



# CMCE 44771 LAB; TX CRANE ACCIDENT

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# CRANE ACCIDENT

## INTRODUCTION:

On September 16, 2020, emergency officials received an initial call of a structural collapse around 9:38 a.m. When arriving at the scene, instead of seeing structural failure, they witness a two-crane collision. This entire incident happened a few weeks ago in Austin, TX, where several individuals were sent to the hospital due to a construction company's negligence. The accident took place at a mixed-use development called the Mueller complex in East Austin, in an area with significant construction. One of the cranes partially collapses due to the entanglement on the top. Due to this, at least a few workers were injured due to workers running in fear of a false accusation. Most of the injuries occurred when workers scrambled away from the accident scene. Over 22 individuals were sent to the hospital after two cranes became entangled at a construction site. The cranes collided and got tangled several stories above a building under construction a few miles north of downtown in a rapidly growing neighborhood that includes residential, retail, and office space.

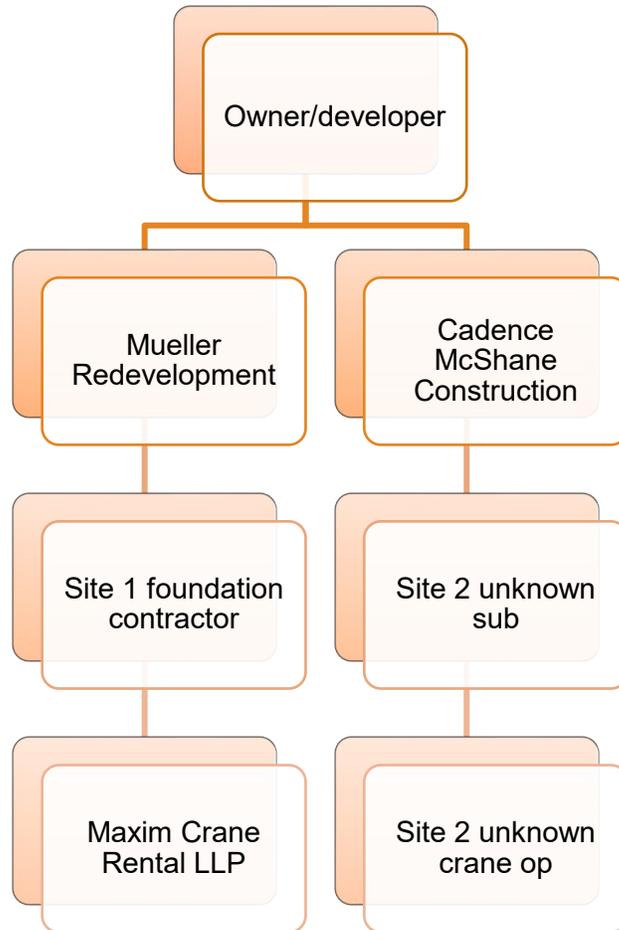
When emergency officials arrived at the site, they immediately helped most workers clear the area and took out the injured if the collapse of either crane was due to the entanglement. Cmdr. Mike Benavides, a spokesman for the Austin-Travis County Emergency Medical Services, Spoke to the news regarding the incident and told them that eight ambulance trucks were on scene to help 16 people. The spokesman also went into detail on the initial response of the call. The spokesman explained that only one individual has severe injuries, and others had minor injuries. Initially, according to Battalion Chief Mark Bridges, although the cranes' bases were stable, they were entangled by wires at the top.



Figure 1: two cranes at a construction site. On the top of each crane they are both entangled with each other.

## ORG CHART:

The diagram below shows the different branches of this project. The graph is breaking down into two subunits after the owner. Two primary companies are working on a significant undertaking. This is a redevelopment project of an entire area where multiple entities are working at the same time. The incident clearly shows that would lacks communication. An organization accident can happen. Now all the information was able to be found online.



Project Name: Mueller Bravo Building

Christine Barton-Holmes

Cadence McShane

## EXISTING CULTURE:

After reviewing all the information provided online, you can see that the company at fault was Mueller Redevelopment. After researching this company and their past track record, it clearly shows that this company has done many Palace violations. After doing more research, we found that this company had two prior violations, one in 2013 and one in 2017 with similar incidents. This company has a considerable track record of cutting corners and tried to beat out the competition for major projects. Yes, the company has had successful projects in the past and is a large construction company and runs many different projects. But due to that, they do like a quality culture and quality management. It is clearly shown that they had prior violations, and they have also gone through this instance where two cranes entangled with each other. This can also be thrown at The Super or project manager in charge when making the call. Then making an investigation or looking slightly more into it, they caused the panic. Due to this panic, several individuals were hurt, and one individual was severely injured. You can point the fingers I have many individuals. Still, in my personal opinion, the individual I will point out that the most R the project manager and the person in charge of supervising the cranes. With straightforward communication and simple organization, this could have been prevented.

Maxim Crane Rental LLP Can also be at fault because this incident happened. Guess it can easily be said that they're just a rental company, but they also provide the crane operators and instructions. This entire accident could have been prevented with straightforward communication and proper leadership skills. Core competencies Can play a significant role in setting the guidelines and expectations for staff. This accident should have never happened, but the Department of building an OSHA should have been more on top of it. This is a company with a massive track record where the submitted documents should be looked upon at least two times to make sure this does not happen again.



Figure 2 shows the EMS truck after the accident. In the background you see the parking lot structure and both cranes that are entangled with each other.

## RECOMMENDATIONS:

In Austin, TX, it seems that many things have to change in the culture of construction. In many cases, clearly shown and in this case, it indicates that OSHA does not follow up with his company's violations. The reason I'm saying this is, in this case, this company had two prior breaches in 2013 and 2017, and now they have another breach that happened recently. But all this could have been prevented by a simple follow up or a simple check-up by the Department of building or OSHA.

- **LEADERSHIP:** A leader for determining how far and how successful a company can be. "Managers should provide leadership in strategic planning for quality, serve on quality councils, and be actively involved in the implementation of quality initiatives." (Pg 88, Ch 6 Quality management for organizational excellence) This example shows how useful our leader can be and should be for once companies grow.
- **QUALITY CULTURE:** Implementing specific standards for one's employees, and one's hierarchy can dictate a company's identity. It was evident that this company did not pride itself on quality. Quality culture sets guidelines and expectations for one's company and projects presented to the owner and the public.
- **QUALITY MANAGEMENT:** My having someone in charge that sets the tone and keeps the company's organization liable and its standards are vital. Only this will help the implementation of OSHA staying on top of companies that have done prior violations is necessary.
- **COMPETITIVE STRATEGY:** Having the Department of the building have a certain quality and an unquestionable requirement will make all companies have a competitive strategy for its growth and requiring work. By the Department of building not upholding its standards, it will fall and allow accidents and mistakes like this to happen.
- **EMPLOYEE EMPOWERMENT:** When the managers of 1's project are negligent to slight mistakes and feel that they are entirely in charge, this system will not work since employees will not think that they have to take or have to cry their manager's mistakes out. But if we implement employee empowerment, you give them what they say and speak on errors. This will minimize the number of mistakes being made.



Figure 3: this shows the two cranes that are entangled with each other which is the black crane and the red crane. This shows a third convenience to help untangled the other two cranes and two workers.

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Lab 01 – Report with recommendations - Austin Crane Accident

Quality Assurance CMCE 4471

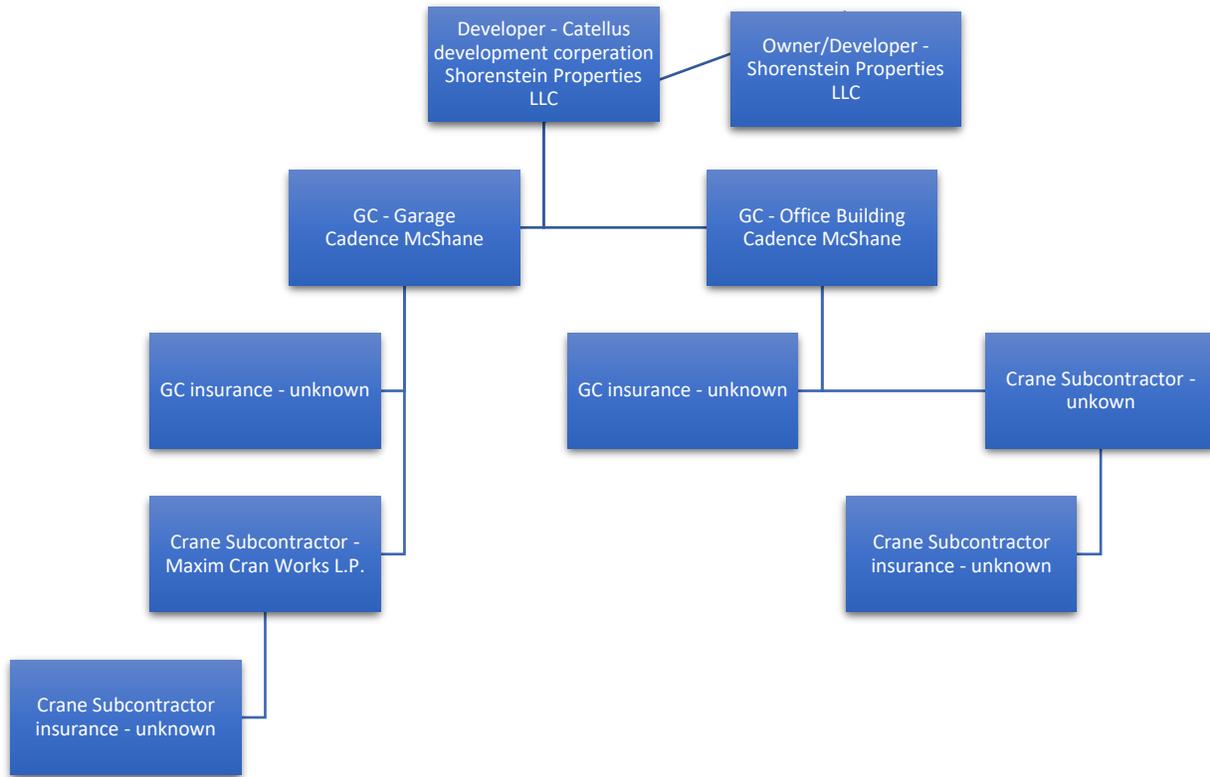
Ilana Berger

10/11/20



Source: Fox 7 Austin via Facebook live via new york times

Organization Chart of the involved parties of the Mueller development crane accident



On September 16 2020 at approximately 10:30 am there was a crane accident in the Mueller development site in Austin Texas. Initially this accident was reported as a structural collapse, but once first responders arrived on scene it was clear that there was a crane collision. 22 people were injured, and 16 were brought to the hospital for non-life-threatening injuries. All the people who were injured were construction workers injured while fleeing the scene. As seen in the image below, two cranes working on two separate projects became entangled.



Image 1: Two cranes entangled on the jobsite. Source CNN

The project where the accident occurred is part of a larger development called the Mueller development. The developer, Catellus, under the supervision of executive vice president Gregory J Weaver, is in the process of redeveloping the former municipal airport into a new mixed use neighborhood. Once complete, the Muller development will have 6,000 new homes, over 750,000 square feet of retail space, 4.4 million square feet of commercial space, a town square and multiple recreation areas. In total there are over 700 acres being developed with over 300 million dollars invested. Due to the large scale, there are multiple construction projects happening simultaneously. The image below shows the master plan of this site.



Image 2: the Mueller development site, Austin Texas. Source: Catellus

As this is still an open investigation, some of the details as to what occurred are still unclear. However, from local news reports and photos we are able to understand the following; A tower crane working on erecting a structure adjacent to an underground garage also being constructed, became entangled with a large crawler crane that was working on the foundation of the new garage structure, see image below.



Image 3: aerial view of the two cranes entangled on their respective jobsites. Source: KVUE via wfaa

Based on the images it seems as if the tower crane swung around and hit the tip of the crawler crane. Both crane operators were not harmed, and the operator of the tower crane remained in the operator's

cabin throughout the efforts to detach the cranes as a safety precaution. In the image below, you can see workers working to detach the tangled cranes.



Image 4 worker trying to detangle cranes after the accident. Source: Scott Guest via wfaa

Although the accident itself did not cause any injuries, 22 construction workers were injured while fleeing the scene.

Although both the GC, Cadence McShane and the crane subcontractor, Maxim crane works L.P. have excellent safety records, I believe this incident was due to a breakdown in communication and the conditions of the jobsite site work areas.

As part of the planning and design phase, a logistics plan was created showing not only the proposed locations of all the buildings, but the locations of all the staging areas for materials, the cranes and the full radius of their swing, and evacuation routes in case of an emergency. Either there were errors made on this logistics plan with regards to the radius of the swing of the tower crane or no managers onsite reviewed this logistics plan once construction activities began. It may have been that the design/management team did not take into account that there may be temporary cranes onsite for material deliveries, however due to the size of the crawler crane, it is unlikely that this was only temporary equipment. Even if this was an unforeseen issue, once it was observed by an onsite supervisor that the two cranes were in such close proximity, it should have been brought to the attention of the GC and crane subcontractors so that a resolution could be found.

Another possibility is that both cranes were accounted for during the planning phase of the project, and it was a crane operator error. Meaning, the operator of one, or both cranes, may have swung the crane into a zone which they were not supposed to or required additional ground supervision in order to enter

said zone and did not get said supervision before moving the cranes. Whatever the case was, it is clear the crane operators were not in communication with each other, whether directly or through a ground support team.

This is a large development, and it may be that the two projects where the cranes were working are being built by two different GC's with two different project managers and two different crane subcontractors, there is still the expectation that the managers on each of the jobsites will communicate with each other so that the construction efforts of one jobsite do not interfere with the other. This is especially true if the same GC was on both projects and the same crane subcontractor. This would have meant that each site only had different managers, but everyone was employed by the same company. Ultimately both jobsites are also under the same developer and as such it is assumed that all parties have met and understand the interdependency of the projects. It seems to be the problem of the developer that they did not do a better job maintaining an open working relationship between the management teams of both jobsites. It is possible that the developer did not host enough meetings between the GC's of all the construction activities occurring onsite so that the contractors and affiliated parties clearly understood the relationship between their projects, and ultimately to the larger picture of the entire development.

The last item which I believe to be a major cause of the subsequent injuries due to the accident was the jobsite condition and the lack of training each employee onsite had in terms of how to handle an emergency. All the injuries which occurred onsite were due to people fleeing the scene. This means that there was chaos on the ground and the workers who were trying to escape either did not know how to evacuate or they were unable to flee in a safe manner. Based on the photo below from local news footage, it seems as if there may have been some housekeeping issues onsite which prevented workers from escaping safely.



Image 5: one of the construction entrances at the accident location. Source: John Gusky via wfaa

In this image there is debris piled up in front of the entrance gate which is most likely an evacuation route for emergencies. If the workers who were fleeing were unable to climb over this pile of trash, they most likely were funneled into an area too small for proper evacuation and were trampled. Another scenario is that workers were injured while attempting to climb over this pile to escape the jobsite. Poor housekeeping on the jobsite falls on the shoulders of the project managers and superintendents. No matter whose responsibility it was, someone from any team that has knowledge in jobsite safety should have reported this issue. If reported, there may have been significantly less or even no injuries due to this crane accident.

If we look at the existing culture in each of the companies involved, it may give further insight as to what occurred on site and where the break down of communication may have occurred.

The development teams. The lead developer, Shorenstein Properties LLC, is a real estate firm whose main focus is the equity, branding, and use of commercial developments. Their website does not point to any experience in construction except for guidance on how to maximize the value of developing and developed properties. There are headshots of their construction management team, but not much more. This begs the question if a developer whose main experience and focus is on the investment value, are they qualified to be the lead developer on a project, or should they just be a consultant to the owner? When quality is of question, it is important that a company stick to their area of expertise. Based on their website alone, their core competency is finance and investment. Although it may not have been their direct responsibility to monitor the safety onsite, their lack of knowledge may have led to ineffective leadership of the ground crews in terms of facilitating conversations between multiple teams who may interfere with each other's work. The site developer, Catellus, present themselves as a large well-developed organization. They have completed a number of impressive projects and extensive experience. They are a privately owned company who have been in business for 30 years. What stands out to me is there is no mention of their mission statement, employees, or team members. The issue which may have arisen on this jobsite was the lack of employee ownership. Following a model on how business is done therefore how to execute a project is great, but there may be a lack of responsibility and ownership on each individual project. There may have been no initiative taken by the employees who are managing this jobsite to take the extra step to make sure that construction efforts are coordinated.

The general contractor, Cadence McShane, who have a strong mission statement and are focused on employee empowerment, reward and high-quality work. They check all the boxes for a commitment to total quality. They are not only committed to delivering a high-quality project, but to their internal structures and teams. There is a strong emphasis on safety, employee training and being flexible to deal with various situations that they encounter. Saying this however, within the past 10 years they have had 2 major OSHA violations where fines were paid, and the case was settled. It is not unreasonable to assume that accidents may occur, but this may point to a systematic issue within the company where safety is not taken as seriously as it should. With employee empowerment must come leadership. If there is an easy-going nature of the management teams, it may set a precedent for the employees that certain tasks or issues may not need to be taken as seriously as it should be, such as safety. It was clear since all the injuries occurred because of workers fleeing the scene, that they were not trained in how to handle an emergency. Because of these events, OSHA has opened an investigation in the company that is still ongoing.

The last major entity involved in this incident is the crane subcontractor, Maxim Crane Works L.P. Although websites are marketing tools, their website out of all the companies involved seemed to be mostly a sales pitch. They are a large company with over 50 locations nationwide. They have grown by acquiring smaller companies and merging them into their corporate wing. This indicates to me that there may be a lack of quality culture and leadership. Through acquiring so many different firms, are they able to maintain a cohesive vision across the entire corporation? Are the employees of the acquired firms resentful of being purchased and rebranded? There is nothing on the Maxim website that puts any emphasis on the importance of the employees to the company. There is also nothing on their website that speaks of customer satisfaction. It seems as if the only message that I was able to receive is they are committed to making money. Even if the two crane operators onsite were from the same company, it seems to me that these operators had either no experience working with each other and/or they were only focused on the task in front of them without acknowledging the risk involved with their work. If they were from 2 separate companies, one would expect that there would be communication between the crane operators which would have prevented this incident from ever occurring. No matter what the breakdown was, again this points to a lack of leadership because the lack of commitment to safety by the employee and possibly the lack of training. And a lack of teamwork maybe due to the fact the company culture is not focused on quality but just clocking in and out without a commitment to the company. Maxim is also currently being investigated by OSHA for this incident.

In my opinion, this incident could have been avoided by addressing and implementing the following issues.

- Developers conducting more meetings with all the companies who are directly involved in the management of the project. This not only keeps team members up to date on the project but develops relationships between companies which will have to work and interact with each other in the field.
- Choosing management teams who are focused on total quality, not just budget and schedule. If management have their heads in paperwork and are worried about their job stability and producing a perfect product without an integrated approach of observing the field and bridging that with the expectations of the owner, then it is likely that there is a lack of leadership in the field which in this case lead to an oversight of a major safety issue.
- Choosing companies to work with who are committed to total quality. With total quality comes a commitment to producing the best you can by doing the best you can which is only achieved by being the best you can. This includes training every employee onsite about the safety procedures including evacuation routes during an emergency. If there are employees onsite who do not care about their job and are just showing up, in construction an accident is bound to happen.
- Better oversight by the AHJ. If this crane setup was thoroughly reviewed by examiners or inspectors prior to beginning work, this may have been avoided. Crane's are especially dangerous on a construction site, and it is of the utmost importance that the way they are installed and used throughout the during of construction activities is safe. Although the contractors onsite may be ultimately responsible for implementing this safety, it is the responsibility of the local DOB to protect the public and review issues such as these before they become incidents.

- Having the superintendent, general contractor, and subcontractor do regular safety checks and walk through of the jobsite. By doing so they can address issues like housekeeping or any other safety issue which is observed, and notice that these two cranes were too close and could collide. If there was more attention paid by the field management teams, this incident could have been avoided.

This incident could have been avoided if there was clear communication between team members. This communication needed to occur before the accident in terms of reporting unsafe conditions to the leaders of the project and between the crane operators so that they were never in a situation to facilitate this kind of accident. Ultimately however the finger points to the management teams from the developer, the general contractor, and the crane subcontractors. Clearly these companies were not paying attention to the conditions in the field and/or they did not encourage their employees to take responsibility and speak up when they observed an unsafe situation.

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