

Renewable Energy, Sustainability, and Energy Conservation Experience:

- LEED® Accredited Professionals, mechanical and electrical
- Over 50 sustainable design projects, as well as LEED® Registered or Certified, Silver, Gold, and Platinum projects
- Four Net-Zero Energy Projects
- Founding board member, past president, and current board member
U.S. Green Building Council (USGBC) - Minnesota Chapter
- 2011 Silver Supporter of USGBC Minnesota
- Two past Chairs of the Minnesota Renewable Energy Society
- Past Chair of Consulting Engineers Council Minnesota Chapter Energy Committee
- Corresponding member of ASHRAE T.C.2.8 Sustainability
- Founding Co-Chair of ASHRAE Minnesota Chapter Sustainable Design Committee
- Member of international team developing the State of Minnesota Sustainable Building Guidelines, part of the Buildings, Benchmarks and Beyond (B3) Project
- Design award for active solar energy system
- Design of photovoltaic power system for the demonstration project for
Saint Paul Public Schools
- Design of fuel cell for the demonstration project for Hennepin County Eden Prairie Library
- Member Dakota County Technical College's Executive Steering Committee implementing the American
College & University Presidents Climate Commitment

S U S T A I N A B L E D E S I G N

Project Experience

University of Minnesota – Duluth Labovitz School of Business and Economics

Duluth, Minnesota

Estimated Construction Cost: \$16 Million

Located in the northeast corner of the UMD campus, the Labovitz School of Business and Economics is a 3-story, plus partial basement building consisting of instruction classrooms, administration offices and faculty office suites for each of the School's four disciplines: Accounting, Finance/MIS, Management and Economics.



The building's bent bar configuration connects into the existing campus circulation system between the Library and Library Annex building and is oriented with its long facades facing north and south to maximize daylighting potential and solar control. The design is organized around a 3-story, skylit commons area surrounded by a two-level administration block, a large 150 seat auditorium and a rotated instructional wing, also on two levels, which contains classrooms for 40 to 60 students.

Gausman & Moore provided complete mechanical and electrical systems design in compliance with the State of Minnesota Sustainable Building Guidelines. Building utilities are served from the campus infrastructure including HP steam, chilled water loop, a dual 13.8 kv parallel loop feeder system, and copper/fiber backbone telecommunications system.

This was the first public higher education building in Minnesota certified for Leadership in Energy and Environmental Design (LEED®) by the U.S. Green Building Council. Project was awarded LEED® Gold Certification status.

Arrowhead Electric Co-op Inc.

Lutsen, Minnesota

Estimated Construction Cost: \$16 Million

7,000 GSF existing office and maintenance facility, including mechanical and electrical systems, were totally renovated. A 6,000 GSF addition expanded the office space. A "member showcase" area is used to demonstrate renewable energy and energy saving technologies that were integrated into the building.



Photo compliments of Architecture Advantage

Renewable energy systems included in the project are: daylighting, natural ventilation, solar domestic hot water, a photovoltaic system was designed but not installed, and geothermal heat pumps. One geothermal heat pump system heats the building slab and a second heats the ventilation air which is preheated using a heat recovery system. The natural ventilation system takes advantage of the building's close proximity to Lake Superior, which provides cool summer breezes. Project is LEED® Gold Certified.

S U S T A I N A B L E D E S I G N

Project Experience

University of Minnesota – Duluth Bagley Outdoor Classroom

Duluth, Minnesota

Mechanical and electrical systems were designed for this net-zero energy 1,400 GSF outdoor classroom. The photovoltaic (PV) system consists of twenty-eight 200-watt Sanyo HIT panels tied to the utility grid via a 6000w automatic voltage sensing inverter with integral four string DC disconnect switch. A Sunnyboy WebBox allows the owner to monitor the system power production. Monitoring can be accomplished either via the internet or directly through the campus network system. Based on solar modeling, this system will produce power an average of 4.5 hours a day over the course of a year and generate approximately 7840 kwh annually.



Additional sustainable systems include instantaneous electric hot water boiler, air-to-air heat exchanger, composting toilets, low flow lavatories, daylight harvesting, and individual branch circuit metering to facilitate energy usage analysis.

Project is LEED® Platinum Certified, 2010 AIA MN Honor Award recipient, and designed for PassivHaus™ Certification.

Glassell Park Early Childhood Education Center (ECEC)

Los Angeles, California

Electrical engineering design services were provided for this new 22,000 sq.ft. facility. Energy efficient lighting was integrated with automatic daylight dimming controls and preprogrammed classroom settings to give teachers maximum flexibility. Other systems designed were power, fire alarm, television, security (including access control, CCTV and intrusion alarm), public address, data/telephone, emergency inverter system, future classroom sound enhancement system and provisions for future photovoltaic system.



ECEC is part of the first joint-use development by the Los Angeles Unified School District in which the ECEC shares property with an affordable housing complex. Coordinating utilities on the sloped plot of land provided challenges. The school is also registered for the CHPS program (Collaborative for High Performance Schools) which is comparable to LEED® Certification.

S U S T A I N A B L E D E S I G N

Project Experience

Tennant Company R&D Center of Excellence

Golden Valley, Minnesota

Mechanical and electrical systems were engineered for this 16,000 sq.ft. office remodel to an existing warehouse space. Tennant Corporation is a Minnesota based International Manufacturer of floor cleaning equipment and is committed to Green Cleaning Products.

Project is registered for LEED® Commercial Interiors Gold Certification.



Photo compliments of Architecture Advantage

Tofte Cabin

Tofte, Minnesota

Project won the 2002 AIA Committee on the Environment (COTE) Top Ten Green Project Award and praised for its environmental sensitivity. This Net-Zero Energy project utilized a ground coupled heat pump system powered by photovoltaic panels and a wind electric generator, which together provide all the energy needed annually.



Hennepin County - Brookdale Government Service Center

Brooklyn Center, Minnesota

Addition/renovation project including a library, courtrooms, jail, and social service offices. Sustainable Design features include reused/recycled building, daylighting controls, CO2 sensors for IAQ, Xcel Energy Assets Computer modeling, compliance with the State of Minnesota Sustainable Building Guide.



Hennepin County – Eden Prairie Library

Eden Prairie, Minnesota

40,000 GSF library, 6,000 GSF Tenant Lease Space

Gausman & Moore designed mechanical and electrical systems for this library. The library was an adaptive reuse of a grocery store. Mechanical systems included boilers, air handling units, a chiller, and complete plumbing and fire protection. Electrical systems included power, lights, and communication. The building was used as a fuel cell demonstration project. A fuel cell converts natural gas to chemical energy, which produces electrical energy and clean water.



S U S T A I N A B L E D E S I G N

Project Experience

U.S. Army Corps of Engineers (USACE)

Gausman & Moore has designed U.S. Army Corps of Engineers (USACE) training facilities using sustainable design principles for mechanical and electrical systems. The systems met or exceeded the mandated USACE sustainability SPiRiT Ratings (sustainable project rating tool).

33 SPiRiT/LEED rated projects
11 Gold
13 Silver
9 Bronze

20+ projects registered for
LEED® Silver Certification

U.S. Army Reserve Center / Gray Army Airfield (GAAF) Aviation Support Facility (ASF)

Fort Lewis, Washington

Designed mechanical and electrical systems for a 59,057 GSF helicopter Aviation Support Facility (ASF), a 26,809 GSF two-story Training Building, a 3,768 GSF Organizational Maintenance Shop Building (OMS), and a 1,070 GSF unheated Storage Building. The design included Anti-Terrorism Force Protection (ATFP).



Photo compliments of RSP Architects

Mechanical systems included infrared heating and CO monitor controlled life safety ventilation exhaust and makeup air for helicopter and vehicle maintenance bays; hot water boilers with primary/secondary pumping; air handling units with hot water coils; and DDC controls. Buildings were fully sprinklered. An Aqueous Film-Forming Foam (AFFF) fire suppression system and associated fire pump were designed for helicopter maintenance bays.

Electrical systems included exterior high voltage distribution; interior low voltage services and distribution; 400HZ aircraft power conversion and distribution system; aviation lighting, site lighting, and interior lighting; emergency lighting central inverter system; fire alarm system; outside plant copper and fiber optic cabling, premises data distribution cabling, telephone system, fire alarm system, mass notification system, cathodic protection, lightning protection, and special grounding systems.

Bronze SPiRiT Sustainable Project Rating

S U S T A I N A B L E D E S I G N

Project Experience

United States Army Reserve Center / Classroom Building

Grand Prairie, Texas

Provided mechanical and electrical engineering design for this two story Classroom and Office Building (23,394 GSF). The design included Anti Terrorism Force Protection (ATFP).



Mechanical systems included variable volume heating/cooling air handlers, high efficiency condensing hot water boilers with primary/variable secondary pumping, and outdoor air cooled chillers with primary/variable secondary pumping, DDC controls.

Complete electrical distribution, lighting, communications and alarm system design. Some features included exterior site lighting, interior lighting, daylight harvesting, emergency lighting, building power transformation and distribution, fire alarm system, mass notification system, telephone system, and lightning protection system.

Gold SPIRiT Sustainable Project Rating

City of Minneapolis Third Precinct Police Headquarters

Minneapolis, Minnesota

38,000 sq.ft renovation and addition to an existing facility. New mechanical and electrical systems provided for facility included boilers, chillers, hydronic heating systems; variable air volume ventilation and cooling systems; DDC temperature controls; electric power distribution system; and new fire alarm system. Sustainable design systems included heat recovery ventilation, a solar wall for preheating ventilation air, and lighting controls. Designed using LEED® guidelines.



World Jewelry Center

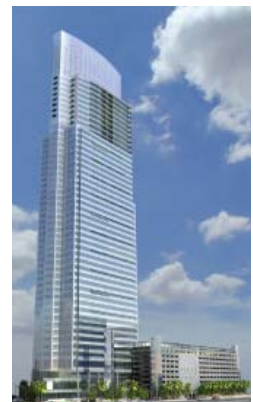
Las Vegas, Nevada

"The World Jewelry Center, with approximately one million square feet of mixed-use space, will be one of the largest jewelry hubs on the planet..."

The new Center will combine the corporate offices of domestic and international gem and jewelry companies in an iconic, state-of-the-art trade tower adjacent to a spectacular free-standing gallery of retail jewelry stores with broad market appeal. The mixed-use project will also feature a world-class museum, exhibition space, and exclusive luxury residential condominiums. Designed to house manufacturers, dealers, wholesalers, and retailers, the World Jewelry Center is poised to revolutionize the global jewelry industry and become a progressive business focal point for international trade and commerce."

Gausman & Moore is providing electrical and voice/data engineering for both the base building and tenant infill. Project was designed but not built.

Registered for LEED® Gold certification



S U S T A I N A B L E D E S I G N

Project Experience

Target Store

Mechanical and electrical engineering design of 140,000 GSF store including low flow plumbing fixtures; environmentally friendly refrigerants for cooling; green roof; high efficiency rooftop units; and two-lamp high efficiency lighting fixtures. LEED® certified.

Morgan Park, Illinois



Target Store

Mechanical and electrical engineering design of this 140,000 GSF store included low flow plumbing fixtures; high efficiency rooftop units; two-lamp high efficiency lighting fixtures; environmentally friendly refrigerants for cooling.

Long Beach, California



Registered for LEED® certification.

Target Store

Mechanical and electrical engineering design was provided for this 180,000 GSF store which included low flow plumbing fixtures; high efficiency rooftop units; two-lamp high efficiency lighting fixtures; environmentally friendly refrigerants for cooling. Registered for LEED® certification.

Chicago Wilson Yard, Chicago, IL



The Wilson Yard project is a 6-acre multi-use/residential regional development complex consisting of a residential family tower, a residential senior living tower, Target shopping center and additional street-level retail space. The project features a 180,000 GSF Target, 700 parking spaces and 30,000 GSF of other retail, office space, and restaurants.

Saint Paul Public Schools Battle Creek Environmental Magnet Photovoltaic System

St. Paul, Minnesota

The photovoltaic electrical generating system offers the school an excellent alternative energy demonstration project for the students. Energy from the system is fed to the school and used by the students. With constant monitoring of the display and hands on experiments, the students learn about photovoltaic systems. The control system is PC based providing active switching that protects the equipment and optimizes output.



Minneapolis Public Schools Hawthorne School

Minneapolis, Minnesota

Gausman & Moore designed the mechanical and electrical systems for this new 112,000 GSF combined elementary and junior high school. Mechanical ventilation systems included state of the art ventilation systems and heat recovery systems which followed the nationally recognized Minneapolis Public Schools Indoor Air Quality Guidelines. Carbon dioxide level controlled outdoor air systems were used; as well as occupancy sensor lighting, HVAC controls, and chillers with heat recovery condensers. Energy-efficient lighting was installed that included automated dimming and daylighting.



Gooseberry Falls Visitor Center and Rest Area

Two Harbors, Minnesota

A joint venture between the MN DNR and MN DOT to complete a 10,000 square foot information center/rest area. The building overlooks the Gooseberry River and is sectioned into four main areas: restrooms operating 24 hours, an interpretative center, a retail store, and administration areas.

Mechanical systems consist of LP fired boilers, in-floor hydronic radiant heating, ventilation, and cooling units serving the entire building. Electrical systems consist of energy-efficient lighting sources including low energy fluorescent lamps with electronic ballast technology. Complete life safety systems that meet the Americans with Disabilities Act (ADA) have been incorporated into the building design. Security and sound systems have also been incorporated throughout the building. Dimming systems have been provided to handle various lighting requirements in the viewing areas. Exterior lighting was designed with careful consideration of the environment to minimize the impact on the natural surroundings.



Wolf Ridge Environmental Learning Center

Finland, Minnesota

Designed mechanical and electrical systems for a new dormitory and an addition to the Dining Hall. The 22,960 GSF dormitory project includes an extension of the existing wood fired district heating system, radiant floors, photovoltaics for lighting, air to-air heat exchangers for ventilation, and passive solar heating.

"The site and building design should create instruments with which to teach lessons about our environment. The design goals should be environmental harmony and experiential learning." - Ron Kirk, Wolf Ridge Design Team Leader



S U S T A I N A B L E D E S I G N

Project Experience

YMCA - Camp Miller

This 8,000 GSF dining hall includes a commercial kitchen, dining areas, offices, toilet rooms, activity areas, and storage areas. The dual fuel heating system design takes advantage of interruptible rates to provide low heating costs. Site utilities include wells and a drain field.

Sturgeon Lake, Minnesota



Long Lake Conservation Center

Designed the mechanical and electrical systems for the dining hall and dormitory. All new buildings use current energy conservation technology and receive their heat from a centralized wood-fired energy center.

Palisade, Minnesota



Inland Empire Utilities Agency Building (IEUA)

Electrical engineering site design for this LEED® Platinum project.

Chino, California



Farmhouse/Conference Center

Farm house in rural Wisconsin was renovated to be used as retreat/ conference center. The Net-Zero Energy project goal was achieved using renewable energy and energy efficient mechanical and electrical systems. Renewable energy systems included a 10 KW wind generator and an active solar hot water system used for space heating and domestic water preheating. The building is heated using the solar preheat and a combined low temperature radiator and floor radiant heating system with a high efficiency boiler for backup. The conference center is ventilated using heat recovery ventilators. High efficiency split systems provide multiple zones of cooling.

Beldenville, Wisconsin



S U S T A I N A B L E D E S I G N

Project Experience

Air Motion Systems

AMS is the leading manufacturer of high-efficiency UV systems for the printing industry. This new 12,000 GSF office and 24,000 GSF manufacturing facility included a ground source heat pump system for facility heating and high efficiency rooftop units for cooling. The project design also included heat recovery from manufacturing and testing processes, high efficiency plumbing fixtures, and daylighting.

The sustainable aspects of this design are expected to yield 50% water savings, 12.5% energy savings, and a 29% reduction in energy costs.

Registered for LEED® Silver Certification.

River Falls, Wisconsin



Saint John's University

Gausman & Moore has designed dormitory buildings, science buildings, and many other facilities for the campus.

Gausman & Moore developed a Master Plan for the campus utility systems, identifying some major opportunities for developing the existing campus utility system. Due to this Master Plan, Saint John's is in a position to burn coal, natural gas, oil or wood to produce steam, which produces electricity. Steam is exhausted out of the generators at low pressure and is used to either heat the campus during the winter months or utilized by absorption chillers to cool the campus in the summer. Gausman & Moore designed projects that provide Saint John's University the capability of being completely disconnected from the power utility during high utility demand times. The result is a significant power cost savings to Saint John's University.

Collegeville, Minnesota



S U S T A I N A B L E D E S I G N

Project Experience

Buildings, Benchmarks & Beyond (B3) Project State of Minnesota, Department of Administration

Gausman & Moore was selected to be part of the team that developed and implemented Sustainable Building Design Guidelines and maximize energy efficiency in public buildings. This five-year project included a public building benchmarking process that will identify best practices in energy, indoor air quality, and sustainable design.