

# REFERENCES

## NAVFAC CAPITAL IMPROVEMENTS GOV ENERGY BASELINE PRA

The following is the NAVFAC Capital Improvements Government Energy Baseline and Offerors Model Performance Ratings Assumptions (PRA).

The GOV Energy Baseline Total Ownership Cost (TOC) and Offerors Performance Rating Assumptions shall be utilized for technical evaluation factor six (6), Total Ownership Cost. This summary shall serve no other purpose. The assumptions listed here shall not be considered as RFP requirements.

### **BASELINE BUILDING PERFORMANCE RATING ASSUMPTIONS**

The GOV Energy Baseline Report and TOC baseline provides a rough order of measure estimate of the “Baseline” (Code Minimum) energy consumption for this project, based on ASHRAE Std 90.1-2010 Appendix G. (Note that the USGBC and the DoD have agreed that BEQs shall be regarded as commercial facilities for transient populations under ASHRAE Std 90.1). The proposer is advised that the goal for this project is to reduce estimated annual energy consumption by 30% less than the “Baseline” ASHRAE 90.1-2010.

The following assumptions and clarifications should be considered before proceeding with a Proposed Building simulation:

The Baseline building for this model has been simplified for evaluation purposes. Building is assumed to be an average BEQ in ASHRAE Climate Zone 4A. Details of the baseline building simulation are contained in the Gov Baseline Workbook.

### **OFFERORS PERFORMANCE RATING ASSUMPTIONS**

The offerors energy model used in the Offeror TOC Workbook - Offeror Energy Analysis, shall use the following assumptions within the model as appropriate:

- Use the TMY Weather Data for Norfolk, VA
- Weather location shall be based on TMY Weather Data for Norfolk, VA

- Dormitory Style Bedrooms, FC 4-721-10n, marine Corps 2+0 Rooms
- Each bedroom is to be double occupancy
- Occupancy assumed to be 240 people. Space Usage Classification: BEQ / Hotel Use Hotel/Motel.
- Lighting Schedule: Building Area Method Classification: Dormitory, Table 9.5.1 of 0.61 W/Ft<sup>2</sup> for lighting power density ASHRAE 90.-1 2010 and Table G-G for schedule for Hotel/Motel (ASHRAE 90.1-2007 User Guide)
- Thermostat Schedule: ASHRAE 90.1-2007, Space Usage Classification: BEQ / Hotel Use Hotel/Motel. Table G-G for HVAC System (ASHRAE 90.1-2007 User Guide)
- People occupancy Schedule: Use Hotel/Motel, ASHRAE 90.1-2007 Table G-G (ASHRAE 90.1-2007 User Guide) Use occupant load of 2 persons per bedroom
- Occupied/ Unoccupied Cooling Space temp Set point:
  - o BEQ Living areas 78 degrees summer, 68 degrees winter (UFC 3-410-01)
  - Unoccupied in winter 55 degrees F (UFC 3-410-01)
  - o Mechanical/electrical spaces semi-conditioned 92 summer, 55 degrees winter
- Infiltration on perimeter zones only; Assume 0 infiltration when the fans are running. When the fans are not running: If the offeror proposes to use air barriers with testing to 0.25 CFM/ft<sup>2</sup> (envelope) at 0.3" WG, he may simulate tight building construction. If the offeror proposes to use air barriers with testing to 0.15 (or lower) CFM/ft<sup>2</sup> (envelope) at 0.3" WG, he may simulate zero building infiltration.
- Receptacle/plug load modeled as Space Usage Classification: BEQ / Hotel Use Hotel/Motel. Table G-C of 0.25 W/FT<sup>2</sup> (ASHRAE 90.1-2010 User Guide). Schedule for receptacle load shall follow the Hotel/Motel Occupancy, ASHRAE 90.1-2007 Table G-G (ASHRAE 90.1-2007 User Guide)
- Service Hot Water modeled as Space Usage Classification: BEQ / Hotel Use Hotel/Motel. Table G-C of 1110 BTU/HR per Person (ASHRAE 90.1-2010 User Guide) For the service hot water schedule: Use Table GG, ASHRAE User Guide
- Elevator schedule modeled as Space Usage Classification: BEQ / Hotel Use Hotel/Motel. Table G-G (ASHRAE 90.1-2007 User Guide)

- Parking Area modeled as Space Usage Classification:  
Table 9.4.3.B of 0.13 W/FT2 (ASHRAE 90.1-2010)
- The electric utility rate (burdened) for Naval Weapons Station, Yorktown, VA is \$0.1045 per kWh. No demand charges shall be considered.
- The natural gas utility rate (burdened) for Naval Weapons Station, Yorktown, VA is \$0.0541 per therm.
- Baseline HVAC System: Use System 5 Packaged rooftop VAV (DX and gas fired boiler) with fan powered VAV boxes and reheat (ASHRAE User Manual Table G-A) with outside air heat recovery and System 9 for heating and ventilated areas, AHUs with hot water coils (gas fired boiler).

For Ground Source Heat Pumps modeling, Assume the following soil and grout conditions at NWS Yorktown: (These conditions shall not be used for design – only for Factor 6 work)

Formation Thermal Conductivity: 1.15 Btu/hour-ft-degrees F

Formation Thermal Diffusivity:  $(0.79^2)/\text{day}$

Undisturbed Formation Temperature: 64.7 – 65.7 degrees F

300 feet depth geothermal well

Baseline Exterior Wall Construction: Steel Frame, U-factor = 0.064 BTU/H-FT2-F, Non-residential, Zone 4A, ASHRAE 90.1-2010, Appendix G

Baseline Roof Construction, Insulation entirely above deck, U-factor = 0.048 BTU/H-FT2-F, reflectivity=0.3, (non-Residential) ASHRAE 90.1-2010, Appendix G

Baseline Window to Gross Wall Ratio: 19%

Baseline Fenestration Type: Metal framing vertical Glazing: U-factor = 0.55 BTU/HR-FT2-F and SHGC = 0.4 (non-residential), non-residential ASHRAE 90.1-2010, Appendix G

Equipment Sizing: 1.15% for Cooling; 1.25% for Heating, ASHRAE 90.1-2010, Appendix G

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