VICTORIA RIEDINGER
LIGHTING/ELECTRICAL
ADVISOR: DR. KEVIN HOUSER

BUILDING STATISTICS I

BUILDING NAME | CANNOT BE PUBLISHED

BUILDING LOCATION | CANNOT BE PUBLISHED

BUILDING OCCUPANT NAME | CANNOT BE PUBLISHED

OCCUPANCY TYPE | RESEARCH FACILITY

SIZE | 183,000 GSF

FLOORS ABOVE GRADE | 6

CONSTRUCTION DATES | JULY 2015 - MARCH 2017

TOTAL COST | $120,000,000

PROJECT DELIVERY METHOD | DESIGN-BID-BUILD

NOTE: ALL FIGURES AND RENDERINGS CREATED BY BALLINGER

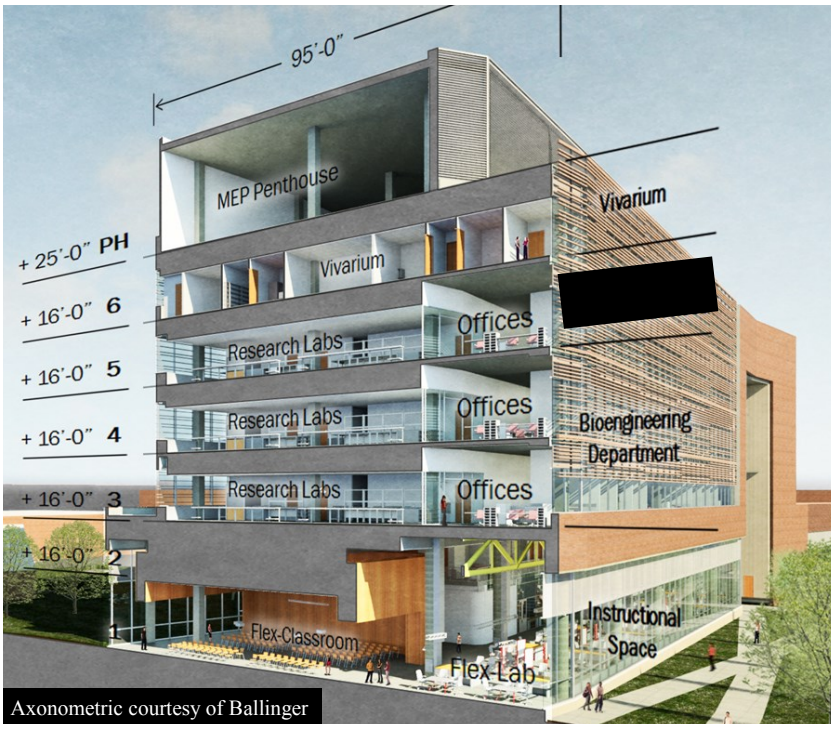
PROJECT TEAM

OWNER	CANNOT BE PUBLISHED
GENERAL CONTRACTOR	CANNOT BE PUBLISHED
ARCHITECT	BALLINGER http://www.ballinger-ae.com/
MECHANICAL ENGINEER	
PLUMBING ENGINEER	
ELECTRICAL ENGINEER	
LIGHTING DESIGNER	THE LIGHTING PRACTICE http://thelightingpractice.com/

ARCHITECTURE

The Bioengineering Building is a 6 story research and educational facility that houses classrooms, labs, offices, and multipurpose spaces. The ground level contains a variety of spaces that are for both research and large events. The second, third, and fourth floor are identical in plan and contain offices and research labs. A mechanical penthouse occupies the sixth floor of the building.

Because the building and site are oriented to have long east and west facades, special consideration was needed to control solar and heat gain. High performance glazing systems and mechanical systems are used to improve energy efficiency.



Axonometric courtesy of Ballinger

ZONING

Zoning cannot be disclosed due to anonymous location

HISTORICAL REQUIREMENTS

No know historical requirements for this building

MAJOR CODES

INTERNATIONAL BUILDING CODE (IBC) - 2012
INTERNATIONAL MECHANICAL CODE (IMC) - 2012
NATIONAL ELECTRIC CODE (NEC) - 2008
INTERNATIONAL ENERGY CONSERVATION CODE (IECC) - 2012
ASME A17.1, SAFETY CODE FOR ELEVATIONS AND ESCALATORS - 2007
NFPA 1, FIRE CODE - 2012

BUILDING ENCLOSURE

Façade

A majority of the building façade consists of glass curtain walls, while the rest is a modular brick and cast stone veneer wall assembly. Modular brick will be typical over the façade using the standard 3-5/8” x 2-1/4" x 7-5/8” with an even mix of three brick colors. The curtain wall system is composed of thermally broken extruded aluminum framing and Low-E 1" insulating glass units. A prefinished extruded aluminum sun shading system covers the curtain wall system from the second floor to the sixth floor.

The façade is broken up into six systems, each showing a typical design that exists along the building. One of the systems can be seen in Figure 1 and Figure 2, which show the aluminum sun shading system, curtain wall, and brick cavity wall.

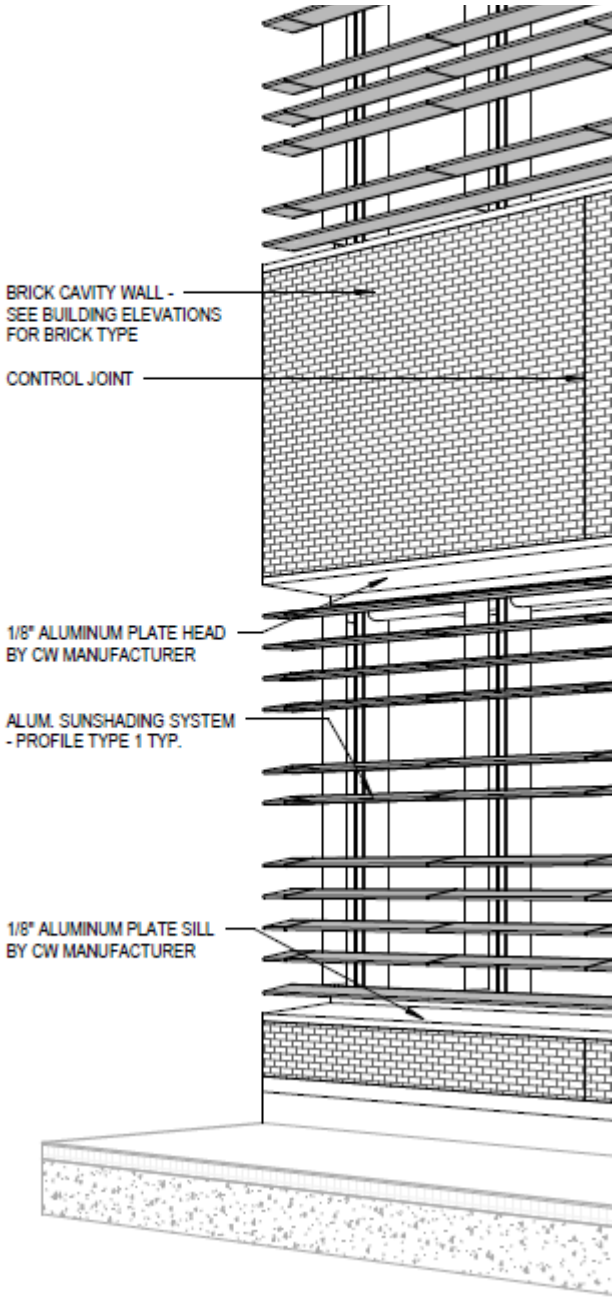


Figure 2: Perspective

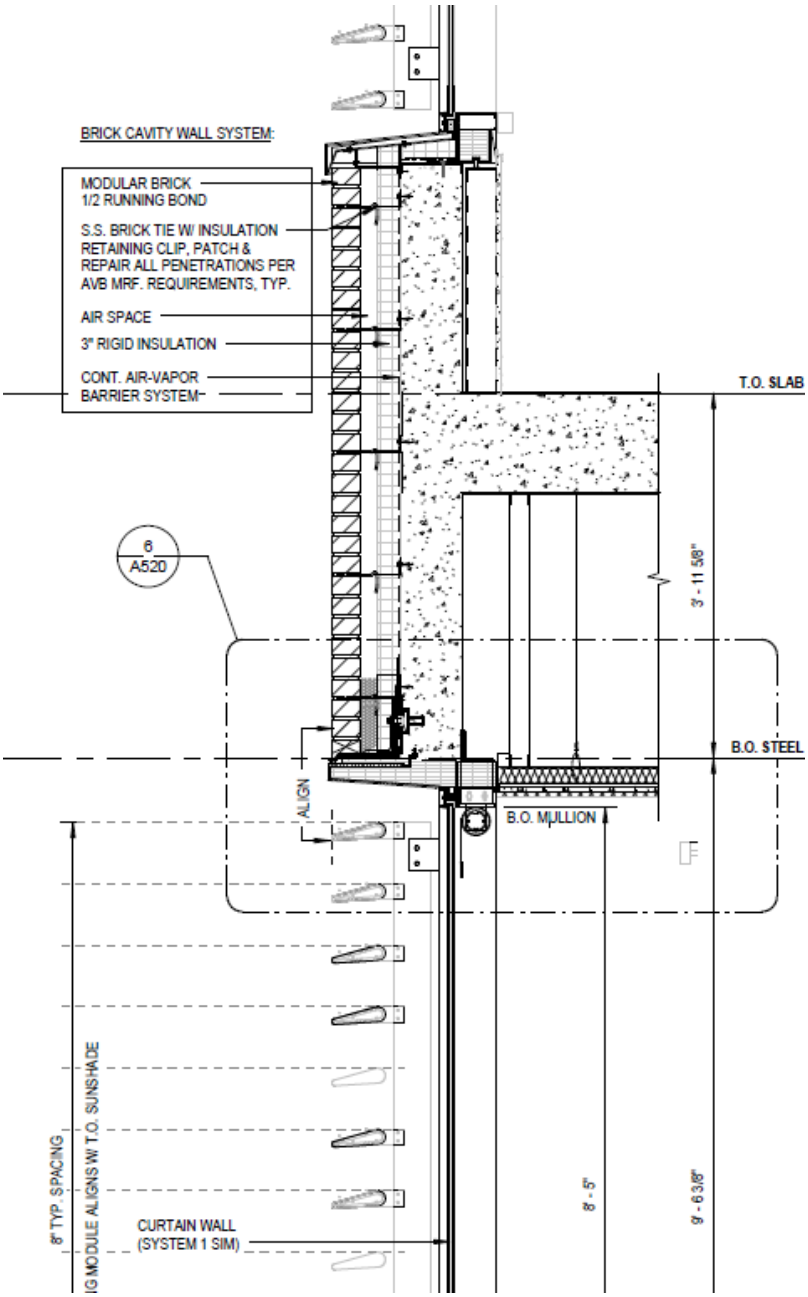


Figure 1: Wall Section

The curtain wall system at the ground level of the building is different from the floors above. Only a glass curtain wall serves as the façade. Figure 3 and 4 below show the base curtain wall system without the sun shading system.

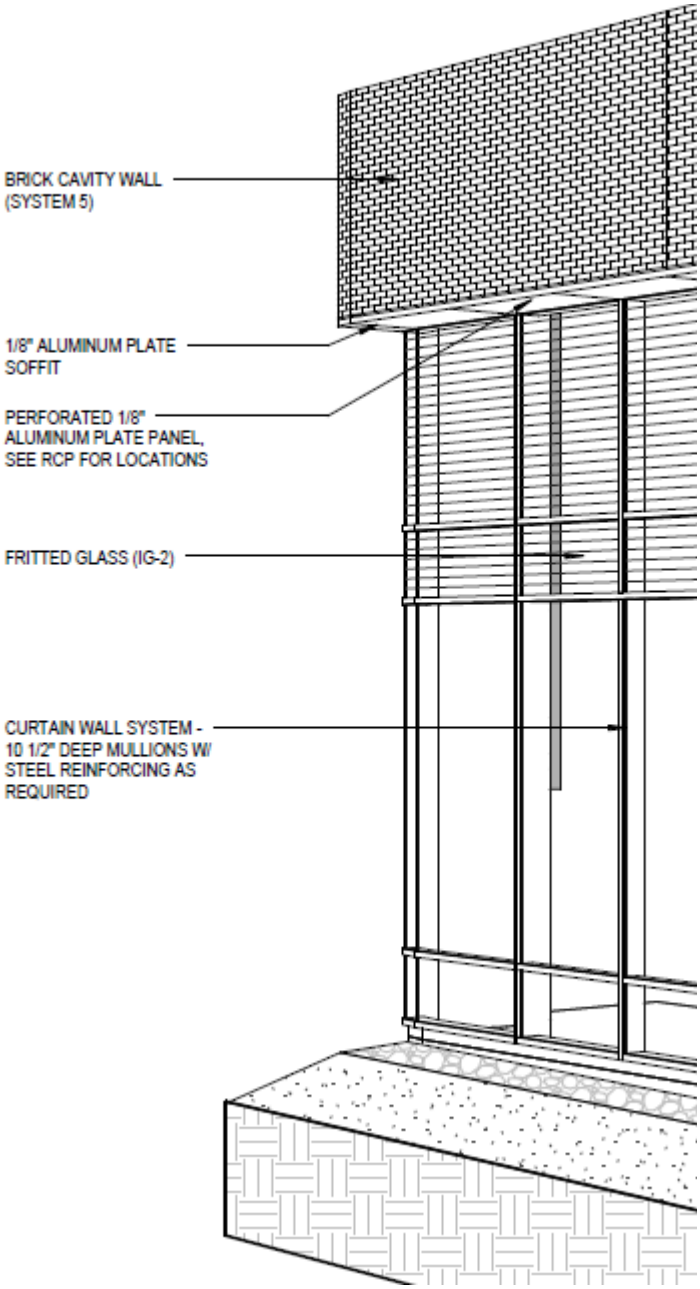


Figure 3: Plain Curtain Wall Perspective

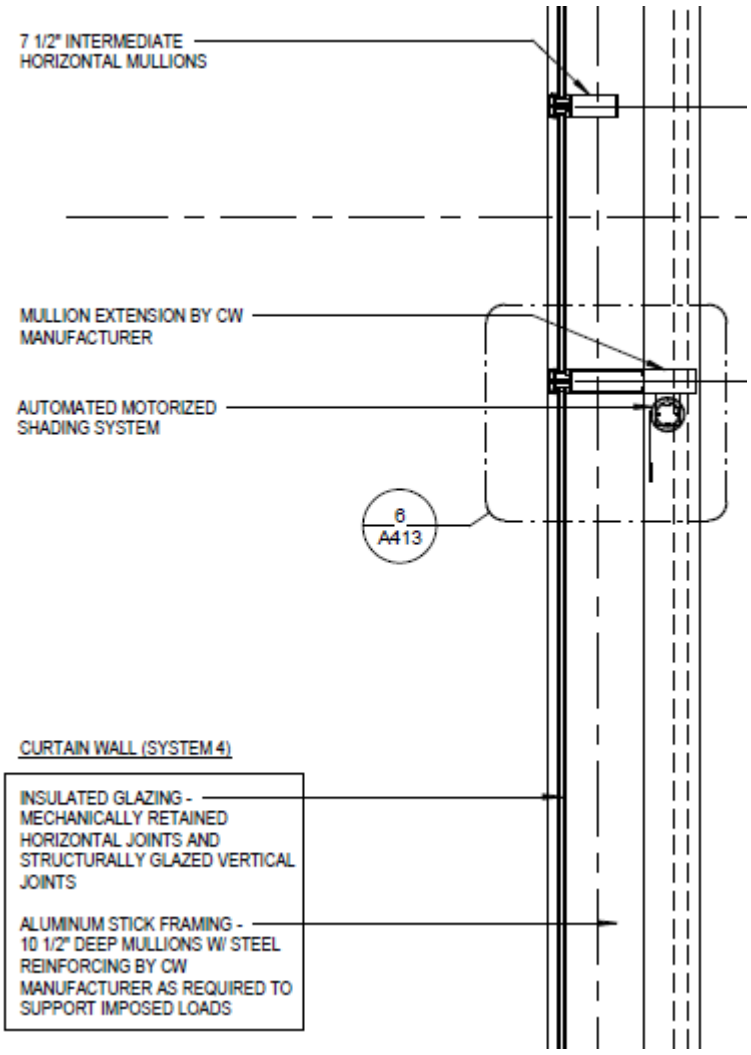
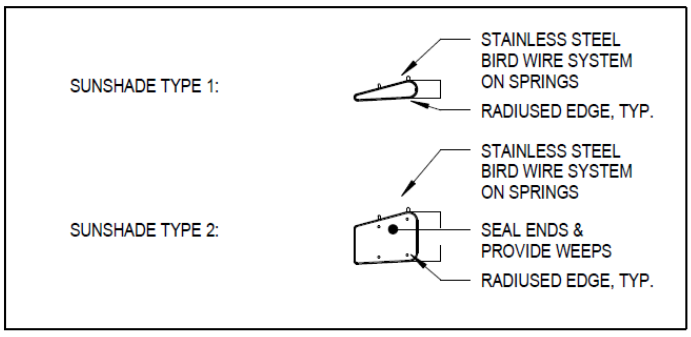


Figure 4: Plain Curtain Wall Section

Sun Shading System

Two types of sun shading pieces are used on the façade and are used intermittently along the curtain wall system. Figure 5 shows a perspective of the varied shapes.



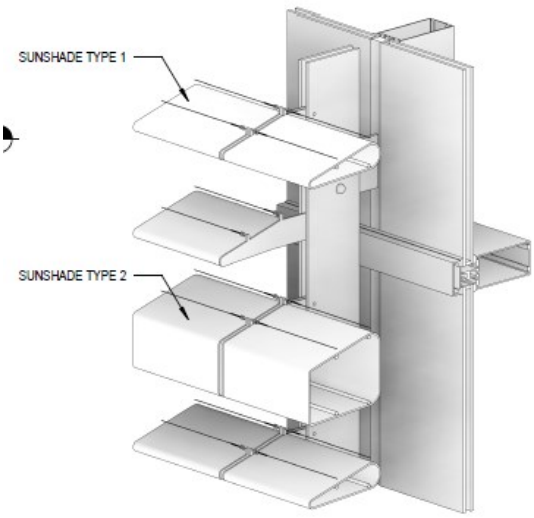


Figure 5: Sun Shade Perspective

Roof

The building utilizes a Polyvinyl-Chloride (PVC) Roofing System. Figure 6 below shows the roof detail.

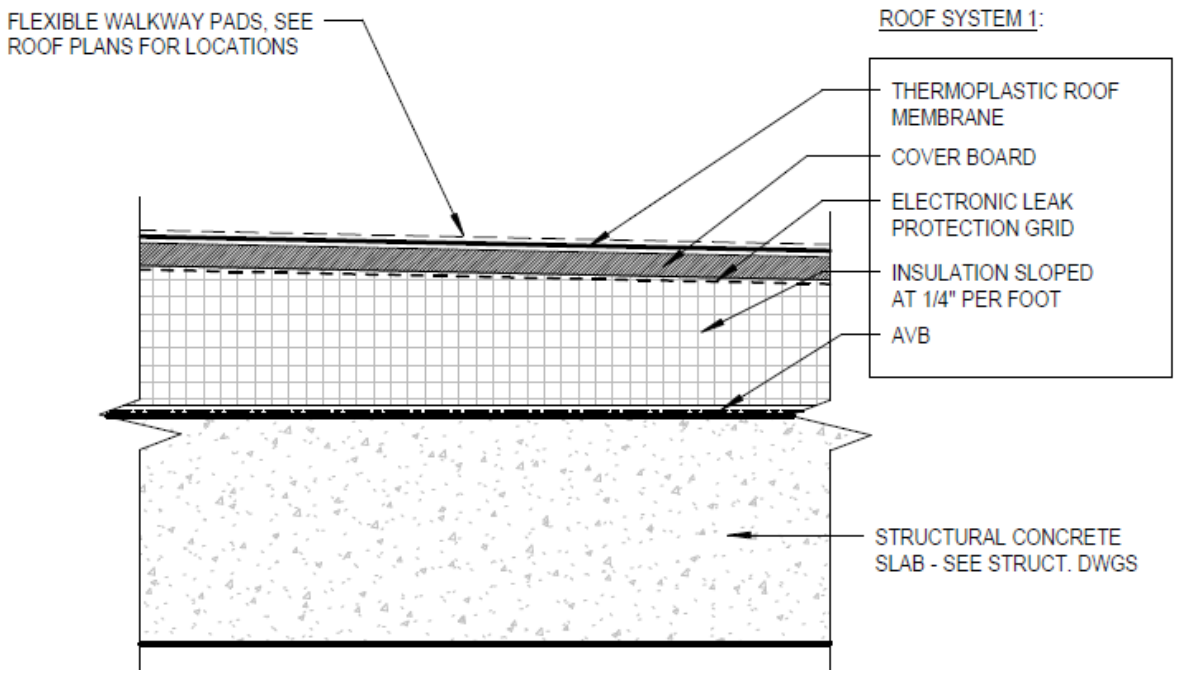


Figure 6: Roof Detail

SUSTAINABILITY

The project was designed to meet all prerequisites and earn at least 50 points to acquire a Silver level rating according to US Green Building Council's LEED 2009 for New Construction and Major Renovations Rating System. In order to achieve that rating, the design focused on water conservation, sustainable sites, indoor environment, material and resource conservation, and energy conservation.

The design utilized the following in order to gain certification:

-Recycled materials
-a minimum of 20% of materials used from within a 500 mile radius of the project
-low-emitting products
-'Green' User Education
-Conservation Waste Management Plan
-Using submeters to measure energy consumption