How-to Guide:
TR-8 Inspections Reporting

In Compliance with

New York City Energy Conservation Code,
1 RCNY 5000-01 Progress Inspections
& 1 RCNY 101-07 Administration

- GENERAL
- **BUILDING ENVELOPE**
- MECHANICAL SYSTEMS
- LIGHTING & ELECTRICAL POWER
- OTHER REQUIREMENTS

*** For the purposes of this guide, the word "document" shall mean to describe, and photograph observed conditions.**
Design requirements related to inspections below may be referenced in How-to Guide: Supporting Documentation

NOTE: In this *How-To Guide: Supporting Documentation*, selected Energy Code provisions have been generalized, summarized, rephrased, and/or highlighted. This guide is intended: 1) To provide general guidance for the job applications seeking compliance with the 2020 NYCECC; 2) Not to replace or represent the entire 2020 NYCECC and related regulations of the City of New York and the Department of Buildings; and 3) Not to provide complete compliance solutions for any particular type of job or work. Comprehensive mandates, applicability, exemptions, exceptions and options will be found in the 2020 NYCECC and related regulations of the City of New York and the Department of Buildings.

PROTECTION OF EXPOSED FOUNDATION INSULATION - IA1 , IIA

▪ Inspection / Test Required

R303.2.1
C303.2.1
ASHRAE 90.1-5.8.1, 5.9

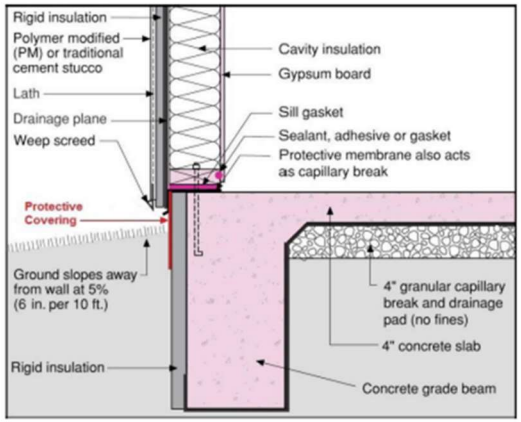
- **IA1, IIA1 - Protection of exposed foundation insulation:** Insulation must be visually inspected to verify proper protection where applied to the exterior of basement or cellar walls, crawl-space walls and/or the perimeter of slab-on-grade floors.
- Inspector shall verify covering to prevent the degradation of the insulation's thermal performance. The protective covering shall cover all exposed exterior insulation and extend not less than 6 inches below grade. during foundation work, prior to backfill.

▪ Observations, Comments & Description

- Verify that material covering exposed insulation is rigid, opaque & weather-resistant and that it extends to a min. 6" below grade.
- Description must indicate type, thickness & depth of material with explanation of how material was adhered to wall.
- Where insulation remains exposed, Inspector shall document deviation, location, and remedy.

▪ Photographic Documentation

- Verify as-built conditions match specifications in construction drawings.
- Provide photograph of reference detail and photograph(s) of covering material at each exposure, as applicable.
- Where insulation remains exposed, Inspector shall document deviation at location and may recommend remedy.



Inspector shall verify, in all cases, that the proposed materials are the correct type, thickness and value, installed in the specified location as detailed on the Approved Plans and/or indicated in the manufactuers installation specifications.

▪ Remarks & Remedy

- Remarks and Remedy shall include the disposition of each Inspection: *Conformance per plans, Work in progress, Pending re-inspection, Non-compliant built conditions identified, Conflict with drawings identified*, etc.
- Inspector may provide recommendations and remedial actions to be verified, as applicable

INSULATION PLACEMENT & R-VALUES - IA2 , IIA2

▪ Inspection Required	
- **IA2, IIA2 Insulation placement and R-values:** Installed insulation for each component of the conditioned space envelope and at junctions between components, including thermal bridges and heated slab insulation, must be visually inspected to ensure that the R-values are marked, that such R-values conform to the R-values identified in the construction documents and that the insulation is properly installed. Certifications for unmarked insulation must be similarly visually inspected. - Inspector shall verify continuous enclosure at exterior of each exposure prior to completion of cladding, rainscreen or veneer. - Compliance at interior locations shall be verified while walls, ceilings and floors are open, prior to the installation of interior gypsum board or other finishes.	*R303, R402. C303.2, C402.1, C402.2, C402.6, C406; ASHRAE-90.1 5.5, 5.6, 5.8, 5.9, 11 or Appendix G, Appendix I*
▪ Observations & Comments	
- Verify that all insulation materials are installed in accordance with (i) the manufacturer's installation instructions, (ii) the specified details in the DOB approved plans and (iii) the applicable provisions of the New York City Construction Codes. - Description must indicate type, thickness & depth of material with explanation of how material was secured. ○ For exterior rigid or mineral wool insulation, Inspector shall document that panels are joined without gaps, multiple layers have seams overlapped, as required, and materials are continuous without interruptions or voids, except as specified. ○ For batt insulation, Inspector shall document that insulation has been installed to completely fill each cavity. Photographs shall clearly show the manufacturer's label on facing or, if unfaced, a closeup of the installation showing both the cavity depth and insulation thickness to verify that the cavity is filled completely. ○ For spray foam installations, the inspector shall document the type of insulation installed and verify that the installation was completed to the R-value specified. Where cavities are specified to fill the full depth of framing, the inspector shall document that insulation is finished flush to the face of framing without gaps, voids or separation from sheathing or framing members. ○ In all cases, the Inspector shall use a standard measuring device to indicate the framing conditions and the finished depth of cured insulation. ○ Where insulation cannot be verified by label or measurement, Inspector must provide a site specific, dated Installers Certificate or other evidence to verify the type and thickness installed. (Manufacturers specification sheets shall not be deemed acceptable as the sole means to verify compliance.) ○ Where insulation is not installed as described above, Inspector shall document all deviations by location and may recommend remedy prior to re-inspection where necessary.	

▪ Photographic Documentation

- Verify as-built conditions match specifications in construction drawings. Provide photo for entire façade at each exposure.
- Provide photograph of reference detail and photograph(s) of covering material at each exposure, as applicable.
- Each photograph must be labeled with floor, exposure, and location of observation.
- Where insulation does not have visible label, Inspector shall document thickness with measured close-up photograph.
- Where insulation type is not clearly labeled, Inspector shall provide manufacturers specification to support observations.
- Where insulation is not installed correctly, Inspector shall document deviation at each location and may recommend remedy.

XPS nstalled without gaps that has clearly visible labeling is acceptable

XPS installed on wall with no label visible requires close up measurement & spec.

All measueremnts should be show ruler or gauge close-up and be clearly visible

Mineral wool on exterior should be secured proprely within full cavity of girts

Gauge should be used to verify full depth of rigid insulation measured to sustrate

Mineral wool or unfaced batt installed to face of framing requires measurement

Photographic Documentation (continued)

Batt should be installed with vapor barrier to face of framing with label clearly visible

Sprayfoam must uniform or trimmed to framing, Provide Certicate to verify install.

Insulation contrary to specification is unacceptable with folds and voids

Exterior rigid insulation with no contact at new building wall is unacceptable

Sprayfoam with gaps, inconsistent depth or cavity not filled evenly is unacceptable

Measuring cavities with unruled devices cannot be verified and must be avoided

Remarks & Remedy

- Remarks and Remedy shall include the disposition of each Inspection: *Conformance per plans, Work in progress, Pending re-inspection, Non-compliant built conditions identified, Conflict with drawings identified*, etc.
- Inspector may provide recommendations and remedial actions to be verified, as applicable

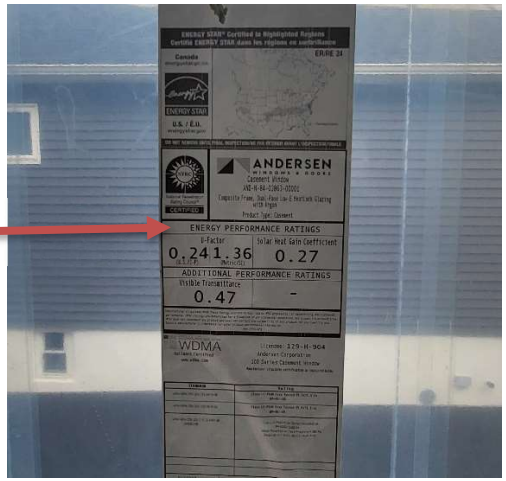
FENESTRATION & DOOR U-FACTOR AND PRODUCT RATING - IA3 , IIA3

▪ Inspection Required	
- **IA3, IIA3 Fenestration and door U-factor and product ratings:** U-factors, SHGC and VT values of installed fenestration must be visually inspected for conformance with the U-factors, SHGC and VT values identified in the construction drawings by verifying the manufacturer's NFRC labels or, where not labeled, using the ratings in ECC Tables C303.1.3(1), (2) and (3). - U-factors of fenestration products such as windows, doors and skylights shall be determined in accordance with NFRC 100 and NFRC 200. (Garage doors may also be tested according to ANSI/DASMA 105.) - Inspector shall verify U-factors, SHGC and VT values of all windows & doors during installation by reference to product labels on manufactured units or certified NFRC reports for unlabeled units. - Compliance shall be verified prior to completion of insulation and/or interior finishes. If NFRC reports are presented, the Inspector may verify values of installed units against a shipping manifest or other delivery documentation for site inspected prior to the completion of the installation.	*R303.1, R402 C303.1, C303.1.3, C402.1.4, C402.4, C406; ASHRAE 90.1 – 5.4.2, 5.5, 5.6, 5.8.2, 5.9, 11 or Appendix G, Appendix I ,* NFRC 100, 200 NFRC 400
▪ Observations & Comments	
- Verify that all fenestration is installed in accordance with (i) the manufacturer's installation instructions, (ii) the specified details in the DOB approved plans and (iii) the applicable provisions of the New York City Construction Codes. - Description must indicate type of unit (operable, fixed, storefront or curtain wall) with explanation of how unit is secured to the wall and sealed to mitigate infiltration at frame. - Where manufacturers fenestration labels are not present, Inspector may provide a current report for each unit type to certify fenestration assembly values rated in accordance with NFRC. Report must be from an accredited, independent laboratory and reference the specific site and conditions observed. (Fabrication labels with glass performance only (COG value) will not be accepted.) (Mathematical conversion of metric U-factors (from W/m2K) for non-NFRC rated units will not be accepted.) - Where any unit is not installed as described above, Inspector shall document all deviations by location and may recommend remedy prior to re-inspection where necessary.	

▪ Photographic Documentation

- Verify as-built conditions match specifications in construction drawings.
- Provide full frame photograph of each unit type at each exposure with related close-up of certification label.
- Where fenestration does not have visible label, Inspector shall document unit and cross reference with NFRC report.
- Where unit is not installed correctly, Inspector shall document deviation at each location and may recommend remedy.

All fenestration must be documented at each exposure. A full frame photograph establish the location with marked reference to construction detail



Where label is available, Inspector shall document with close-up photo of label and verify values against the Energy Analysis and window scheule.

Where values cannot be identified by sticker or placard, the Inspector must request a current, site specific copy of the NFRC report to certify installed unit.

▪ Remarks & Remedy

- Remarks and Remedy shall include the disposition of each Inspection: *Conformance per plans, Work in progress, Pending re-inspection, Non-compliant built conditions identified, Conflict with drawings identified*, etc.
- Where all units are found to be compliant, Inspector shall document at least one unit of each type and submit report.
- Where fenestration unit cannot be verified using the methods above, or the installed units do not conform to Approved specification, Inspector shall notify the Applicant or Record and Owner. Applicant of record shall be responsible to submit a Post Approval Amendment to update the Approved drawings to reflect the installed units.
- Where deviations occur, Inspector may provide recommendations and remedial actions to be verified, as applicable.

FENESTRATION AIR LEAKAGE - IA4 , IIA4

▪ Inspection Required	
- **IA4 , II4 Fenestration air leakage:** Windows, [skylights] and door assemblies, except site-built windows, [skylights] and/or doors, must be visually inspected to verify that installed assemblies are listed and labeled by the manufacturer to the referenced standard. For curtain wall, storefront glazing, commercial entrance doors and revolving doors, the testing reports must be reviewed to verify that the installed assembly complies with the standard cited in the approved plans. Weather seals at loading docks must be visually verified. - Inspector shall verify air leakage rate of all windows & doors during installation by reference to product labels on manufactured units. Where label is not visible, Inspector must request certified NFRC 400 reports for unlabeled units. - Compliance shall be verified prior to completion of interior finishes surrounding unit frames. If NFRC reports are presented, the Inspector may verify values of installed units against a delivery documentation prior to the completion of the installation.	*R402.4.3 C402.5.2, C402.5.6; ASHRAE 90.1 – 5.4.3.2, 5.4.3.3, 5.8.2, 5.9* NFRC 400
▪ Observations & Comments	
- Verify that all fenestration is installed in accordance with (i) the manufacturer's installation instructions, (ii) the specified details in the DOB Approved plans and (iii) the applicable provisions of the New York City Construction Codes. - Description must indicate type of unit (operable, fixed, storefront or curtain wall) with explanation of how unit is sealed to mitigate infiltration between wall construction and fenestration frame. - Inspector shall provide a current testing report for each unit type to certify that air leakage values are rated in accordance with NFRC from an accredited, independent laboratory with reference to the specific site and conditions observed	

▪ Photographic Documentation	
- Verify as-built conditions match specifications in construction drawings. - Provide full frame photograph of each unit type at each exposure with related close-up of sealing. - Where unit is not sealed correctly, Inspector shall document deviation at each location and may recommend remedy.	
▪ Remarks & Remedy	
- Remarks and Remedy shall include the disposition of each Inspection: *Conformance per plans, Work in progress, Pending re-inspection, Non-compliant built conditions identified, Conflict with drawings identified,* etc. - Where all units are found to be compliant, Inspector shall document at least one unit of each type and submit report. - Where fenestration unit cannot be verified using the methods above, or the installed units do not conform to Approved specification, Inspector shall notify the Applicant or Record and Owner. Applicant of record shall be responsible to submit a Post Approval Amendment to update the Approved drawings to reflect the installed units. - Where deviations occur, Inspector may provide recommendations and remedial actions to be verified, as applicable.	

FENESTRATION AREAS - IA5 , IIA5

▪ Inspection Required	
- **IA5 , II5 Fenestration areas:** Dimensions of windows, doors and skylights must be verified by visual inspection. - Inspector shall verify gross area of each window & door during installation by reference to product manufacturer labels or by physical measurement of installed units on-site. - Compliance shall be verified by comparing the total gross area measured on-site at each exposure with the gross areas represented for each façade on the Energy Analysis and Approved plans.	*R402.3 C402.4; ASHRAE 90.1 – 5.4, 5.5.4, 5.6, 5.9,11 or Appendix G*
▪ Observations & Comments	
- Verify that all fenestration is sized per the specified details in the DOB approved plans and (iii) the applicable provisions of the New York City Construction Codes. - Description must indicate type of unit (operable, fixed, storefront or curtain wall) with verification of installed frame size. - Supporting documentation shall include EN analysis indicating the Window /Wall ratio, elevation drawings and/or window schedule showing unit sizes or elevation calculations indicating unit sizes and locations per the DOB Approved Plans.	

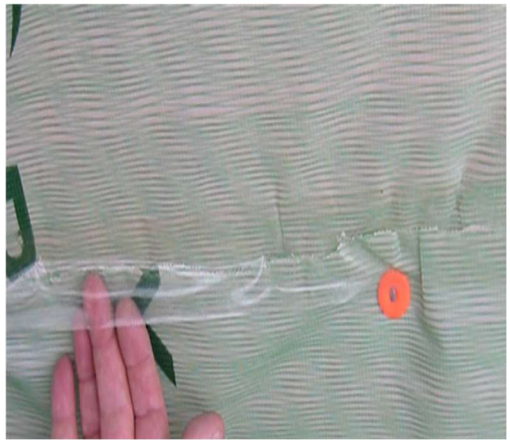
▪ Photographic Documentation	
- Verify as-built conditions match specifications in construction drawings. - Provide full frame photograph of each building exposure matching drawn elevations. - Where unit size or placement on any exposure does not match, Inspector shall document deviation at each location and notify the Applicant or Record and Owner. Applicant of Record shall be responsible to submit a Post Approval Amendment to update the approved drawings to reflect the location and sizes of installed units.	
▪ Remarks & Remedy	
- Remarks and Remedy shall include the disposition of each Inspection: *Conformance per plans, Work in progress, Pending re-inspection, Non-compliant built conditions identified, Conflict with drawings identified*, etc. - Where all units are found to be compliant, Inspector shall document all exposures and submit report. - Where deviations occur, Inspector may provide recommendations and remedial actions to be verified, as applicable.	

AIR BARRIER - VISUAL INSPECTION - IA6 , IIA6

▪ Inspection Required – (to meet Mandatory Requirements)	
- **IA6 , Air barrier - visual inspection:** Openings and penetrations in the building envelope, including site-built fenestration and doors, must be visually inspected to verify that they are properly sealed, in accordance with Table R402.4.1.1 - **IIA6, Air barrier - visual inspection:** Openings and penetrations in the building envelope, including site-built fenestration and doors, must be visually inspected to verify that a continuous air barrier around the envelope forms an air-tight enclosure. The progress inspector must visually inspect to verify that materials and/or assemblies have been tested and meet the requirements of the respective standards or must observe the testing of the building and/or assemblies and verify that the building and/or assemblies meet the requirements of the standard, in accordance with the standard(s) cited in the approved plans. - Air barrier inspections consist of a multi-step process. During each consecutive visit, Inspector shall document the proper construction and continuity of air infiltration barrier against any leakage during installation. - Examples of exterior envelope components to be inspected include, but are not limited to, house wrap, fluid-based wall or floor coatings, taping or flashing at seams and material junctions, gasketing of mechanical penetrations, fully engaged sill seals, etc. - Upon commencement of interior work, Inspections shall include, but are not limited to, fenestration sealing, pipe and outlet penetrations, rim joists, duct enclosures, attic hatches, sealing between conditioned and unconditioned spaces , sealing around lighting fixtures, etc.	*R402.4 C402.5; ASHRAE 90.1 – 5.4.3.1, 5.4.3.5, 5.9*
▪ Observations & Comments	
- Document that all envelope components are installed in accordance with (i) the manufacturer's installation instructions, (ii) the specified details in the DOB Approved plans and (iii) the applicable provisions of the New York City Construction Codes. - Description must indicate the type and location of each component inspected with explanation of how the envelope was sealed to mitigate infiltration. Typical components to be reported shall include: - Whole Building Air Infiltration Barrier consisting of a house wrap, liquid applied infiltration compound, self-adhering membrane, or other approved material. Inspector shall describe installation process, how material is secured to substrate, how & where material joints or seams are sealed. Installation shall be free of damage or discontinuity (bubbles, tears, open gaps, unsealed seams, etc.) - Fenestration shall be sealed between frame and walls with non-fibrous material to provide complete seal along length of surround. - Penetrations through building envelope shall be sealed between unit and walls/roof. Ducts, vents, structural elements, cladding sub-structure, etc. must be sealed to resist wind pressure. - Where any component is not installed as required, Inspector shall document all deviations by location and may recommend remedy prior to re-inspection where necessary.	

▪ Photographic Documentation

- Verify as-built conditions match specifications in construction drawings.
- Provide photographs of installed infiltration barrier at each exposure and at each unique material transition
- Provide photographs of the typical fenestration sealing conditions. Documentation must include at least on example of each fenestration unit within each specific wall type (e.g. window in mass wall and door/window unit in framed wall, where applicable).
- Where unit is not installed correctly, Inspector shall document deviation at each location and may recommend remedy.



Infiltration barrier shall be continuous with all seams securely fastened and made weathertight. Loose sealant / tape or seams that do not overlap must be noted.

Document that all surrounds are sealed weathertight. Non-fberous materials such as spray foam, backer rod & tape may be used. Batt or wool must not be accepted.

All penetrations must be sealed. Ties, brackets or anchors should documented as weathertight. Gaps or unsealed penetrations must be noted.

▪ Remarks & Remedy

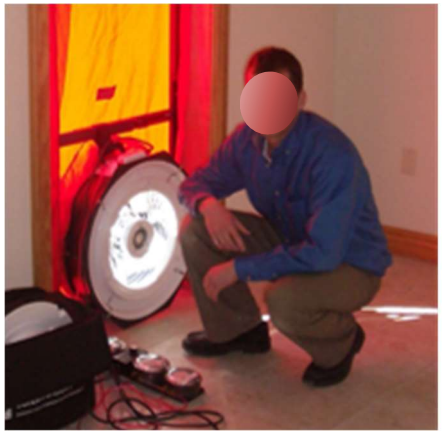
- Remarks and Remedy shall include the disposition of each Inspection: *Conformance per plans, Work in progress, Pending re-inspection, Non-compliant built conditions identified, Conflict with drawings identified,* etc.
- Where all components are found to be compliant, Inspector shall document at least one unit of each type and submit report.
- Where component cannot be verified using the methods above or work does not conform to approved specification, Inspector shall notify the Applicant or Record and Owner. Applicant of record shall be responsible to submit a Post Approval Amendment to update the Approved drawings to reflect the as-built conditions.
- Where deviations occur, Inspector may provide recommendations and remedial actions to be verified, as applicable.

AIR BARRIER - TESTING - IA7,IIA7

Inspection Required – (to meet Mandatory Requirements)	
- **IA7, Air barrier testing:** Testing must be performed in accordance with section R402.4.1.2 or R402.4.1.3 and shall be accepted if the building meets the requirements detailed in such section. Test results must be retained in accordance with the provisions of Title 28. Testing must be performed by a third-party independent of the contractor and acceptable to the department. - **IIA7 Air barrier testing:** Testing must be performed in accordance with section ECC C402.5.1.3.1 or ASHRAE 90.1 section 5.4.3.1.3, and shall be accepted if the building meets the requirements detailed in such section. Test results must be retained in accordance with the provisions of Title 28 of the Administrative Code. Testing must be performed by a third party independent of the contractor and acceptable to the department. , - Air barrier testing may require a multi-step process. Prior to any test, Inspector shall visually inspect and document the proper construction and continuity of air infiltration barrier against any leakage. Where testing is mandatory, the Progress Inspector shall witness the third-party testing in accordance with IA6 or IIA6 quoted above. - Where the testing does not meet the requirements of the code sections cited above or the Approved plans, Inspector shall require remediation and follow-up testing to certify compliance.	*R402.4.1 C402.5, C402.5.1.3, C406; ASHRAE 90.1 – 5.4.3.1.3, 5.9, Appendix I*
Observations & Comments	
- Document that all envelope components are installed in accordance with (i) the manufacturer's installation instructions, (ii) the specified details in the DOB approved plans and (iii) the applicable provisions of the New York City Construction Codes. - Document testing to indicate: - Description of test(s) conducted must include, in addition to standard header information, the building characteristics, testing boundary (with documentation supporting either enclosure area or volume calculations) , Testing standard applied, performance target, testing method (whole building, compartmentalized or other), test results indicating both pressurized and de-pressurized values with averages clearly highlighted for reference, flow exponent, correlation coefficient, equivalent air leakage and normalized enclosure tightness (ACH at Pa or CFM/SF at Pa) highlighted to demonstrate passing rate (accurately indicated to three decimal places). - Where any test cannot be completed or does not indicate compliance with mandatory requirements, Inspector shall document all deviations and may recommend remedy prior to re-testing where necessary.	

▪ Photographic Documentation

- Verify as-built conditions match specifications in construction drawings.
- Provide photographs of the site-specific testing conditions. Documentation must include verification of test being conducted with examples of blower door unit / metering equipment and sealed building components, where applicable.
- Should test indicate that building does not meet he requirements for air tightness, Inspector shall document deviations at each location and may recommend remedy.



Document testing set up with time stamped photo showing equipment installed on-site. Where applicable, show example of test being conducted.

Document that all surrounds are sealed weathertight or left unaltered as required by testing method applied. Verify with contractor prior to test.

Where test fails to meet requirements, contractor shall test penetrations or openings to determne locations of leakage and Inspector shall document.

▪ Remarks & Remedy

- Remarks and Remedy shall include the disposition of the Infiltration testing: *Test conducted - in compliance, Test conducted – remedy required, Additional testing required*, etc.
- Where all building is found to be compliant, Inspector shall document qualifying test and submit report.
- Where compliance cannot be verified using the methods above or work does not conform to approved specification, Inspector shall notify the Applicant or Record and Owner. Applicant of Record shall be responsible to submit updated specifications to reflect the remedies required to as-built conditions. Additional test shall be performed upon completion of remedy.
- Where deviations occur, Inspector may provide recommendations and remedial actions prior to re-testing, as applicable.

AIR BARRIER CONTINUITY PLAN - IIA8

▪ Inspection Required – (to meet Mandatory Requirements as determined by Registered Design Professional)

C402.5.1.3; ASHRAE 90.1 – 5.4.3.1.3, 5.9

- **IIA 8 - Air Barrier Continuity Plan testing:** Each unique air barrier joint or seam must be tested or inspected for compliance. Documentation includes the method of test performed on each unique air barrier joint or seam and the results of the test. If an air barrier joint or seam has a deficiency, the deficiency must be noted, and retested until it complies with the testing requirements. Test results shall be retained in accordance with the provisions of Title 28 of the Administrative Code.
  [Where indicated,] Testing must be performed by a third-party independent of the contractor and acceptable to the Department.
- Air barrier inspection & testing may require a multi-step process completed in accordance with ASTM E779, ASTM E1186, ASTM E2813, ASTM E3158 and/or as detailed in the ABC Plan. Prior to any test, Inspector shall document the proper construction & continuity of the air infiltration barrier against any leakage here testing is mandatory, the Progress Inspector shall witness the third-party testing in accordance with IA6 or IIA6 quoted above.
- Where the testing fails or inspections do not meet the requirements of the ABC Plan detailed on the Approved plans, Inspector shall require remediation and follow-up testing or inspection to certify compliance.

VESTIBULES - IIA9

▪ Inspection / Test Required (as applicable)

- **IIA9, Vestibules:** Required entrance vestibules must be visually inspected for proper operation.
- Inspector shall verify proper operation of self-closing devices and sealing of vestibule to meet required thermal performance.

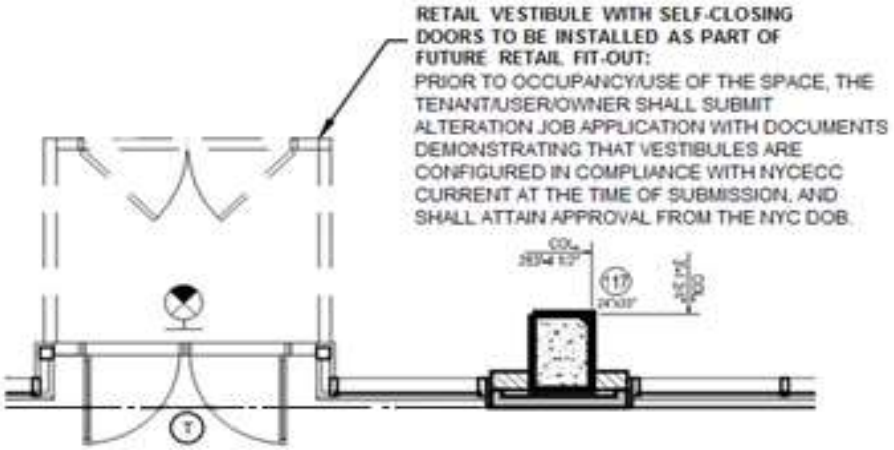
C402.5.7; ASHRAE 90.1 – 5.4.3.4

▪ Observations, Comments & Description

- Verify that completed vestibule is weather-tight and sealed per design documents.
- Verify that closers are properly calibrated to accommodate both positive and negative pressure that may be applied.
- Where vestibule does not meet requirements, Inspector shall document deviation at location and may recommend remedy.

▪ Photographic Documentation

- Verify as-built conditions match specifications in construction drawings.
- Provide photograph of reference detail and photograph(s) of vestibule, as applicable.



▪ Remarks & Remedy

- Remarks and Remedy shall include the disposition of each Inspection: *Conformance per plans, Work in progress, Pending re-inspection, Non-compliant built conditions identified, Conflict with drawings identified*, etc.
- Inspector may provide recommendations and remedial actions to be verified, as applicable.