



July 17, 2020

Melanie E. La Rocca  
Commissioner

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Mr. Lawrence F. Kruth  
American Institute of Steel Construction  
130 E. Randolph St, Suite 2000  
Chicago, IL 60601

Re: Material Assessment Letter for OTCR Submittal Code #11-19;  
SpeedCore Concrete Filled Composite Plate Shear Wall used as a lateral  
support wall system in the construction of high-rise buildings.

Dear Mr. Kruth,

Thank you for submitting the OTCR1 Alternative Material application, dated  
February 14, 2019, for the above referenced product. The application includes  
the following:

**System Description.** The SpeedCore Concrete Filled Composite Plate Shear  
Wall (SpeedCore) is used as a lateral support wall system for use in the  
building core construction of high-rise buildings to resist wind load and seismic  
load.

**Equipment Description.** SpeedCore components are comprised of two steel  
plates with highly flowable concrete infill poured and cured between the steel  
plates. The steel plates are spaced with cross-ties and shear connectors  
which are placed on the inner surfaces of the steel plates to provide maximum  
load transfer action. The strength, composition and geometry of the steel and  
concrete components are designed and specified by a licensed professional.

**Supporting Documents.**

1. OTCR1 application.
2. AISC Design Guide 32
3. Experimental Study of Concrete-filled Steel Plate Composite  
Coupling Beam
4. Extracted pages from Rainier Square - Basis of Design
5. Pankow\_CF\_CPSW\_Interim Report-Purdue-Buffalo-Oct-2018
6. Cyclic Inelastic Behavior of Concrete Filled Sandwich Panel  
Walls

The SpeedCore system is a steel composite assembly. The NYC Construction  
Codes requires steel composite designs to comply with the Chapter 22 and  
Chapter 16 of the New York City Building Code. SpeedCore installations must  
comply with the following provisions of the 2014 NYC Building Code:

- BC 2205.1 General. The design, fabrication and erection of structural  
steel for buildings and structures shall be in accordance with AISC 360.

- BC 2205.6 Fabrication, erection and quality control. In addition to the provisions for fabrication, erection and quality control in AISC 360, the following provisions shall be used.
  - BC 2205.6.1 Shop drawings- Shop drawings shall include the location of oversized, short slotted and long slotted holes.
  - BC 2205.6.2 Field connections-Field connections shall meet the requirements for corresponding types of shop connections described in AISC 360.
  - BC 2205.6.3 Structural steel erection- In additional, to the provision of AISC 360, the requirements of Section 3305.2 shall apply.
  
- BC 2201.2 Special inspection -Steel shall be subject to the requirements of special inspection in accordance with Chapter 17.
  
- BC 2203.1 Identification-Identification of structural steel members shall comply with the requirements contained in AISC 360.
  
- BC 2203.2 Protection-Painting of structural steel members shall comply with the requirements contained in AISC 360.
  
- BC 2204.1 Welding. The details of design, workmanship and technique for welding, inspection of welding and qualification of welding operators shall conform to the requirements of the specifications listed in Sections 2205, 2206, 2207, 2209 and 2210. Special inspection of welding shall be provided where required by Section 1704.
  
- BC 2205.2 – Seismic requirements for steel structures. The design of structural steel structures to resist seismic forces shall be in accordance with the provisions of Section 2205.2.1 or 2205.2.2 for the appropriate seismic design category.
  
- BC 2205.3- Seismic requirements for composite construction. The design, construction and quality of composite steel and concrete components that resist seismic forces shall conform to AISC 360 and ACI 318...
  
- BC 1613 Earthquake Loads- Every structure, and portion thereof, including nonstructural components that are permanently attached to structures and their supports and attachments, shall be designed and constructed to resist the effects of earthquake motions in accordance with ASCE 7-10.
  
- BC 1609 Wind loads- Buildings, structures and parts thereof shall be designed to withstand the minimum wind loads prescribed in this section.



Accordingly, OTCR has determined that the SpeedCore must be designed and installed in accordance with the above referenced code sections to be recognized as a lateral support wall system in the construction of high-rise buildings to resist wind load and seismic loads.

The SpeedCore must comply with the following additional design, filing, permitting, installation and inspection requirements:

**1. Requirements Prior to Approval**

**a. Design.**

- i. AISC Design Guide 32 "Design of Modular Steel- Plate Composite Walls for Safety- Related Nuclear Facilities" may be used as guidance on how to apply AISC 360 and AISC 341 specifications for the design of SpeedCore.
- ii. All structural design and calculations shall undergo peer review. The reviewer must review and certify that all design, calculations, details, installation and inspection are in accordance with New York City Construction Code. The reviewer(s) shall be retained by the owner and shall be approved by the Department prior to commencing the review (for peer reviewer approval, contact [otcr@buildings.nyc.gov](mailto:otcr@buildings.nyc.gov)). The reports of such peer reviews shall be signed, sealed and filed as a required item prior to construction document approval.

- b. Filing.** Applicable construction documents must be filed in the borough office. The filing must include all appropriate plans and details. Construction documents must be approved by the Department.

**2. Requirements Prior to Permit**

- a. Construction permit.** Obtain permit for all applicable work.

**3. Requirements Prior to Signoff**

- a. Installation. Installation of the SpeedCore shall be in accordance with:**

- i. Approved plans

**b. Inspections:**

- i. **Special Inspections.** Pursuant to section BC Chapter 17 the installation of SpeedCore shall be subject to special inspection requirements of BC 1704.4 and 1704.3 and Department Rules covering special inspection.

In the event of non-compliance with any of the requirements listed above or unresolved system failure during operation, the SpeedCore will be required to be removed at the owner's expense. An audit may be performed to verify compliance.



This OTCR Acceptance Letter only addresses material/equipment acceptance. Project approval and permit must be obtained from the Department of Buildings through the required application process.

Regards,

A handwritten signature in blue ink that reads "Siun Derkhidam".

Siun Derkhidam,  
OTCR Staff Engineer

Cc: Alan Price, PE, Director, OTCR, DOB  
Rupert Williams, PE, Administrative Engineer, DOB