

In Class 1:

"Reduce the Carbon Footprint of a Brutalist"

Organization

- Break into your regular groups
- Do, and report on the in-class problem
- e-mail the results to Jennifer for credit and sharing

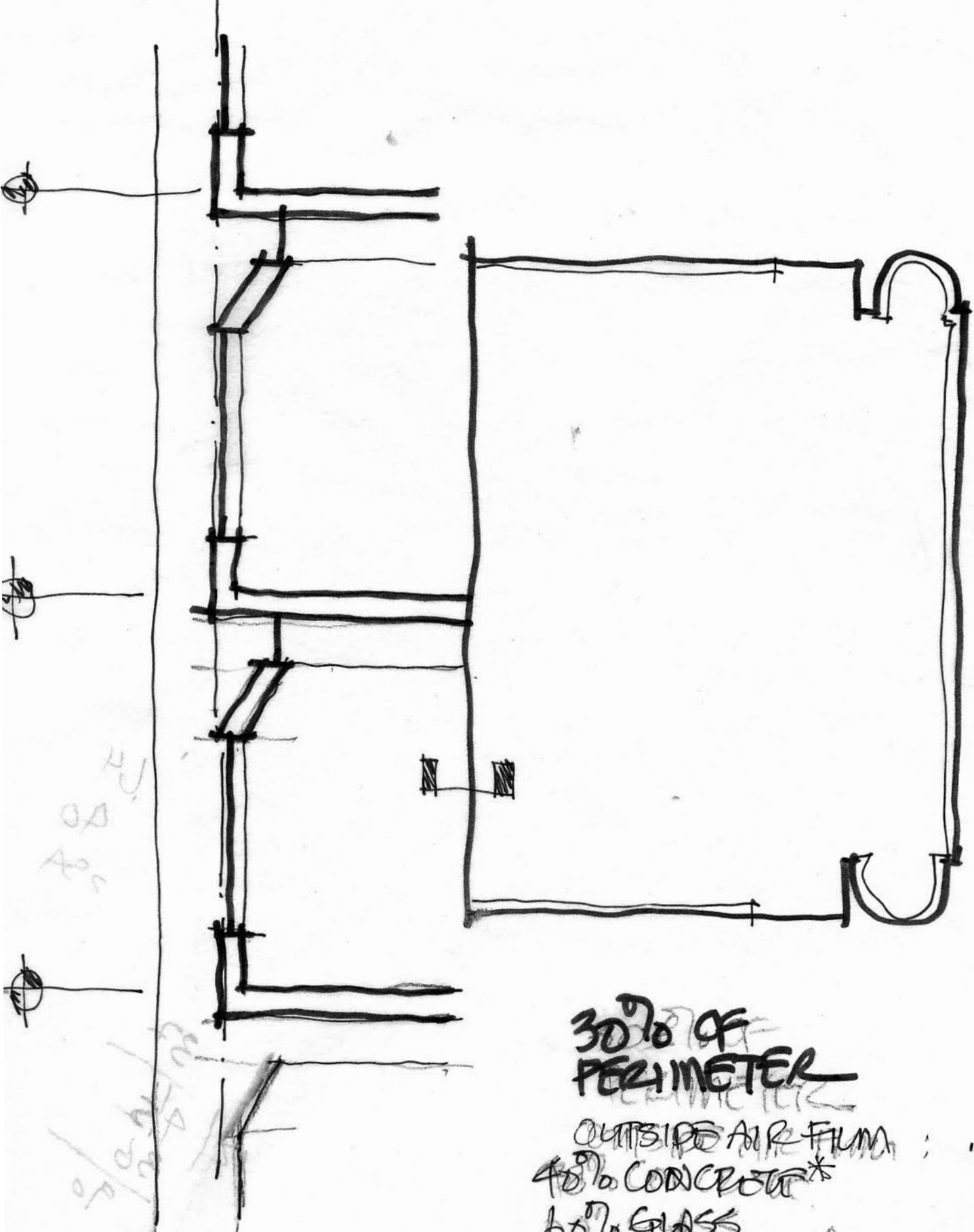
Background Information

- This class session described the historic rehab of a brutalist monument
- The BAC has a brutalist monument of its own - 320 Newbury Street
- The 7th Edition of the the Mass. Code has prescriptive energy code requirements
For a building such at 320, new construction would require R-5 average insulation in addition to the heavy masonry to meet the minimum requirements of the old code
Newer requirements would an average of R-7.5
- Examples of R-values for insulating and cladding materials
Fiberglass Batt: R-3.5 per inch
Rock Wool: R-3.5 per inch
Rigid Fiberglass: R-4 per inch
Rigid Polystyrene: R5 per inch
Best design curtain wall with all the trimmings:R-4 (total)
- 4 sketches, attached so typical conditions for 320 Newbury's perimeter
Notice how well the building insulates itself from the passage of heat
- 320 Newbury Street is subject to design review by the Back Bay Architectural Commission
- Some technical theorists recommend that a masonry building should not be insulated to the point that its outside wall would be subject to freezing

Discussion / Writing / Sketching (use the overhead projector transparencies)

- **Review the four perimeter conditions**
- **Propose how to add new, insulating materials to the building to get it to comply with the minimum and stretch requirements of the old code**
- **Remember, the Back Bay Architectural Commission is watching....**
- **Remember, the theorists are curious if your strategy would subject the wall to freezing...**
- **Don't be afraid to think outside the box, though (that's what wins competitions)**

Presentation: Report out your results to the class



400
400

30/40/20

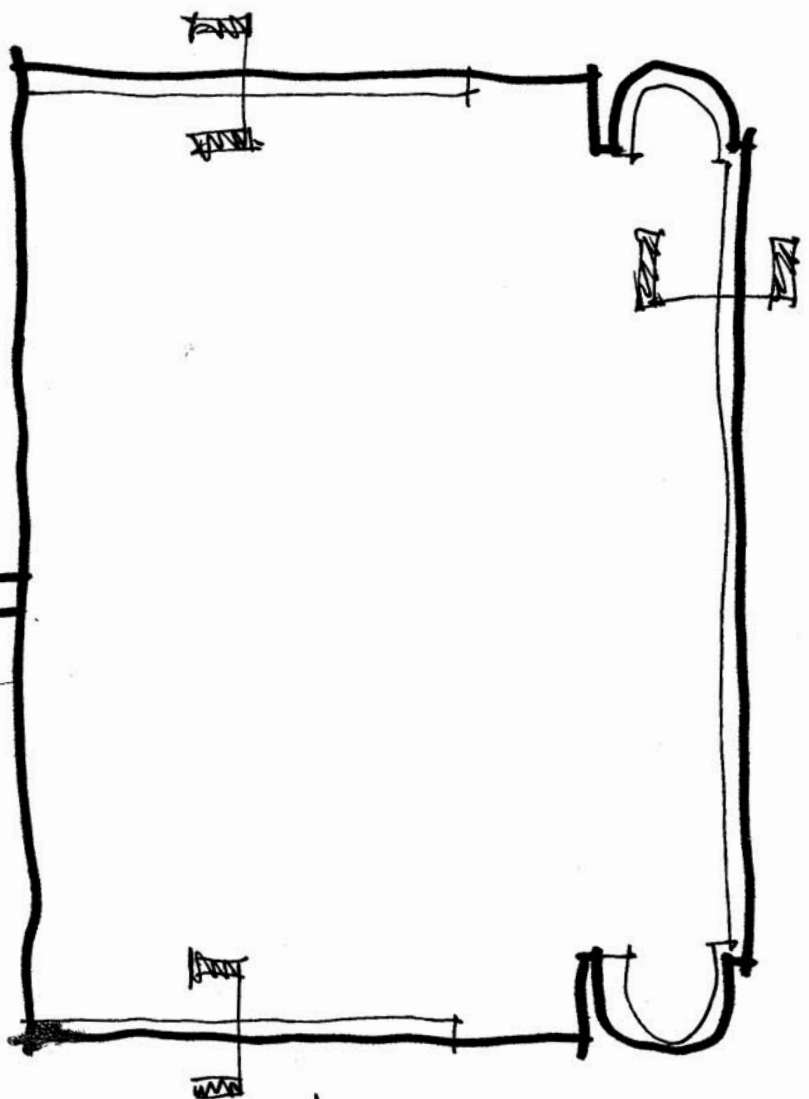
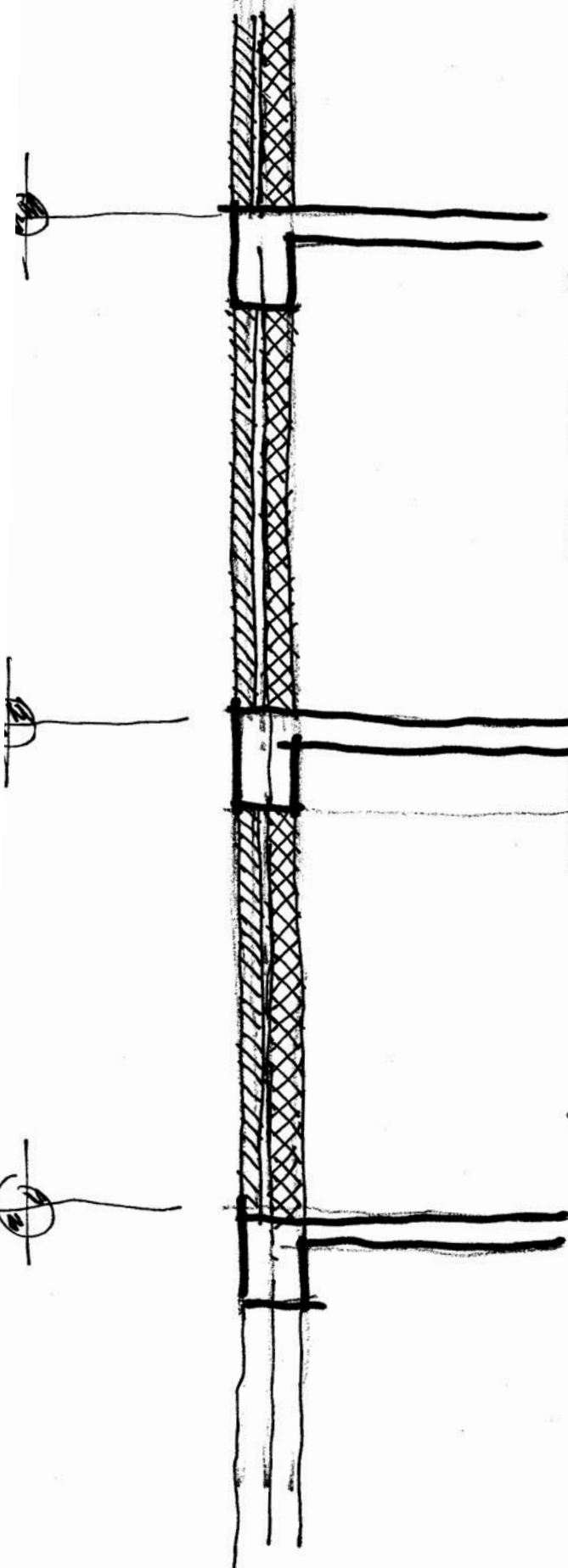
80'

30% OF PERIMETER

| | | |
|------------------|---|-----|
| OUTSIDE AIR FILM | : | .17 |
| 40% CONCRETE* | | .25 |
| 60% GLASS | | .55 |
| INSIDE AIR FILM | | .13 |

R = **1.35**

* DOESNT ACCOUNT FOR HELMOLD

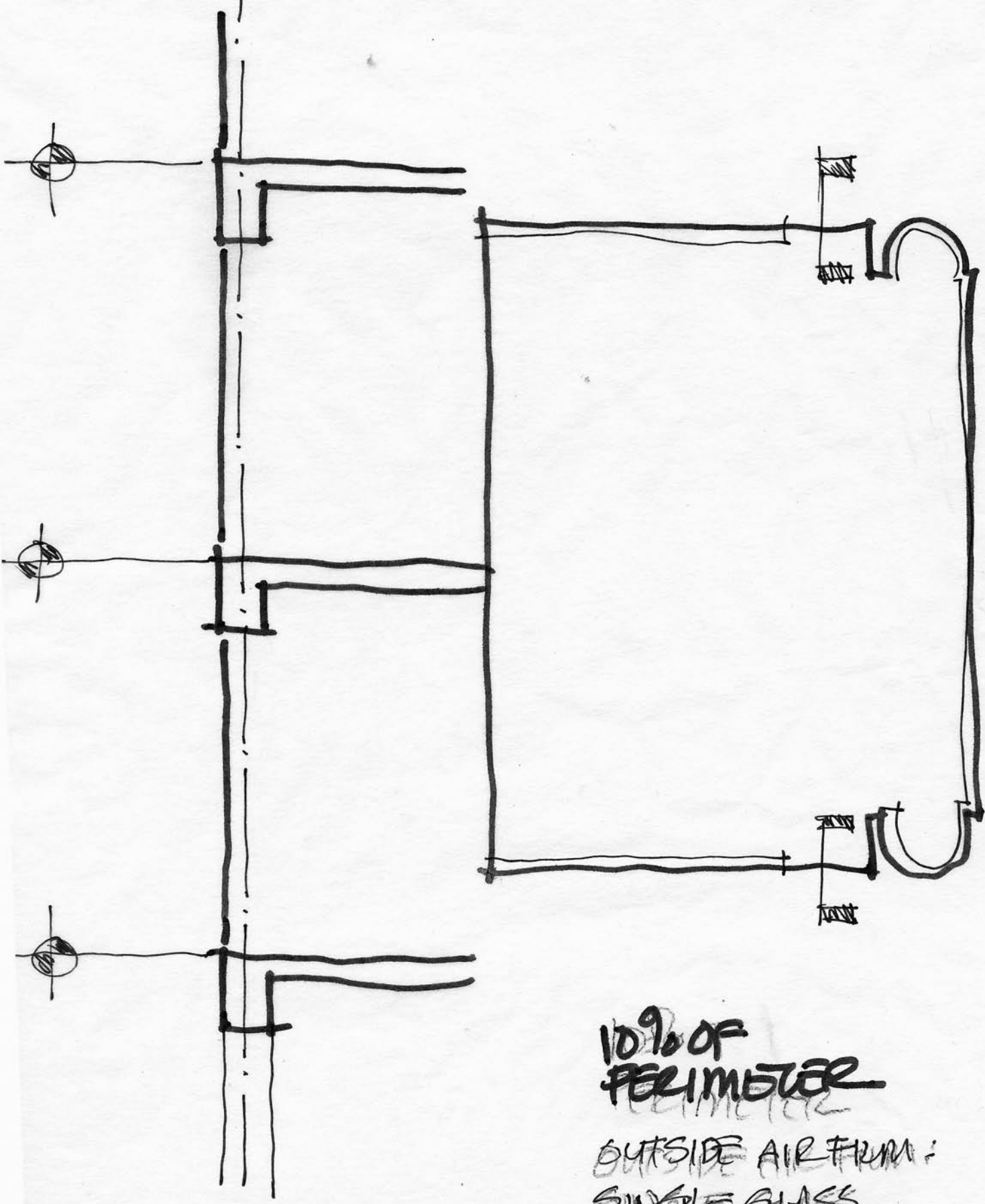


* DOESN'T ACCOUNT FOR THERMAL MASS.

50% of PERIMETER

| | |
|------------------|-------|
| OUTSIDE AIR FILM | .17 |
| 4" BRICK * | .44 |
| AIR SPACES | 1.00 |
| 8" BLOCK * | 1.11 |
| INSIDE AIR SPACE | .08 |
| | <hr/> |
| | 3.40 |

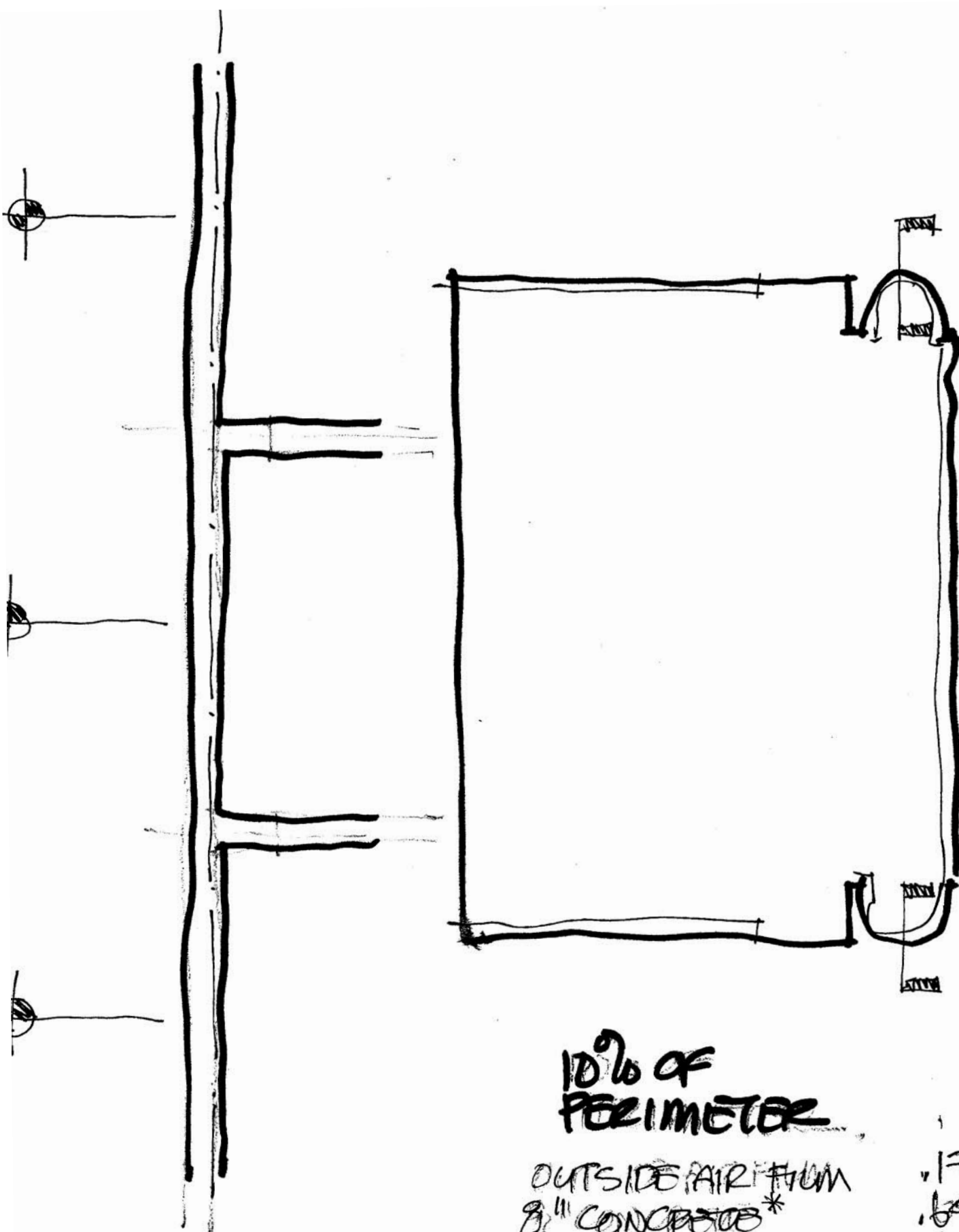
$R =$



10% OF PERIMETER

| | |
|-------------------|-----|
| OUTSIDE AIR FILM: | .17 |
| SINGLE GLASS. | .91 |
| INSIDE AIR FILM | .68 |

R = 1.76



10% of PERIMETER

| | |
|------------------|-------|
| OUTSIDE AIR FILM | .17 |
| 8" CONCRETE* | .64 |
| INSIDE AIR FILM | .68 |
| | <hr/> |

R =

1.49

* DOESNT ACCOUNT FOR THERMAL MASS