**Comment/Explanation\*:***Include your justification for your proposed change to the draft standard below.*  
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It was recommewnded that the remote/virtual inspection procedures created by a working group of the insulation grading Appendix A subcommittee be struck because of ANSI 1450. In turns out that 1450 is not intended to address are specific needs. Therefore this comment is a recommendation to add back the ability to use remote/virtual inspection as originally intended. See sections in blue

**Proposed Change to the Draft Standard\***  
*Use “strikethrough” and “underline” formatting to indicate all proposed changes. Changes must be shown with “hard-formatting” strikethrough and underline, not “track changes”.*\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

***Modify Standard 301-202 Appendix B as follows:***

# **Normative Appendix B**

**Inspection Procedures for Minimum Rated Features**

|  |  |  |
| --- | --- | --- |
| Foundation  insulation | Determine and record type,  ~~grade~~PI/NPI, location, and thickness of foundation insulation and resultant R-Value. | Use the inspection procedures in Normative Appendix A to determine and record the insulation type and Assessed R-Value. ~~, and grade~~ The Assessed R-value of the insulation is the R-Value entered into the energy model before determining if the insulation is Properly Installed (PI) or Not Properly Installed (NPI).  Visually confirm insulation location as interior, exterior or both108 sides of the foundation wall, record Assessed R-Value and measure thickness. Visually confirm whether insulation product is installed for 100% of required area/perimeter and visually confirm and record R-Value. ~~If insulation is observed without a labeled R-Value, the manufacturer’s data sheet shall be used to determine and record the R-Value based on installed thickness.~~ For insulation materials that are installed without an observable manufacturer’s R-Value mark, or emittance value, the Certified Rater may use the manufacturer’s data sheet or an insulation certificate that complies with the requirements of the IECC and is left immediately after installation by the installer, to determine the Assessed R-Value or emittance of the installed material.  A diagram of a house  Description automatically generated  Where the foundation wall has different insulation types, orientation, or R-Value, the enclosure element shall be modeled separately with the applicable Assessed R-Value, orientation, and assembly areas associated with each different insulation situation. Areas of the foundation wall shall not be modeled separately solely based upon insulation grading.  If 100% of the area/perimeter of ~~the~~ exterior continuous foundation insulation cannot be visually confirmed, inspection shall be allowed according to the non-visual protocol below:  ~~Visually~~ ~~C~~onfirm insulation product is installed for ~~a minimum of 25% of~~ the area/perimeter of the foundation insulation specified for insulation, and ~~visually~~ confirm and record R-Value. Where the Assessed R-Value cannot be determined ~~during site observation~~, the manufacturer’s data sheet shall be used. Use the inspection procedures in Normative Appendix A to determine if insulation is PI or NPI. ~~determine and record the grade of insulation.~~ The insulation assessment ~~grade~~ of the ~~visually~~ confirmed area shall be applied to the rest of the area unless photos show ~~any~~ additional deficiencies, in which case the insulation assessment ~~grade~~ recorded shall be the worst case documented.  ~~Collect photos to confirm installation at several site locations and in sufficient detail to confirm thickness, type, and grade of the insulation installation. If foundation insulation cannot be visually verified immediately after installation, it may be verified through comprehensive photographs that comply with the requirements given above.~~  Confirm insulation installation by any one of the following methods:   1. Photos and/or Video-Photos or video evidence showing the full insulation installation in sufficient detail to confirm full coverage and proper installation including 100% of all areas specified for insulation. Photos shall be geotagged and dated, videos shall include a site perspective showing the specific location and surrounding area. Detail photos/video footage are required which provide all inspection items as detailed in Appendix A based on insulation type, including but not limited to the following:    1. Thickness of the insulation by including a ruler measurement in several locations.    2. Depth of the insulation installation by including a tape measurement in several locations.    3. Depth of extension below grade of ultraviolet protection by including a tape measurement in several locations.    4. R-Value of the insulation by ensuring the Manufacturer’s R-Value label is included for several insulated areas, or the Manufacturer’s data sheet for the specific insulation product is provided.    5. Details of all air and water sealing at insulation joints, penetrations and/or obstructions.    6. Details of all repairs to damaged areas. 2. Virtual inspection footage that is attended, directed, and recorded by the Rater/RFI. The recording may be of the entire virtual inspection or screen shots taken during the inspection in enough detail to ensure photo documentation requirements found in these standards have been met. 3. Remote Built or Panelized and delivered to site-Manufactured Housing using successful IPIA Inspections shall be considered as an acceptable alternative for the Energy Rating inspection where the manufacturer of the remote built or panelized component includes the on-site inspection procedures for insulation details and requirements in Appendix A in their DAPIA packages, which are used by IPIAs for their factory inspections. In this case, the R-Value shall be recorded as the component manufacturer’s determined R-Value and the insulation installation shall be recorded as Properly Installed (PI). |
| Slab-on-grade insulation | Determine and record type, ~~grade~~PI/NPI, location, and thickness of slab-on-grade insulation and resultant R-Value. | Slab perimeter insulation is installed vertically, ~~either~~ on the outside of the slab extending above and/or below grade ~~or~~ between the foundation wall and the slab itself or separating a slab in conditioned space from a slab in unconditioned space (i.e., garage or entry porch slab). Under slab insulation is installed horizontally, either along the slab perimeter or underneath the entire slab.  Use the inspection procedures in Normative Appendix A to determine and record the insulation type and Assessed R-Value. ~~, and grade~~  The Assessed R-Value of the insulation is the R-Value entered into the energy model before determining if the insulation is Properly Installed (PI) or Not Properly Installed (NPI). The Assessed R-value can be determined by the manufacturer label, installer certification, such as the 2021 IECC, where an insulation installer has provided a certificate complying with Section R303.1.1, or based on measured thickness and manufacturer listed R-Value per unit thickness.  Visually confirm location as horizontal or vertical, record the Assessed R-Value and measure thickness. Visually confirm whether insulation product is installed for 100% of required area/perimeter and visually confirm and record Assessed R-Value. ~~If insulation is observed without a labeled R-Value, the manufacturer’s data sheet shall be used to determine the R-Value based on installed thickness.~~ For insulation materials that are installed without an observable manufacturer’s R-Value mark, or emittance value, the Certified Rater may use the manufacturer’s data sheet or an insulation certificate that complies with the requirements of the IECC and is left immediately after installation by the installer, to determine the Assessed R-Value or emittance of the installed material.  Where the slab-on-grade has different insulation types, orientation, or R-Value, the enclosure element shall be modeled separately with the applicable Assessed R-Value, orientation, and assembly areas associated with each different insulation situation. Areas of the slab-on-grade shall not be modeled separately solely based upon insulation grading.  If 100% of the area/perimeter of the slab insulation cannot be visually confirmed, inspection shall be allowed according to the non-visuak protocol below:  ~~Visually~~ Confirm insulation product is installed for ~~a minimum of 25% of~~ the area/perimeter of the slab specified for insulation and ~~visually~~ confirm and record R-Value. If insulation is observed without a labeled R-Value, the manufacturer’s data sheet shall be used to determine and record the Assessed R-Value based on installed thickness. Use the inspection procedures in Normative Appendix A to determine if insulation is PI or NPI. ~~determine and record the grade of insulation.~~ The insulation assessment ~~grade~~ of the visually confirmed area shall be applied to the rest of the area unless photos show any additional deficiencies, in which case the insulation assessment ~~grade~~ recorded shall be the worst case documented.  ~~Collect photos to confirm installation at several site locations and in sufficient detail to confirm thickness, type and grade of the insulation installation.~~  Confirm insulation installation by any one of the following methods:   1. Photos and/or Video-Photos or video evidence showing the full insulation installation (including both perimeter and under-slab insulation based on what is being used in the project) in sufficient detail to confirm full coverage and proper installation including 100% of all areas specified for insulation. Photos shall be geotagged and dated, videos shall include a site perspective showing the specific location and surrounding area. Detail photos/video footage are required which provide all inspection items as detailed in Appendix A based on insulation type, including but not limited to the following:    1. Thickness of perimeter and/or under-slab insulation by including a ruler measurement in several locations.    2. Depth of the perimeter insulation installation by including a tape measurement in several locations.    3. R-Value of the insulation by ensuring the Manufacturer’s R-Value label is included for several insulated areas, or the Manufacturer’s data sheet for the specific insulation product is provided.    4. Details of all air and water sealing at insulation joints, penetrations and/or obstructions.    5. Details of all repairs to damaged areas. 2. Virtual inspection footage that is attended, directed, and recorded by the Rater/RFI. The recording may be of the entire virtual inspection or screen shots taken during the inspection in enough detail to ensure photo documentation requirements found in these standards have been met. |
| Wall Insulation Installation | Determine and record type, ~~grade~~PI/NPI, and thickness of framed wall insulation and resultant R-Value. | Use the inspection procedures in Normative Appendix A to determine and record the insulation type and Assessed R-Value. ~~, and grade~~ The Assessed R-value of the insulation is the R-Value entered into the energy model before determining if the insulation is Properly Installed (PI) or Not Properly Installed (NPI). The Assessed R-value can be determined by the manufacturer label, installer certification, such as the 2021 IECC, where an insulation installer has provided a certificate complying with Section R303.1.1. or based on measured thickness and manufacturer listed R-Value per unit thickness.  ~~Visually~~ Confirm all areas of framed wall insulation and record the Assessed R-Value and measure thickness. ~~If insulation is observed, but the R-Value cannot be determined during site observation, the manufacturer’s data sheet shall be used.~~  For insulation materials that are installed without an observable manufacturer’s R-Value mark, or emittance value, the Certified Rater may use the manufacturer’s data sheet or an insulation certificate that complies with the requirements of the IECC and is left immediately after installation by the installer, to determine the R-Value or emittance of the installed material.  Where the wall has different insulation types, orientation, or R-Value, the enclosure element shall be modeled separately with the applicable Assessed R-Value, orientation, and assembly areas associated with each different insulation situation. Areas of the wall shall not be modeled separately solely based upon insulation grading.  For concealed pre- insulated and pre- drywalled section of insulated above grade walls that are a total 200 sqft or less such as walls behind tubs and showers, fireplaces, and furnaces rooms, a remote inspection protocol may be used as described below. In the absence of a remote inspection the insulation installation shall be graded as not properly installed.  remote inspection protocol   1. Remote/Virtual inspection video footage that is attended, directed, and recorded by the Rater/RFI may be used. The recording may be of the entire remote/virtual inspection or screen shots taken during the inspection in enough detail to ensure photo documentation requirements found in these standards have been met. Photo or video documentation of the house address and location must be included. |
|  |  | If 100% of the area of ~~the~~ continuous exterior insulation cannot be visually confirmed, inspection shall be allowed according to the protocol below:  Confirm insulation installation by any one of the following methods:   1. Photos and/or Video-Photos or video evidence showing the full insulation installation in sufficient detail to confirm full coverage and proper installation including 100% of all areas specified for insulation. Photos shall be geotagged and dated, videos shall include a site perspective showing the specific location and surrounding area. Detail photos/video footage are required which provide all inspection items as detailed in Appendix A based on insulation type, including but not limited to the following:    1. Thickness of the insulation by including a ruler measurement in several locations.    2. R-Value of the insulation by ensuring the Manufacturer’s R-Value label is included for several insulated areas, or the Manufacturer’s data sheet for the specific insulation product is provided.    3. When FPIS is specified as an air barrier and/or water-resistive barrier, details of all air and water sealing at insulation joints, penetrations and/or obstructions.    4. Details of all repairs to damaged areas. 2. Virtual inspection footage that is attended, directed, and recorded by the Rater/RFI. The recording may be of the entire virtual inspection or screen shots taken during the inspection in enough detail to ensure photo documentation requirements found in these standards have been met.   Remote Built or Panelized and delivered to site-Manufactured Housing using successful IPIA Inspections shall be considered as an acceptable alternative for the Energy Rating inspection where the manufacturer of the remote built or panelized component includes the on-site inspection procedures for insulation details and requirements in Appendix A in their DAPIA packages, which are used by IPIAs for their factory inspections. In this case, the R-Value shall be recorded as the component manufacturer’s determined R-Value and the insulation installation shall be recorded as Properly Installed (PI).  ~~Visually confirm insulation product is installed for a minimum of 25% of the area specified for insulation and visually confirm and record the Assessed R-Value and measure thickness. If insulation is observed without a labeled R-Value, the manufacturer’s data sheet shall be used to determine and record the Assessed R-Value based on installed thickness. Use the inspection procedures in Normative Appendix A to determine if the insulation is PI or NPI. determine and record the grade of insulation. The insulation assessment grade of the visually confirmed area shall be applied to the rest of the area unless photos show any additional deficiencies, in which case the insulation assessment grade recorded shall be the worst case documented.~~  ~~Photos to confirm installation at several site locations and in sufficient detail to confirm thickness, type, and grade of the insulation installation.~~  ~~If exterior insulation cannot be visually verified immediately after installation, it may be verified through comprehensive photographs that comply with the requirements given above.~~ |
| Below ~~R~~roof deck insulation | Determine and record type, ~~grade~~ PI/NPI, and thickness of below roof deck insulation and resultant R-Value. | Identify the location of the roof deck insulation. The insulation can be either above or below the roof deck.  Use the inspection procedures in Normative Appendix A to determine and record the insulation type and Assessed R-Value. ~~, and grade~~  The Assessed R-Value of the insulation is the R-Value entered into the energy model before determining if the insulation is Properly Installed (PI) or Not Properly Installed (NPI). The Assessed R-value can be determined by the manufacturer label, installer certification, such as the 2021 IECC, where an insulation installer has provided a certificate complying with Section R303.1.1, or based on measured thickness and manufacturer listed R-Value per unit thickness.  Visually confirm whether the insulation product is installed for 100% of the required area and visually confirm and record the Assessed R-Value and measure thickness. ~~If insulation is observed without a labeled R-Value, the manufacturer’s data sheet shall be used to determine the R-Value based on installed thickness.~~  For insulation materials that are installed without an observable manufacturer’s R-Value mark, or emittance value, the Certified Rater may use the manufacturer’s data sheet or an insulation certificate that complies with the requirements of the IECC and is left immediately after installation by the installer, to determine the R-Value or emittance of the installed material.  Where the roof deck has different insulation types, orientation, or R-Value, the enclosure element shall be modeled separately with the applicable Assessed R-Value, orientation, and assembly areas associated with each different insulation situation. Areas of the roof deck shall not be modeled separately solely based upon insulation grading.  If 100% of the roof area cannot be visually confirmed, inspect according to the protocol below:   * Visually confirm insulation product is installed for a minimum of 20% of the area specified for insulation and visually confirm and record the Assessed R-Value and measure thickness. * If insulation is observed without a labeled R-Value, the manufacturer’s data sheet shall be used to determine the R-Value based on installed thickness. Use the inspection procedures in Normative Appendix A to determine the grade of insulation. * The grade of the visually confirmed area shall be applied to the rest of the area unless photos show any additional deficiencies, in which case the grade recorded shall be the worst case documented. * Collect photos to confirm installation at several site locations and in sufficient detail to confirm thickness, type, and grade of the insulation installation. * If roof deck insulation cannot be visually verified immediately after installation, it may be verified through comprehensive photographs that comply with the requirements given above. |
| Above roof deck insulation | Determine and record type PI/NPI, and thickness of above roof deck insulation and resultant R-Value. | Identify the location of the roof deck insulation. The insulation can be either above or below the roof deck.  Use the inspection procedures in Normative Appendix A to determine and record the insulation type and Assessed R-Value. The Assessed R-value of the insulation is the R-Value entered into the energy model before determining if the insulation is Properly Installed (PI) or Not Properly Installed (NPI). The Assessed R-Value can be determined by the manufacturer label, installer certification, such as the 2021 IECC, where an insulation installer has provided a certificate complying with Section R303.1.1, or based on measured thickness and manufacturer listed R-Value per unit thickness.  Visually confirm whether the insulation product is installed for 100% of required area and visually confirm and record the Assessed R-Value and measure thickness.  For insulation materials that are installed without an observable manufacturer’s R-Value mark, or emittance value, the Certified Rater may use the manufacturers data sheet or an insulation certificate that complies with the requirements of the IECC and is left immediately after installation by the installer, to determine the R-Value or emittance of the installed material.  Where the roof deck has different insulation types, orientation, or R-Value, the enclosure element shall be modeled separately with the applicable Assessed R-Value, orientation, and assembly areas associated with each different insulation situation. Areas of the roof deck shall not be modeled separately solely based upon insulation grading.  If 100% of the continuously insulated above roof deck area cannot be visually confirmed, inspection shall be allowed according to the Non-Visual Protocol below:  Confirm insulation installation by any one of the following methods:   1. Photos and/or Video - Photos or video evidence showing the full insulation installation in sufficient detail to confirm full coverage and proper installation including 100% of all areas specified for insulation. Photos shall be geotagged and dated, videos shall include a site perspective showing the specific location and surrounding area. Detail photos/video footage are required which provide all inspection items as detailed in Appendix A based on insulation type, including but not limited to the following: 2. Thickness of the insulation by including a ruler measurement in several locations. 3. R-Value of the insulation by ensuring the Manufacturer’s R-Value label is included for several insulated areas, or the Manufacturer’s data sheet for the specific insulation product is provided. 4. When FPIS is specified as an air barrier and/or water-resistive barrier, details of all air and water sealing at insulation joints, penetrations and/or obstructions. 5. Details of all repairs to damaged areas. 6. Virtual inspection footage that is attended, directed, and recorded by the Rater/RFI. The recording may be of the entire virtual inspection or screen shots taken during the inspection in enough detail to ensure photo documentation requirements found in these standards have been met. 7. Remote Built or Panelized and delivered to site-Manufactured Housing using successful IPIA Inspections shall be considered as an acceptable alternative for the Energy Rating inspection where the manufacturer of the remote built or panelized component includes the on-site inspection procedures for insulation details and requirements in Appendix A in their DAPIA packages, which are used by IPIAs for their factory inspections. In this case, the R-Value shall be recorded as the component manufacturer’s determined R-Value and the insulation installation shall be recorded as Properly Installed (PI).   ~~If 100% of the roof area cannot be visually confirmed, inspect according to the protocol below:~~   * ~~Visually confirm insulation product is installed for a minimum of 25% of the area specified for insulation and visually confirm and record the Assessed R-Value and measure thickness.~~ * ~~If insulation is observed without a labeled R-Value, the manufacturer’s data sheet shall be used to determine and record the R-Value based on installed thickness. Use the inspection procedures in Normative Appendix A to determine and record the grade of insulation.~~ * ~~The grade of the visually confirmed area shall be applied to the rest of the area unless photos show any additional deficiencies, in which case the grade recorded shall be the worst case documented.~~ * ~~Collect photos to confirm installation at several site locations and in sufficient detail to confirm thickness, type, and grade of the insulation installation.~~ * ~~If roof deck insulation cannot be visually verified immediately after installation, it may be verified through comprehensive photographs that comply with the requirements given above.~~ |