

Appendix I: Design Project Abstract

Product Description: Protecting Fiber Optics cables

A mechanism such as filtering, cooling, etc. protects the plastic fiber optics cables from overheating, melting, and burning that are caused by sun light reflectors/concentrators.

Abstract:

As part of the EverGreen project (<http://www.evergreen.txstate.edu/>) plants will grow in an enclosed environment (a reefer shipping container) using hydroponic method. Natural light needs to be delivered to them accessible to different racks and trays. It is intended that thick fiber optics cables (0.7 inch diameter) to be used as the media for the light delivery. To maximize the efficiency of the process, a system such as solar reflector/lens will be used to collect sun light beyond the cable's thickness (other teams). However, focused sun light is very intense and will melt the fiber optics cable that is made out of plastic. A system is needed to protect the cable from overheating, melting, and burning by filtering the light (only allowing useful wavelength for the plants to get in), cooling mechanism, etc. Also, it should be compatible with the design by other light concentrating team projects.

The system should be durable for an outdoor environment and will be installed on top of the sun collector systems. It should look professional and design should contain enough information to be expandable for reproducing several similar products.

Project Customer:

Bahram Asiabanpour, Ph.D., CMfgE
Email: ba13@txstate.edu
Office: RFM2212
Office Phone: 512-245-3059
Graduate student: Ricardo Ramirez

