

Arch 463  
ECS  
Fall 2016

Name \_\_\_\_\_

### Quiz #3

## "Experimental East Façade Demonstration"

For this problem you are a building envelope consultant for the UI facilities team who wants to demonstrate appropriate shading and glazing strategies for the newer east addition to the Kibbie Dome. The addition, which is used for weight training, features a two-story high east-facing curtain wall with no external shading, just an operable internal shading screen. Consequently, the space is overheated on sunny mornings year-round.

For the demonstration they want to install four different systems on the façade to compare their effectiveness side-by-side. Each bay, determined by the structural columns just inside the curtain wall, is 20' wide and 18' tall. Your role is to specify effective combinations of one glazing type and one shading element for each of the four bays of glazing. The double wall is combined glazing and shading system. You'll need to fully describe your choices and explain why you think they might be effective and/or interesting to test. Keep both shading and daylighting in mind as you choose.



*The Kibbie Dome addition has four bays of twenty-four panes of glazing in its east-facing curtain wall.*



*One of the curtain wall bays denoted by the black X with 5 vertical and 5 horizontal mullions. You can see the structural columns behind the first and fifth vertical mullions.*

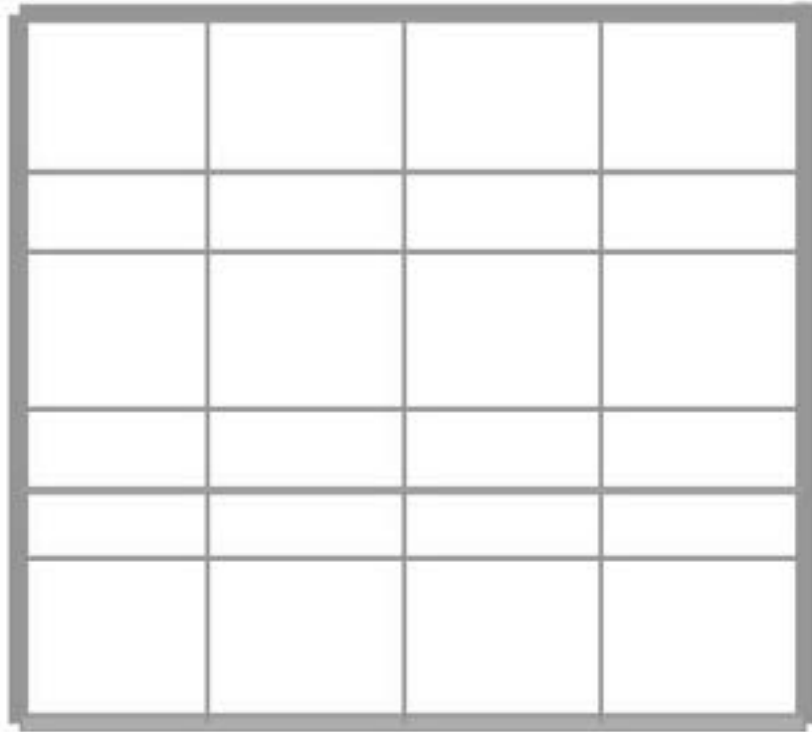
Glazing	Shading
Kalwall, 3" silica aero-gel insulating glazing	Fixed horizontal louvres
Thermo-pane w/blue-green exterior and clear interior panes	Horizontal perforated steel panels
Bronze reflective glass	Horizontal PV panels
Sage electro-chromatic glass	Vertical fritted glass fins
Heat mirror low-e glazing (commercial)	Perforated steel screen
Fritted glass	Canvas awnings
Double wall façade with internal operable horizontal louvres	

## Façade Bay #1

- 2.5 points
1. Specify your glazing and shading choice for this bay. **Call out** your glazing choice and **illustrate and call out** your shading device design choice on the sketch below. **Explain** why your choices might be effective or interesting.



SECTION  
OUTSIDE—INSIDE



EXTERIOR ELEVATION

Glazing	Shading
Kalwall, 3" silica aero-gel insulating glazing	Fixed horizontal louvres
Thermo-pane w/blue-green exterior and clear interior panes	Horizontal perforated steel panels
Bronze reflective glass	Horizontal PV panels
Sage electro-chromatic glass	Vertical fritted glass fins
Heat mirror low-e glazing (commercial)	Perforated steel screen
Fritted glass	Canvas awnings
Double wall façade with internal operable horizontal louvres	

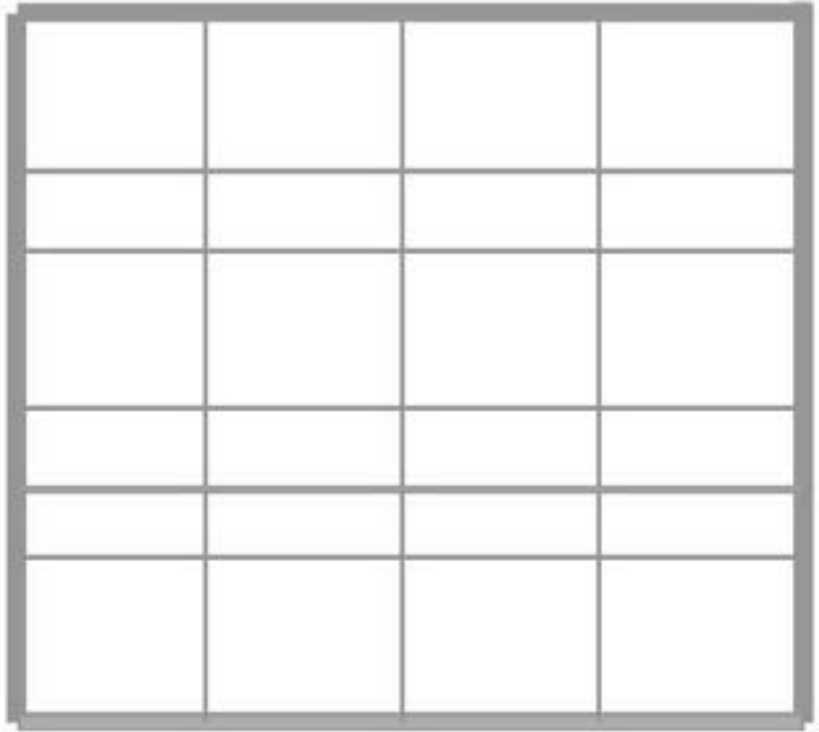
## Façade Bay #2

2.5 points

2. Specify your glazing and shading choice for this bay. **Call out** your glazing choice and **illustrate** and **call out** your shading device design choice on the sketch below. **Explain** why your choices might be effective or interesting.



SECTION  
OUTSIDE—INSIDE



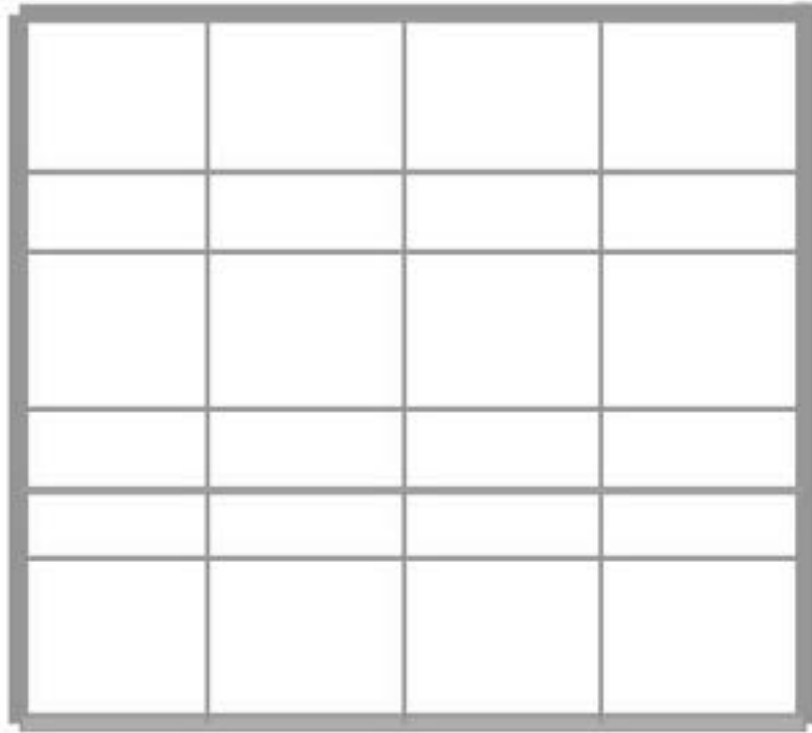
EXTERIOR ELEVATION

## Façade Bay #3

2.5 points 3. Specify your glazing and shading choice for this bay. **Call out** your glazing choice and **illustrate and call out** your shading device design choice on the sketch below. **Explain** why your choices might be effective or interesting.



SECTION  
OUTSIDE—INSIDE



EXTERIOR ELEVATION

Glazing	Shading
Kalwall, 3" silica aero-gel insulating glazing	Fixed horizontal louvres
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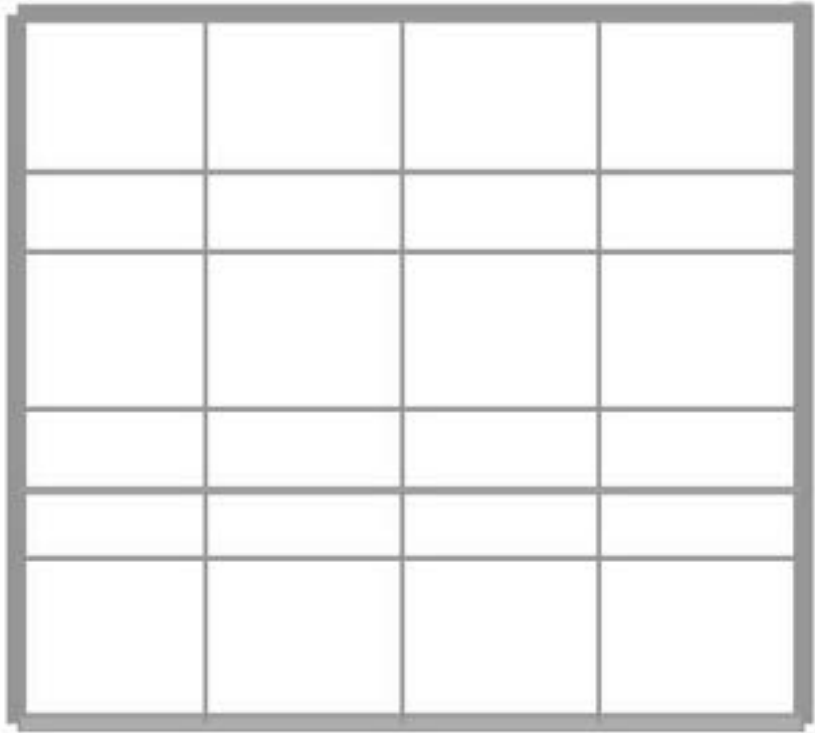
## Façade Bay #4

2.5 points

4. Specify your glazing and shading choice for this bay. **Call out** your glazing choice and **illustrate** and **call out** your shading device design choice on the sketch below. **Explain** why your choices might be effective or interesting.



SECTION  
OUTSIDE—INSIDE



EXTERIOR ELEVATION

**Extra Credit. (1pt.)** Which of your choices has the ability to block the highest percentage of morning summer sun. Explain why.