BUILDINGENERGY BOSTON

The Path to Emergency Electric: Lessons from the Kenzi

Julie Klump (Preservation of Affordable Housing)
Sara Kudra (DREAM Collaborative)

Curated by Greg Smith and Kurt Carlson

Northeast Sustainable Energy Association (NESEA)
March 29, 2023

PATH TO EMERGENCY ELECTRIC

LESSONS FROM THE KENZI

NESEA MARCH 29, 2023

Preservation of Affordable Housing

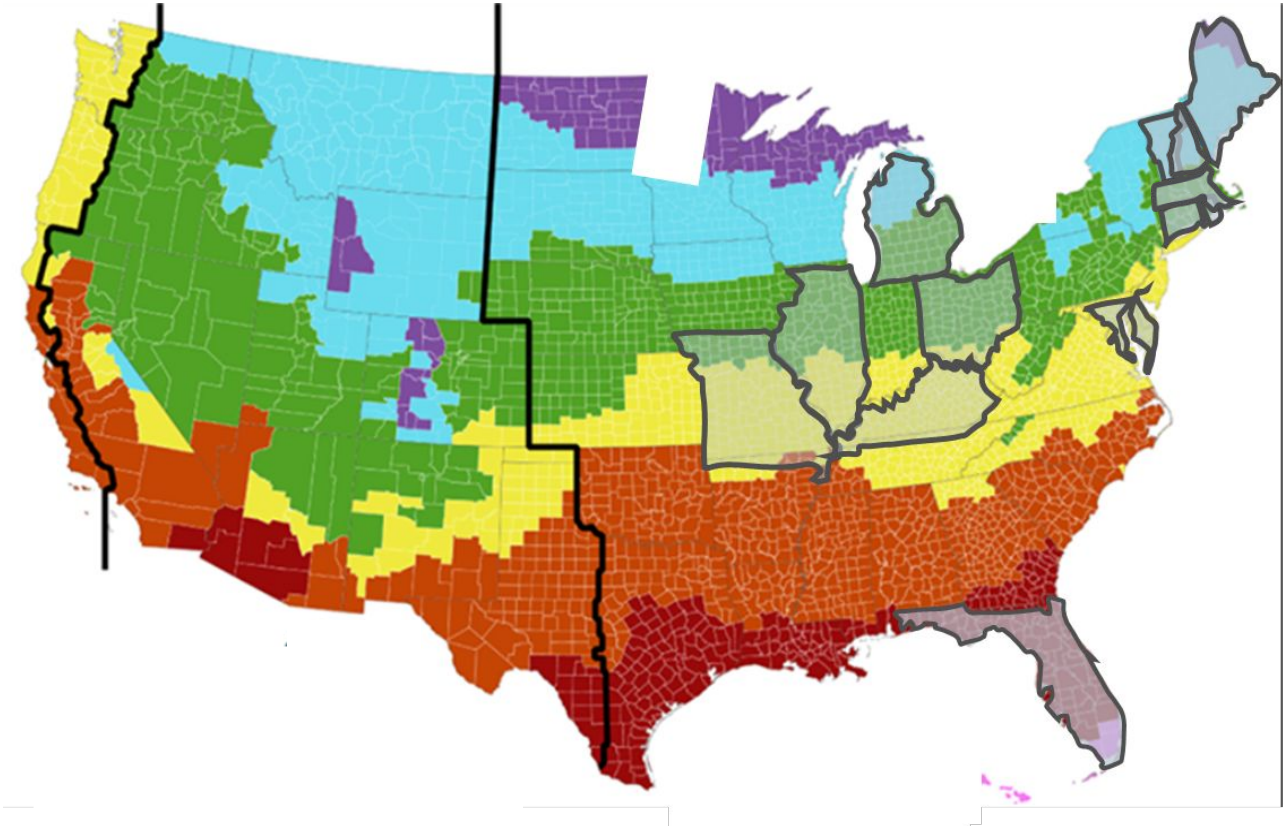
D/R/E/A/M COLLABORATIVE

PRESENTERS

JULIE KLUMP
VP Design & Building Performance
PRESERVATION OF AFFORDABLE HOUSING, INC (POAH)

SARA KUDRA AIA
Affordable Housing Director
DREAM COLLABORATIVE

PRESERVATION OF AFFORDABLE HOUSING



A nonprofit organization whose mission is to preserve, create, and sustain affordable, healthy homes that support economic security, racial equity and access to opportunity for all.

DREAM COLLABORATIVE

Architecture Powered by Diversity

We believe broader perspectives and diversity of thought make for more informed decision-making, more contextual architecture, and ultimately, more positive impacts.

› *DREAM's mission is to create beautiful, authentic places and enable better outcomes for all stakeholders through inclusive design practices.*

2022 New England AIA Components Emerging Professional Friendly Firm

Just.℠

Click here to view video.

BATTERY TEAM

NUESTRA COMUNIDAD
DEVELOPMENT CORPORATION

Preservation of Affordable Housing

SunBug Solar

switch
storage solutions

D/R/E/A/M
COLLABORATIVE

NEI
built for good

JS CONSULTING ENGINEERS™

CLEAResult

PE | Petersen Engineering

BUILDING EVOLUTION CORPORATION
Achieve Performance & Durability Through A Holistic Approach™

WHY HERE?

Advocate for why electrification is an environmental justice issue.

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Environmental Justice Community

Minority

Income

English Isolation

Image Courtesy of WBUR

Image Courtesy of Nuestra CDC

BOSTON

ROXBURY

BARTLETT STATION

Image Courtesy of Historic New England

N

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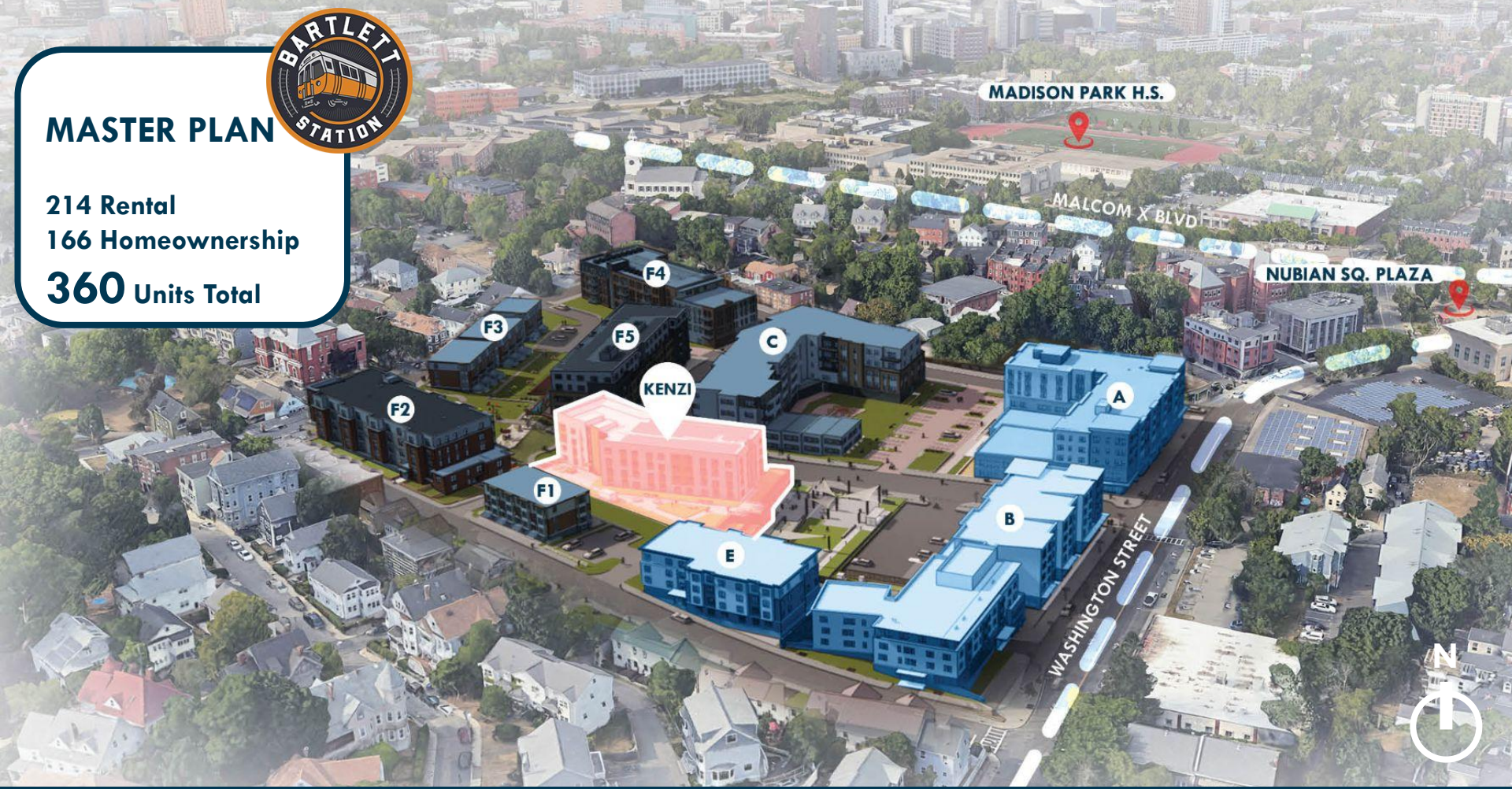
MASTER PLAN

214 Rental
166 Homeownership
360 Units Total



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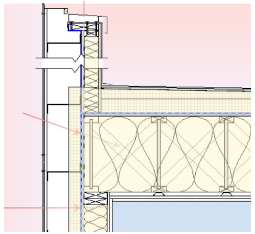
BUILDING SYSTEMS

Define the steps required to design battery energy storage systems

ENCLOSURE

0.06 CFM/SF
PER ENVELOPE AREA

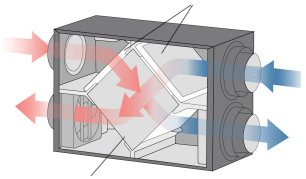
R-39 WALL
R-60 ROOF



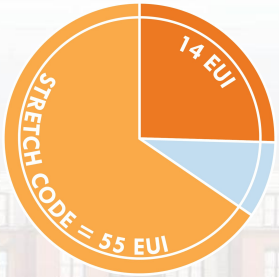
GLAVEL

ELECTRIFIED SYSTEMS

ERV 2x LEVEL



CENTRAL VRF



HPHW EA LEVEL W RECIRC.

PV + EV

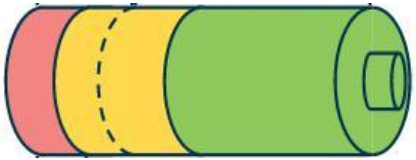
90 kW Solar panel array
EV charging stations

EJC OUTDOOR

Terrace + Plaza

BATTERY BACKUP

440 kWh Backup



BFD/ISD QUESTIONS/ANSWERS

Strategize your approach to AHJ's to effect positive outcomes

Where and what type of system monitoring is done off site?

Is there any mechanism in place to make sure the batteries do not overheat ie. ventilation system?

What is the emergency operations plan?

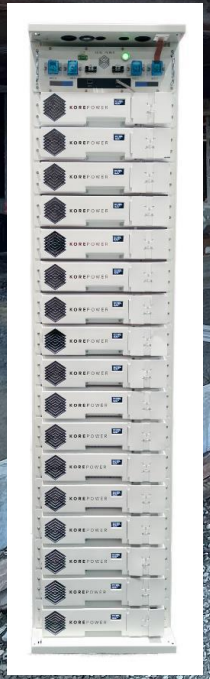
Where is the remote shutoff location?

Please note closest hydrants and distances to ESS

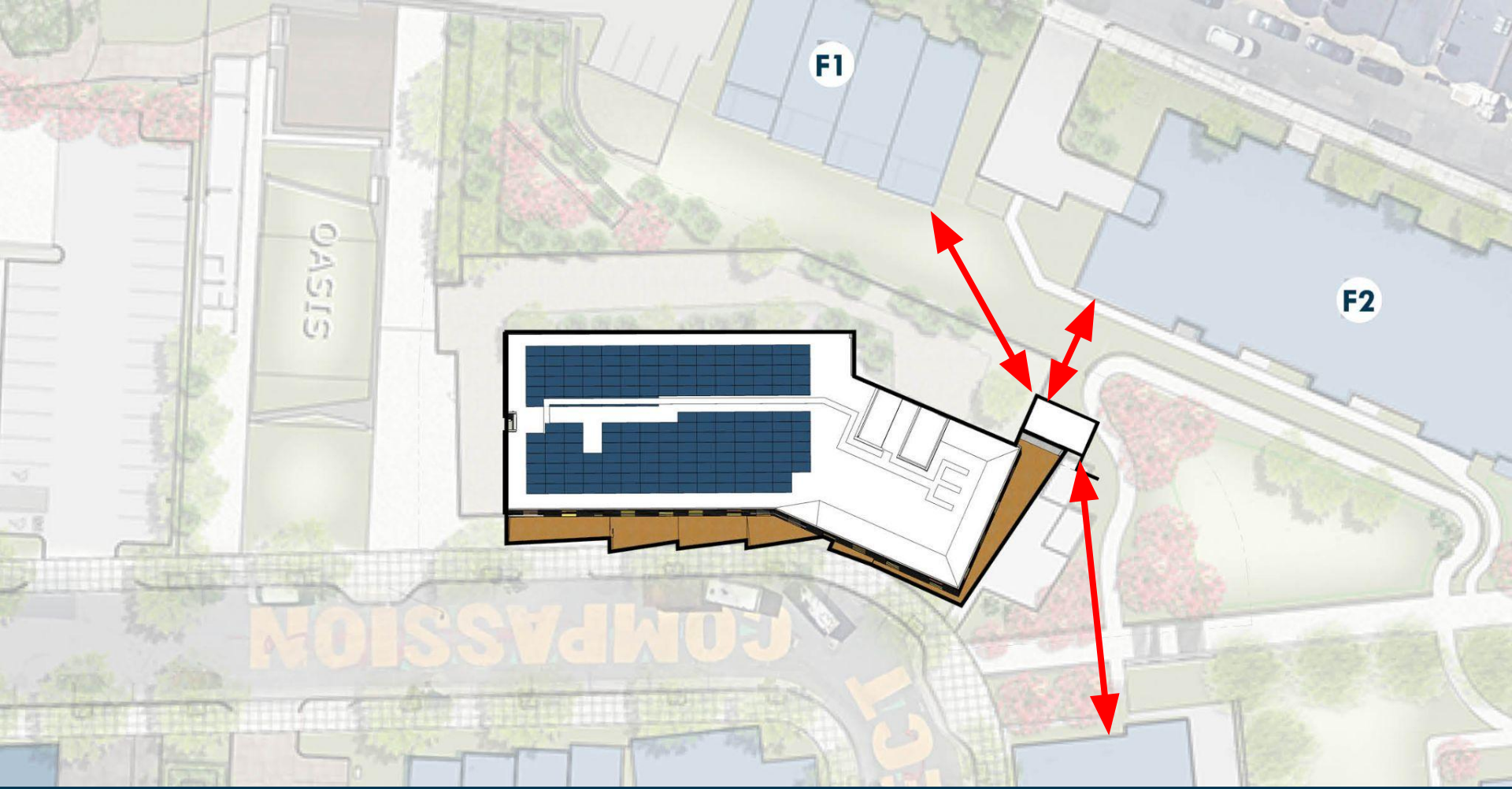
What are the procedures if an alarm sounds?

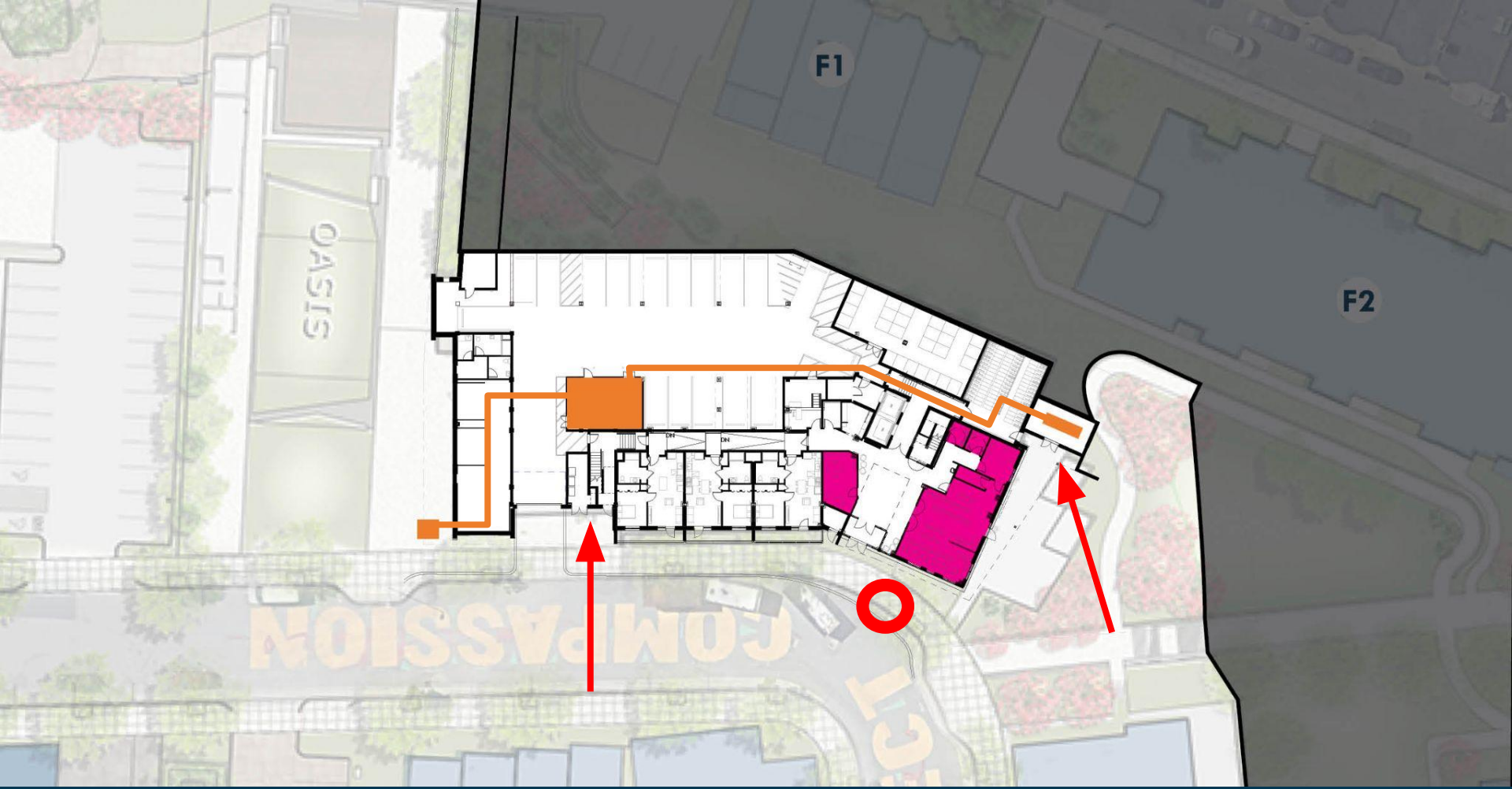
Is there any explosion venting?

THREE LEVELS OF BMS HIERARCHY



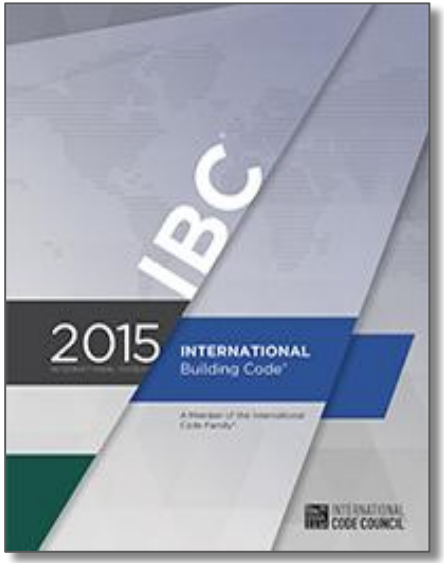
NESTING BACKUP SYSTEMS

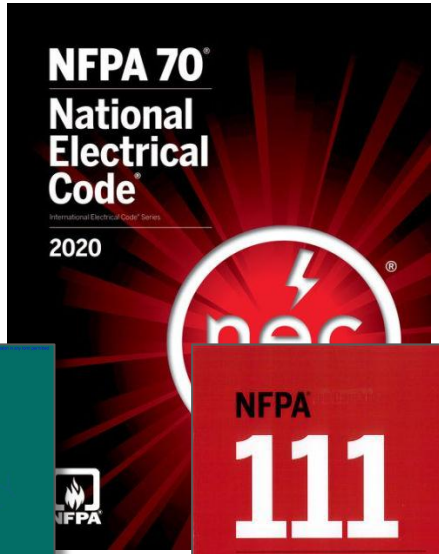

F1
F2
OASIS
COMPASSION

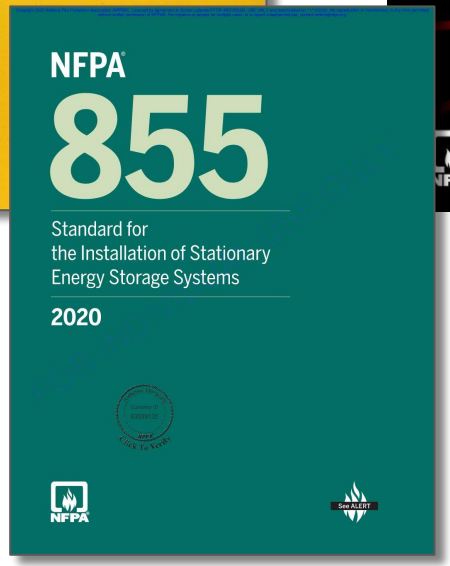

F1
F2
OASIS
COMPASSION

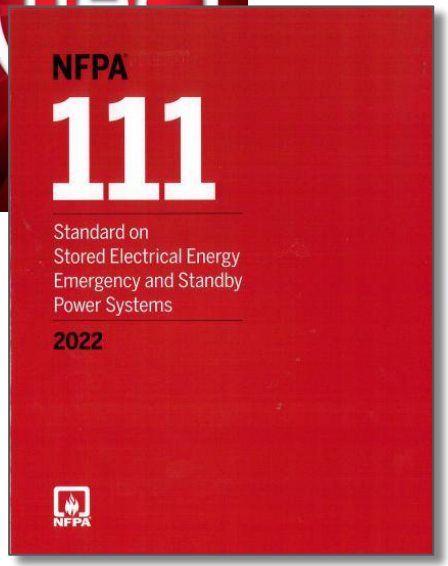
CODE LANGUAGE

Apply code language to your future all-electric project









MA BUILDING CODE
780 CMR, 9TH EDITION
Based off 2015 IBC

- Triggers requirements for emergency backup power above 4 stories

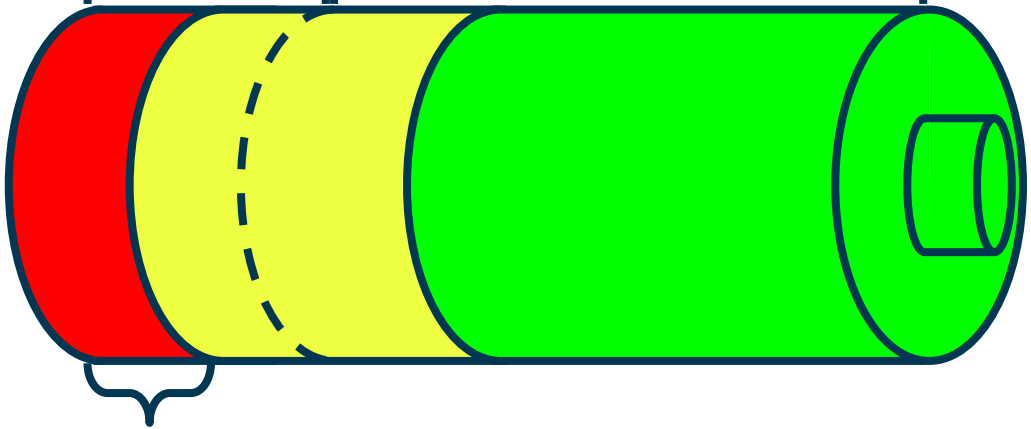
TOTAL SYSTEM 100%

440 kWh

PEAK DEMAND 68%

140 kWh

300 kWh



2 HR LOAD 16%

70 kWh

COST & INCENTIVES

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PV & BATTERY SYSTEM

COSTS		
PV	90 kw	$160,000.00
Battery	440 kwh	$500,000.00
	TOTAL	**$660,000.00**

INCENTIVES		
Investment Tax Credit (ITC)(30%)		$198,000.00
Energy Savings (total for 30 years)		$508,611.00
SMART 1- 20 Year Total (renewable energy certificates)		$251,059.00
SMART Year 21-30 Total (renewable energy certificates)		$22,000.00
Connected Solutions Program		$98,000.00
MA Clean Peak Program		$18,650.00
ISO-NE On-Peak Hours Resource Program		$18,000.00
	TOTAL	**$1,114,320.00**
* potential adders for ITC, TBD later in 2023 (20% Total System)		$13,200.00
** also able to use the value of the system in LIHCT basis		
	PAYBACK YEAR 8	

PATH TO EMERGENCY ELECTRIC

QUESTIONS & ANSWERS

NESEA MARCH 29, 2023

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