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Deck Design Guide

Important Notes

A Deck is a floor system, the same as that within the dwelling unit, and must be designed accordingly.

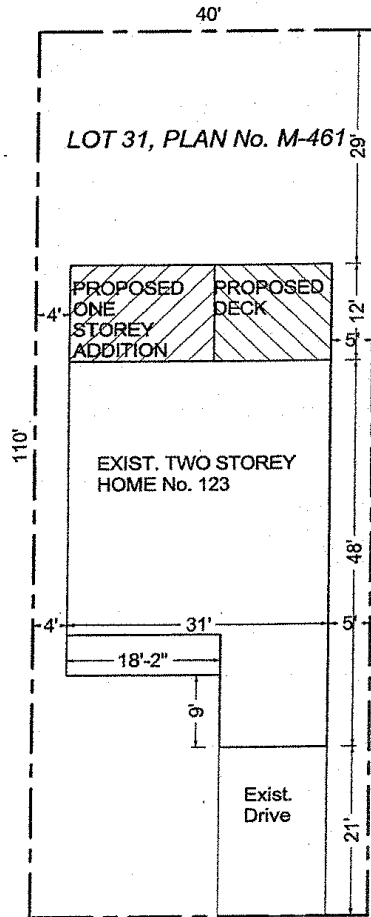
The design and construction of the Deck must conform to the requirements of the current amended version of the Ontario Building Code as well as all other applicable by-laws.

If the Deck is to be used to support a hot tub or similar structure, a professional review would be required (Engineer) due to the increased load.

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.

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August 2012*

ALL CONSTRUCTION TO COMPLY WITH PART 9 OF THE ONTARIO BUILDING CODE



SITE STATISTICS
 Zoning: R (residential)
 Site Area: 4400 sf
 Drive Area: 270 sf

Building Area:
 Exist. House: 1324 sf
 Exist. Porch: inc. above
 Exist. Garage: inc. above
 Addition: 204 sf
 Deck: 168 sf
 Total Area: 1698 s.f

Info. used to construct this drawing taken from:
 'Plan of Survey of Lot 31, Plan No. M-461'
 Prepared by: XYZ Surveyors
 Dated: Dec. 31, 2000

JAMES STREET

*Sample project drawings only.
 The level of detail and scope required for a set of permit drawings will depend
 on the nature of the project and the current Code requirements.*

Printed 13/02/2012

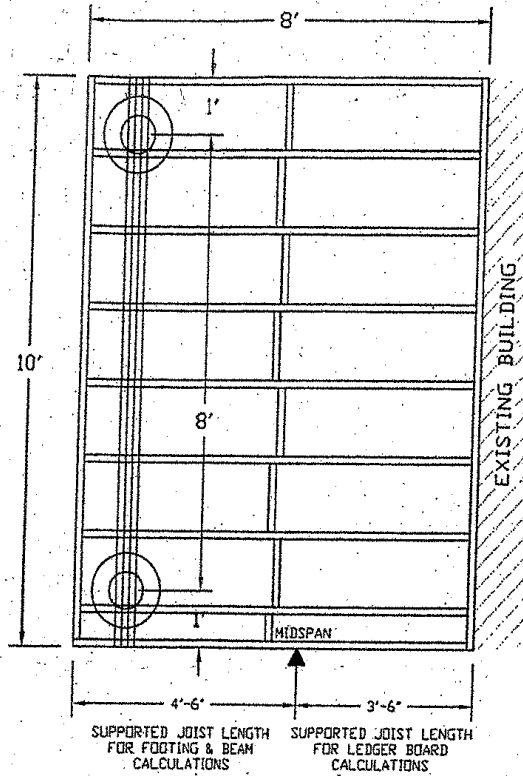
ABC DESIGNS INC. BCIN 1243 designer information	client	The Home Owner	Feb. 13, 2012, for Permit Feb. 10, 2012, Client Review
	project	Rear Addition 23 James Street,	
	dwg. title	SITE PLAN	issued: date February 2012 scale 1" = 15' 1 dwg. no

EXAMPLE DRAWING

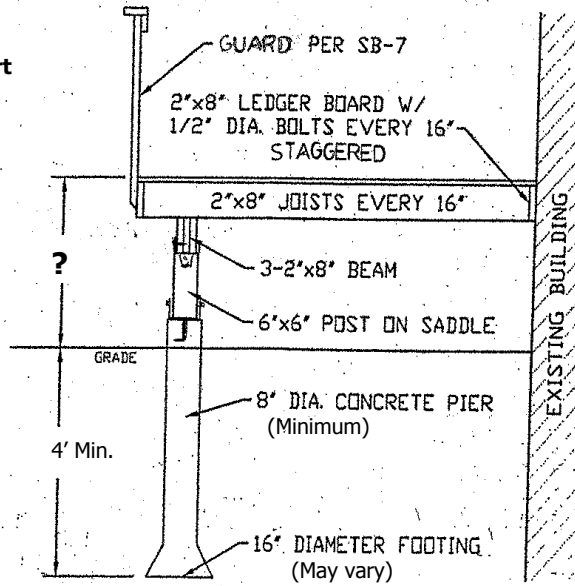
-THIS EXAMPLE DRAWING CONTAINS THE MINIMUM REQUIRED INFORMATION FOR BUILDING PERMIT SUBMISSION.

-THIS DRAWING IS AN EXAMPLE ONLY AND ALL SUBMISSIONS MUST CONFORM TO THE CURRENT VERSION OF THE ONTARIO BUILDING CODE.

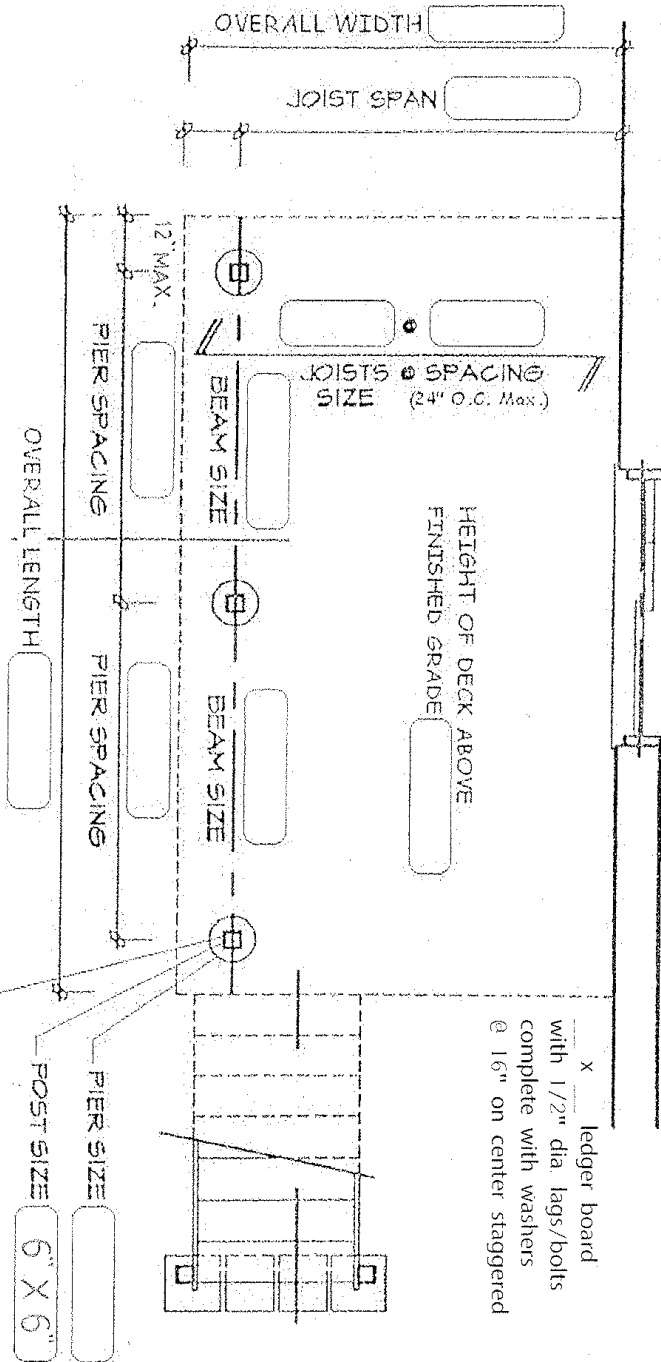
Note: This example drawing contains sample measurements only, additional requirements may apply for your specific application.



Note: Additional Lateral support may be required depending on height of deck.



DECK FRAMING PLAN



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GENERAL INFORMATION

PIERS

General:

-Piers used shall be not less than 9" in diameter.

NOTE: Under most circumstances it may be preferable to expand the lower portion of a smaller pier to achieve the required bearing area rather than use a large pier size.

Size: Table 9.15.3.4.

Minimum Footing Size = 0.40 (4.3 ft²) where; the supported joist length is 4.90 (16'), the pier spacing is 3.00 (10'), and the soil bearing capacity is 75 kPa (10.9 psi). Minimum size specified may be adjusted based on the specific supported joist length, pier spacing, and soil bearing capacity. *NOTE: The minimum required bearing area must be doubled where the soil bearing capacity is affected by a high water table.*

MINIMUM REQUIRED BEARING AREA [ft²] (Typical Bearing Dimensions)							
75kPa Soil Bearing Capacity		Beam Length / Pier Spacing (ft)					
		4'	6'	8'	10'	12'	14'
Supported Joist Length (ft) (Refer to Illustration)	4'	0.43 ft ² (10" Ø or 8"x8")	0.65 ft ² (12" Ø or 10"x10")	0.86 ft ² (14" Ø or 12"x12")	1.08 ft ² (14" Ø or 13"x13")	1.29 ft ² (16" Ø or 14"x14")	1.51 ft ² (18" Ø or 15"x15")
	6'	0.65 ft ² (12" Ø or 10"x10")	0.97 ft ² (14" Ø or 12"x12")	1.29 ft ² (16" Ø or 14"x14")	1.61 ft ² (18" Ø or 16"x16")	1.94 ft ² (20" Ø or 17"x17")	2.26 ft ² (22" Ø or 19"x19")
	8'	0.86 ft ² (14" Ø or 8"x8")	1.29 ft ² (16" Ø or 14"x14")	1.72 ft ² (18" Ø or 16"x16")	2.15 ft ² (20" Ø or 18"x18")	2.58 ft ² (22" Ø or 20"x20")	3.01 ft ² (24" Ø or 21"x21")
	10'	1.08 ft ² (14" Ø or 13"x13")	1.61 ft ² (18" Ø or 16"x16")	2.15 ft ² (20" Ø or 18"x18")	2.69 ft ² (24" Ø or 20"x20")	3.23 ft ² (N/A Ø or 22"x22")	3.76 ft ² (N/A Ø or 24"x24")
	12'	1.29 ft ² (16" Ø or 14"x14")	1.94 ft ² (20" Ø or 17"x17")	2.58 ft ² (22" Ø or 20"x20")	2.82 ft ² (24" Ø or 21"x21")	3.87 ft ² (N/A Ø or 24"x24")	4.52 ft ² (N/A Ø or 26"x26")
	14'	1.51 ft ² (18" Ø or 15"x15")	2.26 ft ² (22" Ø or 18"x18")	3.01 ft ² (24" Ø or 21"x21")	3.76 ft ² (N/A Ø or 24"x24")	4.52 ft ² (N/A Ø or 26"x26")	5.27 ft ² (N/A Ø or 28"x28")
	16'	1.72 ft ² (18" Ø or 16"x16")	2.58 ft ² (22" Ø or 20"x20")	3.44 ft ² (N/A Ø or 23"x23")	4.30 ft² (N/A Ø or 25"x25")	5.16 ft ² (N/A Ø or 28"x28")	6.02 ft ² (N/A Ø or 30"x30")

Piers: 9.3.1.6.(1)

-Piers shall consist of poured concrete with a minimum compressive strength of 15 MPa (2200 psi after 28 days)

Depth: 9.12.2.2.

-Where a deck is attached to a dwelling unit or requires a guard the piers must extend a minimum of 1.2m (3'-11") below grade.

COLUMNS

Size: 9.17.4.1.(2)

-Wood columns shall be not less than 184 (7-1/4") for round columns and 140 x 140 (5-1/2"x5-1/2") for rectangular columns.

Anchorage: 9.23.6.2.

-Columns shall be directly fastened to their supporting and supported members to resist uplift.

BEAMS

9.23.4.2.(3) Table A-8

Supported Length (m) (¹)	Maximum Span (m)		
	3-38x184 (3-2"x8")	3-38x235 (3-2"x10")	3-38x286 (3-2"x12")
2.40 (7.87')	3.07 (10'-0")	3.92 (12'-10")	4.57 (14'-11")
3.00 (9.84')	2.85 (9'-4")	3.52 (11'-6")	4.09 (13'-5")
3.60 (11.8')	2.63 (8'-7")	3.22 (10'-6")	3.73 (12'-2")
4.20 (13.7')	2.44 (8'-0")	2.98 (9'-9")	3.46 (11'-4")
4.80 (15.7')	2.28 (7'-5")	2.79 (9'-1")	3.23 (10'-7")
5.40 (17.7')	2.15 (7'-0")	2.63 (8'-7")	3.05 (10'-0")
6.00 (19.6')	2.04 (6'-8")	2.49 (8'-2")	2.89 (9'-5")

(¹) Supported length means half the sum of the joists spans on both sides of the beam.

*Spruce-Pine-Fir No.1 or No.2 Grade

Bearing: 9.17.4.1. & 9.23.8.1.

-Beams shall have a bearing surface on each of their supporting member of not less than their width and not less than 89 (3.5") in length.

Built-up wood: 9.23.8.3.

-Where individual members are butted together to form a joint, the joint shall occur over a support.

-Built up beams shall be nailed together with a double row of nails not less than 89 (3.5") in length, not more than 450 (18") apart, and not more than 100 (4") from the end.

JOISTS

**Spruce-Pine-Fir No.1 or No.2 Grade*

**The use of floor joists less than 38x184 (2"x8") is not permitted as it does not allow for the proper attachment of railings.*

Cantilever: 9.23.9.9.

-38x184 (2"x8") may not be cantilevered more than 400 (16")

-38x235 (2"x10") or larger may not be cantilevered more than 600 (24")

Bearing: 9.23.9.1. – 9.23.9.3., 9.23.3.4.(1)

-Floor joists may be supported on the tops of beams or may be supported with proper metal joist hangers.

-The floor joists must be mechanically fastened to the supporting member with two 82 (3-1/4") nails.

FASTENERS

-All fasteners used must be properly treated/coated to prevent corrosion.

GUARDS

-Guards shall conform to 9.8.8.2 or SB-7 of the Ontario Building Code.

Handrails

Required Handrails – 9.8.7.1. – 9.8.7.5.

-A handrail shall be provided on at least one side of stairs or ramps less than 1 100 mm (3 ft 7 in) in width, and on 2 sides of stairs or ramps 1 100 mm (3 ft 7 in) in width or greater.

-Only one handrail is required on exterior stairs having more than 3 risers provided such stairs serve a single *dwelling unit*.

Height of Handrails - 9.8.7.4.

-The height of handrails on stairs and ramps shall be measured vertically from the top of the handrail to,

(a) a line drawn through the leading edge of the stair treads served by the handrail, or

(b) the surface of the ramp, floor or landing served by the handrail.

-The height of handrails on stairs and ramps shall be, not less than 800 mm (2 ft 7 in), and not more than 965 mm (3 ft 2 in).

-Where *guards* are required, handrails required on landings shall be not more than 1070 mm (3 ft 6 in) in height.

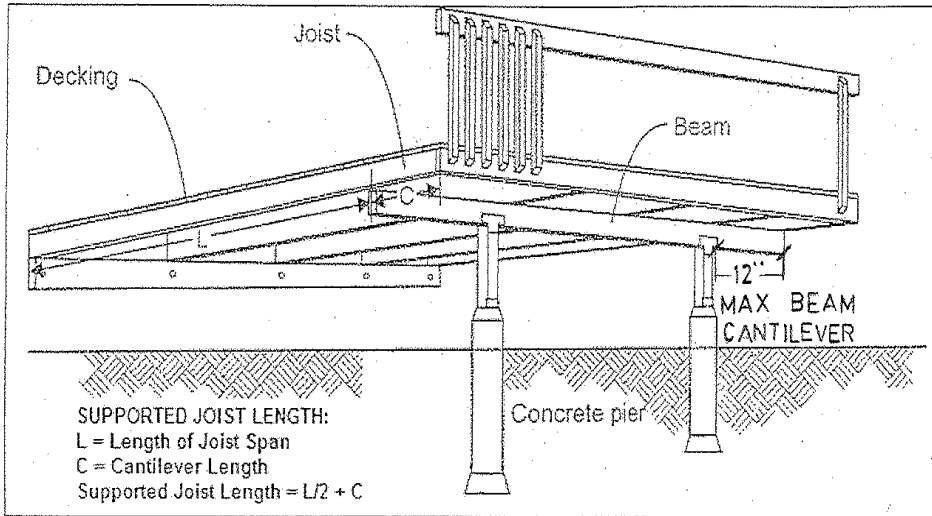
Ergonomic Design - 9.8.7.5.

-A clearance of not less than 50 mm (2 in) shall be provided between a handrail and any surface behind it.

-All handrails shall be constructed so as to be continually graspable along their entire length with no obstruction on or above them to break a handhold, except where the handrail is interrupted by newels at changes in direction.

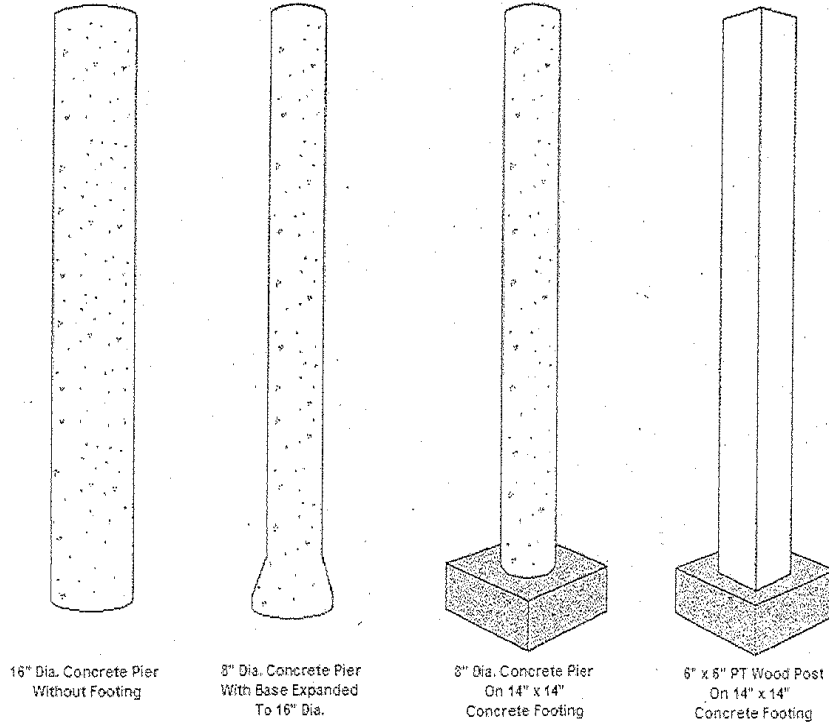
ILLUSTRATIONS

FROM THE "CODE AND CONSTRUCTION - GUIDE FOR HOUSING"
AS PUBLISHED BY THE M.M.A.H. AND O.N.H.W.P.



PIERS

EXAMPLE: Where Require Bearing Area = 1.29 Sq. Ft.
 NOTE: REFER TO PIER TABLE FOR REQUIRED SIZES



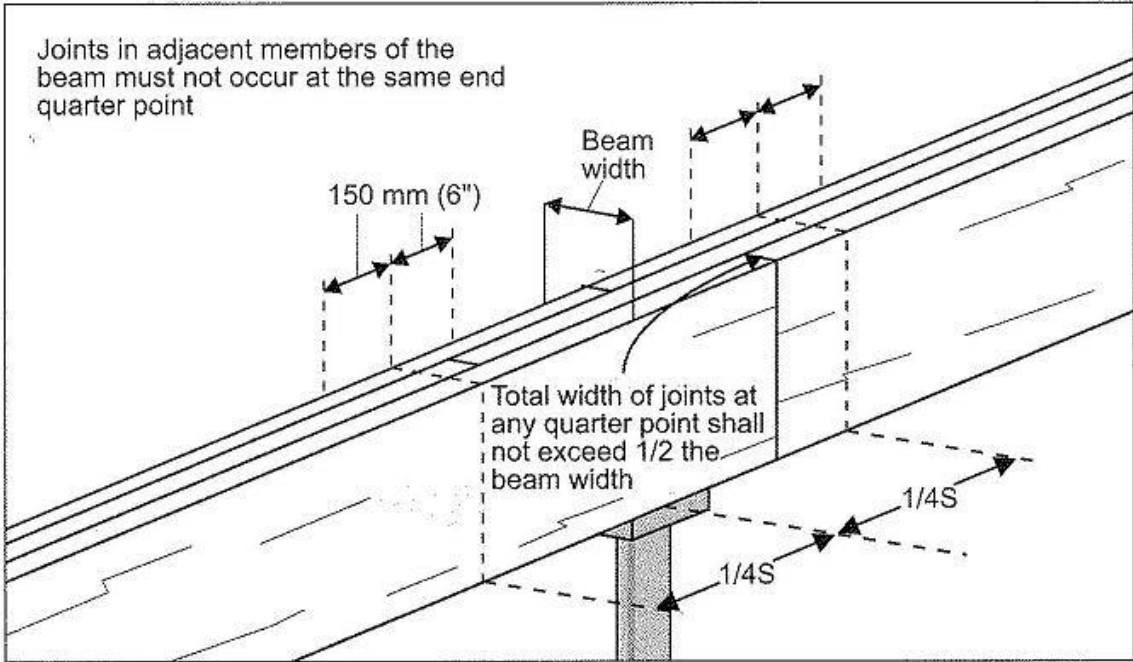
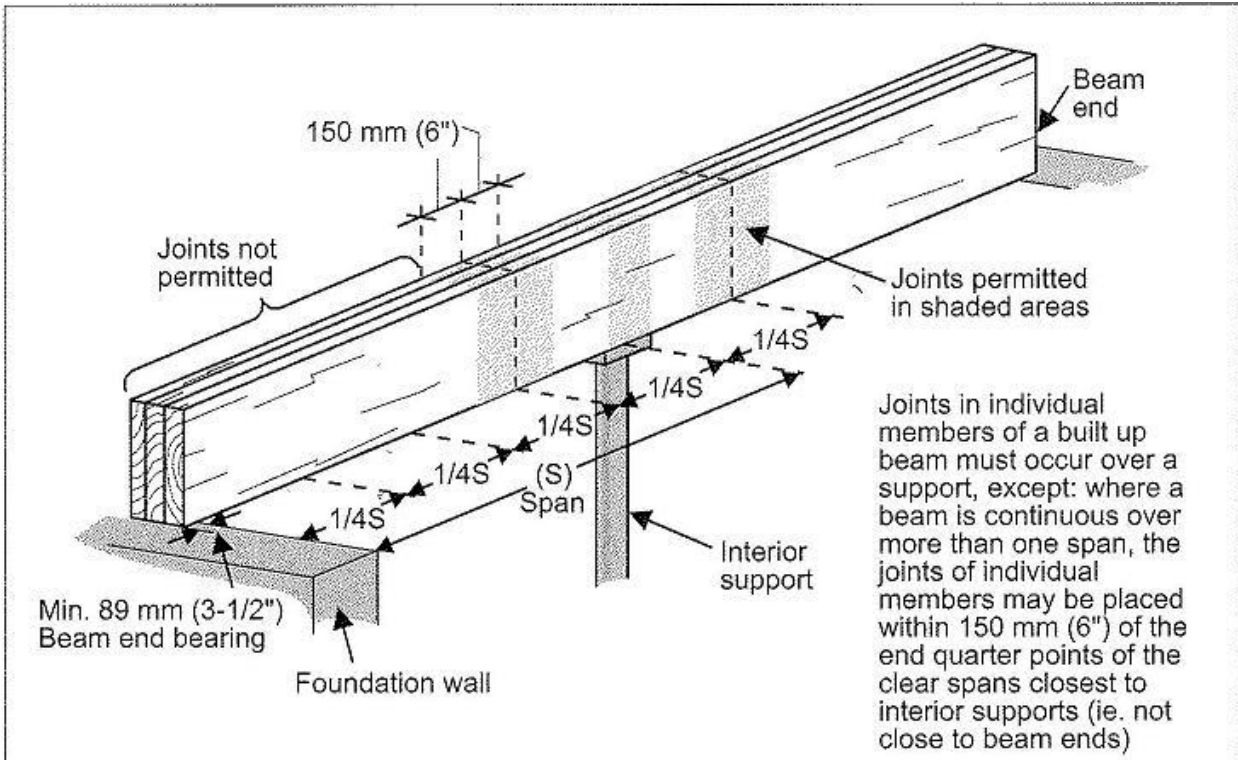
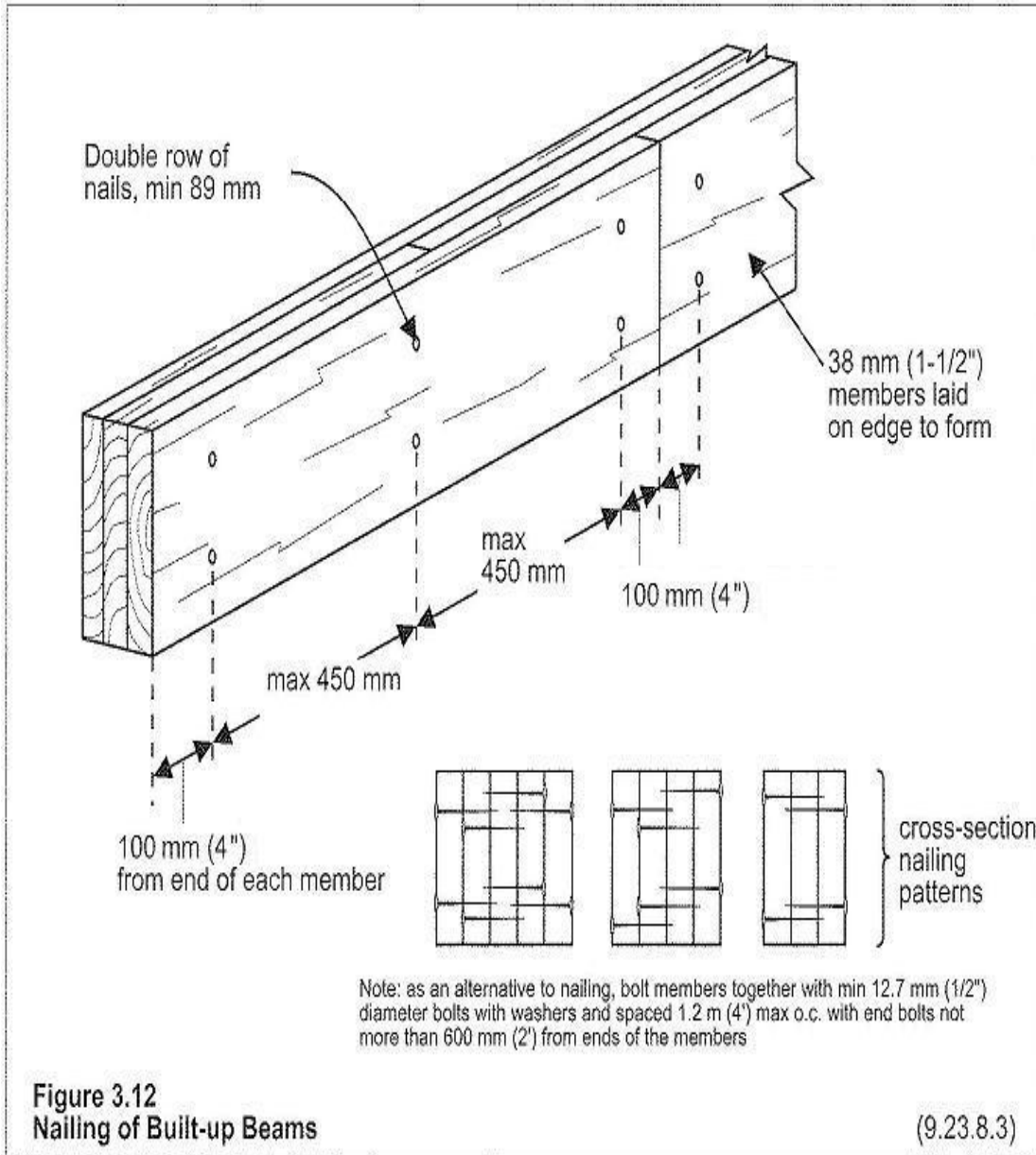
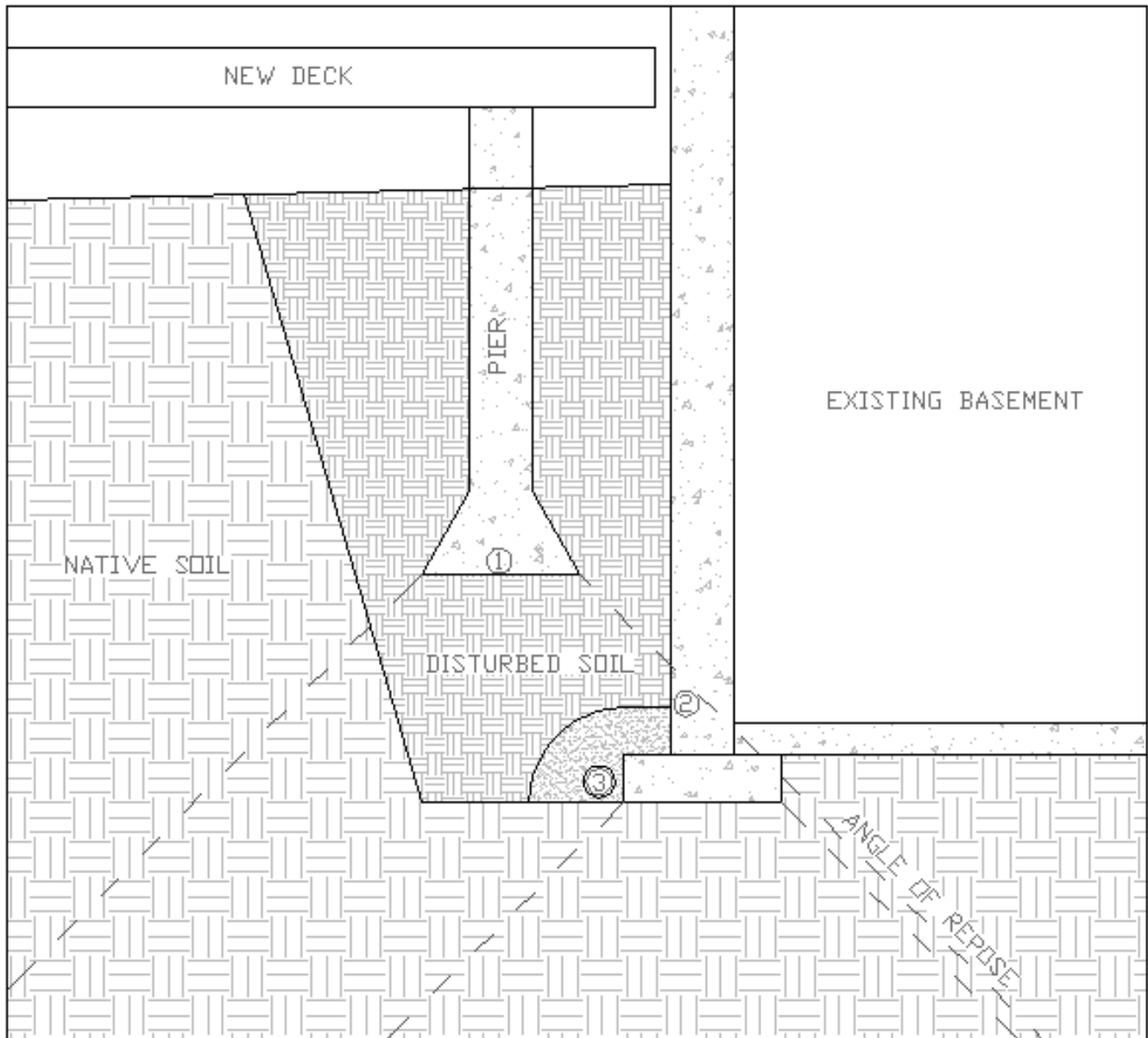


Figure 3.13
Nailing of Built-up Beams

(9.23.8.3)



UNACCEPTABLE INSTALLATION



- 1) FOUNDATIONS MUST REST ON UNDISTURBED NATIVE SOIL.
- 2) FOUNDATIONS WITHIN THE ANGLE OF REPOSE REQUIRE THE SERVICES OF A PROFESSIONAL ENGINEER.
- 3) NEW FOUNDATIONS MUST NOT INTERFERE WITH EXISTING FOUNDATION DRAINAGE SYSTEMS.