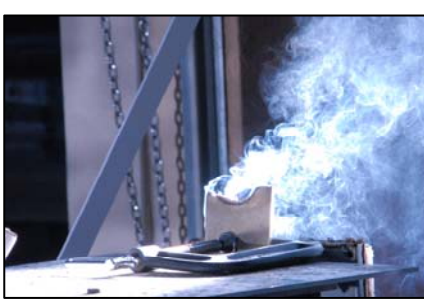
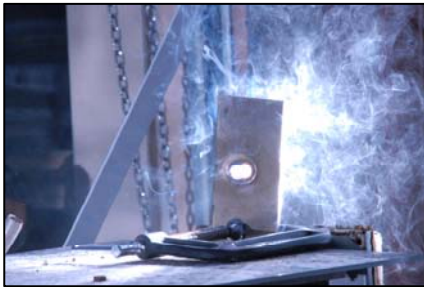


Burn Sequence of 1/8" piece of aluminum



Location/Contact Information

Location: Las Cruces, New Mexico on the New Mexico State University campus. Anderson Hall (PSL) is located on the SE corner of Espina and Stewart streets on the NMSU campus. The Solar Furnace is located in the northeast corner of the rear fenced PSL compound (near the visitor's parking lot which is on the east side of Anderson hall).

Contact:

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New Mexico State University Solar Furnace



NMSU's solar furnace was initially constructed in 1979 and utilized up until the mid 1990's. During the past year the facility has undergone a complete renovation and upgrade. Much of the instrumentation and equipment has or soon will be refurbished, upgraded, calibrated and reinstalled at the facility.

It is currently run by both staff personnel and students at NMSU in an effort to provide the students with "real world" high temperature applications.

GOALS AND BENEFITS

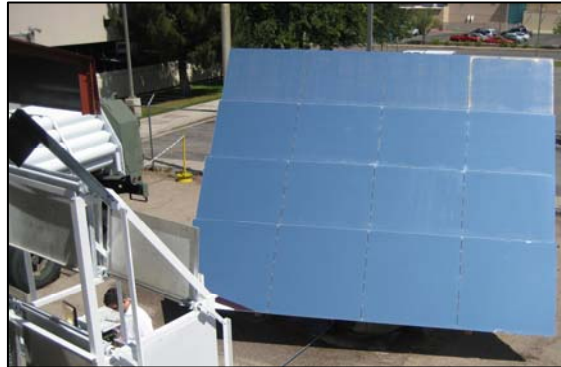
To provide:

- A facility for faculty, staff and students that allows hands-on experience while providing training, utilization, operation, and maintenance of a unique testing facility available to the regional educational community.
- High temperature materials testing and research by school, industry and government individuals.
- Prototyping and testing of a variety of solar energy projects
- An outreach process to educational institutions and the general public in this region and eventually throughout the U.S.
- Relationships with alternative energy, government and industrial organizations, to establish efficient methods of use.

NOTE: We are not aware of another student built solar furnace in the United States that is operated and maintained by students and that is readily accessible to students.

Specifications

- The heliostat (pointing mirror array) is approximately 16' X 16'.



Heliostat

- The concentrating mirror array is 9.5' X 9.5' and is made up of 2012 small (2.5" X 2.5") flat mirrors.



- Maximum efficiency calculated expected power is about 8 Kilowatts in a 3 inch spot.
- A recent calorimeter check with a solar constant of 900 watts/meter² was 4.1 Kilowatts.
- Currently uses an "open-loop" tracking system - implementation of a "closed-loop" by the end of 2009.
- Observed several days in June with slightly above 1000 watts/meter² and expect fall 2009 solar constants to be as high as 1100 watts/meter² on good days.
- Attenuator is adjustable to allow for control over beam energy from 0 to 100% power level.



Cinder Block after two minutes in beam