

CTC Meeting # 22
December 1 – 2, 2011
Relocatable Modular Building SG report & CTC # 22 Notes

Notes from meeting in blue

Comments from CTC committee members during OCT 14th CTC meeting in Chicago (red)

Working group responses per the 11/15/11 teleconference in (black)

- Not intended to pick up anything that is 'driveable' like a blood-mobile – Agreed.
- ADA/Accessibility would require trailers not specifically for construction to be accessible
RBs are NOT exempt from ADA requirement except where the current code provisions exist (1103.2.6)
- Should say inspected and labeled by an approved neutral third party. See revisions below in: 3112.3 Manufacturer's Data Plate #4 See also Item # 5 below - IBC section 110.4 state program –if state program exists, RB will have label; if state program exists, third-party label will be in place
- Text should say that the initial compliance must be for new construction. See revisions in 3112.1 and 3112.3 for data plate information
- Clarify difference between quality assurance agency and third party inspection agency.
3112.3 #4 - Standard practice where state programs exists: gets one inspection to look at factory line in different phases of construction (like an audit program)
- IEBC – Chapter 13 on relocatable structures will be referenced for existing buildings –
Addressed in proposed language below
- Compliance with the code should be for current adopted code in the geographical area where the relocatable unit is expected to be used. To avoid location problem, perhaps require compliance with the latest printed code. This could be a conflict with the energy code based on the area it is located in. The printed code does not addresses situation.
- Modular buildings could be 15 to 20 years of use. RBs will comply with Chapter 12 of IEBC (seismic, wind, snow) just like every other existing building. This point should have more to do with condition of the RB than age of the unit. Covered in the 116 of the IBC

- Documentation for repairs/alterations available when the building is relocated.
Alterations to be built to latest code requirements as well. – See IBC Section 3401.2 and 3404, 3405.

**TOPICS DISCUSSED AND TENTATIVELY AGREED UPON (IN CONCEPT) FOR
RELOCATABLE BUILDINGS CODE LANGUAGE FOR NEW AND EXISTING BUILDINGS**
Blue text indicates revisions discussed on 11/15/11 workgroup call

Modify 2012 International Building Code as follows:

ITEM #1 Add new definitions to Chapter 2:

Relocatable building. A partially or completely assembled building constructed using a modular construction process, and designed to be reused multiple times and transported to different building sites.

NEW RELOCATABLES

ITEM #2 Add new text to Section 107

107.XX Construction documents for relocatable buildings shall comply with this section and Section 3112.2.

ITEM #3 Add new text to 3101 Special Construction to include relocatables:

3101.1 Scope. The provisions of this chapter shall govern special building construction including membrane structures, temporary structures, pedestrian walkways and tunnels, awnings and canopies, marquees, signs, towers, ~~and~~ antennas, and relocatable buildings.

(Go to chapter 1 for construction docs)

ITEM #4 Add a new section in Chapter 31 for relocatables:

3112.1 General. The provisions of this section shall apply to relocatable buildings. Relocatable buildings manufactured after the effective date of this code shall comply with the applicable provisions of this code.

3112.1.1 A relocatable building transported to a new location, or a relocatable building that is undergoing *alteration or additions* shall comply with Section 3410.1 (new below).

3112.2 Supplemental information specific to a relocatable building shall be submitted to the authority having jurisdiction, and shall, as a *minimum*, include all of the following:

1. Application for approval or permit
2. Manufacturer's name, address, contact information
3. Date of manufacture
4. Serial number of module(s)
5. Manufacturer's design drawings
6. Type of construction in accordance with Section 602.
7. Occupancy type in accordance with Section 302.

8. Design loads including: roof live load, roof snow load, floor live load, wind load and seismic site class, use group and design category
9. Additional building planning and structural design data
10. Site plan indicating the location of the relocatable building
11. Site built structure or appurtenance attached to the relocatable building

3112.3 Manufacturer's Data Plate. The manufactures data plate shall be the basis for determining code compliance. Each relocatable module shall have a data plate that is posted in the location as noted on the drawings, and shall include the following information:

1. manufacturer's name and address
2. serial number
3. date of manufacture
4. the quality assurance agency or approved inspection agency
5. codes, and standards of construction
6. design live roof load, design live floor load, snow load, wind and seismic design
7. envelope thermal resistance values
8. electrical service size
9. fuel burning equipment and size
10. special limitations if any

ITEM #5 Inspections

3112.4 Inspections. Inspections of a relocatable building shall be performed in accordance with Section 110.4 of this code during off-site construction, and the applicable sections of Section 110.3 during installation at the site.

EXISTING RELOCATABLE BUILDINGS-

ITEM #6 Add new text to include relocated buildings to Chapter 34:

3401.1 Scope. The provisions of this chapter shall control the alteration, repair, addition, and change of occupancy, and the relocation of existing buildings and structures.

ITEM #7 Create pointer to Chapter 13 of IEBC per ICC staff recommendation:

3410.1 Conformance. Structures moved into or within the jurisdiction shall comply with the provisions of this code for new structures.

Exception: Existing relocatable buildings moved into or within the jurisdiction shall be permitted to comply with the provisions of Chapter 13 of the International Existing Building Code.

ITEM #8 Additions and Alterations:

3410.2 Additions and Alterations. Additions and alterations made to relocatable buildings shall comply with the applicable provisions of Section 3403 and 3404 or the IEBC.

Note:

Meeting notes are in blue since the report had comments in red.

Verify that the modular building has to comply with new construction (i.e., access, occupant load, fixture count) when built.

Item 7 – the reason statement should clarify that the section applies to all moved buildings, but the exception is limited to only relocatable buildings.

The scope of this committee only deals with relocatable buildings. The reason should clarify that dealing with other moved buildings is outside the scope.

Items 7 and 8 are not needed because of the reference in 3401.6. Leave in for now.

CTC approved code changes as modified.

REASON:

Unlike site-built buildings, which are typically intended to remain on their original site for the life of the building, relocatable modular buildings are designed and intended for relocation, reuse and/or repurposing. Many states have statutes that govern the building and relocating of relocatable modular buildings. For those that do not have state mandated requirements, much confusion and inconsistency exists about the requirements for relocatable modular buildings as existing buildings.

The Modular Building Institute (MBI) (www.modular.org) estimates that there are over 600,000 code compliant relocatable buildings in use in North America today. While it is impossible to determine the exact amount owned by the public at large, MBI estimates that public school districts across North America collectively own and operate about 180,000 relocatable classrooms with the industry owning and leasing an additional 120,000. Additionally, the industry owns and leases approximately 280,000 relocatable buildings for various other business occupancies, including construction site offices and temporary sales offices.

The Code Technology Committee Study Group on Relocatable Modular Buildings identified a number of unique characteristics of relocatable modular buildings that are unlike site-built buildings and compared them to the IBC and the IEBC. Their findings are as follows:

- There are sections of the IBC that are applicable equally to both site-built and relocatable modular buildings, particularly for new construction.
- There are provisions of the IBC that are not applicable/appropriate to relocatable modular buildings. Specifically, there is an unintended conflict between the IBC Section 3410, and the intent of the IEBC that cannot be realistically applied to relocatable modular buildings.
- There are sections of the conflicting code sections that cannot be applied to both site-built and relocatable modular buildings, specifically related to construction documents, inspection, and relocation.

Both the IBC and the IEBC are unclear on how to treat these buildings, particularly when they are relocated to a new site. In the absence of clear definitions and requirements that are specific to both new and existing relocatable modular buildings, many code officials attempt to apply similar, but non-related sections of the building code intended for site built buildings to the relocatable modular industry. There are unique attributes to relocatable modular buildings that warrant their own requirements in a new chapter in this code.

This code change proposal is a series of proposals that deal with both new and existing relocatable modular buildings. The definition has been distilled from industry publications and definitions found in state statutes that govern modular (industrialized) buildings. This definition was also approved in the 2012 IGCC.

The 3 significant items in the CTC proposal are:

1. Identification and inclusion of relocatables into Special Construction, Chapter 31. This chapter applies to new relocatable buildings, and also new site built structures.
2. An exception to IBC 3410 for relocatable buildings (currently treats all moved buildings as “new” buildings) with a pointer to Chapter 13 of IEBC. Moved relocatable modular buildings are to be treated as existing buildings.
3. Relocatables undergoing additions or alterations shall comply with the appropriate section of the IEBC, which also applies to site built buildings. This section clarifies that there is no difference between the requirements for modular buildings and site built buildings when either undergoes construction for alteration or addition.

Moving this document forward through the ICC code development process will help the modular building industry comply with the intent of the code, provide a clear and consistent path for enforcement professionals, and for compliance by owners of relocatable buildings who wish to re-use or repurpose their existing buildings.

For information only – Chapter 13 of the IEBC reproduced below

CHAPTER 13 RELOCATED OR MOVED BUILDINGS

SECTION 1301 GENERAL

1301.1 Scope. This chapter provides requirements for relocated or moved structures.

1301.2 Conformance. The building shall be safe for human occupancy as determined by the *International Fire Code* and the *International Property Maintenance Code*. Any repair, alteration, or change of occupancy undertaken within the moved structure shall comply with the requirements of this code applicable to the work being performed. Any field-fabricated elements shall comply with the requirements of the *International Building Code* or the *International Residential Code* as applicable.

SECTION 1302 REQUIREMENTS

1302.1 Location on the lot. The building shall be located on the lot in accordance with the requirements of the *International Building Code* or the *International Residential Code* as applicable.

[B] 1302.2 Foundation. The foundation system of relocated buildings shall comply with the *International Building Code* or the *International Residential Code* as applicable.

[B] 1302.2.1 Connection to the foundation. The connection of the relocated building to the foundation shall comply with the *International Building Code* or the *International Residential Code* as applicable.

[B] 1302.3 Wind loads. Buildings shall comply with *International Building Code* or *International Residential Code* wind provisions as applicable.

Exceptions:

1. Detached one- and two-family dwellings and Group U occupancies where wind loads at the new location are not higher than those at the previous location.
2. Structural elements whose stress is not increased by more than 10 percent.

[B] 1302.4 Seismic loads. Buildings shall comply with *International Building Code* or *International Residential Code* seismic provisions at the new location as applicable.

Exceptions:

1. Structures in Seismic Design Categories A and B and detached one- and two-family dwellings in Seismic

Design Categories A, B and C where the seismic loads at the new location are not higher than those at the previous location.

2. Structural elements whose stress is not increased by more than 10 percent.

[B] 1302.5 Snow loads. Structures shall comply with *International Building Code* or *International Residential Code* snow loads as applicable where snow loads at the new location are higher than those at the previous location.

Exception: Structural elements whose stress is not increased by more than 5 percent.

[B] 1302.6 Flood hazard areas. If relocated or moved into a *flood hazard area*, structures shall comply with Section 1612 of the *International Building Code*.

[B] 1302.7 Required inspection and repairs. The code official shall be authorized to inspect, or to require approved professionals to inspect at the expense of the owner, the various structural parts of a relocated building to verify that structural components and connections have not sustained structural damage. Any repairs required by the code official as a result of such inspection shall be made prior to the final approval.