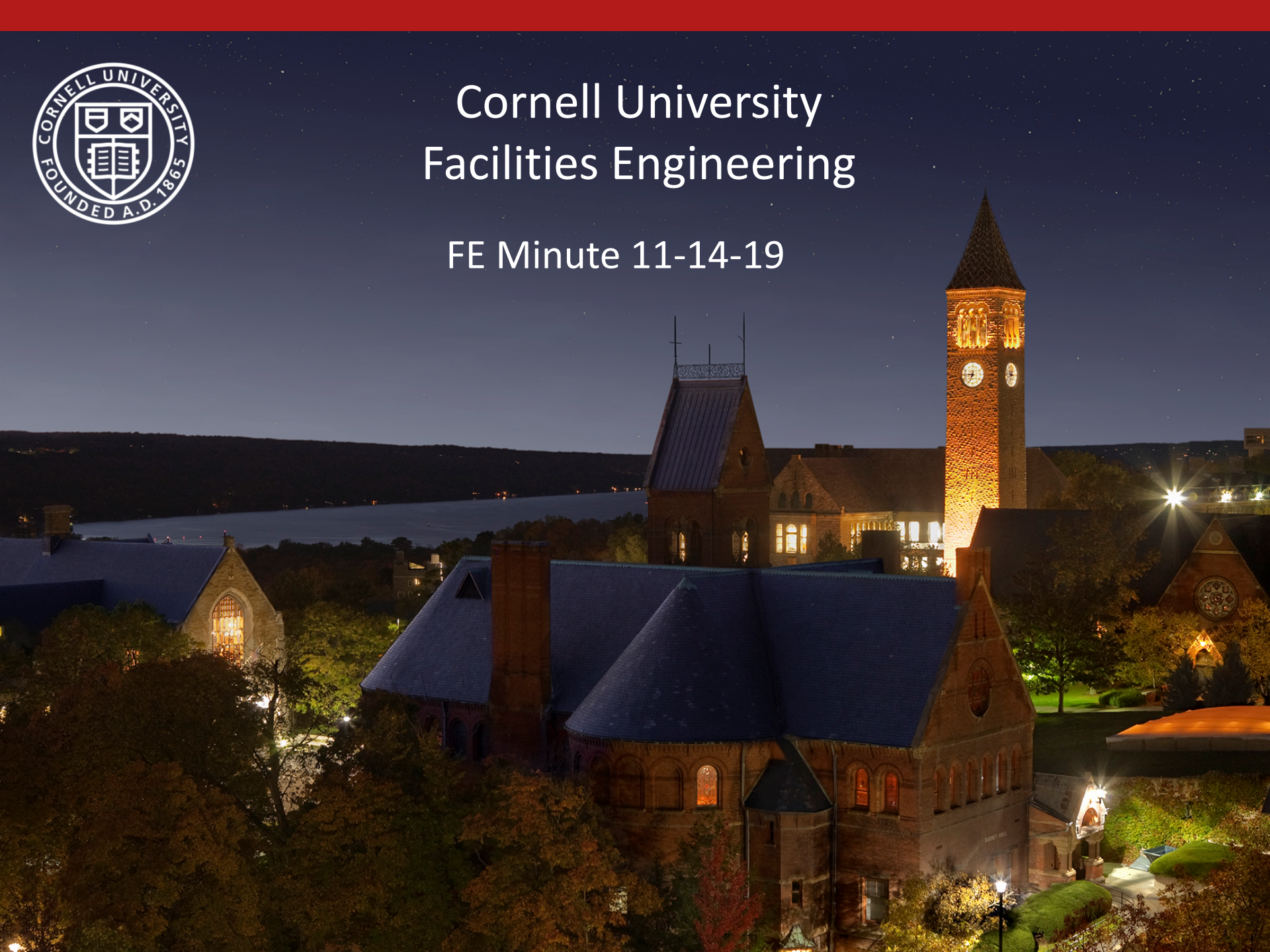

Cornell University
Facilities Engineering

FE Minute 11-14-19

FE Minute

1. **Standards Updates/Postings**

2. **Roof Mounted Solar Panels**

3. **Energy Storage System Supplement**

Standards Updates

Recently posted:

- Passenger Elevators
- BACS Guidelines
- Electronic Safety and Security
- Soils and Planting Preparation
- Tufts and Grasses

Arriving soon:

- Bus Shelters

Roof Mounted Solar Panels

New Building Design

- Solar needs to be part of the design from the beginning.
- Design to elevate solar above roofing system a minimum 3’.

Existing Roofs

- Verify with manufacture adding solar will not void current warranty
- Verify existing membrane is not past the half way point of its life expectancy
- During design- keep in mind water migration, do not interrupt water flow
- During design consider roof safety, access to roof drains and safety tie-off
- Membrane protection, travel paths, staging and roof loading locations
- Roof Pm twice a year Spring and Fall
- Require roof inspection at the completion of the project.

Energy Storage System Supplement

- Supplement to NYS Fire code
- Issued in September 2019
- Battery Types & Capacities (See next slide)
- Construction Documents Requirements
  - Details, Commissioning Plan, Decommissioning Plan, Hazard Mitigation Analysis, Large Scale Fire Testing, Fire Remediation, Analysis Approval, Fire Mitigation Personnel, Peer Review
- Exceptions

TABLE 608.1
ENERGY STORAGE SYSTEM THRESHOLD QUANTITIES

TECHNOLOGY	ENERGY CAPACITY [a]
Lead-acid batteries, all types	70 kWh (252 Megajoules) [c]
Nickel-cadmium batteries (Ni-Cd)	70 kWh (252 Megajoules)
Nickel metal hydride (Ni-MH)	70 kWh (252 Megajoules)
Lithium-ion batteries	20 kWh (72 Megajoules)
Flow batteries [b]	20 kWh (72 Megajoules)
Other battery technologies	10 kWh (36 Megajoules)
Capacitor energy storage systems	3 kWh (10.8 Mega joules)
Other *electrochemical energy storage systems* technologies	3 kWh (10.8 Mega joules)

a. Energy capacity is the total energy capable of being stored (nameplate rating), not the usable energy rating. For units rated in Amp-Hours, kWh shall equal rated voltage times amp-hour rating divided by 1000.

b. Shall include vanadium, zinc-bromine, polysulfide-bromide, and other flowing electrolyte type technologies.

c. 50 gallons of lead-acid battery electrolyte shall be considered equivalent to 70 kWh.


Questions?