

Arch 463
ECS
Fall 2015

Name _____

Quiz #3

"Façade Dance in Moscow"

For this problem you are the building envelope consultant for a Moscow, ID, architect who is trying to demonstrate appropriate heating and cooling strategies for an office building located in Moscow. The proposed building is a three-story office building with a central atrium located on a triangular site across Main Street from Gritman Hospital. The building and its parking lot will fully occupy the site. The rectilinear building will parallel Main Street with true N-S and E-W façades.

The façade elements will be constructed off-site and craned into place after the building structure is completed. Each element is eight feet wide and one story tall. (See illustration on page 2.) Your role will be to design the façade modules for each orientation, using a different and appropriate combination of shading and glazing for each.

Climate Context. Moscow and has cold humid winters and hot arid summers. Spring weather tends to be more cloudy than autumn weather. Prevailing winds are from the SW. You may check out the climate with *Climate Consultant* if you need to.



The site is unimproved, has no street trees, and will house only the proposed building and its parking lot. North is up.

Glazing and Shading Choices.

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

North Façade

2.5 points

1. The basic design for the modular façade has two opaque insulated panels (top and bottom) that cover the floor structure and three glazing panels (daylight, view, and modesty).

Call out your choices for the 3 glazing panels and **illustrate and call out** your shading device design choice. Use the figure to the right and make more sketches as necessary. **Explain** why your design is appropriate.



The module's panels from top to bottom: Opaque insulated, daylight, view, modesty, and opaque insulated.

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

East Façade

2.5 points

2. Call out your choices for the 3 glazing panels and illustrate and call out your shading device design choice. Use the figure to the right and make more sketches as necessary. Explain why your design is appropriate.



South Façade

2.5 points

3. Call out your choices for the 3 glazing panels and illustrate and call out your shading device design choice. Use the figure to the right and make more sketches as necessary. Explain why your design is appropriate.



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

West Façade

2.5 points

4. Call out your choices for the 3 glazing panels and illustrate and call out your shading device design choice. Use the figure to the right and make more sketches as necessary. Explain why your design is appropriate.

