



Wiss, Janney, Elstner Associates, Inc.  
10 South LaSalle Street, Suite 2600  
Chicago, Illinois 60603  
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August 23, 2021

Mr. Javier Chavez  
Public Housing Operations Director  
East Chicago Housing Authority  
4444 Railroad Avenue, P.O. Box 498  
East Chicago, Indiana 46312

## **John B. Nicosia Senior Housing - 4720 Railroad Avenue**

Preliminary Findings Related to Column Distress  
WJE No. 2021.4581

Dear Mr. Chavez:

At your request, WJE has prepared this brief letter to summarize our call this morning with representatives of the East Chicago Housing Authority (ECHA) and the Department of Housing and Urban Development (HUD) regarding the above-referenced building. We have also attached the illustrative slides we shared during the call (see Appendix A).

### **BACKGROUND**

WJE's initial observations on July 12, 2021 of selected exterior concrete columns at the John B. Nicosia Senior Building, 4720 Railroad Avenue, in East Chicago revealed significant structural distress in the form of spalling, splitting, and corroded reinforcing steel. The columns of concern are L-shaped in plan with each leg of the "L" being about 3 feet long by 6 inches thick. Available building drawings indicate that the columns have a single layer of vertical reinforcing steel and regularly spaced horizontal bars, but no confining elements. After reviewing the available structural drawings to better understand the original construction, WJE concluded that the observed deterioration has left some portions of the columns with inadequate structural capacity. Accordingly, WJE recommended in a July 13, 2021 letter (copy attached, see Appendix B) to ECHA that the building be immediately evacuated, and a contractor be engaged to install shoring capable of providing adequate support where columns can no longer do so. WJE was subsequently engaged to conduct further investigation of the column conditions while ECHA evacuated the residents.

### **INVESTIGATION AND PRELIMINARY FINDINGS**

WJE made visual observations of the exterior faces of the exterior columns from grade and via a drone on August 5, 2021. We returned to the site on August 19 and 20, 2021 to make up-close visual observations and to perform hammer sounding of the same columns via an aerial lift. LS Contracting had removed interior finishes from approximately 30 exterior columns as directed by WJE to expose the columns, allowing visual observations and hammer sounding from the inside. WJE also took core samples at these exposed interior locations to perform chloride testing at our laboratory. Some representative photographs are appended at the end of this letter. Relevant preliminary findings are summarized below:

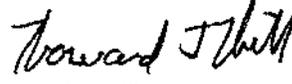
1. Based upon visual observations, WJE categorized each of the exterior columns into three condition ranges, A, B, and C as described below:
  - a. **Condition A** – Columns with little-to-no visually- or audibly-perceptible signs of distress.
  - b. **Condition B** – Columns with scattered visible cracking and small areas of audibly-perceived delamination, but no visually obvious delaminations or spalls.
  - c. **Condition C** – Columns with widespread cracking, splitting, and incipient spalling.
2. While we are still reducing our field data at this time, about 25 percent of the columns were judged as Condition A, about 40 percent were Condition B, and about 35 percent were deemed Condition C. Plywood enclosures had been installed at about 15 separate column locations, presumably to mitigate falling hazards from advanced deterioration. These columns were all assigned to Condition C.
3. WJE has not yet reviewed the interior columns, but we suspect that they are in better condition due to the lack of moisture exposure.
4. The observed deterioration in the exterior columns is due to corrosion of the embedded reinforcing steel in the columns, likely accelerated by the presence of chlorides in the concrete. WJE is in the process of confirming this through laboratory testing. As the reinforcing steel within the columns corrodes, it expands, pushing outward and exerting force on the concrete surrounding the reinforcing steel, causing the concrete to crack and split, or delaminate. These cracks within the concrete then allow more moisture to reach the reinforcing steel, speeding up the deterioration. The thin geometry of the wall columns (only 6 inches thick) combined with the lack of confinement reinforcement (only one layer of reinforcement centered on the wall) means that a delamination or separation at the reinforcing steel greatly reduces the axial capacity of the column.
5. Our initial calculations, regarding gravity loads only, indicate that each of the most heavily-loaded exterior columns are required to support approximately 35,000 pounds of unfactored dead load at each floor level from the floor slab and exterior cladding, which results in about 300,000 pounds of unfactored load at the ground floor. Many of the Type B and C columns have experienced deterioration that has compromised their ability to safely support these loads.
6. It continues to be WJE's opinion that the building is not safe for occupancy and that the residents should be evacuated and relocated immediately. It is also our opinion that large portions of the building exterior columns will require shoring to restore adequate structural support before any column repair or replacement efforts are undertaken.

Please let us know if you would like to discuss our findings or recommendations in further detail.

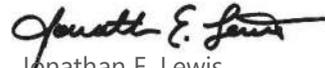
Sincerely,

**WISS, JANNEY, ELSTNER ASSOCIATES, INC.**

  
George I. Taylor  
Project Manager

  
Howard J. Hill, P.E.  
Senior Principal and Director of Project Operations



  
Jonathan E. Lewis  
Principal and Unit Manager

Attachment



Figure 1. Overall view of complex looking southeast

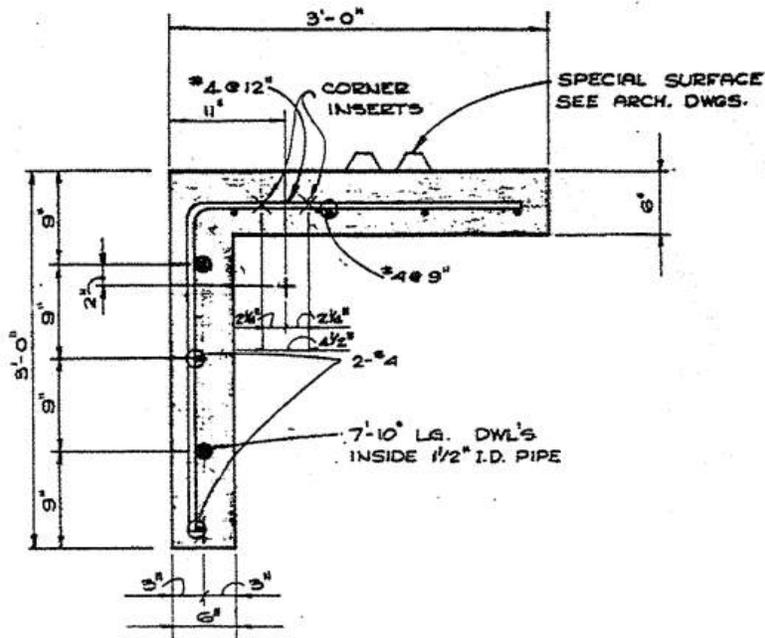


Figure 2. Typical column cross section from original structural drawings



Figure 3. Typical column runs showing variable conditions, west facade of south wing



Figure 4. Plywood enclosures, east facade of south wing



Figure 5. Inside face of typical exterior column after finishes removed



Figure 6. Cracking at interior face of column

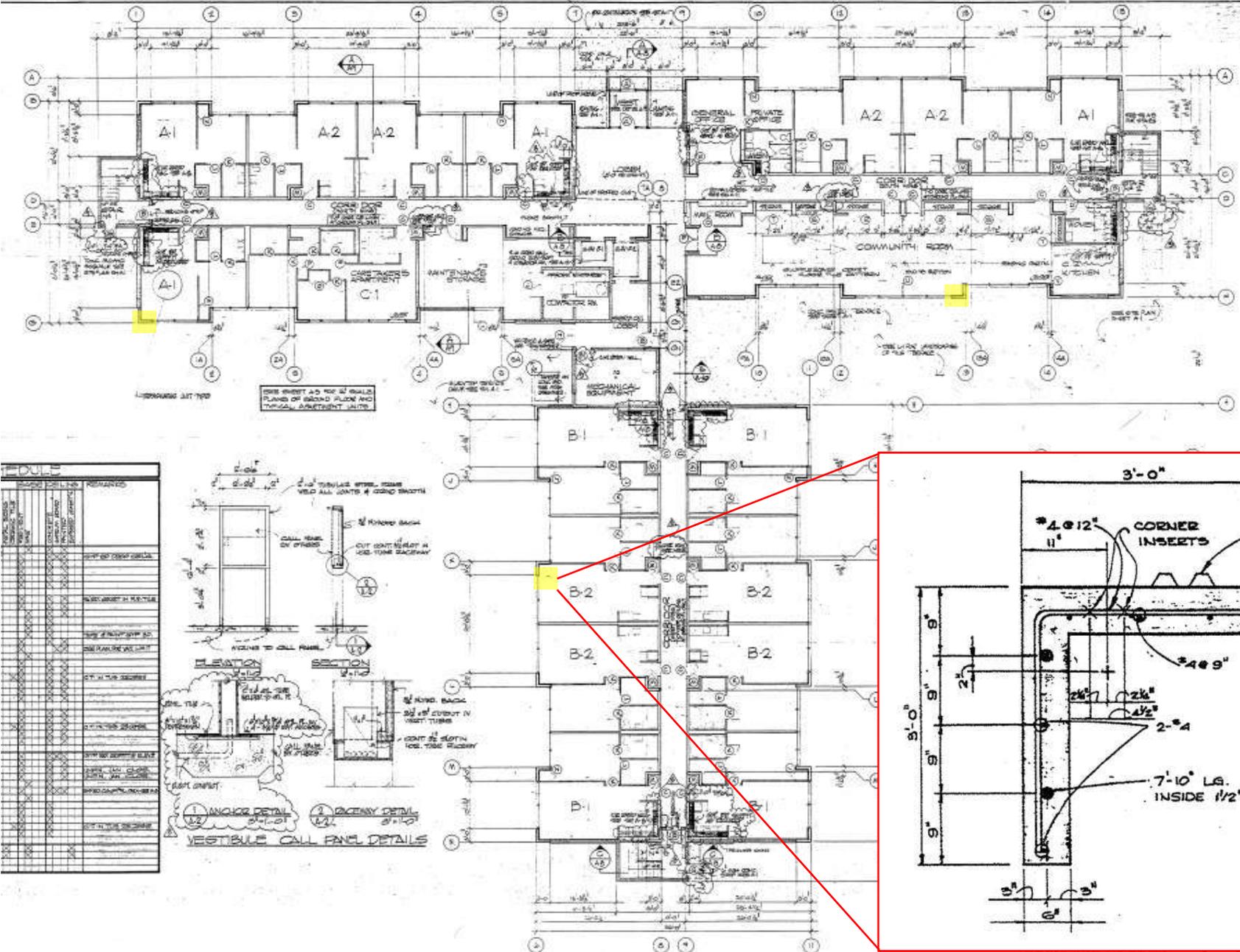


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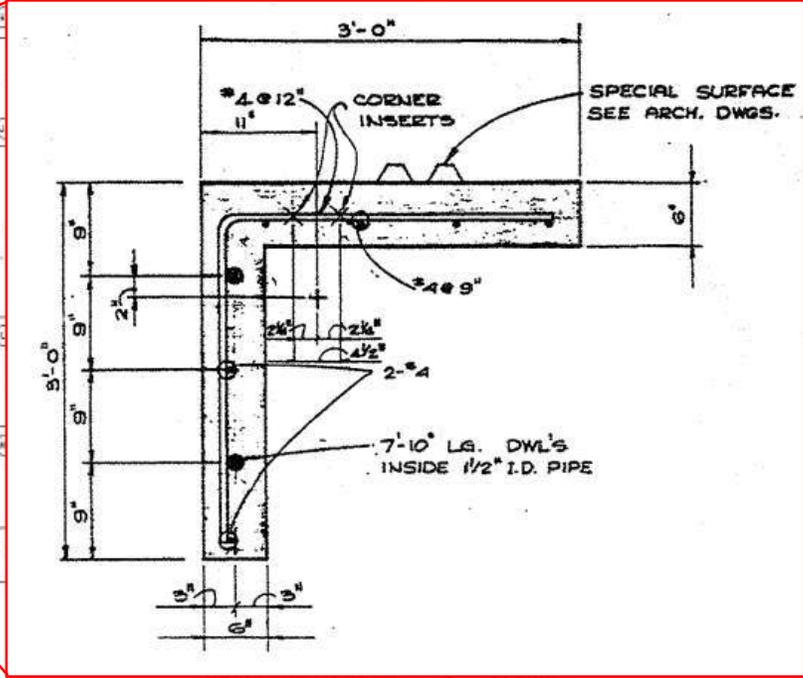
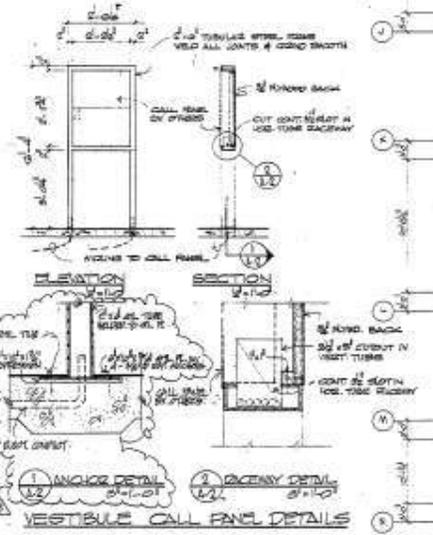
**APPENDIX A. WJE PRESENTATION SLIDES FROM AUGUST 23, 2021**



Draft Slides - 8/23/2021



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GROUND FLOOR PLAN

Draft Slides - 8/23/2021

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 CITIZEN  
 HOUSING  
 EAST CHICAGO INDI

KERR GORDON  
 JACOB M. LEVINE  
 & ASSOCIATES ARCHIT

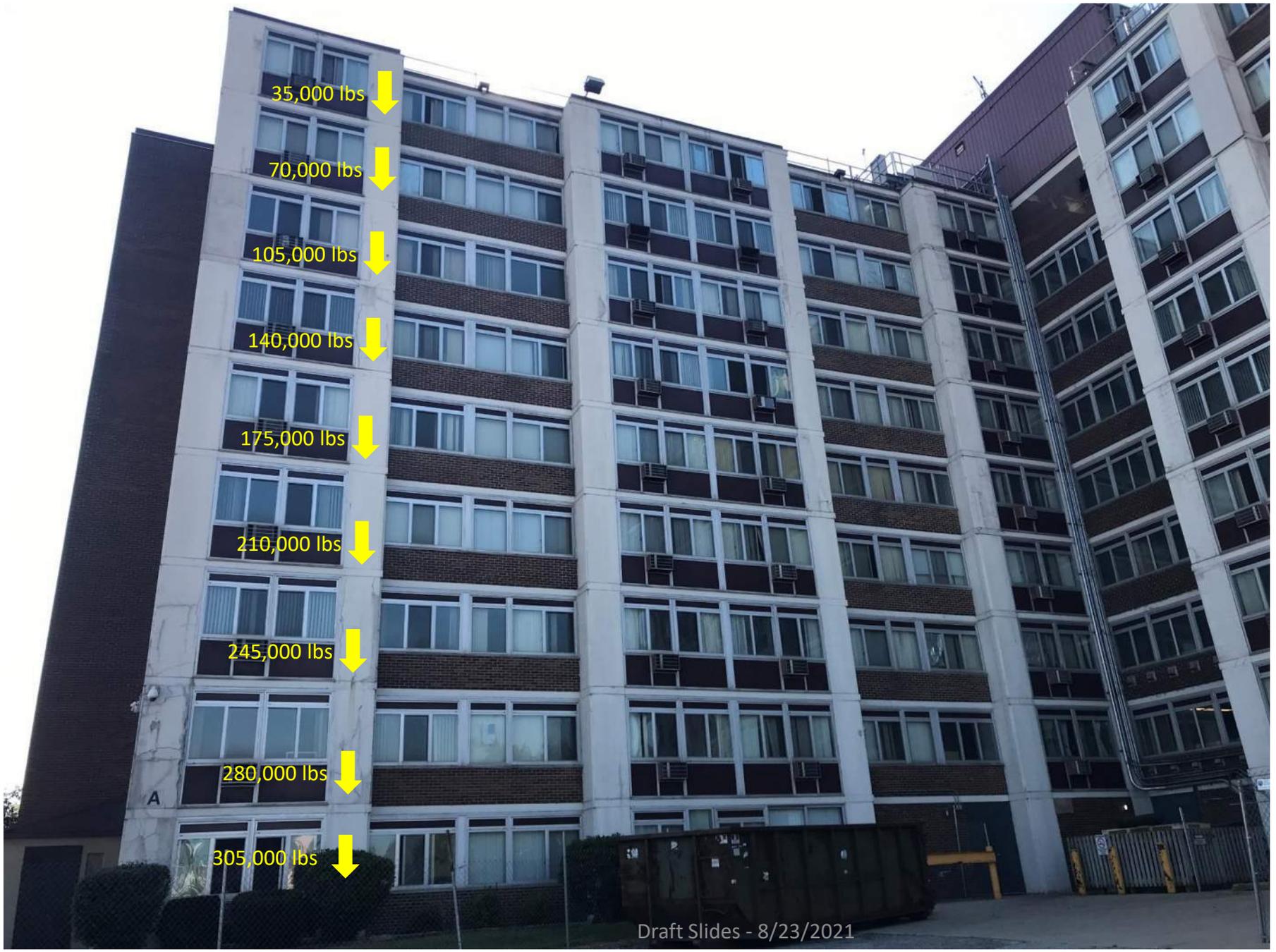


Draft Slides - 8/23/2021



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35,000 lbs ↓

70,000 lbs ↓

105,000 lbs ↓

140,000 lbs ↓

175,000 lbs ↓

210,000 lbs ↓

245,000 lbs ↓

280,000 lbs ↓

305,000 lbs ↓

A







Mr. Javier Chavez  
East Chicago Housing Authority  
August 23, 2021

**APPENDIX B. WJE LETTER DATED JULY 13, 2021**



Wiss, Janney, Elstner Associates, Inc.  
10 South LaSalle Street, Suite 2600  
Chicago, Illinois 60603  
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July 13, 2021

Mr. Javier Chavez  
Public Housing Operations Director  
East Chicago Housing Authority  
4444 Railroad Avenue, P.O. Box 498  
East Chicago, Indiana 46312

**4720 Railroad Avenue - Column Distress**

WJE No. 2021.4581

Dear Mr. Chavez:

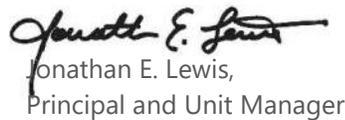
As we discussed on our call this afternoon, WJE's initial observations on July 12, 2021 of selected columns at the John B. Nicosia Senior Building, 4720 Railroad Avenue, in East Chicago revealed significant structural distress in the form of spalling, splitting and corroding reinforcing steel. The columns of concern are L-shaped in plan with each leg of the "L" being about 3ft long by 6 inches thick. Several representative photographs of the distressed columns are attached. Available building drawings indicate that the columns have a single layer of vertical reinforcing steel and regularly spaced horizontal bars, but no confining elements. After reviewing the available structural drawings to better understand the original construction, it is WJE's opinion that deterioration has left some portions of the columns with inadequate structural capacity. Accordingly, WJE recommends that the building be immediately evacuated, and a contractor be engaged to install shoring capable of providing adequate support where columns can no longer do so. Further investigation is necessary to determine the required extent and capacity of shoring. Upon your direction, WJE is able to assist with this effort.

Please let us know if you would like to discuss our findings or recommendations in further detail.

Sincerely,

**WISS, JANNEY, ELSTNER ASSOCIATES, INC.**

  
George I. Taylor  
Project Manager

  
Jonathan E. Lewis,  
Principal and Unit Manager

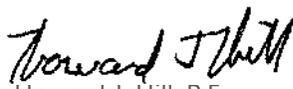
  
Howard J. Hill, P.E.  
Senior Principal and Director of Project Operations





Figure 1. Representative building facade



Figure 2. Spalled concrete at L-shaped column



Figure 3. Cracking at L-shaped column



Figure 4. Spalled and bowed concrete