

# MAINE MEDICAL CENTER BEAN 2 ROOF PROJECT

**City Planning Workshop**  
June 11, 2013



## **PRESENTATION**

# **OUTLINE**

**Campus Context**

**Plan Overview**

**Exterior Materials & Glazing**

**Shadow & Daylight**

## **KEY ITEMS**

**Designing for bird strikes**

**Managing night-lighting**

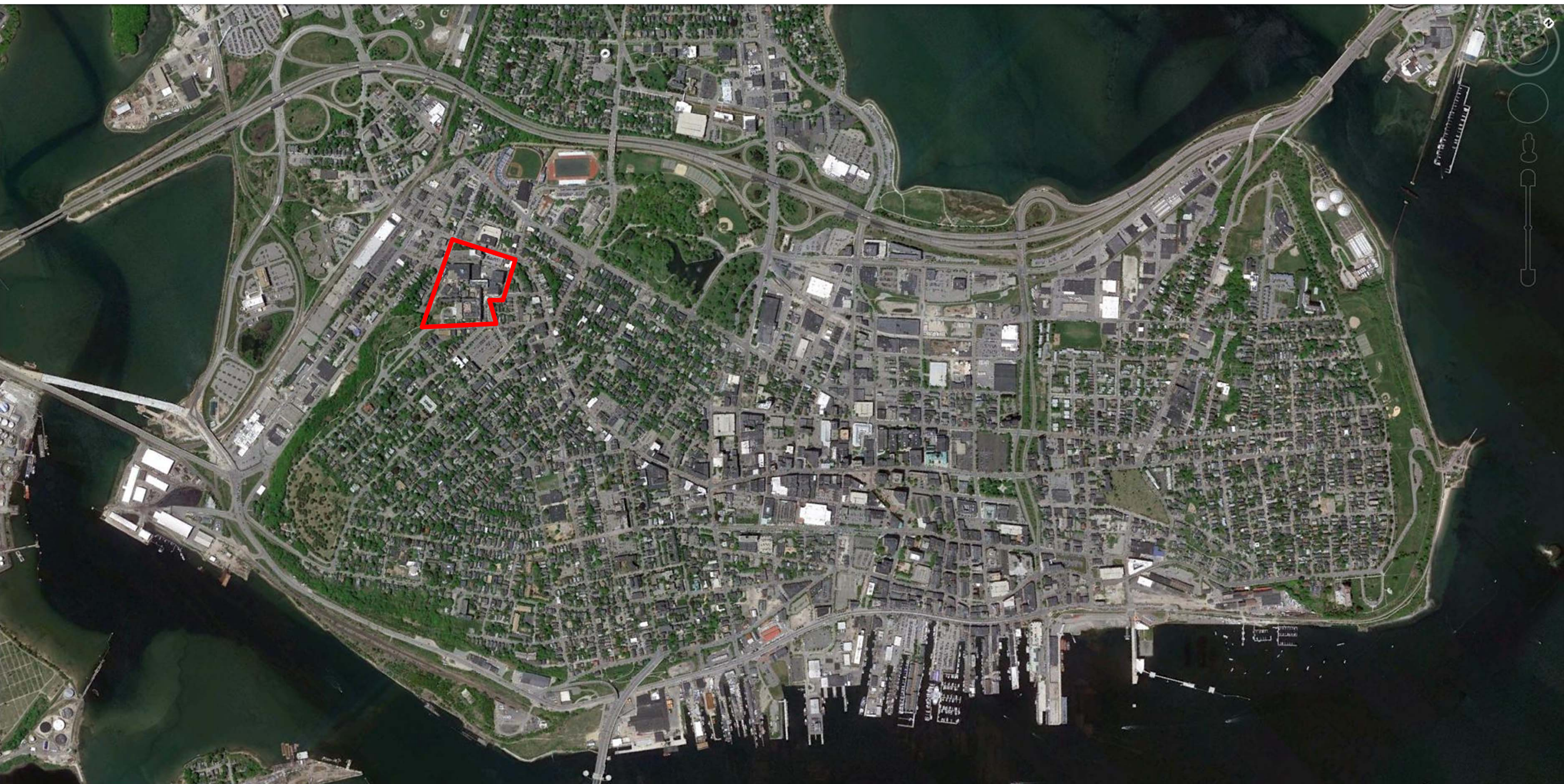
**Assessing shadows**

**Impact on existing buildings**

**Airport – Under review**



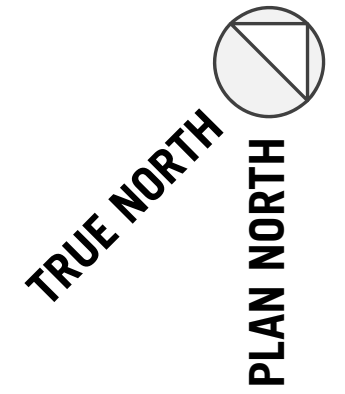
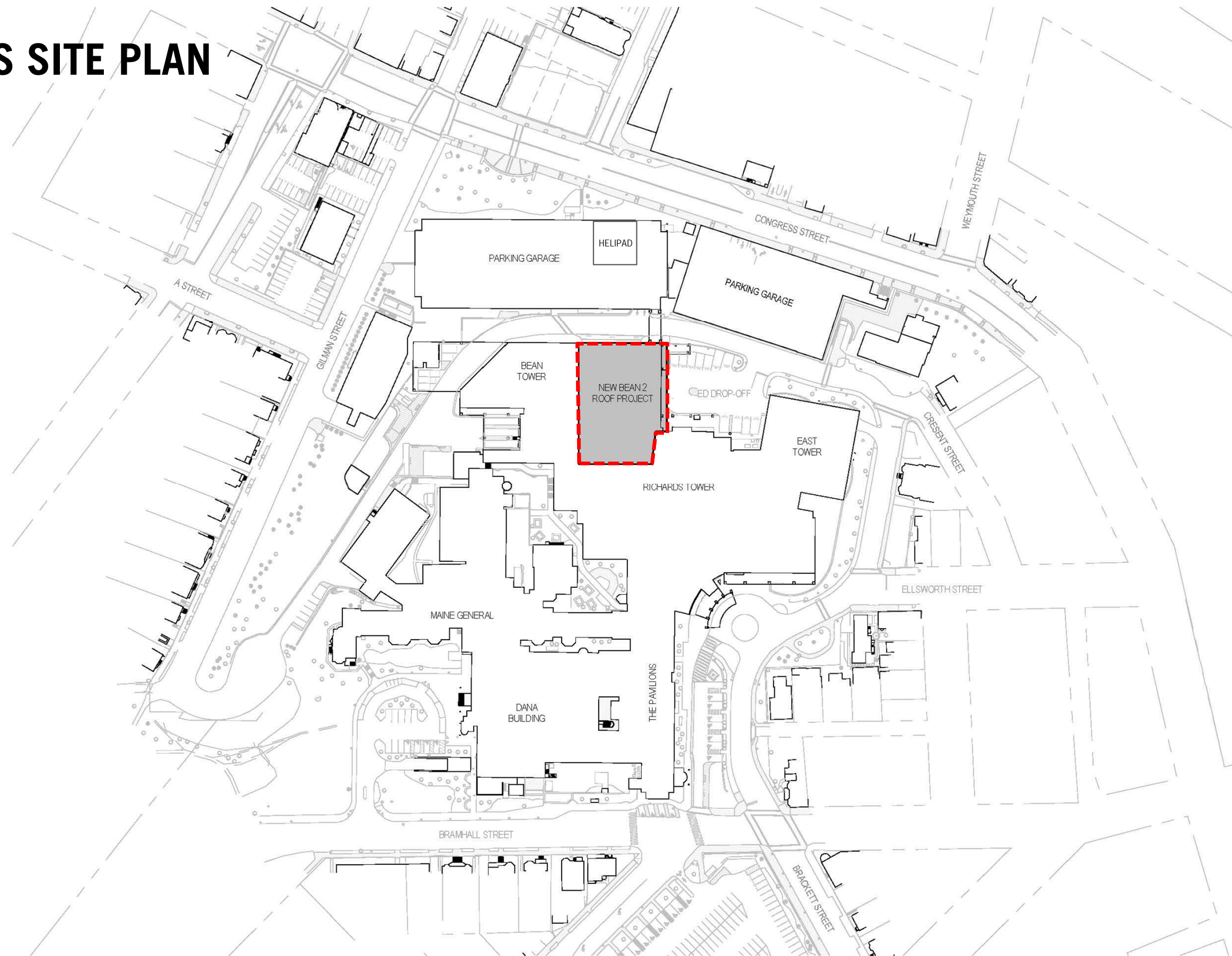
# CAMPUS & PENINSULA



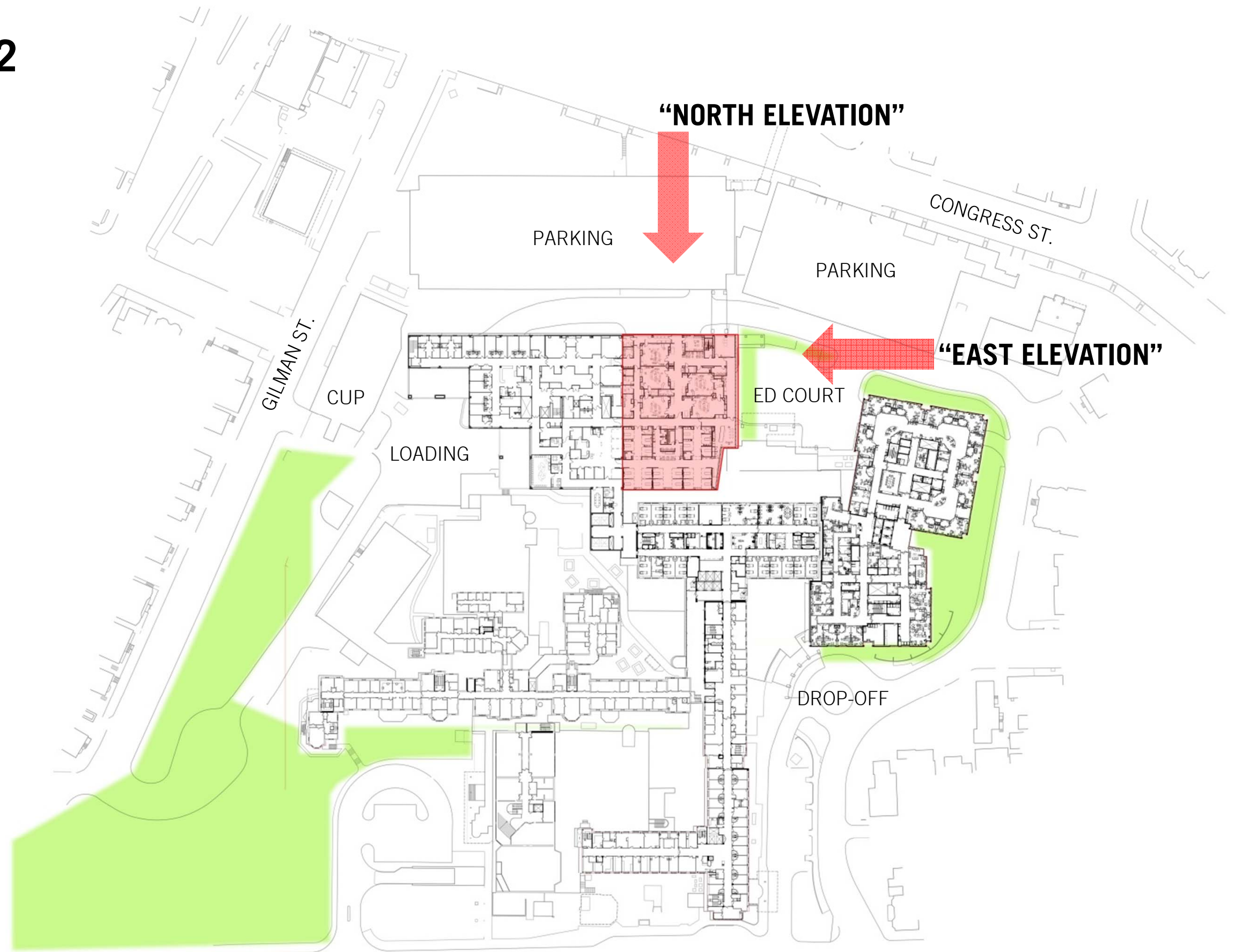
# CAMPUS & AIRPORT



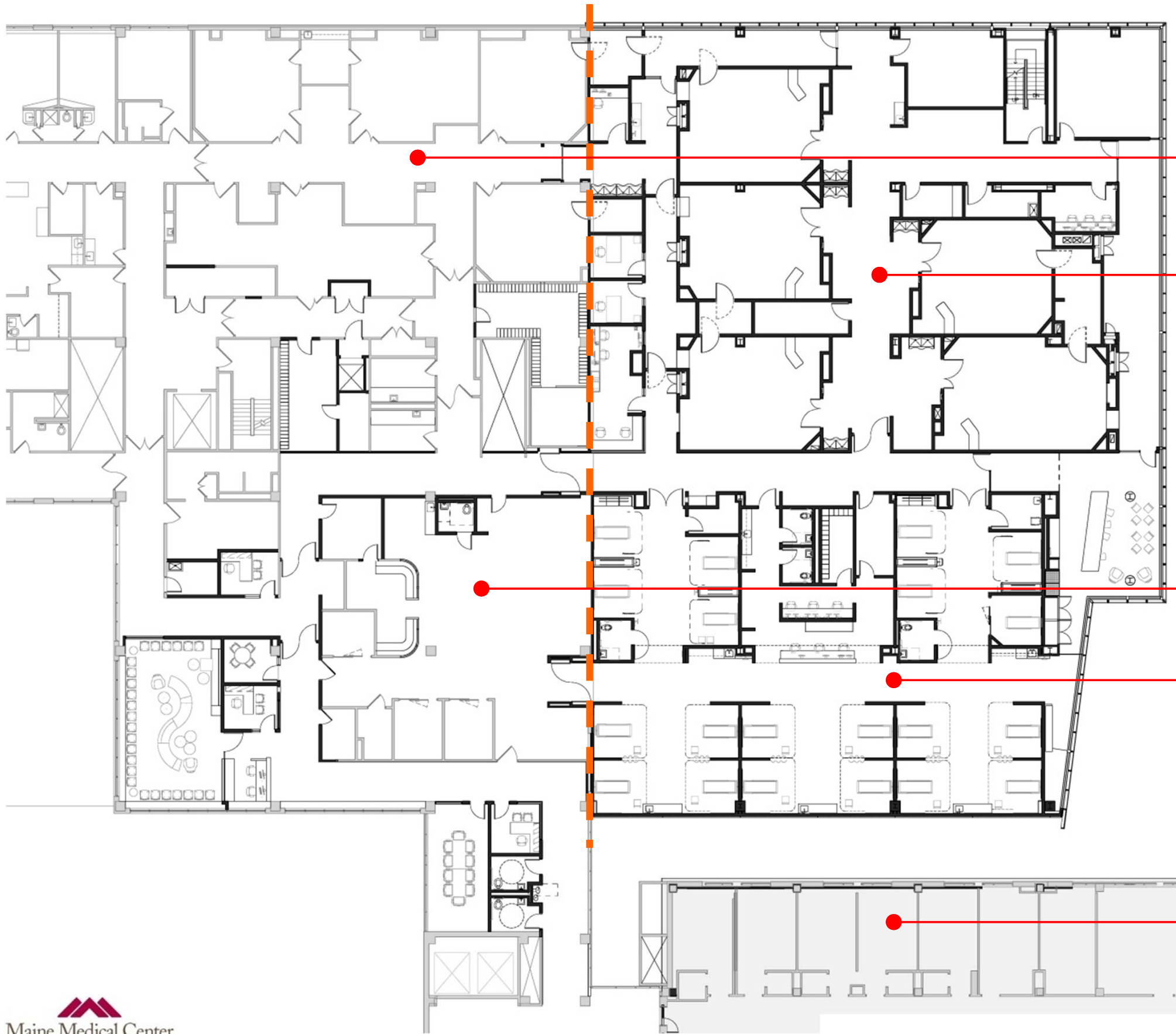
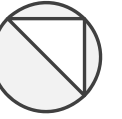
# CAMPUS SITE PLAN



# CAMPUS LEVEL 2



# FLOOR PLAN



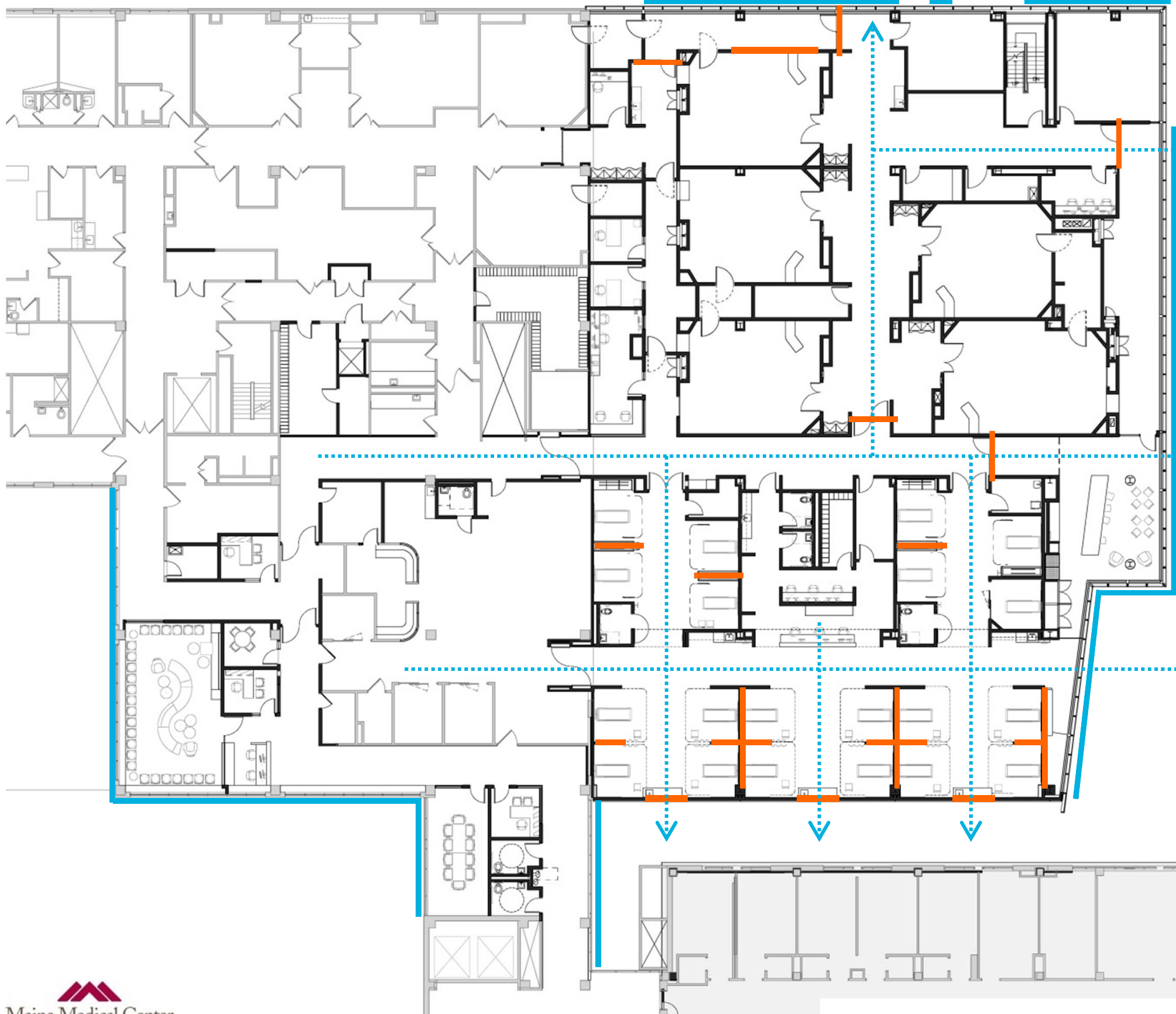
**EXISTING SURGERY SUITE**

**NEW SURGERY SUITE**

**EXISTING PREP/RECOVERY**

**NEW PREP/RECOVERY (20 BAYS)**

**RICHARDS BUILDING**



# FLOOR PLAN

**The building envelope is designed to allow daylight penetration and provide views to the outdoors.**

**Clerestory glass and glazed doors allow the sense of light deeper into the building.**

Indirect lighting is maximized in areas where patients are traveling on stretchers.

Spandrel glass with insulated walls occur at non-vision areas, helping improve energy efficiency of the building skin.



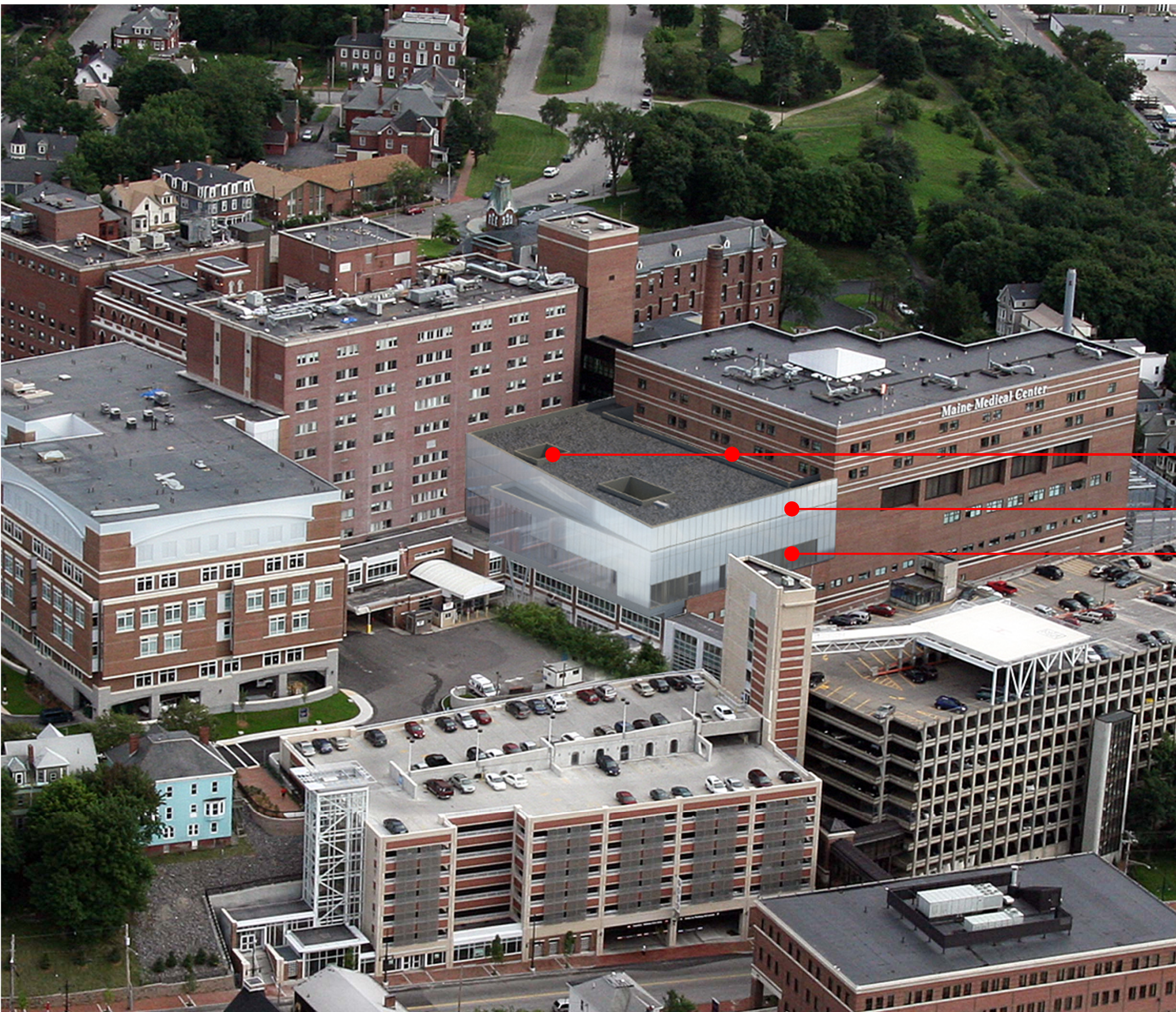
# AERIAL VIEW FROM NORTHEAST - EXISTING



# AERIAL VIEW FROM NORTHEAST - PROPOSED



# MASSING



**EQUIPMENT AREAWAYS**

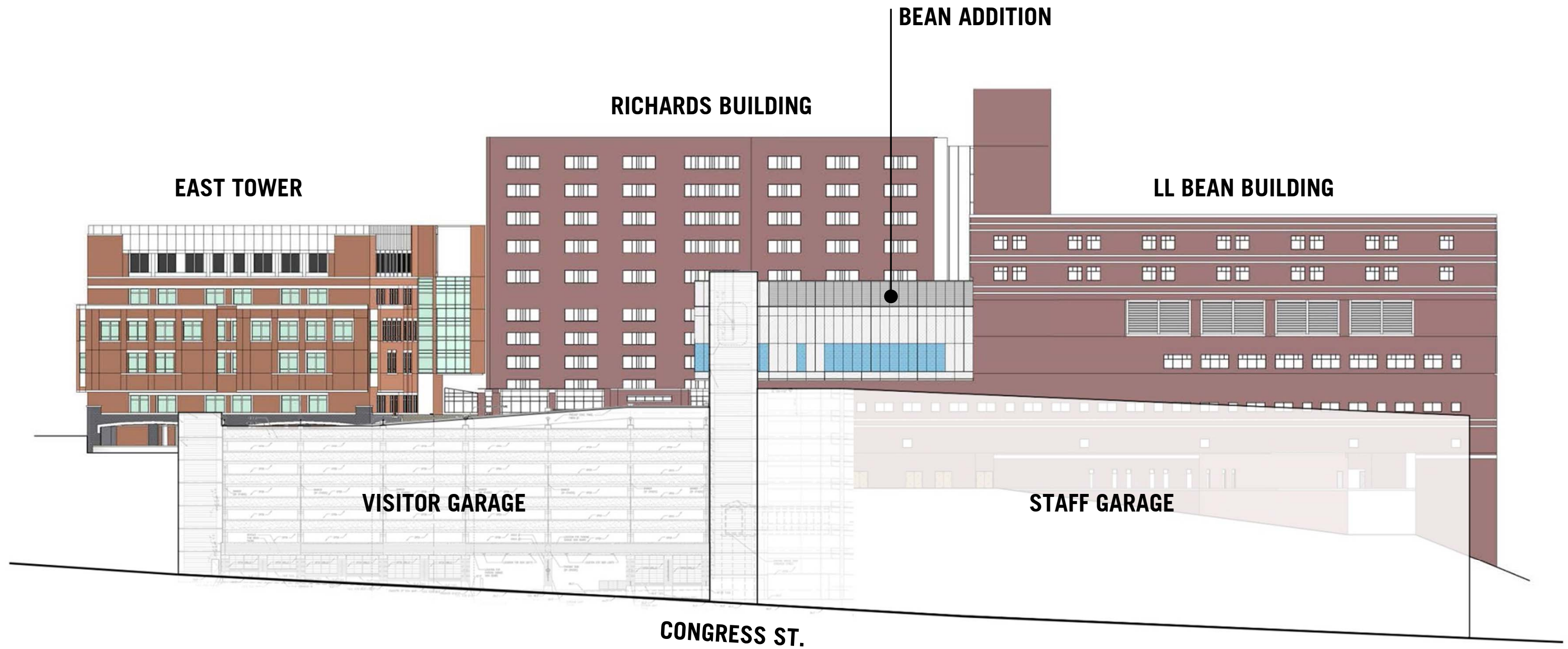
**LEVEL 4 MECHANICAL**

**LEVEL 2 SURGERY**

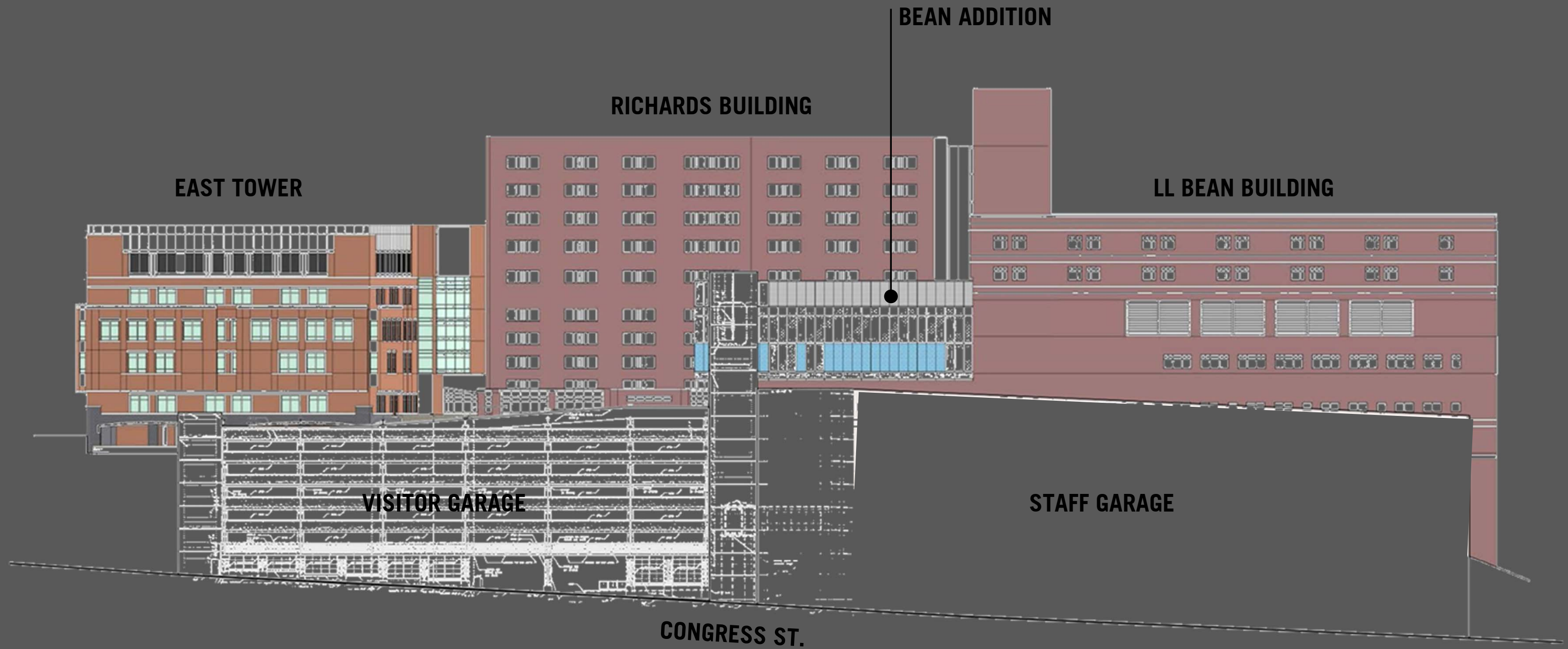
**All mechanical equipment is concealed in the enclosed mechanical level or in depressed areaways**

**Mechanical louvers are integrated into the skin panel design as perforated metal panels**

# NORTH CAMPUS CONGRESS ST. ELEVATION

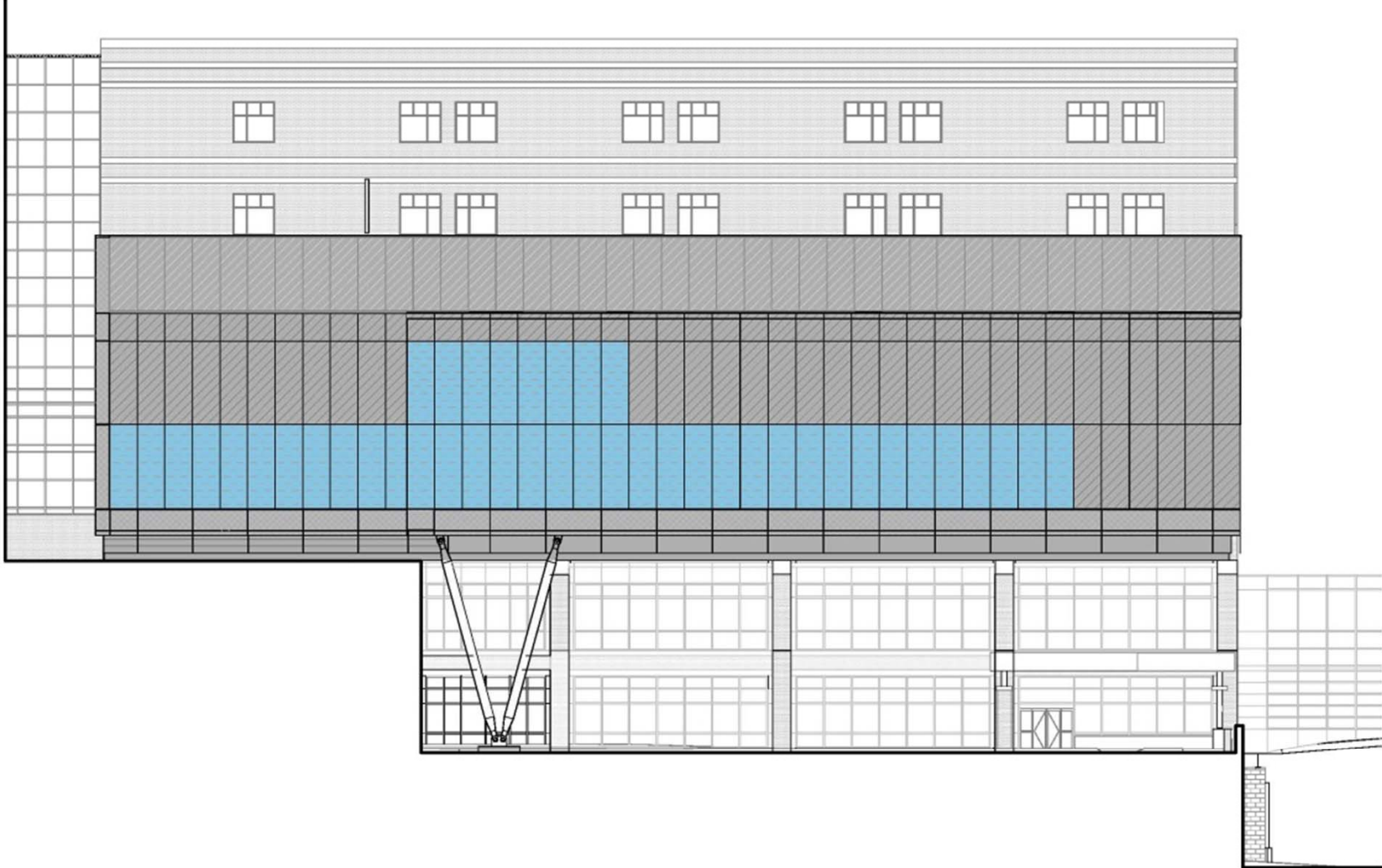


# NORTH CAMPUS CONGRESS ST. ELEVATION



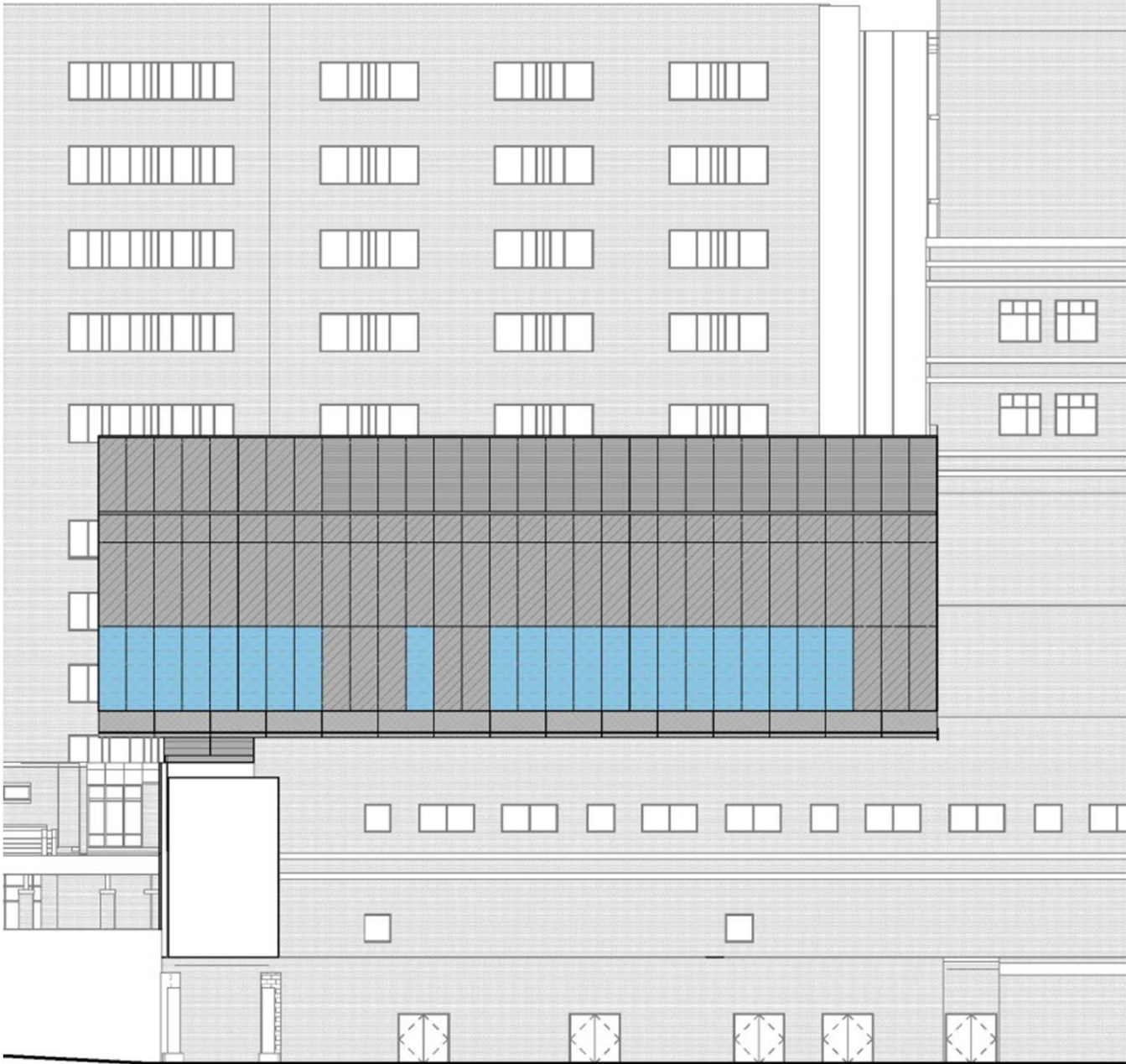
# EAST ELEVATION

MAX. GLAZING PER CODE TO MEET ENERGY REQUIREMENTS: 40% OF EXTERIOR WALL AREA  
WALLS DESIGNED TO R16 / ROOF DESIGNED TO R24



**SOLID AREA: 5652 SF**  
**GLAZED AREA: 2050 SF**  
**26% EAST ELEVATION IS FRITTED WINDOW**

# NORTH ELEVATION



**SOLID AREA: 4144 SF**  
**GLAZED AREA: 1056 SF**  
**20% NORTH ELEVATION IS FRITTED WINDOW**



**EAST ELEVATION  
FROM ED ENTRY COURT**

**EXISTING STRUCTURAL  
CONSTRAINTS REQUIRE A  
PHYSICALLY LIGHT EXTERIOR WALL**

**CURTAINWALL SYSTEM UTILIZES  
MODERN BUILDING TECHNOLOGY  
FOR IMPROVED PERFORMANCE**

**FRITTED & SPANDREL GLASS  
MITIGATE SOLAR GAIN, BIRD-KILL,  
AND NIGHT LIGHT LEAKAGE**

**INTERIOR OCCUPANTS BENEFIT  
FROM NATURAL DAYLIGHT & VIEWS**

# VIEW FROM VISITOR GARAGE

East Tower

Richards

Bean 2





# DESIGNING WITH BIRDS IN MIND

## Building For Birds: Architects Aim For Safer Skies

by CHRISTOPHER JOYCE

August 09, 2012 3:19 AM

### Toward More Bird-Friendly Glass

Biologists and architects don't really know. They have to follow their hunches and test ideas on real birds when they can.

One thing that seems to work is a "frit." A frit is a length of pencil-thin ceramic embedded in or on glass. The pattern deters birds, but only if it's set in rows no wider than two inches apart horizontally or four inches apart vertically. But frits have issues. "Vertical lines, for a lot people, makes them feel like they're in prison," Maxwell says with a laugh. "Behind bars."

But getting builders to cover their buildings in patterns is hard. Just ask Michael Measure. "Anything that has been recommended, they have shunned away from because aesthetics is key for corporations," Measure says.

<http://www.npr.org/2012/08/09/157792377/building-for-birds-architects-aim-for-safer-skies> 6/4/2013



## Standards for Bird-Safe Buildings

SAN FRANCISCO PLANNING DEPARTMENT | PUBLIC REVIEW DRAFT JUNE 2011

STANDARDS FOR BIRD-SAFE BUILDINGS

### GLASS AND FAÇADE TREATMENTS

Reduction of bird strikes with new buildings can be achieved with simple and cost-effective means. Creating a visual signal, or "visual noise barrier," that alerts the birds to the presence of glass objects can be achieved with relatively little additional cost. Fritting, the placement of ceramic lines or dots on glass, is one method of creating a visual noise barrier. People inside the building see through the pattern, which has little effect on the human-perceived transparency of the window. Fritting can also reduce air conditioning loads by lowering heat gain, while still allowing enough light transmission for day-lighting interior spaces. There is now a commercially available insulated glass with ultra-violet patterns that are designed to deter birds while largely being imperceptible to humans.

#### FRITTED AND FROSTED GLASS

Ceramic dots, or frits, are applied between layers of insulated glass to reduce transmission of light. These can be applied in different colors and patterns and can commonly be seen on commercial buildings. At Swarthmore College, external, densely fritted glass was incorporated into the design of the Unified Science Center. Virtually no strikes have been reported at either site. Fritting is a commonly-used and inexpensive solution that is most successful when the frits are applied on the outside surface.

#### ANGLED GLASS

While angled glass may be a useful strategy for smaller panes, it is generally not effective for large buildings. Birds approach glass from many angles, and can see glass from many perspectives. Generally, the desired angle for effective treatment is 20-40 degrees. These angles are difficult to maintain for large buildings, however, this strategy may work in low-scaled buildings with a limited amount of glass (Ogden 1996 and references therein; and Kiem et al. 2004).

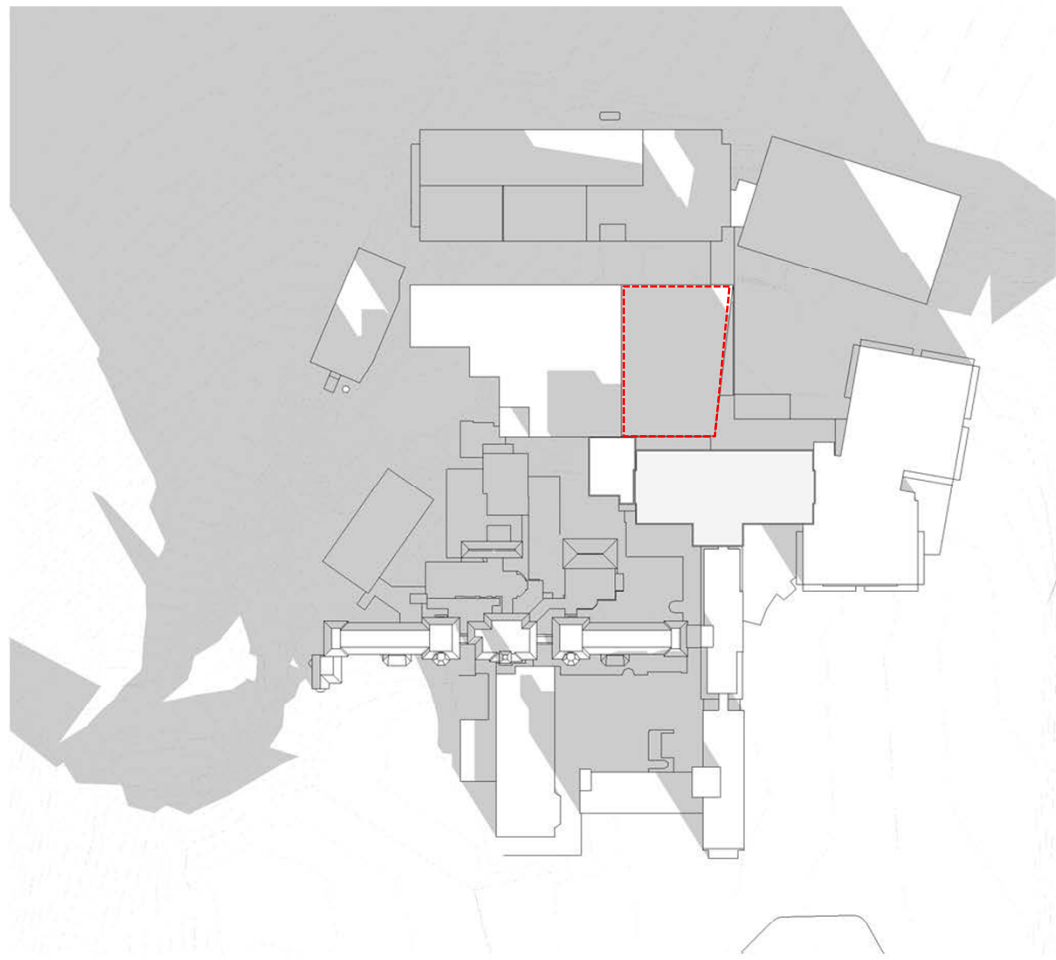
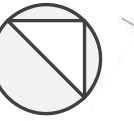


LEFT: Swarthmore College uses fritting on a large expanse of glass facing an open space.

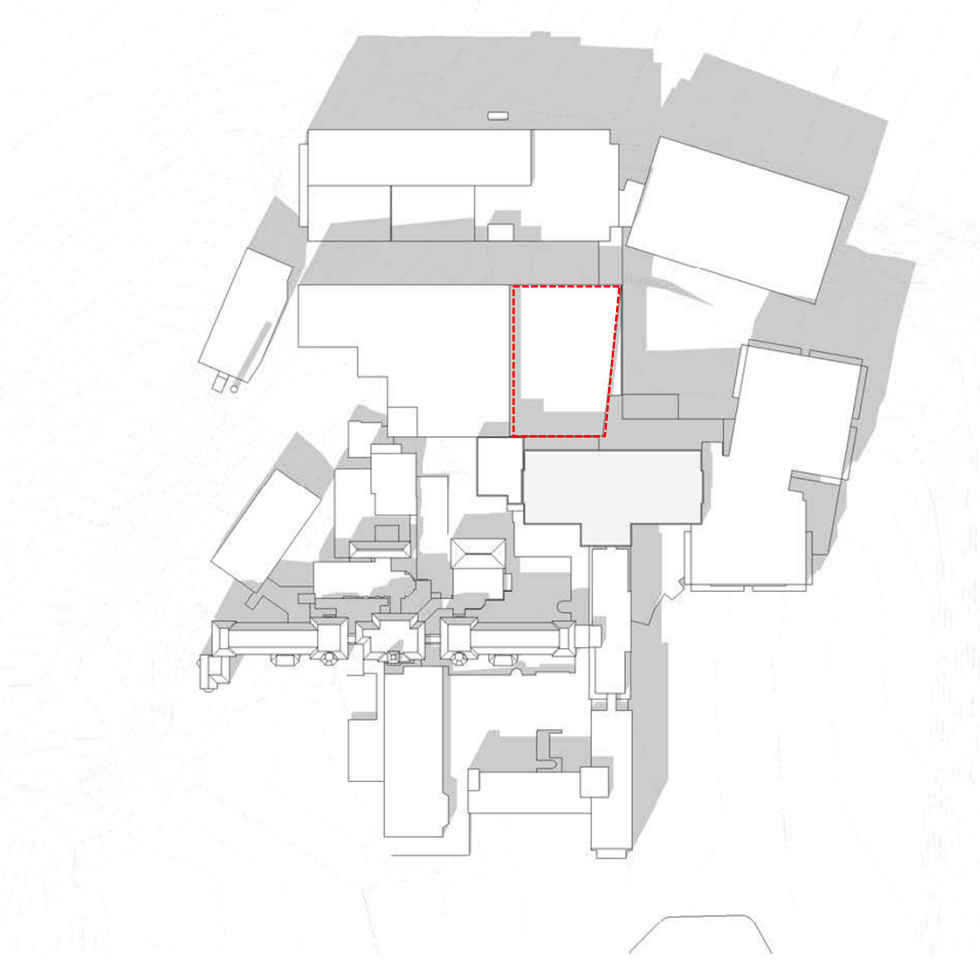
RIGHT: The Minnesota Central Library's atrium features angled glass, a dramatic architectural feature that reduces reflections of habitat and sky from most angles. The likelihood of fatal collisions at this angle is lessened.

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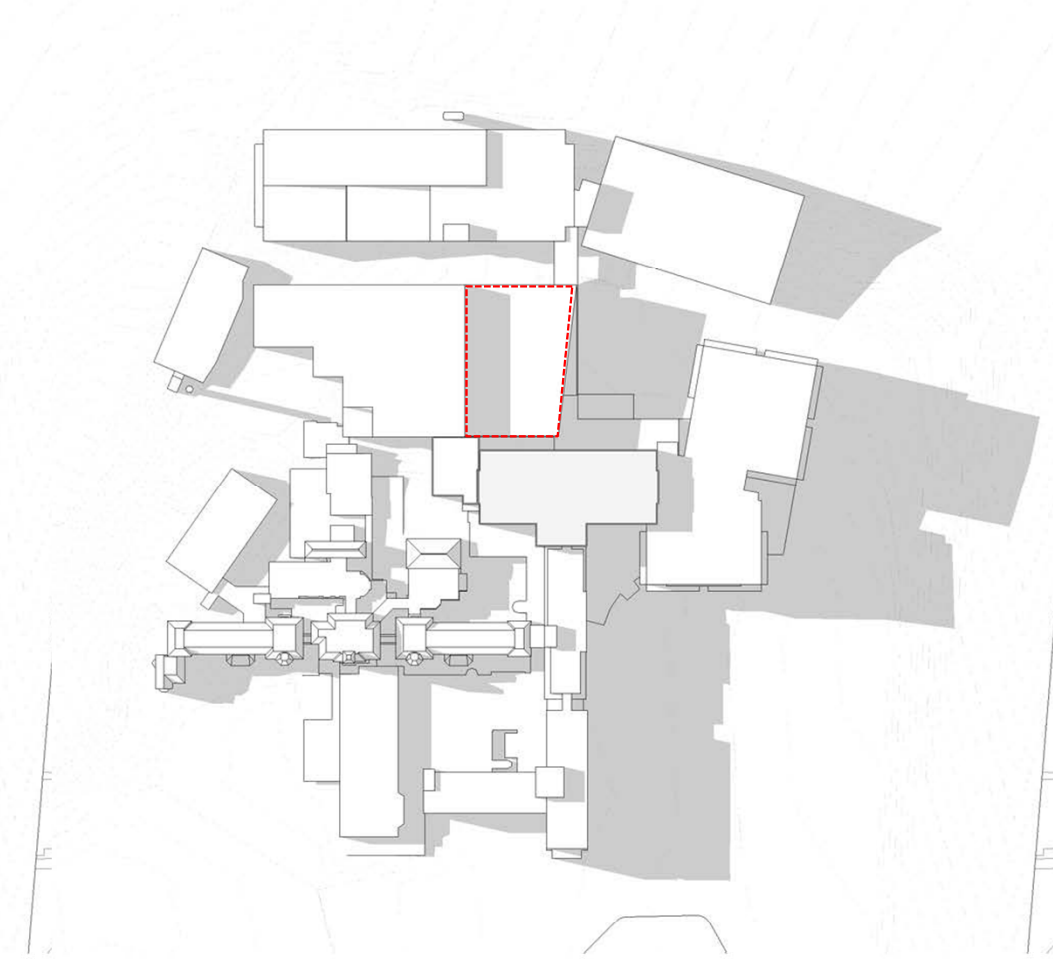
# SHADOW & EXPOSURE – MARCH 21



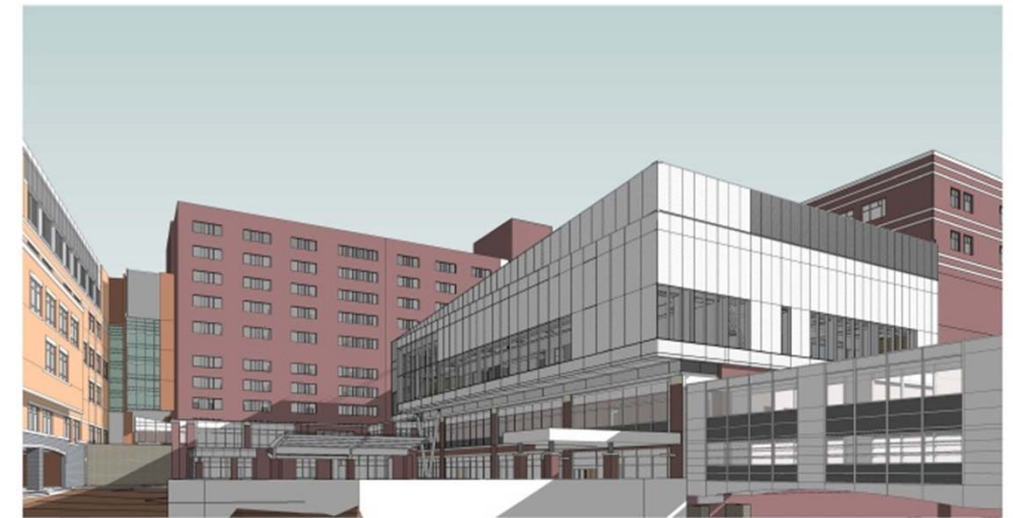
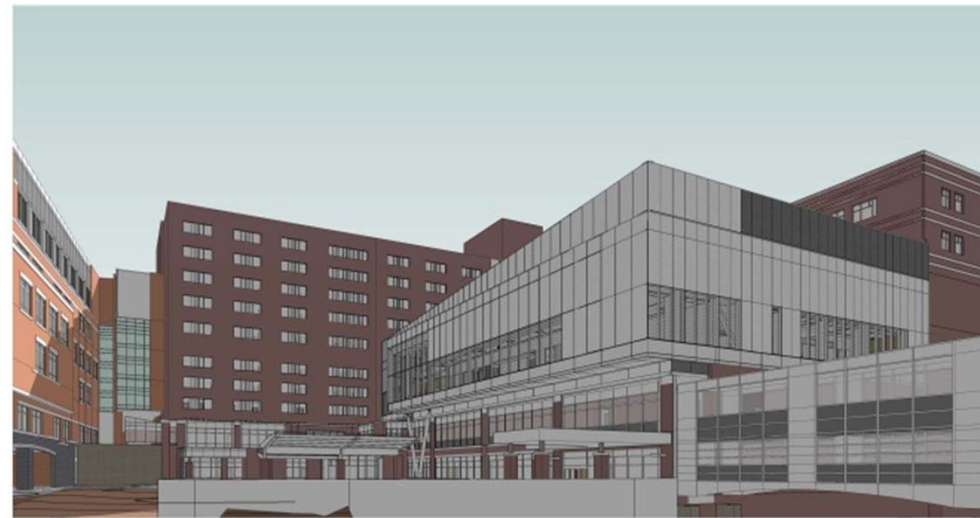
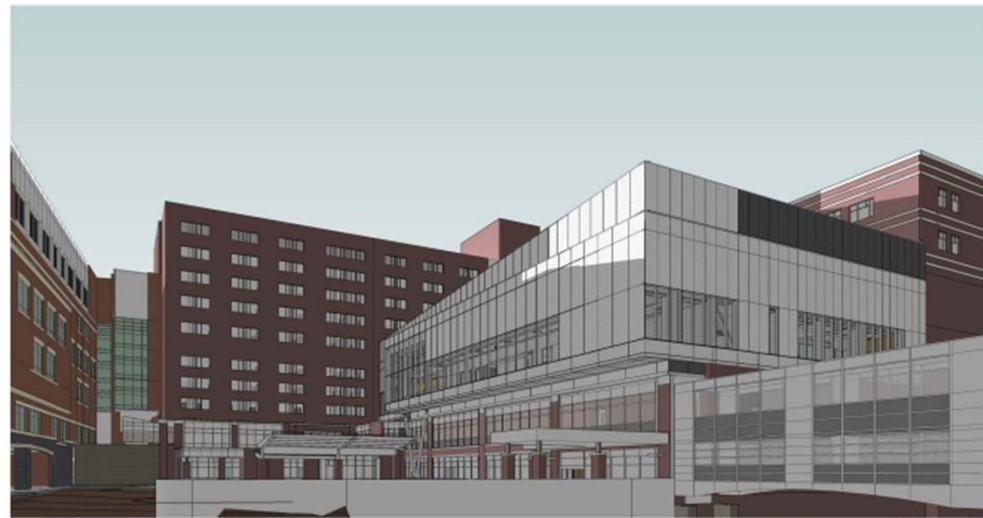
8 AM



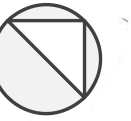
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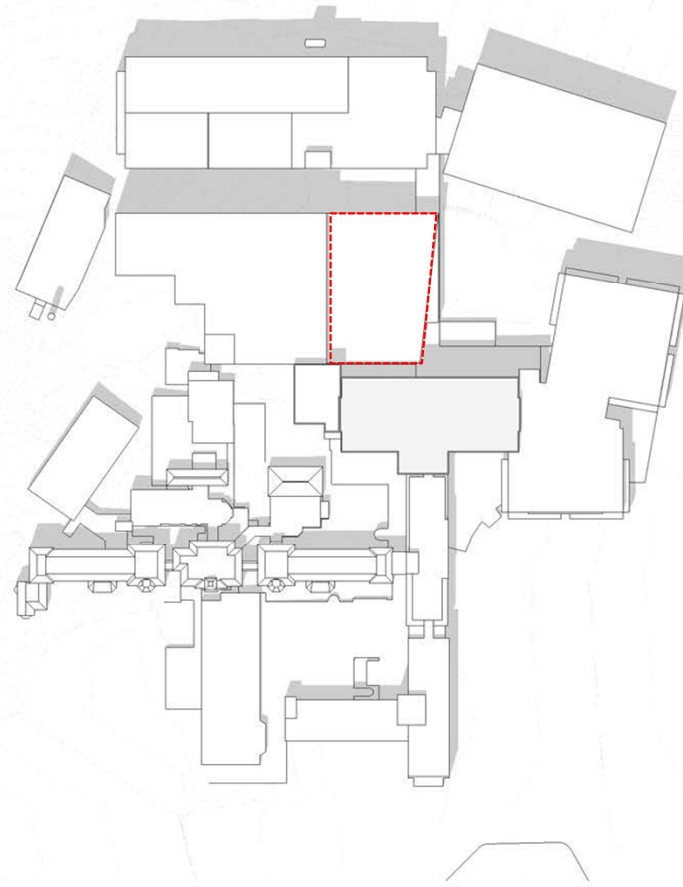
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# SHADOW & EXPOSURE – JUNE 21



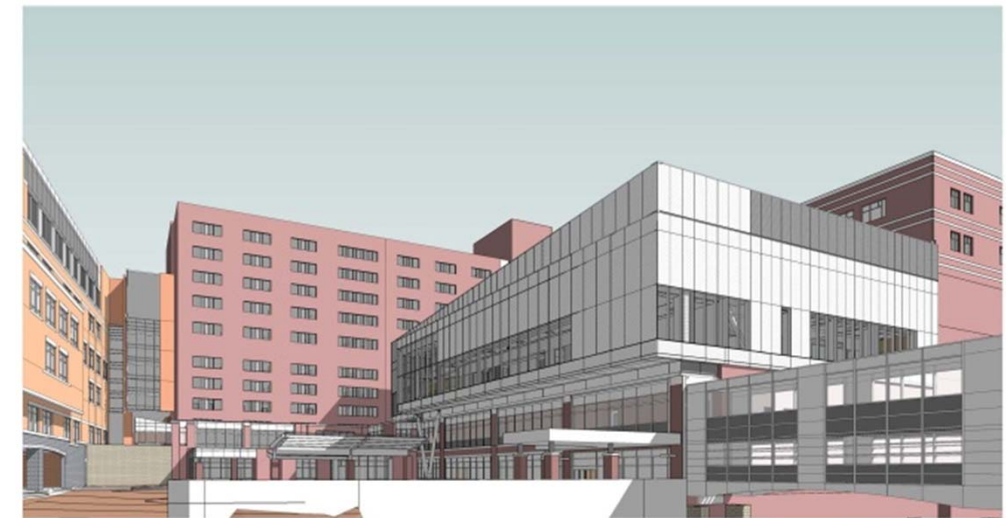
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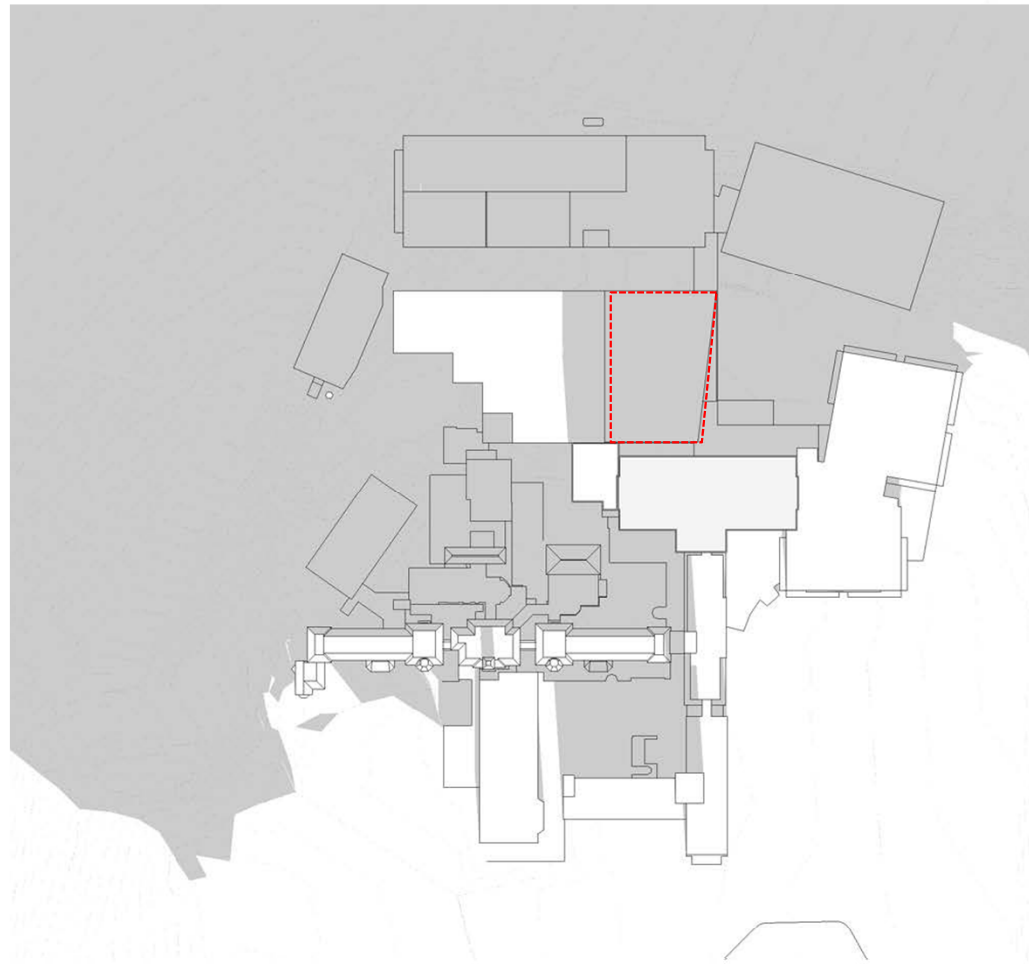
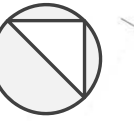
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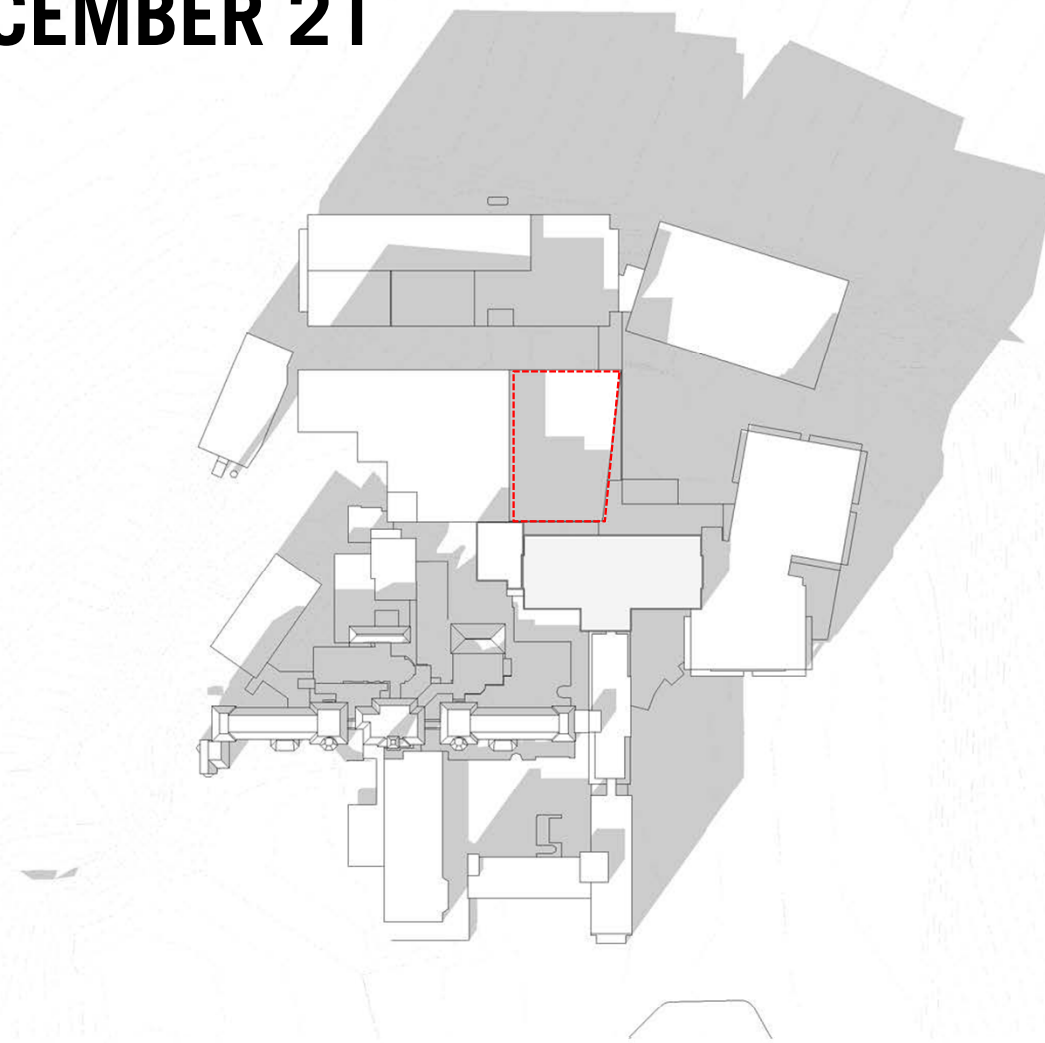
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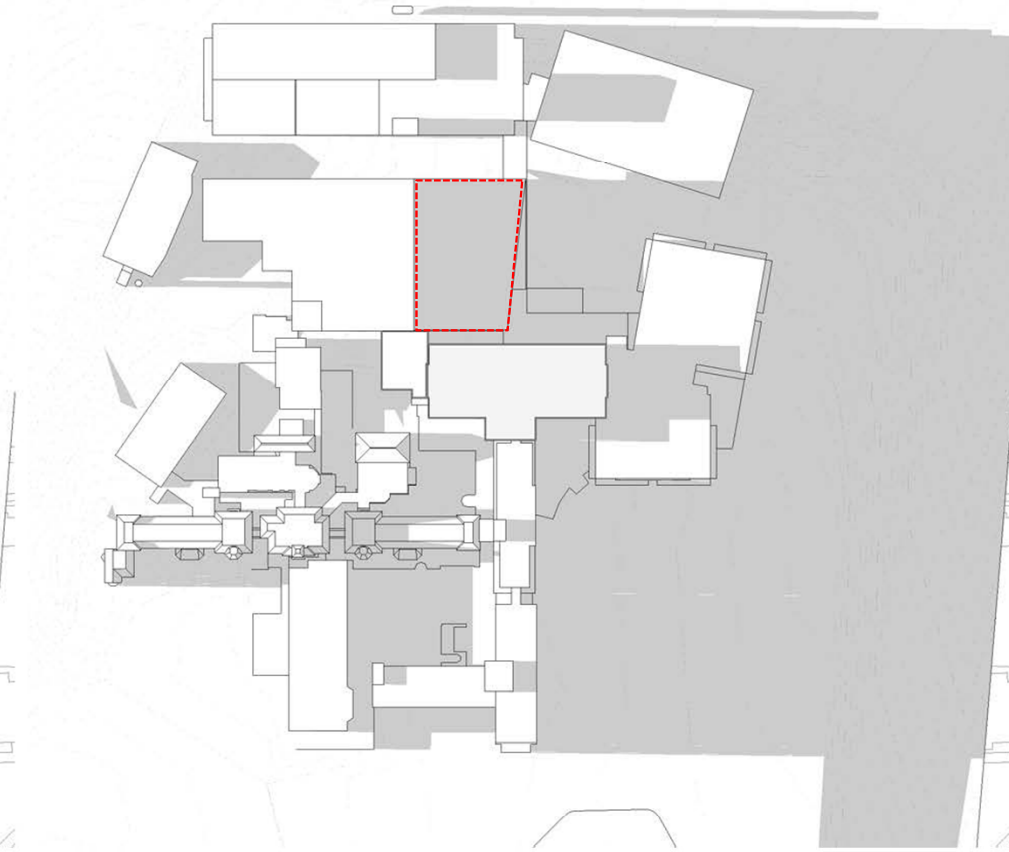
# SHADOW & EXPOSURE – DECEMBER 21



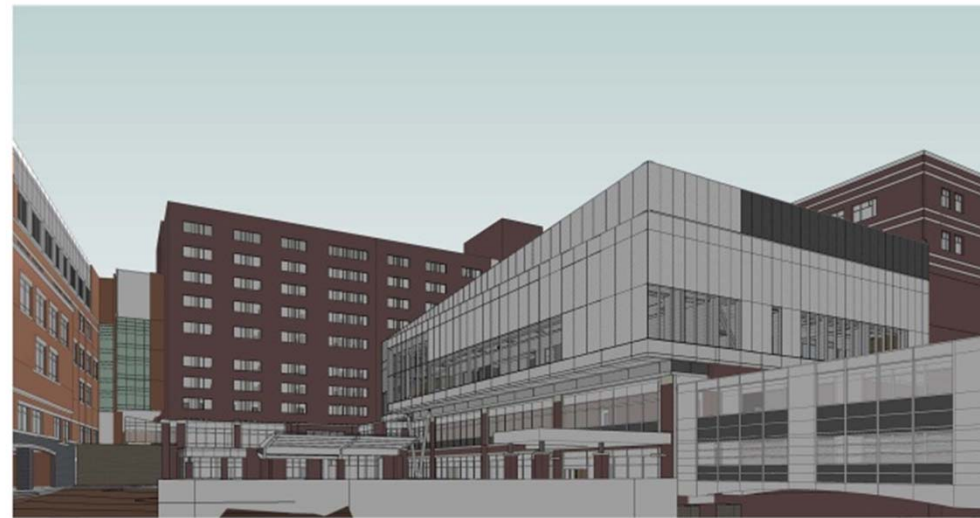
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