OSFM
NC DEPARTMENT OF INSURANCE

ENGINEERING
Tel 919.647.0000 Fax 919.715.0067

MIKE CAUSEY, INSURANCE COMMISSIONER & STATE FIRE MARSHAL
BRIAN TAYLOR, CHIEF STATE FIRE MARSHAL

July 9, 2020

Robert R. Bistry, AIA
Built Form, LLC
935 W. Chestnut St., Suite 520
Chicago, IL 60642

RE: Use of EIFS in a Primary Fire District
2012 NCBC Section D102.2.11

Mr. Bistry:

This letter is in response to your request for formal interpretation dated June 24, 2020 that was received in NCDOI by email on June 30, 2020. Your letter indicates request for interpretation regarding the use of EIFS in a primary fire district as it relates to 2012 NC Building Code (NCBC), Section D102.2.11. In particular the issue is related to a current project at 466 Hay Street, Fayetteville, NC. Your question, in my words, is:

> Does 2012 NC Building Code, Section D102.2.11 – Plastic Veneer prohibit the use of Exterior Insulation and Finish Systems (EIFS) on the exterior of a building located in the primary fire district?

Code Analysis:

As you probably know, the purpose of Appendix D is to reduce the risk of fire and the spread of fire within the more densely built area of a fire district. Section D102.2.11 is then part of that purpose. D102.2.11 does indeed use the term "plastic veneer" just as does Section 2605. Like the attached letter that you provided from Carolina Specialty Engineering dated June 1, 2020, I would conclude that the code intends to limit the application of D102.2.11 to products that fall within the scope of Section 2605.

EIFS is actually, as the name indicates, a system. It is made up of a foam plastic insulation covered with a fiber cement material. The cement material is then the exterior finish and the foam plastic an insulation.

Conclusions:

The fiber cement material of the EFIS is the exterior finish. The foam plastic of the EIFS is insulation material located behind the finish material and is not required to comply with D102.2.11. However, the exterior wall upon which the EIFS is installed is required to comply with Sections D102.2.1, D102.2.6, Table 601, Table 602, and Section 705.5 regarding fire resistance rating. The EIFS must be tested as part of any exterior rated wall assembly to ensure the rating is not compromised by the additional fuel load of the EIFS. The foam plastic of the EIFS must also comply with Section 2603 – Foam Plastic Insulation as required by Section 1408.1.

Professional Caution:

Although the NCBC currently allows the use of EIFS on high-rise buildings it would be professionally prudent to not place such material on the exterior of a high-rise building in light of recent fire events involving high-rise buildings with EIFS exteriors. A fire that reaches the exterior of the building could extend beyond the reach of firefighting equipment and pose additional unnecessary risk to the occupants and the building.

As a matter of reference, a copy of your letter of request for formal interpretation (Attachment A below) and associated exhibits are included with this letter.

Please call if you have comments or questions.

Sincerely,

Carl Martin, RA
Chief Code Consultant

cc: File
Robbie Davis, Chairman – BCC
Daniel Priest, Chairman Building Standing Committee – BCC
Wayne Hamilton, Chairman Fire Prevention Standing Committee – BCC
Cliff Isaac, Deputy Commissioner of Engineering – NCDOI
Jason Everage – Fayetteville Chief Building Official
Mike Hill – Fayetteville Fire Chief

ATTACHEMNT A

APPENDIX E
APPEALS
NORTH CAROLINA
BUILDING CODE COUNCIL

325 North Salisbury Street, Room 5_44
Raleigh, North Carolina 27603
(919) 647-0009

APPEAL TO NCDOI/NCBCC Hearing Date_____/_____/_____

GS 153A-374, GS 160A-434
Formal Interpretation by NCDOI X_____
Appeal of Local Decision to NCDOI _____

GS 143-140, GS 143-141
Appeal of Local Decision to NCBCC _____
Appeal of NCDOI Decision to NCBCC _____

APPELANT: BUILT FORM ARICTECTURE, LLC__ PHONE: (312)-738-3835
REPRESENTING: PRINCE CHARLES HOLDINGS, LLC_____
ADDRESS: 935 W. Chestnut Street, Suite 520_____
CITY: Chicago_____ STATE: IL_____ ZIP: 60642_____
E-MAIL: bbistry@built-form.net cc: ayoung@built-form.net FAX: (_____) _____-_____

North Carolina State Building Code, Volume 2012 – Appendix D - Section D102.2.11_____

REQUEST ONE: [X] Formal Interpretation by NCDOI [ ] Appeal of Local Decision to NCBCC
[ ] Appeal of Local Decision to NCDOI [ ] Appeal of NCDOI Decision to NCBCC

Type or print. Include all background information as required by the referenced General Statutes and the attached policies. Attach additional supporting information.

With regards to the above referenced project, there has been inconsistency in interpretation that classifies EIFS as a Plastic Veneer and will not allow its use in a Fire District per Section D102.2.11. Our interpretation of the building code is such that EIFS is not a Plastic Veneer and therefore permitted for use in Fire Districts. See corresponding letter from Built Form for additional supporting information.

REASON:
City of Fayetteville takes no objection to our interpretation. DIO has stated through email a different interpretation.

Signature: Robert R Bistry Date: 6/24/20_____ FORM 3/14/17

BUILT FORM
ARCHITECTURE

N.C. Department of Insurance
Office of State Fire Marshal
1202 Mail Service Center
Raleigh, NC 27699-1202

Re: Hay Street Mixed-use Development- Phase 2
466 Hay Street, Fayetteville NC, 28301

For the project noted above, the Code of record is the 2012 Edition of the North Carolina Building Code (NCBC) which is based on the 2009 Edition of the International Building Code (IBC) with North Carolina specific amendments.

We are submitting a request for formal code interpretation from the Department of Insurance regarding the use of EIFS in a Primary Fire District. We have received mixed interpretations from the City of Fayetteville and DIO by way of in-person meetings and email correspondence. I have attached the latest email from DOI to the City of Fayetteville regarding this matter. The city has accepted the use of EIFS in their Downtown Fire District, however, DOI has defined it as a "plastic veneer" and therefore prohibited under Section D102.2.11 which states, *"Exterior plastic veneer is not permitted in the fire district"*.

It is our interpretation that EIFS is not a plastic veneer (defined in 2012 NCBC section 2605), and that it is covered as a separate building material under 2012 NCBC Section 1408. The product that we are proposing meets all regulatory testing and fire resistance requirements for use, including NFPA 285, ASTM E119/UL 263, ASTM E84/UL 723, and NFPA 268.

For additional consideration, please see attached letter, 'Engineering Code Interpretation For Code Complaint Use of EIFS in Fire Districts', by Carolina Specialty Engineering, P.C., a Fire Protection Consultant we engaged for a code review of the proposed product application. It is our unanimous interpretation that EIFS is allowed to be used as an exterior wall cladding system in the Primary Fire District of Fayetteville, NC.

Sincerely,
Robert, R. Bistry, AIA

Cc;
A.Freeman (BFA)
A.Young (BFA)

935 W. CHESTNUT ST. SUITE 520 CHICAGO, IL 60642 312-738-3835
WWW.BUILT-FORM.NET

June 1, 2020

Mr. Justin Webb
Sto Corp.
3800 Camp Creek Pkwy.
Bldg. 1400, Suite 120
Atlanta, GA 30331

RE: Engineering Code Interpretation For Code Complaint Use of EIFS in Fire Districts
Hyatt Place Hotel 465 Hay St., Fayetteville, NC 28301
Project No. 1JJB05184.001

Dear Mr. Webb:

Carolina Specialty Engineering, P.C. (Carolina Specialty) has completed our code evaluation regarding the use of EIFS in a Fire District. The following Executive Summary of our engineering opinions and a full technical analysis are provided below for your review and consideration.

- The building code evaluates Plastic Veneers for fire performance via small-scale fire tests the same way as Light Transmitting Plastics (Section 2605.2 Item 1 directs the reader to Section 2606.4) and shall be combustibility Class CC1 or Class CC2. The IBC code commentary states that "Class CC1 plastic generally consist of polycarbonate materials whereas Class CC2 plastics consist of acrylics".

- EIFS are evaluated for fire performance via full-scale tests that evaluate the entire exterior wall assembly and demonstrates its ability to resist excessive vertical and lateral flame spread in an exterior application for any building height and unlimited coverage area: NFPA 285, ASTM E119/UL 263, ASTM E84/UL 723, and NFPA 268.

- The building codes consider Plastic Veneer materials to be composed of materials that resemble Light Transmitting Plastics and not foam plastic insulation systems such as those used in EIFS. Based on this, it is our opinion that EIFS do not fit the "definition" of a Plastic Veneer and as such, Section D102.2.11 does not apply to EIFS. The requirements contained in Section 1408 (in addition to other requirements in Chapters 7, 14, and 26 in particular with regards to fire performance) provide significant requirements for fire performance to allow for EIFS to be used on buildings of any height in all areas.

Based on our conversations with the STO Corp., it is Carolina Specialty's understanding that the North Carolina Department of Insurance (NC DOI) has interpreted Exterior Insulation and Finish Systems (EIFS) that contain foam plastic insulation to be classified as a Plastic Veneer and subject to the code provisions within Appendix D (Fire Districts) of the North Carolina Building Code (NCBC). Pursuant to Appendix D Section D102.2.11 of the NCBC, Plastic Veneers are not permitted in a Fire District and NC DOI is extending that code provision to include EIFS, which prohibit the use of EIFS in the Primary Fire District of downtown Fayetteville, NC.

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The following analysis will outline the code interpretation by NC DOI to restrict the use of EIFS in a Fire District and Carolina Specialty's interpretation of the pertinent code sections to show that EIFS are specifically addressed elsewhere in the code and are subjected to more severe fire testing than a traditional plastic veneer. By meeting these more severe fire testing requirements, EIFS should be permitted for use in Fire Districts.

1.0 Building Specific Information

The proposed project will be a new hotel that is 167-feet tall located at 465 Hay Street, Fayetteville, North Carolina. The building code of record for this project is the 2012 Edition of the North Carolina Building Code (NCBC) which is based on the 2009 Edition of the International Building Code (IBC) with North Carolina specific amendments. The Construction Type of the building is Type IB with fire-resistance rating reductions for a High-Rise to Type IIA requirements for Building Elements per NCBC Section 403.2.1.1. The project location is situated in the downtown area of Fayetteville which has been classified as a Fire District through local law and the code provisions outlined in Appendix D of the NCBC are applicable.

Based on our conversations, the initial submittal package for the project provided to the NC DOI by the project team included the technical documentation related to the EIFS being proposed for use on the exterior of the building: StoTherm® ci Essence EIFS manufactured by Sto Corp. In addition, StoTherm® ci Essence has been evaluated via the ICC-ES Evaluation process for building code compliance and can be found via reference number ESR-1748. A copy of that system bulletin and the ESR report have been included at the end of this letter.

Pursuant to Section D102.2.1 in Appendix D of NCBC, the non-loadbearing exterior walls shall comply with the fire-resistance hourly ratings specified in Table 602. Based on a review of the drawings, the exterior wall assemblies have a fire-resistance rating of 1 hour and were designed based on UL Designs U423 or U419; which were tested or evaluated to the fire performance criteria of ASTM E119, *Standard Fire Test Method for Evaluation of Fire Tests of Building Construction and Materials,* or UL 263.

2.0 NC DOI Code Interpretation

Based on a review of the email correspondence between the project team, the Fayetteville Assistant Fire Marshal and the Chief Building Code Consultant for the NC DOI, the proposed use of the StoTherm® ci Essence EIFS for the above described project in the City of Fayetteville Fire District has been prohibited based on NC DOI's interpretation of the NCBC Appendix D.

The initial correspondence from NC DOI was regarding the fire-resistance rating requirements of the exterior wall assemblies in a Fire District pursuant to IBC 2015, Appendix D, D102.2.1 (note: NC DOI referenced IBC in the email correspondence and not the 2012 Edition of NCBC). This section states that exterior walls need to comply with Table 601 of the building code. Section 602.1 states that the exterior wall needs to have a fire-resistance rating that has been tested in accordance with ASTM E119 or UL 263 per Section 703.2 or be shown to be provide the required fire resistance via analytical methods per 703.3. Based on the drawings that have been provided by the project team, the pertinent exterior walls have been designed to include 1-hour fire-resistance rated walls constructed in accordance with UL Designs U423 or U419. Additionally, Section 2603.5.1 states that the installation of an EIFS on a fire-resistance rated wall shall not reduce the fire-resistance rating of the wall for both interior and exterior fire exposure:

> *NCBC 2603.5.1 – Where the wall is required to have a fire-resistance rating, data based on tests conducted in accordance with ASTM E119 or UL 263 shall be provided to substantiate that the fire-resistance rating is maintained.*

Sto Corp. and other EIFS manufacturers have performed the additional ASTM E119/UL 263 tests that demonstrate their EIFS will not reduce the overall fire-resistance rating of the base wall assembly. The test

reports are used as "Evidence Submitted" for ICC-ES evaluation reports. The ICC-ES report for the Sto Corp. product being proposed for this project has been tested to ASTM E119 on a fire-resistance rated wall assembly and is documented in ESR-1748. Thus, compliance with Section 2603.5.1 and D102.2.1 of the code has been demonstrated via the above referenced UL Design listing and ESR-1748 for the applicable use of EIFS on fire-resistance rated wall assemblies.

In later correspondence, NC DOI expanded on their interpretation of Appendix D for Fire Districts as it pertains to exterior walls. "Upon further review and consultation on this matter Section 102.2.11 Plastic Veneer prohibits the use of EIFS as the exterior veneer as the exterior finish in the primary fire district because of the ability of the foam plastic to propagate fire."

In response to these additional comments from NC DOI, it is our understanding that the design team provided additional information (via a code interpretation letter) to NC DOI stating that EIFS do not fall under the provisions of a Plastic Veneer per NCBC Appendix D and that EIFS are rigorously tested and documented to show that EIFS with foam plastic insulation do not uncontrollably propagate fire spread. After reviewing the additional information, NC DOI justified their opinion by providing the IBC definition of "veneer" and the 2015 IBC code commentary section for the aforementioned definition as the basis for their opinion that the proposed EIFS, "it's.... a (foam) plastic veneer and is not permitted by Section D102.2.11 in a fire district."

Although Carolina Specialty agrees that some exterior wall assemblies containing plastic materials may be interpreted as being categorized as a plastic veneer, EIFS are one of the exceptions. EIFS are specifically defined and addressed elsewhere in the NCBC as an exterior wall cladding system with stringent fire performance and flame spread testing requirements that exceed those used to evaluate and qualify a traditional plastic veneer.

3.0 Carolina Specialty Code Interpretation

The appendices found at the end of the IBC are optional or supplemental criteria to the provisions of the main chapters in the building code that provide additional guidance related to specific interest areas when locally adopted. These appendices can be adopted via legislative ordinances by the local jurisdiction (state, county, city, township, etc.) and implemented on a local level should the local jurisdiction deem them required. The use of the Fire District code provisions were frequently used in the legacy building codes before the development of the International Code Council (ICC) codes. It is our understanding that Appendix D (Fire Districts) has been adopted to cover the downtown area of Fayetteville, NC and the provisions found in Appendix D are enforceable locally.

Fire Districts are areas within a jurisdiction or city that contain a high density of buildings that have been determined to require additional regulation. This regulation includes standard requirements to restrict certain occupancies and set higher minimum construction standards. The ultimate goal of a Fire District is to reduce the potential for a fire to spread from building to building. This is achieved, via Appendix D, by restricting the Types of Construction for a building, occupancy classification restrictions, and increasing the fire performance criteria above the base Code required minimums for certain building elements such as roofs, exterior walls, canopies, etc.

With regards to the above referenced project, the NC DOI has classified EIFS as a Plastic Veneer and will not allow its use in a Fire District per Section D102.2.11. Our interpretation of the building code differs from that of the NC DOI, such that EIFS are not a Plastic Veneer and are permitted for use in Fire Districts.

3.1. WHAT IS THE DEFINITION OF A PLASTIC VENEER AND HOW IS A PLASTIC VENEER EVALUATED FOR FIRE PERFORMANCE?

The term Plastic Veneer is not defined in the 2012 Edition of the NCBC or in the current 2018 Edition of the IBC; even though there is a stand-alone section in the NCBC and IBC for Plastic Veneers (Section 2605). Generally

speaking, the industry considers Plastic Veneers used on the exterior of a building to be constructed of solid plastic (Plexiglas for example) and adhered/fastened directly to the exterior wall assembly. These solid Plastic Veneers are used as decorative features or trim on the surface of the exterior wall for accent purposes (added color, accent lighting, signage, etc).

When Plastic Veneers are used on the exterior of a typical building (not within a Fire District), Section 2605.2 restricts the usage of these types of materials on exterior walls due to their potential flammability. These restrictions include maximum allowable coverage area and maximum building height requirements. Additionally, this section states that the Plastic Veneer shall comply with the fire performance specifications similar to those used to qualify Light Transmitting Plastics, Section 2606.4. This specification section (Section 2606.4) outlines the necessary fire performance criteria and small-scale tests that need to be conducted in order comply with the code: minimum self-ignition temperature, smoke development index or smoke density rating, and burning rate or time of burning. It should be noted that the burning rate or time of burning test only uses a small-scale Bunsen-burner type flame to evaluate the materials flammability. The resulting tested Plastic Veneer material shall be classified as a CC1 or CC2 combustibility class per ASTM D635, *Standard Test Method for Rate of Burning and/or Extent and Time of Burning of Plastics in a Horizontal Position*. In review of Section 2606.4 IBC Code Commentary, "Class CC1 plastic generally consist of polycarbonate materials whereas Class CC2 plastics consist of acrylics."

Based on the code commentary and the fact that the fire performance criteria/small-scale testing for a Plastic Veneer is the same as Light Transmitting Plastics, it is our engineering opinion that a Plastic Veneer material is a solid plastic that is installed onto the exterior wall as a solid sheet stock or molded plastic for decorative/accent purposes intended for limited use. It is our engineering opinion that the intent of the building code regarding Section D102.2.11 was meant to restrict the use of solid plastics that are either Class CC1 and/or Class CC2 type materials as a veneer in a Fire District, not foam plastic insulation.

3.2. WHAT IS THE DEFINITION OF EIFS AND HOW ARE EIFS EVALUATED FOR FIRE PERFORMANCE?

The 2012 Edition NCBC and IBC define Exterior Insulation and Finish System (EIFS) as:

> **Exterior Insulation and Finish System (EIFS) –** EIFS are nonstructural, nonload-bearing, exterior wall cladding systems that consist of an insulation board attached either adhesively or mechanically, or both, to the substrate; an integrally reinforced base coat and a textured protective finish coat.

Exterior wall constructions are regulated by Chapter 14 of the 2012 Edition of NCBC. EIFS are specifically regulated by Section 1408. This section of the code stipulates that EIFS systems must comply with Chapters 7, 14, 16, 17, and 26 in order to be used on a building. Additionally, EIFS need to meet the performance criteria of ASTM E2568, *Standard Specifications for PB Exterior Insulation and Finish Systems*. This ASTM standard outlines the various tests, labeling, and packaging requirements that an exterior insulation and finish system needs to comply with in order to be recognized by the building code as an EIFS.

EIFS are constructed with an insulation board product, which is typically expanded polystyrene (EPS), extruded polystyrene (XPS), or polyisocyanurate foam plastic insulation, secured to exterior wall sheathing with a reinforced mesh base coat and exterior finish coat system. Since foam plastic insulation is used within this exterior wall cladding system, the various requirements of Chapter 26 must be followed for foam plastic insulation compliance. Section 1408 requires that EIFS must comply with ASTM E2568 which contains the fire performance requirements of Section 2603.5 that addresses the use of foam plastic on exterior walls. In order to comply, the EIFS must be evaluated to four (4) different fire tests:

1. Fire-resistance-rated walls (2603.5.1) – The EIFS shall demonstrate via full-scale ASTM E119 or UL 263 fire tests that when required, the application of the EIFS to a fire-resistance rated wall assembly does not reduce the fire-resistance rating of the wall for both interior and exterior fire exposure;

2. Flame spread and smoke development indexes (2603.5.4) – The foam plastic insulation and exterior coating (base coat, reinforcing mesh, and finish coat) shall be test via ASTM E84, *Standard Test Method for Surface Burning Characteristics of Building Materials,* or UL 723 and shall have a flame spread index of 25 or less and a smoke-development index of 450 or less, which results is the same performance as a Class A material;

3. Exterior vertical and lateral flame spread (2603.5.5) – The EIFS must meet the fire performance criteria of NFPA 285, *Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components,* which limits the potential flame-spread vertically and laterally across the face and within the exterior wall based on full-scale testing; and,

4. Ignition resistance (2603.5.7) – The EIFS (foam plastic insulation, base coat, reinforcing mesh, and finish coat) shall not exhibit sustained flaming when tested in accordance with NFPA 268, *Standard Test Method for Determining Ignitibility of Exterior Wall Assemblies Using a Radiant Energy Source,* which addresses the potential for ignition of the exterior wall surface from a nearby fire exposure.

It is evident based on the discussion above that EIFS are extensively tested as a whole system in full-scale standardized tests to demonstrate their fire performance and showing compliance with these tests ensure that fire spread is limited when in use. When EIFS meet the above fire test performance criteria within the building code, they are permitted to be installed on a building of any height with no restrictions to coverage area.

EIFS have a long history of fire performance compliance over the years. They have been evaluated via full-scale testing for over three decades dating back to the use of the first full-scale exterior wall flame spread test UBC Standard 26-4, *Method of Test for the Evaluation of Flammability Characteristics of Exterior, Nonload-bearing Wall Panel Assemblies Using Foamed Plastic Insulation*. It should also be noted that these full-scale and intermediate-scale exterior fire spread test standards (UBC 26-4 and NFPA 285) have been included in the modern IBC building codes since their inception and within the three legacy building codes (UBC, BOCA, and Southern Building Codes).

Additionally, EIFS manufacturers have detailed instructions for the installation, inspection, and maintenance of these exterior cladding systems when used as full wall coverage or accent/trim pieces to ensure fire safety throughout the course of the building life cycle. The risk of an EIFS propagating fire from building to building in a Fire District is extremely low.

Based on the above discussion, it is our engineering opinion that the materials utilized to construct EIFS as an entire compliant system do not fit into the "definition" and intent of the building code as it pertains to Plastic Veneers as described above in Section 3.1 of this letter. The rigorous testing used to qualify an EIFS demonstrates its ability to resist excessive vertical and lateral flame spread in an exterior application for any building height and unlimited coverage area.

4.0 Conclusion

Carolina Specialty Engineering, P.C. has provided our code interpretation regarding the use of Exterior Insulation and Finish System (EIFS) products in a Fire District. Base on the information provided to Carolina Specialty, the NC Department of Insurance has classified EIFS as a Plastic Veneer and will not permit the usage of EIFS per Appendix D Section D102.2.11 of the 2012 Edition of the North Carolina Building Code Carolina. Based on our interpretation of the code, it is our engineering opinion that EIFS do not fall within the "definition" of a Plastic Veneer and the code requirements of Sections D102.2.7 and D102.2.11 do not apply. Rather, Plastic Veneers are more closely related to Light Transmitting Plastic type materials based on the requisite testing requirements outlined in Section 2606.4.

Thus, it is our opinion that EIFS are allowed to be used as exterior wall cladding systems in the Primary Fire District of Fayetteville, NC. This opinion is based on our years of experience as code consultants during the code development process, conducting standardized fire testing, evaluating EIFS construction, and engineering EIFS compliant systems. Full-scale fire testing of these EIFS in accordance with NFPA 285 and other requisite performance tests required per Chapter 14 and 26 of the NCBC demonstrate that compliant EIFS products will not propagate an uncontrolled fire like a Plastic Veneer.

> *Note: References to the depth of experience, internal research, and technical expertise identified in support of this opinion is in coordination with the corporate agreements/synergies between Jensen Hughes Engineering, P.C. dba Carolina Specialty Engineering, P.C. ("JHE-PC") and Jensen Hughes, Inc. ("JHI"). These companies have an established Support Services Agreement to provide professional engineering services to its clients in the state of North Carolina.*

Carolina Specialty Engineering, P.C. appreciates the opportunity to assist Sto Corp. with their code interpretation needs related to their EIFS products. If you have any questions, please contact us at 410-737-8677.

Submitted by,

Carolina Specialty Engineering, P.C.

Daniel A. Martin, CFEI, CVFI
Fire Protection Consultant

Arthur J. Parker
Sr. Fire Protection Consultant

Reviewed By:

Eric Babcock, PE
Director - NC

NORTH CAROLINA PROFESSIONAL SEAL 048044 ENGINEER ERIC J BABCOCK

System Bulletin

Building with conscience.

StoTherm® ci Essence

Decorative cladding with continuous insulation and continuous air/moisture barrier for heat, air and moisture control

Substrate: Glass Mat Gypsum sheathing in compliance with ASTM C 1177, Exterior or Exposure I wood-based sheathing (plywood or OSB), code compliant concrete, concrete masonry or portland cement plaster, existing structurally sound, uncoated brick or other masonry wall construction.

1) StoGuard® Air and Moisture Barrier
2) Three adhesive options: Sto TurboStick™, Sto Primer/Adhesive, Sto Primer/Adhesive-B
3) Sto EPS Insulation Board
4) Sto Mesh (embedded in Sto base coat)
5) Two base coat options: Sto Primer/Adhesive, or Sto Primer/Adhesive-B
6) Sto Primer Sand (optional)
7) Sto Textured Finish: Sto Essence DPR

System Description

StoTherm ci Essence is a decorative and protective exterior wall cladding that combines superior air and weather tightness with excellent thermal performance and durability. It incorporates continuous exterior insulation and a continuous air/moisture barrier with Sto's high performance finishes in a fully tested wall cladding assembly.

Uses

StoTherm ci Essence can be used in residential or commercial wall construction where energy efficiency, superior aesthetics, and air and moisture control are essential in the climate extremes of North America

Features	Benefits
Design versatility	Aesthetic and curb appeal easy to achieve
Continuous exterior insulation, no mechanical fasteners	Energy efficient, reduced heating and cooling costs
Lightweight	Reduced structural costs
Continuous air and moisture barrier	Protects against mold and moisture problems
ICC-ES listed and evaluated	Fully tested building code compliant assembly
Properties	
Weight (not including sheathing and frame)	< 2 psf (10 kg/m^2)
Thickness (insulation)	1 to 12 inches (25 – 305 mm)
R-value (not including sheathing and frame)	3.6 – 43.2 ft^2•h•°F / Btu (0.63 – 7.60 m^2•K / W)
Wind Load Resistance	Tested up to ± 188 psf (9.00 kPa)
Compliance	• IBC and IRC (2006, 2009, 2012) • ASHRAE 90.1-2010
Construction Types and Fire Resistance	• I-V, NFPA 285 tested for types I-IV • ASTM E 119 tested for 1&2 hour walls

Warranty

10 year Limited Warranty

Maintenance

Requires periodic cleaning to maintain appearance, repair to cracks and impact damage if they occur, recoating to enhance appearance of weathered finish. Sealants and other façade components must be maintained to prevent water infiltration.

Page 1 of 2

System Bulletin

Building with conscience.

StoTherm® ci Essence

Decorative cladding with continuous insulation and continuous air/moisture barrier for heat, air and moisture control

Precautions and Limitations
Minimum insulation board thickness 1 inch (25 mm). Maximum insulation board thickness 12 inches (305 mm).
Fire resistance rated assemblies limited to 4 inch (102 mm) maximum insulation board thickness and non-load bearing steel frame.
Structural back-up wall must be level to within ¼ inch in 10 ft (6 mm in 3.0 m)
Wind load resistance: ± 188 psf (9.00 kPa) ultimate loads achieved. Ultimate wind load resistance also depends on sheathing, sheathing attachment, and stiffness of supporting construction. Design for maximum allowable deflection of L/240.
Impact resistance: supplemental reinforcing mesh layers, cement board overlay or other design adjustments may be prudent for areas adjacent to heavy pedestrian traffic or other areas of high impact or abuse. Refer to Sto Guide Details.
For use on vertical above grade walls only. Do not use below grade or on roofs or roof-like surfaces.
Insulation material is flammable. Keep away from flame, ignition sources, high heat, and temperatures in excess of 165°F [74° C]).
Dark finish colors with LRV (Light Reflectance Value) < 20 are not recommended.
Air Barrier, insulation board, and base coat materials are not intended for prolonged weather exposure. Allow 180 days maximum between application of air barrier and insulation board.
Refer to specific component product bulletins and packaging for other limitations that may apply involving use, handling and storage of component materials.

Sustainable Design	
Air Quality and VOC Compliance	
All finish coatings, adhesives, air barrier joint treatments and coatings meet US EPA (40 CFR 59) and SCAQMD (Rule 1113) emission standards for architectural coatings.	
LEED Credit Eligibility	
System has high potential for LEED and other sustainability program credits based on efficient and effective use of continuous exterior insulation and resulting reductions in greenhouse gas emissions	
Regulatory Compliance and Standards Testing	
ICC ESR No. 1748 covering StoTherm NExT Systems	Complies with 2009, 2012, 2015 IBC and IRC
ICC ESR No. 1233 covering StoGuard Air & Moisture Barrier	Complies with 2009, 2012, 2015 IBC, IRC and IECC
ASHRAE 90.1-2016[1]	Complies with Section 5, Building Envelope, air barrier and continuous insulation requirements
ASTM E 2357[2]	Air/Moisture barrier meets air leakage resistance criteria of ≤ 0.04 cfm/ft² at 1.57 psf (0.2 L/s•m² at 75 Pa)
NFPA 285[3]	Meets flame propagation criteria for use on Types I, II, III, IV construction with up to 12 inches (305 mm) of Sto EPS insulation board
ASTM E 119[4]	Meets requirements for 1 or 2 hour rating over non load-bearing fire-resistance-rated steel frame construction, does not change the rating over selected combustible exterior fire-resistance-rated assemblies (refer to ICC ESR 1748)

1. *Energy Standard for Buildings Except Low-Rise Residential Buildings*
2. *Standard Test Method for Determining Air Leakage of Air Barrier Assemblies*
3. *Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components*
4. *Standard Test Methods for Fire Test of Building Construction and Materials*

Sto Corp.
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Toll Free: 1-800-221-2397
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www.stocorp.com

SB-E100G
Revision: 002
Date: 11/2019

ICC ES EVALUATION SERVICE

ICC-ES Evaluation Report

ESR-1748

Reissued October 2019
Revised January 2020
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DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 24 00—Exterior Insulation and Finish Systems
Section: 07 24 19—Water-Drainage Exterior Insulation and Finish System

REPORT HOLDER:

STO CORP.

ADDITIONAL LISTEE:

KAPTURE PREFAB

EVALUATION SUBJECT:

STOTHERM® ci®, STOPANEL™ CLASSIC ci®, STOPANEL™ IMPACT ci®, STOPANEL™ XPS AND STOPANEL™ CLASSIC NEXT ci®

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2018, 2015 and 2012 *International Building Code®* (IBC)
- 2018, 2015 and 2012 *International Residential Code®* (IRC)

For evaluation for compliance with codes adopted by Los Angeles Department of Building and Safety (LADBS), see ESR-1748 LABC and LARC Supplement.

Properties evaluated:

PROPERTY	IBC Chapter	IRC Chapter
Exterior insulation and finish systems (EIFS)	14	R7
Fire-resistance-rated construction	7	R3
Weather resistance	14	R7
Special inspections, Types I-IV (noncombustible) construction	17	NA
Structural – transverse wind load resistance	16	R6
Types I-IV (noncombustible) construction	26	NA
Surface burning characteristics	26	R3
Ignition resistance	26	NA

2.0 USES

StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems are exterior insulation and finish systems (EIFS) complying with 2018 IBC Section 1407 and 2015 and 2012 IBC Section 1408 and IRC Section R703.9. The systems comply with the requirements of 2018 IBC Section 1407.4.1 and 2015 and 2012 IBC Section 1408.4.1 and IRC Section R703.9 as EIFS with drainage.

StoTherm® ci® StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems may be installed in buildings of any construction type under the IBC (Types I through V) and dwellings under the IRC when installed in accordance with the applicable sections of Section 4.0.

3.0 DESCRIPTION

3.1 System Components:

StoTherm® ci® StoPanel™ Classic ci® Classic, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems consist of a water-resistive barrier, adhesively applied flat insulation board, reinforcing mesh, base coat, and finish coat. See Table 1 for system components.

3.2 Insulation Board:

The insulation boards must be one of the following:

a. Expanded polystyrene (EPS) complying with ASTM C578, Type I, and ASTM E2430, produced by a molder with a current ICC-ES evaluation report.

b. EPS insulation board produced by a molder who participates in an approved third-party quality-assurance program. EPS must comply with ASTM C578, Type I, and ASTM E2430.

c. Sto Insulation Board, EPS complying with ASTM C578, Type I, and ASTM E2430.

d. Owens Corning Foamular® CI-C Extruded Polystyrene Type X (for use with the StoTherm® ci® XPS system as noted in Table 1).

e. Dow Styrofoam Panel Core Type X recognized in ESR-2142 (for use with the StoTherm® ci® XPS system noted in Table 1).

f. BASF Neopor® Rigid Foam Insulation Board (Grade F5300 Plus) (for use with StoTherm® ci® Classic, StoTherm® ci® Premier, StoTherm® ci® Essence, and StoTherm® ci® Lotusan systems as noted in Table 1).

EPS insulation boards must have a flame spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723.

3.3 Substrates:

Substrates must be one of the following:

a. Gypsum sheathing board complying with ASTM C1396 or ASTM C1177. When used as part of a fire-resistance-rated assembly, the gypsum board must be Type X with a minimum thickness of $^5/_8$ inch (15.9 mm).

b. Concrete masonry complying with the code.

c. Concrete complying with the code.

d. Exterior plaster complying with the code.

e. Exterior or Exposure 1 wood structural panels complying with DOC PS-1 or PS-2.

3.4 Sealants:

Sealants must comply with ASTM C920, Type S or M, minimum Grade NS, minimum Class 25 and Use O.

4.0 DESIGN AND INSTALLATION

4.1 General:

4.1.1 StoTherm® ci®: StoTherm® ci® must be installed in accordance with the manufacturer's installation instructions, specifications and details, which are available at www.stocorp.com:

- http://www.stocorp.com/continuous-insulation-systems/
- http://www.stocorp.com/sto_systems/stothermci-xps-lotusan/
- http://www.stocorp.com/sto_systems/stothermci-classic/
- http://www.stocorp.com/sto_systems/stothermci-lotusan/
- http://www.stocorp.com/sto_systems/stothermci-xps-essence/
- http://www.stocorp.com/sto_systems/stothermci-xps-classic/
- http://www.stocorp.com/sto_systems/stothermci-essence/

4.1.2 StoPanel™ Classic ci®: StoPanel™ Classic ci® system is a prefabricated application by Kapture Prefab of the StoTherm® ci® Classic system. Sto materials, as listed in Table 6, must be installed in accordance with the specifications and installation instructions in Section 4.1.1. StoPanel™ Classic ci® system must be fabricated in accordance with project specification and StoPanel™ fabricator shop drawings for each project.

- StoPanel™ Classic ci®
- Specification

4.1.3 StoPanel™ Impact ci®: StoPanel™ Impact ci® system is a prefabricated application by Kapture Prefab of the StoTherm® Impact ci® system. Sto materials, as listed in Table 6, must be installed in accordance with the specifications and installation instructions in Section 4.1.1. StoPanel™ Impact ci® system must be fabricated in accordance with project specification and StoPanel™ fabricator shop drawings for each project.

- StoPanel Impact ci®
- Specification

4.1.4 StoPanel™ XPS: StoPanel™ XPS system is a prefabricated application by Kapture Prefab of the StoTherm® XPS system. Sto materials, as listed in Table 6, must be installed in accordance with the specifications and installation instructions in Section 4.1.1. StoPanel™ XPS system must be fabricated in accordance with project specification and StoPanel™ fabricator shop drawings for each project.

- StoPanel™ XPS
- Specification

4.1.5 StoPanel™ Classic NEXT ci®: StoPanel™ Classic NEXT ci® system is a prefabricated application by Kapture Prefab of the StoTherm® ci® system which also incorporates the Sto Wedge drainage detail. Sto materials, as listed in Table 6, must be installed in accordance with the specifications and installation instructions in Section 4.1.1. StoPanel™ Classic NEXT ci® system must be fabricated in accordance with project specification and StoPanel™ fabricator shop drawings for each project.

- StoPanel™ Classic NEXT ci®
- Specification

4.2 Drainage:

StoTherm® ci® ,StoPanel™ ci® Classic, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® provides drainage through the application of vertical ribbons of adhesive over the water-resistive barrier coating system identified in Table 1.

Additional installation and compliance information for the StoGuard Gold Coat water-resistive barrier system is provided in ESR-1233 and at www.stocorp.com.

4.3 Wind Design:

Table 3 presents specific StoTherm® ci® assemblies for which test data has been submitted. Other StoTherm® ci® assemblies may be considered for approval by local officials, based on testing and/or calculations provided by a qualified design professional.

4.4 Weather Protection:

StoTherm® ci® ,StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems comply with 2018 IBC Section 1402.2 and 2015 and 2012 IBC Section 1403.2 and IRC Section R703.1.1.

4.5 Use in Types I through IV (Noncombustible) Construction:

Table 4 describes the assemblies qualified for use in Types I through IV construction (IBC).

4.6 Fire-resistance-rated Construction:

Table 5 describes the assemblies qualified for use in nonload-bearing fire-resistance-rated construction.

In addition, in Type V construction, any StoTherm® ci® system listed in this report may be attached to the surface of combustible exterior fire-resistance-rated assemblies described in IBC Table 721.1(2) without changing the assigned hourly rating of the assembly. The exterior wall must have a minimum 10-foot (3048 mm) separation distance from adjacent construction.

4.7 Special Inspection:

For recognition under the IBC, special Inspections of the water-resistive barrier must be conducted in accordance with 2018 and 2015 IBC Section 1705.16 (2012 IBC Section 1705.15). Refer to STO Corp. third-party inspection guidelines for verifying field preparation of materials.

5.0 CONDITIONS OF USE

The StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® EIFS systems described in this report comply with, or are suitable alternatives to what is specified in, those

codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Installation must comply with this report, the manufacturer's published installation instructions and the applicable code. In the event of a conflict between the manufacturer's instructions and this report, this report governs.

5.2 The insulation board must be separated from the building interior by a thermal barrier complying with the applicable code.

5.3 Installation must be by applicators listed by Sto Corp. StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS StoPanel™ Classic NEXT ci® must be fabricated by Kapture Prefab and installed in accordance with Sto instructions.

5.4 Termination of the systems must not be less than 6 inches (152 mm) above finished grade in accordance with 2018 and 2015 IBC Section 2603.8 (2012 IBC Section 2603.9) and IRC Section R318.4.

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with ASTM E2568 and ASTM E2273.

6.2 Data in accordance with the ICC-ES Acceptance Criteria for EIFS Clad Drainage Wall Assemblies (AC235), dated January 2015 (editorially revised April 2018).

6.3 Data in accordance with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated June 2015 (editorially revised October 2017).

6.4 NFPA 285 and NFPA 268 test data, including engineering analysis.

7.0 IDENTIFICATION

7.1 Each container or package of the coating or reinforcing mesh used as part of the StoTherm® EIFS ci® systems components must be labeled with the manufacturer's name (STO Corp.) and address; the product name; lot or batch number; quantity of material; storage instructions; pot life; expiration date; and the evaluation report number (ESR-1748).

Sto insulation board must be labeled on the edge of each board with the STO Corp. name, the plant identification number, and the evaluation report number (ESR-1748).

Sto Turbostick and Sto Turbostick Mini adhesive must be labeled with the Sto Corporation company name and product name designation.

Other foam plastic insulation must be labeled in accordance with the current ICC-ES evaluation report in which it is recognized, or in accordance with IBC Section 2603.2 or IRC Section R316.2, as applicable.

StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS StoPanel™ Classic NEXT ci® prefabricated panels are produced by Kapture Prefab and shipped with a certificate of compliance that contains the project identification the panels were produced for, dates of panel fabrication and a statement that all components of the panels complies with the applicable requirements of ESR-1748.

7.2 The report holder's contact information is the following:

STO CORP.
3800 CAMP CREEK PARKWAY
BUILDING 1400, SUITE 120
ATLANTA, GEORGIA 30331
(800) 221-2397
www.stocorp.com

7.3 The Additional Listee's contact information is the following:

KAPTURE PREFAB
421 WEST ALAMEDA DRIVE
TEMPE, ARIZONA 85282

TABLE 1—STOTHERM® ci® SYSTEM COMPONENTS[1,2]

SYSTEM	WATER-RESISTIVE BARRIER	ASTM C578 INSULATION BOARD TYPE	ADHESIVES	BASE COATS	FINISH
StoTherm® ci® Classic	StoGuard Gold Coat (see ESR-1233)	Type I	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto TurboStick Sto TurboStick Mini	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto RFP	Stolit Stolit Milano[3] Stolit X[3]
StoTherm® ci® Premier	StoGuard Gold Coat (see ESR-1233)	Type I	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto TurboStick Sto TurboStick Mini	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto RFP	StoSilco Lit
StoTherm® ci® Essence	StoGuard Gold Coat (see ESR-1233)	Type I	Sto Primer/Adhesive Sto Primer/Adhesive-B Sto TurboStick Sto TurboStick Mini	Sto Primer/Adhesive Sto Primer/Adhesive-B	Sto DPR Finish Stolit Milano Stolit X
StoTherm® ci® Lotusan	Sto Guard Gold Coat (see ESR-1233)	Type I	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto TurboStick Sto TurboStick Mini	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto RFP	Stolit Lotusan
StoTherm® ci® XPS	Sto Guard Gold Coat (see ESR-1233)	Type X	Sto TurboStick Sto TurboStick Mini	Sto BTS Plus Sto BTS Xtra Sto Primer/Adhesive Sto Primer/Adhesive-B	Stolit Stolit Lotusan Stolit Milano Stolit X

[1]All base coats are reinforced with the appropriate Sto Mesh product listed in Table 2.
[2]Sto Primer is an optional component of the systems listed above
[3]Sto BTS Silo basecoat is not recognized for use with Stolit Milano and Stolit X finish.

TABLE 2—REINFORCING MESH PRODUCTS

PRODUCT NO.	PRODUCT NAME[1]	NOMINAL WEIGHT, oz/yd² (g/m²)
80920E	Sto Mesh	4.5 (153)
80919	Sto Detail Mesh	4.2 (142)
80985	Sto 6-oz. (170 g) Mesh	6.0 (170)
80918	Sto Intermediate Mesh	11.0 (373)
80921	Sto Armor Mat	15.0 (509)
80922	Sto Armor Mat XX	20.0 (678)
80921A	Sto Corner Mat	7.6 (258)

[1]Other listed mesh products may be used for detail construction or to supplement impact resistance of the EIFS.

TABLE 3—WIND LOAD DESIGN[1]

FRAMING MEMBERS[2]				SHEATHING			WIND LOAD CAPACITY, psf (Pa)		SYSTEM
Wood, min. size (inches)	Metal		Maximum Spacing (inches)	Type	Thickness (inch)	Maximum Fastener Spacing[3], (inches)	Neg.	Pos.	
	Min. Depth (inches)	Min. Gage							
2x4 (nominal)	--	--	16	Wood-based	3/8	8	20	36	Classic Premier
--	3 1/2	18	16	Wood-based	3/8	8	38	60	Essence
--	3 1/2	18	16	Gypsum	1/2	8	20	35	Classic Premier Essence Lotusan StoPanel™ (See Table 6)
--	3 1/2	18	16	Gypsum	5/8	8	38	60	Essence StoPanel™ (See Table 6)
--	6	18	16	Gypsum	5/8	6	40	50	Classic Premier Essence Lotusan (with Turbo Stick Adhesive or Sto TurboStick Mini and Type I EPS) StoPanel™ (See Table 6)
--	6	18	16	Gypsum	5/8	6	63	58	StoTherm ci® XPS StoPanel™ (See Table 6)
Concrete or masonry substrates							54	54	Classic Premier Lotusan

For **SI:** 1 inch = 25.4 mm, 1 psf = 0.0479 kPa.

[1]Applicable to all StoTherm® materials listed in Tables 1 and 2.
[2]Deflection limitation $^{1}/_{240}$, designed in accordance with applicable code.
[3]Fasteners must be No. 6, flathead, corrosion-resistant screws [minimum 0.292-inch (7.4 mm) head diameter].

TABLE 4—ASSEMBLIES FOR USE IN TYPES I THROUGH IV CONSTRUCTION

FRAMING MEMBERS[5,8]			INTERIOR SHEATHING[1,7] (TYPE X GYPSUM)		EXTERIOR SHEATHING (TYPE X GYPSUM)		MAX. INSULATION BOARD THICKNESS, (inches)	SYSTEM[9]
Metal		Max. Spacing (inches)	Min. Thickness (inch)	Max. Fastener Spacing (inches)	Min. Thickness (inch)	Max. Fastener Spacing (inches)		
Min. Depth (inches)	Min. Gage							
3 1/2	18	16	1/2	8 at perimeter 12 in field[2]	1/2	6 at perimeter 8 in field[3]	12	Essence Lotusan StoPanel™ (See Table 6)
3 1/2	18	16[6]	1/2	6[4]	5/8	6 at perimeter 8 in field[3]	12	Classic Premier Lotusan StoPanel™ See Table 6
6¼	20	16	5/8	8[4]	5/8	8[4]	12	StoTherm® ci Essence with Sto TurboStick, Sto TurboStick Mini, Sto Primer/Adhesive-B base coat and Stolit X finish StoPanel™ See Table 6
3 1/2	18	16[6]	5/8	8 at perimeter 12 in field	5/8	8 at perimeter 12 in field	9	Classic with Turbo Stick adhesive and Type I EPS StoPanel™ See Table 6
3 1/2	18	16[6]	5/8	8 at perimeter 12 in field	5/8	8 at perimeter 12 in field	6	StoTherm® ci® XPS with Sto BTS Xtra base coat and Stolit finish StoPanel™ See Table 6

For **SI:** 1 inch = 25.4 mm.

[1]All board joints backed by framing.
[2]Fasteners are minimum No. 8, Type S, corrosion-resistant screws, with sufficient length to penetrate framing a minimum of 3/8 inch (9.5 mm).
[3]Fasteners are No. 6 drywall screws having sufficient length to penetrate framing a minimum of 3/8 inch (9.5 mm).
[4]Fasteners are No. 6 by 1 1/4-inch-long (31.7 mm), buglehead drywall screws.
[5]Stud cavities at floor levels are blocked with Owens Corning Thermafiber insulation , 4 lb/ft^3 (64 kg/m^3) density, 4 inches (102 mm) thick and 2 feet (610 mm) wide.
[6]Stud cavities must be filled with R-11 fiberglass insulation.
[7]All joints must be taped and treated with joint compound. Intermediate fastener heads are treated with joint compound in accordance with ASTM C840 or GA216.
[8]Openings must be framed with minimum 0.0428-inch-thick steel framing.
[9]Applicable to StoTherm® ci® and StoPanel™ systems listed in Tables 1, 4 and 6, except for StoTherm® ci® and StoPanel™ systems using Stolit Milano and Stolit X finish, unless noted otherwise.

TABLE 5—FIRE-RESISTANCE-RATED ASSEMBLIES[1,2]

FIRE-RESISTANCE RATING (hrs)	FRAMING MEMBERS			INTERIOR SHEATHING			EXTERIOR SHEATHING			MAXIMUM EPS INSULATION BOARD THICKNESS (inches)
	Min. Depth (inches)	Min. Gage	Max. Spacing (inches)	Type	Min. Thickness (inch)	Max. Fastener Spacing (inches)	Type	Min. Thickness (inch)	Max. Fastener Spacing[5] (inches)	
1	3 1/2	18	16	Type X gypsum[5]	5/8	8 o.c. on perimeter 12 o.c. in field[3]	Type X gypsum	5/8	6 at perimeter 8 in field[4]	4
2	3 1/2	18	16	Two layers of Type X gypsum[5]	5/8	Base layer at 24 o.c. Face layer at 8 o.c.[6]	Two layers of Type X gypsum	5/8	Base layer at 24 o.c. Face layer at 8 o.c.[6]	4

For **SI:** 1 inch = 25.4 mm.

[1]Applicable to all StoTherm® ci® and StoPanel™ materials listed in Table 1, except to StoTherm® ci® and StoPanel™ systems which use the Stolit Milano, Stolit X and Sto Turbo Stick or Sto TurboStick Mini adhesive.
[2]All board joints must be blocked
[3]Fasteners are minimum No. 6, 1 1/4-inch-long (32 mm), self-tapping, corrosion-resistant bugle head screws.
[4]Fasteners are No. 6 drywall screws having sufficient length to penetrate framing a minimum of 3/8 inch (9.5 mm).
[5]Interior wallboard joints must be covered with tape and joint compound. Interior fastener heads are covered with joint compound in accordance with ASTM C840 or GA 216.
[6]Fasteners for the base layer of gypsum board are No. 6, 1 1/4-inch-long, self-tapping, corrosion-resistant bugle-head screws. Fasteners for the face layer are 1 7/8-inch-long, self-tapping, corrosion-resistant bugle-head screws.

TABLE 6—STOPANEL™ COMPONENTS[1,2]

SYSTEM	WATER-RESISTIVE BARRIER	ASTM C578 INSULATION BOARD TYPE	ADHESIVES	BASE COATS	FINISH
StoPanel™ Classic ci®	StoGuard Gold Coat (see ESR-1233)	Type I	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto TurboStick Sto TurboStick Mini	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto RFP	Stolit Stolit Milano[3] Stolit X[3]
StoPanel™ Classic NEXT ci®	StoGuard Gold Coat (see ESR-1233)	Type I	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto TurboStick Sto TurboStick Mini	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto RFP	Stolit Stolit Milano[3] Stolit X[3]
StoPanel™ Impact ci®	StoGuard Gold Coat (see ESR-1233)	Type I	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto TurboStick Sto TurboStick Mini	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto RFP	StoSilco Lit
StoPanel™ XPS	Sto Guard Gold Coat (see ESR-1233)	Type X	Sto TurboStick Sto TurboStick Mini	Sto BTS Plus Sto BTS Xtra Sto Primer/Adhesive Sto Primer/Adhesive-B	Stolit Stolit Lotusan Stolit Milano Stolit X

[1]All base coats are reinforced with the appropriate Sto Mesh product listed in Table 2.
[2]Sto Primer is an optional component of the systems listed above.
[3]Sto BTS Silo basecoat is not recognized for use with Stolit Milano and Stolit X finish.

ICC EVALUATION SERVICE

ICC-ES Evaluation Report **ESR-1748 LABC and LARC Supplement**

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DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
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Section: 07 24 19—Water-Drainage Exterior Insulation and Finish System

REPORT HOLDER:

STO CORP.

EVALUATION SUBJECT:

STOTHERM® ci®, STOPANEL™ CLASSIC ci®, STOPANEL™ IMPACT ci®, STOPANEL™ XPS AND STOPANEL™ CLASSIC NEXT ci®

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems, described in ICC-ES master evaluation report ESR-1748, have also been evaluated for compliance with the codes noted below as adopted by Los Angeles Department of Building and Safety (LADBS).

- 2017 *City of Los Angeles Building Code* (LABC)
- 2017 *City of Los Angeles Residential Code* (LARC)

2.0 CONCLUSIONS

The StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems, described in Sections 2.0 through 7.0 of the master evaluation report ESR-1748, comply with LABC Chapters 7, 14 and 26, and LARC Sections R316 and R703, subject to the conditions of use described in this report.

3.0 CONDITIONS OF USE

The StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems described in this evaluation report must comply with all of the following conditions:

- All applicable sections in the master evaluation report ESR-1748.
- The design, installation, conditions of use and labeling of the StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems are in accordance with the 2015 *International Building Code®* (2015 IBC) or 2015 *International Residential Code®* (2015 IRC) provisions, as applicable, noted in the master evaluation report ESR-1748.
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16 and 17, as applicable.
- The systems described in this evaluation report supplement have not been evaluated under LABC Chapter 7A or LARC Section R337 for use in the exterior design and construction of new buildings located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland—Urban Interface Area.

This supplement expires concurrently with the evaluation report, reissued October 2019 and revised January 2020.

ICC EVALUATION SERVICE

ICC-ES Evaluation Report

ESR-1748 CBC and CRC Supplement

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1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems, recognized in ICC-ES main evaluation report ESR-1748, have also been evaluated for compliance with the codes noted below.

Applicable code edition(s):

- 2019 *California Building Code®* (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) and Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2019 *California Residential Code®* (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems described in Sections 2.0 through 7.0 of the main evaluation report ESR-1748, complies with 2019 CBC Chapter 14, provided the design and installation are in accordance with the 2018 *International Building Code®* (IBC) provisions respectively, noted in the main report and the additional requirements of CBC Chapters 14 and 17.

The StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems have not been evaluated under Chapter 7A for use in the exterior design and construction of new buildings located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland–Urban Interface Fire Area.

2.1.1 OSHPD:

The applicable OSHPD Sections of the CBC are beyond the scope of this supplement.

2.1.2 DSA:

The applicable DSA Sections of the CBC are beyond the scope of this supplement.

2.2 CRC:

The StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems, described in Sections 2.0 through 7.0 of the main evaluation report ESR-1748, complies with the 2019 CRC Chapter 7, provided the design and installation are in accordance with the 2018 *International Residential Code®* (IRC) provisions respectively, noted in the main report and the applicable provisions of the CRC.

The StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems have not been evaluated under CRC Section R337 for use in the exterior design and construction of new buildings located in a Fire Hazard Severity Zone within State Responsibility Areas or any Wildland–Urban Interface Fire Area.

The products recognized in this supplement have not been evaluated for compliance with the *International Wildland–Urban Interface Code®*.

This supplement expires concurrently with the evaluation report, reissued October 2019 and revised January 2020.

ICC EVALUATION SERVICE

ICC-ES Evaluation Report

ESR-1748 FBC and FRC Supplement

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Purpose:

The purpose of this evaluation report supplement is to indicate that StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems, recognized in ICC-ES master evaluation report ESR-1748, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2017 *Florida Building Code—Building*
- 2017 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems, described in Sections 2.0 through 7.0 of the master evaluation report ESR-1748, comply with the *Florida Building Code—Building* and *Florida Building Code—Residential*, provided the design and installation are in accordance with the 2015 *International Building Code®* provisions noted in the master report under the following condition:

Installation must meet the requirements of Sections 1403.8 and 2603.8 of the *Florida Building Code—Building* and Sections R318.7 and R318.8 of the *Florida Building Code—Residential*, as applicable.

Use of the StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and the *Florida Building Code—Residential* has not been evaluated and is outside the scope of this evaluation report.

For products falling under Florida Rule 9N-3, verification that the report holder's quality-assurance program is audited by a quality-assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official, when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the evaluation report, reissued October 2019 and revised January 2020.

Martin, Carl

From: Jeffrey Olund <JOlund@ci.fay.nc.us>
Sent: Thursday, April 9, 2020 3:38 PM
To: ayoung@built-form.net
Cc: Jason Everage; Joseph McLamb
Subject: Hay Street Phase 2
Attachments: Hyatt_FAyetteville_Davidson and Jones_CR_ICC-ESR_1748_StoTherm_ci_EN.pdf; SB_E100G_StoTherm_ci_Essence_EN.pdf

Ashley,
Here is what NC DOI has said about the proposed product for the exterior finish

Jeff Olund
Assistant Fire Marshal
5091 Santa Fe dr.
Fayetteville, N.C. 28303
910-322-3160 cell
910-433-1730 office
jolund@ci.fay.nc.us

From: Kirk, Bill <bill.kirk@ncdoi.gov>
Sent: Thursday, April 9, 2020 1:11 PM
To: Jeffrey Olund
Cc: Jason Everage
Subject: RE: [External] Fw: [EXTERNAL]RE: [EXTERNAL]RE: [EXTERNAL]Hay Street Phase 2

Jeff,

Upon further review and consultation on this matter Section D102.2.11 Plastic Veneer prohibits the use of EIFS as the exterior finish in the primary fire district because of the ability of the foam plastic to propagate fire.

Bill Kirk, PE
Chief Building Code Consultant

N.C. Department of Insurance
Office of State Fire Marshal
1202 Mail Service Center
Raleigh, NC 27699-1202
919.647.0025

-----Original Message-----
From: Jeffrey Olund <JOlund@ci.fay.nc.us>
Sent: Thursday, April 9, 2020 9:29 AM
To: Kirk, Bill <bill.kirk@ncdoi.gov>
Cc: Jason Everage <JEverage@ci.fay.nc.us>
Subject: Fw: [External] Fw: [EXTERNAL]RE: [EXTERNAL]RE: [EXTERNAL]Hay Street Phase 2

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Bill,
Here is their new proposal to meet the NFPA 285 rating, for fire rating in the fire district. This is a building code question so I included Jason Everage. Would DOI accept this type of material?

Jeff Olund
Assistant Fire Marshal
5091 Santa Fe dr.
Fayetteville, N.C. 28303
910-322-3160 cell
910-433-1730 office
jolund@ci.fay.nc.us

From: Ashley Young <ayoung@built-form.net>
Sent: Friday, April 3, 2020 4:53 PM
To: Jeffrey Olund; Joseph McLamb; Jason Everage
Cc: Mike Mitchell; Charles Davidson; Arden Freeman
Subject: RE: [External] Fw: [EXTERNAL]RE: [EXTERNAL]RE: [EXTERNAL]Hay Street Phase 2

Jeffrey,
We have gone back to the drawing table and have come up with a comparable product to submit that has all of the requested testing information required by DIO, including it meeting NFPA 285 and rating resistance in accordance with ASTM E119 testing method.

Please find attached the product and testing information and advise how we should next proceed with DIO.

Thank you again for all of your assistance on getting this resolved.

Ashley Young
BUILT FORM, LLC
935 West Chestnut Street, Suite 520
Chicago, IL 60642

813-340-2957 Mobile
ayoung@built-form.net

-----Original Message-----
From: Jeffrey Olund <JOlund@ci.fay.nc.us>
Sent: Wednesday, March 4, 2020 2:57 PM
To: Ashley Young <ayoung@built-form.net>; Joseph McLamb <JMcLamb@ci.fay.nc.us>
Cc: Jason Everage <JEverage@ci.fay.nc.us>
Subject: Fw: [External] Fw: [EXTERNAL]RE: [EXTERNAL]RE: [EXTERNAL]Hay Street Phase 2

Here is the response from DOI

I believe NCDOI will not accept this type of material. It does not show the test method that was used, to show it meets 703.3

Jeff Olund
Assistant Fire Marshal
5091 Santa Fe dr.
Fayetteville, N.C. 28303
910-322-3160 cell
910-433-1730 office
jolund@ci.fay.nc.us

From: Kirk, Bill <bill.kirk@ncdoi.gov>
Sent: Wednesday, March 4, 2020 1:50 PM
To: Jeffrey Olund
Cc: Martin, Carl; Johnson, Charlie E
Subject: RE: [External] Fw: [EXTERNAL]RE: [EXTERNAL]RE: [EXTERNAL]Hay Street Phase 2

Jeff,

In Appendix D from D102.2.1 the exterior walls need to comply with Table 601. From Section 602.1, "Where required to have a fire-resistance rating by Table 601, building elements shall comply with the applicable provisions of Section 703.2." Section 703.2 requires the fire resistance rating to be in accordance with ASTM E119 or UL 263 or the analytical methods of 703.3 be used to establish the fire-resistance rating. The attached information you sent did not include verification of testing with ASTM E119 or UL 263 or the analytical methods of 703.3, so for that reason, I would be reluctant to accept this wall system as compliant with the Code. I hope this will be helpful.

Bill Kirk, PE
Chief Building Code Consultant

N.C. Department of Insurance
Office of State Fire Marshal
1202 Mail Service Center
Raleigh, NC 27699-1202
919.647.0025

-----Original Message-----
From: Johnson, Charlie E <charlie.johnson@ncdoi.gov>
Sent: Wednesday, March 4, 2020 7:43 AM
To: Kirk, Bill <bill.kirk@ncdoi.gov>
Cc: Martin, Carl <Carl.Martin@ncdoi.gov>; jolund@ci.fay.nc.us
Subject: FW: [External] Fw: [EXTERNAL]RE: [EXTERNAL]RE: [EXTERNAL]Hay Street Phase 2

Bill,

As this request is Building Code related, can you provide a response to Jeff?

Thanks,

-----Original Message-----

From: Jeffrey Olund <JOlund@ci.fay.nc.us>
Sent: Tuesday, March 3, 2020 12:20 PM
To: Johnson, Charlie E <charlie.johnson@ncdoi.gov>
Subject: [External] Fw: [EXTERNAL]RE: [EXTERNAL]RE: [EXTERNAL]Hay Street Phase 2

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Charlie

The architect Ashley Young was concerned if this type of stucco will be acceptable in the fire district. It will be type "1B" construction with other buildings over 25 feet away. It meets ASTM E119 1 hour and E84What do you think?

Jeff Olund

Assistant Fire Marshal

5091 Santa Fe dr.

Fayetteville, N.C. 28303

910-322-3160 cell

910-433-1730 office

jolund@ci.fay.nc.us<mailto:jolund@ci.fay.nc.us>

From: Joseph McLamb
Sent: Thursday, February 27, 2020 10:29 AM
To: Jeffrey Olund
Subject: FW: [EXTERNAL]RE: [EXTERNAL]RE: [EXTERNAL]Hay Street Phase 2

From: Ashley Young [mailto:ayoung@built-form.net]
Sent: Tuesday, February 25, 2020 8:14 PM
To: Jason Everage; Joseph McLamb
Cc: David Steinmetz; Arden Freeman
Subject: [EXTERNAL]RE: [EXTERNAL]RE: [EXTERNAL]Hay Street Phase 2

Thank you again for meeting with me on Friday to discuss the Phase 2 Revisions to Permit. I am checking on the status of the items you were following up on.

Those were as follows:

* Public Safety Distribution Antenna System (DAS) requirements
* Change DWV and storm drain piping to schedule 40 pvc

* Delete the sprinkler heads in the VTAC closets on the hotel
* Use a CPVC system on the 1st floor sprinkler
* Use of 'Neopore' (polystyrene rigid insulation) in continuous insulation application for Stucco in Primary Fire District.

I have attached product data for the full system we are looking at potentially using. It meets NFPA 285 and all requirements for use as non-combustible in construction type. You were going to follow up with DOI on this item.

Thank you again for your continued help through this documentation process.

Ashley Young
BUILT FORM, LLC
935 West Chestnut Street, Suite 520
Chicago, IL 60642

813-340-2957 Mobile
ayoung@built-form.net<mailto:ayoung@built-form.net>

From: Jason Everage <JEverage@ci.fay.nc.us<mailto:JEverage@ci.fay.nc.us>>
Sent: Thursday, February 20, 2020 12:37 PM
To: Ashley Young <ayoung@built-form.net<mailto:ayoung@built-form.net>>
Cc: Davidson Charles <cdavidson@catapultrealestate.com<mailto:cdavidson@catapultrealestate.com>>; Arden Freeman <afreeman@built-form.net<mailto:afreeman@built-form.net>>; Joseph McLamb <JMcLamb@ci.fay.nc.us<mailto:JMcLamb@ci.fay.nc.us>>; Jeffrey Olund <JOlund@ci.fay.nc.us<mailto:JOlund@ci.fay.nc.us>>; David Steinmetz <Dsteinmetz@ci.fay.nc.us<mailto:Dsteinmetz@ci.fay.nc.us>>
Subject: RE: [EXTERNAL]RE: [EXTERNAL]Hay Street Phase 2

I can meet tomorrow at 12

[cid:image001.jpg@01D5EC14.22DA2380]
Jason Everage
Chief Building Offical
Development Services
(Planning, Zoning, Building Inspection, & Code Enforcement)
433 Hay Street | Fayetteville, NC 28301-5537
Scheduling: 910-433-1768
Office : 910-433-1703
E-mail: jeverage@ci.fay.nc.us<mailto:jeverage@ci.fay.nc.us>
Web:
https://urldefense.com/v3/__http://www.FayettevilleNC.gov__;!!HYmSToo!NOJaEFpomPBfWiS8XzR4EmX38X2_sHwEoo9-rpmrrri8FFZR9u7EL3kVIvttQWlKH5w$
<https://urldefense.com/v3/__http://www.fayettevillenc.gov/__;!!HYmSToo!NOJaEFpomPBfWiS8XzR4EmX38X2_sHwEoo9-rpmrrri8FFZR9u7EL3kVIvttz0vn6yU$ >
Web https://urldefense.com/v3/__http://www.fayettevillenc.gov/government/city-departments/development-services__;!!HYmSToo!NOJaEFpomPBfWiS8XzR4EmX38X2_sHwEoo9-rpmrrri8FFZR9u7EL3kVIvttERhXA10$
<https://urldefense.com/v3/__http://www.fayettevillenc.gov/government/city-departments/development-services__;!!HYmSToo!NOJaEFpomPBfWiS8XzR4EmX38X2_sHwEoo9-rpmrrri8FFZR9u7EL3kVIvttERhXA10$ >

Online Portal Address:
https://urldefense.com/v3/__https://fayetteville.idtplans.com/secure/__;!!HYmSToo!NOJaEFpomPBfWiS8XzR4EmX38X2_sHwEoo9-rpmrrri8FFZR9u7EL3kVlvttXef52Ew$
All communication not specifically exempted by North Carolina law is a public record and subject to release upon request.

From: Ashley Young <ayoung@built-form.net<mailto:ayoung@built-form.net>>
Sent: Thursday, February 20, 2020 10:34 AM
To: Jason Everage <JEverage@ci.fay.nc.us<mailto:JEverage@ci.fay.nc.us>>
Cc: Davidson Charles <cdavidson@catapultrealestate.com<mailto:cdavidson@catapultrealestate.com>>; Arden Freeman <afreeman@built-form.net<mailto:afreeman@built-form.net>>; Joseph McLamb <JMcLamb@ci.fay.nc.us<mailto:JMcLamb@ci.fay.nc.us>>; Jeffrey Olund <JOlund@ci.fay.nc.us<mailto:JOlund@ci.fay.nc.us>>; David Steinmetz <Dsteinmetz@ci.fay.nc.us<mailto:Dsteinmetz@ci.fay.nc.us>>
Subject: [EXTERNAL]RE: [EXTERNAL]Hay Street Phase 2

All,
can I please get confirmation and a calendar invite for tomorrow? I am available to meet anytime from 9am to 12pm.
Thank you.

Ashley Young
BUILT FORM, LLC
935 West Chestnut Street, Suite 520
Chicago, IL 60642

813-340-2957 Mobile
ayoung@built-form.net<mailto:ayoung@built-form.net>

From: Ashley Young
Sent: Tuesday, February 18, 2020 11:32 AM
To: 'Jason Everage' <JEverage@ci.fay.nc.us<mailto:JEverage@ci.fay.nc.us>>
Cc: Davidson Charles <cdavidson@catapultrealestate.com<mailto:cdavidson@catapultrealestate.com>>; Arden Freeman <afreeman@built-form.net<mailto:afreeman@built-form.net>>; Joseph McLamb <JMcLamb@ci.fay.nc.us<mailto:JMcLamb@ci.fay.nc.us>>; Jeffrey Olund <JOlund@ci.fay.nc.us<mailto:JOlund@ci.fay.nc.us>>; David Steinmetz <Dsteinmetz@ci.fay.nc.us<mailto:Dsteinmetz@ci.fay.nc.us>>
Subject: RE: [EXTERNAL]Hay Street Phase 2

Does 12pm work for everyone?

Ashley Young
BUILT FORM, LLC
935 West Chestnut Street, Suite 520
Chicago, IL 60642

813-340-2957 Mobile
ayoung@built-form.net<mailto:ayoung@built-form.net>

From: Jason Everage <JEverage@ci.fay.nc.us<mailto:JEverage@ci.fay.nc.us>>
Sent: Tuesday, February 18, 2020 7:36 AM
To: Ashley Young <ayoung@built-form.net<mailto:ayoung@built-form.net>>
Cc: Davidson Charles <cdavidson@catapultrealestate.com<mailto:cdavidson@catapultrealestate.com>>; Arden Freeman <afreeman@built-form.net<mailto:afreeman@built-form.net>>; Joseph McLamb <JMcLamb@ci.fay.nc.us<mailto:JMcLamb@ci.fay.nc.us>>; Jeffrey Olund <JOlund@ci.fay.nc.us<mailto:JOlund@ci.fay.nc.us>>; David Steinmetz <Dsteinmetz@ci.fay.nc.us<mailto:Dsteinmetz@ci.fay.nc.us>>
Subject: RE: [EXTERNAL]Hay Street Phase 2

I am available this Friday. I have copied the Fire Marshals for your convenience.

[cid:image002.jpg@01D351A0.0E980F60]
Jason Everage
Chief Building Offical
Development Services
(Planning, Zoning, Building Inspection, & Code Enforcement)
433 Hay Street | Fayetteville, NC 28301-5537
Scheduling: 910-433-1768
Office : 910-433-1703
E-mail: jeverage@ci.fay.nc.us<mailto:jeverage@ci.fay.nc.us>
Web:
https://urldefense.com/v3/__http://www.FayettevilleNC.gov__;!!HYmSToo!NOJaEFpomPBfWiS8XzR4EmX38X2_sHwEoo9-rpmrrri8FFZR9u7EL3kVlvttQWlKH5w$
<https://urldefense.com/v3/__http://www.fayettevillenc.gov/__;!!HYmSToo!NOJaEFpomPBfWiS8XzR4EmX38X2_sHwEoo9-rpmrrri8FFZR9u7EL3kVlvttz0vn6yU$ >
Web https://urldefense.com/v3/__http://www.fayettevillenc.gov/government/city-departments/development-services__;!!HYmSToo!NOJaEFpomPBfWiS8XzR4EmX38X2_sHwEoo9-rpmrrri8FFZR9u7EL3kVlvttERhXA10$
<https://urldefense.com/v3/__http://www.fayettevillenc.gov/government/city-departments/development-services__;!!HYmSToo!NOJaEFpomPBfWiS8XzR4EmX38X2_sHwEoo9-rpmrrri8FFZR9u7EL3kVlvttERhXA10$ >

All communication not specifically exempted by North Carolina law is a public record and subject to release upon request.

From: Ashley Young <ayoung@built-form.net<mailto:ayoung@built-form.net>>
Sent: Monday, February 17, 2020 5:31 PM
To: Jason Everage <JEverage@ci.fay.nc.us<mailto:JEverage@ci.fay.nc.us>>
Cc: Davidson Charles <cdavidson@catapultrealestate.com<mailto:cdavidson@catapultrealestate.com>>; Arden Freeman <afreeman@built-form.net<mailto:afreeman@built-form.net>>
Subject: [EXTERNAL]Hay Street Phase 2

Good afternoon, Jason.

We are in the last leg of finalizing the Construction Documents for Phase 2- Hotel and Office of the Hay Street project. We have received a few RFIs and proposed VE from contractor, and I want to make sure we are reviewing these with the building department/inspectors prior to incorporating any revisions to our permitted drawings. Are you available Wednesday, Thursday, or Friday this week to meet with me to review these items? It would be helpful if we could also have the fire marshal, mechanical inspector, and plumbing inspector in that meeting as well. If available, please propose a time that works best for you and I will be there. Thank you!

Ashley Young
BUILT FORM, LLC
935 West Chestnut Street, Suite 520
Chicago, IL 60642

813-340-2957 Mobile
ayoung@built-form.net<mailto:ayoung@built-form.net>

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ICC EVALUATION SERVICE

ICC-ES Evaluation Report

ESR-1748

Reissued October 2019
Revised January 2020
This report is subject to renewal October 2020.

www.icc-es.org | (800) 423-6587 | (562) 699-0543 *A Subsidiary of the International Code Council®*

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 24 00—Exterior Insulation and Finish Systems
Section: 07 24 19—Water-Drainage Exterior Insulation and Finish System

REPORT HOLDER:

STO CORP.

ADDITIONAL LISTEE:

KAPTURE PREFAB

EVALUATION SUBJECT:

STOTHERM® ci®, STOPANEL™ CLASSIC ci®, STOPANEL™ IMPACT ci®, STOPANEL™ XPS AND STOPANEL™ CLASSIC NEXT ci®

1.0 EVALUATION SCOPE

Compliance with the following codes:

- 2018, 2015 and 2012 *International Building Code®* (IBC)
- 2018, 2015 and 2012 *International Residential Code®* (IRC)

For evaluation for compliance with codes adopted by Los Angeles Department of Building and Safety (LADBS), see ESR-1748 LABC and LARC Supplement.

Properties evaluated:

PROPERTY	IBC Chapter	IRC Chapter
Exterior insulation and finish systems (EIFS)	14	R7
Fire-resistance-rated construction	7	R3
Weather resistance	14	R7
Special inspections, Types I-IV (noncombustible) construction	17	NA
Structural – transverse wind load resistance	16	R6
Types I-IV (noncombustible) construction	26	NA
Surface burning characteristics	26	R3
Ignition resistance	26	NA

2.0 USES

StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems are exterior insulation and finish systems (EIFS) complying with 2018 IBC Section 1407 and 2015 and 2012 IBC Section 1408 and IRC Section R703.9. The systems comply with the requirements of 2018 IBC Section 1407.4.1 and 2015 and 2012 IBC Section 1408.4.1 and IRC Section R703.9 as EIFS with drainage.

StoTherm® ci® StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems may be installed in buildings of any construction type under the IBC (Types I through V) and dwellings under the IRC when installed in accordance with the applicable sections of Section 4.0.

3.0 DESCRIPTION

3.1 System Components:

StoTherm® ci® StoPanel™ Classic ci® Classic, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems consist of a water-resistive barrier, adhesively applied flat insulation board, reinforcing mesh, base coat, and finish coat. See Table 1 for system components.

3.2 Insulation Board:

The insulation boards must be one of the following:

a. Expanded polystyrene (EPS) complying with ASTM C578, Type I, and ASTM E2430, produced by a molder with a current ICC-ES evaluation report.

b. EPS insulation board produced by a molder who participates in an approved third-party quality-assurance program. EPS must comply with ASTM C578, Type I, and ASTM E2430.

c. Sto Insulation Board, EPS complying with ASTM C578, Type I, and ASTM E2430.

d. Owens Corning Foamular® CI-C Extruded Polystyrene Type X (for use with the StoTherm® ci® XPS system as noted in Table 1).

e. Dow Styrofoam Panel Core Type X recognized in ESR-2142 (for use with the StoTherm® ci® XPS system noted in Table 1).

f. BASF Neopor® Rigid Foam Insulation Board (Grade F5300 Plus) (for use with StoTherm® ci® Classic, StoTherm® ci® Premier, StoTherm® ci® Essence, and StoTherm® ci® Lotusan systems as noted in Table 1).

EPS insulation boards must have a flame spread index of 25 or less and a smoke-developed index of 450 or less when tested in accordance with ASTM E84 or UL 723.

3.3 Substrates:

Substrates must be one of the following:

a. Gypsum sheathing board complying with ASTM C1396 or ASTM C1177. When used as part of a fire-resistance-rated assembly, the gypsum board must be Type X with a minimum thickness of $^5/_8$ inch (15.9 mm).

b. Concrete masonry complying with the code.

c. Concrete complying with the code.

d. Exterior plaster complying with the code.

e. Exterior or Exposure 1 wood structural panels complying with DOC PS-1 or PS-2.

3.4 Sealants:

Sealants must comply with ASTM C920, Type S or M, minimum Grade NS, minimum Class 25 and Use O.

4.0 DESIGN AND INSTALLATION

4.1 General:

4.1.1 StoTherm® ci®: StoTherm® ci® must be installed in accordance with the manufacturer's installation instructions, specifications and details, which are available at www.stocorp.com:

- http://www.stocorp.com/continuous-insulation-systems/
- http://www.stocorp.com/sto_systems/stothermci-xps-lotusan/
- http://www.stocorp.com/sto_systems/stothermci-classic/
- http://www.stocorp.com/sto_systems/stothermci-lotusan/
- http://www.stocorp.com/sto_systems/stothermci-xps-essence/
- http://www.stocorp.com/sto_systems/stothermci-xps-classic/
- http://www.stocorp.com/sto_systems/stothermci-essence/

4.1.2 StoPanel™ Classic ci®: StoPanel™ Classic ci® system is a prefabricated application by Kapture Prefab of the StoTherm® ci® Classic system. Sto materials, as listed in Table 6, must be installed in accordance with the specifications and installation instructions in Section 4.1.1. StoPanel™ Classic ci® system must be fabricated in accordance with project specification and StoPanel™ fabricator shop drawings for each project.

- StoPanel™ Classic ci®
- Specification

4.1.3 StoPanel™ Impact ci®: StoPanel™ Impact ci® system is a prefabricated application by Kapture Prefab of the StoTherm® Impact ci® system. Sto materials, as listed in Table 6, must be installed in accordance with the specifications and installation instructions in Section 4.1.1. StoPanel™ Impact ci® system must be fabricated in accordance with project specification and StoPanel™ fabricator shop drawings for each project.

- StoPanel Impact ci®
- Specification

4.1.4 StoPanel™ XPS: StoPanel™ XPS system is a prefabricated application by Kapture Prefab of the StoTherm® XPS system. Sto materials, as listed in Table 6, must be installed in accordance with the specifications and installation instructions in Section 4.1.1. StoPanel™ XPS system must be fabricated in accordance with project specification and StoPanel™ fabricator shop drawings for each project.

- StoPanel™ XPS
- Specification

4.1.5 StoPanel™ Classic NEXT ci®: StoPanel™ Classic NEXT ci® system is a prefabricated application by Kapture Prefab of the StoTherm® ci® system which also incorporates the Sto Wedge drainage detail. Sto materials, as listed in Table 6, must be installed in accordance with the specifications and installation instructions in Section 4.1.1. StoPanel™ Classic NEXT ci® system must be fabricated in accordance with project specification and StoPanel™ fabricator shop drawings for each project.

- StoPanel™ Classic NEXT ci®
- Specification

4.2 Drainage:

StoTherm® ci® ,StoPanel™ ci® Classic, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® provides drainage through the application of vertical ribbons of adhesive over the water-resistive barrier coating system identified in Table 1.

Additional installation and compliance information for the StoGuard Gold Coat water-resistive barrier system is provided in ESR-1233 and at www.stocorp.com.

4.3 Wind Design:

Table 3 presents specific StoTherm® ci® assemblies for which test data has been submitted. Other StoTherm® ci® assemblies may be considered for approval by local officials, based on testing and/or calculations provided by a qualified design professional.

4.4 Weather Protection:

StoTherm® ci® ,StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems comply with 2018 IBC Section 1402.2 and 2015 and 2012 IBC Section 1403.2 and IRC Section R703.1.1.

4.5 Use in Types I through IV (Noncombustible) Construction:

Table 4 describes the assemblies qualified for use in Types I through IV construction (IBC).

4.6 Fire-resistance-rated Construction:

Table 5 describes the assemblies qualified for use in nonload-bearing fire-resistance-rated construction.

In addition, in Type V construction, any StoTherm® ci® system listed in this report may be attached to the surface of combustible exterior fire-resistance-rated assemblies described in IBC Table 721.1(2) without changing the assigned hourly rating of the assembly. The exterior wall must have a minimum 10-foot (3048 mm) separation distance from adjacent construction.

4.7 Special Inspection:

For recognition under the IBC, special Inspections of the water-resistive barrier must be conducted in accordance with 2018 and 2015 IBC Section 1705.16 (2012 IBC Section 1705.15). Refer to STO Corp. third-party inspection guidelines for verifying field preparation of materials.

5.0 CONDITIONS OF USE

The StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® EIFS systems described in this report comply with, or are suitable alternatives to what is specified in, those

codes listed in Section 1.0 of this report, subject to the following conditions:

5.1 Installation must comply with this report, the manufacturer's published installation instructions and the applicable code. In the event of a conflict between the manufacturer's instructions and this report, this report governs.

5.2 The insulation board must be separated from the building interior by a thermal barrier complying with the applicable code.

5.3 Installation must be by applicators listed by Sto Corp. StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS StoPanel™ Classic NEXT ci® must be fabricated by Kapture Prefab and installed in accordance with Sto instructions.

5.4 Termination of the systems must not be less than 6 inches (152 mm) above finished grade in accordance with 2018 and 2015 IBC Section 2603.8 (2012 IBC Section 2603.9) and IRC Section R318.4.

6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with ASTM E2568 and ASTM E2273.

6.2 Data in accordance with the ICC-ES Acceptance Criteria for EIFS Clad Drainage Wall Assemblies (AC235), dated January 2015 (editorially revised April 2018).

6.3 Data in accordance with the ICC-ES Acceptance Criteria for Foam Plastic Insulation (AC12), dated June 2015 (editorially revised October 2017).

6.4 NFPA 285 and NFPA 268 test data, including engineering analysis.

7.0 IDENTIFICATION

7.1 Each container or package of the coating or reinforcing mesh used as part of the StoTherm® EIFS ci® systems components must be labeled with the manufacturer's name (STO Corp.) and address; the product name; lot or batch number; quantity of material; storage instructions; pot life; expiration date; and the evaluation report number (ESR-1748).

Sto insulation board must be labeled on the edge of each board with the STO Corp. name, the plant identification number, and the evaluation report number (ESR-1748).

Sto Turbostick and Sto Turbostick Mini adhesive must be labeled with the Sto Corporation company name and product name designation.

Other foam plastic insulation must be labeled in accordance with the current ICC-ES evaluation report in which it is recognized, or in accordance with IBC Section 2603.2 or IRC Section R316.2, as applicable.

StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS StoPanel™ Classic NEXT ci® prefabricated panels are produced by Kapture Prefab and shipped with a certificate of compliance that contains the project identification the panels were produced for, dates of panel fabrication and a statement that all components of the panels complies with the applicable requirements of ESR-1748.

7.2 The report holder's contact information is the following:

STO CORP.
3800 CAMP CREEK PARKWAY
BUILDING 1400, SUITE 120
ATLANTA, GEORGIA 30331
(800) 221-2397
www.stocorp.com

7.3 The Additional Listee's contact information is the following:

KAPTURE PREFAB
421 WEST ALAMEDA DRIVE
TEMPE, ARIZONA 85282

TABLE 1—STOTHERM® ci® SYSTEM COMPONENTS[1,2]

SYSTEM	WATER-RESISTIVE BARRIER	ASTM C578 INSULATION BOARD TYPE	ADHESIVES	BASE COATS	FINISH
StoTherm® ci® Classic	StoGuard Gold Coat (see ESR-1233)	Type I	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto TurboStick Sto TurboStick Mini	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto RFP	Stolit Stolit Milano[3] Stolit X[3]
StoTherm® ci® Premier	StoGuard Gold Coat (see ESR-1233)	Type I	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto TurboStick Sto TurboStick Mini	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto RFP	StoSilco Lit
StoTherm® ci® Essence	StoGuard Gold Coat (see ESR-1233)	Type I	Sto Primer/Adhesive Sto Primer/Adhesive-B Sto TurboStick Sto TurboStick Mini	Sto Primer/Adhesive Sto Primer/Adhesive-B	Sto DPR Finish Stolit Milano Stolit X
StoTherm® ci® Lotusan	Sto Guard Gold Coat (see ESR-1233)	Type I	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto TurboStick Sto TurboStick Mini	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto RFP	Stolit Lotusan
StoTherm® ci® XPS	Sto Guard Gold Coat (see ESR-1233)	Type X	Sto TurboStick Sto TurboStick Mini	Sto BTS Plus Sto BTS Xtra Sto Primer/Adhesive Sto Primer/Adhesive-B	Stolit Stolit Lotusan Stolit Milano Stolit X

[1]All base coats are reinforced with the appropriate Sto Mesh product listed in Table 2.
[2]Sto Primer is an optional component of the systems listed above.
[3]Sto BTS Silo basecoat is not recognized for use with Stolit Milano and Stolit X finish.

TABLE 2—REINFORCING MESH PRODUCTS

PRODUCT NO.	PRODUCT NAME[1]	NOMINAL WEIGHT, oz/yd² (g/m²)
80920E	Sto Mesh	4.5 (153)
80919	Sto Detail Mesh	4.2 (142)
80985	Sto 6-oz. (170 g) Mesh	6.0 (170)
80918	Sto Intermediate Mesh	11.0 (373)
80921	Sto Armor Mat	15.0 (509)
80922	Sto Armor Mat XX	20.0 (678)
80921A	Sto Cormer Mat	7.6 (258)

[1]Other listed mesh products may be used for detail construction or to supplement impact resistance of the EIFS.

TABLE 3—WIND LOAD DESIGN[1]

FRAMING MEMBERS[2]				SHEATHING			WIND LOAD CAPACITY, psf (Pa)		SYSTEM
Wood, min. size (inches)	Metal		Maximum Spacing (inches)	Type	Thickness (inch)	Maximum Fastener Spacing[3], (inches)	Neg.	Pos.	
	Min. Depth (inches)	Min. Gage							
2x4 (nominal)	--	--	16	Wood-based	3/8	8	20	36	Classic Premier
--	3 1/2	18	16	Wood-based	3/8	8	38	60	Essence
--	3 1/2	18	16	Gypsum	1/2	8	20	35	Classic Premier Essence Lotusan StoPanel™ (See Table 6)
--	3 1/2	18	16	Gypsum	5/8	8	38	60	Essence StoPanel™ (See Table 6)
--	6	18	16	Gypsum	5/8	6	40	50	Classic Premier Essence Lotusan (with Turbo Stick Adhesive or Sto TurboStick Mini and Type I EPS) StoPanel™ (See Table 6)
--	6	18	16	Gypsum	5/8	6	63	58	StoTherm ci® XPS StoPanel™ (See Table 6)
Concrete or masonry substrates							54	54	Classic Premier Lotusan

For **SI:** 1 inch = 25.4 mm, 1 psf = 0.0479 kPa.

[1]Applicable to all StoTherm® materials listed in Tables 1 and 2.
[2]Deflection limitation 1/240, designed in accordance with applicable code.
[3]Fasteners must be No. 6, flathead, corrosion-resistant screws [minimum 0.292-inch (7.4 mm) head diameter].

TABLE 4—ASSEMBLIES FOR USE IN TYPES I THROUGH IV CONSTRUCTION

FRAMING MEMBERS[5,8]			INTERIOR SHEATHING[1,7] (TYPE X GYPSUM)		EXTERIOR SHEATHING (TYPE X GYPSUM)		MAX. INSULATION BOARD THICKNESS, (inches)	SYSTEM[9]
Metal		Max. Spacing (inches)	Min. Thickness (inch)	Max. Fastener Spacing (inches)	Min. Thickness (inch)	Max. Fastener Spacing (inches)		
Min. Depth (inches)	Min. Gage							
3 1/2	18	16	1/2	8 at perimeter 12 in field[2]	1/2	6 at perimeter 8 in field[3]	12	Essence Lotusan StoPanel™ (See Table 6)
3 1/2	18	16[6]	1/2	6[4]	5/8	6 at perimeter 8 in field[3]	12	Classic Premier Lotusan StoPanel™ See Table 6
6¼	20	16	5/8	8[4]	5/8	8[4]	12	StoTherm® ci Essence with Sto TurboStick, Sto TurboStick Mini, Sto Primer/Adhesive-B base coat and Stolit X finish StoPanel™ See Table 6
3 1/2	18	16[6]	5/8	8 at perimeter 12 in field	5/8	8 at perimeter 12 in field	9	Classic with Turbo Stick adhesive and Type I EPS StoPanel™ See Table 6
3 1/2	18	16[6]	5/8	8 at perimeter 12 in field	5/8	8 at perimeter 12 in field	6	StoTherm® ci® XPS with Sto BTS Xtra base coat and Stolit finish StoPanel™ See Table 6

For **SI:** 1 inch = 25.4 mm.

[1]All board joints backed by framing.
[2]Fasteners are minimum No. 8, Type S, corrosion-resistant screws, with sufficient length to penetrate framing a minimum of $^3/_8$ inch (9.5 mm).
[3]Fasteners are No. 6 drywall screws having sufficient length to penetrate framing a minimum of $^3/_8$ inch (9.5 mm).
[4]Fasteners are No. 6 by $1^1/_4$-inch-long (31.7 mm), buglehead drywall screws.
[5]Stud cavities at floor levels are blocked with Owens Corning Thermafiber insulation , 4 lb/ft^3 (64 kg/m^3) density, 4 inches (102 mm) thick and 2 feet (610 mm) wide.
[6]Stud cavities must be filled with R-11 fiberglass insulation.
[7]All joints must be taped and treated with joint compound. Intermediate fastener heads are treated with joint compound in accordance with ASTM C840 or GA216.
[8]Openings must be framed with minimum 0.0428-inch-thick steel framing.
[9]Applicable to StoTherm® ci® and StoPanel™ systems listed in Tables 1, 4 and 6, except for StoTherm® ci® and StoPanel™ systems using Stolit Milano and Stolit X finish, unless noted otherwise.

TABLE 5—FIRE-RESISTANCE-RATED ASSEMBLIES[1,2]

FIRE-RESISTANCE RATING (hrs)	FRAMING MEMBERS			INTERIOR SHEATHING			EXTERIOR SHEATHING			MAXIMUM EPS INSULATION BOARD THICKNESS (inches)
	Min. Depth (inches)	Min. Gage	Max. Spacing (inches)	Type	Min. Thickness (inch)	Max. Fastener Spacing (inches)	Type	Min. Thickness (inch)	Max. Fastener Spacing[5] (inches)	
1	$3^1/_2$	18	16	Type X gypsum[5]	$^5/_8$	8 o.c. on perimeter 12 o.c. in field[3]	Type X gypsum	$^5/_8$	6 at perimeter 8 in field[4]	4
2	$3^1/_2$	18	16	Two layers of Type X gypsum[5]	$^5/_8$	Base layer at 24 o.c. Face layer at 8 o.c.[6]	Two layers of Type X gypsum	$^5/_8$	Base layer at 24 o.c. Face layer at 8 o.c.[6]	4

For **SI:** 1 inch = 25.4 mm.

[1]Applicable to all StoTherm® ci® and StoPanel™ materials listed in Table 1, except to StoTherm® ci® and StoPanel™ systems which use the Stolit Milano, Stolit X and Sto Turbo Stick or Sto TurboStick Mini adhesive.
[2]All board joints must be blocked
[3]Fasteners are minimum No. 6, $1^1/_4$-inch-long (32 mm), self-tapping, corrosion-resistant bugle head screws.
[4]Fasteners are No. 6 drywall screws having sufficient length to penetrate framing a minimum of $^3/_8$ inch (9.5 mm).
[5]Interior wallboard joints must be covered with tape and joint compound. Interior fastener heads are covered with joint compound in accordance with ASTM C840 or GA 216.
[6]Fasteners for the base layer of gypsum board are No. 6, $1^1/_4$-inch-long, self-tapping, corrosion-resistant bugle-head screws. Fasteners for the face layer are $1^7/_8$-inch-long, self-tapping, corrosion-resistant bugle-head screws.

TABLE 6—STOPANEL™ COMPONENTS[1,2]

SYSTEM	WATER-RESISTIVE BARRIER	ASTM C578 INSULATION BOARD TYPE	ADHESIVES	BASE COATS	FINISH
StoPanel™ Classic ci®	StoGuard Gold Coat (see ESR-1233)	Type I	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto TurboStick Sto TurboStick Mini	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto RFP	Stolit Stolit Milano[3] Stolit X[3]
StoPanel™ Classic NEXT ci®	StoGuard Gold Coat (see ESR-1233)	Type I	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto TurboStick Sto TurboStick Mini	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto RFP	Stolit Stolit Milano[3] Stolit X[3]
StoPanel™ Impact ci®	StoGuard Gold Coat (see ESR-1233)	Type I	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto TurboStick Sto TurboStick Mini	Sto BTS Plus Sto BTS Silo Sto BTS Xtra Sto RFP	StoSilco Lit
StoPanel™ XPS	Sto Guard Gold Coat (see ESR-1233)	Type X	Sto TurboStick Sto TurboStick Mini	Sto BTS Plus Sto BTS Xtra Sto Primer/Adhesive Sto Primer/Adhesive-B	Stolit Stolit Lotusan Stolit Milano Stolit X

[1]All base coats are reinforced with the appropriate Sto Mesh product listed in Table 2.
[2]Sto Primer is an optional component of the systems listed above.
[3]Sto BTS Silo basecoat is not recognized for use with Stolit Milano and Stolit X finish.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 24 00—Exterior Insulation and Finish Systems
Section: 07 24 19—Water-Drainage Exterior Insulation and Finish System

REPORT HOLDER:

STO CORP.

EVALUATION SUBJECT:

STOTHERM® ci®, STOPANEL™ CLASSIC ci®, STOPANEL™ IMPACT ci®, STOPANEL™ XPS AND STOPANEL™ CLASSIC NEXT ci®

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems, described in ICC-ES master evaluation report ESR-1748, have also been evaluated for compliance with the codes noted below as adopted by Los Angeles Department of Building and Safety (LADBS).

- 2017 *City of Los Angeles Building Code* (LABC)
- 2017 *City of Los Angeles Residential Code* (LARC)

2.0 CONCLUSIONS

The StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems, described in Sections 2.0 through 7.0 of the master evaluation report ESR-1748, comply with LABC Chapters 7, 14 and 26, and LARC Sections R316 and R703, subject to the conditions of use described in this report.

3.0 CONDITIONS OF USE

The StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems described in this evaluation report must comply with all of the following conditions:

- All applicable sections in the master evaluation report ESR-1748.
- The design, installation, conditions of use and labeling of the StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems are in accordance with the 2015 *International Building Code®* (2015 IBC) or 2015 *International Residential Code®* (2015 IRC) provisions, as applicable, noted in the master evaluation report ESR-1748.
- The design, installation and inspection are in accordance with additional requirements of LABC Chapters 16 and 17, as applicable.
- The systems described in this evaluation report supplement have not been evaluated under LABC Chapter 7A or LARC Section R337 for use in the exterior design and construction of new buildings located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland—Urban Interface Area.

This supplement expires concurrently with the evaluation report, reissued October 2019 and revised January 2020.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 24 00—Exterior Insulation and Finish Systems
Section: 07 24 19—Water-Drainage Exterior Insulation and Finish System

REPORT HOLDER:

STO CORP.

EVALUATION SUBJECT:

STOTHERM® ci®, STOPANEL™ CLASSIC ci®, STOPANEL™ IMPACT ci®, STOPANEL™ XPS AND STOPANEL™ CLASSIC NEXT ci®

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems, recognized in ICC-ES main evaluation report ESR-1748, have also been evaluated for compliance with the codes noted below.

Applicable code edition(s):

- 2019 *California Building Code®* (CBC)

For evaluation of applicable chapters adopted by the California Office of Statewide Health Planning and Development (OSHPD) and Division of State Architect (DSA), see Sections 2.1.1 and 2.1.2 below.

- 2019 *California Residential Code®* (CRC)

2.0 CONCLUSIONS

2.1 CBC:

The StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems described in Sections 2.0 through 7.0 of the main evaluation report ESR-1748, complies with 2019 CBC Chapter 14, provided the design and installation are in accordance with the 2018 *International Building Code®* (IBC) provisions respectively, noted in the main report and the additional requirements of CBC Chapters 14 and 17.

The StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems have not been evaluated under Chapter 7A for use in the exterior design and construction of new buildings located in any Fire Hazard Severity Zone within State Responsibility Areas or any Wildland–Urban Interface Fire Area.

2.1.1 OSHPD:

The applicable OSHPD Sections of the CBC are beyond the scope of this supplement.

2.1.2 DSA:

The applicable DSA Sections of the CBC are beyond the scope of this supplement.

2.2 CRC:

The StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems, described in Sections 2.0 through 7.0 of the main evaluation report ESR-1748, complies with the 2019 CRC Chapter 7, provided the design and installation are in accordance with the 2018 *International Residential Code®* (IRC) provisions respectively, noted in the main report and the applicable provisions of the CRC.

The StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems have not been evaluated under CRC Section R337 for use in the exterior design and construction of new buildings located in a Fire Hazard Severity Zone within State Responsibility Areas or any Wildland–Urban Interface Fire Area.

The products recognized in this supplement have not been evaluated for compliance with the *International Wildland–Urban Interface Code®*.

This supplement expires concurrently with the evaluation report, reissued October 2019 and revised January 2020.

DIVISION: 07 00 00—THERMAL AND MOISTURE PROTECTION
Section: 07 24 00—Exterior Insulation and Finish Systems
Section: 07 24 19—Water-Drainage Exterior Insulation and Finish System

REPORT HOLDER:

STO CORP.

EVALUATION SUBJECT:

STOTHERM® ci®, STOPANEL™ CLASSIC ci®, STOPANEL™ IMPACT ci®, STOPANEL™ XPS AND STOPANEL™ CLASSIC NEXT ci®

1.0 REPORT PURPOSE AND SCOPE

Purpose:

The purpose of this evaluation report supplement is to indicate that StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems, recognized in ICC-ES master evaluation report ESR-1748, have also been evaluated for compliance with the codes noted below.

Applicable code editions:

- 2017 *Florida Building Code—Building*
- 2017 *Florida Building Code—Residential*

2.0 CONCLUSIONS

The StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems, described in Sections 2.0 through 7.0 of the master evaluation report ESR-1748, comply with the *Florida Building Code—Building* and *Florida Building Code—Residential*, provided the design and installation are in accordance with the 2015 *International Building Code®* provisions noted in the master report under the following condition:

Installation must meet the requirements of Sections 1403.8 and 2603.8 of the *Florida Building Code—Building* and Sections R318.7 and R318.8 of the *Florida Building Code—Residential*, as applicable.

Use of the StoTherm® ci®, StoPanel™ Classic ci®, StoPanel™ Impact ci®, StoPanel™ XPS and StoPanel™ Classic NEXT ci® systems for compliance with the High-Velocity Hurricane Zone provisions of the *Florida Building Code—Building* and the *Florida Building Code—Residential* has not been evaluated and is outside the scope of this evaluation report.

For products falling under Florida Rule 9N-3, verification that the report holder's quality-assurance program is audited by a quality-assurance entity approved by the Florida Building Commission for the type of inspections being conducted is the responsibility of an approved validation entity (or the code official, when the report holder does not possess an approval by the Commission).

This supplement expires concurrently with the evaluation report, reissued October 2019 and revised January 2020.

System Bulletin

Building with conscience.

StoTherm® ci Essence

Decorative cladding with continuous insulation and continuous air/moisture barrier for heat, air and moisture control

Substrate: Glass Mat Gypsum sheathing in compliance with ASTM C 1177, Exterior or Exposure I wood-based sheathing (plywood or OSB), code compliant concrete, concrete masonry or portland cement plaster, existing structurally sound, uncoated brick or other masonry wall construction.

1) StoGuard® Air and Moisture Barrier

2) Three adhesive options: Sto TurboStick™, Sto Primer/Adhesive, Sto Primer/Adhesive-B

3) Sto EPS Insulation Board

4) Sto Mesh (embedded in Sto base coat)

5) Two base coat options: Sto Primer/Adhesive, or Sto Primer/Adhesive-B

6) Sto Primer Sand (optional)

7) Sto Textured Finish: Sto Essence DPR

System Description
StoTherm ci Essence is a decorative and protective exterior wall cladding that combines superior air and weather tightness with excellent thermal performance and durability. It incorporates continuous exterior insulation and a continuous air/moisture barrier with Sto's high performance finishes in a fully tested wall cladding assembly.
Uses
StoTherm ci Essence can be used in residential or commercial wall construction where energy efficiency, superior aesthetics, and air and moisture control are essential in the climate extremes of North America

Features	Benefits
Design versatility	Aesthetic and curb appeal easy to achieve
Continuous exterior insulation, no mechanical fasteners	Energy efficient, reduced heating and cooling costs
Lightweight	Reduced structural costs
Continuous air and moisture barrier	Protects against mold and moisture problems
ICC-ES listed and evaluated	Fully tested building code compliant assembly
Properties	
Weight (not including sheathing and frame)	< 2 psf (10 kg/m^2)
Thickness (insulation)	1 to 12 inches (25 – 305 mm)
R-value (not including sheathing and frame)	3.6 – 43.2 ft^2•h•°F / Btu (0.63 – 7.60 m^2•K / W)
Wind Load Resistance	Tested up to ± 188 psf (9.00 kPa)
Compliance	• IBC and IRC (2006, 2009, 2012) • ASHRAE 90.1-2010
Construction Types and Fire Resistance	• I-V, NFPA 285 tested for types I-IV • ASTM E 119 tested for 1&2 hour walls
Warranty,	
10 year Limited Warranty	
Maintenance	
Requires periodic cleaning to maintain appearance, repair to cracks and impact damage if they occur, recoating to enhance appearance of weathered finish. Sealants and other façade components must be maintained to prevent water infiltration.	

StoTherm® ci Essence

Decorative cladding with continuous insulation and continuous air/moisture barrier for heat, air and moisture control

Precautions and Limitations
Minimum insulation board thickness 1 inch (25 mm). Maximum insulation board thickness 12 inches (305 mm).
Fire resistance rated assemblies limited to 4 inch (102 mm) maximum insulation board thickness and non-load bearing steel frame.
Structural back-up wall must be level to within ¼ inch in 10 ft (6 mm in 3.0 m)
Wind load resistance: ± 188 psf (9.00 kPa) ultimate loads achieved. Ultimate wind load resistance also depends on sheathing, sheathing attachment, and stiffness of supporting construction. Design for maximum allowable deflection of L/240.
Impact resistance: supplemental reinforcing mesh layers, cement board overlay or other design adjustments may be prudent for areas adjacent to heavy pedestrian traffic or other areas of high impact or abuse. Refer to Sto Guide Details.
For use on vertical above grade walls only. Do not use below grade or on roofs or roof-like surfaces.
Insulation material is flammable. Keep away from flame, ignition sources, high heat, and temperatures in excess of 165°F [74° C]).
Dark finish colors with LRV (Light Reflectance Value) < 20 are not recommended.
Air Barrier, insulation board, and base coat materials are not intended for prolonged weather exposure. Allow 180 days maximum between application of air barrier and insulation board.
Refer to specific component product bulletins and packaging for other limitations that may apply involving use, handling and storage of component materials.

Sustainable Design	
Air Quality and VOC Compliance	
All finish coatings, adhesives, air barrier joint treatments and coatings meet US EPA (40 CFR 59) and SCAQMD (Rule 1113) emission standards for architectural coatings.	
LEED Credit Eligibility	
System has high potential for LEED and other sustainability program credits based on efficient and effective use of continuous exterior insulation and resulting reductions in greenhouse gas emissions	
Regulatory Compliance and Standards Testing	
ICC ESR No. 1748 covering StoTherm NExT Systems	Complies with 2009, 2012, 2015 IBC and IRC
ICC ESR No. 1233 covering StoGuard Air & Moisture Barrier	Complies with 2009, 2012, 2015 IBC, IRC and IECC
ASHRAE 90.1-2016[1]	Complies with Section 5, Building Envelope, air barrier and continuous insulation requirements
ASTM E 2357[2]	Air/Moisture barrier meets air leakage resistance criteria of ≤ 0.04 cfm/ft² at 1.57 psf (0.2 L/s•m² at 75 Pa)
NFPA 285[3]	Meets flame propagation criteria for use on Types I, II, III, IV construction with up to 12 inches (305 mm) of Sto EPS insulation board
ASTM E 119[4]	Meets requirements for 1 or 2 hour rating over non load-bearing fire-resistance-rated steel frame construction, does not change the rating over selected combustible exterior fire-resistance-rated assemblies (refer to ICC ESR 1748)

1. *Energy Standard for Buildings Except Low-Rise Residential Buildings*
2. *Standard Test Method for Determining Air Leakage of Air Barrier Assemblies*
3. *Standard Fire Test Method for Evaluation of Fire Propagation Characteristics of Exterior Non-Load-Bearing Wall Assemblies Containing Combustible Components*
4. *Standard Test Methods for Fire Test of Building Construction and Materials*

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