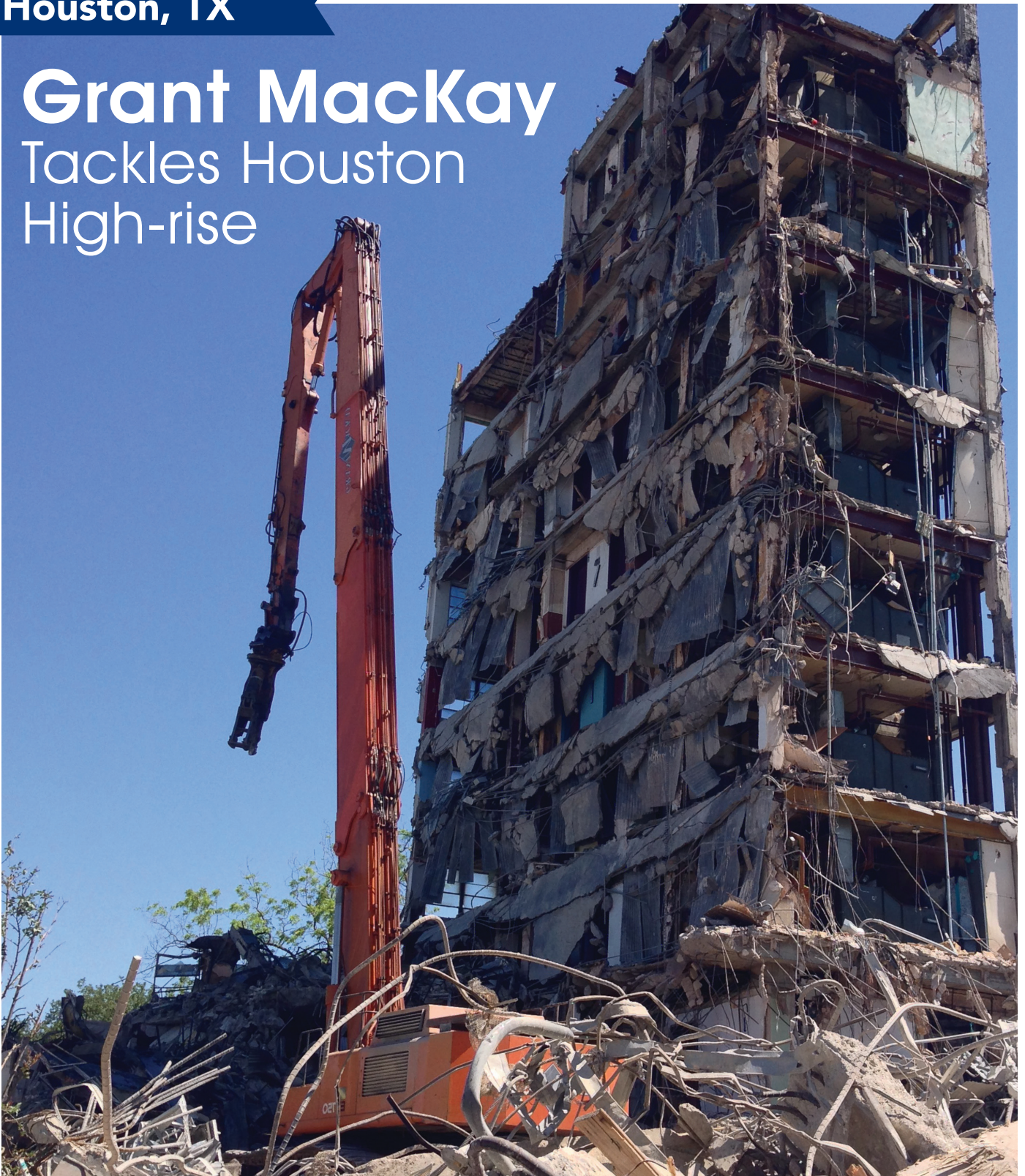


Houston, TX

Grant MacKay Tackles Houston High-rise



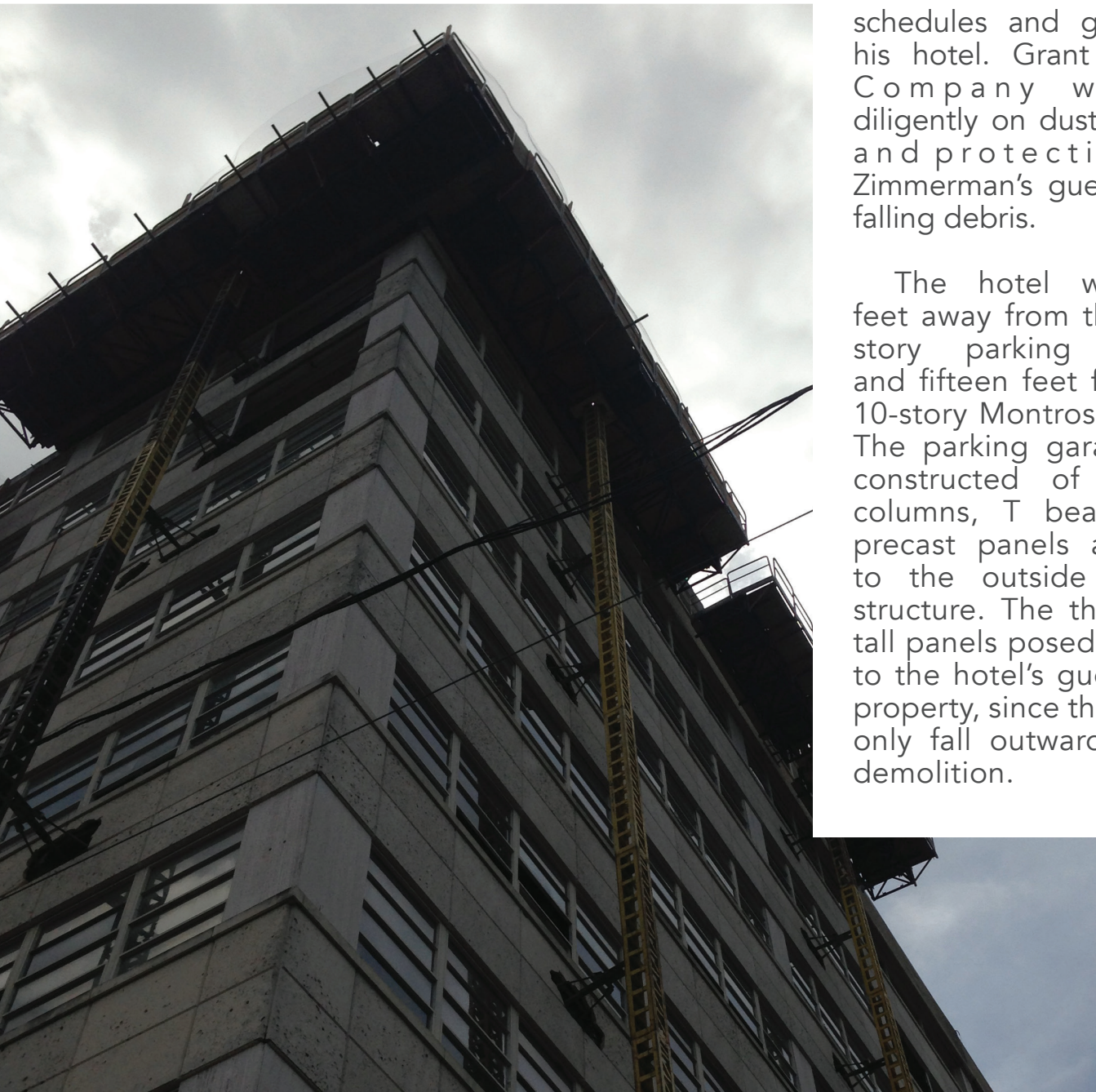
Some people in the demolition industry look at the Hitachi 750 ultra-high-reach excavator, with 130 feet of reach, as the ultimate predator. Its prey on this project was a ten-story, stone clad structure, with a sky bar that has met its smooth jazz truth.

The 61 year old building had fallen into dilapidation and needed to be demolished. Built in 1953, it stood 139 feet tall, ten stories above ground with a two story penthouse and a partial basement. It had a sky bar on the top floor that offered fantastic views of the city and was a favorite with the locals who enjoyed a drink and jazz music. This building was demolished to make way for the Hanover Montrose tower. These upscale apartments will be 399.93 feet tall, a total of 30 floors, and are scheduled to open in 2016.

Grant MacKay of Salt Lake City, UT figured three months to abate the all the asbestos in the building, followed by two months to demolish 179,304 sq. ft. structure, haul off the debris, then break up and haul off concrete walls and foundations.

The project presented Grant Mackay with a host of challenges. The first was the structure's close proximity to the La Colombe D'or, a luxury hotel and wedding center. Hanover and Grant Mackay team meet with owner Steve Zimmerman to coordinate demolition activities around wedding schedules and guests in his hotel. Grant Mackay Company worked diligently on dust control, and protecting Mr. Zimmerman's guests from falling debris.

The hotel was five feet away from the three story parking garage and fifteen feet from the 10-story Montrose Tower. The parking garage was constructed of precast columns, T beams and precast panels attached to the outside of the structure. The thirty foot tall panels posed a threat to the hotel's guests and property, since they could only fall outward during demolition.





Grant MacKay crews used mini-excavators with 500 lbs. hammers, on multiple floors, to demolish panels top-down safely, and then used a 700 Volvo to demolish the rest of the parking garage.

Another major challenge was that Montrose Boulevard is one of the busiest streets in Houston and the tower stood just 10 ft. back from the street. The city would only let Grant MacKay close two of the four lanes on weekends. This meant that the firm needed to drop the height of the building three stories on the Montrose side before the high reach could attack it.

Another challenge was the mastic (a concrete sealing material)

on all of the outside walls, beams and columns. This material fell under the NESHAP (National Emission Standards for Hazardous Air Pollutants) rules and would need to be segregated and hauled off in accordance with all appropriate federal regulations.

The last challenge would be to remove the elevator shaft and penthouse from the top of the structure to bring the height of the building into the safe working range of the high reach.

The elevator shaft demolition required the use of a 130 ton crane and a purpose built work platform, which was suspended from the crane with a Brokk robot aboard. Grant Mackay's propitiatory sequencing of the demolition using the Brokk robot to operate remotely allowed the operator to stay a safe distance from falling debris during this operation.

The selective demolition of three floors on Montrose Boulevard also presented a number of challenges. The methodology for selective demolition went as follows:

Grant Mackay lined the structure with 'mast climbers' on the Montrose side. These climbers are large platforms able to support 8,000 pounds, attached to a vertical beam alongside the building. The platform would 'climb' up and down the side of the building. The mast climbers were lined with plywood and placed one floor below to catch all falling debris and protect the public from injury. The mast climbers would also allow Grant Mackay's team to deliver small excavators and skid steers to the floors that needed to be demolished.

The floors that would have equipment on them had engineered shoring placed underneath to support the equipment and debris. Using their proprietary demolition sequencing Grant MacKay crews used small excavators and skid steers to demolish and remove debris one bay at a time.

The outside walls of the building contained asbestos mastic. Crews removed these walls under close supervision from a competent, asbestos trained supervisor. Crews wet the asbestos-containing material (ACM) and segregated it for disposal. Cables and warning lines as per OSHA requirements were installed to prevent equipment and personnel from falling off the edge.

Grant Mackay Co. has a deep pool of talented and very experienced operators. For this project, we brought in Manny Nunez and Sabino Martinez, both highly experienced men with over 40 years of combined experience with Brokk robots and selective demolition.

The next phase of demolition was done by the high reach at a much faster pace. The 750 Hitachi high reach had a 20 ft. boom section, extra counterweight and 1100 Hitachi boom cylinders engineered, manufactured, and installed for this project to give it 130 ft. of reach. This allowed it to demolish up to 9 stories or 120 feet. It had an Atlas Copco CC 3300 multiprocessor on it. With the maximum cutting force of 882,000 pounds, it easily reduced the building into a pile of rubble in no time.

The methodology for this phase was to demolish through the back side



of the building, two bays wide and two bays deep. Then wait for the weekend street closures, which will start Saturday at 4:00 AM, placing barricades and moving the fencing away from the building. The high reach operator had to be very cautious as he demolished the building, since a two-lane closure is not ideal for a ten story building, seven stories of which is next to Montrose Boulevard.



At the end of the day, a night crew took over to prepare the newly demolished area for tomorrow's activities. This involved caving in the basement, segregating asbestos-containing mastic, pulling out steel and rebar, while building a good pad, or work platform, for the high reach to be placed on in the morning. During this phase, Grant MacKay's crew kept mechanics, welders, and mobile hydraulic hose repair trucks on call.



One of the challenges the firm faced during this part of the demolition was a power pole with two live transformers and fiber optic lines on it, located just four feet from the corner of the building. This pole was scheduled to be removed before we needed to demolish this corner of the building, but a fire just a few miles away from Montrose broke out, completely burning down new luxury apartments that were under construction (See Fire

Safety article in this issue of Demolition). This fire delayed the rerouting of these utilities.

Grant Mackay formulated a new plan and constructed a purpose built bin to be hung off a crane next to the building, while the high reach munched the corner of the building apart. The debris fell into this bin, avoiding disruptions and costly repairs to the utilities.

Calculations were made to make sure Grant MacKay brought in a large enough crane to handle any possible shock loads imposed on the unit from falling debris. The building was L shaped with an elevator shaft and stair tower in the middle, on the back side of the building. The firm demolished both wings toward the elevator stair core, using it as an anchor for stability because it is the strongest, most secure part of the structure.

On this phase of the demolition, Grant MacKay's crew turned this building into a pile of rubble and twisted beams in two weeks. At the controls of the high reach was Dylan Edwards, a very talented operator with 15 years' experience in demolition. Dylan is a smooth, meticulous operator who understands the methodology behind dropping a building with a high reach machine, as well as maintaining the expensive equipment. He is a valuable asset to Grant Mackay Co.

After the last of the building was demolished, it is time to kick it into high gear. The most dangerous work had been completed, and now the firm had two weeks to haul off the remaining debris. Crews used a 700 Volvo excavator with a thumb attachment as the production machine. It demolished the rest of the structure, including the walls and footings, while a 350 Link Belt loaded the debris into trucks. Crews finished this challenging project with three days to spare. Grant Mackay Co. will get their bonus and pay nothing in liquidated damages.

Site supervisors made sure crews have all the training and equipment needed to perform all tasks safely, and

developed a JSA (job safety analysis, specific to each project) to insure safe working procedures. They completed this project on schedule with no lost time or injuries.

Grant Mackay Company is a family owned business dating back to 1947 with corporate headquarters in Salt Lake City, Utah and a satellite office in Houston, Texas. 📍



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