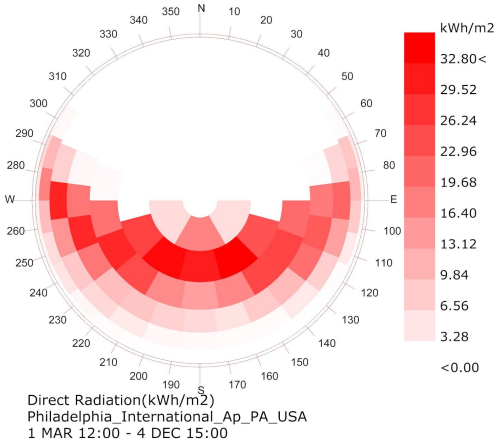
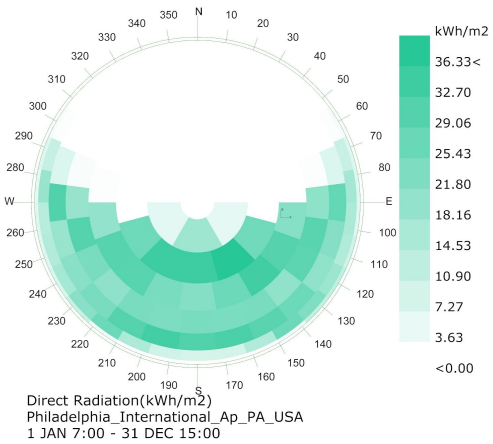
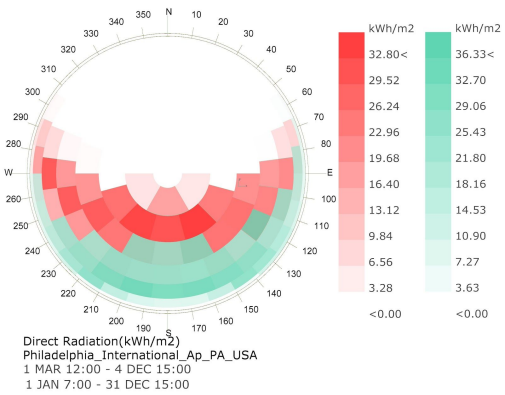
Mariela Hernandez
ARCH-633_Assignment 7

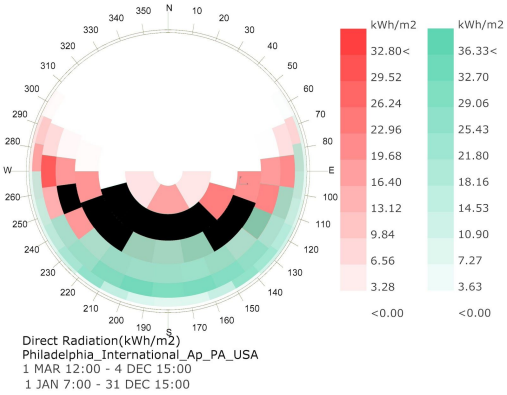
Summer Harmful Radiation vs. Winter Helpful Radiation



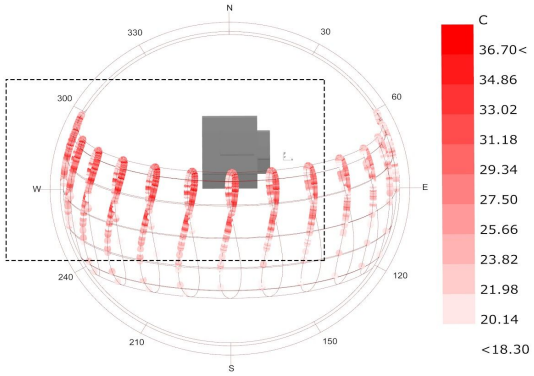


Combined Summer and Winter Direct Radiation + Proposed Shading





Sun Path Relative to Meyerson Hall



According to the charts above, I will test shading devices that cover the area directly above, south, and slightly to the west of Meyerson Hall.

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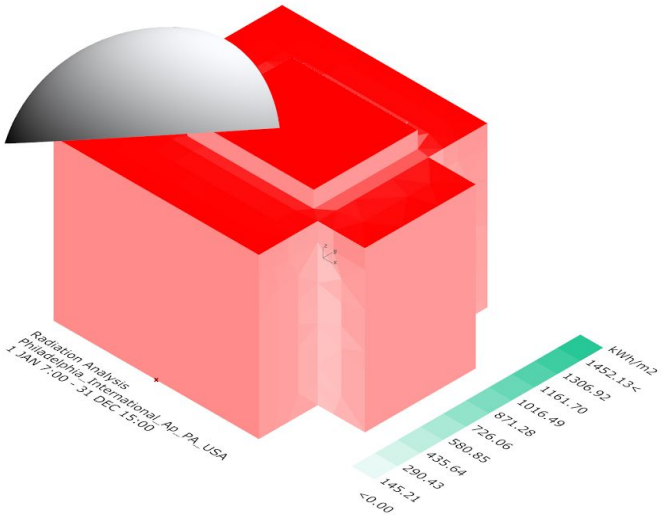
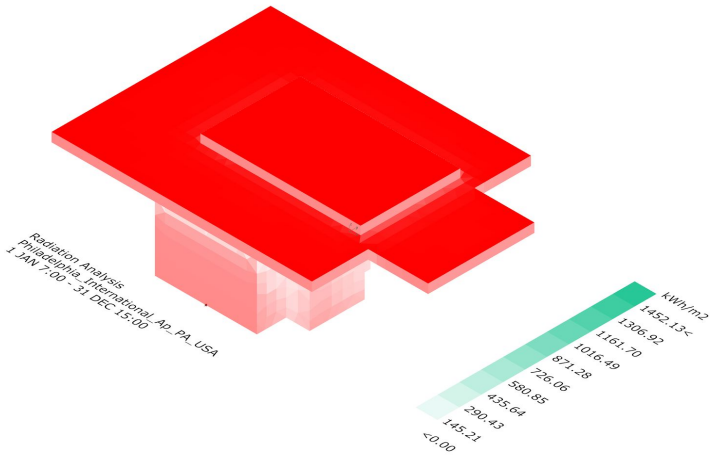
Conditions	Net Solar Benefit	
No applied shading	1,818,496 bTU/ft2	-
Added Curved Shading (Image 01)	1,580,029 bTU/ft2	No
Extended Roof Geometry (Image 02)	4,526,816 bTU/ft2	Yes



(Image 01)



(Image 02)

The first attempt at finding the optimum form was to mimic the geometry of the sun path and plug-in the geometry into the ‘context’ shading, then orient the shading device so that it blocks meyerson hall from the south-western exposure of radiation. However, this was not a successful strategy. The second attempt was to transform the existing massing by extending the roof

surface toward the east-west axis and create an ‘umbrella roof’ condition for the facade geometry below. The area of the roof almost doubled in size and is shifted slightly north in order to allow the helpful winter radiation along the southern surface of the facade.

Building Area: 67,043 SqFt.

Roof Area: 159,157 SqFt.

_____

I was not able to get the Mesh display to work along the geometry as shown in the conditions above. An error message appears: “Length of the results is not equal to the number of mesh faces…”