# Manufactured Housing

## Mechanic Certification Training

MHC Consultants



MHC Consultants

**Joel Harper**
CEO



MHC Consultants

## Course Information

This course has been developed by the Department of State for training credit as follows:

3 hours, Manufactured Housing – Mechanic, Webinar

Course number: mfg0009504
Course provider: MHC Consultants





## Course Attendance Issues

The Division of Building Standards and Codes cannot give course attendees credit for a course without the meeting the required milestones:

Arriving more than 15 minutes after training start time,
leaving before the training end time,
missing more than 15 minutes of training time(out of room, ie:phone call),
or failing to successfully complete a required quiz, if applicable.





**This course is heavy in code content.**

## Why am I here?

- To complete your certification training as a mechanic.

When is certification necessary?









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- To complete your certification training as a mechanic.

When is certification necessary?

- 19NYCRR1210.03(c) "no manufactured home shall be serviced…unless at least one person certified by the DOS as an installer or as a mechanic is present at the home site during the *service*. The presence of a person holding a limited certification…during the *service* shall be deemed to satisfy this requirement…"

**SERVICE:** The modification, alteration or repair of the structural systems of a manufactured home

## Why am I here?

Open book quiz follows training

- To complete your certification training as a mechanic.

When is certification necessary?

- 19 NYCRR 1210.03(c) "no manufactured home shall be serviced…unless at least one person certified by the DOS as an installer or as a mechanic is present at the home site during the *service*. The presence of a person holding a limited certification…during the *service* shall be deemed to satisfy this requirement…"

**SERVICE:** The modification, alteration or repair of the structural systems of a manufactured home





## Structural Systems of Manufactured Home?

- The load-resisting sub-system of the structure.
  - Framing/floor/wall systems
  - Trusses/roof system
  - Drywall Panels (Polyvinyl acetate (PVA) adhesive)
  - Sheathing Panels (Polyvinyl acetate (PVA) adhesive)
  - Shear walls
  - Chassis
  - Foundation





## When do I need a permit?

- A permit is required for work that must comply with the Uniform Code.
  - Removal or changes to a load bearing wall
  - Removal or changes to a load bearing beam
  - Removal, relocation or change in the exit path
  - Enlargement, alteration, replacement or relocation of any building system (electrical, mechanical, structural)

## How do I get a Building Permit?

- Contact the local Code Enforcement Official for the town in which your doing the work – only one that can issue
- Insurance Certificates, plans, sketches, etc. are required to complete the application.



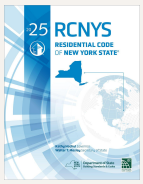


## NYSUFPBC

- The Residential Code of New York State
- Appendix BA 'Manufactured Housing'

Regulations for -

- Installation
- Additions
- Alterations
- Connection to services








## Regulation: BA RCNY

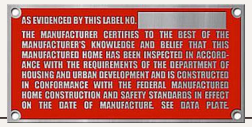
Starts with the Scope…

Provisions applicable only to a manufactured home used as a single dwelling unit and covers

1. Construction, alteration & repair of foundation system necessary for installation
2. Installation, alteration, repair or maintenance of building service equipment necessary (water, fuel, power & sewage systems)
3. Alterations, additions repairs or relocation of existing manufactured homes

## Definitions: Manufactured Home

- A home bearing a seal signifying conformance to the design and construction requirements of Department of Housing and Urban Development (HUD), Manufactured Home Construction and Safety Standards, 24 CFR Part 3280.

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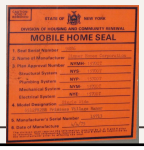
## Definitions: Mobile Home

- A home constructed in a factory prior to June 15, 1976, with or without a label certifying compliance with NFPA, ANSI or a specific standard… For the purpose of these provisions, a mobile home shall be considered a manufactured home.

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## Definitions: Modular Home

- Factory manufactured dwelling units conforming to applicable provisions of this code and bearing the insignia of approval issued by the Secretary of State of New York State.


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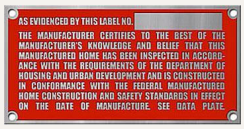
## Applicability of Part 1210 & Appendix BA




Mobile and Manufactured Homes: YES


New York State Modular Homes: NO





## More Definitions: Addition

- An extension or increase in floor area, number of stories or height of a building or structure.






## More Definitions: Alteration

- Any construction or renovation to an existing structure other than repair or addition
  Such as:

## More Definitions: Alteration

- Any construction or renovation to an existing structure other than repair or addition
  Such as:
  - Removal or changes to a load bearing wall
  - Removal or changes to a load bearing beam
  - Removal, relocation or change in the exit path
  - Enlargement, alteration, replacement or relocation of any building system (electrical, mechanical, structural)





## More Definitions: Repair

- The restoration to good or sound condition of any part of an existing building for the purpose of its maintenance.
  Such as:
  - Patching or restoration of materials, elements, equipment or fixtures for the purposes of maintaining such…in good or sound condition





## An Addition or Alteration?

## An Addition or Alteration? Let's look at the definitions





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**ALTERATION [B].** Any construction or renovation to an existing structure other than repair or addition

*Such as:...*

*Removal, relocation or change in the exit path*

*Enlargement, alteration, replacement or relocation of any building system (electrical, mechanical, structural)*





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## An Addition or Alteration? Let's look at the definitions

**ALTERATION [B].** Any construction or renovation to an existing structure other than repair or addition

*Such as:…*

*Removal, relocation or change in exit path*

*Enlargement, alteration, replacement or relocation of [illegible] addition (electrical, mechanical, structural)*

BOTH

**ADDITION [B]**. An extension or increase in floor area, number of stories or height of a building or structure.





## Two More Definitions:

- **ACCESSORY BUILDING.** Any building or structure, or portion thereto, located on the same property as a manufactured home which does not qualify as a manufactured home as defined herein.





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- **RELOCATION.** Relocated buildings include any building or structure which is relocated from its existing foundation to a new foundation.

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- **ACCESSORY BUILDING.** Any building or structure, or portion thereto, located on the same property as a manufactured home which does not qualify as a manufactured home as defined herein.
- **RELOCATION.** Relocated buildings include any building or structure which is relocated from its existing foundation to a new foundation.

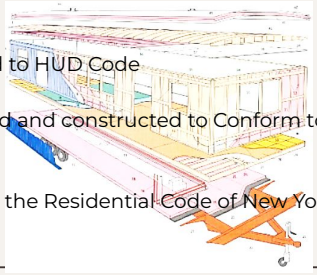
Do not worry, there will be more definitions.





## Additions Compliance BA 102.2

- Be Certified to HUD Code
- Be designed and constructed to Conform to HUD Code
- Conform to the Residential Code of New York







## Additions Compliance BA102.2.1

- Building additions and accessory structures shall not be structurally supported by the manufactured home.

**Exception:** Building additions and accessory structures supported by a manufactured home shall be in accordance with designs provided by the home manufacturer or with designs prepared by a registered design professional in accordance with acceptable engineering practice.

So, can you?



So, can you? YES

Structurally Independent

DAPIA Approval (New Home)
Designed by licensed design professional (Existing Home)

Various concerns addressed











## Alteration and Repair Compliance BO102.3

- Alterations and repairs may be made to any MH or its building service equipment without requiring the existing MH or its equipment to comply with all the requirements of these provisions provided that the alteration or repairs conforms to Appendix BO of this code.





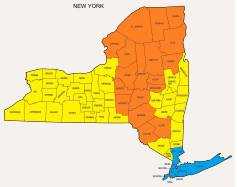
## Alteration and Repair Compliance BO102.3.1

- Alterations or repairs to an existing manufactured home that are nonstructural and do not adversely affect any structural member or any part of the building or structure having required fire protection may be made with materials equivalent to those of which the manufactured home structure is constructed.

**Exception:** The installation and/or replacement of glass shall be in conformance with fenestration rating requirements for new installations.

## Alteration and Repair Compliance BO102.3.1

**Exception:** ...fenestration rating requirements for new installations.




(NY) TABLE C402.1.2—OPAQUE BUILDING THERMAL ENVELOPE ASSEMBLY MAXIMUM REQUIREMENTS, U-FACTOR METHOD[a, b]

| CLIMATE ZONE | 4 | | 5 | | 6 | |
|---|---|---|---|---|---|---|
| | All Other | Group R | All Other | Group R | All Other | Group R |
| **Roofs** | | | | | | |
| Insulation entirely above roof deck | U-0.030 | U-0.030 | U-0.030 | U-0.030 | U-0.029 | U-0.029 |
| Metal buildings | U-0.035 | U-0.035 | U-0.035 | U-0.035 | U-0.029 | U-0.029 |
| Attic and other | U-0.020 | U-0.020 | U-0.020 | U-0.020 | U-0.019 | U-0.019 |
| **Walls, above grade** | | | | | | |
| Mass[c] | U-0.090 | U-0.060 | U-0.080 | U-0.071 | U-0.071 | U-0.057 |
| Metal building | U-0.045 | U-0.048 | U-0.048 | U-0.048 | U-0.048 | U-0.048 |
| Metal framed | U-0.061 | U-0.061 | U-0.052 | U-0.052 | U-0.047 | U-0.043 |
| Wood framed and other[c] | U-0.061 | U-0.061 | U-0.048 | U-0.048 | U-0.048 | U-0.046 |
| **Walls, below grade** | | | | | | |
| Below-grade wall[d] | C-0.119 | C-0.092 | C-0.119 | C-0.092 | C-0.092 | C-0.063 |
| **Floors** | | | | | | |
| Mass[e] | U-0.057 | U-0.051 | U-0.057 | U-0.051 | U-0.051 | U-0.051 |
| Joist/framing | U-0.033 | U-0.033 | U-0.033 | U-0.033 | U-0.027 | U-0.027 |
| **Slab-on-grade floors** | | | | | | |
| Unheated slabs | F-0.52 | F-0.52 | F-0.52 | F-0.51 | F-0.51 | F-0.434 |
| Heated slabs | F-0.62 | F-0.62 | F-0.62 | F-0.62 | F-0.62 | F-0.602 |
| **Opaque doors** | | | | | | |





## Existing Buildings and Structures Appendix BO101.1

- **Scope:** The provisions of this appendix shall apply to the repair, alteration, change of occupancy, addition and relocation of existing buildings.
- **Intent:** "...to encourage the continued use or reuse of legally existing buildings and structures.

...to permit work in existing building that is consistent with the purpose of the Residential Code.





## BO102.13 Energy Efficiency

- Additions, alterations...to an existing building, building system or portion thereof shall conform without requiring the unaltered portions of the existing building or system to comply with this chapter.
- Any non-conditioned space that is altered to become conditioned space shall comply with provisions for an addition

## R105 Preliminary Meeting

- The Building Official is authorized to require the prospective applicant meet to discuss plans for the proposed work, prior to the issuance of a permit in order to establish the specific applicability of the provisions of this appendix.





## BO102.1.1 Evaluation of Existing Bldg

- The Building Official is authorized to require an existing building be evaluated by a reg. design professional based upon the circumstances agreed upon at the preliminary meeting to determine code compliance.





## Classification of work

- The work performed to an existing building shall be classified in accordance with this Sections BO104 - BO111
- the *work area* shall be identified...

**WORK AREA:** That portion or portions of a building consisting of all reconfigured spaces as indicated on the construction documents. Work area excludes other portions of the building where incidental work entailed by the intended work must be performed and portions of the building where work not initially intended by the owner is specifically required by this appendix.

## Classification of work

- Section BO104—Repairs
- Section BO105— Alterations
- Section BO106— Addition
- [NY] Section Bo107— Change of Occupancy
- [NY] Section Bo108—Bed and Breakfast Dwellings
- [NY] Section Bo109—Historic Buildings
- [NY] Section Bo110—Relocated Buildings
- [NY] Section Bo111—Replacement Buildings





## BO104 Repairs

- Repairs to existing buildings shall comply with this section





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## BO104 Repairs

- Repairs to existing buildings shall comply with this section
- Work shall be done using materials permitted by the code for new construction or using like materials such that no hazard to life, health or property is created.
- Repairs shall be done in a manner that maintains the level of fire protection provided
- Repairs shall NOT reduce the structural strength or stability of the structure





## BO104 Repairs

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- Found unsound elements or otherwise structurally deficient shall be made to conform
- Mechanical and Plumbing repairs shall be permitted in the same manner and arrangement as the existing, provided such repairs or replacement are not hazardous and are approved.
- Electrical repairs shall be permitted with like materials with a few exceptions.
  - ie: replacement electrical receptacles shall comply with NFPA 70






## Alterations

- §BO105.1.1 Alterations - Level 1
- §BO105.1.2 Alterations - Level 2

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## BO105.1.1 Alterations – Level 1

- Include the removal and replacement of the covering or existing materials, elements, equipment or fixtures using new materials, elements, equipment or fixtures that serve the same purpose, without reconfiguring the space.



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- Include the removal and replacement or the covering of existing materials, elements, equipment or fixtures using new materials, elements, equipment or fixtures that serve the same purpose, without reconfiguring the space.
- An existing building or portion thereof shall not be altered such that the building becomes less safe than its existing condition.



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- An existing building or portion thereof shall not be altered such that the building becomes less safe than its existing condition.
- All new work shall comply with the materials and methods requirements of this code

## BO105.1.1 Alterations – Level 1

- Alterations shall be done in a manner that maintains the level of fire protection provided





## BO105.1.1 Alterations – Level 1

- Alterations shall be done in a manner that maintains the level of fire protection provided
- Smoke and CO alarms shall be provided as required for new.
  - Where interior wall or ceiling finishes are not removed to expose the structure hard wire interconnection is not required





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- Structural roof components shall be capable of supporting the roof covering system and the material loads

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- Structural roof components shall be capable of supporting the roof covering system and the material loads
- Mechanical, Plumbing and Electrical systems shall comply with the appropriate sections of this code





## BO105.1.1 Alterations – Level 1

- Reroofing shall be in accordance with §R908





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- No more than 2 layers of roofing material

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- Replacement of water soaked/deteriorated support materials

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## BO105.1.1 Alterations – Level 1

- Reroofing shall be in accordance with §R908
- No more than 2 layers of roofing material
- Replacement of water soaked/deteriorated support materials
- Replacement of damaged/rusted/deteriorated flashings, edges, outlets, vents or etc.

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- Reroofing shall be in accordance with §R908
- No more than 2 layers of roofing material
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- Replacement of damaged/rusted/deteriorated flashings, edges, outlets, vents or etc.
- Installation per roofing manufacturers installation instructions

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- No more than 2 layers of roofing material
- Replacement of water soaked/deteriorated support materials
- Replacement of damaged/rusted/deteriorated flashings, edges, outlets, vents or etc.
- Installation per roofing manufacturers installation instructions
- Additional requirements based on various material types in RCNYS Chapter 9





## BO105.1.1 Alterations – Level 1

- In *flood hazard area*, alterations that constitute *substantial improvement* shall require the building comply with §R104.3.1 (Flood-Resistant Construction) of this code.





## Another Definition

- In *flood hazard area*, alterations that constitute *substantial improvement* shall require the building comply with §R202 (Flood-Resistant Construction) of this code.

**FLOOD HAZARD AREA:** The greater of the following two areas:

1. The area within a floodplain subject to a .2% or greater chance of flooding in any year

## Another Definition

- In *flood hazard area*, alterations that constitute *substantial improvement* shall require the building comply with §R202 (Flood-Resistant Construction) of this code.

**FLOOD HAZARD AREA:** The greater of the following two areas:

1. The area within a floodplain subject to a .2% or greater chance of flooding in any year
2. The area designated as a flood hazard area on a communities flood hazard map, or otherwise legally designated.





## More Related Definitions

**SUBSTANTIAL IMPROVEMENT:** ...any repair, alteration, addition or improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure before the improvement or repair is started. If the structure has sustained *substantial damage*, any repairs are considered substantial improvement regardless of the actual repair work performed.





## More Related Definitions

**SUBSTANTIAL IMPROVEMENT:** ...any repair, alteration, addition or improvement of a structure, the cost of which equals or exceeds 50% of the market value of the structure before the improvement or repair is started. If the structure has sustained *substantial damage*, any repairs are considered substantial improvement regardless of the actual repair work performed.

**SUBSTANTIAL DAMAGE:** ...damage of any origin...cost of restoration to before-damage condition would equal or exceed 50% of market value before damage occurred

## R202 Flood Resistant Construction

- R306.1.9 The bottom of the frame of new and replacement manufactured homes…shall be elevated to or above the elevations specified in the code. The anchor and tie-down requirement of the applicable state or federal requirements shall apply. The foundation and anchorage of manufactured homes to be located in identified floodways shall be designed and constructed in accordance with ASCE 24
  (American Society of Civil Engineers [ASCE] 24 – Flood Resistant Design and Construction)





## R202 Flood Resistant Construction





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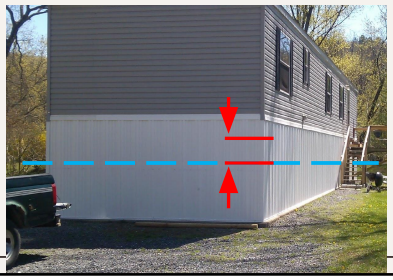





## BO105.1.2 Alterations – Level 2

- Include the reconfiguration of space, the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment.
- Comply with the requirements of this section

and





## BO105.1.2 Alterations – Level 2

- Include the reconfiguration of space, the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment.
- Comply with the requirements of this section

and

- Additionally comply with the requirements of section BO105.1.1

## BO105.1.2 Alterations – Level 2

- Include the reconfiguration of space, the addition or elimination of any door or window, the reconfiguration or extension of any system, or the installation of any additional equipment.
- Comply with the requirements of this section

and

- Additionally comply with the requirements of section BO105.1.1
- All newly constructed elements, components, systems and spaces shall comply with the requirements of this code





## BO105.1.2 Alterations – Level 2

- The work performed shall not increase or create a nonconformity with the code requirements





## BO105.1.2 Alterations – Level 2

- The work performed shall not increase or create a nonconformity with the code requirements
- Where the work area exceeds 50% of the area of the dwelling, the interior finish of walls and ceilings in the work area shall comply with §R302.9 (Flame spread and smoke-developed index for wall and ceiling finishes)
  - Remove and replace or treat with approved fire retardant coating

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- Where the work area exceeds 50% of the area of the dwelling, the interior finish of walls and ceilings in the work area shall comply with §R302.9 (Flame spread and smoke-developed index for wall and ceiling finishes)
  - Remove and replace or treat with approved fire retardant coating
- Smoke and CO alarms shall be provided as required for new.
  - Where interior wall or ceiling finishes are not removed to expose the structure hard wire interconnection is not required





## BO105.1.2 Alterations – Level 2

- Structural components shall be capable of supporting existing structure loads and the new increased loads combined





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- New structural members shall comply with this code
  - Inc. connections and anchorage





## BO105.1.2 Alterations – Level 2

- Structural components shall be capable of supporting existing structure loads and the new increased loads combined
- No reduction in structural strength or stability of the structure
- New structural members shall comply with this code
  - Inc. connections and anchorage
- Mechanical, Plumbing and Electrical systems shall comply with the appropriate sections of this code

This is a small snapshot of some of the code requirements for alterations.





## BO106 Additions

- Comply with the requirements of this section and appropriate sections for new construction

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- Comply with the requirements of this section and appropriate sections for new construction
- Except where required, unaltered portions of the existing building shall not be required to comply with this code





## BO106 Additions

- Comply with the requirements of this section and appropriate sections for new construction
- Except where required, unaltered portions of the existing building shall not be required to comply with this code
- Shall not create or extend any nonconformity in the existing building





## BO106 Additions

- Comply with the requirements of this section and appropriate sections for new construction
- Expect where required, unaltered portions of the existing building shall not be required to comply with this code
- Shall not create or extend any nonconformity in the existing building
- Smoke and CO alarms shall be provided as required for new.
  - Where interior wall or ceiling finishes are not removed to expose the structure hard wire interconnection is not required

## BO106 Additions

- If the addition and all other proposed/associated work, when combined, constitute *substantial improvement*, the existing building and the addition shall comply with §R104.3.1 of this code





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- If the addition and all other proposed/associated work, when combined, constitute *substantial improvement*, the existing building and the addition shall comply with §R104.3.1 of this code

Remember - **SUBSTANTIAL IMPROVEMENT:** value which equals or exceeds 50% of market value of structure before the improvement





## BO106 Additions

- If the addition and all other proposed/associated work, when combined, constitute *substantial improvement*, the existing building and the addition shall comply with §R104.3.1 of this code

Remember - **SUBSTANTIAL IMPROVEMENT:** value which equals or exceeds 50% of market value of structure before the improvement

- Additions to Mechanical, Plumbing & Electrical shall comply to with the appropriate sections of this code for new systems

## Foundation Repairs

- Manufacturer's Installations Instructions
- If not available






## Foundation Repairs

- Manufacturer's Installations Instructions
- If not available
  - HUD Model Installation Standard (24-CFR-3285)






## Foundation Repairs

- Manufacturer's Installations Instructions
- If not available
  - HUD Model Installation Standard (24-CFR-3285)
  - NFPA 225 (2021) Manufactured Home Installation $$$

## Foundation Repairs

- Utilizing HUD Model Installation Standard
  - 24-CFR-3285
    https://www.gpo.gov/fdsys/pkg/CFR-2025-title24-vol5/pdf/CFR-2025-title24-vol5-part3285.pdf





## Foundation Repairs

- Utilizing HUD Model Installation Standard
  - 24-CFR-3285, 2016

https://www.gpo.gov/fdsys/pkg/CFR-2025-title24-vol5/pdf/CFR-2025-title24-vol5-part3285.pdf

**Foundation exercise:**
HUD Model Installation Standard





## Foundation Repairs

- Find the Manufacturer's Design Data!
  - Wind Zone Design
    - Replacement or Installation of Anchoring
  - Snow Load Data
    - Replacement or Installation of Piers/Footings
  - Heating/Cooling Certificate

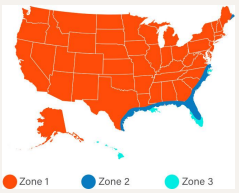
## New York State - Non-Hurricane Zone 1

Manufactured Homes are constructed and installed to prevent overturning, uplift, and lateral movements due to wind loads.

The home and anchoring equipment must resist:

Horizontal forces of 15 psf

Uplift forces of 9 psf



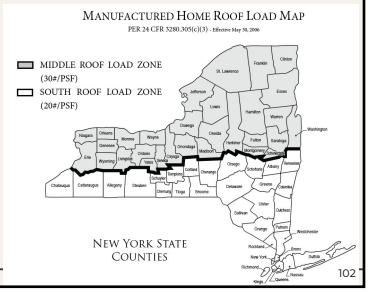





## New York State Snow Zones – HUD Code

30 psf Zone by County

- St. Lawrence, Franklin
- Clinton, Essex, Hamilton
- Warren, Herkimer, Lewis
- Oswego, Jefferson, Oneida
- Fulton, Onondaga, Madison
- Cayuga, Seneca, Wayne
- Ontario, Genesee, Orleans
- Niagara, Erie, Wyoming
- Monroe, Saratoga, Yates
- Washington, Montgomery
- Schenectady, Livingston








## New York State Snow Zones – HUD Code

30 psf Zone by County

- St. Lawrence, Franklin
- Clinton, Essex, Hamilton
- Warren, Herkimer, Lewis
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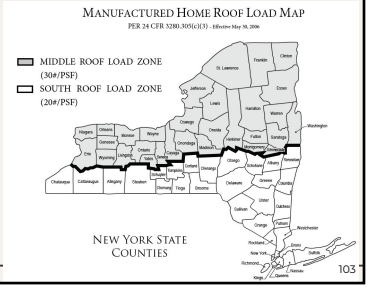
- Fulton, Onondaga, Madison
- Monroe, Saratoga, Yates
- Washington, Montgomery
- Schenectady, Livingston

**Roof load zone:**

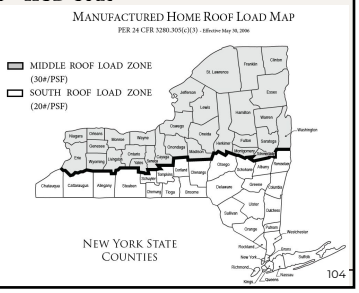


## New York State Snow Zones – HUD Code

30 psf Zone by County

- St. Lawrence, Franklin
- Clinton, Essex, Hamilton
- Warren, Herkimer, Lewis
- Oswego, Jefferson, Oneida
- Fulton, Onondaga, Madison
- Cayuga, Seneca, Wayne
- [illegible] Orleans
- [illegible]oming
- [illegible], Yates
- Washington, Montgomery
- Schenectady, Livingston

**Roof load zone: Middle, 30 psf**



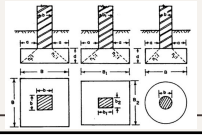


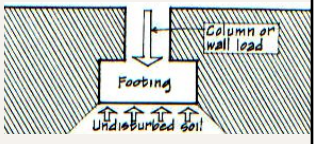



## Foundation Repairs

Install new or replacement piers or footings

- Footing sizes depend upon two other factors
  - Soil bearing capacity
  - Pier type and load










## Foundation Repairs – Soil capacity

Soil bearing capacity must be determined (§3285.202)

- Soil tests in accordance with accepted engineering practice

## Foundation Repairs – Soil capacity

Soil bearing capacity must be determined (§3285.202)

- Soil tests in accordance with accepted engineering practice
- Soil records of LAHJ





## Foundation Repairs – Soil capacity

Soil bearing capacity must be determined (§3285.202)

- Soil tests in accordance with accepted engineering practice
- Soil records of LAHJ
- Visual Identification, if testing cannot determine, values shown in Table §3285.202





## Foundation Repairs – Soil capacity

Soil bearing capacity must be determined (§3285.202)

- Soil tests in accordance with accepted engineering practice
- Soil records of LAHJ
- Visual Identification, if testing cannot determine, values shown in Table §3285.202

TABLE TO § 3285.202

| Soil classification | | Soil description | Allowable soil bearing pressure (psf)[1] | Blow count ASTM D 1586–99 | Torque probe[3] value[4] (inch-pounds) |
|---|---|---|---|---|---|
| Classification number | ASTM D 2487–00 or D 2488–00 (incorporated by reference, see § 3285.4) | | | | |
| 1 | | Rock or hard pan | 4000 + | | |
| 2 | GW, GP, SW, SP, GM, SM | Sandy gravel and gravel; very firm dense sands; cemented sands; course gravel; cobbles; preloaded silts, clays and const. | 2000 | 40 + | More than 550. |
| 3 | GC, SC, ML, CL | Sand; silty sand; clayey sand; silty gravel; medium dense course sands; sandy gravel; and very stiff silt, sand clays. | 1500 | 24–39 | 351–550. |
| 4A | CL, MH[2] | Loose to medium dense sands; firm to stiff clays and silts; alluvial fills. | 1000 | 19–23 | 276–350. |
| 4B | CH, MH[2] | Loose sands; firm clays; alluvial fills | 1000 | 12–17 | 175–275. |
| 5 | OL, OH, PT | Uncompacted fill; peat; organic clays | Refer to § 3285.202(e). | 0–11 | Less than 175. |

Notes:
[1] The values provided in this table have not been adjusted for overburden pressure, embedment depth, water table height, or settlement problems.
[2] Soils classified as CH or MH, without either torque probe values or blow count test results, selected anchors must be rated for a 4B soil.
[3] The torque test probe is a device for measuring the torque value of soils to assist in evaluating the holding capacity of the soil in which the ground anchor is placed. The shaft must be of suitable length for the full depth of the ground anchor.
[4] The torque value is a measure of the load resistance provided by the soil when subject to the turning or twisting force of the probe.

**Foundation Repairs – Soil capacity, continued**

Soil bearing capacity must be determined

- In lieu of determining soil bearing capacity,
  - presumptive allowable capacity 1,500 psf may be used
  - Unless site-specific information requires use of a lower value





**Foundation Repairs – Soil capacity, continued**

Soil bearing capacity must be determined

- In lieu of determining soil bearing capacity,
  - presumptive allowable capacity 1,500 psf may be used
  - Unless site-specific information requires use of a lower value
- If the soil appears to be composed of peat, organic clays, uncompacted fill or unusual conditions, a licensed design professional shall determine soil classification and maximum allowable bearing capacity.





**Foundation Repairs – Soil capacity, continued**

Soil bearing capacity must be determined

- In lieu of determining soil bearing capacity,
  - presumptive allowable capacity 1,500 psf may be used
  - Unless site-specific information requires use of a lower value

**What is the soil bearing capacity:**

nposed of peat, organic
nusual conditions, a
l shall determine soil
classification and maximum allowable bearing capacity.

**Foundation Repairs – Soil capacity, continued**

Soil bearing capacity must be determined

- In lieu of determining soil bearing capacity,
  - presumptive allowable capacity 1,500 psf may be used
  - Unless site-specific information requires use of a lower value

**What is the soil bearing capacity:**
**Presumptive capacity**
**1500 psf**

nposed of peat, organic
nusual conditions, a
l shall determine soil classification and maximum allowable bearing capacity.





**Foundation Repairs – Pier location**

- Location & Spacing (**§3285.310, 3285.311, 3285.312**)

Location and spacing depend upon the dimension of the home, live and dead loads, type of construction (single or multi), main beam size, and other factors





**Foundation Repairs – Pier location**

- Location & Spacing (**§3285.310, 3285.311, 3285.312**)

Location and spacing depend upon the dimension of the home, live and dead loads, type of construction (single or multi), main beam size, and other factors

Pier spacing will determine pier loads

## Foundation Repairs – Pier location

- Location & Spacing (**§3285.310, 3285.311, 3285.312**)

Location and spacing depend upon the dimension of the home, live and dead loads, type of construction (single or multi), main beam size, and other factors

Pier spacing will determine pier loads

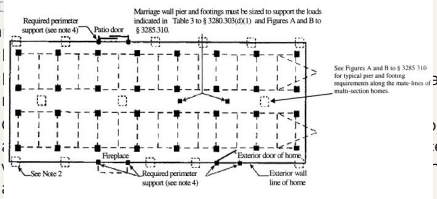
Support locations and spacing must be consistent with Figures contained with standard.





## Foundati

**Figure B to § 3285.312 Typical Blocking Diagram for Multi-section Home.**

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NOTES: 1. Refer to Table 1 to §3285.303 for pier and footing requirements when frame blocking only is used.
2. In addition to blocking required by §3285.311, see Tables 2 and 3 to §3285.303 for any other sidewall openings of 48 inches or greater in width. For roof loads of 40 psf or greater, a professional engineer or registered architect must determine the maximum side wall opening permitted without perimeter





## Foundation Repairs – Pier location

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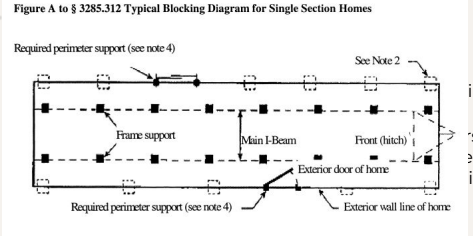
**Figure A to § 3285.312 Typical Blocking Diagram for Single Section Homes**

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electrical, mechanical, equipment, crawlspaces or other devices.

## Foundation Repairs – Pier location

- Location & Spacing (**§3285.310**)
  - Frame support [Figure A: **§3285.312**]
    - No more than 24” from both ends





## Foundation Repairs – Pier location

- Location & Spacing (**§3285.310**)
  - Frame support [Figure A: **§3285.312**]
    - No more than 24” from both ends
    - Not more than 120” center to center under the main rails
      - 10” or greater main beam





## Foundation Repairs – Pier location

- Location & Spacing (**§3285.310**)
  - Frame support [Figure A: **§3285.312**]
    - No more than 24” from both ends
    - Not more than 120” center to center under the main rails
    - On both sides of sidewall exterior doors, patio doors, and sliding glass doors, under porch post, fireplaces, wood stoves, jamb studs at multiple window openings, and any sidewall opening greater that 48”

## Foundation Repairs – Pier location

- Location & Spacing (**§3285.310**)
  - Frame support [Figure A: **§3285.312**]
    - No more than 24" from both ends
    - Not more than 120" center to center under the main rails
    - On both sides of sidewall exterior doors, patio doors, and sliding glass doors, under porch post, fireplaces, wood stoves, jamb studs at multiple window openings, and any sidewall opening greater that 48"
    - Piers may be offset up to 6" to allow for plumbing, electrical, mechanical equipment, crawl spaces or other devices.





## Foundation Repairs – Pier loads

- Pier loads must be determined (§3285.303(d))

Tabular Data

- Table 1 - **§3285.303**: Frame blocking only, w/ perimeter openings
- Table 2 - §3285.303: Frame plus perimeter
- Table 3 - §3285.303: Ridge beam span (mating wall openings)





## Foundation Repairs – Pier load

- Pier loads must be dete

Tabular Data

- Table 1 - **§3285.303**: Fram

**What is the pier load:**
**8 ft. spacing per roof load zone**

TABLE 1 TO § 3285.303—FRAME BLOCKING ONLY/PERIMETER SUPPORT NOT REQUIRED EXCEPT AT OPENINGS

| Pier spacing | Roof live load (psf) | Location | Load (lbs.) |
|---|---|---|---|
| 4 ft. 0 in. ..... | 20 | Frame ..... | 2,900 |
| | 30 | Frame ..... | 3,300 |
| | 40 | Frame ..... | 3,600 |
| 6 ft. 0 in. ..... | 20 | Frame ..... | 4,200 |
| | 30 | Frame ..... | 4,700 |
| | 40 | Frame ..... | 5,200 |
| 8 ft. 0 in. ..... | 20 | Frame ..... | 5,500 |
| | 30 | Frame ..... | 6,200 |
| | 40 | Frame ..... | 6,900 |
| 10 ft. 0 in. ..... | 20 | Frame ..... | 6,800 |
| | 30 | Frame ..... | 7,600 |
| | 40 | Frame ..... | 8,500 |

## Foundation Repairs – Pier l

- Pier loads must be dete

Tabular Data

- Table 1 - §3285.303: Fram

**What is the pier load:**
**8 ft. spacing per roof load zone**
**6200 lbs.**

TABLE 1 TO § 3285.303—FRAME BLOCKING ONLY/PERIMETER SUPPORT NOT REQUIRED EXCEPT AT OPENINGS **Middle, 30 psf**

| Pier spacing | Roof live load (psf) | Location | Load (lbs.) |
|---|---|---|---|
| 4 ft. 0 in. ..... | 20 | Frame ..... | 2,900 |
| | 30 | Frame ..... | 3,300 |
| | 40 | Frame ..... | 3,600 |
| 6 ft. 0 in. ..... | 20 | Frame ..... | 4,200 |
| | 30 | Frame ..... | 4,700 |
| | 40 | Frame ..... | 5,200 |
| 8 ft. 0 in. ..... | 20 | Frame ..... | 5,500 |
| | 30 | Frame ..... | 6,200 |
| | 40 | Frame ..... | 6,900 |
| 10 ft. 0 in. ..... | 20 | Frame ..... | 6,800 |
| | 30 | Frame ..... | 7,600 |
| | 40 | Frame ..... | 8,500 |

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## Foundation Repairs – Footings

- Footing materials & placement (**§3285.312**)
  - Materials (**§3285.312(a)**)
    - Must provide equal load-bearing capacity
    - Resistance to decay
    - Placed on undisturbed soil
      or
      Compacted fill to 90% of maximum relative density

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## Foundation Repairs – Footings

- Footing materials & placement (**§3285.312**)
  - Placement in freezing climates (**§3285.312(b)**)
    - Conventional footings below frost line depth for site

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## Foundation Repairs – Footings

- Footing materials & placement (§3285.312)
  - Placement in freezing climates (§3285.312(b))
    - Conventional footings below frost line depth for site

    or

    **Slab options not available to a Mechanic**

    - Monolithic slab system designed by a licensed design professional in accordance with engineering practice or ASCE 32.01

    or

    - Insulated foundation designed by a licensed design professional in accordance with engineering practice or ASCE 32.01





## Foundation Repairs – Footings

- Footing size must be determined (**§3285.312**)





## Foundation Repairs – Footings

- Footing size must be determined (**§3285.312**)
- Tabular Data
  - Table **§3285.312**: Size and Capacity for Unreinforced Cast-in-place Footings

## Foundation Repairs – Footings

- Footing size must be determined (**§3285.312**)
- Tabular Data
  - Table **§3285.312**: Size and Capacity for Unreinforced Cast-in-place Footings
  - Sizes shown are for square pads





## Foundation Repairs – Footings

- Footing size must be determined (**§3285.312**)
- Tabular Data
  - Table **§3285.312**: Size and Capacity for Unreinforced Cast-in-place Footings
  - Sizes shown are for square pads
  - Other configurations (rectangular or circular) are allowed
    - Area and depth shown in table must be equal to value shown
    - Distance from edge of pier to edge of footing is not less than thickness of footing





## Foundation Repairs – Footings

- Footing size must be determined (§3285.312)

TABLE TO § 3285.312—THE SIZE AND CAPACITY FOR UNREINFORCED CAST-IN-PLACE FOOTINGS

| Soil capacity (psf) | Minimum footing size (in.) | 8 in. × 16 in. pier | | 16 in. × 16 in. pier | |
|---|---|---|---|---|---|
| | | Maximum footing capacity (lbs.) | Unreinforced cast-in-place minimum thickness (in.) | Maximum footing capacity (lbs.) | Unreinforced cast-in-place minimum thickness (in.) |
| 1,000 | 16 × 16 | 1,600 | 6 | 1,600 | 6 |
| | 20 × 20 | 2,600 | 6 | 2,600 | 6 |
| | 24 × 24 | 3,700 | 6 | 3,700 | 6 |
| | 30 × 30 | 5,600 | 8 | 5,800 | 6 |
| | 36 × 36 | 7,900 | 10 | 8,100 | 8 |
| | 42 × 42 | [4]10,700 | 10 | 10,700 | 10 |
| | 48 × 48 | [4]13,100 | 12 | 13,600 | 10 |
| 1,500 | 16 × 16 | 2,500 | 6 | 2,500 | 6 |
| | 20 × 20 | 4,000 | 6 | 4,000 | 6 |
| | 24 × 24 | 5,600 | 8 | 5,700 | 6 |
| | 30 × 30 | [4]8,500 | 10 | 8,900 | 8 |
| | 36 × 36 | [4]12,400 | 10 | 12,600 | 8 |
| | 42 × 42 | [4]16,500 | 12 | [4]16,800 | 10 |
| | 48 × 48 | [4]21,200 | 14 | [4]21,600 | 12 |
| 2,000 | 16 × 16 | 3,400 | 6 | 3,400 | 6 |

## Foundation Repairs – Footings

- Footing size must be determine

**Remember:**
**Soil bearing:**
**Pier load:**

TABLE TO § 3285.312—THE SIZE AND CAPACITY FOR UNREI

| Soil capacity (psf) | Minimum footing size (in.) | 8 in. × 16 in. pier | | 16 in. × 16 in. pier | |
|---|---|---|---|---|---|
| | | Maximum footing capacity (lbs.) | Unreinforced cast-in-place minimum thickness (in.) | Maximum footing capacity (lbs.) | Unreinforced cast-in-place minimum thickness (in.) |
| 1,000 | 16 × 16 | 1,600 | 6 | 1,600 | 6 |
| | 20 × 20 | 2,600 | 6 | 2,600 | 6 |
| | 24 × 24 | 3,700 | 6 | 3,700 | 6 |
| | 30 × 30 | 5,600 | 8 | 5,800 | 6 |
| | 36 × 36 | 7,900 | 10 | 8,100 | 8 |
| | 42 × 42 | [4]10,700 | 10 | 10,700 | 10 |
| | 48 × 48 | [4]13,100 | 12 | 13,600 | 10 |
| 1,500 | 16 × 16 | 2,500 | 6 | 2,500 | 6 |
| | 20 × 20 | 4,000 | 6 | 4,000 | 6 |
| | 24 × 24 | 5,600 | 8 | 5,700 | 6 |
| | 30 × 30 | [4]8,500 | 10 | 8,900 | 8 |
| | 36 × 36 | [4]12,400 | 10 | 12,600 | 8 |
| | 42 × 42 | [4]16,500 | 12 | [4]16,800 | 10 |
| | 48 × 48 | [4]21,200 | 14 | [4]21,600 | 12 |
| 2,000 | 16 × 16 | 3,400 | 6 | 3,400 | 6 |

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## Foundation Repairs – Footings

- Footing size must be determine

**Remember:**
**Soil bearing:** 1500 psf.
**Pier load:**

TABLE TO § 3285.312—THE SIZE AND CAPACITY FOR UNREI

| Soil capacity (psf) | Minimum footing size (in.) | 8 in. × 16 in. pier | | 16 in. × 16 in. pier | |
|---|---|---|---|---|---|
| | | Maximum footing capacity (lbs.) | Unreinforced cast-in-place minimum thickness (in.) | Maximum footing capacity (lbs.) | Unreinforced cast-in-place minimum thickness (in.) |
| 1,000 | 16 × 16 | 1,600 | 6 | 1,600 | 6 |
| | 20 × 20 | 2,600 | 6 | 2,600 | 6 |
| | 24 × 24 | 3,700 | 6 | 3,700 | 6 |
| | 30 × 30 | 5,600 | 8 | 5,800 | 6 |
| | 36 × 36 | 7,900 | 10 | 8,100 | 8 |
| | 42 × 42 | [4]10,700 | 10 | 10,700 | 10 |
| | 48 × 48 | [4]13,100 | 12 | 13,600 | 10 |
| 1,500 | 16 × 16 | 2,500 | 6 | 2,500 | 6 |
| | 20 × 20 | 4,000 | 6 | 4,000 | 6 |
| | 24 × 24 | 5,600 | 8 | 5,700 | 6 |
| | 30 × 30 | [4]8,500 | 10 | 8,900 | 8 |
| | 36 × 36 | [4]12,400 | 10 | 12,600 | 8 |
| | 42 × 42 | [4]16,500 | 12 | [4]16,800 | 10 |
| | 48 × 48 | [4]21,200 | 14 | [4]21,600 | 12 |
| 2,000 | 16 × 16 | 3,400 | 6 | 3,400 | 6 |

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## Foundation Repairs – Footings

- Footing size must be determine

**Remember:**
**Soil bearing:** 1500 psf.
**Pier load:** 6200 lbs.

TABLE TO § 3285.312—THE SIZE AND CAPACITY FOR UNREI

| Soil capacity (psf) | Minimum footing size (in.) | 8 in. × 16 in. pier | | 16 in. × 16 in. pier | |
|---|---|---|---|---|---|
| | | Maximum footing capacity (lbs.) | Unreinforced cast-in-place minimum thickness (in.) | Maximum footing capacity (lbs.) | Unreinforced cast-in-place minimum thickness (in.) |
| 1,000 | 16 × 16 | 1,600 | 6 | 1,600 | 6 |
| | 20 × 20 | 2,600 | 6 | 2,600 | 6 |
| | 24 × 24 | 3,700 | 6 | 3,700 | 6 |
| | 30 × 30 | 5,600 | 8 | 5,800 | 6 |
| | 36 × 36 | 7,900 | 10 | 8,100 | 8 |
| | 42 × 42 | [4]10,700 | 10 | 10,700 | 10 |
| | 48 × 48 | [4]13,100 | 12 | 13,600 | 10 |
| 1,500 | 16 × 16 | 2,500 | 6 | 2,500 | 6 |
| | 20 × 20 | 4,000 | 6 | 4,000 | 6 |
| | 24 × 24 | 5,600 | 8 | 5,700 | 6 |
| | 30 × 30 | [4]8,500 | 10 | 8,900 | 8 |
| | 36 × 36 | [4]12,400 | 10 | 12,600 | 8 |
| | 42 × 42 | [4]16,500 | 12 | [4]16,800 | 10 |
| | 48 × 48 | [4]21,200 | 14 | [4]21,600 | 12 |
| 2,000 | 16 × 16 | 3,400 | 6 | 3,400 | 6 |

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## Foundation Repairs – Footings

- Footing size must be determine

**Remember:**
**Soil bearing: 1500 psf.**
**Pier load: 6200 lbs.**

TABLE TO § 3285.312—THE SIZE AND CAPACITY FOR UNREI

| Soil capacity (psf) | Minimum footing size (in.) | 8 in. × 16 in. pier | | 16 in. × 16 in. pier | |
|---|---|---|---|---|---|
| | | Maximum footing capacity (lbs.) | Unreinforced cast-in-place minimum thickness (in.) | Maximum footing capacity (lbs.) | Unreinforced cast-in-place minimum thickness (in.) |
| 1,000 | 16 × 16 | 1,600 | 6 | 1,600 | 6 |
| | 20 × 20 | 2,600 | 6 | 2,600 | 6 |
| | 24 × 24 | 3,700 | 6 | 3,700 | 6 |
| | 30 × 30 | 5,600 | 8 | 5,800 | 6 |
| | 36 × 36 | 7,900 | 10 | 8,100 | 8 |
| | 42 × 42 | [4]10,700 | 10 | 10,700 | 10 |
| | 48 × 48 | [4]13,100 | 12 | 13,600 | 10 |
| 1,500 | 16 × 16 | 2,500 | 6 | 2,500 | 6 |
| | 20 × 20 | 4,000 | 6 | 4,000 | 6 |
| | 24 × 24 | 5,600 | 8 | 5,700 | 6 |
| | 30 × 30 | [4]8,500 | 10 | 8,900 | 8 |
| | 36 × 36 | [4]12,400 | 10 | 12,600 | 8 |
| | 42 × 42 | [4]16,500 | 12 | [4]16,800 | 10 |
| | 48 × 48 | [4]21,200 | 14 | [4]21,600 | 12 |
| 2,000 | 16 × 16 | 3,400 | 6 | 3,400 | 6 |



## Foundation Repairs – Footings

- Footing size must be determine

**Remember:**
**Soil bearing: 1500 psf.**
**Pier load: 6200 lbs.**

TABLE TO § 3285.312—THE SIZE AND CAPACITY FOR UNREI

4. Concrete block piers must not exceed their design capacity of 8,000 lbs. for 8″ × 16″ single stack block and 16,000 lbs. for 16″ × 16″ double stack block.

| Soil capacity (psf) | Minimum footing size (in.) | 8 in. × 16 in. pier | | 16 in. × 16 in. pier | |
|---|---|---|---|---|---|
| | | Maximum footing capacity (lbs.) | Unreinforced cast-in-place minimum thickness (in.) | Maximum footing capacity (lbs.) | Unreinforced cast-in-place minimum thickness (in.) |
| 1,000 | 16 × 16 | 1,600 | 6 | 1,600 | 6 |
| | 20 × 20 | 2,600 | 6 | 2,600 | 6 |
| | 24 × 24 | 3,700 | 6 | 3,700 | 6 |
| | 30 × 30 | 5,600 | 8 | 5,800 | 6 |
| | 36 × 36 | 7,900 | 10 | 8,100 | 8 |
| | 42 × 42 | [4]10,700 | 10 | 10,700 | 10 |
| | 48 × 48 | [4]13,100 | 12 | 13,600 | 10 |
| 1,500 | 16 × 16 | 2,500 | 6 | 2,500 | 6 |
| | 20 × 20 | 4,000 | 6 | 4,000 | 6 |
| | 24 × 24 | 5,600 | 8 | 5,700 | 6 |
| | 30 × 30 | [4]8,500 | 10 | 8,900 | 8 |
| | 36 × 36 | [4]12,400 | 10 | 12,600 | 8 |
| | 42 × 42 | [4]16,500 | 12 | [4]16,800 | 10 |
| | 48 × 48 | [4]21,200 | 14 | [4]21,600 | 12 |
| 2,000 | 16 × 16 | 3,400 | 6 | 3,400 | 6 |



MHC Consultants LLC

## Foundation Repairs - Piers

- Allowable piers (**§3285.303(b)**)

Must be capable of transmitting vertical live and dead loads to footings

- Concrete blocks

## Foundation Repairs - Piers

- Allowable piers (**§3285.303(b)**)

Must be capable of transmitting vertical live and dead loads to footings

- Concrete blocks
- PT wood (*Category 4B, ground contact*)





## Foundation Repairs - Piers

- Allowable piers (**§3285.303(b)**)

Must be capable of transmitting vertical live and dead loads to footings

- Concrete blocks
- PT wood (Category 4B, ground contact)
- Adjustable manufactured piers
  - *Labeled w/ max load capacities*





## Foundation Repairs – Pier configuration

- Concrete block (**§3285.304(a)**)
  - Load-bearing (not decorative) concrete block 8x8x16
  - Stacked with hollow cells aligned vertically
  - When double stacked each layer at 90° to the preceding layer

## Foundation Repairs – Pier configuration

- Caps (**§3285.304(b)**)
  - Solid concrete minimum 4” nominal





## Foundation Repairs – Pier configuration

- Caps (**§3285.304(b)**)
  - Solid concrete minimum 4” nominal
  - Hardwood lumber minimum 2” nominal





## Foundation Repairs – Pier configuration

- Caps (**§3285.304(b)**)
  - Solid concrete minimum 4” nominal
  - Hardwood lumber minimum 2” nominal
  - ½” thick corrosion protected steel

## Foundation Repairs – Pier configuration

- Caps (**§3285.304(b)**)
  - Solid concrete minimum 4” nominal
  - Hardwood lumber minimum 2” nominal
  - ½” thick corrosion protected steel
  - Same length and width as pier





## Foundation Repairs – Pier configuration

- Gaps (**§3285.304(c)**)

Between bottom of frame and top of pier shall be filled by:

- Shims
  - 4x6x1
  - Used in pairs, driven tightly, occupy no more than 1”





## Foundation Repairs – Pier configuration

- Gaps (**§3285.304(c)**)

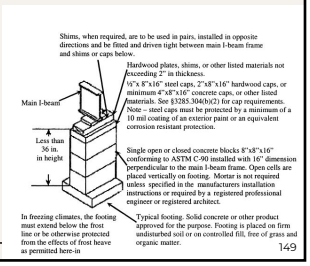
Between bottom of frame and top of pier shall be filled by:

If the space to be filled is greater than 1”, shims with

- Spacer
  - Hardwood plate no thicker than 2” nominal
  - Concrete block 2” or 4”

## Foundation Repairs – Pier configuration

- Design procedures… (**§3285.306**)
  - Single Stack to 36” high
    - Horizontal offset not to exceed ½”

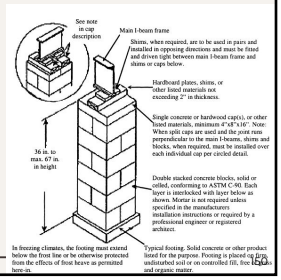







## Foundation Repairs – Pier configuration

- Design procedures… (**§3285.306**)
  - Double stack to 67” high & corner piers over 3 block high
    - Horizontal offset not to exceed 1”








## Foundation Repairs – Pier configuration

- Design procedures… (**§3285.306**)
  - Over 67” high
    - Designed by licensed design professional

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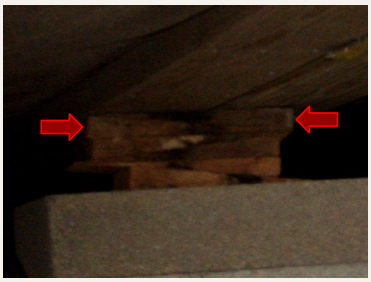
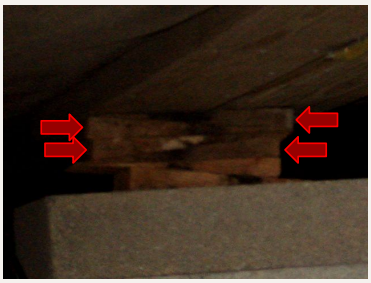


152

MHC Consultants LLC



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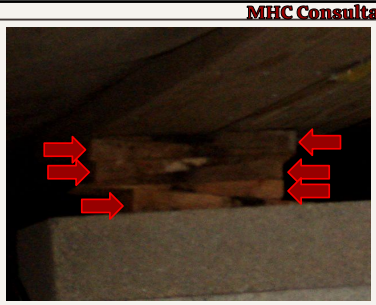
MHC Consultants LLC



154











**Foundation Repairs**

Install new or replacement anchors or tie-downs

- The manufactured home must be secured against the wind by use of ground anchor installations or by connection to an alternative

## Foundation Repairs

Install new or replacement anchors or tie-downs

- The manufactured home must be secured against the wind by use of ground anchor installations or by connection to an alternative
- All anchoring systems must be capable of meeting the loads required by 24 CFR 3280, Subpart D
  - **§3280.306(f)** Anchoring equipment shall be capable of resisting a working load equal to 3150 lbs. and a 50% overload (4725 lbs. total) without failure of equipment or attachment point





## Foundation Repairs – Ground anchors

- Specifications for tie-down straps and ground anchors (**§3285.402(c)**)
  - Must be installed in accordance with their listing or certification
  - Must be installed to their full depth
  - Appropriate for the soil type
  - Straps shall be 1 ¼”x0.035” or larger steel strapping conforming to ASTM D3953-97





## Foundation Repairs – Ground anchors

- Number and location of ground anchors (**§3285.402(d)**)
  - No more than 24” from end of frame
  - Spacing shall be no greater than that shown in tables and figures of this section

Or

## Foundation Repairs – Ground anchors

- Number and location of ground anchors (**§3285.402(d)**)
  - No more than 24" from end of frame
  - Spacing shall be no greater than that shown in tables and figures of this section

  Or

  Designed by licensed design professional





## Foundation Repairs – Ground anchors

- Number and location of ground anchors (**§3285.402(d)**)
  - No more than 24" from end of frame
  - Spacing shall be no greater than that shown in tables and figures of this section

  Or

  Designed by licensed design professional

  - Longitudinal anchors required in all wind zones.





## Foundation Repairs – Ground anchors

- Number and location of ground anchors (**§3285.402(d)**)

TABLE 1 TO § 3285.402—MAXIMUM DIAGONAL TIE-DOWN STRAP SPACING, WIND ZONE I

| Nominal floor width, single section/multi-section | Max. heightfrom ground to diagonal strap attachment | I-beam spacing 82.5 in. | I-beamspacing 99.5 in. |
|---|---|---|---|
| 12/24 ft. 144 in. nominal section(s) | 25 in<br>33 in<br>46 in<br>67 in | 14 ft. 2 in<br>11 ft. 9in<br>9 ft. 1in<br>N/A | N/A.<br>N/A.<br>N/A.<br>N/A. |
| 14/28 ft. 168 in. nominal section(s) | 25 in<br>33 in<br>46 in<br>67 in | 18 ft. 2in<br>16 ft. 1 in<br>13 ft. 3 in<br>10 ft. 0 in | 15 ft. 11 in.<br>13 ft. 6 in.<br>10 ft. 8in.<br>N/A. |
| 16/32 ft. 180 in. to 192 in. nominal section(s) | 25 in<br>33 in | N/A<br>19 ft. 0 in | 19 ft. 5in.<br>17 ft. 5 in. |

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## Foundation Repairs – Ground anchors

- Number and location of groun
(**§3285.402(d)**)

**What is spacing?**
**28' multi-sectional**
**33" max height**
**99.5" I-Beam spacing**

TABLE 1 TO § 3285.402—MAXIMUM DIAGONAL TIE-DOWN STRAP SPACING, WIND ZONE I

| Nominal floor width, single section/multi-section | Max. heightfrom ground to diagonal strap attachment | I-beam spacing 82.5 in. | I-beamspacing 99.5 in. |
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| | 33 in | 11 ft. 9in | N/A. |
| | 46 in | 9 ft. 1in | N/A. |
| | 67 in | N/A | N/A. |
| 14/28 ft. 168 in. nominal section(s) | 25 in | 18 ft. 2in | 15 ft. 11 in. |
| | 33 in | 16 ft. 1 in | 13 ft. 6 in. |
| | 46 in | 13 ft. 3 in | 10 ft. 8in. |
| | 67 in | 10 ft. 0 in | N/A. |
| 16/32 ft. 180 in. to 192 in. nominal section(s) | 25 in | N/A | 19 ft. 5in. |

164

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Foundation Repairs – Ground anchors

- Number and location of groun
(§3285.402(d))

What is spacing?
28' multi-sectional
33" max height
99.5" I-Beam spacing

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| | 46 in | 13 ft. 3 in | 10 ft. 8in. |
| | 67 in | 10 ft. 0 in | N/A. |
| 16/32 ft. 180 in. to 192 in. nominal section(s) | 25 in | N/A | 19 ft. 5in. |

165

MHC Consultants LLC

Foundation Repairs – Ground anchors

- Number and location of groun
(§3285.402(d))

What is spacing?
28' multi-sectional
33" max height
99.5" I-Beam spacing
13 ft. 6 in.

TABLE 1 TO § 3285.402—MAXIMUM DIAGONAL TIE-DOWN STRAP SPACING, WIND ZONE I

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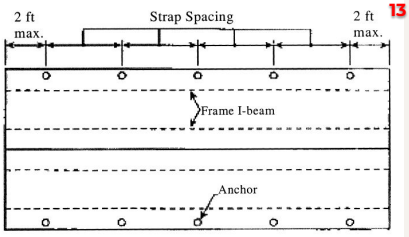
| | 33 in | 16 ft. 1 in | 13 ft. 6 in. |
| | 46 in | 13 ft. 3 in | 10 ft. 8in. |
| | 67 in | 10 ft. 0 in | N/A. |
| 16/32 ft. 180 in. to 192 in. nominal section(s) | 25 in | N/A | 19 ft. 5in. |

166

Foundat

Figure A to § 3285.402 Ground Anchor Locations and Spacing – Plan View.




13 ft. 6 in.

NOTES: 1. Refer to Tables 1, 2, and 3 to this section for maximum ground anchor spacing. 2. Longitudinal anchors not shown for clarity; refer to 3285.402(b)(2) for longitudinal anchoring requirements.





## Types of Anchors

Wet Concrete "L Hook" Anchor for use in wet concrete. Swivel head.

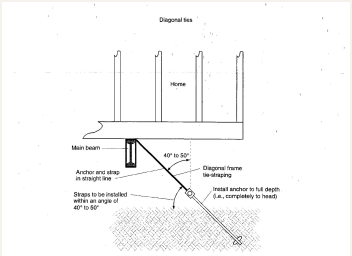
Wet Concrete "J Hook" Anchor for use in wet concrete. Swivel head.

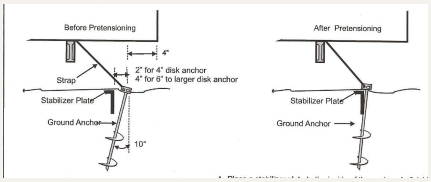
Twin Disk Anchor
*For clay and other hard soils, ¾" rod, 30" length, double 4' helix.

Rock Anchor Complete *For use in hard/rocky soil.





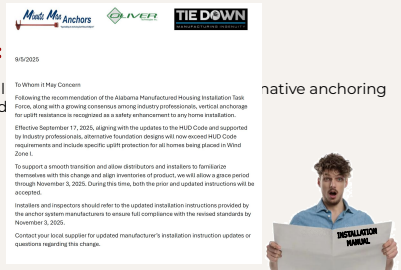







## Important Update:

There are new instal ...native anchoring systems that started



Mobile Mini Anchors

9/5/2025

To Whom it May Concern

Following the recommendation of the Alabama Manufactured Housing Installation Task Force, along with a growing consensus among industry professionals, vertical anchorage for uplift resistance is recognized as a safety enhancement to any home installation.

Effective September 17, 2025, aligning with the updates to the HUD Code and supported by industry professionals, alternative foundation designs will now exceed HUD Code requirements and include specific uplift protection for all homes being placed in Wind Zone I.

To support a smooth transition and allow distributors and installers to familiarize themselves with this change and align inventories of product, we will allow a grace period through November 3, 2025. During this time, both the prior and updated instructions will be accepted.

Installers and inspectors should refer to the updated installation instructions provided by the anchor system manufacturers to ensure full compliance with the revised standards by November 3, 2025.

Contact your local supplier for updated manufacturer's installation instruction updates or questions regarding this change.




## Foundation Repairs – Minimum height

Clearance under the home (**§3285.305**)

- Minimum clearance of 12" must be maintained between the lowest member of the main frame and the grade under all areas of the home.

## Ventilation and Condensation Control

- Crawl space ventilation (**§3285.402(d)**)

A crawl space with skirting must be provided with ventilation

- Minimum net area of ventilation
  - Not less than 1 sq.ft. for every 150 sq.ft. of conditioned floor area





## Ventilation and Condensation Control

- Crawl space ventilation (**§3285.402(d)**)
  - Ventilation openings placed as high as possible above ground
  - Be located on at least opposite sides to provide cross-ventilation
  - Prevent entry of rodents
  - Access opening not less than 18" in width and 24" in height must be provided and located so that any utility connection located under the home is accessible
  - Dryer vents and combustion air inlets pass through skirting
  - Water run-off from furnace, A/C or water heater must direct away from home





## Ventilation and Condensation Control

Calculations: Center Vent Vinyl Skirting

- 28x48 Home = 1344 sqft
- No Vapor Barrier
- 1 sq ft of vent per 150 sq ft floor space

## Ventilation and Condensation Control

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- 28x48 Home = 1344 sqft
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- 1 sq ft of vent per 150 sq ft floor space
- *Need 9 sq ft of free vent* (1296 sq inches)





## Ventilation and Condensation Control

Calculations: Center Vent Vinyl Skirting

- 28x48 Home = 1344 sqft
- No Vapor Barrier
- 1 sq ft of vent per 150 sq ft floor space
- *Need 9 sq ft of free vent* (1296 sq inches)
- Use 32” panel (13 sq inches)





## Ventilation and Condensation Control

Calculations: Center Vent Vinyl Skirting

- 28x48 Home = 1344 sq ft
- No Vapor Barrier
- 1 sq ft of vent per 150 sq ft floor space
- *Need 9 sq ft of free vent* (1296 sq inches)
- Use 32” panel (13 sq inches)
- 1296 / 13 = **100** panels

*114 panels to skirt whole house*

## Ventilation and Condensation Control

- Ground moisture control (**§3285.204**)

If the space under the home is enclosed with skirting or other materials, a vapor retarder must be installed to cover the ground under the home.





## Ventilation and Condensation Control

- Ground moisture control (**§3285.204**)

If the space under the home is enclosed with skirting or other materials, a vapor retarder must be installed to cover the ground under the home.

- 6 mil poly sheeting or equivalent under entire home
- Except under porches, decks, and recessed entries
- Placed under footings (slabs) or over footings placed at grade
- Any voids/tears must be repaired





## Ventilation and Condensation Control

- Crawl space ventilation (**§3285.402(d)**)
- Area of ventilation may be reduced with installation of vapor retarder conforming to **3285.204**, beneath entire conditioned floor area
  - Not less that 1 sq.ft. for every 1,500 sq.ft. of conditioned floor area

## Ventilation and Condensation Control

Calculations: Center Vent Vinyl Skirting

- 28x48 Home = 1344 sq ft
- Vapor Barrier Installed
- *1 sq ft of vent per 1500 sq ft of floor space*





## Ventilation and Condensation Control

Calculations: Center Vent Vinyl Skirting

- 28x48 Home = 1344 sq ft
- Vapor Barrier Installed
- 1 sq ft vent per 1500 sq ft floor space
- *Need 1 sq ft of free vent (144 sq inches)*





## Ventilation and Condensation Control

Calculations: Center Vent Vinyl Skirting

- 28x48 Home = 1344 sq ft
- Vapor Barrier Installed
- 1 sq ft of vent per 1500 sq ft floor space
- *Need 1 sq ft of free vent (144 sq inches)*
- Use 32” panel (13 sq inches)

## Ventilation and Condensation Control

Calculations: Center Vent Vinyl Skirting

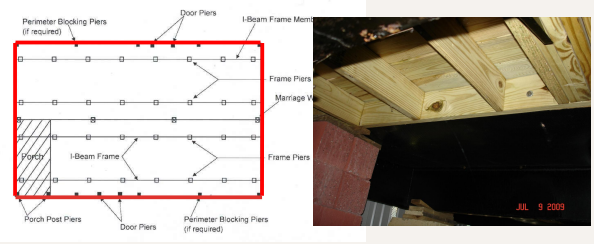
- 28x48 Home = 1344 sq ft
- Vapor Barrier Installed
- 1 sq ft of vent per 1500 sq ft floor space
- *Need 1 sq ft of free vent (144 sq inches)*
- Use 32" panel (13 sq inches)
- 144 / 13 = **12** panels

*114 panels to skirt whole house*





## Skirting Installation



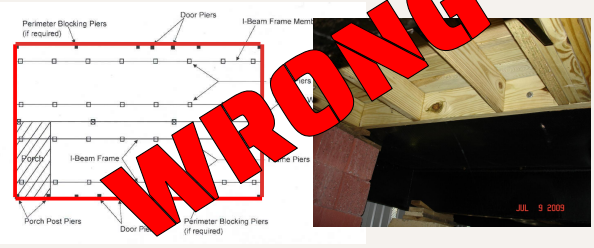








## Skirting Installation







WRONG

## Skirting Installation

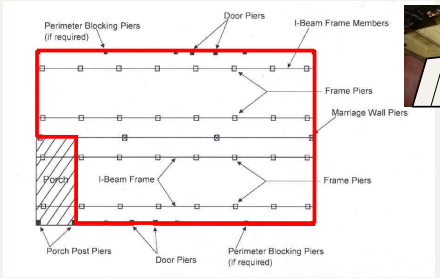
- Follow perimeter of the homes conditioned space.

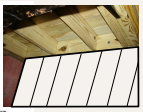
Decks & Porches when part of home

Vented Panels installed to allow water to drain



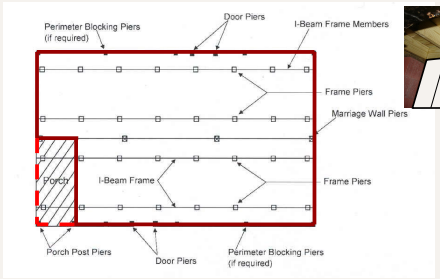








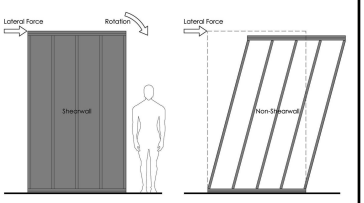



## Shear Wall

- A shear wall is a structural system composed of braced panels to counter the effects of lateral loading on a structure

Wind and seismic effects are the most common loads

– Limitations on creating openings and other modific-ations




2 SHEARWALL DIAGRAM

3 NON-SHEARWALL DIAGRAM





## Shear Wall Identification

- Recognize shear wall locations by construction
- Look for transverse joist attachments to the frame (at each gable end and in the middle somewhere)
- They have a specific length and square footage requirement
- Not necessarily symmetrical side to side
- Any interior partition that is unique to other interior partitions are usually shear walls
- Get the factory construction drawings
- Manufacturer's assistance on opening limitations/modifications





## Shear Wall Identification

- Recognize shear wall locations by construction
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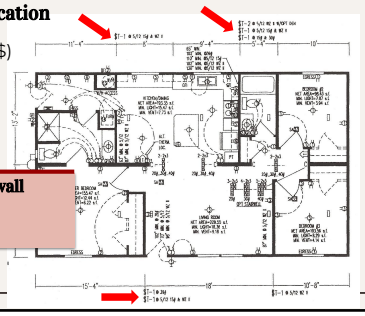
## Shear Wall Identification

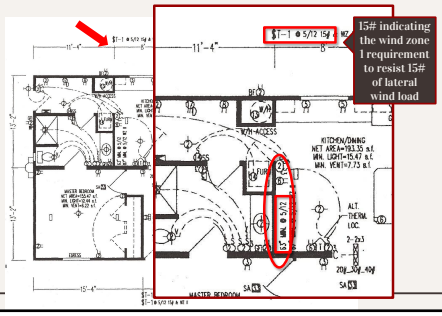
Identified by the ($)



**Where are the shear wall locations?**
**5/12 Roof pitch**

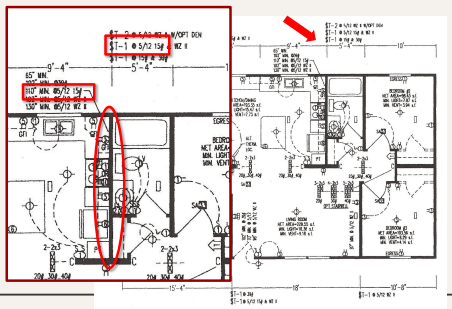


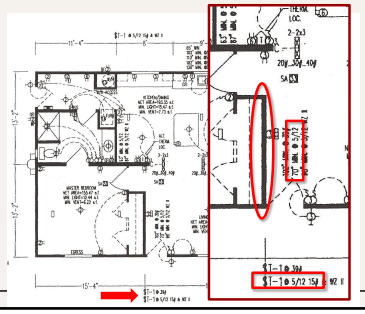














## NYS UFPBC

- Items such as roof rafter, floor joists, and window or door header sizing shall comply with **2025 RCNYS**

Utilizing such chapters as:
**Chapter 3:** Building Planning
**Chapter 5:** Floors
**Chapter 6:** Wall Construction
**Chapter 8:** Roof-Ceiling Construction

And/or any other chapter necessary

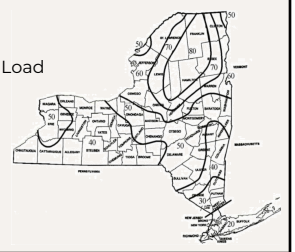




## NYS UFPBC

- Header sizing

Utilize Figure **R301.2(6)**
  - To determine Ground Snow Load



## NYS UFPBC

- Header sizing

Utilize Figure **R301.2(6)**

- To determine Ground Snow Load

**Ground Snow Load:**





## NYS UFPBC

- Header sizing

Utilize Figure **R301.2(6)**

- To determine Ground Snow Load

**Ground Snow Load:**
**50 psf**



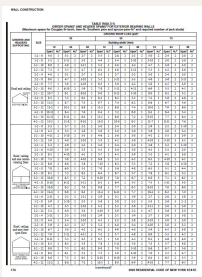


## NYS UFPBC

- Header sizing

Tabular Data

- Table **R602.7(1)** Girder & Header Spans for Exterior Bearing Walls



## NYS UFPBC

- Header sizing

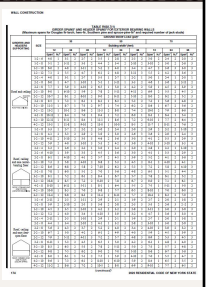
Tabular Data

– Table **R602.7(1)** Girder & Header Spans for Exterior Bearing Walls

Other Tables include:

– **Table R602.7(2)** Girder & Header Spans for Interior Bearing Walls

– **Table 602.7(3)** Girder & Header Spans for Open Porches

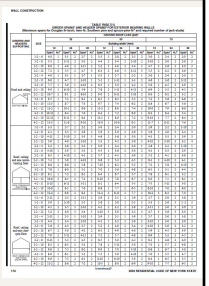






## NYS UFPBC

- Header sizing
  - Conversion of a Single door to double/sliding door 5' wide



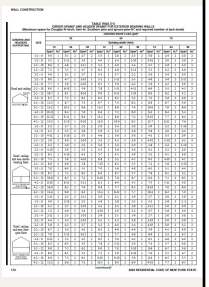




## NYS UFPBC

- Header sizing
  - Conversion of a Single door to double/sliding door 5' wide

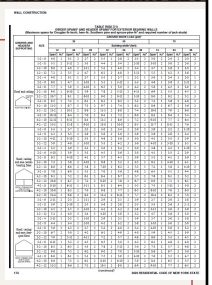
**Alteration Level 1 or Level 2?**



## NYS UFPBC

- Header sizing
  - Conversion of a Single door to double/sliding door 5' wide

**Alteration Level 1 or Level 2?**
**Alteration – Level 2**







## NYS UFPBC

**Remember our sample house**
**28' multi-sectional**
**50 psf ground snow load**

double

TABLE R602.7(1)
D HEADER SPANS[a] FOR EXTERIOR BEARING WALLS
m-fir, Southern pine and spruce-pine-fir[b] and required number of jack studs)

| SUPPORTING | | GROUND SNOW LOAD (psf)[c] | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 50 | | | | | | | | | | 70 | | | | | |
| | | Building width[e] (feet) | | | | | | | | | | | | | | | |
| | | 12 | | 24 | | 36 | | 12 | | 24 | | 36 | | 12 | | 24 | | 36 | |
| | | Span[f] | NJ[g] | Span[f] | NJ[g] | Span[f] | NJ[g] | Span[f] | NJ[g] | Span[f] | NJ[g] | Span[f] | NJ[g] | Span[f] | NJ[g] | Span[f] | NJ[g] | Span[f] | NJ[g] |
| Roof and ceiling | 1-2 × 6 | 4-0 | 1 | 3-1 | 2 | 2-7 | 2 | 3-5 | 1 | 2-8 | 2 | 2-3 | 2 | 3-0 | 2 | 2-4 | 2 | 2-0 | 2 |
| | 1-2 × 8 | 5-1 | 2 | 3-11 | 2 | 3-3 | 2 | 4-4 | 2 | 3-4 | 2 | 2-10 | 2 | 3-10 | 2 | 3-0 | 2 | 2-6 | 3 |
| | 1-2 × 10 | 6-0 | 2 | 4-8 | 2 | 3-11 | 2 | 5-2 | 2 | 4-0 | 2 | 3-4 | 3 | 4-7 | 2 | 3-6 | 3 | 3-0 | 3 |
| | 1-2 × 12 | 7-1 | 2 | 5-5 | 2 | 4-7 | 3 | 6-1 | 2 | 4-8 | 3 | 3-11 | 3 | 5-5 | 2 | 4-2 | 3 | 3-6 | 3 |
| | 2-2 × 4 | 4-0 | 1 | 3-1 | 1 | 2-7 | 1 | 3-5 | 1 | 2-7 | 1 | 2-2 | 1 | 3-0 | 1 | 2-4 | 1 | 2-0 | 1 |
| | 2-2 × 6 | 6-0 | 1 | 4-7 | 1 | 3-10 | 1 | 5-1 | 1 | 3-11 | 1 | 3-3 | 2 | 4-6 | 1 | 3-6 | 2 | 2-11 | 2 |
| | 2-2 × 8 | 7-7 | 1 | 5-9 | 1 | 4-10 | 2 | 6-5 | 1 | 5-0 | 2 | 4-2 | 2 | 5-9 | 1 | 4-5 | 2 | 3-9 | 2 |
| | 2-2 × 10 | 9-0 | 1 | 6-10 | 2 | 5-9 | 2 | 7-8 | 2 | 5-11 | 2 | 4-11 | 2 | 6-9 | 2 | 5-3 | 2 | 4-5 | 2 |
| | 2-2 × 12 | 10-7 | 2 | 8-1 | 2 | 6-10 | 2 | 9-0 | 2 | 6-11 | 2 | 5-10 | 2 | 8-0 | 2 | 6-2 | 2 | 5-2 | 3 |
| | 3-2 × 8 | 9-5 | 1 | 7-3 | 1 | 6-1 | 1 | 8-1 | 1 | 6-3 | 1 | 5-3 | 2 | 7-2 | 1 | 5-6 | 2 | 4-8 | 2 |
| | 3-2 × 10 | 11-3 | 1 | 8-7 | 1 | 7-3 | 2 | 9-7 | 1 | 7-4 | 2 | 6-2 | 2 | 8-6 | 1 | 6-7 | 2 | 5-6 | 2 |
| | 3-2 × 12 | 13-2 | 1 | 10-1 | 2 | 8-6 | 2 | 11-3 | 2 | 8-8 | 2 | 7-4 | 2 | 10-0 | 2 | 7-9 | 2 | 6-6 | 2 |
| | 4-2 × 8 | 10-11 | 1 | 8-4 | 1 | 7-0 | 1 | 9-4 | 1 | 7-2 | 1 | 6-0 | 1 | 8-3 | 1 | 6-4 | 1 | 5-4 | 2 |
| | 4-2 × 10 | 12-11 | 1 | 9-11 | 1 | 8-4 | 1 | 11-1 | 1 | 8-6 | 1 | 7-2 | 2 | 9-10 | 1 | 7-7 | 2 | 6-4 | 2 |
| | 4-2 × 12 | 15-3 | 1 | 11-8 | 1 | 9-10 | 2 | 13-0 | 1 | 10-0 | 2 | 8-5 | 2 | 11-7 | 1 | 8-11 | 2 | 7-6 | 3 |
| | 1-2 × 6 | 3-3 | 1 | 2-7 | 2 | 2-3 | 2 | 3-0 | 2 | 2-4 | 2 | 2-0 | 2 | 2-9 | 2 | 2-3 | 2 | 1-10 | 2 |





## NYS UFPBC

**Remember our sample house**
**28' multi-sectional**
**50 psf ground snow load**

double

TABLE R602.7(1)
D HEADER SPANS[a] FOR EXTERIOR BEARING WALLS
m-fir, Southern pine and spruce-pine-fir[b] and required number of jack studs)

| SUPPORTING | | GROUND SNOW LOAD (psf)[c] | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 50 | | | | | | | | | | 70 | | | | | |
| | | Building width[e] (feet) | | | | | | | | | | | | | | | |
| | | 12 | | 24 | | 36 | | 12 | | 24 | | 36 | | 12 | | 24 | | 36 | |
| | | Span[f] | NJ[g] | Span[f] | NJ[g] | Span[f] | NJ[g] | Span[f] | NJ[g] | Span[f] | NJ[g] | Span[f] | NJ[g] | Span[f] | NJ[g] | Span[f] | NJ[g] | Span[f] | NJ[g] |
| Roof and ceiling | 1-2 × 6 | 4-0 | 1 | 3-1 | 2 | 2-7 | 2 | 3-5 | 1 | 2-8 | 2 | 2-3 | 2 | 3-0 | 2 | 2-4 | 2 | 2-0 | 2 |
| | 1-2 × 8 | 5-1 | 2 | 3-11 | 2 | 3-3 | 2 | 4-4 | 2 | 3-4 | 2 | 2-10 | 2 | 3-10 | 2 | 3-0 | 2 | 2-6 | 3 |
| | 1-2 × 10 | 6-0 | 2 | 4-8 | 2 | 3-11 | 2 | 5-2 | 2 | 4-0 | 2 | 3-4 | 3 | 4-7 | 2 | 3-6 | 3 | 3-0 | 3 |
| | 1-2 × 12 | 7-1 | 2 | 5-5 | 2 | 4-7 | 3 | 6-1 | 2 | 4-8 | 3 | 3-11 | 3 | 5-5 | 2 | 4-2 | 3 | 3-6 | 3 |
| | 2-2 × 4 | 4-0 | 1 | 3-1 | 1 | 2-7 | 1 | 3-5 | 1 | 2-7 | 1 | 2-2 | 1 | 3-0 | 1 | 2-4 | 1 | 2-0 | 1 |
| | 2-2 × 6 | 6-0 | 1 | 4-7 | 1 | 3-10 | 1 | 5-1 | 1 | 3-11 | 1 | 3-3 | 2 | 4-6 | 1 | 3-6 | 2 | 2-11 | 2 |
| | 2-2 × 8 | 7-7 | 1 | 5-9 | 1 | 4-10 | 2 | 6-5 | 1 | 5-0 | 2 | 4-2 | 2 | 5-9 | 1 | 4-5 | 2 | 3-9 | 2 |
| | 2-2 × 10 | 9-0 | 1 | 6-10 | 2 | 5-9 | 2 | 7-8 | 2 | 5-11 | 2 | 4-11 | 2 | 6-9 | 2 | 5-3 | 2 | 4-5 | 2 |
| | 2-2 × 12 | 10-7 | 2 | 8-1 | 2 | 6-10 | 2 | 9-0 | 2 | 6-11 | 2 | 5-10 | 2 | 8-0 | 2 | 6-2 | 2 | 5-2 | 3 |
| | 3-2 × 8 | 9-5 | 1 | 7-3 | 1 | 6-1 | 1 | 8-1 | 1 | 6-3 | 1 | 5-3 | 2 | 7-2 | 1 | 5-6 | 2 | 4-8 | 2 |
| | 3-2 × 10 | 11-3 | 1 | 8-7 | 1 | 7-3 | 2 | 9-7 | 1 | 7-4 | 2 | 6-2 | 2 | 8-6 | 1 | 6-7 | 2 | 5-6 | 2 |
| | 3-2 × 12 | 13-2 | 1 | 10-1 | 2 | 8-6 | 2 | 11-3 | 2 | 8-8 | 2 | 7-4 | 2 | 10-0 | 2 | 7-9 | 2 | 6-6 | 2 |
| | 4-2 × 8 | 10-11 | 1 | 8-4 | 1 | 7-0 | 1 | 9-4 | 1 | 7-2 | 1 | 6-0 | 1 | 8-3 | 1 | 6-4 | 1 | 5-4 | 2 |
| | 4-2 × 10 | 12-11 | 1 | 9-11 | 1 | 8-4 | 1 | 11-1 | 1 | 8-6 | 1 | 7-2 | 2 | 9-10 | 1 | 7-7 | 2 | 6-4 | 2 |
| | 4-2 × 12 | 15-3 | 1 | 11-8 | 1 | 9-10 | 2 | 13-0 | 1 | 10-0 | 2 | 8-5 | 2 | 11-7 | 1 | 8-11 | 2 | 7-6 | 3 |
| | 1-2 × 6 | 3-3 | 1 | 2-7 | 2 | 2-3 | 2 | 3-0 | 2 | 2-4 | 2 | 2-0 | 2 | 2-9 | 2 | 2-3 | 2 | 1-10 | 2 |

**NYS UEPRC**

**Remember our sample house**
**28' multi-sectional**
**50 psf ground snow load**

double d

TABLE R602.7(1)
ND HEADER SPANS[a] FOR EXTERIOR BEARING WALLS
m-fir, Southern pine and spruce-pine-fir[b] and required number of jack studs)

| SUPPORTING | | GROUND SNOW LOAD (psf)[f] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 50 | | | | | | 70 | | | | | |
| | | Building width[e] (feet) | | | | | | | | | | | |
| | | 12 | | 24 | | 36 | | 12 | | 24 | | 36 | |
| | | Span[c] | NJ[d] | Span[c] | NJ[d] | Span[c] | NJ[d] | Span[c] | NJ[d] | Span[c] | NJ[d] | Span[c] | NJ[d] |
| Roof and ceiling | 1-2 × 6 | 4-0 | 1 | 3-1 | 2 | 2-7 | 2 | 3-5 | 1 | 2-8 | 2 | 2-3 | 2 |
| | 1-2 × 8 | 5-1 | 2 | 3-11 | 2 | 3-3 | 2 | 4-4 | 2 | 3-4 | 2 | 2-10 | 2 |
| | 1-2 × 10 | 6-0 | 2 | 4-8 | 2 | 3-11 | 2 | 5-2 | 2 | 4-0 | 2 | 3-4 | 3 |
| | 1-2 × 12 | 7-1 | 2 | 5-5 | 2 | 4-7 | 3 | 6-1 | 2 | 4-8 | 3 | 3-11 | 3 |
| | 2-2 × 4 | 4-0 | 1 | 3-1 | 1 | 2-7 | 1 | 3-5 | 1 | 2-7 | 1 | 2-2 | 1 |
| | 2-2 × 6 | 6-0 | 1 | 4-7 | 1 | 3-10 | 1 | 5-1 | 1 | 3-11 | 1 | 3-3 | 2 |
| | 2-2 × 8 | 7-7 | 1 | 5-9 | 1 | 4-10 | 2 | 6-5 | 1 | 5-0 | 2 | 4-2 | 2 |
| | 2-2 × 10 | 9-0 | 1 | 6-10 | 2 | 5-9 | 2 | 7-8 | 2 | 5-11 | 2 | 4-11 | 2 |
| | 2-2 × 12 | 10-7 | 2 | 8-1 | 2 | 6-10 | 2 | 9-0 | 2 | 6-11 | 2 | 5-10 | 2 |
| | 3-2 × 8 | 9-5 | 1 | 7-3 | 1 | 6-1 | 1 | 8-1 | 1 | 6-3 | 1 | 5-3 | 2 |
| | 3-2 × 10 | 11-3 | 1 | 8-7 | 1 | 7-3 | 2 | 9-7 | 1 | 7-4 | 2 | 6-2 | 2 |
| | 3-2 × 12 | 13-2 | 1 | 10-1 | 2 | 8-6 | 2 | 11-3 | 2 | 8-8 | 2 | 7-4 | 2 |
| | 4-2 × 8 | 10-11 | 1 | 8-4 | 1 | 7-0 | 1 | 9-4 | 1 | 7-2 | 1 | 6-0 | 1 |
| | 4-2 × 10 | 12-11 | 1 | 9-11 | 1 | 8-4 | 1 | 11-1 | 1 | 8-6 | 1 | 7-2 | 2 |
| | 4-2 × 12 | 15-3 | 1 | 11-8 | 1 | 9-10 | 2 | 13-0 | 1 | 10-0 | 2 | 8-5 | 2 |
| | 1-3 × 6 | 3-3 | 1 | 2-7 | 2 | 2-3 | 2 | | | | | | |





**NYS UEPRC**

**Remember our sampl**
**28' multi-sectional**
**50 psf ground snow l**

double d

| Ground Snow Load | | |
|---|---|---|
| 50 PSF | | |
| Building Width | 30 | |
| Interpolation | span | nj |
| 1-2x6 | 2-5 | 2 |
| 1-2x8 | 3-1 | 2 |
| 1-2x10 | 3-8 | 3 |
| 1-2x12 | 4-3 | 3 |
| 2-2x4 | 2-4 | 1 |
| 2-2x6 | 3-7 | 2 |
| 2-2x8 | 4-7 | 2 |
| 2-2x10 | 5-5 | 2 |
| 2-2x12 | 6-4 | 2 |
| 3-2x8 | 5-9 | 2 |
| 3-2x10 | 6-9 | 2 |
| 3-2x12 | 8-0 | 2 |
| 4-2x8 | 6-7 | 1 |
| 4-2x10 | 7-10 | 2 |
| 4-2x12 | 9-2 | 2 |

.E R602.7(1)
PANS[a] FOR EXTERIOR BEARING WALLS
n pine and spruce-pine-fir[b] and required number of jack studs)

| SUPPORTING | | GROUND SNOW LOAD (psf)[f] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 50 | | | | | | 70 | | | | | |
| | | Building width[e] (feet) | | | | | | | | | | | |
| | | 12 | | 24 | | 36 | | 12 | | 24 | | 36 | |
| | | pan[c] | NJ[d] | Span[c] | NJ[d] | Span[c] | NJ[d] | pan[c] | NJ[d] | Span[c] | NJ[d] | Span[c] | NJ[d] |
| Roof and ceiling | 1-2 | 5 | 1 | 2-8 | 2 | 2-3 | 2 | 3-0 | 2 | 2-4 | 2 | 2-0 | 2 |
| | 1-2 | 4 | 2 | 3-4 | 2 | 2-10 | 2 | 0-10 | 2 | 3-0 | 2 | 2-6 | 3 |
| | 1-2 | 2 | 4-0 | 2 | 3-4 | 3 | 4-7 | 2 | 3-6 | 3 | 3-0 | 3 | |
| | 1-2 | 2 | 4-8 | 3 | 3-11 | 3 | 5-5 | 2 | 4-2 | 3 | 3-6 | 3 | |
| | 2-2 | 5 | 2-7 | 1 | 2-2 | 1 | 3-0 | 1 | 2-4 | 1 | 2-0 | 1 | |
| | 2-2 | 1 | 3-11 | 1 | 3-3 | 2 | 4-6 | 1 | 3-6 | 2 | 2-11 | 2 | |
| | 2-2 | 5 | 5-0 | 2 | 4-2 | 2 | 5-9 | 1 | 4-5 | 2 | 3-9 | 2 | |
| | 2-2 | 8 | 5-11 | 2 | 4-11 | 2 | 6-9 | 2 | 5-3 | 2 | 4-5 | 2 | |
| | 2-2 | 0 | 6-11 | 2 | 5-10 | 2 | 8-0 | 2 | 6-2 | 2 | 5-2 | 3 | |
| | 3-2 | 1 | 6-3 | 1 | 5-3 | 2 | 7-2 | 1 | 5-6 | 2 | 4-8 | 2 | |
| | 3-2 | 7 | 7-4 | 2 | 6-2 | 2 | 8-6 | 1 | 6-7 | 2 | 5-6 | 2 | |
| | 3-2 | 3 | 8-8 | 2 | 7-4 | 2 | 0-0 | 2 | 7-9 | 2 | 6-6 | 2 | |
| | 4-2 | 4 | 7-2 | 1 | 6-0 | 1 | 8-3 | 1 | 6-4 | 1 | 5-4 | 2 | |
| | 4-2 | 1 | 8-6 | 1 | 7-2 | 2 | 0-10 | 1 | 7-7 | 2 | 6-4 | 2 | |
| | 4-2 | 3 | 10-0 | 2 | 8-5 | 2 | 11-7 | 1 | 8-11 | 2 | 7-6 | 2 | |
| | 1-3 | | | | | | | | | | | | |





**NYS UEPRC**

**Remember our sampl**
**28' multi-sectional**
**50 psf ground snow l**

double d

| Ground Snow Load | | |
|---|---|---|
| 50 PSF | | |
| Building Width | 30 | |
| Interpolation | span | nj |
| 1-2x6 | 2-5 | 2 |
| 1-2x8 | 3-1 | 2 |
| 1-2x10 | 3-8 | 3 |
| 1-2x12 | 4-3 | 3 |
| 2-2x4 | 2-4 | 1 |
| 2-2x6 | 3-7 | 2 |
| 2-2x8 | 4-7 | 2 |
| 2-2x10 | 5-5 | 2 |
| 2-2x12 | 6-4 | 2 |
| 3-2x8 | 5-9 | 2 |
| 3-2x10 | 6-9 | 2 |
| 3-2x12 | 8-0 | 2 |
| 4-2x8 | 6-7 | 1 |
| 4-2x10 | 7-10 | 2 |
| 4-2x12 | 9-2 | 2 |

.E R602.7(1)
PANS[a] FOR EXTERIOR BEARING WALLS
n pine and spruce-pine-fir[b] and required number of jack studs)

| SUPPORTING | | GROUND SNOW LOAD (psf)[f] | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | 50 | | | | | | 70 | | | | | |
| | | Building width[e] (feet) | | | | | | | | | | | |
| | | 12 | | 24 | | 36 | | 12 | | 24 | | 36 | |
| | | pan[c] | NJ[d] | Span[c] | NJ[d] | Span[c] | NJ[d] | pan[c] | NJ[d] | Span[c] | NJ[d] | Span[c] | NJ[d] |
| Roof and ceiling | 1-2 | 5 | 1 | 2-8 | 2 | 2-3 | 2 | 3-0 | 2 | 2-4 | 2 | 2-0 | 2 |
| | 1-2 | 4 | 2 | 3-4 | 2 | 2-10 | 2 | 0-10 | 2 | 3-0 | 2 | 2-6 | 3 |
| | 1-2 | 2 | 4-0 | 2 | 3-4 | 3 | 4-7 | 2 | 3-6 | 3 | 3-0 | 3 | |
| | 1-2 | 2 | 4-8 | 3 | 3-11 | 3 | 5-5 | 2 | 4-2 | 3 | 3-6 | 3 | |
| | 2-2 | 5 | 2-7 | 1 | 2-2 | 1 | 3-0 | 1 | 2-4 | 1 | 2-0 | 1 | |
| | 2-2 | 1 | 3-11 | 1 | 3-3 | 2 | 4-6 | 1 | 3-6 | 2 | 2-11 | 2 | |
| | 2-2 | 5 | 5-0 | 2 | 4-2 | 2 | 5-9 | 1 | 4-5 | 2 | 3-9 | 2 | |
| | 2-2 | 8 | 5-11 | 2 | 4-11 | 2 | 6-9 | 2 | 5-3 | 2 | 4-5 | 2 | |
| | 2-2 | 0 | 6-11 | 2 | 5-10 | 2 | 8-0 | 2 | 6-2 | 2 | 5-2 | 3 | |
| | 3-2 | 1 | 6-3 | 1 | 5-3 | 2 | 7-2 | 1 | 5-6 | 2 | 4-8 | 2 | |
| | 3-2 | 7 | 7-4 | 2 | 6-2 | 2 | 8-6 | 1 | 6-7 | 2 | 5-6 | 2 | |
| | 3-2 | 3 | 8-8 | 2 | 7-4 | 2 | 0-0 | 2 | 7-9 | 2 | 6-6 | 2 | |
| | 4-2 | 4 | 7-2 | 1 | 6-0 | 1 | 8-3 | 1 | 6-4 | 1 | 5-4 | 2 | |
| | 4-2 | 1 | 8-6 | 1 | 7-2 | 2 | 0-10 | 1 | 7-7 | 2 | 6-4 | 2 | |
| | 4-2 | 3 | 10-0 | 2 | 8-5 | 2 | 11-7 | 1 | 8-11 | 2 | 7-6 | 2 | |
| | 1-3 | | | | | | | | | | | | |

## NYS UFPBC

- Header sizing
  - 2 2x6 w/ 1 Jack Studs
- Wait the Manufacturer…





## NYS UFPBC

### R507 Exterior Decks

- **Deck Footing Sizes**
- Porch/Deck Joist Span allowances

Tabular Data

- Table R507.5(2) Deck Joist Spans for

Common Lumber Species

*Don't forget about the other tables for Floor Joist, Roof Rafters…*





## NYS UFPBC

- Porch/D

Tabular Da

- Table

Common L

### New Code Se

### R507 Exterio

TABLE R507.6
DECK JOIST SPANS FOR COMMON LUMBER SPECIES (ft. - in.)

| SPECIES[a] | SIZE | ALLOWABLE JOIST SPAN[b] | | | MAXIMUM CANTILEVER[c,f] | | |
|---|---|---|---|---|---|---|---|
| | | SPACING OF DECK JOISTS (inches) | | | SPACING OF DECK JOISTS WITH CANTILEVERS[c] (inches) | | |
| | | 12 | 16 | 24 | 12 | 16 | 24 |
| Southern pine | 2 × 6 | 9-11 | 9-0 | 7-7 | 1-3 | 1-4 | 1-6 |
| | 2 × 8 | 13-1 | 11-10 | 9-8 | 2-1 | 2-3 | 2-5 |
| | 2 × 10 | 16-2 | 14-0 | 11-5 | 3-4 | 3-6 | 2-10 |
| | 2 × 12 | 18-0 | 16-6 | 13-6 | 4-6 | 4-2 | 3-4 |
| Douglas fir-larch[d], hem-fir[d] spruce-pine-fir[d], | 2 × 6 | 9-6 | 8-8 | 7-2 | 1-2 | 1-3 | 1-5 |
| | 2 × 8 | 12-6 | 11-1 | 9-1 | 1-11 | 2-1 | 2-3 |
| | 2 × 10 | 15-8 | 13-7 | 11-1 | 3-1 | 3-5 | 2-9 |
| | 2 × 12 | 18-0 | 15-9 | 12-10 | 4-6 | 3-11 | 3-3 |
| Redwood, western cedars, ponderosa pine[e], red pine[e] | 2 × 6 | 8-10 | 8-0 | 7-0 | 1-0 | 1-1 | 1-2 |
| | 2 × 8 | 11-8 | 10-7 | 8-8 | 1-8 | 1-10 | 2-0 |
| | 2 × 10 | 14-11 | 13-0 | 10-7 | 2-8 | 2-10 | 2-8 |
| | 2 × 12 | 17-5 | 15-1 | 12-4 | 3-10 | 3-9 | 3-1 |

For SI: 1 inch = 25.4 mm, 1 foot = 304.8 mm, 1 pound per square foot = 0.0479 kPa, 1 pound = 0.454 kg.

a. No. 2 grade with wet service factor.
b. Ground snow load, live load = 40 psf, dead load = 10 psf, L/Δ = 360.
c. Ground snow load, live load = 40 psf, dead load = 10 psf, L/Δ = 360 at main span, L/Δ = 180 at cantilever with a 220-pound point load applied to end.
d. Includes incising factor.
e. Northern species with no incising factor.
f. Cantilevered spans not exceeding the nominal depth of the joist are permitted.

## Cursory in nature

Cannot cover every conceivable situation
The intend was a broad overview of general information
Additional research by participants may be necessary

Remember that links to online versions of the 2020 Residential Code of New York are here:
https://codes.iccsafe.org/codes/new-york

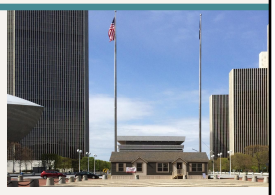




## For technical assistance

Contact Information
**New York, Department of State**
**Division of Building Standards & Codes**
**One Commerce Plaza**
**99 Washington Ave.**
**Albany NY 12231-0001**

**Manufactured.housing@dos.ny.gov**







## What can I clear up?

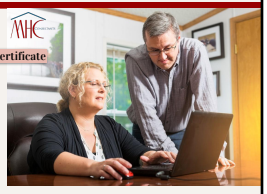
Contact Information
MHC Consultants
160 Wilkinson Rd.
Fairport NY 14450

joel@consultwithmhc.com

If you couldn't take the polls

If your name is wrong on your certificate

Add it to your safe senders list



**Check your email. You have received an invite to fill out a Google Form. This is your exam. If you have not received it, cannot login or are having difficulty, *email joel@consultwithmhc.com*.**

**If you fail the exam, do not retake it.**





## What can I clear up?

Contact Information
MHC Consultants
160 Wilkinson Rd.
Fairport NY 14450

joel@consultwithmhc.com