“City Creek Center”

Salt Lake City, Utah

Submittal
for
Masonry Construction

The 13th Annual Project of the Year Award

by
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Interstate Brick

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Project Name: City Creek Center
Completion: March 22, 2012

Stats: City Creek Reserve, Inc. - Affiliate of the Church of Jesus Christ of Latter Day Saints (LDS)
Owner: Taubman Properties
Partner: Zimmer Gunsul Frasca; Portland; Hobbs and Black, Ann Arbor; Callison Partners, Portland (Total of 8 architectural firms involved on entire project)
Architects: Jacobsen Construction; Big D Construction; Oakland Construction
GCs: 23 Acre Downtown Revitalization with offices, retail and condominiums mixed use
Project: 700,000 sq-ft; 80 stores.
Size: IMS Masonry (MCAA Member); 4 other masons involved;
Masonry: 4x2.25x16, 6x2.25x16, 8x2.25x16 Atlas structural clay brick;
Products: 4x2.25x12, 4x2.25x8 modular facing brick and various other sizes;
Precast Concrete; CMU
5.5 million modular brick equivalent

Qty:

Scope: While the economic conditions of these past 5 years have crippled most cities, the timing of City Creek Center has been like manna to the people of Salt Lake City. The downtown center resembled a hive of bees as 1,100 construction workers toiled on a 23-acre site, over 3 city blocks, adjacent to the Mormon Temple. City Creek Center was completed March 2012.

In 2003, leaders of the Church of Jesus Christ of Latter Day Saints purchased the Crossroads mall after years of declining sales and after Nordstrom, a major tenant, threatened to leave. They decided to redevelop the area adjacent to “Temple Square” to keep it economically and culturally vibrant.

Many of City Creek Center’s design decisions focused on whether to tear down two malls constructed in the 1970’s and several old buildings adjacent to the mall or upgrade the mall to newer seismic code requirements. Retrofitting the existing buildings would be too costly so a new master plan was developed and extensive design teams and consultants were put on board.

Taubman, a mall management company, along with 7 architectural firms, 3 general contractors and 50 consultants joined the project team to find a way to revitalize the core of the city. City Creek’s answer was a $1.2 billion dollar regeneration of downtown Salt Lake City through walkable, sustainably designed, urban community of retail stores, offices and residences. In October 2006, the LDS church announced plans for

development of City Creek Center. Demolition started shortly thereafter and all demolition was complete by the end of 2007.

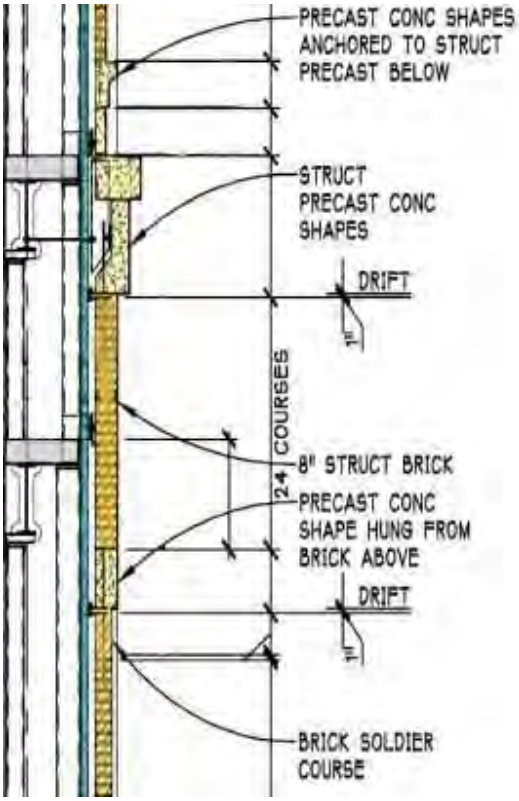
Category: Mixed Use: Retail, Office, Residential, Grocery

LEED: Silver Certified & LEED ND
Neighborhood Development

Description:

Surrounding architecture would set the style and the standard for the new center and for the selection of exterior facing materials. Brick and stone were selected for their aesthetic tie to adjacent buildings and for their durability. To tie to adjacent architecture, the brick were required to match the 2-1/4" high by 7-5/8" face dimension and be of similar texture and color.

The building envelop design was further complicated by the need for 100 year life materials in every layer of the wall. This included brick, wall ties, insulation, air and vapor barrier and studs. It was critical to the overall success of the building envelop that thermal bridging and wall tie penetrations be eliminated or drastically reduced.



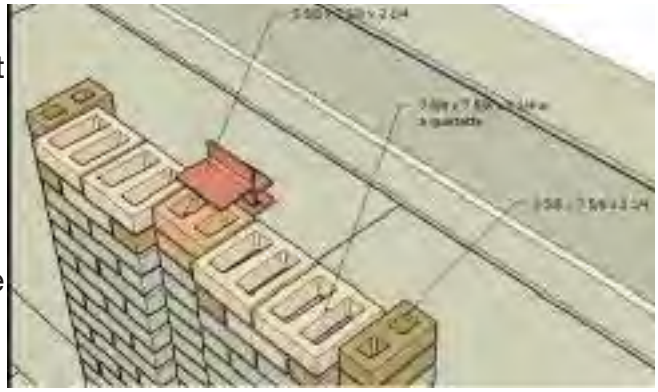
CURTAINWALL DETAIL

In addition to the material specifications, several requirements had to be met. The first challenge was to provide a design that would comply with the high seismic requirements of a building located in downtown SLC. Rigid masonry materials had to comply with the ductile, drift requirements of multistory buildings. Earth quake design dictated that each Heavy, articulated precast concrete panels would be incorporated into the brick wall which would require unique support conditions.

Because of the complexity of the wall envelop, the brick were designed as Structural brick veneer. (SBV) is essentially the same as conventional brick veneer except that it is reinforced. Hollow brick conforming to ASTM C652 specifications are generally selected so that there is sufficient cell space to allow for

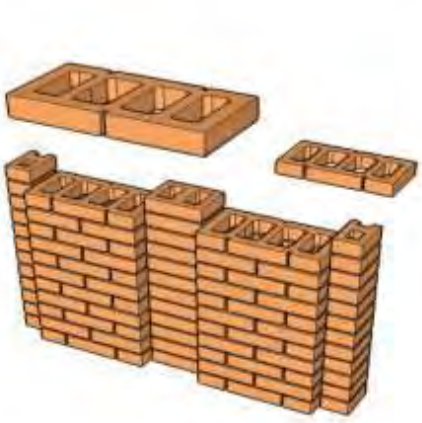
reinforcing and grout. The brick coring is larger and configured so that the cells align and can be reinforced when placed in the wall bond pattern. Reinforcement increases the structural capacity of the brick wall. This allows the spacing of wall ties to be increased to distances between floors and columns. Conventional veneer ties are thus eliminated and replaced by more substantial connectors.

Wall System: The original design looked at 8” long brick in various widths, but this concept was labor intensive. To reduce labor costs, specially designed 16” long structural brick with special coring and slotting were developed to capture the architectural charm dictated by the face size.



INITIAL OPTION - REINFORCEABLE 8X8

City Creek Center elected to use a Structural Brick Rainscreen Curtainwall comprised of 6”x2-1/4”x16” and 8”x2-1/4”x16” Atlas Brick. In some conditions heavy precast concrete panels hung from the brick in others, the precast concrete was supported by the structural brick.



SOLUTION - REINFORCEABLE 8x16 SLOTTED

A single brick with different slotting on the front and back of the unit further reduced the number of different brick on the project. This had a significant effect on reducing labor costs. In the detail to the right a 16” column was constructed by flipping the front and back side of the same unit to give a 2 or 3 brick appearance.

Various thicknesses of structural brick were used to support the heavy precast concrete pieces hung from the brick and to withstand the high seismic forces dictated by seismic Category D code requirements.

The structural brick veneer system was designed like a precast concrete wall panel. The brick

became the form for the grout and reinforcing. By using structural brick, the panels could be constructed in place which eliminated added costs in freight, labor and handling. Each wall was built as a panel separated by vertical and horizontal expansion joints. Although built in place, each panel was connected to 4 heavy Galvanized Steel Plate connectors that carry the vertical and lateral wall loads. Connectors are designed similar to precast panel connectors with allowances for inplane vertical and lateral expansion, contraction and deflection.

Light gage studs could be used behind the brick to support the sheathing as they were not required to transfer wind or earthquake loads from the brick.

Typical brick veneer wall ties spaced at 16”oc in each direction were eliminated and less frequently placed larger heavy steel connections were used. A continuous layer of insulation (uninterrupted by wall ties) was placed behind the brick. The reinforced structural brick curtainwall was then installed and connected to 4 strategically placed rigid connectors as shown in the photograph below. This system reduces the number of penetrations in the moisture, vapor and air barrier caused by frequent wall ties. The reduction in wall ties reduces the thermal conductance of energy through the insulation layer. A 1” thick layer of insulation was placed between brick panels at each window head to isolate floors. The insulation acted like a lintel by providing support to the brick during construction prior to the final curing of the grout. The insulation also formed the separation between floors to accommodate seismic drift.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