

Sub-Group Solar Workstation

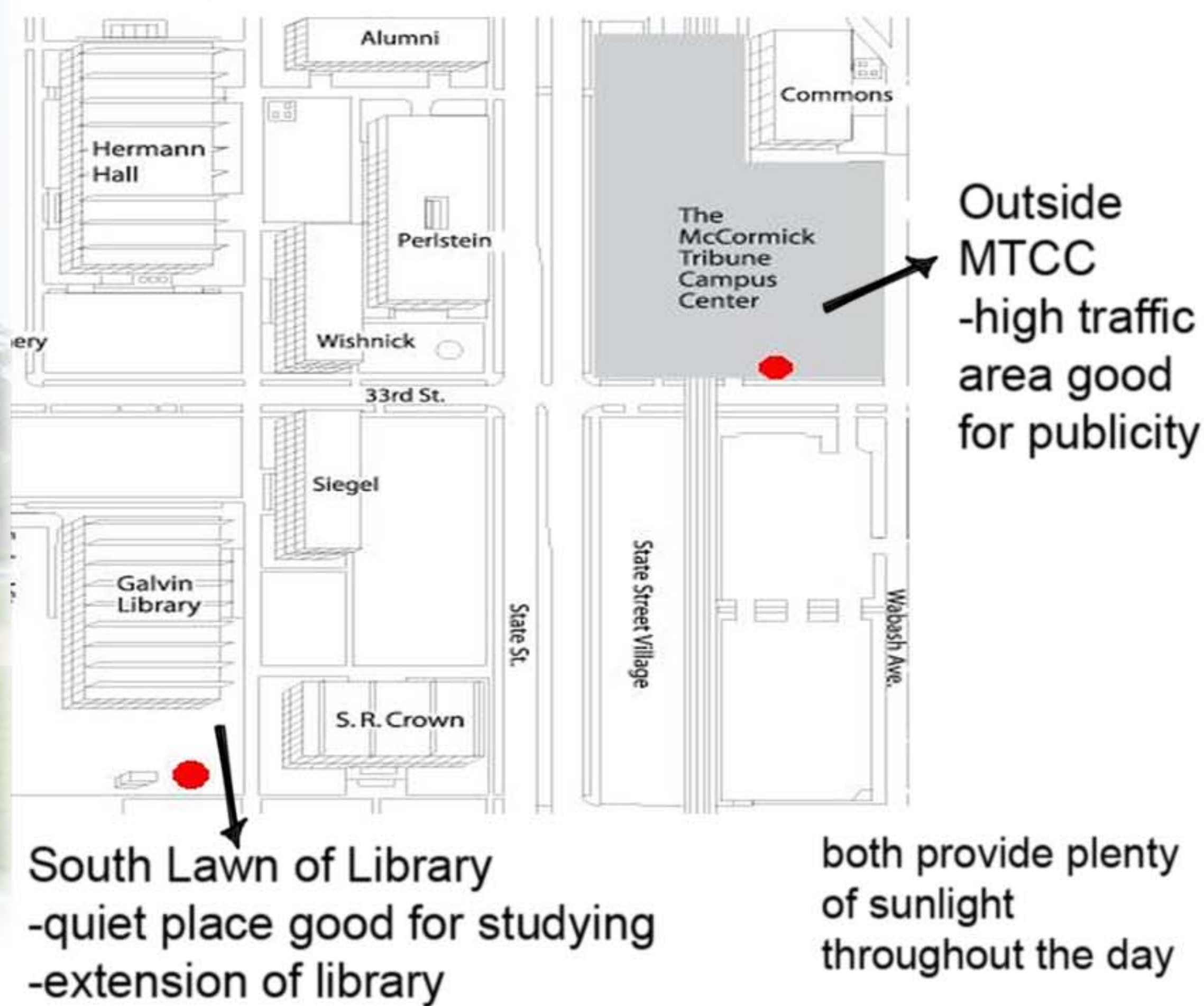
Sub-Group Heating & Energy

Purpose:

Provide an outdoor sustainable workstation to showcase IIT's commitment to the environment. Designed to provide 24/7 power to a maximum of 4 laptops while providing protection against the elements



Location:



Solar Gel-Type Battery Ampere-Hour Specification:

Nominal Wattage	X	# of Laptops	X	# of Hours	/	Voltage Produced	=	Ah rating
150W	X	4	X	10	/	12	=	250 Ah

In order to obtain functionality throughout the night, a battery or batteries must have a combined Ampere-Hour rating of 250Ah.

To Calculate Inverted Current needed:

Nominal Wattage	X	# of Laptops	=	Voltage Provided	X	Current
150W	X	4	=	120V	X	I

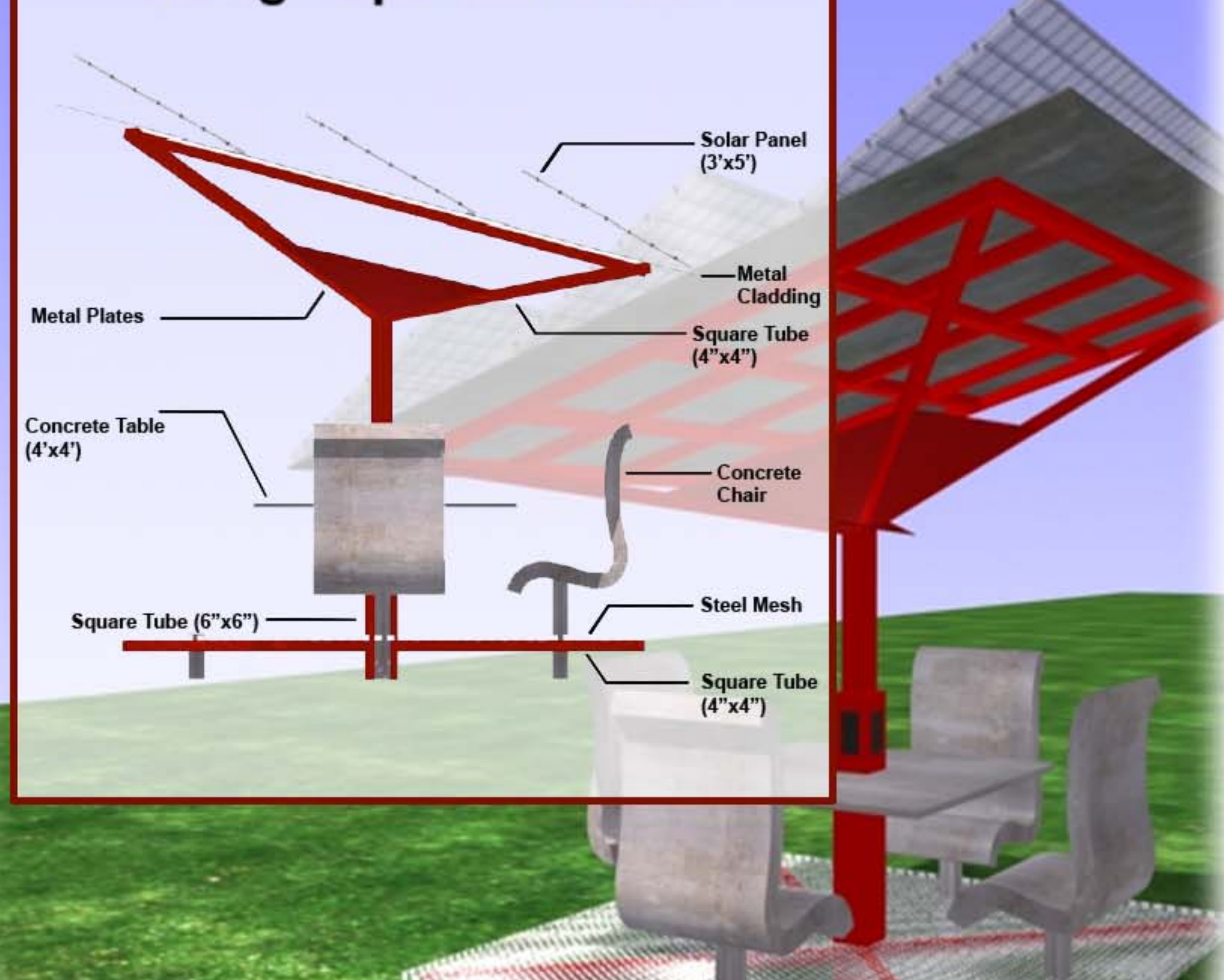
I = 5A
Inverter Must Provide up to 5 amps of current

Costs:

Item	#	\$	Total Cost
Deka Solar Battery	4	\$250.00	\$1,000.00
Sharp 224W Solar Panel	6	\$995.99	\$5,975.94
2"x2" square tubing each 8' long	2	\$55.20	\$110.40
8'x8' metal mesh about 1/4" thick	1	\$800.00	\$800.00
6"x6" square tubing 3'7" tall	1	\$164.12	\$164.12
4"x4" square tubing 2' tall	1	\$53.16	\$53.16
2"x2" square tubing 8' tall	10	\$0.00	\$552.00
10'x10' metal roof	1	\$0.00	\$1,200.00
2'x2' metal panels	4	\$1.25	\$500.00
60 lbs quick mix concrete	16	\$2.56	\$40.96
80 lbs concrete	2	\$4.59	\$9.18
other	-	-	\$250.00
Total			\$9,842.76



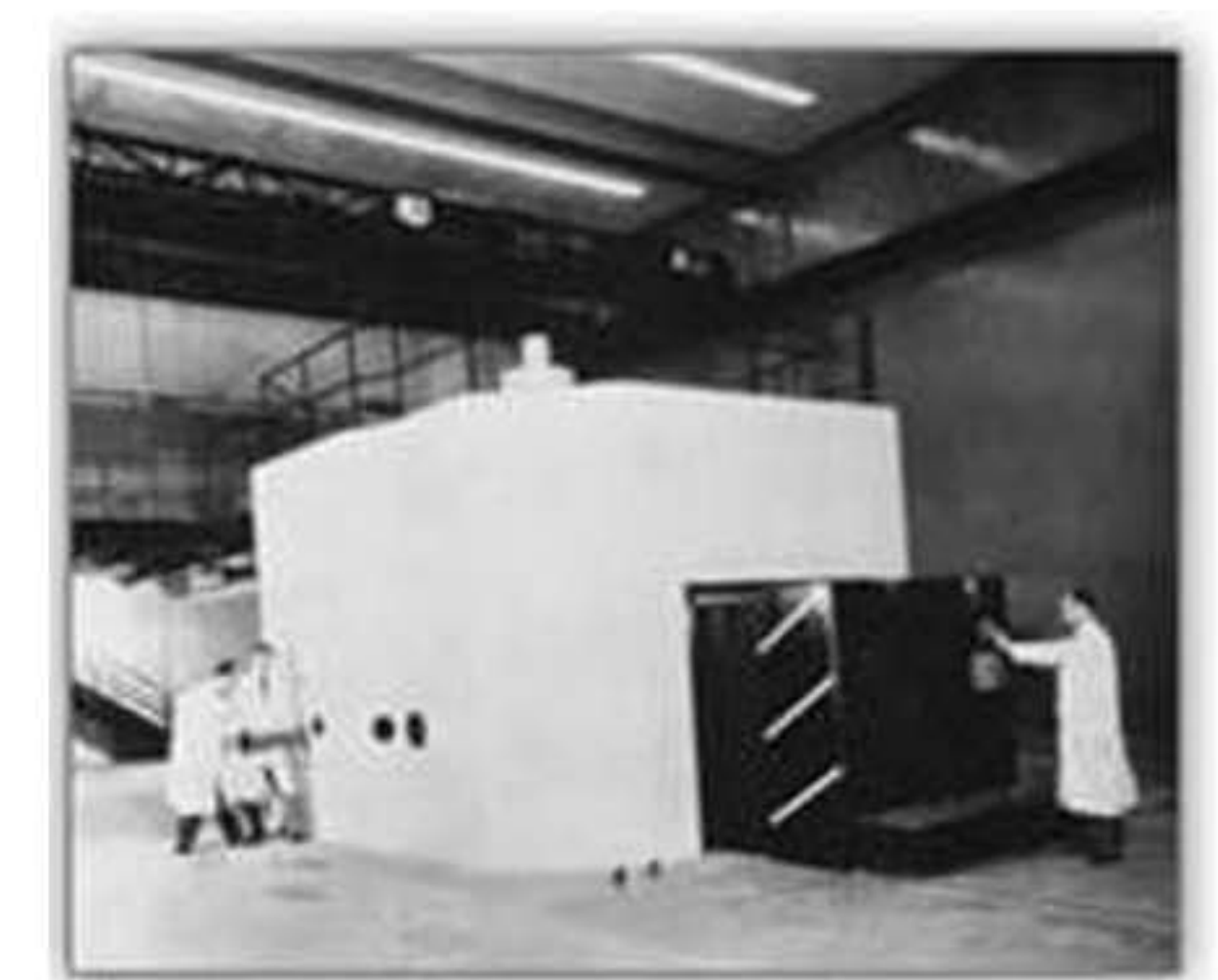
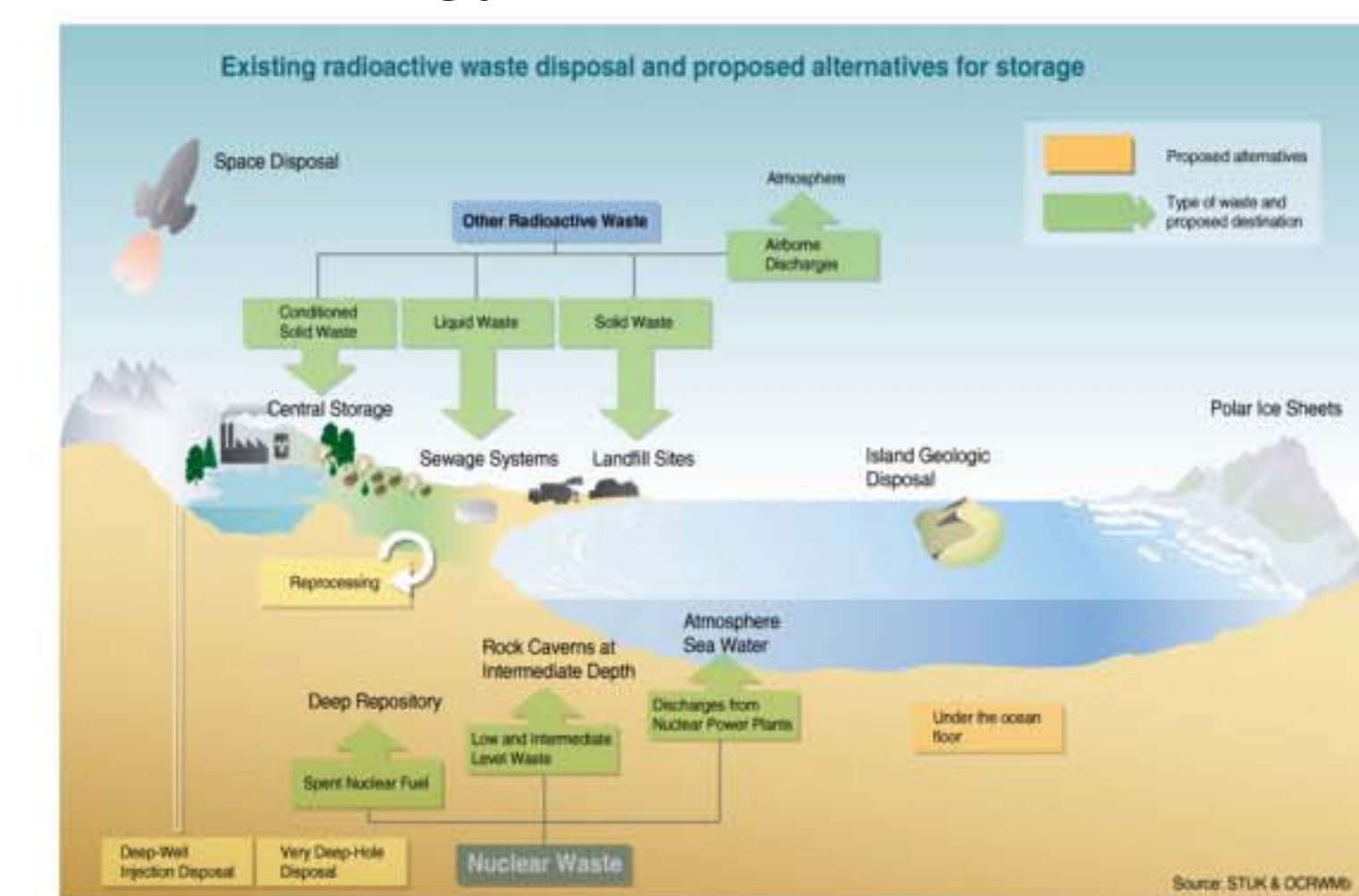
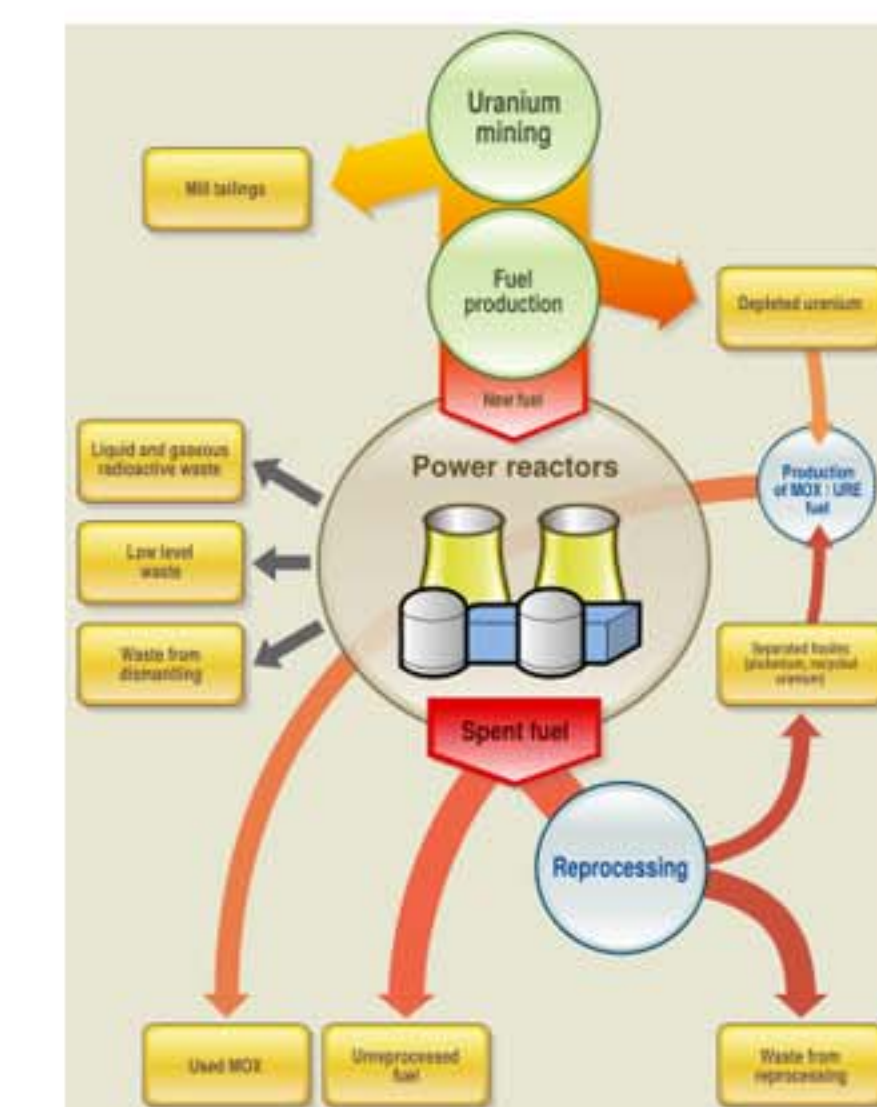
Design Specifications:



Purpose:

To implement a nuclear reactor on campus as a source of clean energy. Determine the type of reactor most suitable for the IIT campus, as well as research nuclear waste reduction and recycling of nuclear waste.

The Process of Nuclear Energy & Waste Disposal



Previous Reactor on Campus

The problem:

The buildings on campus have little to no insulation which leads to inefficient heating and cooling for buildings resulting in high energy costs.

The Solution:

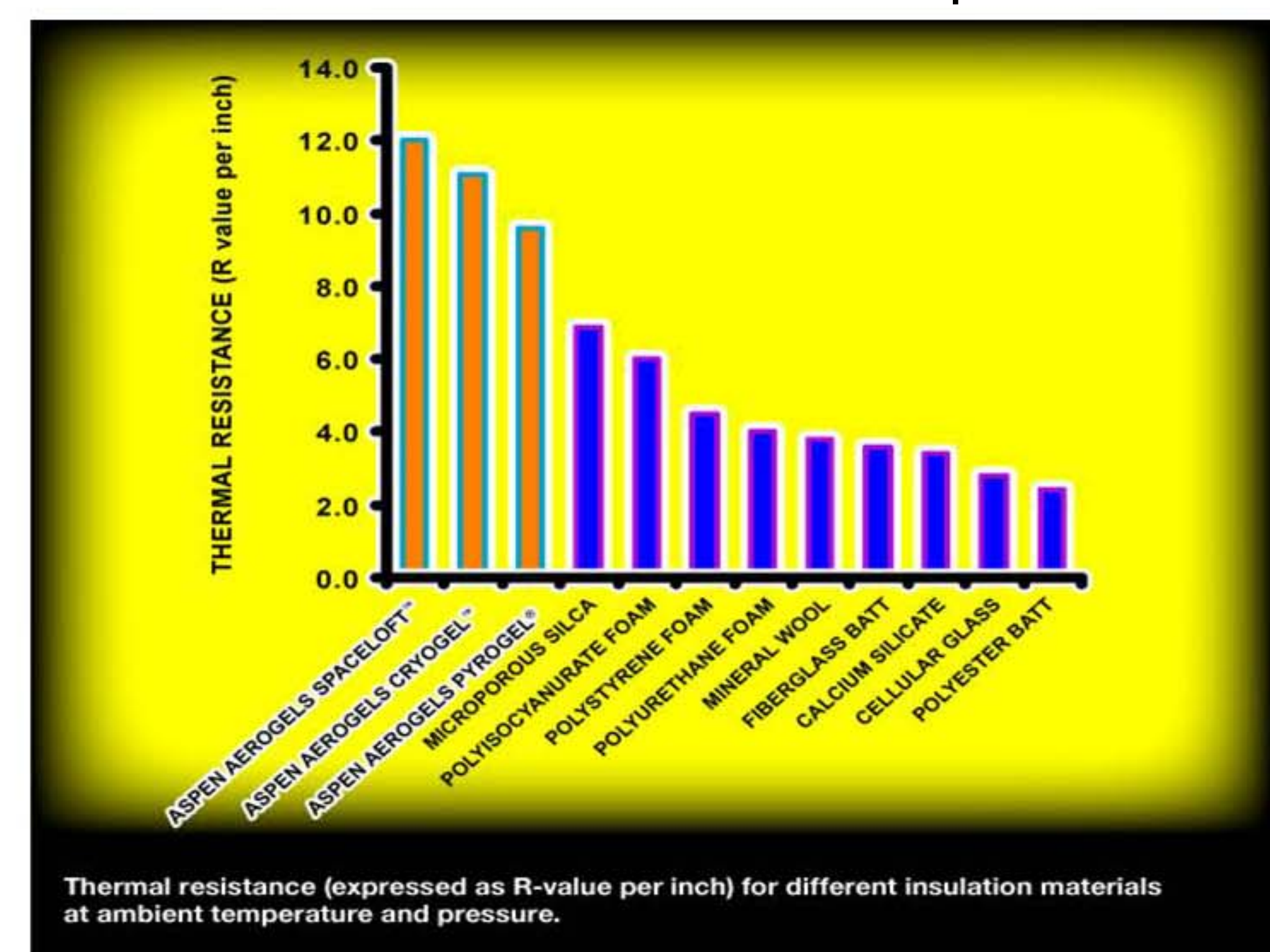
The implementation of Aerogel is the solution to IIT's insulation needs. Brick buildings such as E1 can benefit greatly from improved wall insulation.

Aerogel Blanket



- Best insulation material available today
- More than 3x as insulating as fiberglass
- Versatile nano material

Insulation R-Value Graph



Thermal resistance (expressed as R-value per inch) for different insulation materials at ambient temperature and pressure.