



LEED Analysis

Introduction

At current count, TCES has 52 assured points on it's LEED scorecard (see Appendix C-CD for the complete scorecard), which will just barely give it a LEED platinum rating. As such, I will perform a re-evaluation of the LEED points to ensure that every point that is being counted will really be achieved during commissioning as well as to discover whether it is possible or practical to achieve those points which were not counted. The LEED 2.1 rating system (the current version at the time of writing) was used to determine the previously mentioned criteria.

Analysis Goals

The main goal in the following analysis is to determine if there are points that were not achieved that have a chance of being achieved, to determine why points that weren't achieved cannot be achieved, and to determine if there are any points that might be questionable as to whether they will be counted or not. Hopefully, this will give a better picture of where the building stands with regards to its LEED platinum certification. As it stands, the building has 52 points that the design team is sure about and is right at platinum level, so accuracy in determining whether some will be counted or not is of the utmost importance.

Analysis

Terms

- SS – Sustainable Sites
- EA – Energy and Atmosphere
- MR – Materials and Resources
- EQ – Indoor Environmental Quality

Points not achieved

Why they may still not be achieved

Credit SS 2 – Urban Redevelopment

Building is not being built in an urban setting that meets the population density set forth in the LEED criteria of 60,000sf per acre.

Credit SS 3 – Brownfield Redevelopment

Building is not located on a seriously contaminated site. The EPA does not consider the site an officially defined “brownfield” site, which is an “abandoned, idled, or under-used industrial and commercial facility where expansion is complicated by real or perceived environmental contamination.”



- Credit MR 1.1 – Building Reuse, Maintain 75% of existing shell
Building is new construction (no previous building was on site prior to construction), so cannot apply for this credit.
- Credit MR 1.2 – Building Reuse, Maintain additional 25% of shell
Building is new construction (no previous building was on site prior to construction), so cannot apply for this credit.
- Credit MR 1.3 – Building Reuse, Maintain 100% shell & 50% non-shell
Building is new construction (no previous building was on site prior to construction), so cannot apply for this credit.
- Credit MR 6 – Rapidly Renewable Materials
Due to the type of construction of the building it may not be possible to find enough types of rapidly renewable materials that would be applicable. With radical redesign of the architecture it may be possible to obtain the credit, but as-is it is not possible. For example, a certified wood structure rather than concrete could be used, but it might be very impractical from a design standpoint.
- Credit EQ 8.1 – Daylight and Views – Diffuse Sunlight to 75% of Space
Without drastic redesign of the building, getting a 2% daylight factor in 75% of the spaces is not feasible. Large Redwood trees (in excess of 100ft tall) stand just outside the building, blocking much of the sunlight coming in through the windows, and the skylights located in the atrium are not able to serve the whole building, only the main circulation areas. As a result, the daylighting levels on the interior are extremely small compared to exterior levels and would likely not meet the 2% daylight factor criteria.

Points not achieved

Possibility of achieving them

- Credit SS 7.2 – Landscape and Exterior design to reduce heat island effect
A re-evaluation of materials used for paving and roofing may lead to the possibility of achieving this credit. Some possibilities for materials might include a roof garden, high emissivity and high reflectance roofing materials that do not absorb much heat and at the same time do not retain heat, pervious paving materials such as loose stone or paving bricks packed in sand rather than cement which would reduce the amount of land covered by good heat-absorbing materials, or including more plants and trees on site.
- Credit EA 2.3 – Renewable energy, 20% contribution
By installing a total of 60kW of photovoltaics the 20% contribution can be achieved. See “PV analysis” on page 58 for additional details.



Points achieved

Questionable as to whether they will be counted

Credit SS 6.2 – Stormwater management treatment system

Because it is difficult to accurately determine how much waste the building will produce in terms of Total Suspended Solids (TSS) and annual post-development Total Phosphorous (TP), it is unknown as to whether 80% of TSS and 40% of TP that is required to gain the credit will be filtered out by the stormwater treatment system.

Conclusions

For the most part the points that were not achieved cannot be gained by any reasonable means. 2 credits, however, can be achieved with a reasonable amount of planning and redesign. This gain is offset by one credit that is uncertain, for a total gain of 1 credit. This additional credit, while it is not a huge gain, may make the difference between getting a platinum rating and getting a gold rating, so I recommend making the changes discussed to gain the additional 2 credits as a sort of buffer in case a few other credits are not granted.