

October 4, 2011

Mr. Thomas J. Fariello, RA
Acting First Deputy Commissioner
NYC Department of Buildings
280 Broadway, 7th Floor
New York, NY 10007

Sub: WTC TRANSPORTATION HUB – OCULUS STEEL FIREPROOFING

Dear Commissioner Fariello:

Thank you for meeting with the oculus design team on August 16, 2011 and discussing fireproofing of the oculus steel.

The WTC Transportation Hub is designed as Construction Class 1-C per the 1968 code. For 1-C construction, columns, girders, trusses (other than roof trusses) require 1-1/2 hr fireproofing, as per Table 3-4. The Oculus is a unique structure comprising portal frames that rise more than 160 feet above the plaza level and serves as the weather enclosure to the main entrance from the street level to the transportation concourses below. The upper portal frames, of the above grade portion of the Oculus structure, have been classified as columns and therefore must achieve a 1 ½ hour fire-resistance. The following demonstrates an equivalency to the 1 ½ hour fire-resistance requirement for such structure.

The A/E of record has performed a structural Fire Engineering Analysis and demonstrated that due to the high volume of the space and robustness of the structure, the maximum temperature of the steel, without any fire resistive coating, will never reach a limit to significantly reduce the strength of the structural members. The transit hall level is primarily for the circulation of PATH transit passengers and patrons of the adjacent retail spaces. Therefore, a retail kiosk fire with a maximum heat release rate of 2 MW was considered in the original analysis. However, at our meeting on August 16th, the possibility of "special event" use was discussed. "Special events" may involve displays or exhibits, including automobile displays or showcases.

Following the discussion at the meeting, the A/E has performed further analysis for a fire size of 8 MW, which is a credible maximum fire size for an automobile display of 2-3 closely spaced passenger cars.

Based on the results of the analysis, the maximum temperature of the oculus steel after 1 ½ hour of exposure to the fire will not exceed 155 ° C and 93% of the steel strength will be retained.

THE PORT AUTHORITY OF NY & NJ

Documents that were presented at the meeting and the subsequent analysis by ARUP, dated August 23, 2011, are listed below and are attached. Attached also is a copy of the Meeting Attendance Record.

- Whitepaper on Fire Resistance of Above Grade Oculus Steel including the following Attachments:
 - Structural Fire Engineering Analysis by ARUP, dated February, 2011
 - AISC Specification for Structural Steel Buildings, Appendix 4: Structural Design for Fire Conditions
 - Modern Steel Construction Article: April 2010: Structural Design for Fire Conditions
 - Oculus Steel Fire Protection Diagrams
- Structural Fire Engineering Analysis Follow up, dated August 23, 2011

The Port Authority is of the opinion that the fire analyses demonstrate that the oculus portal frame members will provide an equivalent fire rating of at least 1 ½ hour without any applied fire protective coating, and therefore, omission of fire protection coating on the oculus steel portal frames beyond 33' to 47' above the Transit Hall elevation at 274' is justified. If you concur, I would appreciate your signing and returning one original of this letter to me.

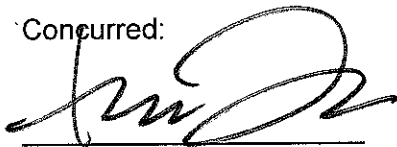
Very truly yours,



Saroj Bhol, PE
Manager, Construction Design Standards

Enclosures

Concurred:



Thomas J. Fariello, RA
Acting First Deputy Commissioner

cc: K. Wen, NYC Department of Buildings



Buildings

Meeting Attendance Record

DATE: August 16, 2011

LOCATION: 7th Fl. Operations Conference Room

SUBJECT: WTC-Fireproofing of Oculus Frame

[illegible]



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[illegible]