

# FORT DRUM SOLAR WALL PROJECT

Transpired air preheat collectors  
in a cold weather application

# PROJECT SCOPE

- 27 Buildings
  - Warehouses, Motor pools, Vehicle maint shops, Shops, Gym
  - Emphasis on buildings with no ventilation
  - Installed cost \$ 2.685 M
- 39 solar walls
  - 110,947 sq ft of solar wall area
  - 3 colors , black, medium bronze, rocky grey
- 74 make up air ventilation fans
  - Tie into existing ventilation systems where possible

# Test Building T-91 Shop

- National Renewable Energy Laboratory (NREL) will be monitoring one shop building ( T-91) to measure performance and heat collected over this heating season and next year.
- Testing will commence 2 Feb 2006
- Parameters include:
  - Collector temperatures
  - Indoor Temperatures
  - Fan cfm, run time and fan power
  - Solar radiation
  - Wind speed
  - Infrared imaging of solar wall

# Construction of the Solar Wall

## START OF FRAMING



# CONTINUATION OF FRAMING



# Tool Room Wall



# TOOL ROOM READY FOR PANELS



# TOOL ROOM COMPLETED



# MAIN BUILDING COMPLETED



# FAN IN PLACE LESS DUCT WORK



# FAN WITH FLEXIBLE DUCT WORK



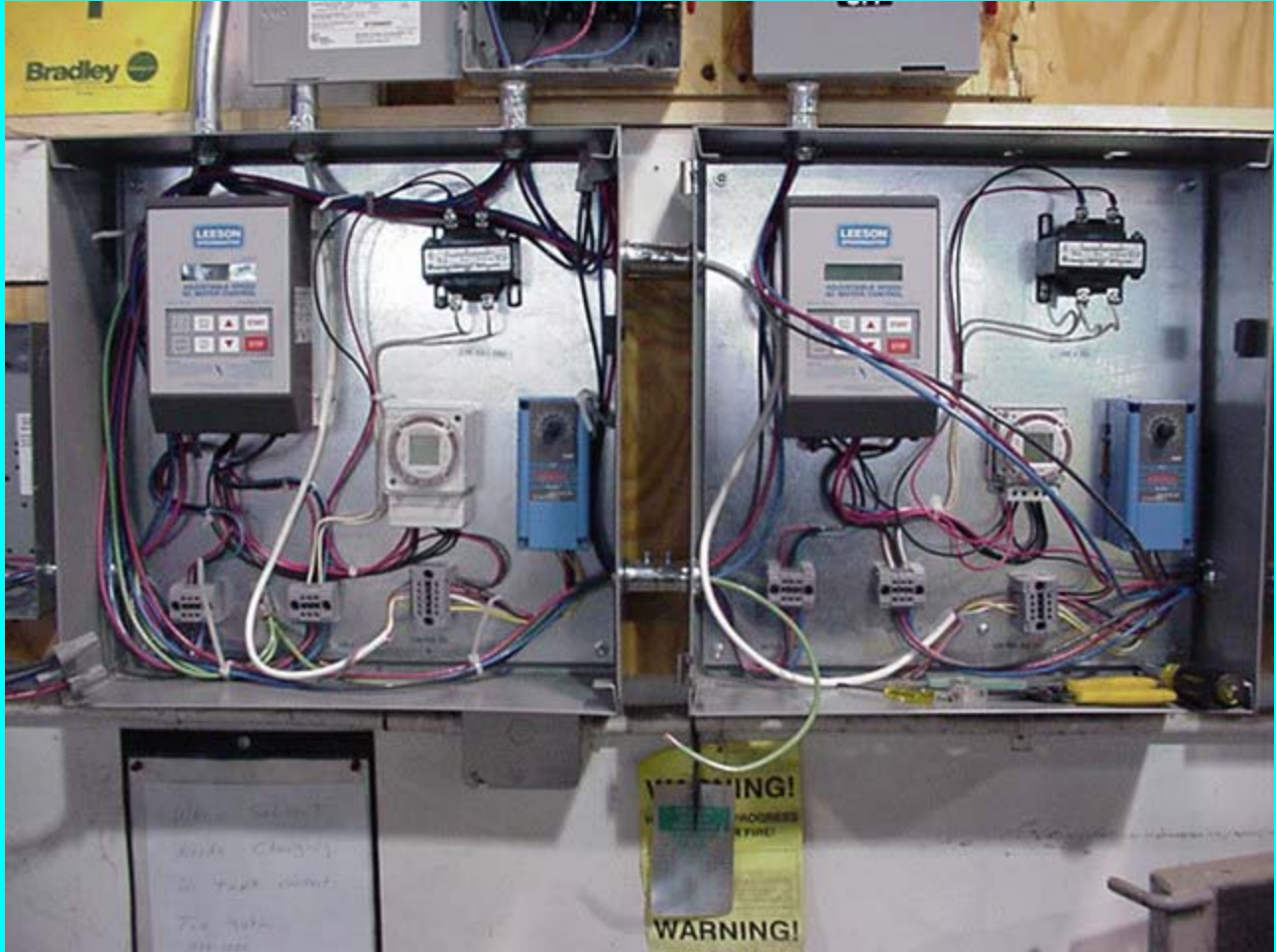
# FAN WITH DUCTWORK



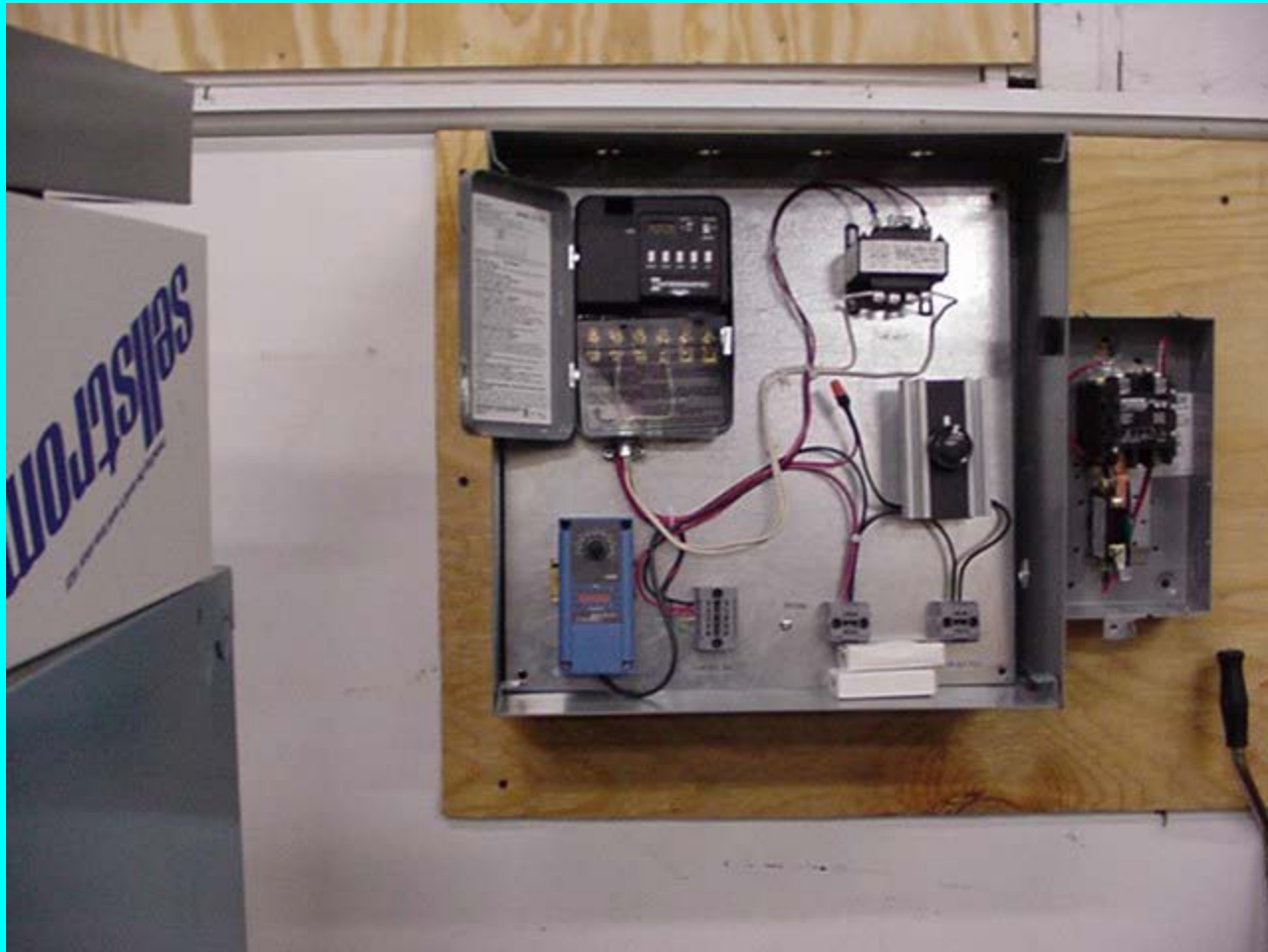
# INLET DUCTING



# CONTROL PANELS MAIN BAYS



# CONTROL PANEL TOOL ROOM



# APPLICATION RECCOMENDATIONS

1. Building type
  - a. Facilities requiring copious ventilation
  - b. Look for areas of outdoor pollution
  - c. Masonry, metal skin
2. Color and Visual Impact
  - a. Architectural theme a consideration
3. Fan Selection
  - a. Belt Driven
  - b. Direct Drive
4. Controls
  - a. Simple, time clock operated
  - b. Tie into DDC controls for better control
  - c. Heating during weekend setback, summer cooling