



Site preparation, foundation, and installation of buildings



Standards Update Service

CSA Z240.10.1:19

June 2019

Title: *Site preparation, foundation, and installation of buildings*

To register for e-mail notification about any updates to this publication

- go to store.csagroup.org
- click on **CSA Update Service**

The **List ID** that you will need to register for updates to this publication is **24272.19**

If you require assistance, please e-mail techsupport@csagroup.org or call 416-747-2233.

Visit CSA Group's policy on privacy at www.csagroup.org/legal to find out how we protect your personal information.

National Standard of Canada

CSA Z240.10.1:19

***Site preparation, foundation, and
installation of buildings***



®A trademark of the Canadian Standards Association,
operating as "CSA Group."



Published in June 2019 by CSA Group
A not-for-profit private sector organization
178 Rexdale Boulevard, Toronto, Ontario, Canada M9W 1R3

To purchase standards and related publications, visit our Online Store at store.csagroup.org
or call toll-free 1-800-463-6727 or 416-747-4044.

ICS 93.020
ISBN 978-1-4883-2259-4

© 2019 Canadian Standards Association
All rights reserved. No part of this publication may be reproduced in any form whatsoever
without the prior permission of the publisher.

Contents

Technical Committee on Prefabricated Buildings, Modules, and Panels 3

Preface 6

1 Scope 7

- 1.1 Application 7
- 1.2 Issues addressed 7
- 1.3 Users 7
- 1.4 Terminology 7
- 1.5 Units of measure 8

2 Reference publications 8

3 Definitions 9

4 Compliance 9

- 4.1 Application 9
- 4.2 Environmental design data 10

5 Site preparation 10

- 5.1 Compliance 10
- 5.2 Material removal 10
- 5.3 Grading of excavated area 10
- 5.4 Granular fill and grading 10
- 5.5 Ground cover 11

6 Foundations 11

- 6.1 General 11
 - 6.1.1 Compliance 11
 - 6.1.2 Footings and foundations for buildings in flood zones 11
 - 6.1.3 Location of foundation support points 11
- 6.2 Clearance 11
 - 6.2.1 General 11
 - 6.2.2 Foundations for buildings in flood zones 12
 - 6.2.3 Access to foundations and services 12
- 6.3 Depth of foundations 12
- 6.4 Piles 12
 - 6.4.1 Compliance 12
 - 6.4.2 Footings for piles 12
 - 6.4.3 Dimensions of reinforced concrete piles 13
 - 6.4.4 Frost protection of concrete and masonry piles 13
 - 6.4.5 Preservative treatment of wood piles 13
 - 6.4.6 Lateral restraint 13
- 6.5 Footings for piers 13
 - 6.5.1 Compliance 13
 - 6.5.2 Bearing for piers 13
 - 6.5.3 Footing area 13

6.5.4	Fill under footings	19
6.5.5	Concrete footings for piers	20
6.5.6	Wood footings for piers	20
6.6	Piers	20
6.6.1	Load transfer	20
6.6.2	Dimensions of piers	20
6.6.3	Lateral restraint	21
6.6.4	Concrete masonry piers	21
6.6.5	Wood-crib piers	21
7	Anchorage to resist overturning and pier topping due to wind	22
7.1	Rating	22
7.1.1	Required rating	22
7.1.2	Calculated resistance	23
7.2	Required anchorage	23
7.3	Pull-out resistance	24
7.3.1	Minimum pull-out resistance	24
7.3.2	Determination of pull-out resistance	24
7.4	Anchorage adjustment	24
7.5	Spacing	24
7.6	Depth	24
7.7	Deterioration resistance	24
8	Connection of modules in multiple-section prefabricated buildings	25
8.1	Compliance	25
8.2	Structural requirements	25
8.3	Air barrier systems, vapour barriers, and insulation	25
8.4	Weathertightness	25
8.4.1	Roofing and flashing	25
8.4.2	Sheathing membrane	25
8.4.3	Siding	25
8.5	Fire blocking of concealed spaces	25
9	Skirting	26
9.1	Installation	26
9.2	Ventilation of and access to crawl space	26
<hr/>		
Annex A (informative)	— Environmental design data and climate change	27
Annex B (informative)	— Site preparation	31
Annex C (informative)	— Foundations	32
Annex D (informative)	— Anchorage systems	43
Annex E (informative)	— Multiple-section units	48
Annex F (informative)	— Skirting	51

Preface

This is the fifth edition of CSA Z240.10.1, *Site preparation, foundation, and installation of buildings*. It supersedes the previous editions published in 2016 and 2008 under the title *Site preparation, foundation, and anchorage of manufactured homes*, in 1994 under the title *Site Preparation, Foundation, and Anchorage of Mobile Homes*, and in 1986 under the title *Recommended Practice for the Site Preparation, Foundation, and Anchorage of Mobile Homes*.

Significant changes to this edition address climate change adaptation with revisions and new provisions which include the following:

- a) sources for climate data;
- b) protection against effects of flooding;
- c) deterioration resistance; and
- d) addition of a new annex A on environmental design data and climate change.

This Standard is intended to be referenced by regulatory authorities, land-lease community owners, and building designers and installers so that proper on-site installation of buildings can be achieved.

CSA Group acknowledges that the development of this Standard was made possible by the financial support of the Standards Council of Canada.

This Standard was prepared by the Technical Committee on Prefabricated Buildings, Modules, and Panels, under the jurisdiction of the Strategic Steering Committee on Construction and Civil Infrastructure, and has been formally approved by the Technical Committee.

This Standard has been developed in compliance with Standards Council of Canada requirements for National Standards of Canada. It has been published as a National Standard of Canada by CSA Group.

Notes:

- 1) *Use of the singular does not exclude the plural, and vice versa) when the sense allows.*
- 2) *Although the intended primary application of this Standard is stated in its Scope, it is important to note that it remains the responsibility of the users of the Standard to judge its suitability for their particular purpose.*
- 3) *This Standard was developed by consensus, which is defined by CSA Policy governing standardization — Code of good practice for standardization, as “substantial agreement. Consensus implies much more than a simple majority, but not necessarily unanimity”. It is consistent with this definition that a member may be included in the Technical Committee list and yet not be in full agreement with all clauses of this Standard.*
- 4) *To submit a request for interpretation of this Standard, please send the following information to inquiries@csagroup.org. It should include “Request for interpretation” in the subject line:*
 - a) *define the problem, making reference to the specific clause, and, where appropriate, include an illustrative sketch;*
 - b) *provide an explanation of circumstances surrounding the actual field condition; and*
 - c) *where possible, phrase the request in such a way that a specific “yes” or “no” answer will address the issue.*

Committee interpretations are processed in accordance with the CSA Directives and guidelines governing standardization and are available on the Current Standards Activities page at standardsactivities.csa.ca.
- 5) *This Standard is subject to review within five years from the date of publication. Suggestions for its improvement will be referred to the appropriate committee. To submit a proposal for change, please send the following information to inquiries@csagroup.org and include “Proposal for change” in the subject line:*
 - a) *Standard designation (number);*
 - b) *relevant clause, table, and/or figure number;*
 - c) *wording of the proposed change; and*
 - d) *rationale for the change.*

CSA Z240.10.1:19

Site preparation, foundation, and installation of buildings

1 Scope

1.1 Application

This Standard applies to single- and multi-section buildings supported on longitudinal floor beams, or perimeter rim joists designed to perform as beams.

1.2 Issues addressed

This Standard specifies requirements for the following aspects of building installation.

- a) site preparation;
- b) permanent foundations;
- c) anchorage to resist overturning and pier toppling due to wind;
- d) connection of modules in multiple-section prefabricated building; and
- e) skirting.

Note: The term “prefabricated building” is used in this Standard to refer to manufactured homes, modular homes, and other factory-constructed buildings.

1.3 Users

This Standard is intended to be used by builders, building officials, owners, and installers of

- a) buildings installed on surface foundations including prefabricated buildings; and
- b) multiple-section prefabricated buildings.

1.4 Terminology

1.4.1

In this Standard, “shall” is used to express a requirement, i.e., a provision that the user is obliged to satisfy in order to comply with the Standard; “should” is used to express a recommendation or that which is advised but not required; and “may” is used to express an option or that which is permissible within the limits of the Standard.

Notes accompanying clauses do not include requirements or alternative requirements; the purpose of a note accompanying a clause is to separate from the text explanatory or informative material.

Notes to tables and figures are considered part of the table or figure and may be written as requirements.

Annexes are designated normative (mandatory) or informative (non-mandatory) to define their application.