

Twenty Mile South MEP Presentation

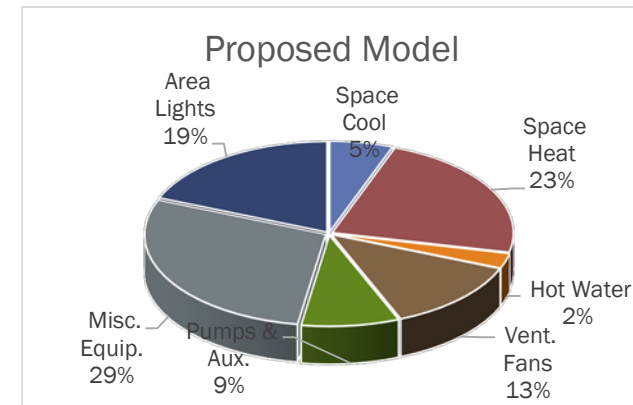
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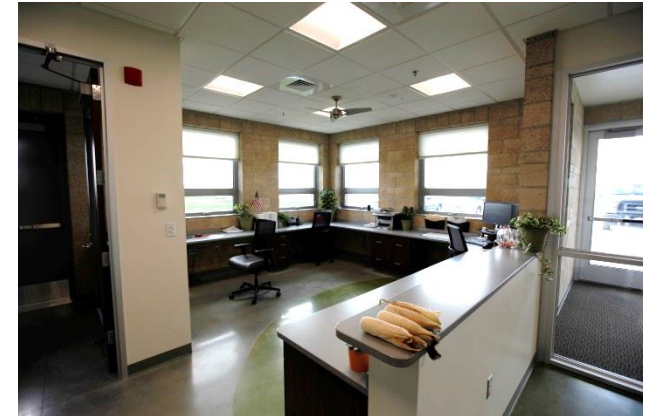
General

- MEP systems were the easy part
- Electric versus Propane
- Energy modeling – Design Tool
- Efficiency first, reduce the electrical demands. 74.7% better than LEED baseline
- Budget was critical, look for areas where we could spend \$1 to save \$2 in PV



Lighting Systems

- 0.35 w/sq.ft. (actual) compared to 1.08 w/sq.ft. (code)
- Continuous and bi-level dimmable LED lights
- Daylighting controls at perimeter zones with manual override
- Occupancy sensors
- Exterior lights on motion sensors. Each service bay zone has individual sensor



Electrical Systems

- Receptacle control in the admin area through occupancy controls
- Metered electrical panels

Power Monitoring Multi-circuit
Panelboard Monitoring System

E3x Series



INTEGRATED ENERGY w/ SWAMP, BACNET, & MODBUS

E3E

SPECIFICATIONS

INPUTS	
Input Power	100-277VAC, 50/60 Hz, 150W max.
Accuracy	
Power/Energy	IEC 62053-21 Class 1, ANSI C12.1-2008, 1% system accuracy (includes main board and branch CTs)
Voltage	±0.5% of reading 90-277VAC line-to-neutral
Current	±0.5% of reading
Minimum DR Current	5mA
OPERATION	
Sampling Frequency	2500 Hz
OUTPUTS	
Serial Protocol	All: Modbus RTU E3E module: BACnet MSTP
Serial Connection	All: 2-wire, RS-485
Address	E3A/B/C module: 4-wire RS-485 E3A/B/C module: Selectable address 1 to 247 (uses 2 address for Modbus RTU) E3E module: Selectable at address 1 to 247 for Modbus RTU or 01 for BACnet MSTP
Board Rev	All: 8500, 85400 (selectable on A/B/C module)
Parity	All: Modbus RTU: NONE, ODD, EVEN (selectable on A/B/C module)
Terminal Block Torque	E3A/B/C module: BACnet MSTP: NONE (lead) E3E module: 4.4 to 5.3 in-lb (0.5 to 0.6 N-m)
Ethernet Protocol	All: Modbus TCP
Ethernet Connection	E3E module only: RJ-45 10/100 Mbit
ENVIRONMENTAL	
Operating Range	0° to 50°C (32° to 147°F) ±0.5% (see non-condensing)
Storage Temp Range	-40° to 70°C (-40° to 158°F)
Humidity at Operating	30% to 90%
Agency Approvals	UL 508, EN61010-1, Cat. II, pollution degree 2

DESCRIPTION

The E3x Series Panelboard Monitoring System provides a cost-effective solution for electrical load management, making it ideally suited for applications where loads are dynamic, such as the data storage industry, lighting panels, etc.

The E3x series monitors the current, voltage, instantaneous power, demand, and energy consumption of each circuit in a panelboard including the main feed. As a circuit approaches the user-configured thresholds, alarm indicators are triggered, preventing costly downtime from overloaded circuits or failed loads. (See graph, facing page)

* E3E module monitors only current values.


APPLICATIONS

- Load-based cost allocation
- Lighting control panels
- Overload protection
- Load management
- Data center PDU's
- Load balancing
- Substant billing
- Energy management

FEATURES

- Revenue grade measurements
- ANSI & IEC Class 1 metering system accuracy including branch CTs
- Solid-core branch CT strip models for new construction
- Split-core branch CT models for retrofit applications
- Report by volts, amps, power, demand, & energy for each circuit... one product covers up to two complete 42 breaker panelboards*
- Up to 92 circuits with one product (64 branch circuits, 2 3-phase mains, 2 neutrals)*... saves space
- User-configurable meters provide multi-phase totals for loads with any combination of 1, 2, 3 pole breaker positions
- 3/4", 1", or 1 1/2" spaced solid-core branch CT strips... flexible installation
- 4 user-configurable alarm threshold registers... improved load management
- Selectable orientation and numbering of the circuits
- 50mA to 100A monitoring... widest dynamic range in the industry
- Modbus RTU standard on all models
- Modbus TCP over ethernet is standard on E3xExx models and available on others with addition of U0130012
- BACnet IP with BSM40 support or MSTP is standard on E3xExx models and available on others with addition of E8951
- SNMP support is standard on E3xExx models and available on others with addition of E8951

* Depending on optional order.



VERIS INDUSTRIES

GE
Industrial Solutions

Know where the power goes

A-Series** II Panelboard with Branch Circuit Monitoring and AMP1 Integrated Power and Energy Meter



Your efforts to reduce energy consumption begin with making smart decisions. Let our integrated A-Series II Panelboard solutions help you to identify potential measures that put you on the path to energy and cost savings.

Simply tie your Type AQ, AE or AS panelboard with either our Branch Circuit Monitoring or AMP1 Integrated Power & Energy Meter into a building automation system to know where your power goes and how much you're using.

Branch Circuit Monitoring (BCM) delivers valuable and precise branch usage data from the A-Series platform down to the individual branch circuit, enabling users to analyze and identify potential cost-saving actions.

AMP1 Integrated Power & Energy Meter monitors key electrical parameters of the main power coming into the panelboard. The factory-installed AMP1 meter is a completely integrated solution ideal for tenant billing and cost allocation.



HVAC Systems

- Close loop horizontal ground source heat pumps
- Electric boiler supplemental heat
- ECM driven circulation pumps
- Modulating compressors/ECM evaporator fan water-to-air heat pump
- Energy recovery ventilation
- Direct Digital Controls
- Heat pump interlock with overhead doors
- Shop night flush



General Mechanical Systems

- Air source domestic water heat pump
- Low flow plumbing fixtures (reduced hot water demand)
- Compress air system shutdown
- Overhead paddle ceiling fans
- Ultra-low leakage dampers
- Other considerations (radiant slabs, earth tubes, chilled beams)



Skylar Swinford