



**ASHRAE HEADQUARTERS RENOVATION  
SHADING CONFIGURATION COMPARISON  
USING GREEN BUILDING STUDIO  
ENERGY MODELING SOFTWARE**



|   | Specific Cooling | Cooling Capacity | Load Reduction | Specific Heating | Heating Capacity | Load Reduction | First Cost | Annual Energy Cost | Annual Energy Savings                     |
|---|------------------|------------------|----------------|------------------|------------------|----------------|------------|--------------------|---|
| <b>Base model: no shading devices, no mullion projections</b>   | 688 sq ft/ton    | 47 tons          | 0.00%          | 36 sq ft/kBtu    | 928 kBtuh        | 0.00%          | \$0        | \$26,527           | 0.00%                                     |
| <b>Current design:10" mullion projections at curtain wall</b>   | 730 sq ft/ton    | 45 tons          | 4.25%          | 38 sq ft/kBtu    | 879 kBtuh        | 5.57%          | \$30K      | \$26,074           | 1.74% (estimated 66 year payback period)  |
| <b>Full Shading - 10" mullion projections at curtain wall, louver screen at W and S existing elevations, and full-height vertical shades at N elevation</b> | 740 sq ft/ton    | 44 tons          | 6.82%          | 38 sq ft/kBtu    | 869 kBtuh        | 6.79%          | \$150K ±   | \$26,014           | 1.97% (estimated 292 year payback period) |
| <b>Motorized exterior blind system at curtain wall, no mullion projections</b>  | 751 sq ft/ton    | 43 tons          | 9.30%          | 39 sq ft/kBtu    | 858 kBtuh        | 8.16%          | **\$65K ±  | \$25,982           | 2.1% (estimated 119 year payback period)  |

\*\*Material cost = \$30K,; Installation cost approx. \$30K; Controller cost = \$5K - \$8K