



UNIFORM BUILDING CODE COMMISSION EXISTING RULE REVIEW FORM

TRACKING NUMBER: **RBTC-54**

Code Change Information:

New Edition Year Under Review: 2024 International Residential Code

Page Number in New Edition Under Review:

Originating Committee: Residential Building Technical Code Review

Original Edition Year Modified: 2009

Current Rule Numbering: 748:20-6-16 (7) and (9)

Section/Table/Figure Modified: Chapter 11 Energy Efficiency

Existing Rule:

TABLE N1102.4.1.1 (R402.4.1.1) AIR BARRIER AND INSULATION INSTALLATION ^a

See pages 3-4.

N1102.4.6 (R402.4.6) Air-Sealed Electrical and Communication Outlet Boxes. Where selected for installation as permitted by Table N1102.4.1.1, air-sealed electrical and communication outlet boxes that penetrate the building thermal envelope shall be sealed to limit air leakage between conditioned and unconditioned spaces. Air-sealed electrical and communication outlet boxes shall be tested in accordance with NEMA OS 4. Requirements for Air-Sealed Boxes for Electrical and Communication Applications and shall have an air leakage rate of not greater than 2.0 cfm (0.944 L/s) at a pressure differential of 1.57 psf (75 Pa). Electrical and communication outlet boxes shall be marked "NEMA OS 4" or "OS 4" in accordance with NEMA OS 4. Electrical and communication outlet boxes shall be installed per the manufacturer's instructions and with any supplied components required to achieve compliance with NEMA OS 4.

Historical Information

Table N1102.4.1.1 was modified in the 2015 adoption. In the 2018 adoption the ECTC voted to remove the change and revert to the published code. Two subsequent comment forms were submitted related to the table, EC-16 and EC-24. EC-16 proposed changing the row related to "Walls" in the "Insulation Installation Criteria Column". EC-24 addressed changes to the "Electrical phone box exterior walls" row in all three columns, changing the title and the requirements for the air barrier criteria and the insulation installation. EC-16 and EC-24 were both approved; however, EC-16 had some modification to change the wording by adding "or greater" after the words "wall system."

A companion change was made to add a new section of code related to the changes in EC-16. That change added N1102.4.6 to the code. The submitter of the companion change noted it provided detailed requirements for "air sealed" boxes where electrical and communication outlet boxes penetrated an air barrier. The committee discussed concerns with the wording in the change and a revised version was submitted and subsequently approved for recommendation to the commission.

The 2021 and 2024 match the 2018 code as published for the modification made to the "walls" row in the Table. The 2024 Table has been modified for the other change to the "Electrical, communication and other equipment boxes, housing and enclosures" row. The language in the row is similar to the changes made by the OUBCC to the row.

In the 2024 code, there is now a section N1102.5.5 for "Air-sealed electrical and communication outlet boxes. However, although the language is similar to what was added in the 2018 adoption, it is not the same.

Staff recommendation is to review each of the changes and determine if they should be kept as written, modified, or removed from the agency's rules.

TABLE N1102.4.1.1 (R402.4.1.1)
AIR BARRIER AND INSULATION INSTALLATION^a

| COMPONENT | AIR BARRIER CRITERIA | INSULATION INSTALLATION CRITERIA |
|---|---|---|
| General requirements | A continuous air barrier shall be installed in the building envelope The exterior thermal envelope contains a continuous air barrier. Breaks or joints in the air barrier shall be sealed. | Air-permeable insulation shall not be used as a sealing material. |
| Ceiling/attic | The air barrier in any dropped ceiling or soffit shall be aligned with insulation and any air gaps in the air barrier sealed Access openings, drop down stairs or knee wall doors to unconditioned attic spaces shall be sealed. | The insulation in any dropped ceiling/soffit shall be aligned with the air barrier. |
| Walls | The junction of the foundation and sill plate shall be sealed. The junction of the top plate and the top exterior walls shall be sealed. Knee walls shall be sealed. | Cavities within corners and headers (<u>in a 2 x 6 wall system or greater</u>) of frame walls shall be insulated by completely filling the cavity with a material having a thermal resistance of not less than R-3 per inch. <u>If used on wall system, Exterior exterior</u> thermal envelope insulation for framed walls shall be installed in substantial contact and in continuous alignment with the air barrier. (EC-16) |
| Windows, skylights and doors | The space between framing and skylights, and the jambs of windows and doors shall be sealed. | - |
| Rim joists | Rim joists shall include the air barrier. | Rim joists shall be insulated. |
| Floors including cantilevered floors and floors above garages. | The air barrier shall be installed at any exposed edge of insulation | Floor framing cavity insulation shall be installed to maintain permanent contact with the underside of subfloor decking. Alternatively, floor framing cavity insulation shall be in contact with the top side of sheathing or continuous insulation installed on the underside of floor framing; and extending from the bottom to the top of all perimeter floor framing members. |
| Crawl space walls | Exposed earth in unvented crawl spaces shall be covered with a Class I vapor retarder with overlapping joints taped. | Crawl space insulation, where provided instead of floor insulation, shall be permanently attached to the walls. |
| COMPONENT | AIR BARRIER CRITERIA | INSULATION INSTALLATION CRITERIA |
| Shafts, penetrations | Duct shafts, utility penetrations and flue shaft opening to the exterior or unconditioned space, shall be sealed. | - |
| Narrow cavities | - | Batts to be installed in narrow cavities, shall be cut to fit or narrow cavities shall be filled with insulation that on installation readily conforms to the available cavity space. |
| Garage separation | Air sealing shall be provided between the garage and the conditioned space. | - |

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| Recessed lighting | Recessed lighting fixtures installed in the building thermal envelope shall be sealed to the finished surface. | Recessed light fixtures installed in the building thermal envelope shall be airtight and IC rated. |
| Plumbing and wiring | - | In exterior walls, the batt insulation shall be cut neatly to fit around wiring and plumbing or insulation that on installation, readily conforms to available space, shall extend behind piping and wiring. |
| Shower/tub on exterior wall | The air barrier installed at exterior walls adjacent to showers and tubs shall separate the wall from the shower or tub. | Exterior walls adjacent to showers and tubs shall be insulated. |
| Electrical and communication outlet boxes /phone box on exterior walls | The air barrier shall be installed extends behind boxes installed in the building thermal envelope. <u>Boxes that penetrate the building thermal envelope shall be air sealed to the subfloor, wall covering, or ceiling penetrated by the box, or electrical and communication boxes. Alternatively, air-sealed boxes shall be installed. (EC-24)</u> | <u>Spaces behind boxes penetrating the thermal envelope shall have insulation cut or blown to fit or that readily conforms to the space around the box. (EC-24)</u> |