

New Construction Rebate Program Case Study



New Mexico Scientific Laboratories Albuquerque, NM

Facility Profile

Size:

196,997 square feet

Type of Facility:

Scientific laboratory

Rebate Received:

\$114,053.76

Expected Energy

Annual Savings:

1,425,672 kWh

\$85,540



New Mexico Scientific Laboratories (NMSL) marks a major step in energy efficient buildings in the state of New Mexico. The 196,997 square-foot facility, houses the NM Department of Health Scientific Laboratory Division (SLD), the NM Office of the Medical Investigator (OMI) and the NM Department of Agriculture Veterinary Diagnostic Services (VDS). These agencies are charged with providing specialized and capable response to public health and safety emergencies.

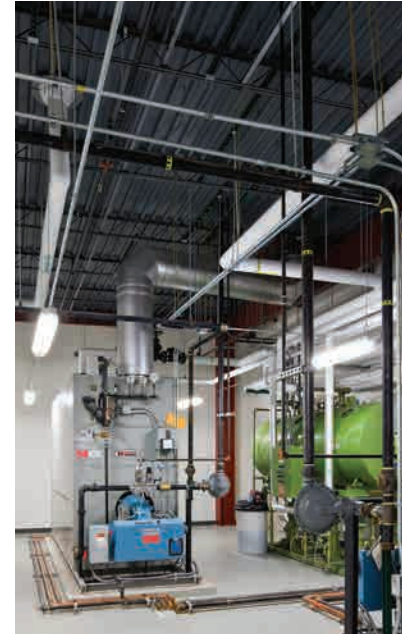


About the Rebate

NMSL received the rebate on its energy efficiency measures under the PNM New Construction Rebate Program. The project utilized the “whole building approach” to maximize the overall building efficiency and potential for rebates.

About the Facility

NMSL is a mixed-use occupancy facility containing administrative, office and laboratory spaces divided between five floors. The building features three bio-safety level three (BSL-3) laboratory suites (one for each of the state agencies) totaling 20,000 square feet. OMI’s autopsy suite is believed to be the largest contiguous BSL-3 suite in the nation and one of the largest in the world.



Above:
High-efficiency steam boiler



Left, Bottom Left and Bottom Right:
Many labs feature direct/indirect lighting and extensive use of occupancy sensors with manual override



Energy Efficiency Measures Implemented

Constructing a sustainable building was both a priority and a challenge for the NMSL design team because a significant number of processes at the facility are extremely energy and water intensive. During the preliminary stages of design, it became clear that huge amounts of outside air would be required to offset the large amount of exhaust created by the laboratories. The design team targeted the supply air as an opportunity to significantly reduce the energy consumption required to heat and cool the ambient air. This resulted in the selection of heat recovery of the exhaust air stream to preheat outside air using run-around coils. Also, to reduce cooling loads, direct evaporative coils can be used during periods of low ambient wet bulb conditions.

The second largest energy user was fan energy for supply and exhaust, particularly since these systems operate 24 hours a day, 7 days a week.

A study was conducted on the types of fume hoods available to determine which would result in less airflow requirements, particularly during periods of low use. The use of variable flow hoods was selected to allow the fans to back down using variable frequency drives during periods of low use.

Lighting was the next-largest energy user. Working with the architects, windows and skylights were added to provide day lighting where possible. Also, extensive use of occupancy sensors throughout the facility were also incorporated to reduce energy consumption.

The architects also specified low-e glazing with low shade coefficients and improved insulation on walls and roofs to reduce the facility cooling and heating loads.



Above:
HEPA filter plenum for efficient cooling of clean rooms

Bottom Left:
High-efficiency hot water boilers



Bottom Right:
High-efficiency chillers



Why improve energy efficiency?

- 1 Cuts operating costs and improves profitability.
- 2 Reduces maintenance demands.
- 3 Improves worker productivity, occupant health and safety.
- 4 Distinguishes your business as being eco-friendly or “green.”
- 5 Allows energy savings to finance business growth.

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Project Team

“The design and construction of NMSL was a monumental task, with some of the most-complicated mechanical and electrical systems built in New Mexico. My team at Bridgers & Paxton Consulting Engineers, Inc. worked with Studio Southwest Architects, Working Buildings, Jaynes Construction, Miller Bonded and McDade Woodcock, and many other sub-contractors, as a tight-knit team to make NMSL a reality and to design and implement the energy efficient measures that make this facility a true stand-out in the New Mexico building landscape,” said energy engineer Matthew Higgins.

Customer Raves

“UNM has really benefitted from the PNM energy efficiency program. We’ve attended several PNM workshops to learn how to make our facilities more energy efficient, and we have submitted rebate applications for a variety of projects as a result of those seminars. The rebate process was convenient, and we will continue to utilize this program on future projects and encourage others to do so as well,” said University Facilities Engineer Hans Barsun.



Staff and law enforcement personnel share a central atrium lobby

Photos courtesy of Patrick Coulie Photography Inc.

