Eastside III

East Liberty, Pittsburgh, PA

Nina Italiano | Lighting + Electrical

Advisor | Kevin Houser

Building Statistics | Part 1 + 2

October 19, 2016

All images in this document are courtesy of PJ Dick, Inc.

| General Building Data

- Building Name | Eastside III Building B
- Location + Site | East Liberty, Pittsburgh, PA
- Building Occupant Name | Eastside Bond
- Occupancy or Function Type | Mixed Use Development
  - Mixed Commercial Spaces
  - 175 Apartments
  - Parking Facility
- Size | 221,000 total sf
- Number of Stories | 5 stories above grade + 2 stories below grade
- Primary Project Team

  Owner | The Mosites Company http://mosites.net/

  General Contractor | PJ Dick, Inc. http://www.pjdick.com/

  Architect | The Design Collective http://www.designcollective.com/

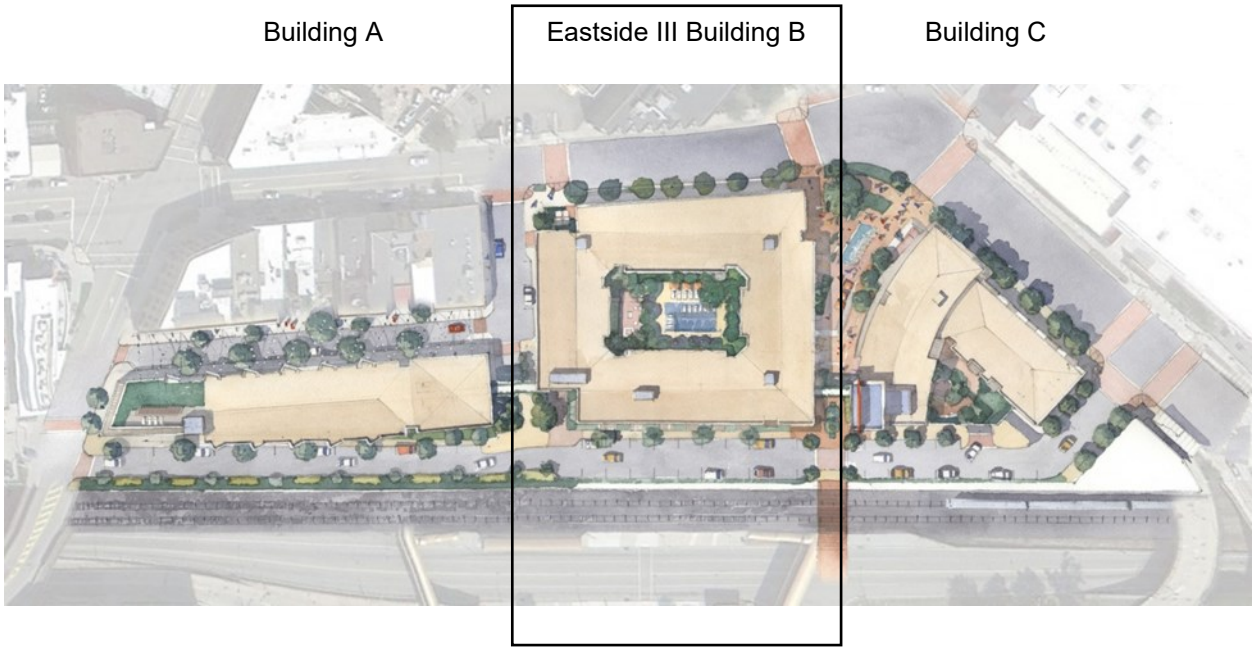
  MEP + FP | Allen & Shariff Engineering http://www.allenshariff.com/

  Structural | Structural Consultants Associates, Inc. http:/www.scaengineers.com/

  Interior Designer | RD Jones http://www.rdjones.com/
- Dates of Construction | June 2014 - June 2016
- Total Contract Price | $42 Million
- Project Delivery Method | Design-Bid-Build

Architecture

Eastside III is the final phase of a revitalization project in the heart of the East Liberty neighborhood of Pittsburgh, PA. The 221,000 sf building is a mixed-use development comprised of 43,000 sf of mixed-commercial spaces, 175 luxury apartments, and multiple parking spaces below grade. The new market-rate housing and host of amenities to the area includes a new pool and fitness center within the building and contributes the final portion of the 15-acre development that began in 2001. Eastside III was developed jointly with a multi-modal transit hub to reconnect East Liberty to its surrounding neighborhoods and to redefine the residential experience in this trendy Pittsburgh community.



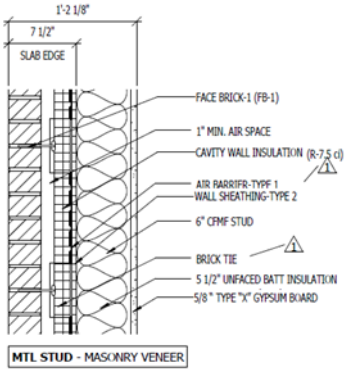
National Codes

- International Building Code | 2009
- International Fire Code | 2009
- International Mechanical Code | 2009
- National Electric Code | 2008
- ASHRAE 90.1 | 2007
- LEED for Homes | 2009
- Zoning | no restrictions known to date
- Historical Requirements | n/a

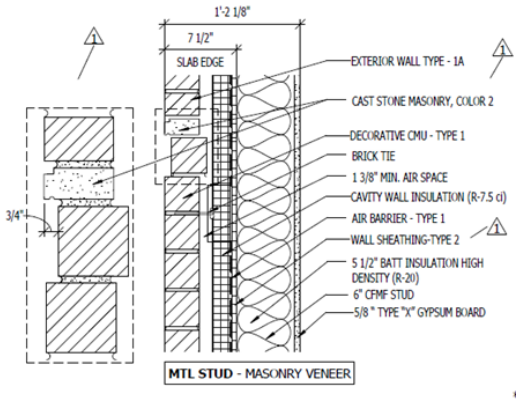
Building Enclosure

According to the Building Enclosure Consultant, Building Science Corporation, Eastside III Building B along with the two other mixed-use development buildings (Buildings A & C) consist of 5 stories with terraces, decks and multiple cladding types including storefront, brick, fiber cement siding, stucco, and metal panels. Building Science Corporation worked with the design team to mitigate the risk of moisture related failures in the building enclosure.

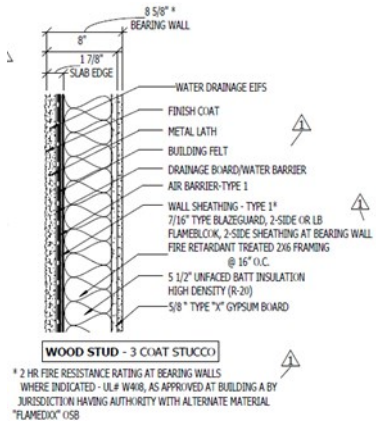
Building Facades



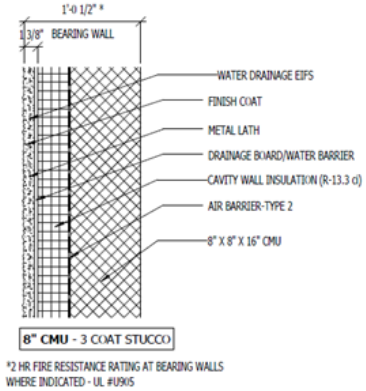
Type 1A | Face Brick



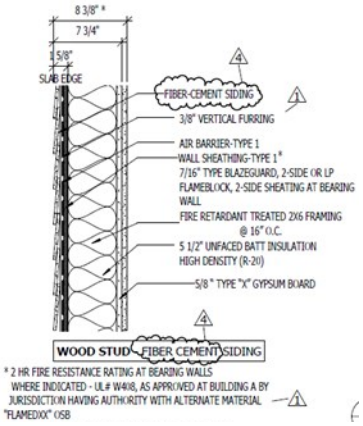
Type 2A | Decorative CMU



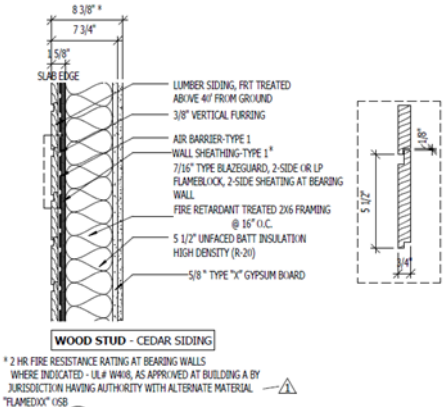
Type 3 | Water Drainage EIFS



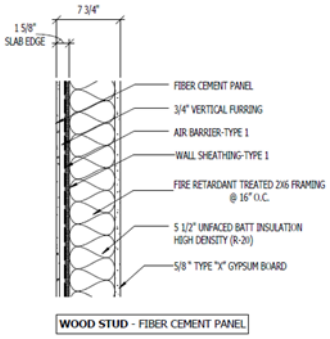
Type 3B | Water Drainage EIFS



Type 4 | Fiber Cement Siding

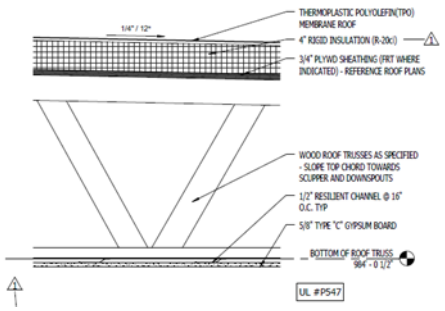


Type 4B | Wood Siding

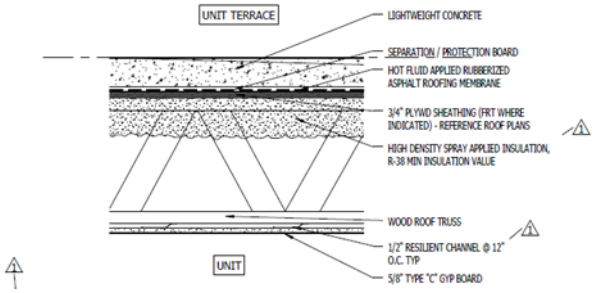


Type 6 | Fiber Cement Panels

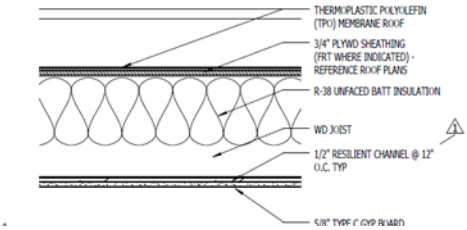
Roofing



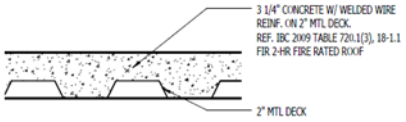
Type 1 | Thermoplastic Polyolefin (TPO) Membrane Roof



Type 2 | Lightweight Concrete



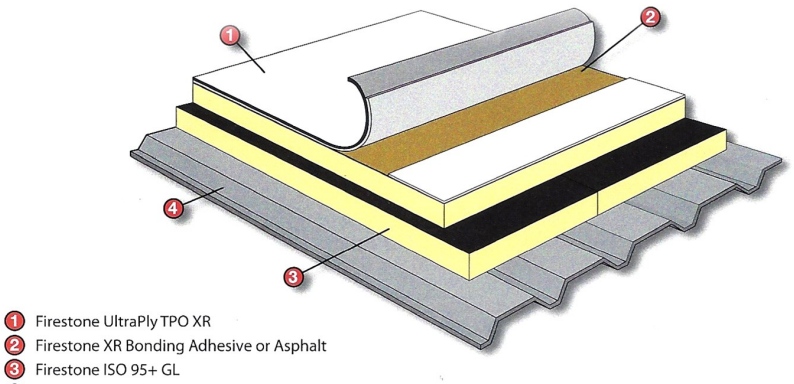
Type 3 | Thermoplastic Polyolefin (TPO) Membrane Roof



Type 4 | Concrete

Thermoplastic Polyolefin (TPO) Membrane Roof

- Fabric-Reinforced TPO Sheet: ASTM D 6878, internally fabric- or scrim-reinforced, uniform, flexible fabric-backed TPO sheet.
- The roofing system will consist of a white-colored thermoplastic polyolefin (TPO) membrane used to decrease the amount of heat absorbed by the material



1. Firestone UltraPly TPO XR
2. Firestone XR Bonding Adhesive or Asphalt
3. Firestone ISO 95+ GL
4. Roof Deck

Sustainability Features

Eastside III's project goal is to achieve a LEED gold rating under LEED for Homes 2009. Design features that contribute to the LEED certification goal are listed below.

- Low-absorbing Roofing Material | The roofing system will consist of a white-colored thermoplastic polyolefin (TPO) membrane used to decrease the amount of heat absorbed by the material
- Thermally Insulating Glazing | The thermally insulated glazing for the new window system will reduce the amount of heat gain within the building from natural daylighting
- Reduced Envelope Air Leakage | This requires specific air sealing guidelines to be met including proper sealing of all penetrations in ceilings, walls, and floors
- LED Lighting | most energy-efficient lighting technologies
- High Efficiency Appliances | Used high efficiency appliance to reduce water and energy usage
- Low-emitting Materials | used materials with low VOC levels
- Efficient Hot Water Distribution | used efficient hot water tanks in all apartment units & common spaces
- Water Efficient Fixtures | used efficient hot water tanks in all apartment units & common spaces

Primary Engineering Systems

Construction

Eastside III was constructed using a Design-Bid-Build project delivery method. The construction process lasted from June 2014 to June 2016 and final completion occurred on June 1, 2016. The owner, The Mosites Company, contracted with separate entities for the design and construction of the project. PJ Dick, Inc. was the general contractor on the project and worked under a lump sum, single prime contract price of $42,000,000. The work under PJ Dick's contract covered the construction of the second phase of Eastside III's Buildings B and C. The information regarding my thesis study will only focus on Building B of Eastside III, however, the scope of work for both B and C cover a 5 story wood framed multi-family housing project built over an existing concrete parking structure.

Mechanical

The mechanical system of Eastside III varies for the different building and space types of the mixed-use development. The retail spaces on the ground and first levels are supplied using an outdoor air system, exhausted through a centrifugal inline fan, and utilizes a fan forced electric heating system. The outdoor air system minimizes odor problems and is designed to handle varying loads that can occur in retail areas.

The common amenity spaces are supplied with linear slot diffusers providing 50-56 total CFM to the space and are heated with a 4,000 ton split system heat pump. The amenity spaces include the following: fitness and yoga rooms, billiard room, entertainment lounge, display kitchen, and lobby/ lounge spaces.

The residential units on the above floors each have individual heat pumps with condensing units located on the roof. The apartment heat pumps range from 1,400 to 3,000 ton systems, depending on the size of the unit.

Most common corridors are supplied from direct expansion (DX) packaged rooftop electric cooling and gas heating units. Other corridors have a ceiling cassette ductless split system heat pump supplying 560 CFM to the space.

Primary Engineering Systems

Lighting

The lighting within Eastside III strongly contributes to the interior industrial aesthetics of the space. The majority of the lighting equipment consists of decorative fixtures, constructed as custom luminaires, especially in the ground and first level common spaces. These custom luminaires mostly contain Compact Fluorescent (CLF) lamping and vary in quantity of lamps, depending on the size of the fixture. There are also decorative LED pendant fixtures within the common and residential areas of Eastside III. The remaining lighting systems within Eastside III are LED sources, including general down lighting, linear grazers, wall washers, and pendants. The industrial yet modern lighting concept throughout Eastside III compliments the strong interior design aesthetic present in this trendy Pittsburgh building. The figures below provide examples of custom and general lighting fixtures featured in a few of the common spaces, like the Billiard room (on the left) and the Main Lobby concierge desk (to the right).

Electrical

The utility provider for Eastside III is Duquesne Electrical Services. Duquesne Electric provides the building with 480/277V power into the commercial and common spaces and 208/120V power into the residential portion of Eastside. The existing main electrical transformer, located on the ground floor, serves the residential 4000A, 208/120V, 3 phase switchboard and feeds into the dwelling units. The existing transformer serving the commercial spaces, also located on the ground floor, feeds into a 2500A, 480/277V, 3 phase switchboard. This switchboard serves the retail and amenity spaces' corridors, common spaces, and rooftop cooling and heating units on the above floors. The main electrical room is located on the ground level and holds both the residential and commercial switchboards and emergency and stand-by systems. A 450KW, 480/277V, 3 phase emergency existing diesel generator with two integral disconnect switches, located on the first level of parking below grade, serves all of Eastside III in the case of a power outage.

Primary Engineering Systems

Structural

Eastside III is a mixed-use development comprised of retail and residential areas. The building consists of a 5-story wood framed multi-family housing project built over an existing concrete parking structure with retail spaces located on the ground and first levels. The existing concrete parking garage columns, located below grade, are loaded by the building above. The ground level and first level retail spaces have a 4” thick concrete slab on grade system reinforced every 15” o.c. and contain concrete columns ranging from 2’-3’ in diameter. In addition to the retail spaces, the remaining first level areas consist of corridors and amenity common spaces for the residents of Eastside III. The gravity system of the first level common spaces and corridors are post-tension slabs to account for higher loads. The post-tension slabs allow for thinner slabs compared to a traditional concrete slab system.

The residential areas above have a wood framing gravity system. The interior wooden studs are placed 16” o.c. and are dimensional lumber sizes. The truss system contains 18” deep wooden trusses, spaced 24” o.c. The lateral system within the residential area are made up of shear walls using wood studs to resist wind loads.

Engineering Support Systems

Fire Protection

Eastside III is categorized as a Type IA building, according to the International Building Code, meaning they have unlimited height restrictions and corresponding codes associated with the height and fire rating. The existing concrete structural frame and load bearing walls contain 3 hour fire rate protection. The new construction of nonbearing walls and partitions and floor construction are 2 hour fire rated. Additionally, the roof construction contains 3 hour fire rating. Partition walls between the residential units are 1 hour rated and the partitions between the apartment and corridors are 1/2 hour rated.

Eastside III has a sprinkler system throughout that conforms to local codes and standards and is coordinated with the fire alarm zones throughout the building. A 1,000 GPM electric fire pump is connected to the main switchboard and the fire sprinkler system.

Engineering Support Systems

Audiovisual + Security System

BrightTree Studios was hired as a consultant to design an AV, digital signage, and security system for Eastside III to support the many employees, residents, and business owners that occupy the many spaces of the building. These spaces include: amenity communal spaces, activity spaces, business center, conference rooms, fitness center, exterior swimming pool, and residential apartments. BrightTree Studios focuses their technology on the mobility, durability and flexibility within Eastside III. The AV system, digital signage, and security systems allow for the owner and occupants to utilize the available technology to adjust for multiple uses within Eastside III's unique space types. These technology systems were owner furnished.

Transportation

There are two main sets of stairs and elevators that run from the parking garage below grade to the top level of residential units. The egress stair cases, Stairs B1 and B2, are located on the North-West and South-East areas of Eastside III. Elevator B3 is located next to the South-East staircase (Stair B1) and Elevator B2 is located in the South-West area of the building, connecting through the main lobby of the residential area.