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August 14<sup>th</sup> , 2022

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**Re: Emergency Stabilization-Project Closeout: 143 Montgomery Street, Albany, New York  
(The Former Central Warehouse Building).**

Dear Rick:

This is a final report that describes the results of our findings and emergency mitigation efforts at the Former Central Warehouse Building. These findings are based on numerous and continued inspections that were made at the building that began on July 26, 2022 and extended through the entire remediation process that was being conducted by the contractor with follow-up inspections during and after the work had been completed. Photograph 1 shows the Southerly elevation of the building where the majority of the problems were occurring and for which was the focus of the emergency remediation efforts.



**Photograph 1 (Photo taken July 26<sup>th</sup>, 2022)**  
(South exterior wall-Central Warehouse building prior to implementing emergency remediation measures)

### **1). Executive Summary:**

On July 26, 2022, it was noted that concrete masonry had fallen from the upper Southeasterly corner adjacent to the smoke stack of the former Central Warehouse building. This area is more specifically noted in the upper right corner of Photograph 1 with a close-up view shown in Photograph 4.

We responded to the scene and found gross deterioration and spalling about various areas in the South wall, the South parapet wall at the roof level and gross deterioration and section loss in the steel brackets that support the 140' high smoke stack also depicted in Photograph 1. The smoke stack was highly unstable. A collapse of the smoke stack along with additional failure in portions of the loose masonry along the Southerly exterior wall, South parapet wall and Southeast corner of the building were considered imminent at that time.

Amtrak officials were notified immediately by the City of Albany which led to the closure of the adjacent tracks until the hazard could be mitigated. By noon of August 1<sup>st</sup> of 2022, all observable loose concrete had been removed from the Southerly face of the building as well as the upper Southeasterly corner and the Southerly parapet wall at the roof level. In addition, the 140' smoke stack was carefully removed in sections. Photographs 2, 3, 4 and 5 show typical views of concrete debris adjacent to the tracks as well as loose and spalling concrete at each of these three areas.

The exterior Southerly wall was the focus of this response and evaluation. This wall is substantially deteriorated and still considered a significant hazard. Additional spalling and dislodging of concrete pieces could occur at any time. The upper wall sections beginning at the ninth floor have deflected in an outward direction of approximately 2" with an additional 6" deflection encountered at the eleventh floor level. A total of thirty six structural steel brackets with 1" diameter A-304 stainless steel threaded rod were epoxied into the existing wall section to provide supplemental and additional restraint to this wall. This task was completed on August 13, 2022. All emergency mitigation measures that were identified during the July 26, 2022 through August 13, 2022 site inspections have been completed.

While the emergency mitigation measures have been completed, the owner will be required to complete various tasks necessary to maintain a continuity of maintenance and safety in the building. These requirements include the following:

- 1). Seal all remaining exposed concrete along the upper Southeasterly corner of the building using self-adhesive ice and water shield or equivalent material. **Completion Date September 16, 2022.**
  
- 2). Retain the services of a qualified licensed Professional Engineering firm to perform an overall structural condition assessment of the entire building and provide a three dimensional digitized mapping of the South wall and Easterly wall. An evaluation of soundness of the concrete in the South wall shall be made and documented in a digitized format. Any additional loose and deteriorated concrete shall be removed from the perimeter exterior curtain wall. **Completion Date October 14, 2022.**

3). Strong Man Netting or equivalent shall be installed along the Southerly and Easterly wall sections (full width and height of each wall). **Completion Date November 18, 2022.**

4). There is a 1' wide failure area in the Southerly roof line adjacent to the parapet wall that will need to be made watertight. This failure area is approximately 200' in length along the South side of the building. **Completion Date September 16, 2022.**

5). Self-adhesive ice and water shield shall be installed along the top and vertical face of the Southerly parapet wall to make this watertight. **Completion Date September 16, 2022.**

6). The owner shall provide the City of a copy of the Structural Condition Assessment report, the results of the engineering and mapping of the South and Easterly walls and a maintenance plan with specific target dates to avoid future emergency conditions resulting from on-going deterioration. **Completion Date December 16, 2022.**

## **2). General description of the building structure:**

The existing building is a reinforced concrete structure approximately 222' long x 208' wide and served as a combination cold storage and freezer warehouse facility. The structure which was built in approximately 1927 is eleven stories (137' in height at the roof level). Each floor is 46,176 sq. ft. or 507,935 sq. ft. total area for the entire building. The interior columns consist of 2'-6" and 4' diameter reinforced concrete columns with a flared capital section at the top of each column along with a dropped concrete panel section cast integral with the slab at each floor level. In general terms, the reinforced concrete columns are in satisfactory condition. The existing reinforced concrete floor slabs are 6 ½" in thickness with a 4'-3" wide drop slab section that occurs as an end condition about the exterior perimeter of the building. This end condition exists at the second floor level and extends through the roof slab. The drop slab section is 11 ½" thick and is 4'-3" wide and is significant because it anchors the exterior walls to the structure at each floor slab using 1" diameter galvanized wrought iron tie rods.

Along the Southerly wall there is a 6" gap between the outside reinforced curtain wall (that has a thickness of 8"). This 6" gap was utilized as a thermal break between the exterior curtain wall and the interior columns. This condition occurs at the fifth floor level through the eleventh floor level and roof. The 8" thick exterior curtain wall is reinforced with #4 bars at 12" on center / each way and behaves more as a deep beam section that has reinforcing steel cast integral with each exterior spandrel column (at each floor level). As mentioned, the curtain wall is pinned at each floor level using 1" diameter wrought iron galvanized pins having an approximate spacing of 6' on center. In some instances, the spacing of the anchoring rods are 2' on center, which were installed to control outward deflection in the wall at the upper floors. In the majority of tie rods that were evaluated (approximately 65% were visible at each floor level) and were in satisfactory condition. In some instances, the end plates of the tie rods were corroded and separated from the exterior South curtain wall. This specifically occurs at floor levels 9, 10 and 11. A total of 36 new supplemental wall ties / brackets have been installed in order to compensate for the deteriorated condition of the concrete in the South curtain wall and the wall separation that varies between 2" up to 6" beginning at the 9<sup>th</sup> floor and extending through

the 11<sup>th</sup> floor respectively. This task has been implemented under the continuation of the incident command procedures and is part of the interior work in the building and was not part of initial immediate exterior public safety hazard that was associated with the falling concrete and deteriorated connections associated with the unstable 140' smoke stack.

The building structure was designed as a reinforced concrete rigid frame building and is in varying states of deterioration with excessive deterioration occurring about the entire exterior perimeter reinforced concrete curtain wall. There are no expansion joints in the exterior walls of the building which is problematic and has caused wall fractures throughout the entire exterior structure due to thermal expansion and contraction. The overall condition of the concrete floor slabs are unknown. The original drawings for the building have been provided by Monica Gray the Head of Archival Services at the New York State Museum Facility and were invaluable for this analysis and evaluation.

**The condition of the entire exterior perimeter curtain wall is considered hazardous especially along the Southerly side and Southeasterly corner of the building. The owner will need to address this issue as part of the next steps in properly securing the building.**

**3). Description of the immediate hazard:**

On Tuesday July 26, 2022, the building situated at the above referenced location experienced deteriorated and spalled concrete falling from the Southerly side and Southeasterly corner of the building, adjacent to the Amtrak railroad tracks. We responded to the scene at 2:00 pm on that date to perform an overall structural condition assessment of the structure- specifically at the Southerly and Southeasterly corner of the building. Although a report was prepared on August 15, 2022 to address the immediate observable hazards, an overall evaluation was on-going on a daily basis as we inspected the progress of the work and extended through August 13, 2022.

It shall be noted that we evaluated both the interior and exterior portions of the building and identified three specific areas that constituted the immediate public safety threat.

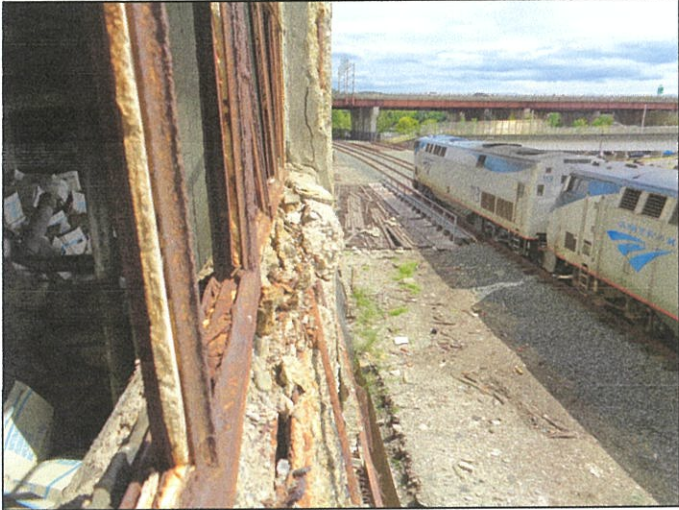


**Photograph 2 –July 26<sup>th</sup>, 2022**

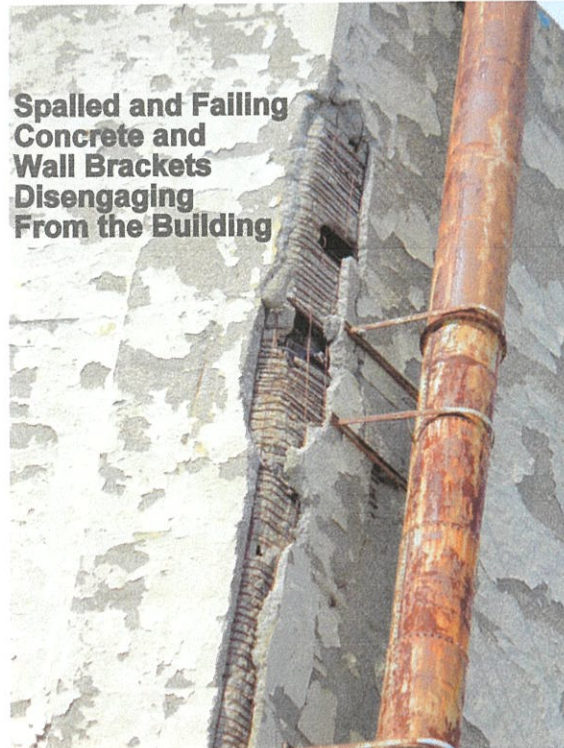
**(Remains of concrete debris that fell from the Southeast corner of the building-adjacent to the Amtrak tracks).**

The three areas that needed to be mitigated immediately on an emergency basis in order to restore rail service were located along the Southerly and Southeasterly exterior sides of the building and consist of the following:

- 1). The spalled and failing concrete wall section at the Southeasterly corner of the building and the unstable 3' diameter smoke stack also situated at the Southeasterly corner of the building.
- 2). Spalled and failing concrete from the Southerly side of the building.
- 3). Spalled and failing concrete at the Southerly roof parapet wall.



**Photograph 3 – July 26<sup>th</sup>, 2022**  
(Spalling concrete from exterior spandrel beams-adjacent to the Amtrak tracks).



**Photograph 4 – July 26<sup>th</sup>, 2022**  
(Southeast corner of the building)

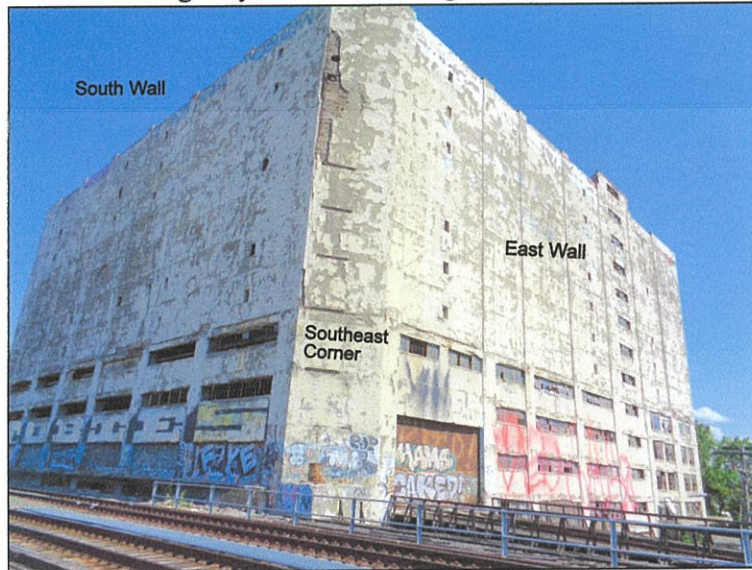


**Photograph 5 – July 26<sup>th</sup>, 2022**  
(Southerly roof parapet wall adjacent to the Amtrak tracks)

Photograph 3 shows loose and spalling concrete about the large window openings at the third, fourth and fifth floors that have been removed along with the deteriorated and failing wrought iron window frames. Photographs 4 and 5 show the deteriorated and spalling concrete at the Southeasterly corner of the building and at the Southerly roof parapet wall respectively.

#### **4). Completion of the immediate (Exterior) hazard mitigation tasks:**

On August 1, 2022 we made a site inspection about the exterior of the building specifically in the three areas required for the emergency structural mitigation as described above.



**Photograph 6 -August 1<sup>st</sup>, 2022**

**(Completed -Task 1 removal of all loose & failing concrete and the smoke stack from the Southeasterly corner of the building)**

The 140' high x 3' diameter smoke stack was safely removed from the Southeasterly corner of the building. This is more specifically shown in Photograph 6. All loose fascia wall concrete has been removed from the Southeasterly corner as seen above. The contractor used a pry bar to dislodge all loose concrete from this area. The owner is required to wrap all exposed / spalled concrete areas along the South and Southeasterly side of the building with ice and water shield. This treatment is specific to the spalled area seen in the upper Southeasterly corner section in Photograph 6, as well as around the window area at the seventh floor level fourth bay in from the Southwesterly corner of the building. Strong Man Netting or equivalent (SBN – 1460 Heavy Duty Debris Netting – High Density Polyethylene with a 1/32" mesh openings) shall be placed over the entire Southerly wall, Easterly wall and Southeasterly corner (full height) of the building.

The contractor has satisfactorily removed all loose and spalled concrete from the Southerly side of the building as observed on August 1, 2022. This included visible spalled areas that were loose and all loose concrete about the spandrel beams at the window openings at the fourth and fifth floor level which is more specifically shown in Photograph 7.

All loose concrete from the Southerly parapet at the roof level as noted on August 1, 2022 has been removed. Please note that due to the deteriorated nature of the perimeter concrete walls and parapet walls, the presence of additional spalled areas could occur at any time. It is the responsibility of the building owner to monitor the condition of the building and make necessary repairs and take the necessary remediation measures in order to maintain public safety.

Photograph 8 shows a typical view of the Southerly parapet wall after loose masonry had been removed.



**Photograph 7**-August 1<sup>st</sup>, 2022  
(Completed -Task 2 removal of all loose & failing masonry along the Southerly face of the building)



**Photograph 8** -August 1<sup>st</sup>, 2022  
(Completed -Task 3 removal of all loose & failing masonry along the Southerly parapet wall)



### **5). Amtrak operational stipulations:**

The following recommendation have made to Amtrak officials and are being implemented by Amtrak staff and supervisors as part of reopening the tracks:

- i). Installation of precast concrete Jersey type barriers with a chain link fence mounted to the barrier and paralleling the South side of the building, having a 6' off-set from the Northerly most track. This will help contain possible future spalled concrete from impinging on the tracks.
- ii). Limit the speed of the train to 10 mph when approaching the building. This will help reduce vibrational effects in the South wall.
- iii). We understand that Amtrak engineering personnel will inspect the South side of the building twice per week for any signs of further advancement or deterioration in the South wall. This monitoring will include any further signs of advancement in the deterioration of the South wall, any signs of concrete debris in proximity to the tracks and should this occur, Amtrak staff will notify the City of Albany Director of Code Enforcement.
- iv). Amtrak will allow for the pre-Amtrak approved scheduling of any subsequent inspections of the South wall using a 140' lift (when necessary) to evaluate the wall or to install additional safety measures as needed.

### **6). Interior work that has been completed by the contractor:**

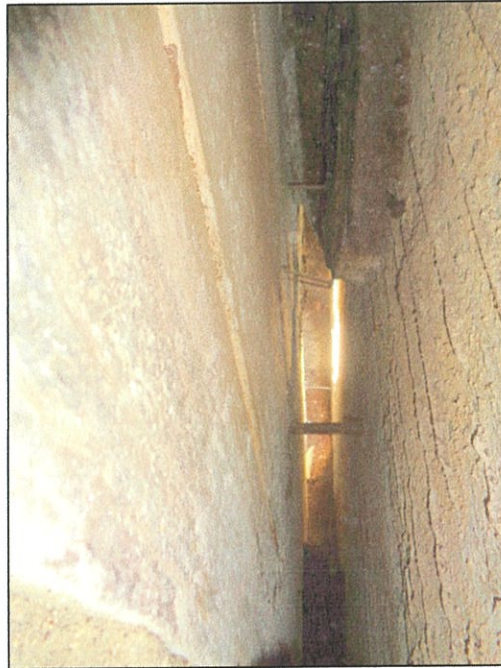
During subsequent site visits, we found that approximately 20 tie rods out of an estimated 30 tie rods per floor were exposed for evaluation. The existing 1" diameter tie rods exhibit little or no deterioration and corrosion specifically at the lower floor levels (there are approximately 6-8 tie rods at the 9<sup>th</sup>, 10<sup>th</sup> and 11<sup>th</sup> floor) that exhibit section loss and in some instances are no longer properly attached to the outside wall section. The drawings indicate that the existing wrought iron tie rods are galvanized with a nut placed at each end of the tie rod for embedment restraint. The rod spacing as seen in the field averages 6' on center and in some instances has a closer spacing. A total of 36 supplemental wall ties have been installed at the 9<sup>th</sup> floor (8- wall brackets), 10<sup>th</sup> floor ( 14 -wall brackets) and 11<sup>th</sup> floor (14 -wall brackets). The locations of the proposed wall ties / brackets have been delineated in the field and have been properly completed.

A ¾" diameter A-304 stainless steel threaded rod with Hilti HIT – Re 500 v-3 epoxy adhesive having a 4 ½" embedment into the exterior wall, anchors the exterior wall to a channel bracket that is bolted into the adjacent Southerly wall column. Each bracket is connected to the wall column using 5/8" diameter A-304 stainless steel along with the aforementioned Hilti epoxy adhesive and a 4 ½" embedment into the concrete column.

Photographs 9, 10 and 11 are provided to show the condition of the existing wall ties. Photograph 9 shows a wall tie that is separated from the exterior wall at the ninth floor level. Photograph 10 shows wall ties with some concrete spalling. This condition can also be seen in

Photograph 11 which was taken at the eleventh floor level. Each of these conditions are being compensated for with the installation of new wall brackets that are more specifically shown in Photographs 12 through 17.

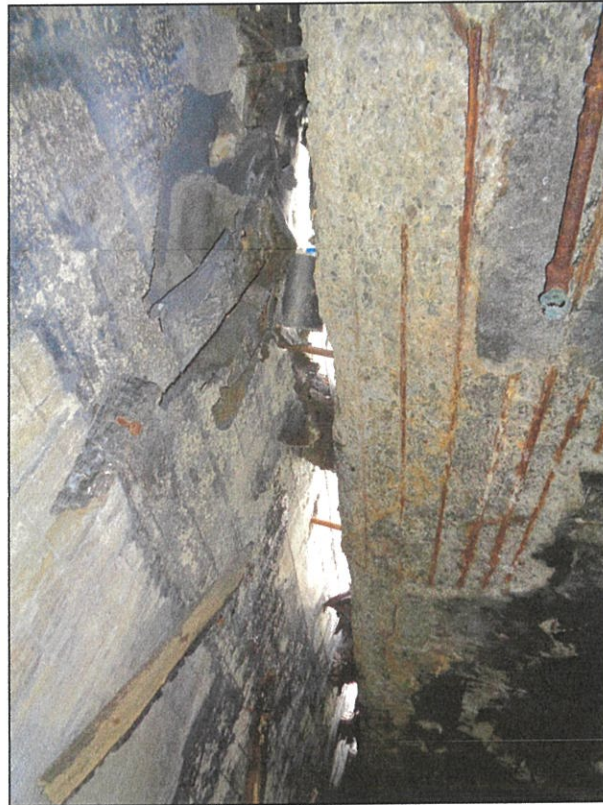
Please note that the photographs showing the new brackets at floor levels eleven, ten and nine are representative and typical at every floor and are provided for informational purposes to give a level of understanding of what was installed at the upper floor levels to provide supplemental restraint to the exterior curtain wall.



**Photograph 9 (9<sup>th</sup> floor existing wall ties-typical)**



**Photograph 10 – (10<sup>th</sup> floor level existing wall ties)**



**Photograph 11 – (11<sup>th</sup> floor level existing wall ties)**



**Photograph 12- (11<sup>th</sup> floor- wall brackets @ column 1)**



**Photograph 13-** (11<sup>th</sup> floor- wall brackets @ column 2)



**Photograph 14-** (10<sup>th</sup> floor- wall brackets @ column 8)



**Photograph 15-** (10<sup>th</sup> floor- wall brackets @ column 12)



**Photograph 16-** (9<sup>th</sup> floor- wall brackets @ column 15)



**Photograph 17-(9<sup>th</sup> floor-wall brackets @ column 16)**

**7). Additional work required by the owner (Action Items-with Specific time frames for completion):**

**A).** Install 3/4" CDX plywood underlayment over the 1' wide failure area in the Southerly roof line (adjacent to the parapet wall). The plywood underlayment shall be secured to the exterior Southerly concrete wall using a pressure treated 2" x 6" continuous plate (Southern Yellow Pine-Grade 2) with 3/8" diameter A-304 stainless steel threaded rod at 4' on center maximum spacing with a 3 1/2" effective embedment using Hilti HIT – Re 500 v-3 epoxy adhesive. Please note that the embedment depth may need to be adjusted depending on the quality of the concrete encountered.

**B).** Place self-adhesive ice and water shield over the parapet wall and over the inside vertical face of the parapet wall with an 18" length horizontal termination on the roof and install a galvanized termination strip.

**C).** Install self-adhesive ice and water shield along the vertical face of the wall at the Southeasterly corner of the building where the former smoke stack was located.

**The timeframe of completion for Tasks A, B and C is no later than September 16, 2022.**

**D).** The owner shall retain the services of a qualified Professional Engineering firm to perform an overall structural evaluation of the entire exterior Southerly and Easterly walls along with the corresponding mapping of the walls in three dimensional digitized format and will need to also document the soundness of the concrete over the entire surface area of the Southerly and Easterly wall sections. Contact and communications have been made with CDM Smith located at 11-British American Blvd. Suite 200 Latham, NY 12110 (A.J. Jannesari P.E. – 518-782-4572; [jannesaria@cdmsmith.com](mailto:jannesaria@cdmsmith.com)). This firm is qualified to perform this task.

**The timeframe for completion of Task D is October 14, 2022.**

E). It is noted that the entire Southerly and Easterly walls exhibit significant deterioration in the concrete. The structural adequacy over the entire area of the walls (approximately 222' length x 137' height- East wall and 208' length x 137' height – South wall) cannot be guaranteed. Hence, Strong Man Netting or equivalent (SBN-1460 Heavy Duty Debris Netting-High Density Polyethylene with 1/32" mesh openings) shall be installed over the entire Southerly wall in accordance with the manufacturer's requirements.

**The timeframe for completion of Task E is November 22, 2022.**

F). The owner shall provide the City a copy of the structural condition assessment report, the results of the engineering and mapping of the Southerly and Easterly walls and a maintenance plan with specific target date to avoid future emergency conditions resulting from on-going deterioration.

**The timeframe for completion of Task F is December 16, 2022.**

**8). Conclusion:**

The contractor has completed the tasks associated with the remediation of the immediate public safety hazards as noted on July 26, 2022 through August 1, 2022 and which are specifically related to the failing smoke stack, the failing / spalled concrete about the Southerly face and Southeasterly corner of the building and the upper Southerly parapet wall at the roof level. Please note that these conditions and the potential for additional concrete to fall from the building could change due to the extent of deterioration encountered in the South wall and Southeasterly corner of the building. Even though the contractor has removed the immediate hazard, this is not a guarantee of the satisfactory performance of any perimeter wall section, structural component or building appurtenance about the entire perimeter of the structure and hence the need for the aforementioned Strong Man Netting specifically to be placed on the South and Easterly sides of the structure. In addition, the owner will need to monitor the building and where necessary remove all loose and spalled concrete about the entire remaining perimeter curtain walls, spandrel beams and parapet wall sections under the supervision of a licensed Professional Engineer. In addition, the owner shall retain the services of a licensed Professional Engineer to evaluate the entire remaining structure for any public safety hazards that need to be mitigated. The owner will also be required to provide an evaluation of the soundness of the concrete about the entire surface area of the Southerly and Easterly walls with the results mapped in three dimensional digitized format prior to the placement of the Strong Man Netting. While this task is not associated with the immediate public safety hazard as described in this report, the Strong Man Netting will need to be provided no later than November 22, 2022.

**This letter will serve as confirmation that the remediation of the immediate public safety hazard as related to the loose and spalled concrete and the failing chimney section as described above has been properly completed. This letter will serve so as to close-out this portion of the project as related to the Central Warehouse building.**

**This letter does not serve as a guarantee or warranty of the adequate performance of the remaining concrete, any structural component or appurtenance about the entire perimeter of the building.**

If you have any questions please do not hesitate to call.

Very truly yours,

*Russ Reeves*  
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The American Institute of Steel Construction*



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