

## **Project Energy Summary Section of the Design Analysis (DA)**

Energy reduction is very important to the goals of the Federal government on all projects. This portion of the DA shall be written in a collaborative manner by the architectural, mechanical, and electrical designers. This is to be a summary section which shall be coordinated and verifiable in the drawings, specifications, other DA sections, and calculations. It is very important that the information presented in this section be inclusive, easily understood, and direct. This portion of the DA shall include the following information and it shall be provided at each design phase and kept current.

1. Indicate the energy criteria the building was design to meet and the year or version of the standard. Example: (ASHRAE 90.1 2007). Indicate or address how conflicts between criteria were addressed and resolved.
2. Indicate the project's requirement for energy reduction in terms of actual energy reduction. (What is the goal the team strived to meet on this project?)
3. Indicate the energy modeling results attained in terms of actual energy reduction. Information shall summarize the USGBC Energy and Atmosphere (EA) Credit 1 compliance template/form or an equivalently detailed form documenting compliance with the energy reduction requirements. The complete template or form shall be located with the calculation portion of the DA.
4. Provide narrative paragraphs from each discipline which itemizes the integrated design strategies and elements, justification, and their performance requirements which were designed into the facility to attain the modeled energy reduction. Below are example items which would be typically addressed:

### Architectural

- a. Tested Air barrier, designed to allowable air leakage rate of \_\_\_\_\_ - CFM/SF
- b. Wall U-values: ASHRAE Baseline \_\_\_\_\_ Designed \_\_\_\_\_
- c. Roof U-values: ASHRAE Baseline \_\_\_\_\_ Designed \_\_\_\_\_
- d. Floor U-values: ASHRAE Baseline \_\_\_\_\_ Designed \_\_\_\_\_
- e. Window performance: U-value \_\_\_\_\_
- f. Window performance: Solar performance \_\_\_\_\_
- g. Door performance: ASHRAE Baseline \_\_\_\_\_ Designed \_\_\_\_\_
- h. Sun shades
- i. Day-lighting strategy
- j. Building orientation
- k. Building solar reflectance
- l. Fire protection Occupancy
- m. LEED FTE Occupancy
- n. Plumbing count Occupancy
- o. Parking lot sizing Occupancy
- p. Etc.

### Mechanical

- a. Energy model % savings compared to Baseline
- b. Overall building load distribution: Envelope (walls, roof, and openings) \_\_\_\_\_%, Internal (people & misc) \_\_\_\_\_%, Lighting \_\_\_\_\_%, Plug and Process \_\_\_\_\_%
- c. Energy recovery
- b. Cooling equipment (Fan coils, Air Handling Unit)
- c. Heat rejection equipment (Chiller, geothermal)
- d. Heating equipment (Boiler, Electric Heat)
- e. Use of internal functions or processes
- f. Solar walls
- g. Ventilation
- h. Economizers
- i. Application of variable frequency drives
- j. Etc.

Electrical

- a. Renewable (PV and Wind) energy providing \_\_\_\_\_%
- b. Day-lighting reducing energy consumption by \_\_\_\_\_ %.
- c. Alternative lighting systems
- d. Lighting occupancy and day-lighting sensors
- e. Lighting watts/sq foot goal and analysis (by room and/or building average) ASHRAE Baseline \_\_\_\_\_  
Designed\_\_\_\_\_
- f. Parking lot lighting ASHRAE Baseline \_\_\_\_\_ Designed\_\_\_\_\_
- g. Sub-metering
- h. Receptacle switching in accordance with ASHRAE 90.1 requirements
- i. Etc.

Attach completed ASHRAE 189.1-09 compliance Check Lists