
NAS NORTH ISLAND - NAVY REGION SOUTHWEST
NAVY ENVIRONMENTAL LEADERSHIP PROGRAM

CONSERVATION**UTD-2000 ACTIVE DAYLIGHTING****LEAD ACTIVITY**

Naval Aviation Depot (NADEP) North Island

STATUS

Complete

MISSION

Promote energy conservation activities through use of electricity-free lighting

REQUIREMENT

The Navy typically uses fluorescent lighting in its industrial shops. To promote energy conservation as required by Executive Order 12856, alternative forms of lighting, such as natural lighting, are required.

DESCRIPTION

To promote energy conservation activities under the NELP initiative, Naval Air Station (NAS) North Island has undertaken demonstration of UTD-2000 lighting units. A UTD-2000 unit uses natural lighting as its source of illumination, generates less heat than conventional fluorescent lighting, and eliminates harsh glares. The UTD-2000 differs from conventional skylights in that natural sunlight is directed by sun-tracking reflective mirrors down a reflective shaft and onto a dispersion lens. The dispersion lens spreads out the light to the room and provides a greater area of light coverage while eliminating hot spots.

Building 379 at NAS North Island, used by NADEP for carpentry activities, has 56 conventional fluorescent lighting fixtures, expending approximately 15.4 kilowatts of energy per hour. Ten UTD-2000 daylighting units were installed in Building 379 and produced the same energy as the conventional lighting. The UTD-2000 provided adequate lighting and eliminated hot spots that could be associated with other means of natural light use or with fluorescent lights. However, the fluorescent lighting is used concurrently with the UTD-2000 units because the lighting levels can change suddenly, causing a safety problem when the shopworkers are working on the machines. Therefore, the UTD-2000 lighting control system is currently on bypass mode at NAS North Island.

BENEFITS

- If used in place of artificial lighting, cost savings could be realized through a reduction in energy used for artificial lighting

- Heat gain from the UTD-2000 system is less than the heat produced by electric lighting sources
- Accomplishments/Current Status

ACCOMPLISHMENTS/CURRENT STATUS

| Date | Activity |
|-------------|--|
| OCT 1996 | Ten units of the UTD-2000 Active Daylighting Systems installed |
| NOV 1996 | Monthly energy use monitored and evaluated |
| NOV 1997 | UTD-2000 system at NADEP placed on bypass mode |

FUTURE PLAN OF ACTION & MILESTONES

Not applicable

COLLABORATION/TECHNOLOGY TRANSFER

The UTD-2000 system, developed by Natural Lighting Co. Inc., may be applicable for a warehouse or other facility where intricate work is not being performed. The addition of a dimmable ballast and control system to gradually decrease the artificial light level as the natural light level increases may make the system more suitable for shop facilities.

BIBLIOGRAPHY

- Tetra Tech EM Inc. (formerly PRC Environmental Management, Inc.), Final Report UTD 2000 Active Daylighting System at NADEP Bldg. 379. November 1996.

RELATED GOVERNMENT INTERNET SITES

None available

RELATED NAVY GUIDEBOOK REQUIREMENTS

Not applicable

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