



3506 Narrative
Amazon Warehouse Collapse
Edwardsville IL
December 10,2021
West Co. Call# 21-3506237
CCE911 Call# 12102021-0000005

On December 10, 2021, I was contacted by West County EMS & Fire Battalion Chief Bob Kartje around 1500 hrs requesting my availability to roster as the professional engineer/Structures Specialist for possible deployment with St. Louis Regional UASI Strike Team 3 (STL County). BC Kartje advised that the National Weather Service (NWS) was calling for a strong possibility of a tornado outbreak in the region. I advised I would be available.

Around 2000 hrs, the storms were in and around our District. After ensuring my home and family were out of harms way, I reported to my office at West County Station 2 to monitor the situation and be available to assist with any calls in the area. At approximately 2117 hrs, Central County 911 (CCE911) sent out a page and set off tones dispatching a number of units to assemble at West County Station 2 for deployment. Looking at the call notes, I learned that we were being sent to 3050 Gateway Commerce Center Dr S in Edwardsville IL for a Commercial Building Collapse. The call notes listed it as an Amazon Building collapse.

Crews assembled at West County Station 2 and we briefed on available information before deploying in a convoy to the scene. At the briefing and enroute, I was watching live video from the scene from Fox2 News and noted that it appeared to be a large commercial tilt-up warehouse that had collapsed on at least two sides. Additional information from CCE911 just prior to 2200 hrs indicated 350 feet of wall was down and possibly 15-20 persons unaccounted for.

Upon our arrival at the scene, our team staged its vehicles and resources on the west side of the collapsed structure. I immediately noticed that the north half of the building appeared to be standing intact, but that the south half of the building had collapsed walls on the west side, east side and some on the south side. The west walls were clearly collapsed inward and I could not see from my initial vantage point which direction the other walls had failed. I also noted that there were several dozen columns standing in the middle of the collapse and some roof trusses and roof girders still suspended, but what appeared to be a majority of the columns and roof trusses and girders had failed or were missing from view.



While crews were assembling equipment and taking assignments from incident commanders on-scene, I was requested to enter the structure and perform a structural assessment of the damage area. Allen Smith, a fellow professional engineer/Structures Specialist from St. Louis UASI Strike Team 4 (STL Metro East IL) was already present on scene and came over to coordinate with me and incident commanders. I was advised that there were a number persons missing and that the areas of concern for trapped persons were the west side of the building and the southeast corner of the building based on eyewitness statements of survivors. Allen and I were sent with a representative of the Incident Command Team (ICT) to the interior of the building to conduct an assessment.

We entered the structure on the west side, just north of an area where a tow truck was being used to lift a wall panel section from an area of interest. Based on the stenciled letter/number grid system on the columns, this area was believed to be between rows 13 to 14. It should be noted that columns increased in letter from west to east and the rows increased in number from north to south. Upon entering the floor of the building, my attention was drawn to the remaining trusses and columns that were still standing or suspended. I noticed that many of the remaining trusses were not properly oriented on the columns, such that the lower chord of the truss (consisting of opposed angle steel with a center gap) were no longer straddling the knife plate or flat piece of steel that was welded to each side of the column. The knife plate keeps the truss from rotating around the upper connection of the truss to the column. Given the increasing winds after the storm, I noted this as an area of concern to discuss with the ICT. After continuing to evaluate the damage, I noted that a considerable number of the columns that were not standing appeared to have been lifted out of the floor. Allen Smith noticed the same thing and described it accurately as a peg coming out of a hole. Other columns that were failed were partially raised out of the floor and laid over. All columns were mostly white in color with a yellow band several feet tall at the base of the column near the floor. In each case of the failed columns, there was a clear line of demarcation on the bottom of the column just below the yellow band that showed an area of unpainted column with light brown surface oxidation that had been the area of the column that sat below the finished grade of the concrete floor. I became concerned when I noticed that none of the columns appeared to be ripped or torn from the base. This was especially concerning to me knowing that the International Building Code (IBC) requires structural members to be secured against uplift from wind loads, among other things. (2021 IBC Section 1604.8.1) Looking at the base of the columns more closely, I could find no weld or bolted connection at the base of any column, but only a bead of what appeared to be some sort of caulk around the column at the finished floor line. An examination of several of the empty pockets where columns once stood also did not reveal any indication of positive securement of the columns at or below the finished floor level. Allen and I discussed the matter while continuing to evaluate the area and remained concerned that while the ruins of the building posed various



dangers, we were very concerned about the stability of the remaining walls and suspended steel work.

During our evaluation, we noted that the west walls had failed inward to the east and the eastern walls had failed outward, also to the east. There were 7 or 8 sections of wall on the south side of the structure that had failed inward to the north and several more that were leaning significantly inward but the panels composing the immediate southeast corner remained suspended. While evaluating the ruins, we noted that there were dozens and dozens of Amazon delivery vans inside of the building and under the collapsed roof and wall sections. The vans that were in the collapse zone of the walls had been flattened to only 1 to 2 feet tall at most.

We returned to the west side of the structure to advise the ICT of our assessment and requested any available building plans to be able to accurately identify areas of the building in correlation with the grid identification system sprayed on the columns. As the scene progressed, Allen and I made continual assessments of various parts of the building to advise of concerns for further collapse or recommended methods of debris removal to most readily effect search and rescue in areas of identified concern.

At some point around 0130hrs on December 11, 2021, Allen and I split up to work in two separate rescue operations. I redeployed to an area of identified concern on the southeast corner of the building with crews from Strike Team 3 near column H20 and extending to the southeast corner. The use of cadaver dogs had indicated the possibility of human remains in that area. While we were there, two separate dogs were brought in and both hit on two separate areas of the collapse along the south wall. Using search and rescue equipment, crews were able to identify the presence of an unknown number of Amazon delivery vans, perhaps 5 to 10, below the collapsed walls in that area. I made a recommendation that the safest way to make access to the areas the dogs identified was to use available heavy equipment from a contractor on scene named Kamadulski to remove the failed wall sections starting from the west end of the collapsed south wall sections at H20 and work towards the wall sections where the dogs were hitting towards I20 and J20. After discussion with the leaders of the rescue effort at our location, it was agreed to use my recommendation. I spoke with the older gentleman that was operating the large Kamadulski trackhoe and advised how I wanted to remove the wall sections. He stated he was familiar with the construction of the building as he helped build it. Once we were had confirmed the plan, the trackhoe operator called in a second trackhoe from his company and they began to work that area.

Around 0315 hrs, Strike Team 3 leader Mike Digman from Metro West Fire Prot. Dist. notified me that or team was being demobilized as the operation was transitioning from rescue to recovery. I advised the trackhoe operator that we were demobilizing and that any further direction would



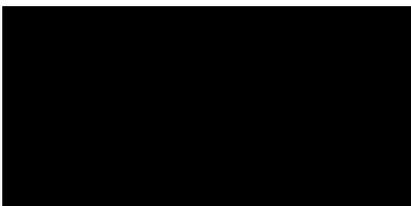
come from someone besides me. I returned to the west side of the building, made contact with Allen Smith to advise him that I was demobilizing, put away my gear and demobilized with the rest of Strike Team 3, leaving the scene at approximately 0341hrs.

On Monday December 13, 2021, I visited several tilt-up buildings in our District and reviewed their building plans on file to determine how their interior columns were secured against uplift. I was not able to find any that used a column in a sleeve. I searched online and found that Edwardsville was still using the 2006 Edition of the International Building Code. Researching the 2006 Code, I found that the 2006 edition had the same requirement in Section 1604 as the 2021 Code for anchorage of columns against uplift. On Tuesday December 14, 2021, I advised my Chief, Jeff Sadtler, that I had found what I believed to be one or more significant structural issues with the Amazon building that may have contributed to the failure of the structure. Chief Sadtler advised me that he had contacted OSHA and that an investigator named Chris Blair at 618-900-6789 would like to chat with me.

I contacted Chris Blair with OSHA and advised him of my findings and concerns. Mr. Blair listened to me and requested copies of all of my photos. Mr. Blair stated that what I was telling him was consistent with information he had from other sources, but that I was providing him more detail and photographic evidence.

On Friday December 17, Chief Sadtler advised me that the Chief of the Edwardsville Fire Department would like to speak with me concerning what I had found. I called their chief and he and I discussed what was found. He requested a copy of the photos I had. I provided the photos to Chief Sadtler who then I believe used Dropbox to transmit the information to Edwardsville Fire.

It should be noted that on this call and in this matter, I was acting in the capacity of a FEMA-trained STS-1 Structures Specialist with an engineering background on an emergent call as part of a mutual-aid fire service rescue task force and not practicing professional engineering services for-hire. Any statements made in this narrative concerning the design of the structure are advisory only and will require further analysis by other professionals before any conclusions could be reached. Any photographs taken would need to be fully evaluated along with the debris as part of a failure analysis to formally determine compliance with any and all adopted codes by the Authorities Having Jurisdiction at the location of that structure.





West County EMS & Fire Protection District