TRU SOLAR TABLE DESIGN COMPETITION

Competition Guidelines (2023-2024)

Background

This is the third year of the ***TRU SOLAR TABLE DESIGN COMPETITION***. TRU wants solar tables around the campus for the following reasons: to promote renewable energy use; encourage student participation and learning; and have more outdoor places to study and socialize (which are protected in large part from the snow, rain, and direct sun).

General Information

This competition is open to all students from Thompson Rivers University. Only TRU students can enter the competition and they can do so individually or as part of a student-only team. There will be one (1) winning submission picked from all submitted designs. Only one table will be chosen as the winning submission in 2024.

The Prizes

The winning submission will see their design adapted to at least (1) one solar table to be constructed on the TRU Kamloops campus behind the Arts and Education building (see attached images for reference). Students are encouraged to visit the site prior to making their design to ensure it works in that location. In addition, the winning designer(s) will receive $650 (all official TRU fees must first be paid before any money is awarded (for instance any overdue fees)).

Design Guidelines

Designs should be submitted online as portable document format (PDF) documents. Either hand drawn documents or computer-generated design software documents will be accepted. The use of AI tools such as ChatGPT are allowed for idea generation so long as the images are created by the author. If you choose to do so, it is encouraged that you make either an AI acknowledgement at the start of your submission or include the prompts you fed to the AI to get your result.

The budget to build each table is a maximum of $10,000, which includes labor, materials, and other miscellaneous fees. Construction and installation will be performed by faculty and students from the TRU School of Trades and Technology. The picnic tables designed in the past two years are under construction but due to difficulties in aligning the construction of them with the Trades courses, the work has been delayed. We anticipate having at least one of the tables from the first two years built in 2024. In future, the timeline for construction will depend on the number of faculty members and students available to work on the table each year. Construction is typically started within a year of deciding the winning submission but no exact completion date will be given.

The dimensions of the design could either be in metric or imperial measurements and need to fit in the location seen in the image in Figure 2. The design of the solar table can either use the existing picnic table currently in this location and incorporate it into the design, or use a new table. If a new table will be used then the existing table will be removed and put somewhere else on campus. Regardless of whether a new table is build or the existing table is used, the footprint of the design of the solar table should either remain the same as the existing table or be no more than 15% larger. The two benches will remain as they are. Designs that feature wood as the main building material, and that will be relatively simple to construct, will be looked upon favourably by the judges.

Do not overthink. Schematic and wiring diagrams are not needed, but the design <u>should</u> incorporate a secured enclosure for the electrical equipment (in either the small or large option as seen in Table 1*)* so that batteries are easily removable if needed. Also, each design needs to include a maximum of two solar panels *(size of each panel is 2.08m x 1.03m)*.

Table 1. Specifications of the Enclosure with the Electrical Equipment

Enclosure Sizes Options	Description	Minimum Dimension of the Secure Enclosure
Small Option	USB Charging Only	300mm x 300mm x 300mm
Large Option	USB and AC Device (laptop or e-bike) Charging	600mm x 600mm x 600mm

Design Content

Be creative! The minimum requirements for the solar table are as follows:

- Be able to charge devices that plug into an outlet (e.g., phones, laptops, electric bike, motion sensing internal or external lights, etc.). The electrical system will be attached to batteries and not tied into the grid.
- Be able to accommodate seating of at least six (6) people for studying or hanging out. Solar panels attached to a roof structure to cover the table and seating is desirable (to provide shelter from snow, rain, and sun).
- Be able to show awareness of TRU's advocacy for sustainability.
- Be practical enough to be constructed (use of sustainable, reclaimed, recycled, and readily available materials such as wood are highly encouraged).

Submission Details and Dates

All submissions should be sent through email to the TRU Sustainability Office ***(sustain@tru.ca)*** with your complete name/s, phone number/s, email/s, and student number/s **ON OR BEFORE March 4, 2024**. Each submission will be assigned an alias in order to be anonymous to the judges; for this reason, do not put your name(s) anywhere in the drawings. Email entries should have a subject of **'SOLAR TABLE ENTRY 2024'** with a maximum of a 500-word description.

Judging

The designs will be judged by a panel of TRU faculty, staff, and students according to the most practical, economic, and creative design choices. The winner will be announced by March 29, 2024 and will be notified via email and/or phone call.

Figure 1. Vicinity Map

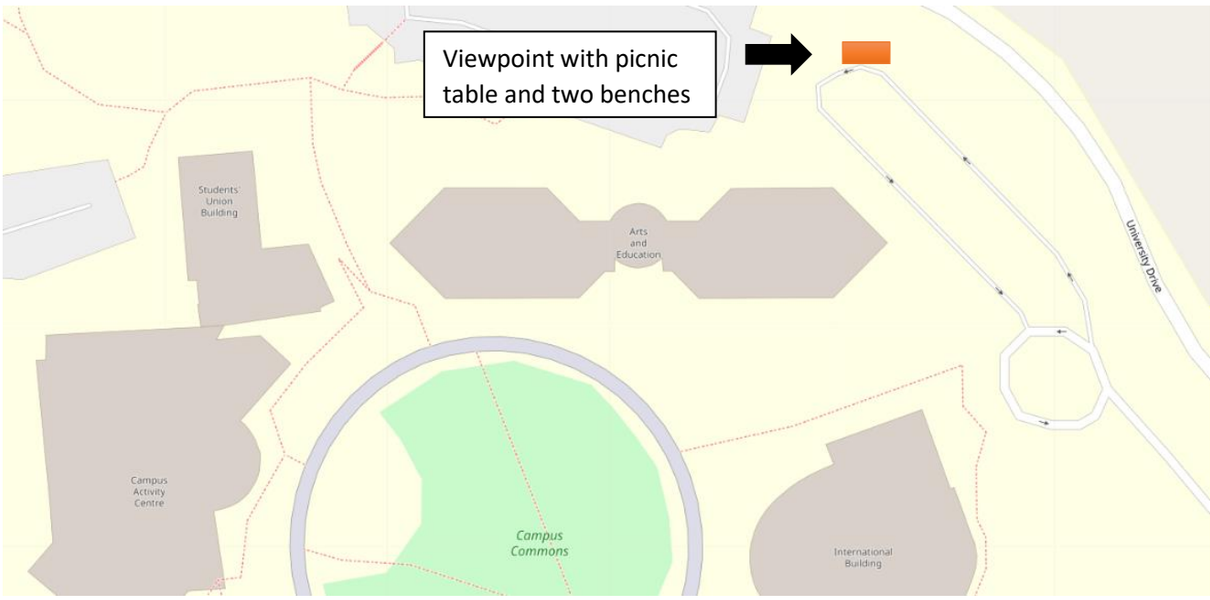

Figure 2. Site Image