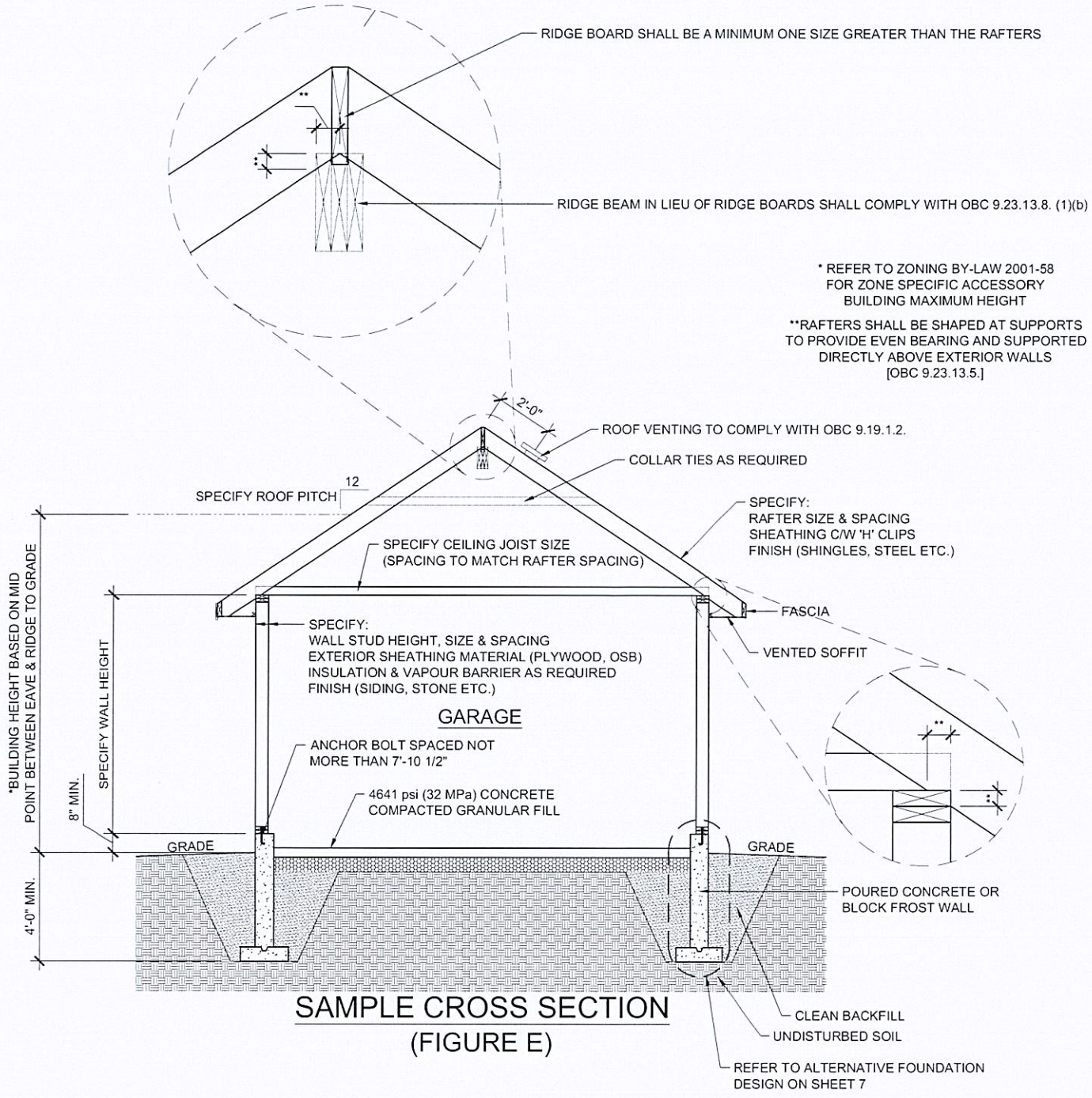


SAMPLE CROSS SECTION
(FIGURE C)

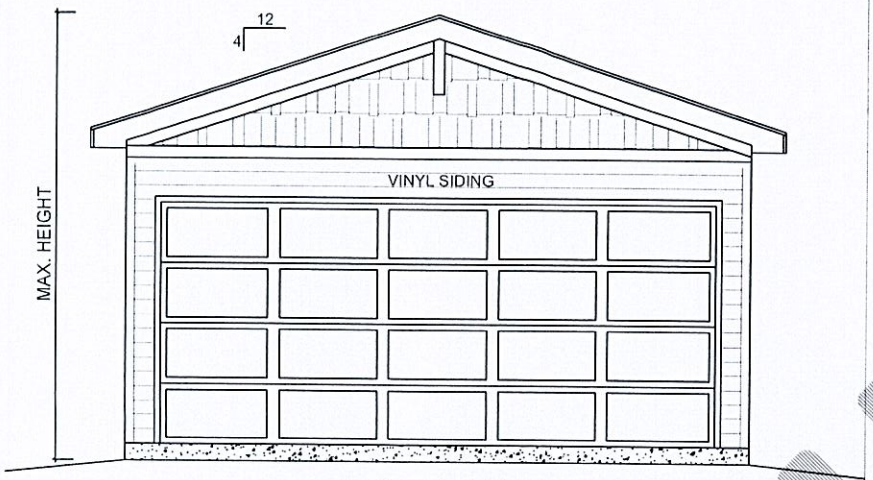


ALTERNATIVE SLAB FOUNDATION DESIGN*
(FIGURE D)

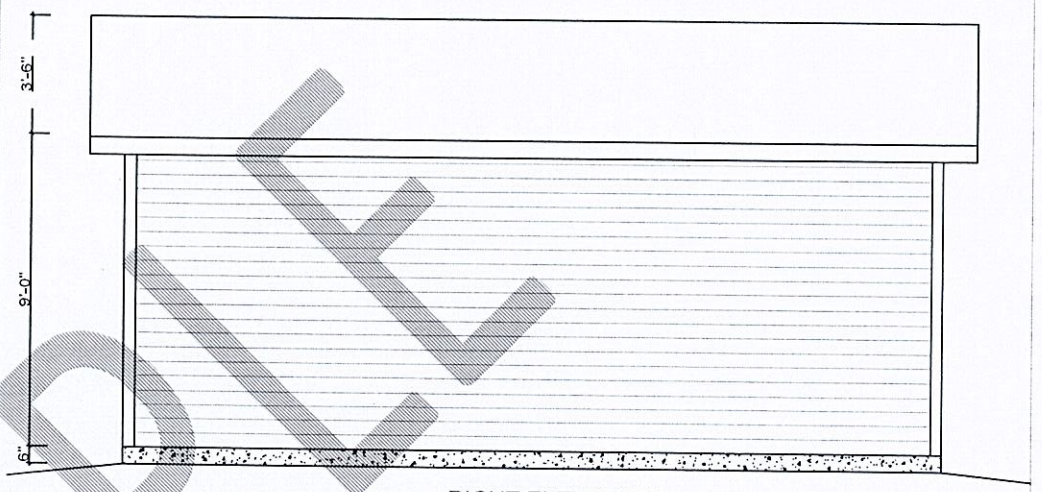
* ALTERNATIVE SLAB FOUNDATION'S EXCEEDING 592ft² (55m²) REQUIRE A DESIGN BY A PROFESSIONAL ENGINEER.



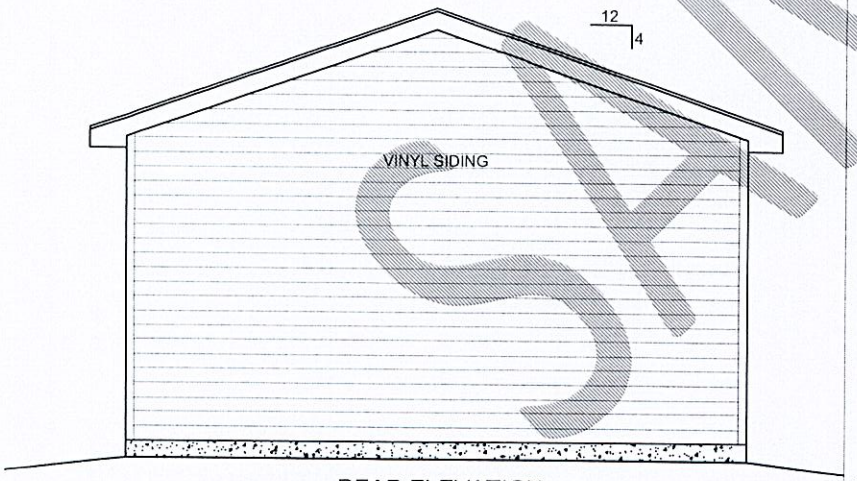
SAMPLE CROSS SECTION
(FIGURE E)



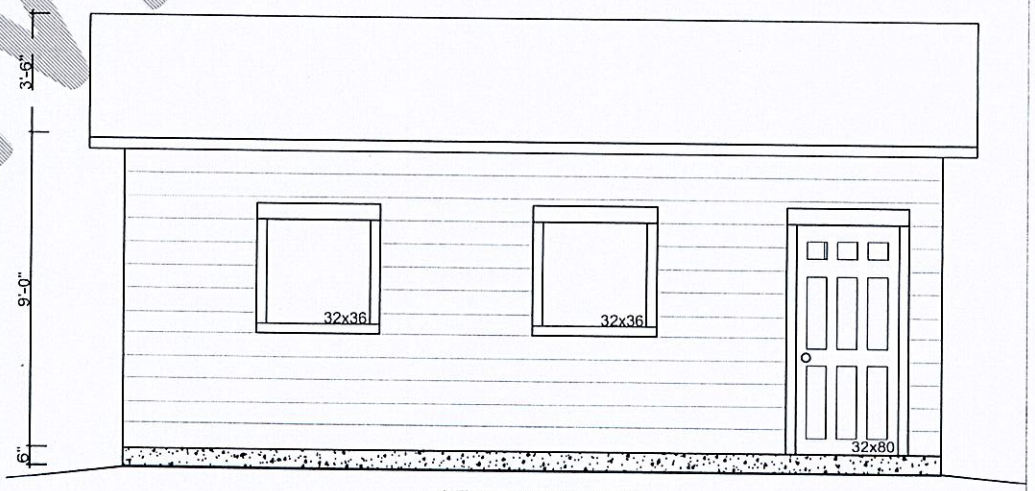
FRONT ELEVATION



RIGHT ELEVATION



REAR ELEVATION



LEFT ELEVATION

SAMPLE ELEVATIONS
(FIGURE F)

Table 9.23.3.4.
Nailing for Framing
Forming Part of Sentence 9.23.3.4.(1)

Construction Detail	Minimum Length of Nails, mm	Minimum Number or Maximum Spacing of Nails
Floor joist to plate – toe nail	82	2
Wood or metal strapping to underside of floor joists	57	2
Cross bridging to joists	57	2 at each end
Double header or trimmer joists	76	300 mm (o.c.)
Floor joist to stud (balloon construction)	76	2
Ledger strip to wood beam	82	2 per joist
Joist to joist splice (See also Table 9.23.13.8.)	76	2 at each end
Header joist end nailed to joists along perimeter	101	3
Tail joist to adjacent header joist	82	5
(end nailed) around openings	101	3
Each header joist to adjacent trimmer joist	82	5
(end nailed) around openings	101	3
Stud to wall plate (each end) toe nail	62	4
or end nail	82	2
Doubled studs at openings, or studs at walls or wall intersections and corners	76	750 mm (o.c.)
Doubled top wall plates	76	600 mm (o.c.)
Bottom wall plate or sole plate to joists or blocking (exterior walls)(1)	82	400 mm (o.c.)
Interior walls to framing or subflooring	82	600 mm (o.c.)
Horizontal member over openings in non-*loadbearing* walls – each end	82	2
Lintels to studs	82	2 at each end
Ceiling joist to plate – toe nail each end	82	2
Roof rafter, roof truss or roof joist to plate – toe nail	82	3
Rafter plate to each ceiling joist	101	2
Rafter to joist (with ridge supported)	76	3
Rafter to joist (with ridge unsupported)	76	See Table 9.23.13.8.
Gusset plate to each rafter at peak	57	4
Rafter to ridge board – toe nail – end nail	82	3
Collar tie to rafter – each end	76	3
Collar tie lateral support to each collar tie	57	2
Jack rafter to hip or valley rafter	82	2
Roof strut to rafter	76	3
Roof strut to *loadbearing* wall – toe nail	82	2
38 mm × 140 mm or less plank decking to support	82	2
Plank decking wider than 38 mm × 140 mm to support	82	3
38 mm edge laid plank decking to support (toe nail)	76	1
38 mm edge laid plank to each other	76	450 mm (o.c.)
Column 1	2	3

Notes to Table 9.23.3.4.:
(1) See Sentence 9.23.3.4.(2).

Application for a Permit to Construct or Demolish

This form is authorized under the Building Code Sentence 2.4.1.1A.(2).

For use by Principal Authority	
Application number:	Permit number (if different):
Date received:	Roll number:

Application submitted to: _____
(Name of municipality, upper-tier municipality, board of health or conservation authority)

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. Applicant

Applicant is: ❑ Owner or ❑ 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 ( )

C. 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 ( )

D. Builder (optional)

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 ( )

E. Purpose of application

❑ New construction ❑ Addition to an existing building ❑ Alteration/repair ❑ Demolition ❑ Conditional Permit

Proposed use of building	Current use of building

Description of proposed work

F. Tarion Warranty Corporation (Ontario New Home Warranty Program)

i. Is proposed construction for a new home as defined in the *Ontario New Home Warranties Plan Act*? If no, go to section G. ❑ Yes ❑ No

ii. Is registration required under the *Ontario New Home Warranties Plan Act*? ❑ Yes ❑ No

iii. If yes to (ii) provide registration number(s): _____

G. Attachments

i. Attach documents establishing compliance with applicable law as set out in Article 1.1.3.3.

ii. Attach Schedule 1 for each individual who reviews and takes responsibility for design activities.

iii. Attach Schedule 2 where application is to construct on-site, install or repair a sewage system.

iv. Attach types and quantities of plans and specifications for the proposed construction or demolition that are prescribed by the by-law, resolution, or regulation of the municipality, upper-tier municipality, board of health or conservation authority to which this application is made.

H. Declaration of applicant

I _____ certify that:
(print name)

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.
2. I have authority to bind the corporation or partnership (if applicable).

_____ _____
Date Signature of applicant

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 2.20.2.1]

❑ House	❑ HVAC – House	❑ Building Structural
❑ Small Buildings	❑ Building Services	❑ Plumbing – House
❑ Large Buildings	❑ Detection, Lighting and Power	❑ Plumbing – All Buildings
❑ Complex Buildings	❑ Fire Protection	❑ On-site Sewage Systems

Description of designer's work

D. Declaration of Designer

I _____ declare that (choose one as appropriate):

(print name)

❑ I review and take responsibility for the design work on behalf of a firm registered under subsection 2.17.4. of the Building Code. I am qualified, and the firm is registered, in the appropriate classes/categories.

Individual BCIN: _____

Firm BCIN: _____

❑ I review and take responsibility for the design work and am qualified in the appropriate category as an "other designer" under subsection 2.17.5. of the Building Code.

Individual BCIN: _____

Basis for exemption from registration: _____

❑ The design work is exempt from the registration and qualification requirements of the Building Code.

Basis for exemption from registration and qualification: _____

I certify that:

1. The information contained in this schedule is true to the best of my knowledge.
2. I have authority to bind the corporation or partnership (if applicable).

_____ _____

Date Signature of Designer

*For the purposes of this form, "individual" means the "person" referred to in Clause 2.17.4.7.(1)(d), Article 2.17.5.1. and all other persons who are exempt from qualification under Subsections 2.17.4. and 2.17.5.

NOTE:

1. Firm and Individual BCIN numbers are not required for building permit applications submitted prior to January 1, 2006
2. Schedule 1 does not need to be completed by architects, or holders of a Certificate of Practice or a Temporary License under the *Architects Act*.

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 2.18.1.1?

- ❑ Yes (Continue to Section C)
- ❑ No (Continue to Section E)
- ❑ 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)

- ❑ 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;

OR

- ❑ 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. I have authority to bind the corporation or partnership (if applicable).

_____ _____

Date Signature of applicant