



BOB MOORE CONSTRUCTION

## **Pioneer 360 Business Center:**

Overcoming the Challenges of Infill Development to Deliver a Gold LEED for Core & Shell Project

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White Paper

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# **Pioneer 360 Business Center: Overcoming the Unique Challenges of Infill Development to Deliver a Gold LEED for Core & Shell Project**

## **Summary**

Infill development is the use of land within a built-up area for further construction, focusing on the reuse and replacement of obsolete or underutilized buildings and sites. Infill development presents unique challenges to a construction company. What will be done with the obsolete building's materials as it is demolished? Are there any asbestos issues to be addressed? Is the existing water / sewer / power infrastructure sufficient to support the new building's operations? How do you minimize and mitigate interruption to the operations of neighboring businesses?

The Pioneer 360 Business Center is a dramatic three-building, 1.16 Million SF business complex in Arlington, Texas that was constructed on a previously developed property in the midst of older retail and commercial building facilities. A major portion of the project was the demolition of an 800,000 SF abandoned mall that covered much of the property. As such, Pioneer 360 Business Center provides a case study on overcoming the challenges inherent to infill development.

This paper describes how we addressed the challenges of demolition and subsequent construction of major new facilities as part of an infill development program and delivered a LEED Gold Certified project.



## Overcoming the Unique Challenges of Infill Development to Deliver a Gold LEED for Core & Shell Project

The Pioneer 360 Business Center is a dramatic three-building, 1.16 Million SF business complex along State Highway 360 in Arlington, Texas.

Buildings A (194,845 SF) and B (152,800 SF) support flex tech, office, showroom, and rear-load warehouse operations for up to four independent tenants per building. Both buildings feature a combined 96 loading dock bays and ribbon glass bands on the front walls, with two-tone paint finishing and stone facade corner entrances on the exterior.



Building C is an 815,820 SF cross-dock distribution center designed to house up to six tenants. It is finished with a two-tone paint scheme, and includes more than 100 trailer storage spaces. Building C includes 158 loading dock bays. All three buildings were built with tilt-up construction.

The Pioneer 360 Business Center is located on a 70-acre business park. The complex includes a detention pond in the center of the complex and a second pond at the east end. It is part of Arlington's "Champion Arlington" strategy, which has resulted in phenomenal growth that has featured some of the most high-profile buildings in the Dallas / Fort Worth Metroplex, including the Ballpark in Arlington (home of the Texas Rangers) and the new Dallas Cowboys stadium.

Early in the construction phase, the decision was made to pursue LEED certification for Pioneer 360. A central consideration to LEED certification for this project was the fact that the new business center was constructed on a previously developed property in the midst of older retail and commercial building facilities. This "infill development" presented a variety of challenges unique to Pioneer 360 that were addressed throughout the construction process, not the least of which was the demolition of an 800,000 SF abandoned mall that covered much of the property.

### **What Is Infill Development?**

Infill development is the use of land within a built-up area for further construction, especially as part of a community redevelopment or growth management program or as part of smart growth. It focuses on the use, reuse and replacement of obsolete or underutilized buildings and sites.

Infill development offers several benefits to communities:



**Reduces Urban Sprawl.** By developing new buildings in the interior of urban areas, it reduces the expansion of commercial and industrial development away from the city center and into suburban and rural areas. Ultimately, infill development reduces costs by avoiding the need for increased infrastructure, support operations (fire stations, hospitals, police, city services, etc.) in the outlying areas.

**Improves Quality Of Life In Urban Areas.** Bringing new buildings in to replace empty lots or abandoned buildings raises land values, reduces or eliminates urban blight, increases tax revenue to local governments, brings new clientele to local businesses, expands the job base, reduces crime and promotes further expansion and growth from future businesses.

**Reduces Environmental Impact Of New Business.** By constructing a new building in a city's interior rather than on its outskirts, the employees at the new building are more closely located to other businesses they will use (restaurants, stores, etc.) This reduces their need to drive to these businesses, which cuts the amount of miles they drive each day. Many infill development programs occur in conjunction with the expansion of mass transit, further reducing pollution and traffic congestion.

## **The Challenge of Infill Development**

Clearly, infill development provides a variety of opportunities to re-energize and improve urban areas. That said, constructing a major new commercial project like a million SF business park in an already developed urban area presents unique challenges over a typical project on a previously undeveloped tract, particularly when the property contains a large, obsolete building that must be demolished.

What will be done with the obsolete building's materials as it is demolished? Are there any asbestos issues to be addressed? Is the existing water / sewer / power infrastructure sufficient to support the new building's operations? How do you minimize and mitigate interruption to the normal business operations of neighboring businesses?

These were the challenges we faced as the general contractor of the Pioneer 360 Business Center in Arlington, Texas.

**Demolition of an Existing Building and Recycling the Materials.** The largest challenge faced during this project was the fact that the property was largely covered with an abandoned 800,000 SF, multi-story mall. Adding to the complexity of this demolition, shortly after breaking ground, the developer found a buyer for the project. The buyer wanted to build the business center as a LEED-certified project. Along with significant design changes to the planned buildings, the conversion to a green building approach required significant changes to the mall demolition.

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As part of the qualifications for LEED certification, we established a target of recycling 95% or more of materials taken from the demolished mall rather than sending them to landfill. To ensure we stayed on track for this goal we had to manage the materials carefully as we pulled them from the building.



The first step to this process was to ensure demolition crews were trained on Bob Moore Construction and OSHA safety standards for this type of work. Over a period of four weeks, the safety director and superintendent worked directly with the demo crews to train them on a variety of relevant safety requirements, including the use of guard rail systems, leading edge safety (fall protection) standards and requirements for the use of chutes to remove debris from elevated surfaces. During this time the superintendent and safety director monitored the demo crews' performance to ensure standards were being met, and corrected deficiencies immediately.

As the mall came down, workers separated the materials into different stacks, which were ultimately loaded and taken to recycling companies. Workers tracked amounts of materials as they were shipped out to ensure we met our goal and could accurately report how the various waste materials were disposed of.

**Asbestos.** Asbestos is a common problem that must be addressed during infill development projects, when older buildings are taken down to be replaced by new and improved ones.



The mall demolished during the Pioneer 360 Business Center project was built in 1970. As was common for buildings from that era, the materials used to construct portions of the mall included asbestos.

After the owner's consultants initially inspected the facility, it was determined that a third-party contractor was required to formally locate and remove the



asbestos from different areas of the mall. Demolition of these areas was delayed until our contractor performed more than \$1 million in asbestos abatement. Our superintendent and safety director monitored the asbestos abatement to ensure safety procedures were followed.

**Old Infrastructure.** Unlike a project taking place at an undeveloped site, the land where Pioneer 360 Business Center had been previously developed with the mall, acres of old parking and substantial infrastructure that serviced the mall.

Many of the water, sewer and power lines were not well documented and we had to use great caution when removing the parking lot and doing the site work. Not only was this a potential safety hazard for our workers. Several businesses along the north side of the mall (as shown in the picture to the right) were still using the old infrastructure and any interruptions to services would have shut them down.



Through the use of an old drawing from 1970 when the mall was originally built, we had a general idea where the utilities would be. We pot-holed areas where we thought the utilities should be to locate them, and then used appropriate best management practices to expose and protect the utility lines as site work progressed. Prior contact with the utility companies was also helpful to finally identify these lines so our workers could proceed on with prepping the site and locating the utility lines before they were damaged by the heavy equipment.

The existing infrastructure was inadequate to the task of supporting the new business center, and we had to rebuild it as we prepared the site. To minimize impact on the other local businesses, we set up redundant utility lines and transitioned from old to new when it would have the least impact on the business center's neighbors.

Two of the local businesses were 24 hours per day restaurant operations, so working during off-hours was not the complete solution for this situation. In one instance, a shut down of the water to a local restaurant for a day was unavoidable; we communicated this to the restaurant's management beforehand, and provided temporary toilet facilities and free bottles of water and soft drinks for them to give to their customers so they could stay open during that time.

**Foot Traffic.** Infill development projects are frequently part of larger community improvement programs, and as such they often receive attention from the local media.



The Pioneer 360 site was more heavily trafficked than a typical demolition site because of the large amount of publicity this project generated, resulting in tours from the media and local dignitaries, including the Mayor of Arlington (pictured right). Further, because the old mall had been abandoned for several years, locals had walked through the property before the project began, and they continued to try to do this as demolition progressed. At the latter stages of demolition, other crews were onsite to begin dirt work as well.



All of these factors translated into a significant volume of foot and vehicular traffic around the demolition and stacks of materials. We partitioned off the areas where large-volume or sharp materials were being compiled and instructed workers to watch for people in the area and steer clear of them and /or ask them to leave.

**Working in Enclosed Spaces.** Because an infill development project is surrounded by other buildings, the general contractor will typically find the working space for the project to be more confining than would be encountered with a project in a previously undeveloped space. This was just one of the reasons we used tilt-up construction for Pioneer 360 Business Center.

Tilt-up construction is a method for building commercial structures. In traditional construction, the walls are built with CMU blocks or blocks faced with brick, or they are made up of structural steel columns with heavy gauge metal studs covered with gyp sheathing, which is then faced with brick or stucco. In either case, the walls are built vertically through a process that is slow and labor-intensive. A tilt-up building's walls are created horizontally in large slabs of concrete called panels. The panels are then lifted, or tilted up, into position around the building's slab.

For buildings like Pioneer 360, tilt-up construction is the most cost-effective and schedule-friendly approach we could use. Traditional construction of a million SF of warehousing space would have been more expensive and more time consuming, with no offsetting benefit to justify its use. Tilt-up provided additional specific value on this project as it easily allowed us to use locally developed raw materials, a major factor that is evaluated for LEED certification.

Finally, in spite of the fact that the site was surrounded by busy roads and businesses, tilt-up construction allowed us to create the wall panels directly at the jobsite, around (and in some cases, on) the building slabs and tilt them into position without interfering with neighboring properties. Tilt-up construction allowed us to isolate our operations, a necessity for infill development.



## **End Results**

We were able to overcome the unique challenges inherent to an infill development project and complete the Pioneer 360 Business Center on schedule and to the owner's specifications.

The improvements to the surrounding community and the city of Arlington are numerous.

- The abandoned mall, long used as a place for criminal activities, has been removed and replaced with new, quality buildings that will provide homes for new businesses and hundreds of high-paying jobs.
- The stores and restaurants surrounding the business park will benefit from the increased business coming from the area's new employees and from the reduced crime in the area.
- Arlington will realize millions of dollars of new tax revenues from the businesses moving into the business park.
- Property values in the community will rise because of the significant upgrading of the buildings in the area.
- With the old mall gone and the infrastructure upgraded, the area is more marketable to other developers, and is poised to support new growth and expansion from builders who want to piggyback on to Pioneer 360 Business Center's improvements.
- Urban sprawl has been avoided in undeveloped parts of Arlington, thanks to infill development.

In June 2009 we were notified that Pioneer 360 Business Center had been selected to receive the Merit Award in the category of Industrial / Warehouse Construction over \$5 million from TEXO, the north and east Texas chapter of AGC.

In October 2009 Pioneer 360 Business Center became the largest, and one of the first, LEED Gold Certification core and shell industrial projects in the state of Texas. More than 95% - 91,634 tons - of steel, concrete, asphalt, copper and aluminum coming from the demolished mall were recycled rather than sent to landfill. The project also earned the necessary points for community connectivity and infill redevelopment rather than adding to suburban sprawl.