ARUP

60 State Street
Boston, MA 02109
USA

t +1 617 864 2987

arup.com

March 6, 2024

Neil Angus
Devens Enterprise Commission
33 Andrews Pkwy.
Devens, MA 01434

Your ref 33 Jackson Rd - Flammable License Application
Our ref 298188-00

Dear Mr. Angus,

33 Jackson Rd. - Flammable License Submission

Supporting Documents

On behalf of King 33 Jackson LLC (Owner) and Electric Hydrogen (Tenant) we are submitting this application for a flammable license for 33 Jackson Road in Devens, MA. As discussed in our pre-planning meeting on Monday March 4th, 2024, the property is seeking to attain a flammable license for the maximum quantity of materials Electric Hydrogen plans to have to on-site when they reach full capacity. This corresponds to:

Flammable Solids - 3,750 pounds

Flammable Liquids - 960 gallons

Electric Hydrogen has obtained flammable storage and processing permits for their Phase 0 needs. They understand that with each new phase and more materials needed, they will need to update these permits with the Devens Fire Department.

The following documents are attached in support of this application:

- Level 2 Permit Application
- Flammable License Application
- Corrective Level 1 Lotting Plan dated 8/25/23, for reference
- As-Built Survey of General Property/Site dated 12/16/22, for reference
- Hazardous Material Storage/Use Strategy – Level 1
- Hazardous Material Storage/Use Strategy – Level 2
- Hazardous Material Strategy Report (Section 414 Report)
- Phase 0 Flammable Chemical Inventory

ARUP

Our ref	298188-00
Date	March 6, 2024

- Hazardous Processing Permit – Phase 0
- Flammable Storage Permit – Phase 0
- Industrial Performance Standards Checklist Form
- Electric Hydrogen's Emergency Procedures

Applying for a flammable license does not involve any increase to sound, vibration, air quality, odor, dust, lighting and/or electromagnetic interference. The fit-out of 33 Jackson Rd. for Electric Hydrogen, where the above applies, is under a separate submission by the contractor BWK. Seeking this flammable license does not introduce emissions.

As Electric Hydrogen plans to store and use the materials in greater quantities, in-depth reviews and justification will be provided to the Devens Fire Department to increase the flammable storage and processing permit thresholds.

Yours sincerely,

Jonathan Eisenberg
Associate Principal

d +1 617-349-9240
e jonathan.eisenberg@arup.com

DEVENS ENTERPRISE COMMISSION

DEC NO. _____
DATE: _____
FEE: _____

DEVENS REGIONAL ENTERPRISE ZONE
PERMIT APPLICATION **LEVEL 2**

==========

ESTIMATED COST OF CONSTRUCTION / IMPROVEMENTS _____

OWNER KING 33 JACKSON LLC
ADDRESS 800 BOYLSTON ST, STE. 2400
CITY/STATE/ZIP BOSTON, MA 02199
PHONE 617-910-5500
FAX _____

SIGNATURE

Tyson Reynoso
Type or print name and title

APPLICANT ELECTRIC HYDROGEN
ADDRESS 1 STRATHMORE RD
CITY/STATE/ZIP NATICK, MA 01760
PHONE 978-790-6200
FAX _____

SIGNATURE

Kenneth M. Jones
Type or print name and title

If appropriate, attach a separate sheet with the name(s), address(es), and telephone/fax numbers for the project engineer, attorney, or other "development team" personnel.

SITE / LOCATION / STREET 33 Jackson Road

LOT SIZE / TOTAL PARCEL / ZONING DISTRICT: 445,081 SF / PARCEL-0.13-0021-1000.0 / INNOVATION AND TECHNOLOGY BUSINESS ZONE

==========

STATEMENT OF PROPOSED WORK OR ACTIVITY: License to store flammables

==========

SCOPE OF WORK (pick the actions that best fit your project or application)

___ Site Plan
___ Wetlands NOI
___ Minor amendment or modification of an approved plan
___ Historic District renovations/addition/alternations
X Other (Specify) License to store flammables
___ Reconsideration
___ Zoning Variance

Explain work to be performed: License to store flammables per M.G.L Chapter 148 Section 13

Comments from Notifying Agencies: _____

FP-002A
(Rev. 6/23)

The Commonwealth of Massachusetts

City/Town of Devens

Application For License

Massachusetts General Law, Chapter 148 §13

☒ New License ☐ Amended License

GIS Coordinates
LAT.
LONG.
License Number

Application is hereby made in accordance with the provisions of Chapter 148 of the General Laws of Massachusetts for a license to store flammables, combustibles or explosives on land in buildings or structures herein described.

Location of Land: 33 Jackson Road | Parcel ID: 013.0-0021-1000.0
Number, Street and Assessor's Map and Parcel ID

Attach a plot plan of the property indicating the location of property lines and all buildings or structures.

Owner of Land: KING 33 JACKSON LLC

Address of Land Owner: 800 BOYLSTON STREET,Suite 2400, BOSTON, MA 02199

Use and Occupancy of Buildings and Structures: Group F-1/S-1 light manufacturing and general inventory, with Group B offices, and accessory Group H-3

If this is an application for amendment of an existing license, indicate date of original license and any subsequent amendments
N/A
Attach a copy of the current license

Flammable and Combustible Liquids, Flammable Gases and Solids

Complete this section for the storage of flammable and combustible liquids, solids, and gases; see 527 CMR 1.00 Table 1.12.8.50; Attach additional pages if needed. All tanks and containers are considered full for the purposes of licensing and permitting.

PRODUCT NAME	CLASS	MAXIMUM QUANTITY	UNITS gal., lbs, cubic feet	CONTAINER UST, AST, IBC, drums
e.g. Titanium Powder, Platinum on Carbon Black	Flammable Solid	3,750	lbs	Pails
e.g. Isopropyl alcohol (IPA), Ethyl acetate	Class IB Flammable Liquid	960	gal	Drums

Total quantity of all flammable liquids to be stored: 960 gal

Total quantity of all combustible liquids to be stored: < 10,000 gal (under license threshold)

Total quantity of all flammable gases to be stored: < 3,000 cu.ft (under license threshold)

Total quantity of all flammable solids to be stored: 3,750 lbs

LP-gas *(Complete this section for the storage of LP-gas or propane)*

Indicate the maximum quantity of LP-gas to be stored and the sizes and capacities of all storage containers. *(See 527 CMR 1.00 Table 1.12.8.50)*

- Maximum quantity (*in gallons*) of LP-gas to be stored in aboveground containers: N/A
  List sizes and capacities of all aboveground containers used for storage: N/A
- Maximum quantity (*in gallons*) of LP-gas to be stored in underground containers: N/A
  List sizes and capacities of all underground containers used for storage: N/A

Total aggregate quantity of all LP-gas to be stored: N/A

Fireworks (*Complete this section for the storage of fireworks)*

Indicate classes of fireworks to be stored and maximum quantity of each class. *(See 527 CMR 1.00 Table 1.12.8.50)*

- Maximum amount (*in pounds*) of Class **1.3G**: N/A Type/class of magazine used for storage: N/A
- Maximum amount (*in pounds*) of Class **1.4G**: N/A Type/class of magazine used for storage: N/A
- Maximum amount (*in pounds*) of Class **1.4**: N/A Type/class of magazine used for storage: N/A

Total aggregate quantity of all classes of fireworks to be stored: N/A

Explosives *(Complete this section for the storage of explosives)*

Indicate classes of explosive to be stored and maximum quantity of each class. *(See 527 CMR 1.00 Table 1.12.8.50)*

- Maximum amount (*in pounds*) of Class **1.1**: N/A Number of magazines used for storage: N/A
- Maximum amount (*in pounds*) of Class **1.2**: N/A Number of magazines used for storage: N/A
- Maximum amount (*in pounds*) of Class **1.3**: N/A Number of magazines used for storage: N/A
- Maximum amount (*in pounds*) of Class **1.4**: N/A Number of magazines used for storage: N/A
- Maximum amount (*in pounds*) of Class **1.5**: N/A Number of magazines used for storage: N/A
- Maximum amount (*in pounds*) of Class **1.6**: N/A Number of magazines used for storage: N/A

I, Tyson Reynoso, hereby attest that I am authorized to make this application. I acknowledge that the information contained herein is accurate and complete to the best of my knowledge and belief. I acknowledge that all materials stored pursuant to any license granted hereunder must be stored or kept in accordance with all applicable laws, codes, rules and regulations, including but not limited to Massachusetts Chapter 148, and the Massachusetts Fire Code (527 CMR 1.00). I further acknowledge that the storage of any material specified in any license granted hereunder may not exceed the maximum quantity specified by the license.

Signature _____ Date 3/5/24 Name Tyson Reynoso

PLEASE NOTE THAT ONLY APPLICATIONS WITH ORIGINAL WET SIGNATURES WILL BE ACCEPTED. PHOTOCOPIES OF APPLICATIONS WILL NOT BE PROCESSE

Fire Department Use Only

I, Chief Timothy Kelly, Head of the Devens Fire Department endorse this application with n

☑ Approval ☐ Disapproval

Signature of Head of the Fire Department

3-7-24
Date

Recommendations: _____

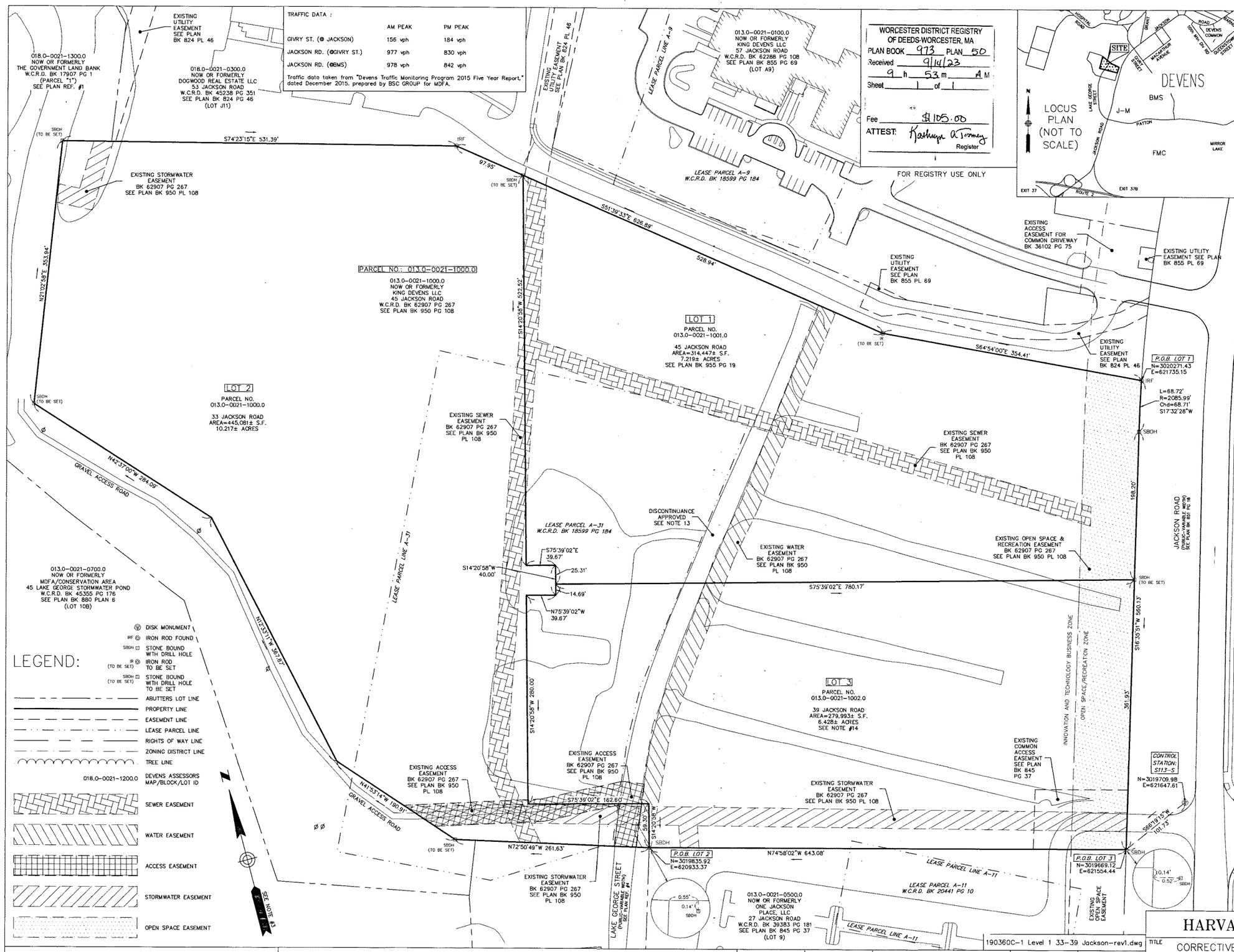
FP-002A (Rev. 6/23)

TRAFFIC DATA :	AM PEAK	PM PEAK
GIVRY ST. (@ JACKSON)	156 vph	184 vph
JACKSON RD. (@GIVRY ST.)	977 vph	830 vph
JACKSON RD. (@BMS)	978 vph	842 vph

Traffic data taken from "Devens Traffic Monitoring Program 2015 Five Year Report," dated December 2015. prepared by BSC GROUP for MDFA.

WORCESTER DISTRICT REGISTRY OF DEEDS-WORCESTER, MA
PLAN BOOK 973 PLAN 50
Received 9/14/23
9 h 53 m AM
Sheet 1 of 1
Fee $105.00
ATTEST: Kathryn A Toomey
Register

FOR REGISTRY USE ONLY



NOTES:

1. THIS PLAN WAS PREPARED FROM AN ON-THE-GROUND FIELD SURVEY CONDUCTED BY WSP IN JANUARY AND OCTOBER OF 2020. THE DETAIL SHOWN ON 57 JACKSON WAS THE RESULT OF THE ON-THE-GROUND SURVEY. THE DETAIL SHOWN ON THE REMAINING PARCELS IS THE RESULT OF AN AERIAL SURVEY CONDUCTED IN 2015 AND PROVIDED TO WSP BY MDFA.

2. PER DISCUSSION WITH MASSDEVELOPMENT, THE FINAL STREET ACCCEPTANCE PLAN FOR LAKE GEORGE STREET WILL PROVIDE A MINUIMUM OF 100' OF FRONTAGE FOR THE 33 JACKSON ROAD PARCEL AND THAT THE 361.93' OF FRONTAGE FOR 39 JACKSON ROAD IS PROVIDED ALONG JACKSON ROAD.

3. BEARINGS BASED ON 1983 MASS. STATE PLANE COORDINATE SYSTEM & CONTROL SURVEY BY CHAS. H. SELLS, INC. APRIL 2002, LAST REVISED OCTOBER 2020.

4. ZONING: INNOVATION AND TECHNOLOGY BUSINESS AND OPEN SPACE RECREATION

5. WATER RESOURCE PROTECTION DISTRICT: WATERSHED DISTRICTS

6. MASSACHUSETTS DEVELOPMENT FINANCE AGENCY IS THE SUCCESSOR IN INTEREST TO THE GOVERNMENT LAND BANK, UNDER CHAP. 289 OF THE ACTS OF 1998, NOTICE OF WHICH WAS RECORDED WITH THE WORCESTER COUNTY REGISTRY OF DEEDS IN BOOK 20505, PAGE 279.

7. PLAN CONTENTS REFLECT WAIVER GRANTED BY THE LAND USE ADMINISTRATOR WITH REGARDS TO 974 CMR 1.03(c)13 & 1.03(c)14 REQUIREMENT OF SHOWING TOPOGRAPHY & SURFACE WATER DRAINAGE.

8. ALL COORDINATES SHOWN HEREON ARE IN RELATIONSHIP TO THE DEVENS, MA CONTROL NETWORK AND GEOGRAPHIC INFORMATION SYSTEMS (GIS). REFERENCE IS MADE TO THE CONTROL SURVEY AND REPORT ENTITLED, "SURVEY CONTROL REPORT FOR DEVENS, MASSACHUSETTS" PREPARED FOR MASSACHUSETTS DEVELOPMENT FINANCE AGENCY, BY CHAS. H. SELLS, INC DATED APRIL 8, 2002 AND LAST REVISED OCTOBER 23, 2020. ALL COORDINATES ARE ON THE MASSACHUSETTS MAINLAND STATE PLANE SYSTEM (NAD 1983).

9. PROPERTY IS LOCATED IN THE DEVENS REGIONAL ENTERPRISE ZONE, TOWN OF HARVARD, COUNTY OF WORCESTER, MASSACHUSETTS.

10. THE UTILITIES (COMMUNICATIONS, ELECTRIC, GAS, WATER, STORM, UTILITY POLES) SHOWN HEREON WERE PROVIDED TO WSP FROM MDFA VIA BASE FILES DATED APRIL 27, 2015 AND ARE NOT THE DIRECT OF THIS SURVEY.

11. THERE ARE NO KNOWN INSTITUTIONAL CONTROL ON THE PARCEL TO BE CONVEYED.

12. THE PORTION OF LAKE GEORGE STREET WITHIN THE LIMITS OF THE PARCEL HAS BEEN DISCONTINUED BY RECOMENDATION OF THE MDFA BOARD OF DIRECTORS ON MARCH 12, 2020 AND APPROVAL BY THE DEVENS ENTERPRISE COMMISSION ON MAY 7, 2020.

13. THE CURB CUTS SHOWN ON THIS PLAN ARE EXISTING AND CREATED IN COMPLIANCE WITH DEC REGULATIONS. NO NEW CURB CUTS ARE CREATED WITH THIS PLAN.

14. THE PURPOSE OF THIS CORRECTIVE LEVEL 1 LOTTING PLAN IS TO CORRECT A SCRIVENER'S ERROR THAT APPEARED ON THE LEVEL 1 LOTTING PLAN DATED JUNE 10, 2021 AND RECORDED IN PLAN BOOK 958, PAGE 60, WHICH INADVERTENTLY SHOWED THE INCORRECT SQUARE FOOTAGE OF LOT 3.

REFERENCES:

1. PLAN OF LAND CONVEYED TO THE GOVERNMENT LAND BANK BY THE SECRETARY OF THE ARMY, AYER, HARVARD & SHIRLEY, MA. DATED MAY 10, 1996. PREPARED BY HOWE SURVEYING, ASSOC.
a.) RECORDED IN M.S.D.R.D. PLAN# 411 OF 1996
b.) RECORDED IN W.C.R.D. PL. BK. 703 PL. 112

2. THE CURRENT OWNER OF RECORD IS THE GOVERNMENT LAND BANK:
a.) RECORDED IN M.S.D.R.D. IN BK. 26317, PG. 3.
b.) RECORDED IN W.C.R.D. IN BK. 17907 PG. 1.

3. MASSACHUSETTS DEVELOPMENT FINANCE AGENCY IS THE SUCCESSOR IN INTEREST TO THE GOVERNMENT LAND BANK, UNDER CHAP. 289 OF THE ACTS OF 1998, NOTICE OF WHICH WAS RECORDED WITH THE WORCESTER COUNTY REGISTRY OF DEEDS IN BOOK 20505, PAGE 281, AND THE MIDDLESEX COUNTY REGISTRY OF DEEDS IN BOOK 29188, PAGE 568.

4. GENERAL PUBLIC WAY DECLARATION PLAN DATED MAY 29, 1996. PREPARED BY HOWE SURVEYING, ASSOC. AND RECORDED AT THE MASSDEVELOPMENT ENGINEERING OFFICE LOCATED AT 33 ANDREWS PARKWAY DEVENS, MA. W.C.R.D. PL. BOOK 822 PLAN 22.

5. STREET ACCEPTANCE PLAN JACKSON ROAD DEVENS, MASSACHUSETTS. PREPARED BY CHAS. H. SELLS, INC. DATED OCTOBER 6, 2006, AND RECORDED IN W.C.R.D. PL. BK. 851 PL. 16.

6. LEVEL-1 LOTTING PLAN – 45 JACKSON ROAD HARVARD (DEVENS), MASSACHUSETTS. PREPARED BY WSP USA, INC. DATED MAY 28, 2020, AND RECORDED IN W.C.R.D. PL. BK. 950 PL. 108.

7. LEVEL-1 LOTTING PLAN – 33 & 39 JACKSON ROAD HARVARD (DEVENS), MASSACHUSETTS. PREPARED BY WSP USA, INC. DATED NOVEMBER 4, 2020, LAST REVISED FEBRUARY 11, 2021 AND RECORDED IN W.C.R.D. PL. BK. 955 PL. 19.

NOTE FOR RECORDING:

AS AUTHORIZED BY CHAPTER 498 OF THE ACTS OF 1993, AS AMENDED.

AS STAFF DIRECTOR (OR DESIGNEE OF) THE DEVENS ENTERPRISE COMMISSION, I HEREBY APPROVE THE LEVEL ONE LOTTING PLAN PORTRAYED IN THIS SUBMISSION AT DEVENS.

NAME 9/13/23
DATE
LAND USE ADMINISTRATOR/DIRECTOR

CERTIFICATION :

TO THE BEST OF MY PROFESSIONAL KNOWLEDGE INFORMATION AND BELIEF

I HEREBY CERTIFY THAT THIS PLAN HAS BEEN PREPARED IN CONFORMITY WITH THE RULES AND REGULATIONS OF THE REGISTERS OF DEEDS OF THE COMMONWEALTH OF MASSACHUSETTS.

COMMONWEALTH OF MASSACHUSETTS
DARREN J. HARDY
NO. 48385
REGISTERED PROFESSIONAL LAND SURVEYOR

SEPTEMBER 08, 2023
DATE

DARREN J. HARDY, P.L.S.
REG. NO. 48385
WSP USA, INC.

WSP USA Inc.
9 Executive Park Dr, Suite 101
Merrimack, NH 03054
603-324-0894

REV	DATE	DESCRIPTION	BY
REV. 4	–	–	–
REV. 3	–	–	–
REV. 2	–	–	–
REV. 1	08-25-2023	Corrected S.F. on Lot 3	ES

FIELD JL AT RZ & CG
OFFICE ES
DRAWN BY ES
CHECKED BY DJH
PROJECT # 19D360C

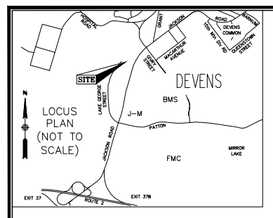
HARVARD (DEVENS), MASSACHUSETTS

TITLE CORRECTIVE LEVEL 1 LOTTING PLAN – 33 & 39 JACKSON ROAD

PREPARED FOR: (OWNER) KING DEVENS LLC
C/O KING STREET PROPERTIES
800 BOYLSTON STREET, SUITE 1570
BOSTON, MA 02199

PREPARED FOR:

DATE: 08/25/2023 SCALE: As indicated DWG. 190360C-1.DWG SHEET# 1 OF 1



LEGEND

SEWER EASEMENT
WATER EASEMENT
ACCESS EASEMENT
STORMWATER EASEMENT
OPEN SPACE EASEMENT

ABUTTERS LOT LINE	BMK	BENCHMARK	ADA PARKING	ICV	IRRIGATION CONTROL VALVE
PROPERTY LINE	CC	CONCRETE CURB	CO CLEAN OUT		FIRE HYDRANT
SETBACK LINE	BC	BITUMINOUS CURB	GROUND LIGHT		DECIDUOUS TREE
ZONING LINE	VGC	VERTICAL GRANITE CURB	AREA DRAIN		CONIFER TREE
CHAIN LINK FENCE	LSA	LANDSCAPED AREA	CATCH BASIN		SIGN (SINGLE POSTED)
SEWER LINE	FFE	FINISHED FLOOR ELEVATION	DRAIN MANHOLE		POST
DRAIN LINE	SWL	SOLID WHITE LINE	SEWER MANHOLE		LIGHT POLE
PAINTED GAS LINE	DYL	DOUBLE YELLOW LINE	ELECTRIC BOX		ADA PARKING
RECORD WATER LINE	CMP	CORRUGATED METAL PIPE	ELECTRIC HANDHOLE		FIRE DEPARTMENT CONNECTION
RECORD ELECTRIC UTILITY LINE	CPP	CORRUGATED PLASTIC PIPE	ELECTRIC METER		BENCHMARK
RECORD CABLE LINE	PVC	POLYVINYL CHLORIDE	ELECTRIC MANHOLE		
RECORD GAS LINE	CI	CAST IRON	GAS METER		
RECORD ELECTRIC LIGHT LINE	PERF	PERFORATED PIPE	GAS VALVE		
BUILDING OVERHANG	INV.	INVERT	TELEPHONE MANHOLE		
INTERMEDIATE CONTOURS	(R)	RECORD INFORMATION	WATER GATE		
INDEX CONTOURS	(AB)	AS-BUILT BY F.E. FRENCH			
LIMIT OF WORK	CNO	COULD NOT OPEN			

NOTES

1. THIS PLAN WAS PREPARED FROM AN ACTUAL ON THE GROUND FIELD SURVEY CONDUCTED BY WSP IN OCTOBER AND NOVEMBER OF 2022.

2. PROPERTY OWNER: KING 33 JACKSON LLC
800 BOYLSTON STREET
BOSTON, MA 02199
617-910-5500

3. DEVELOPER: KING STREET PROPERTIES
800 BOYLSTON STREET
BOSTON, MA 02199
617-910-5500

4. ENGINEER: HIGHPOINT ENGINEERING, INC.
980 WASHINGTON STREET SUITE 216
DEDHAM, MA 02026
781-775-0973

5. BEARINGS BASED ON 1983 MASS. STATE PLANE COORDINATE SYSTEM & CONTROL SURVEY BY CHAS. H. SELLS, INC. APRIL 2002, LAST REVISED BY WSP IN OCTOBER 2020.

6. THE VERTICAL DATUM SHOWN HEREON IS REFERENCES NGVD29. (SEE NOTE #11)

7. ZONING:INNOVATION AND TECHNOLOGY BUSINESS

8. THE UNDERGROUND UTILITY INFORMATION SHOWN HEREON ARE FROM INFORMATION PROVIDED TO WSP BY BW KENNEDY AND COMPANY AND VISUAL EVIDENCE ON SITE. ADDITIONAL FIELD INVESTIGATION WILL BE REQUIRED BY OTHERS TO DETERMINE THE ACTUAL PIPE SIZE(S) AND TYPE(S).

9. WATER RESOURCE PROTECTION DISTRICT: WATERSHED DISTRICTS

10. THE SITE LIES WITHIN OTHER FLOOD AREAS (ZONE X) AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE FLOODPLAIN AS SHOWN ON MAP NUMBER 25027C0292E WITH AN EFFECTIVE DATE OF JULY 4, 2011. SAID MAP IS THE CURRENT MAP FOR THE SUBJECT PROPERTY.

11. ALL COORDINATES SHOWN HEREON ARE IN RELATIONSHIP TO THE DEVENS, MA CONTROL NETWORK AND GEOGRAPHIC INFORMATION SYSTEMS (GIS). REFERENCE IS MADE TO THE CONTROL SURVEY AND REPORT ENTITLED, "SURVEY CONTROL REPORT FOR DEVENS, MASSACHUSETTS" PREPARED FOR THE MASSACHUSETTS DEVELOPMENT FINANCE AGENCY BY CHAS. H. SELLS, INC DATED APRIL 8, 2002 AND LAST REVISED OCTOBER 23, 2020. ALL COORDINATES ARE ON THE MASSACHUSETTS MAINLAND STATE PLANE SYSTEM (NAD 1983) HORIZONTALLY AND NGVD29 VERTICALLY.

12. THE SLOPES AND DISTANCES SHOWN ON THE SANITARY AND STORM SYSTEM STRUCTURES SHOULD BE CONSIDERED APPROXIMATE. THEY ARE NOT THE RESULT OF MEASUREMENTS OBTAINED FROM A FIELD SURVEY PRIOR TO THE PIPES BEING BACKFILLED AFTER INSTALLATION. THE APPROXIMATE SLOPES AND DISTANCES SHOWN WERE CALCULATED FROM AS-BUILT ELEVATION INFORMATION PROVIDED TO WSP FROM BW KENNEDY (OBTAINED BY THE SITE CONTRACTOR FE FRENCH) AND A FIELD SURVEY PERFORMED BY WSP TO OBTAIN SURFACE LOCATIONS OF THE SANITARY AND STORM SYSTEM STRUCTURES.

GRAPHIC SCALE
(IN FEET)

Notes for Devens Enterprise Submission

(1) Existing or proposed use will not generate electromagnetic interference to any sensitive receptor. Interference with the Harvard-Smithsonian radio telescope (1400-1720 MHz) is specifically prohibited.
(2) Proposed or existing use will not cause pronounced, multiple patterns of noise or vibration nuisance to, or interfere with, any sensitive receptor.
(3) A DEP air quality permit is not required for this flammable license application.

SHEET INDEX

ZONING REGULATIONS:

ZONING BY-LAWS FOR DEVENS REGIONAL ENTERPRISE ZONE, DEVENS, MASSACHUSETTS
DATED NOVEMBER 18, 1994 AND REVISED THROUGH OCTOBER 2016.

ZONING DISTRICT – OPEN SPACE/RECREATION ZONE (ALONG JACKSON ROAD)
INNOVATION AND TECHNOLOGY BUSINESS ZONE

TABLE OF DIMENSIONAL REQUIREMENTS (ZONING BY-LAWS EXHIBIT B: DENSITY/INTENSITY REGULATIONS)
(974 CMR 3.00 SITE PLAN – SECTION 3.04: DESIGN STANDARDS)

INNOVATION AND TECHNOLOGY BUSINESS (ITB) ZONE

BUILDING DIMENSIONAL REQUIREMENTS	MIN.LOT SIZE	MIN. LOT FRONTAGE	MINIMUM YARD SETBACKS			BUILDING HEIGHT (MAX)	MAX. F.A.R. FOR DISTRICT	PARKING SPACES (MAX)	SITE IMPERVIOUS COVERAGE	MAX. IMPERVIOUS COVERAGE	BUILDING IMPERVIOUS COVERAGE	SITE IMPERVIOUS COVERAGE	PERVIOUS PAVEMENT COVERAGE
			FRONT	SIDE	REAR								
LOT 2 – 33 JACKSON ROAD									LOT 2 – 445,081±S.F.				
REQUIRED	2.0 AC	75 FT	25	10	25	75'	50%	2 SP/1000 SF	REQUIRED	75%	75% MAX	75% MAX	75% MAX
PROPOSED	10.2 AC	100 FT	305±	11±	374±	42'±	50%	307	PROPOSED	267,953±S.F.	124,800±S.F.	142,301±S.F.	9,633±S.F.
PROVIDED	10.2 AC	100 FT	305±	11±	374±	42'±	50%	307	PROVIDED	267,101±S.F.	124,800±S.F.	142,301±S.F.	9,633±S.F.
ZONING COMPLIANCE	YES	YES	YES	YES	YES	YES	YES	YES		60%	28%	32%	2%
									ZONING COMPLIANCE	YES	YES	YES	YES

NOTES: F.A.R. – FLOOR AREA RATIO

PARKING SUMMARY

	REQUIRED	PROVIDED	RATIO
MIN. STALL	9'X18'	REGULAR – 9'X18' COMPACT – 8'X18'	
MIN. AISLE WIDTH	24'	24'	
MINIMUM REQUIRED (MANUFACTURING 2.0/1000 GSF)			
220,000 KSF (MAX)	440	307	1.4/1000 SF
COMPACT SPACES	10% MAX	21	6.8%
ELECTRIC VEHICLE SPACES	5% MIN	10	3.2%
RIDE SHARE SPACES	5% MIN	9	2.9%
HANDICAP PARKING	8	8	N/A

SURVEYOR'S CERTIFICATION:

I HEREBY CERTIFY THAT THE INFORMATION SHOWN ON THIS PLAN ACCURATELY DEPICTS FIELD CONDITIONS BASED ON THE AS-BUILT SURVEY BY WSP PERFORMED IN OCTOBER AND NOVEMBER OF 2022.

COMMONWEALTH OF MASSACHUSETTS
DARREN J. HARDY
NO. 48385
PROFESSIONAL LAND SURVEYOR

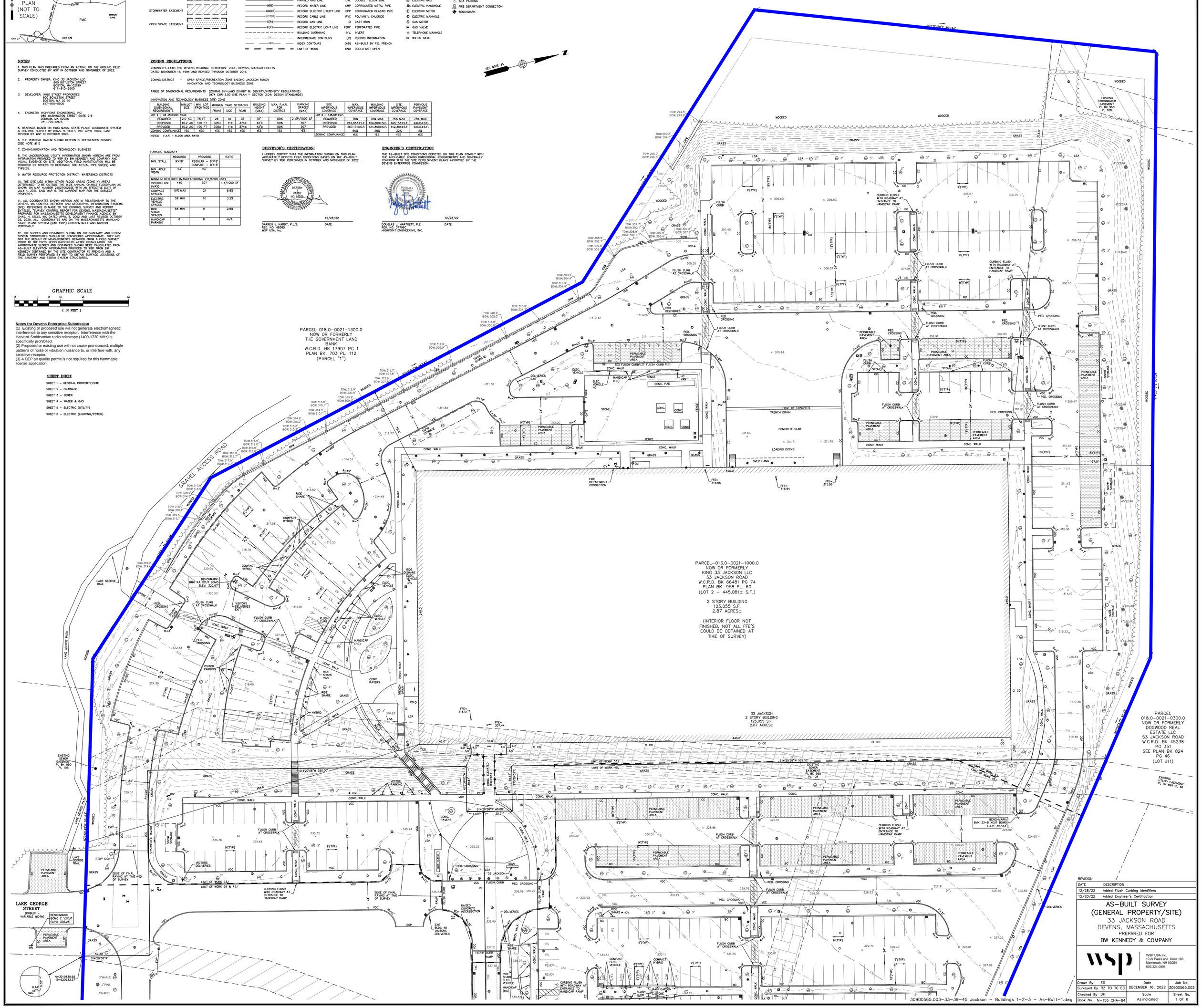
12/28/22
DARREN J. HARDY, P.L.S. — DATE
REG. NO. 48385
WSP USA, Inc.

ENGINEER'S CERTIFICATION:

THE AS-BUILT SITE CONDITIONS DEPICTED ON THIS PLAN COMPLY WITH THE APPLICABLE ZONING DIMENSIONAL REQUIREMENTS AND GENERALLY CONFORM WITH THE SITE DEVELOPMENT PLANS APPROVED BY THE DEVENS ENTERPRISE COMMISSION.

COMMONWEALTH OF MASSACHUSETTS
DOUGLAS J. HARTNETT
NO. 37796C
PROFESSIONAL ENGINEER

12/28/22
DOUGLAS J. HARTNETT, P.E. — DATE
REG. NO. 37796C
HIGHPOINT ENGINEERING, INC.

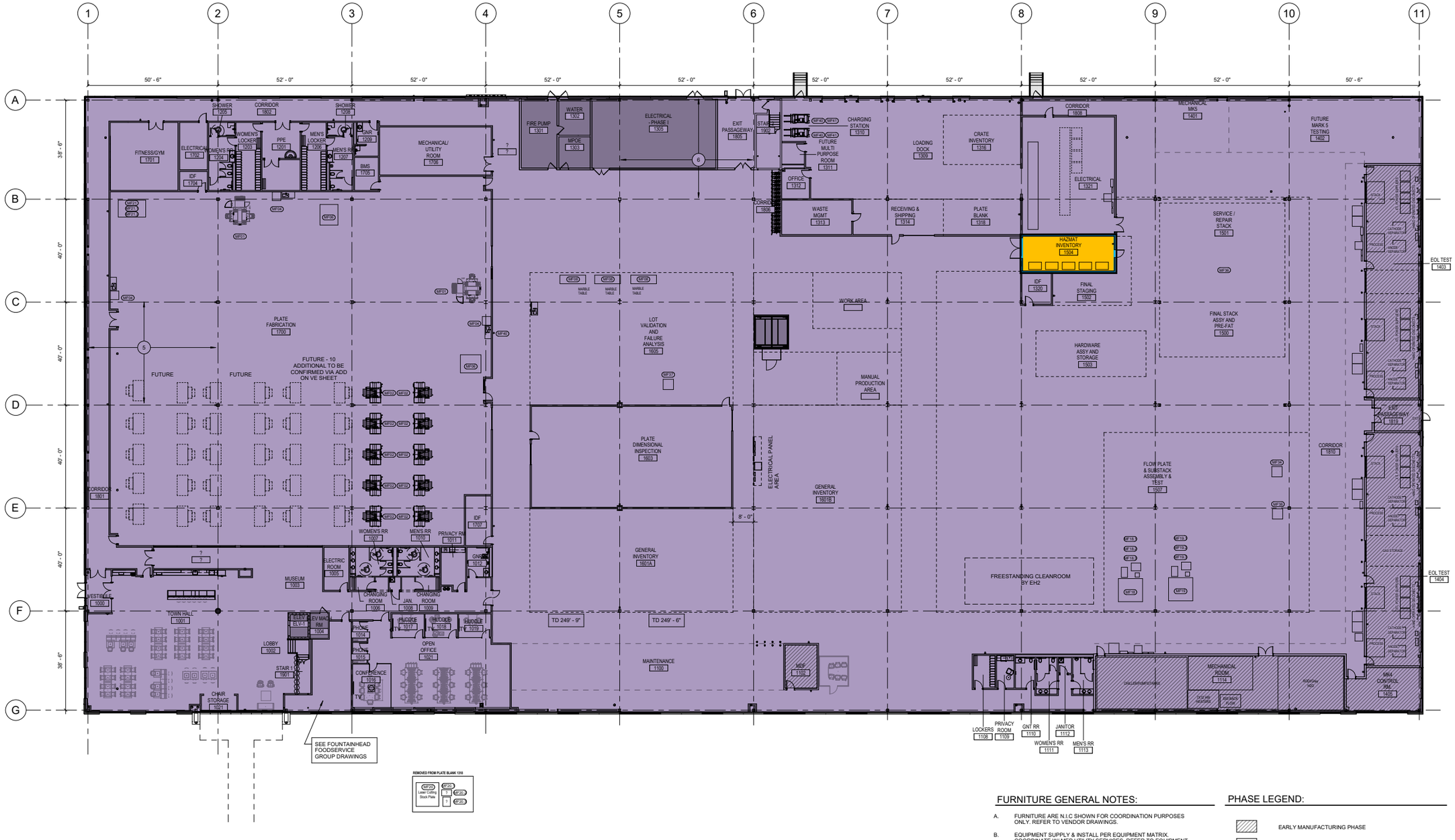


REVISION	
DATE	DESCRIPTION
12/28/22	Added Flush Curbing Identifiers
12/20/22	Added Engineer's Certification

AS-BUILT SURVEY
(GENERAL PROPERTY/SITE)
33 JACKSON ROAD
DEVENS, MASSACHUSETTS
PREPARED FOR
BW KENNEDY & COMPANY

WSP USA Inc.
10 Al Paul Lane, Suite 103
Merrimack, NH 03054
603.324.0894

Drawn By ES	Date DECEMBER 16, 2022	Job No. 30900565.003
Surveyed By RZ TO TC EC		
Checked By DH	Scale As indicated	Sheet No. 1 OF 6
Book No. N-155 CHA-84		



Hazardous Material Storage/Use Strategy Legend

- = Control Area 1
- = Control Area 2
- = Group H-3 Room for Flammable Solids

FURNITURE GENERAL NOTES:

A. FURNITURE ARE N.I.C SHOWN FOR COORDINATION PURPOSES ONLY. REFER TO VENDOR DRAWINGS.

B. EQUIPMENT SUPPLY & INSTALL PER EQUIPMENT MATRIX. COORDINATE W/ MEP UTILITY SERVICES. REFER TO EQUIPMENT MATRIX & MEP DRAWINGS.

C. LAB BENCHES, SHELVING, FUME HOODS AND CEILING UTILITY PANELS ARE GENERAL CONTRACTOR. SUPPLIED AND INSTALLED. COORDINATE W/ MEP UTILITY SERVICES. REFER TO PLANS & ELEVATIONS AND MEP DRAWINGS.

D. BIOSAFETY CABINETS ARE TENANT SUPPLED AND GENERAL CONTRACTOR INSTALLED . COORDINATE RECEPTACLE HEIGHTS WITH CROSS BAR, REFER TO MEP DRAWINGS

E. BIOSAFETY CABINETS ALONG WALLS REQUIRE SHUT-OFF VALVE AT WALL.

F. PLUMBER TO PROVIDE CORDS & HOSES TO CEILING UTILITY PANEL FOR BIOSAFETY CABINETS.

G. FIXTURES AND APPLIANCES ARE GENERAL CONTRACTOR SUPPLIED AND INSTALLED. SEE PLUMBING DRAWINGS FOR FIXTURE SCHEDULE.

H. FIXTURE AND APPLIANCE SPECIFICATIONS LISTED IN MILLWORK ELEVATIONS.

I. GENERAL CONTRACTOR TO PROVIDE F.T. BLOCKING/ PLYWOOD IN WALL FOR TV BACK BOXES, WALL MOUNTED LIGHT FIXTURES, SHELVING AS REQUIRED. REFER TO AV DRAWINGS FOR REQUIREMENTS AT TV LOCATIONS

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M. ROOM SCHEDULERS TO HAVE DROPS FOR FUTURE

PHASE LEGEND:

- EARLY MANUFACTURING PHASE
- FULL PROGRAM PHASE I
- TEMPORARY WALL

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2 PROVIDE WOOD BLOCKING FOR ALL WALL HUNG STORAGE, REFER TO FURNITURE VENDOR DRAWINGS

3. UNDERSIDE OF DECK, BEAMS & SUPPORT COLUMNS TO RECEIVE SPRAY-ON FIRE PROOFING (2 HOUR)

4. UNDERSIDE OF DECK, BEAMS & SUPPORT COLUMNS TO RECEIVE SPRAY-ON FIRE PROOFING (1 HOUR)

FURNITURE & EQUIPMENT PLAN LEGEND :

- FLOOR CORE
- EQUIPMENT TAG, REFER TO EQUIPMENT TAG
- FUTURE EQUIPMENT
- TV TELEVISION
- CR CARD READER, REFER TO SECURITY DRAWINGS

VIVO architecture

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Landlord

King Street Properties

Construction Manager

B.W. KENNEDY

Tenant

ELECTRIC HYDROGEN

Structural Engineer

GOLDSTEIN–MILANO LLC Structural Engineers

Consultant

Key Plan

Issue Schedule

Date	Description
08/24/2023	ISSUED FOR PERMIT-PHASE I
10/13/2023	ISSUED FOR CONSTRUCTION
11/10/2023	ASI-1 FULL PROGRAM

Project No.

23112.11

Project Name

ELECTRIC HYDROGEN FULL PROGRAM-PHASE I

Project Address

33 JACKSON ROAD, DEVENS, MASSACHUSETTS

Stamp

Sheet Title

LEVEL 1 FURNITURE & EQUIPMENT PLAN

Approved By: MO
Checked By: PS
Drawn By: AF
Scale: As indicated

Sheet Number

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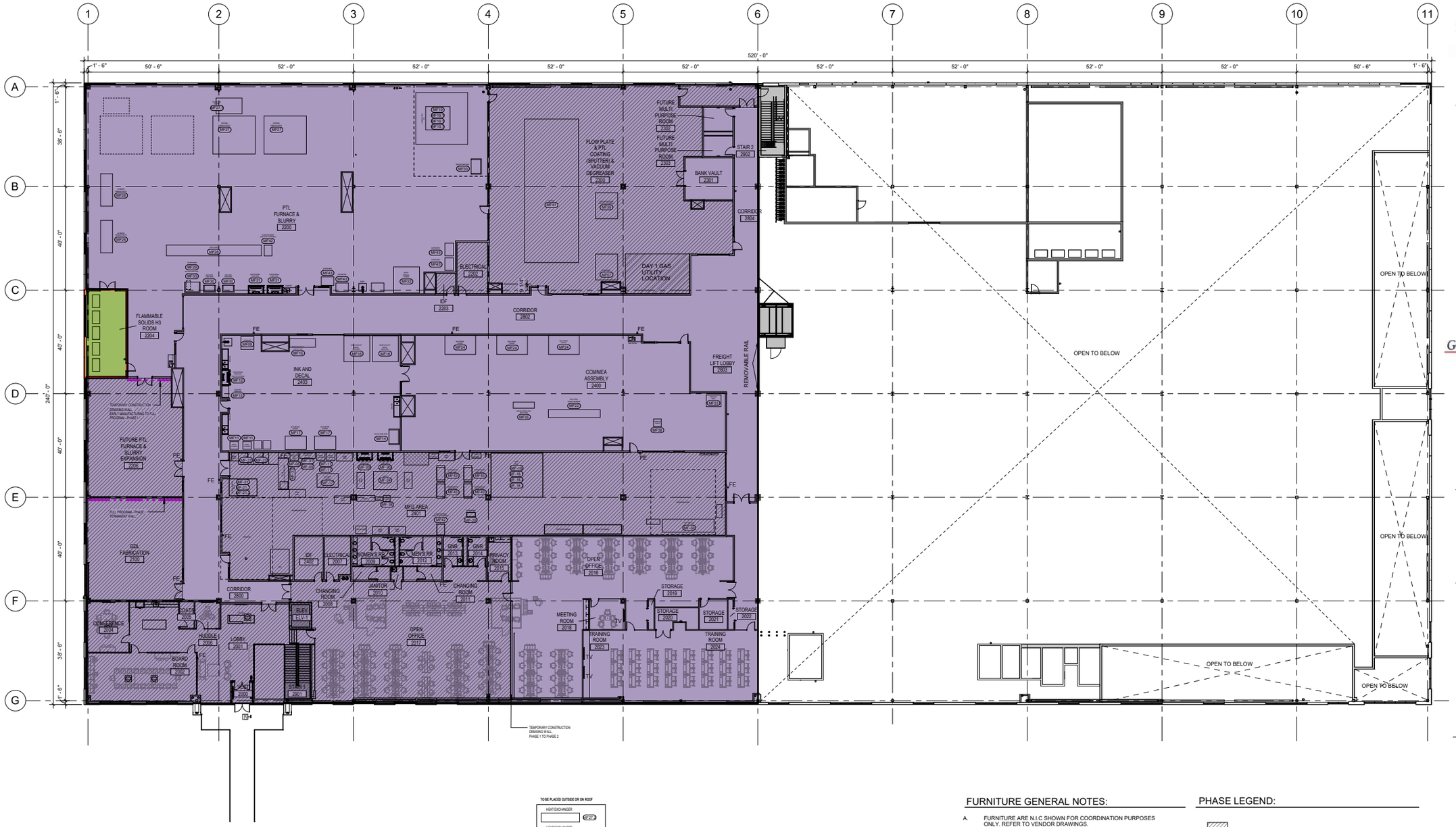

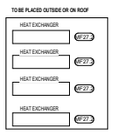

Hazardous Material Storage/Use Strategy Legend

- = Control Area 1
- = Control Area 2
- = Group H-3 Room for Flammable Solids

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VIVO architecture
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Landlord: King Street Properties

Construction Manager: B.W. KENNEDY

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Structural Engineer: GOLDSTEIN–MILANO LLC Structural Engineers

Consultant

Key Plan

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Date	Description
08/24/2023	ISSUED FOR PERMIT-PHASE I
10/13/2023	ISSUED FOR CONSTRUCTION

Project No. 23112.11

Project Name: **ELECTRIC HYDROGEN FULL PROGRAM-PHASE I**

Project Address: **33 JACKSON ROAD, DEVENS, MASSACHUSETTS**

Stamp

Sheet Title: **LEVEL 2 FURNITURE & EQUIPMENT PLAN**

Approved By: MO
Checked By: PS
Drawn By: AF
Scale: As indicated

Sheet Number: **A3.2.1**

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ARUP

Electric Hydrogen (EH2)

33 Jackson Devens Fit-out

Hazardous Materials Section 414 Report

Reference:

Issue | February 26, 2024

Job number 298188

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Contents

Tables

Figures

Appendices

1. Introduction

The following report documents the hazardous materials strategy for the Electric Hydrogen Co. (EH2) fit-out at 33 Jackson Rd. in Devens, MA, in accordance with the requirements of the Massachusetts State Building Code Section 414.1.3.

1.1 Building Description

33 Jackson Rd. is a two-story building that has been recently constructed in Devens, MA. The building will be occupied by EH2 to be used for light manufacturing and good manufacturing practices (GMP). The building is comprised of approximately 194,178 sf of total gross floor area. The floor areas of each floor are presented in Table 1. The building is currently fully protected by an automatic sprinkler system which will be retained and modified as part of the scope of work.

Table 1: 33 Jackson Devens Rd. Floor Areas

Floor	Approximate Floor Area (ft^2)
Level 1	124,717
Level 2	69,461
Building Total	194,178

An arial view of the building is provided in Figure 1. Directional references throughout this report utilize true North as depicted in the figure.

Figure 1: 33 Jackson Rd. Aerial View

This Hazardous Materials Section 414 report is written on behalf of EH2, the building tenant.

1.2 Scope of Work

The scope of work for this EH2 Fit-out project entails fitting out the full existing core and shell space with a mix of electrolyzer manufacturing/assembly, QA/QC testing, and office use spread across Levels 1 and 2. The scope of work on Level 1 includes the fit-out of manufacturing spaces and miscellaneous storage for hazardous materials. The scope of work on Level 2 primarily involves laboratory support processes for the electrolyzer assembly and office and conference spaces. It is assumed that existing conditions as they relate to the fit-out are equivalent to the conditions at the end of the Core and Shell project.

The project will be split into two permitting phases:

- Early Manufacturing Phase 0
- Full Program Phase 1

This report is based on hazardous material quantities required for Phase 1 and floor plans provided to Arup on November 8, 2023.

1.3 Applicable Codes and Standards

The following lists the Codes and Standards applicable to the project.

- 780 CMR – 9th Edition, Massachusetts State Building Code (MSBC), based on the 2015 International Building Code with MA amendments

- 527 CMR 1.00 – Massachusetts Comprehensive Fire Safety Code (MFSC), based on NFPA 1 Fire Code, 2021 Edition with MA amendments
- 527 CMR 12.00 – Massachusetts Electrical Code (MEC), based on NFPA 70 National Electrical Code, 2023 Edition with MA amendments
- 780 CMR 13.00 – Massachusetts Energy Efficiency Regulations, based on the 2018 International Energy Efficiency Code (IECC) with MA amendments
- 225 CMR 23.00 – Massachusetts Stretch Energy Code, based on the 2021 International Energy Conservation Code (IECC) with MA amendments
- 248 CMR – Massachusetts Fuel Gas and Plumbing Code, 2016 Edition
- 524 CMR – Massachusetts Elevator Regulations (for new construction, based upon the 2013 ANSI/ASME A17.2 Safety Code for Elevators and Escalators)
- 521 CMR – Massachusetts Architectural Access Board (MAAB) Regulations, 2006
- Americans with Disabilities Act Accessibility Guidelines, 2010 (ADA)
- National Fire Protection Association Standards as referenced in 780 CMR and 527 CMR:
  - NFPA 2 – Hydrogen Technologies Code, 2020 Edition
  - NFPA 10 – Standard for Portable Fire Extinguishing Systems, 2013 Edition
  - NFPA 13 – Standards for the Installation of Sprinkler Systems, 2013 Edition
  - NFPA 25 – Standard for Inspection, Testing, and Maintenance of Water-based Fire Protection Systems, 2014 Edition
  - NFPA 30 – Flammable and Combustible Liquids Code, 2021 Edition
  - NFPA 55 – Compressed Gases and Cryogenic Fluids Code, 2020 Edition
  - NFPA 70 – National Electrical Code, 2023 Edition
  - NFPA 72 – National Fire Alarm and Signaling Code, 2013 Edition
  - NFPA 110 – Standard for Emergency and Standby Power Systems, 2013 Edition
  - NFPA 400 – Hazardous Materials Code, 2019 Edition
  - NFPA 484 – Standard for Combustible Metals, 2019 Edition

Additional codes and standards may apply to the process design of hydrogen systems. It is the responsibility of the process designer to identify and ensure compliance with these codes and standards. Further information is provided in Section 6 below, “Hydrogen Generation Systems”.

1.3.1 10th Edition Massachusetts Codes

The Massachusetts Board of Building Regulations & Standards (BBRS) is currently in the process of adopting modified versions of the 2021 ICC codes for the 10th Edition of the Massachusetts State Building Code. At the time of this report, the 10th Edition of the Massachusetts State Building Code has not yet been approved for use. The BBRS hopes to adopt the 10th Edition by late-2023, however specific dates for code adoption have not yet been given. The following codes will be amended and adopted as part of the 10th Edition:

- International Building Code (IBC), 2021 Edition

- International Existing Building Code (IEBC), 2021 Edition
- International Energy Conservation Code (IECC), 2021 Edition

Based on the current project schedule, it is anticipated that the fit-out will be permitted under the 9th Edition of the Massachusetts State Building Code.

2. Key Issues

2.1 Control Areas and Group H Occupancies

The building's hazardous materials strategy will utilize a mix of control areas and Group H occupancies. As the building will be utilized for electrolyzer manufacturing, primary hazardous materials expected within the building include Class I flammable liquids, flammable gases, oxidizing gases, and flammable solids. These materials are further described within Section 4, Hazardous Materials.

The quantity of flammable solids on site will exceed the maximum allowable quantities (MAQs) for a single control area. Therefore, a Group H-3 occupancy will be required for the storage of flammable solids.

All other materials will be used and stored within control areas. The building will contain the following control areas and Group H occupancies:

- Control Area 1 – Dedicated flammable liquid storage room for Class I flammable liquid storage.
- Control Area 2 – Remainder of the building, to include both Level 1 and Level 2.
- Group H-3 Storage Room – Dedicated flammable solid storage room for titanium powder storage.

2.2 Accessory Group H Occupancies

The EH2 fit-out will include construction of a Group H-3 storage room designed for the storage of flammable solids. The Group H-3 room is limited to less than 10% of the total gross floor area and is therefore considered an accessory occupancy to the primary Group F/S occupancy.

2.3 Hydrogen Generation Systems

There are four MK4 electrolyzer testing stations planned for the Phase 1 fit-out, located in North and South rooms at the perimeter of the building. Each room will house two MK4 testing stations.

Hydrogen generation systems are required to be designed in accordance with NFPA 2, as referenced by the MFSC §63.8 for hydrogen generation systems. The aggregate volume of hydrogen contained to the MK4 testing stations is roughly 85ft^3, less than the 2,000ft^3 MAQ for flammable gas within the control area.

The primary safety system provided for the MK4 testing station rooms will be an emergency purge exhaust system interlocked to activate on hydrogen gas detection within the room. Features of this system are further described in Section 6, “Hydrogen Generation Systems”.

2.4 NFPA 45 Applicability

NFPA 45 is applicable to projects in Massachusetts that contain hazardous materials. The standard does not apply to the following uses *[NFPA 45 §1.1.3(4)]*:

- Laboratories that are primarily manufacturing plants

As the laboratory spaces within the EH2 fit-out will be used to support the electrolyzer manufacturing and assembly process, NFPA 45 does not apply to the project.

3. Flammable Materials Permits and Licenses

3.1 Flammable License

MGL Chapter 148 and the MFSC require a land license to be held by the owner (King Street Properties) for sites that use or store greater than or equal to the following thresholds of flammable materials:

Table 2: MFSC Table 1.12.8.50 Flammable License Thresholds

Material	Flammable License Threshold
Class I Flammable Liquids Indoors Outdoors	 ≥ 793 gallons ≥ 10,000 gallons
Class II Combustible Liquids	≥ 10,000 gallons
Class IIIA Combustible Liquids	≥ 10,000 gallons
Class IIIB Combustible Liquids	≥ 10,000 gallons
Fuel oil, indoors	≥ 10,000 gallons
Flammable Solids	≥ 100 lbs
Flammable Gases Indoors Outdoors	 ≥ 3,000 cu.ft ≥ 10,000 cu.ft

This license will be granted by the Devens Enterprise Commission.

Based on the expected flammable liquid and flammable solid quantities in the EH2 fit-out design, it is expected that the 793-gallon threshold for Class I flammable liquid indoor usage and storage, as well as the 100lb threshold for flammable solid usage and storage, will be exceeded.

3.2 Hazardous Materials Storage Permit

Per MFSC Table 1.12, EH2 is required to apply for and hold a hazardous materials storage permit with quantity limits that fall below the 33 Jackson Rd. license maximum. The Devens Fire Department reviews and grants storage permits, which are renewed annually.

3.3 Hazardous Materials Processing Permit

Per MFSC Section 60.8, EH2 is required to apply for and hold a hazardous materials processing permit. Categories on the processing permit are based on container/vessel volumes and occupancy classification. Any Group H occupancy falls into Category 3, independent of container/vessel size; however, as the Group H-3 occupancy will be used purely for the storage of material, it is not expected that a Category 3 process permit will be required for this space.

Processing outside of the Group H-3 storage room that utilizes containers or vessels larger than 60-gallons will require a Category 3 processing permit.

4. Hazardous Materials

The following section outlines the primary hazardous material quantities are anticipated in the EH2 fit-out. The information is based on received chemical quantities and inventories from EH2. It is understood that the quantities listed below support having a 3-month supply of materials on hand and simultaneous operation of all four MK4 electrolyzer testing stations.

Table 3: EH2 Hazardous Materials – Indoor

Material	Classification
Isopropyl alcohol (IPA)	Flammable Liquid – Class IB
Methyl Ethyl Ketone (MEK)	Flammable Liquid – Class IB
Ethyl Acetate (EA)	Flammable Liquid – Class IB
Hydrogen (gaseous) +	Flammable gas
Oxygen (gaseous)	Oxidizing gas
Titanium powder (≤ 50 µm particle size)	Flammable solid
Platinum on Carbon Black	Flammable solid
Iridium (IV) Oxide	Oxidizer – Class 3
Waste – IPA <10%	Flammable Liquid – Class IC *
Waste – EA <5%	Flammable Liquid – Class IC *
Waste – MEK <5%	Non-hazardous *

*See Section 4.1, Dilute Aqueous Waste Streams.

Note that the materials summarized above are the primary hazardous materials expected for the fit-out. A complete chemical inventory will be expected to be submitted to the Devens Fire Department in support of the hazardous materials storage permit and hazardous materials processing permit for the project.

4.1 Dilute Aqueous Waste Streams

At the time of this report issuance there are three potential waste streams associated with the EH2 processes:

1. Water and IPA < 10% with trace amounts of platinum and graphite
2. Water and MEK < 5% with trace amounts of titanium
3. Water and EA < 5% with trace amounts of titanium

Dilute solvent mixtures with flash points greater than 100°F are classified as Class II, IIIA, and IIIB Combustible Liquids. Additionally, if the solutions are not able to sustain combustion when ignited or do not have a fire point, they are exempt from the requirements of NFPA 30 *[NFPA 30 §1.1.2(12)]*.

EH2 has sought flash point and sustained combustion testing to confirm the classification for the Water and < 10% IPA and Water and < 5% MEK aqueous mixtures. The following results were observed. Complete test results can be found in Appendix B of this report.

1. Water and IPA < 10% with trace amounts of platinum and graphite
    a. Flash point = 96.8°F
    b. Sustains combustion when ignited
2. Water and MEK < 5% with trace amounts of titanium
    a. Flash point = 60.8°F
    b. Does not sustain combustion when ignited

The Water and < 10% IPA mixture is classified as a Class IC flammable liquid.

It is proposed to treat the Water and < 5% MEK mixture as non-hazardous in accordance with the compliance path outlined above as the material does not have a *fire point* and will not sustain combustion when ignited.

EH2 is in the process of seeking flash point and sustained combustion testing for the Water and < 5% EA waste stream to confirm the classification for these aqueous mixtures. For the purposes of this report and the hazardous materials strategy for the fit-out, the Water and < 5% EA waste stream is assumed to be a Class IC flammable liquid.

4.1.1 Compliance Path

Aqueous solutions that do not have a *fire point* when ignited are exempt from the requirements of Chapter 66 of the MFSC for Flammable and Combustible liquids, and NFPA 30 *[MFSC §66.1.3; NFPA 30 §1.1.2(12)]*. The *fire point* is defined as "the lowest temperature at which a liquid will ignite and achieve sustained burning when exposed to a test flame in accordance with ASTM D92, Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester."

- **MFSC §66.1.3.** This chapter shall not apply to the following:

  …

  (11) Liquids that have no fire point when tested in accordance with ASTM D92, *Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester*, up to the boiling point of the liquid or up to a temperature at which the liquid shows an obvious physical change.

- **NFPA 30 §1.1.2.** This code shall not apply to the following:

  …

  (11) Liquids that have no fire point when tested in accordance with ASTM D92, *Standard Test Method for Flash and Fire Points by Cleveland Open Cup Tester*, up to the boiling point of the liquid or up to a temperature at which the liquid shows an obvious physical change.

It is noted that the upcoming 10th Edition of the Massachusetts State Building Code, available in draft format online[1], includes the following exceptions to the definition of Combustible Liquids:

- **EXCEPTIONS**: The category of combustible liquids shall not apply to:

  …

  Class II and III liquids that are not heated to or above their flash points and:

[1] https://www.mass.gov/doc/10th-edition-total-version-1213/download

- that have no fire point when tested in accordance with ASTM D92, up to the boiling point of the liquid or up to a temperature at which the sample being tested shows an obvious physical change; or
- that are in a water-miscible solution or in a dispersion with a water and inert (noncombustible) solids content of more than 80% by weight, which do not sustain combustion when tested using 49 CFR 173 Appendix H or the UN Recommendation on the Transport of Dangerous Goods.

It is proposed to treat the Water and < 5% MEK mixture as non-hazardous in accordance with the compliance path outlined above as the material does not have a *fire point* and will not sustain combustion when ignited.

4.2 Combustible Dust

Titanium powder at particle sizes of 50 µm or less and Platinum on Carbon Black are utilized in the processes. Both materials are noted as a potential combustible dust on the Safety Data Sheet, provided in Appendix B. It is the responsibility of EH2 to conduct a Dust Hazard Assessment (DHA) in accordance with MFSC §40.1.1 and NFPA 652, *Standard on the Fundamentals of Combustible Dust*, 2019 Edition. Owners and operators of facilities where materials determined to be combustible or explosible in accordance with Chapter 5 of NFPA 652 are present in an enclosure shall be responsible to ensure a DHA is completed in accordance with the requirements of the Code [*MFSC §40.5.1.2*].

Through discussions with EH2 we understand that a DHA will be completed prior to start-up of the powder-handling processes.

5. Storage and Use Provisions

EH2's fit-out at 33 Jackson Rd. will involve the storage and use of hazardous materials. Where the quantity of material exceeds the limitations of the MSBC Tables 307.1(1) and 307.1(2) as adjusted by MSBC Table 414.2.2, the classification of the space becomes High-Hazard Group H.

The quantity of titanium powder, a flammable solid, will exceed the MAQs for a single control area. Therefore, a Group H-3 occupancy will be required for the storage of flammable solid.

All other materials will be used and stored within control areas. The building will contain the following control areas and Group H occupancies:

- Control Area 1 – Dedicated flammable liquid storage room for IPA and MEK storage.
- Control Area 2 – Remainder of the building, to include both Level 1 and Level 2.
- Group H-3 Storage Room – Dedicated flammable solid storage room for titanium powder storage.

The hazardous materials stacking diagram for the building is depicted below and shows the intended control areas and Group H occupancies within the building.

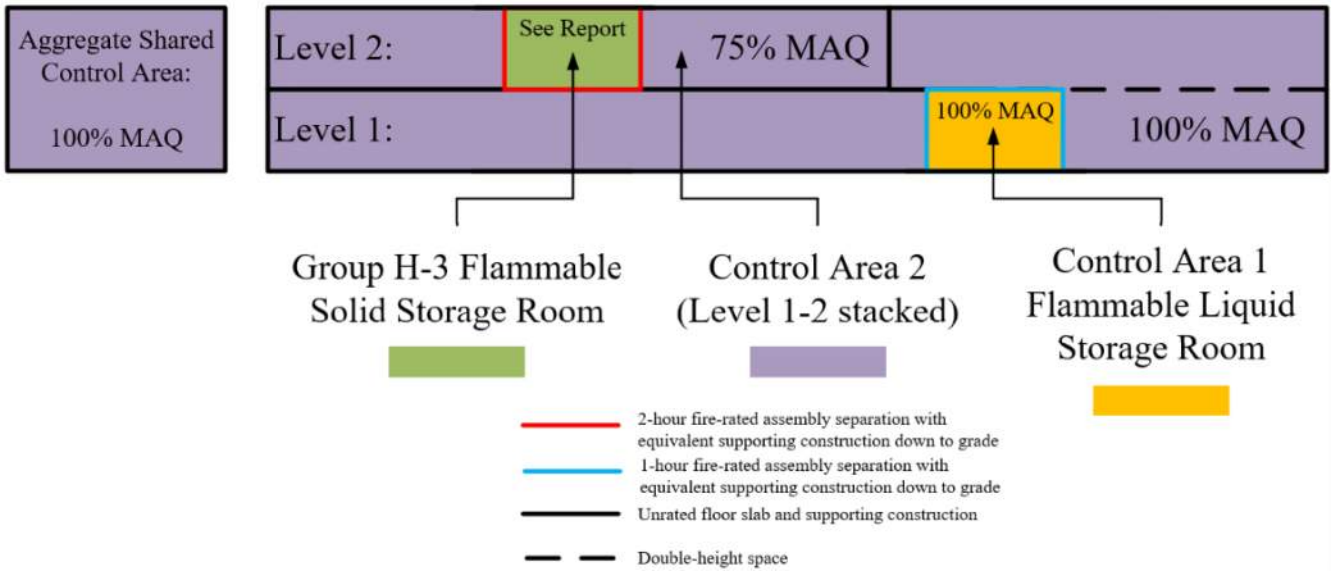


Figure 2: EH2 Hazardous Materials Stacking Diagram

5.1 Control Areas

For control areas to be established on each floor of a two-story Type IIB building, a minimum fire-resistance rating of 2-hours is required for the floor slab and supporting construction for floors supporting control areas *[MSBC §414.2.4]*. The unrated construction of 33 Jackson does not support establishing separate control areas on Level 1 and Level 2 of the building; therefore, the project will utilize a shared control area for the majority of the building. The slab on grade adheres to the requirement to provide 2-hour construction for the bottom of the control area.

For shared control areas, the aggregate quantity of materials within the shared control area is limited to the MAQs of the lowest level of the control area, 100% of the MAQs presented in MSBC Tables 307.1(1) and (2) for Level 1. Material quantities on each level are individually limited to what is permitted for that level.

Table 4 shows the adjustments made to the MAQs of MSBC Tables 307.1(1) and (2) based on location of storage and/or usage on Level 1 and Level 2 of the building.

Table 4: Excerpt of MSBC Table 414.2.2

Floor Level	% of MAQ per Control Area	Fire-Resistance Rating to Separate Control Areas
Level 1	100	1
Level 2	75	1

Table 5 provides the MAQs for Class IB and IC flammable liquids, flammable solids, flammable gases, and oxidizing gases, the primary material classifications associated with the EH2 fit-out. See Appendix A for a complete MAQ summary for both control areas.

Table 5: Maximum Allowable Quantities of Hazardous Materials [a]

Level	Material Classification	Storage	Closed Use	Open Use
Level 1 [b]	Class IB & IC Flammable Liquids	480 gal [c]	240 gal	60 gal
	Flammable Solids	500 lb [c]	250 lb	50 lb
	Flammable Gases	2,000 ft^3	2,000 ft^3	N/A
	Oxidizing Gases	3,000 ft^3	3,000 ft^3	N/A
Level 2 [b]	Class IB & IC Flammable Liquids	360 gal [c]	180 gal	45 gal
	Flammable Solids	375 lb [c]	187.5 lb	37.5 lb
	Flammable Gases	1,500 ft^3	1,500 ft^3	N/A
	Oxidizing Gases	2,250 ft^3	2,250 ft^3	N/A

Table Notes:

[a] The aggregate quantity of material in use and storage shall not exceed the MAQ listed for storage

[b] The aggregate quantity of materials within Control Area 2, the shared control area, is limited to 100% of the MAQs presented in the table for Level 1. Material quantities on Level 2 are individually limited to what is permitted for Level 2.

[c] The MAQ listed for Storage includes the 100% increase permitted for fully sprinklered buildings and the 100% increase permitted for approved storage. **All** stored materials of this material classification within the control area must be within approved cabinets to apply the increase.

6. Hydrogen Generation Systems

There are four MK4 electrolyzer testing stations planned for the fit-out, located in North and South rooms at the perimeter of the building. Each room will house two MK4 testing stations.

Hydrogen generation systems are required to be designed in accordance with NFPA 2, as referenced by the MFSC §63.8 for hydrogen generation systems. The aggregate volume of hydrogen contained to the MK4 testing stations is roughly 85ft^3, less than the 2,000ft^3 MAQ for flammable gas within the control area.

The primary safety system provided for the MK4 testing station rooms will be an emergency purge exhaust system interlocked to activate on organic vapor detection within the room. As required by NFPA 2 §13.3.1.2, the ventilation system will be provided with the following features:

- Loss of mechanical ventilation will be interlocked to shut down power to all MK4 systems within the room, stopping gas generation.
- Gas detectors calibrated for hydrogen will be located at ceiling level and will be interlocked to shut down power to all MK4 systems within the room, stopping gas generation, upon detection of 5% LEL. The emergency purge exhaust system will be activated upon detection of 10% LEL.
- The purge ventilation rate will be designed to exhaust the maximum anticipated hydrogen leak as determined by EH2.

- The purge ventilation rate will be designed to prevent oxygen-enriched atmosphere (23.5% O_2 or above) in the room in the event of an oxygen leak into the room, as determined by EH2.
- The emergency purge exhaust system will terminate to the exterior of the building as follows:
  - Minimum 30ft from property lines
  - Minimum 10ft from operable building openings
  - Minimum 10ft from operable building openings in the direction of exhaust discharge
  - Minimum 6ft from exterior walls and roofs
  - Minimum 10ft above adjoining grade

The MK4 testing rooms will be provided with smoke detection which will activate the emergency purge system.

6.1 Electrolyzer Testing Station Design

6.1.1 Applicable Codes and Standards

It is the responsibility of EH2 as the process designer to ensure compliance with codes and standards applicable to the process. Of note, the following codes and standards apply:

- ASME B31, Code for Pressure Piping *[NFPA 55 §10.2.2]*
- CGA G-5.5, Hydrogen-Venting Systems *[NFPA 55 §10.2.3]*
- CGA G-4.4, Oxygen Pipeline and Piping Systems *[ISO 22734 §4.1.5.2]*
- ISO 22734:2019, Hydrogen generators using water electrolysis – Industrial, commercial, and residential applications, or equivalent listing standard *[NFPA 2 §13.2.1]*

6.1.2 Risk Assessment

Electrolyzer manufacturers are required to perform a risk assessment on the hydrogen generator design using one or more structured techniques per IEC 31010:2019, Annex B (Risk management techniques), or the requirements of ISO 12100 (Risk assessment and risk reduction) *[ISO 22734 §4.2]*.

6.1.3 Process Vents

Process vents, including relief vents, are required to be terminated in accordance with the following separation distances *[NFPA 2 §6.17]:*

- Minimum 10ft above grade
- Minimum, 2ft above adjacent equipment
- Minimum 5ft above rooftops

Additional requirements for process vents are contained in CGA G-5.5 and ISO 22734:2019.

All hydrogen piping located indoors should be exposed and not covered by floors, walls, or ceilings. Piping should be readily visible and protected from physical damage where physical damage may occur.

6.1.4 Safeguards

Through discussion with EH2, we understand the system to incorporate the following primary interlocks:

- Pressures within the MK4s are monitored for deviations and are interlocked to shut down power to the system, stopping gas generation, if the process falls outside of the designated setpoints.
- Tests are automated and run from a programmable logic controller (PLC) which is provided with UPS power.
- Leak tests are conducted prior to start-up.
- Voltage tests are conducted prior to start-up. The test voltage is set lower than what is required to initiate electrolysis.
- Each MK4 is provided with dedicated hydrogen and oxygen process vents designed in accordance with nationally recognized CGA standards and are separated from one another to prevent cross-mixing of the exhaust streams.

7. Group H-3 Flammable Solid Storage Room

Storage of flammable solids is expected to exceed the MAQ for a single control area. Therefore, a Group H-3 flammable solid storage room will be established on Level 2 of the building.

The following section includes requirements from the MSFC, NFPA 400, NFPA 484, and MSBC Sections 414 and 415.

Storage of the following materials in quantities that exceed the MAQ are required to be within a High-Hazard Group H-3 occupancy:

- Combustible or flammable liquids, where stored in closed containers or in systems with pressures of 15 psi or below
- Flammable solids
- Cryogenic fluids, oxidizing
- Organic peroxides – Class II and III
- Oxidizers – Class 2
- Oxidizers – Class 3, where stored in closed containers or in systems with pressures of 15 psi or below
- Unstable reactive materials – Class 2
- Water reactive materials – Class 2

As the room is designed as a Group H-3 occupancy, certain classifications of materials are not permitted within the room when stored or used in quantities that exceed the associated MAQ. Materials classified by the MSBC as hazardous that are **not** listed above are not permitted to exceed the MAQs listed in 780 CMR Tables 307.1(1) and 307.1(2) within the Group H-3 room.

The EH2 Group H-3 storage room is intended to be used solely for the storage of flammable solids in amounts greater than the MAQ. Materials incompatible with titanium powder are not permitted to be stored within the same room unless they are stored in listed cabinets *[MFSC §60.5.1.12]*.

7.1 Group H-3 Construction

Group H-3 occupancies are required to be separated from adjacent occupancies by rated fire barriers in accordance with Table 6 *[MSBC Table 508.4]*.

Table 6: Group H-3 Fire Rated Separations

	Group H-3 Minimum Required Separation (hrs)
Group B, S-1, F-1	1
Group S-2	2
Group A	2

7.2 Fire Separation Distance

Group H-3 occupancies are required to have a minimum of 25% of their perimeter along an exterior wall of the building *[MSBC §415.6]*. Exceptions to this requirement are:

- Flammable / combustible liquid dispensing and storage rooms complying with NFPA 30 equal to or less than 500ft^2

As the room will not be utilized for flammable and combustible liquid storage, it is located such that a minimum of 25% of the room perimeter is along an exterior wall of the building.

7.3 Exterior Wall Ratings

Exterior wall ratings are determined based on the fire separation distance (FSD) between the building and nearby adjacencies. The FSD is defined as the distance from the building face to one of the following:

- The closest interior lot line
- The centerline of a street
- An imaginary line between two buildings on the lot

Exterior wall ratings for Group H occupancies are as follows *[MSBC Table 602]*:

Table 7: Exterior Wall Ratings for Group H Occupancies in Type IIB Buildings

Fire Separation Distance = X (ft)	Fire-resistance Rating of Exterior Group H Walls (hrs)
$X < 5$	3
$5 \leq X < 10$	2
$10 \leq X < 30$	1
$X \geq 30$	0

All property lines for the 33 Jackson Rd. building are greater than 30 feet away from the building. Therefore, unrated exterior walls are expected and are compliant with MSBC §602.

7.4 Fire Suppression

Automatic sprinkler protection is required for all Group H occupancies *[MSBC §415.4]*.

Group H-3 rooms storing flammable solids are to be designed to the minimum criteria for Extra Hazard Group 1 (EH1) per NFPA 13 for spaces containing large amounts of combustible contents *[NFPA 13 §5.4.1]*.

7.5 Specialty Detection and Alarm

Where emergency alarm systems are required, they must be provided with emergency or standby power and be electrically supervised and monitored at an approved location *[MSBC §415.5.4]*.

7.5.1 Automatic Smoke Detection

Where Group H occupancies contain highly toxic gases, organic peroxides, or oxidizers, they shall be provided with an automatic smoke detection system *[MSBC §907.3.5]*.

It is not expected that quantities of the material classifications listed above will exceed the MAQ in the Group H-3 storage room, so smoke detection is not required.

7.5.2 Emergency Hazardous Materials Alarm

The Group H-3 room is required to be provided with an emergency hazardous material alarm manual pull station located outside the room per MSBC §415.5.1. Activation of the alarm-initiating device will sound a local alarm to alert occupants of an emergency situation involving hazardous materials inside the Group H-3 room.

7.5.3 Emergency Alarm for Transport

The Group H-3 room is designed as an accessory occupancy in accordance with MSBC Section 508.2. As such, requirements applicable to Group H occupancies do not apply outside the boundaries of the Group H occupancy. Emergency alarms per MSBC §415.5.2 along routes of transport are not required.

However, hazardous materials will be transported through the building, and as such, EH2 should provide spill kits along the routes of transport capable of addressing a spill of flammable solid, the intended material for the Group H-3 storage room.

7.6 Explosion Control

Explosion control is not required for the storage of flammable solids in amounts greater than the MAQ per MSBC Table 414.5.1.

7.7 Hazardous Electrical Classification

Unclassified electrical equipment is appropriate for rooms storing flammable solids. If the use of flammable solids is expected within the room, additional electrical classification requirements may apply. See Section 4.1, Combustible Dust, for further discussion.

7.8 Spill Control and Secondary Containment

Spill control and secondary containment are not required for the storage of flammable solids in amounts greater than the MAQ per NFPA 400 §13.2.

Appendix A

Maximum Allowable Quantities of Hazardous Materials

A.1 Maximum Allowable Quantities

The following tables provide the Maximum Allowable Quantities of hazardous materials for each of the two control areas in the EH2 fit-out. The following allowances are applied:

- A 100% increase permitted for buildings equipped throughout with an automatic sprinkler system, in accordance with 780 CMR Table 307.1(1) footnote d, and Table 307.1(2) footnote d.
- A 100% increase permitted for hazardous materials stored in approved storage cabinets, gas cabinets, or exhaust enclosures, in accordance 780 CMR Table 307.1(1) footnote e, and Table 307.1(2) footnote e.

Note that **all** hazardous materials for which the approved storage increase is applied must be stored in approved cabinets or exhausted enclosures to apply this increase within the control area. If all hazardous materials within a hazard classification are not stored in approved cabinets or exhausted enclosures, the values highlighted in yellow in the tables must be halved.

As described in Section 5.1, Control Areas, the aggregate quantity of materials within the shared control area is limited to the MAQs of the lowest level within the control area, using the MAQs presented in MSBC Tables 307.1(1) and (2) as reference. In addition, material quantities on each level are individually limited to what is permitted for that level.

The following example is provided for Class IB and IC flammable liquids within Control Area 2:

Control Area 2 is shared between Level 1 and Level 2; therefore, the aggregate volume of Class IB and IC liquids permitted amongst both floors in the control area is 480 gallons, or 100% MAQ as applicable to Level 1, the lowest level within the shared control area. Level 2 is further limited to no more than 360 gallons for Class IB and IC flammable liquids, 75% MAQ.

If Level 2 contains a total of 360 gallons, Level 1 would only be permitted the remainder of the aggregate 480-gallon MAQ (480 – 360 = 120 gallons). As an alternative split, if Level 1 were to contain the entire 480 gallon limit, Level 2 would not be permitted to contain Class IB and IC flammable liquids.

These restrictions must be balanced amongst the materials within Control Area 2 spanning Level 1 and Level 2 of the building.

Control Area 1 - Level 1

Material	Class	Storage			Use - Closed Systems			Use - Open Systems	
		Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)
Combustible fiber	Loose	(100)	N/A	N/A	(100)	N/A	N/A	(20)	N/A
	Baled	(1000)	N/A	N/A	(1000)	N/A	N/A	(200)	N/A
Combustible liquid	II	N/A	240	N/A	N/A	240	N/A	N/A	60
	IIIA	N/A	660	N/A	N/A	660	N/A	N/A	160
	IIIB	N/A	NL	N/A	N/A	NL	N/A	N/A	NL
Consumer fireworks	1.4G	(125)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cryogenics, flammable	N/A	N/A	90	N/A	N/A	90	N/A	N/A	20
Cryogenics, inert	N/A	N/A	N/A	NL	N/A	N/A	NL	N/A	N/A
Cryogenics, oxidizing	N/A	N/A	90	N/A	N/A	90	N/A	N/A	20
Explosives	Division 1.1	1	(1)	N/A	0.25	(0.25)	N/A	0.25	0.25
	Division 1.2	1	(1)	N/A	0.25	(0.25)	N/A	0.25	0.25
	Division 1.3	5	(5)	N/A	1	(1)	N/A	1	1
	Division 1.4	50	(50)	N/A	50	(50)	N/A	N/A	N/A
	Division 1.4G	250	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Division 1.5	1	(1)	N/A	0.25	(0.25)	N/A	0.25	0.25
	Division 1.6	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flammable Gas	Gaseous	N/A	N/A	2000	N/A	N/A	2000	N/A	N/A
	liquefied	N/A	(300)	N/A	N/A	(300)	N/A	N/A	N/A
Flammable liquid	Class IA	N/A	60	N/A	N/A	60	N/A	N/A	20
	Class IB & IC	N/A	240	N/A	N/A	240	N/A	N/A	60
Flammable liquid, combination (1A, 1B, 1C)	N/A	N/A	240	N/A	N/A	240	N/A	N/A	60
Flammable solid	N/A	250	N/A	N/A	250	N/A	N/A	50	N/A
Inert gas	Gaseous	N/A	N/A	NL	N/A	N/A	NL	N/A	N/A
	Liquefied	N/A	N/A	NL	N/A	N/A	NL	N/A	N/A
Organic peroxide	UD	1	(1)	N/A	0.25	(0.25)	N/A	0.25	(0.25)
	I	10	(10)	N/A	2	(2)	N/A	2	(2)
	II	100	(100)	N/A	100	(100)	N/A	20	(20)
	III	250	(250)	N/A	250	(250)	N/A	50	(50)
	IV	NL	NL	N/A	NL	NL	N/A	NL	NL
	V	NL	NL	N/A	NL	NL	N/A	NL	NL
Oxidizer	4	1	(1)	N/A	0.25	(0.25)	N/A	0.25	(0.25)
	3	20	(20)	N/A	4	(4)	N/A	4	(4)
	2	500	(500)	N/A	500	(500)	N/A	100	(100)
	1	NL	NL	N/A	NL	NL	N/A	NL	NL
Oxidizing Gas	Gaseous	N/A	N/A	3000	N/A	N/A	3000	N/A	N/A
	Liquified	N/A	(300)	N/A	N/A	(300)	N/A	N/A	N/A
Pyrophoric material	N/A	4	(4)	50	1	(1)	10	0	0
Unstable (reactive)	4	1	(1)	10	0.25	(0.25)	2	0.25	(0.25)
	3	10	(10)	100	2	(2)	20	2	(2)
	2	100	(100)	1500	100	(100)	1500	20	(20)
	1	NL	NL	NL	NL	NL	NL	NL	NL
Water reactive	3	10	(10)	N/A	10	(10)	N/A	2	(2)
	2	100	(100)	N/A	100	(100)	N/A	20	(20)
	1	NL	NL	N/A	NL	NL	N/A	NL	NL
Corrosive	Gaseous	N/A	N/A	(1620)	N/A	N/A	(1620)	N/A	N/A
	Liquified/Solid	(10000)	(1000)	(300)	(10000)	(1000)	(300)	(2000)	(200)
Highly Toxic	Gaseous	N/A	N/A	NP	N/A	N/A	NP	N/A	N/A
	Liquified/Solid	(20)	(20)	NP	(20)	(20)	NP	(6)	(6)
Toxic	Gaseous	N/A	N/A	(1620)	N/A	N/A	(1620)	N/A	N/A
	Liquified/Solid	(1000)	(1000)	(300)	(1000)	(1000)	(300)	(250)	(250)

Notes:

N/A = Not applicable
NL = No Limit
UD = Unclassified Detonable
NP = Not Permitted

Control Area 2 - Level 1

Material	Class	Storage			Use - Closed Systems			Use - Open Systems	
		Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)
Combustible fiber	Loose	(100)	N/A	N/A	(100)	N/A	N/A	(20)	N/A
	Baled	(1000)	N/A	N/A	(1000)	N/A	N/A	(200)	N/A
Combustible liquid	II	N/A	240	N/A	N/A	240	N/A	N/A	60
	IIIA	N/A	660	N/A	N/A	660	N/A	N/A	160
	IIIB	N/A	NL	N/A	N/A	NL	N/A	N/A	NL
Consumer fireworks	1.4G	(125)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cryogenics, flammable	N/A	N/A	90	N/A	N/A	90	N/A	N/A	20
Cryogenics, inert	N/A	N/A	N/A	NL	N/A	N/A	NL	N/A	N/A
Cryogenics, oxidizing	N/A	N/A	90	N/A	N/A	90	N/A	N/A	20
Explosives	Division 1.1	1	(1)	N/A	0.25	(0.25)	N/A	0.25	0.25
	Division 1.2	1	(1)	N/A	0.25	(0.25)	N/A	0.25	0.25
	Division 1.3	5	(5)	N/A	1	(1)	N/A	1	1
	Division 1.4	50	(50)	N/A	50	(50)	N/A	N/A	N/A
	Division 1.4G	250	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Division 1.5	1	(1)	N/A	0.25	(0.25)	N/A	0.25	0.25
	Division 1.6	1	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flammable Gas	Gaseous	N/A	N/A	2000	N/A	N/A	2000	N/A	N/A
	liquefied	N/A	(300)	N/A	N/A	(300)	N/A	N/A	N/A
Flammable liquid	Class IA	N/A	60	N/A	N/A	60	N/A	N/A	20
	Class IB & IC	N/A	240	N/A	N/A	240	N/A	N/A	60
Flammable liquid, combination (1A, 1B, 1C)	N/A	N/A	240	N/A	N/A	240	N/A	N/A	60
Flammable solid	N/A	250	N/A	N/A	250	N/A	N/A	50	N/A
Inert gas	Gaseous	N/A	N/A	NL	N/A	N/A	NL	N/A	N/A
	Liquefied	N/A	N/A	NL	N/A	N/A	NL	N/A	N/A
Organic peroxide	UD	1	(1)	N/A	0.25	(0.25)	N/A	0.25	(0.25)
	I	10	(10)	N/A	2	(2)	N/A	2	(2)
	II	100	(100)	N/A	100	(100)	N/A	20	(20)
	III	250	(250)	N/A	250	(250)	N/A	50	(50)
	IV	NL	NL	N/A	NL	NL	N/A	NL	NL
	V	NL	NL	N/A	NL	NL	N/A	NL	NL
Oxidizer	4	1	(1)	N/A	0.25	(0.25)	N/A	0.25	(0.25)
	3	20	(20)	N/A	4	(4)	N/A	4	(4)
	2	500	(500)	N/A	500	(500)	N/A	100	(100)
	1	NL	NL	N/A	NL	NL	N/A	NL	NL
Oxidizing Gas	Gaseous	N/A	N/A	3000	N/A	N/A	3000	N/A	N/A
	Liquified	N/A	(300)	N/A	N/A	(300)	N/A	N/A	N/A
Pyrophoric material	N/A	4	(4)	50	1	(1)	10	0	0
Unstable (reactive)	4	1	(1)	10	0.25	(0.25)	2	0.25	(0.25)
	3	10	(10)	100	2	(2)	20	2	(2)
	2	100	(100)	1500	100	(100)	1500	20	(20)
	1	NL	NL	NL	NL	NL	NL	NL	NL
Water reactive	3	10	(10)	N/A	10	(10)	N/A	2	(2)
	2	100	(100)	N/A	100	(100)	N/A	20	(20)
	1	NL	NL	N/A	NL	NL	N/A	NL	NL
Corrosive	Gaseous	N/A	N/A	(1620)	N/A	N/A	(1620)	N/A	N/A
	Liquified/Solid	(10000)	(1000)	(300)	(10000)	(1000)	(300)	(2000)	(200)
Highly Toxic	Gaseous	N/A	N/A	NP	N/A	N/A	NP	N/A	N/A
	Liquified/Solid	(20)	(20)	NP	(20)	(20)	NP	(6)	(6)
Toxic	Gaseous	N/A	N/A	(1620)	N/A	N/A	(1620)	N/A	N/A
	Liquified/Solid	(1000)	(1000)	(300)	(1000)	(1000)	(300)	(250)	(250)

Notes:

N/A = Not applicable
NL = No Limit
UD = Unclassified Detonable
NP = Not Permitted

Control Area 2 - Level 2

Material	Class	Storage			Use - Closed Systems			Use - Open Systems	
		Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)	Gas (cubic feet at NTP)	Solid pounds (cubic feet)	Liquid gallons (pounds)
Combustible fiber	Loose	(75)	N/A	N/A	(75)	N/A	N/A	(15)	N/A
	Baled	(750)	N/A	N/A	(750)	N/A	N/A	(150)	N/A
Combustible liquid	II	N/A	180	N/A	N/A	180	N/A	N/A	45
	IIIA	N/A	495	N/A	N/A	495	N/A	N/A	120
	IIIB	N/A	NL	N/A	N/A	NL	N/A	N/A	NL
Consumer fireworks	1.4G	(93.75)	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Cryogenics, flammable	N/A	N/A	67.5	N/A	N/A	67.5	N/A	N/A	15
Cryogenics, inert	N/A	N/A	N/A	NL	N/A	N/A	NL	N/A	N/A
Cryogenics, oxidizing	N/A	N/A	67.5	N/A	N/A	67.5	N/A	N/A	15
Explosives	Division 1.1	0.75	(0.75)	N/A	0.1875	(0.1875)	N/A	0.1875	0.1875
	Division 1.2	0.75	(0.75)	N/A	0.1875	(0.1875)	N/A	0.1875	0.1875
	Division 1.3	3.75	(3.75)	N/A	0.75	(0.75)	N/A	0.75	0.75
	Division 1.4	37.5	(37.5)	N/A	37.5	(37.5)	N/A	N/A	N/A
	Division 1.4G	187.5	N/A	N/A	N/A	N/A	N/A	N/A	N/A
	Division 1.5	0.75	(0.75)	N/A	0.1875	(0.1875)	N/A	0.1875	0.1875
	Division 1.6	0.75	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Flammable Gas	Gaseous	N/A	N/A	1500	N/A	N/A	1500	N/A	N/A
	liquefied	N/A	(225)	N/A	N/A	(225)	N/A	N/A	N/A
Flammable liquid	Class IA	N/A	45	N/A	N/A	45	N/A	N/A	15
	Class IB & IC	N/A	180	N/A	N/A	180	N/A	N/A	45
Flammable liquid, combination (1A, 1B, 1C)	N/A	N/A	180	N/A	N/A	180	N/A	N/A	45
Flammable solid	N/A	187.5	N/A	N/A	187.5	N/A	N/A	37.5	N/A
Inert gas	Gaseous	N/A	N/A	NL	N/A	N/A	NL	N/A	N/A
	Liquefied	N/A	N/A	NL	N/A	N/A	NL	N/A	N/A
Organic peroxide	UD	0.75	(0.75)	N/A	0.1875	(0.1875)	N/A	0.1875	(0.1875)
	I	7.5	(7.5)	N/A	1.5	(1.5)	N/A	1.5	(1.5)
	II	75	(75)	N/A	75	(75)	N/A	15	(15)
	III	187.5	(187.5)	N/A	187.5	(187.5)	N/A	37.5	(37.5)
	IV	NL	NL	N/A	NL	NL	N/A	NL	NL
	V	NL	NL	N/A	NL	NL	N/A	NL	NL
Oxidizer	4	0.75	(0.75)	N/A	0.1875	(0.1875)	N/A	0.1875	(0.1875)
	3	15	(15)	N/A	3	(3)	N/A	3	(3)
	2	375	(375)	N/A	375	(375)	N/A	75	(75)
	1	NL	NL	N/A	NL	NL	N/A	NL	NL
Oxidizing Gas	Gaseous	N/A	N/A	2250	N/A	N/A	2250	N/A	N/A
	Liquified	N/A	(225)	N/A	N/A	(225)	N/A	N/A	N/A
Pyrophoric material	N/A	3	(3)	37.5	0.75	(0.75)	7.5	0	0
Unstable (reactive)	4	0.75	(0.75)	7.5	0.1875	(0.1875)	1.5	0.1875	(0.1875)
	3	7.5	(7.5)	75	1.5	(1.5)	15	1.5	(1.5)
	2	75	(75)	1125	75	(75)	1125	15	(15)
	1	NL	NL	NL	NL	NL	NL	NL	NL
Water reactive	3	7.5	(7.5)	N/A	7.5	(7.5)	N/A	1.5	(1.5)
	2	75	(75)	N/A	75	(75)	N/A	15	(15)
	1	NL	NL	N/A	NL	NL	N/A	NL	NL
Corrosive	Gaseous	N/A	N/A	(1215)	N/A	N/A	(1215)	N/A	N/A
	Liquified/Solid	(7500)	(750)	(225)	(7500)	(750)	(225)	(1500)	(150)
Highly Toxic	Gaseous	N/A	N/A	NP	N/A	N/A	NP	N/A	N/A
	Liquified/Solid	(15)	(15)	NP	(15)	(15)	NP	(4.5)	(4.5)
Toxic	Gaseous	N/A	N/A	(1215)	N/A	N/A	(1215)	N/A	N/A
	Liquified/Solid	(750)	(750)	(225)	(750)	(750)	(225)	(187.5)	(187.5)

Notes:

N/A = Not applicable
NL = No Limit
UD = Unclassified Detonable
NP = Not Permitted

Appendix B

DEKRA Aqueous Waste Stream Material Test Results

DEKRA Services, Inc.

113 Campus Drive,
Princeton, NJ 08540 USA
Phone: +1.609.799.4449
Email: process-safety-usa@dekra.com

To: Rebecca LeChevalier
Company: **EH2 Analytics**
E-mail: rlechevalier@eh2.com

From: Melissa Murray, Laboratory Coordinator
DEKRA Process Safety

September 11th 2023
Job#: 30986

ATTENTION:
This message is intended for the individual to whom it is addressed. It contains information that may be confidential under law. If you are not the intended recipient, or the agent responsible for delivering this message, do not read, copy or distribute this information. If you have received this message in error, please notify us immediately.

MESSAGE:
Dear Ms. LeChevalier,

The results of the Dust Explosion Hazard and Flammability Testing for your **three** samples are as follows:

Sample Name	Explosibility Screening – Go/No Go Classification	Cleveland Open Cup – ASTM D92		Pensky-Martens Closed Cup – ASTM D93
		Flash Point Temperature	Fire Point Temperature	
a) 5% MEK W/Water	-	58°C	No Fire Point Observed*	16°C
b) 10% IPA W/Water	-	46°C	56°C	36°C
c) Ti Powder	Go (Explosible)	-	-	-

*sample begins to boil above 88C.

A full report with interpretation will be sent electronically. If you have any questions, please call our Laboratory Manager, Mr. Don B. Churchwell, at phone 609.799.4449, ext. 345 or via e-mail at don.churchwell@dekra.com.

Sincerely,

Victoria Goncalves
Laboratory Supervisor

Yuan Dai
Senior Laboratory Specialist

Phase 0 Flammable Chemical Inventory

ELECTRIC HYDROGEN

Below is a tentative list of the Phase 0 flammable chemical inventory.

Chemical Name	CAS No.	Gal	g	kg	*lb*	Hazards	Flammable Liquid Category	NFPA Class	Flammable Solid Category	NFPA Class
Polyester Film (Frame) TOYOBO	24968-11-4 7631-86-9			2.5		Comb. Dust	X	X	X	X
Super P Conductive Carbon Black (graphite)	7782-42-5			2.5		Comb. Dust				
Titanium Powder	7440-32-6			100		Comb. Dust			1	
Sodium Hydroxide	1310-73-2					Corrosive				
1-Propanol	71-23-9	10				Flammable	2	1B		
2-Propanol	67-63-0	10				Flammable	2	1B		
Ethyl Alcohol, Pure	64-17-5	3				Flammable	2	1B		
Isopropanol Alcohol	67-63-0	24				Flammable	2	1B		
Platinum on activated carbon	7440-44-0		10600			Flammable			2	
Platinum on Carbon Black (90% carbon)	1333-86-4 7440-0604			10	*0.23*	Flammable			1	
Platinum on HSA Ketjenblack	N/A		10		*0.022*	Flammable			2	
Sodium dodecyl sulfate	151-21-3	1				Flammable			2	
Nafion D2020	*71-23-8* *64-17-5*	*10*		*30*		*Flammable/ Corrosive*	*2*	*1B*		
Carbob Paper	7440-440				*10*	NH				
Carbon Black (ENSACO)	1333-86-4			10		NH				
Fluoropolymer transfer layer (Tetrafluoroethylene-ethylene copolymer)	68258-85-5					NH				
Iridium Oxide	*12030-49-8*		*350*	*2.5*	*0.7*	*Oxidizer*			*Ox: 2*	
Flammable Liquids and Solids	Combustible Dust/Dust Locker		Non-Hazardous		*Oxidizer*	*Corrosives*				

Devens Fire Department

182 Jackson Road, Devens, 01434, United States

Combustible / Flammable Storage Cabinets

Issued

Permit Number	DEV-000012	**Issued To**	Electric Hydrogen
Effective	01/03/2024	**Located On**	33 Jackson RD
Expires	01/02/2025		DEVENS, MA 01434
		Fee	$35.00

Issued On 01/03/2024

Todd Whittier

Todd Whittier

Authorized On 01/03/2024

Todd Whittier

Todd Whittier, Fire Prevention Captain

Issued in accordance with NFPA1 527CMR 1.00

Devens Fire Department

182 Jackson Road, Devens, 01434, United States

Hazardous Processing

Issued

Permit Number	DEV-000036	**Issued To**	Electric Hydrogen
Effective	02/06/2024 @ 09:00	**Located On**	33 Jackson RD
Expires	02/05/2025 @ 09:00		DEVENS, MA 01434
		Fee	$35.00

Issued On	02/06/2024	**Authorized On**	02/06/2024
Todd Whittier		Todd Whittier	
Todd Whittier		Todd Whittier, Fire Prevention Captain	

Issued in accordance with NFPA1 527CMR 1.00

Industrial Performance Standards Checklist for Newly Proposed Projects

All projects within the Devens Regional Enterprise Zone (DREZ) must comply with the Devens Enterprise Commission (DEC) Industrial Performance Standards (IPS) under 974 CMR 4.00. This checklist is intended to assist Applicants in determining at the time of submittal, or ideally before submittal, if their project may or may not involve development and/or activities that may impact sound, vibration, air quality, or lighting within the DREZ.

Site layout, building(s) design/orientation, traffic patterns, location of outdoor equipment and numerous other project components can impact sound, vibration, air quality, and lighting within the DREZ. By identifying any potential IPS concerns early on in the review process, Applicants can design their projects to ensure compliance with the IPS at all times and avoid potential future violations of the IPS and costly mitigation after the fact.

Please note, if a project requires an air permit from the Massachusetts Department of Environmental Protection (DEP), the Applicant will need to initiate permitting through the DEP office as well. Even if a project requires a DEP air permit, the proponent still must demonstrate compliance with the DEC IPS.

Please circle the correct answer to each question in this checklist. Please note that by circling "NO", the Applicant is not relieved of demonstrating compliance with the IPS requirements. If "NO" is circled and a potential concern is identified during the review process, it could temporarily suspend the approval process timeline until the concern is adequately addressed. If "YES" is answered, please explain and provide any supporting studies or information to aid the DEC in their evaluation of the project.

Project Name___33 Jackson Road - Flammable License_____

Does the proposed project and associated activities involve any potential increases in sound, vibration, air quality, odor, dust, lighting and/or electromagnetic interference that are covered under the DEC Industrial Performance Standards?

YES	NO

If you answered yes, will the Applicant demonstrate compliance directly or will the project proponent employ an expert to demonstrate compliance? Please provide pertinent contact information of the responsible official:

_____

_____

_____

_____

Industrial Performance Standards Checklist for Newly Proposed Projects cont…

Noise

Does the proposed project have the ability to increase sound?	**YES**	**NO**
1. Will the increase in sound plus background sound exceed 974 CMR 4.05 (3)a?	**YES**	**NO**
2. Will the total sound plus background sound exceed 974 CMR 4.05 (3)b?	**YES**	**NO**
3. Will the increase in sound create pure tones that will exceed 974 CMR 4.05 (3)c and/or 974 CMR 4.05 (3)d7?	**YES**	**NO**
4. Will the increase in sound create impulsive sounds that will exceed 974 CMR 4.05 (3)d1-6 and/or 974 CMR 4.05 (3)d8?	**YES**	**NO**
5. Are there procedures and controls proposed to reduce sound during earth removal per 974 CMR 4.07(10)?	**YES**	**NO**
Checklist Options to Demonstrate Sound Compliance		
6. Have all of your potential sound sources been identified?	**YES**	**NO**
7. Will spreadsheet calculations of the potential increase in sound be provided?	**YES**	**NO**
8. Will sound modeling of the proposed project be provided?	**YES**	**NO**
9. Will the facility submit a protocol describing the potential sound monitoring, metrics, and modeling as required?	**YES**	**NO**
10. Does the project propose to collect background sound data (typically 7-days worth of valid data is sufficient)?	**YES**	**NO**
11. If the facility intends to collect background sound data will it include other qualifying weather data such as wind speed, wind direction, sky conditions, etc.?	**YES**	**NO**
12. Is mitigation to reduce the overall sound profile proposed?	**YES**	**NO**
13. Is sound mitigation to be assumed when calculations or modeling is performed?	**YES**	**NO**
14. Is compliance monitoring proposed to demonstrate that the project meets the estimated increases in sound?	**YES**	**NO**
15. Have increases in sound with respect to traffic been considered?	**YES**	**NO**

Industrial Performance Standards Checklist for Newly Proposed Projects cont…

Vibration

Does the proposed project have the ability to increase vibration?	**YES**	**NO**
16. Will the increase in vibration exceed 974 CMR 4.05 (4)a??	**YES**	**NO**
Checklist Options to Demonstrate Vibration Compliance		
17. Have all of the potential vibration sources been identified?	**YES**	**NO**
18. Will spreadsheet calculations of the potential increase in vibration be provided?	**YES**	**NO**
19. Will the proponent provide vibration modeling of the proposed project?	**YES**	**NO**
20. Does the project propose to collect background vibration data?	**YES**	**NO**
21. Is mitigation proposed to reduce the overall vibration profile?	**YES**	**NO**
22. Is vibration mitigation to be assumed when the calculations or modeling performed?	**YES**	**NO**
23. Is compliance monitoring proposed to demonstrate that the project meets the estimated increases in vibration as proposed?	**YES**	**NO**

Industrial Performance Standards Checklist for Newly Proposed Projects cont…

Air Quality

Does the proposed project have the ability to create air, visible, and/or odor emissions?	**YES**	**NO**
24. Will the proposed project meet the air quality standards in 974 CMR 4.02(3)	**YES**	**NO**
25. Are there procedures and controls proposed to minimize impacts during earth removal per 974 CMR 4.07(7)?	**YES**	**NO**
26. Will the proposed project require a MassDEP air quality permit per 974 CMR 4.02 (1)	**YES**	**NO**
If the project will require an air permit, then the proponent should set up a meeting with the regional MassDEP office to determine air permitting requirements, and answer the following:		
27. Will the proposed project submit a Limited Plan Approval application?	**YES**	**NO**
28. Will the proposed project submit a Non-Major Comprehensive Plan Approval application?	**YES**	**NO**
29. Will the proposed project submit a Major Comprehensive Plan Approval application?	**YES**	**NO**
30. Will the proposed project be a Title V source?	**YES**	**NO**
31. Will the proposed project be a PSD source?	**YES**	**NO**
Checklist Options to Demonstrate Air Quality Compliance		
32. Have you identified all of your potential air, visible and/or odor sources?	**YES**	**NO**
33. Will there be any visible emissions?	**YES**	**NO**
34. Will there be any dust emissions?	**YES**	**NO**
35. Will there be any odor emissions?	**YES**	**NO**
36. Will there be any potential increases in air, odor or dust emissions within the DREZ that will impact any internal or external receptors?	**YES**	**NO**
37. Will the project proponent provide spreadsheet calculations of the potential increase in air and/or odor emissions within the DREZ to demonstrate how the increase will not impact any internal or external receptors?	**YES**	**NO**

Industrial Performance Standards Checklist for Newly Proposed Projects cont…

Checklist Options to Demonstrate Air Quality Compliance (cont.)

38. Will the project proponent provide air and/or odor modeling of the proposed project within the DEC or into the neighborhood surrounding the DEC??	**YES**	**NO**
39. Is mitigation proposed to reduce the overall air and/or odor profile?	**YES**	**NO**
40. Is air pollution and/or odor control to be assumed when the calculations or modeling is performed?	**YES**	**NO**
41. Is compliance monitoring proposed to demonstrate that the project meets the estimated increases in air and/or odor as proposed?	**YES**	**NO**

Lighting/Illumination

Does the proposed project have the ability to create additional Illumination?	**YES**	**NO**
42. Will lighting meet the illumination standards set forth in 974 CMR 4.04(3)?	**YES**	**NO**
43. Have all of the potential light sources been identified?	**YES**	**NO**
44. Will spreadsheet calculations of the potential increase in light and how it will not affect the Observatory outlined in 974 CMR 4.04(1) or any external or internal receptors be provided?	**YES**	**NO**
45. Is mitigation proposed to reduce the overall light profile?	**YES**	**NO**

Electromagnetic Interference

Does the proposed project have the ability to create electromagnetic interference?	**YES**	**NO**
46. Have you identified all your potential electromagnetic sources?	**YES**	**NO**
47. Are you proposing to provide spreadsheet calculations of the potential increase in electromagnetic interference and how it will not affect any internal or external receptors as per 974 CMR 4.03(3)?	**YES**	**NO**
48. Are you proposing any mitigation to reduce your overall electromagnetic profile?	**YES**	**NO**
49. Will your project comply with all the electromagnetic requirements under 974 CMR 4.03?	**YES**	**NO**

ELECTRIC HYDROGEN

Devens: Facilities Action Plan

33 Jackson Road, Devens, MA 01434

42.535767, -71.631197

Version 2: 3/6/2023

Table of Contents

Everyday Safety: We rely on each other to maintain a safe workplace. Please be observant, every day.

Safety Incident & Near Miss Reporting Form

If you see an incident or near miss (an incident where the outcome could have been worse than that observed) Please report it right away using the Safety Incident and Near Miss Report Form QR code.

Safety Incident and Near Miss Report Form

Go/EHSReports

Hazard Recognition and EHS Requests

Go/EHSRequests

Hazard Recognition and EHS Request Form

At least once a month take a few minutes and look around for items which you think are a “safety best practice” or you see an opportunity to improve. Please report it using the Hazard Recognition and EHS Requests Form QR code.

If you see conditions which require an immediate response, please notify one of the critical contacts listed on the following page.

DEVENS FACILITY ACTION PLAN

Critical Contact List: If an injury, illness, safety event, or near miss occurs, contact a member of EHS. If the event involves the facility, contact an FAC member as well.

Emergency Coordinators		
If an injury, illness, safety event, or near miss occurs, contact a member of EH2-EHS and EH2-FAC.		
Simon Whooley	Facility Manager	508-440-1314
Ken Jones	EHS Manager	978-790-6200
Gia Coleman	EHS Specialist	508-340-3421
B.W.Kennedy (Early Manufacturing) Adam Dufault	Facilities Technician	781-759-4770

Local Authorities & Emergency Response Service	
If any issue arises regarding these organizations, contact a member of the EHS or FAC teams. ***Emergency Line for Fire and Police: 911***	
Fire Department Non-Emergency	978-772-4600
Police Department Non-Emergency	978-772-8800
Veolia Environmental Release Response	1-800-354-2382
Regional Center for poison Control and Prevention	1-800-222-1222

Facilities External Contacts		
If an issue arises with any of the following organizations, contact Senior Facilities Engineer or Facilities Manager.		
Alarm & Fire Protection	Adam Dufault	Early Manufacturing Only
Electric	Adam Dufault	Early Manufacturing Only
Gas Utilities (User Side)	T.B. D	Pending Vendor Selection
Gas Utilities (Utility Side)	Eversource	1-800-592-2000
HVAC	Adam Dufault	Early Manufacturing Only
Pest Control	Devens Animal Control	978-772-1864
Plumbing	Adam Dufault	Early Manufacturing Only
RODI	Simon Whooley	508-440-1314

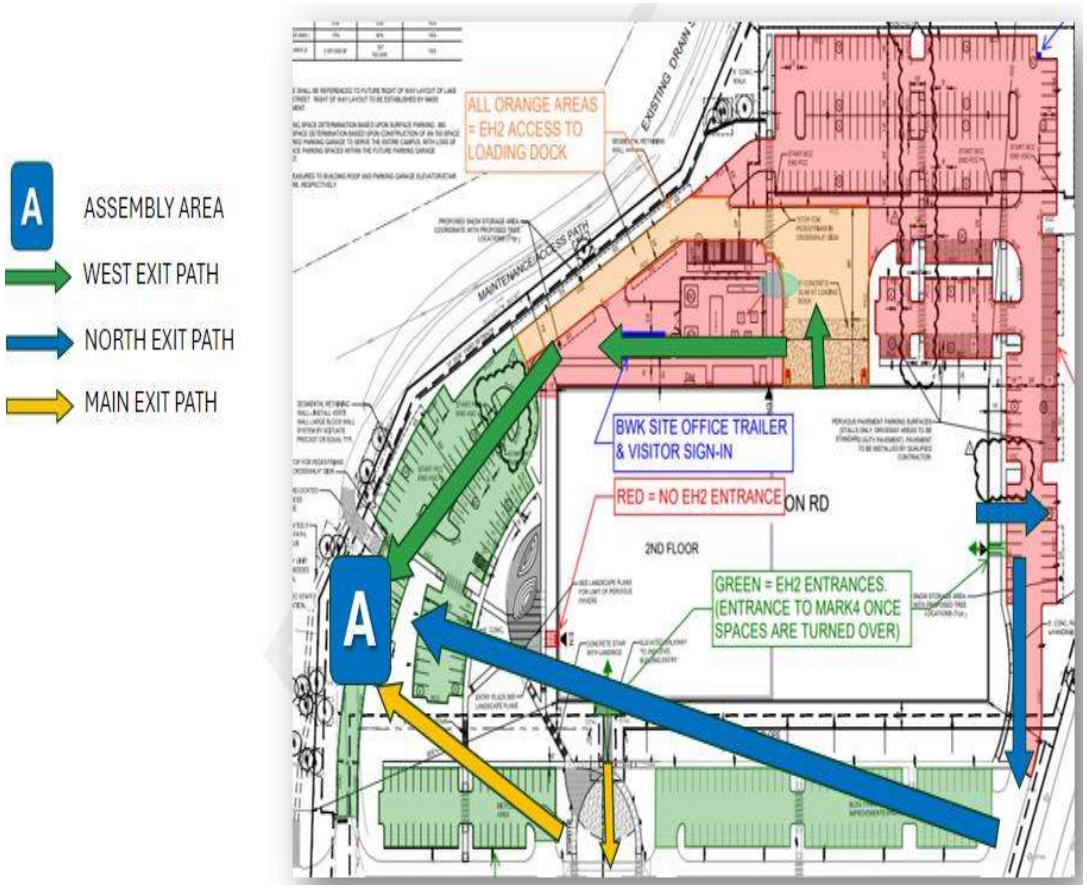
For incident and event reporting procedures, please review the information on pages 7-10 & 14.

DEVENS FACILITY ACTION PLAN

Evacuation Plan: Always evacuate upon hearing/seeing an emergency alarm. Report to Assembly Area, remaining there until further communication by EH2-EHS.

Evacuation maps are located throughout the facility. In the event of power loss, follow the illuminated exit signs to leave the building.

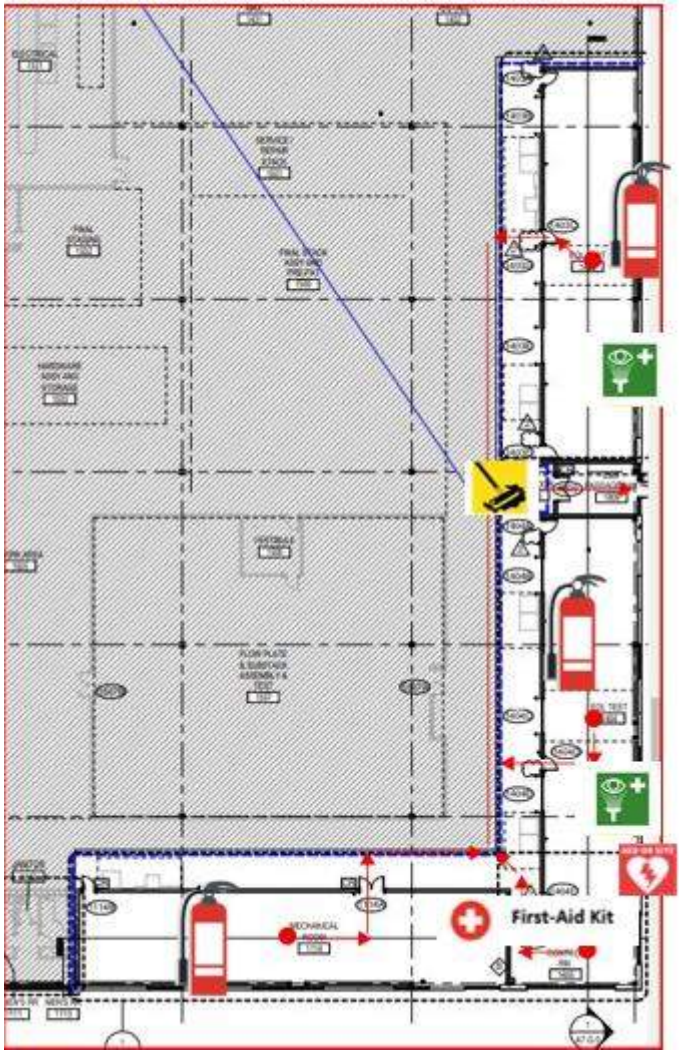
1. Immediately evacuate the building upon the sounding of the Fire/ Emergency Alarm.
2. DO NOT stop to gather possessions.
3. Once out of the building, all employees and contractors are to gather (by department) at the "Assembly Point" located at the south parking lot.
4. Evacuation roll calls are conducted using the "Alert Media" app. Respond to communication. Results are reported to Emergency Coordinator(s).
5. Until otherwise notified by Devens FD, or the Emergency Coordinator(s), remain at "Assembly Area."
6. Follow any instructions given by the Emergency Coordinator(s), Security and and/or Devens FD.
7. Re-entry into the buildings will occur by department upon the authorization by the Emergency Coordinator(s).
8. If outside normal business hours, ensure you have contacted an emergency coordinator(s). Their phone numbers are available on the Critical Contact List.
9. If injuries or Illnesses occur, members of the EH2 Emergency Response team will provide first aid.



Emergency Evacuation and Equipment Maps: Maps show the location of emergency equipment such as AED. Fire Extinguishers, First-Aid Kits, Emergency Eyewashes and more, as well as egress routes.

Devens: Emergency Evacuation and Equipment Map Level 1

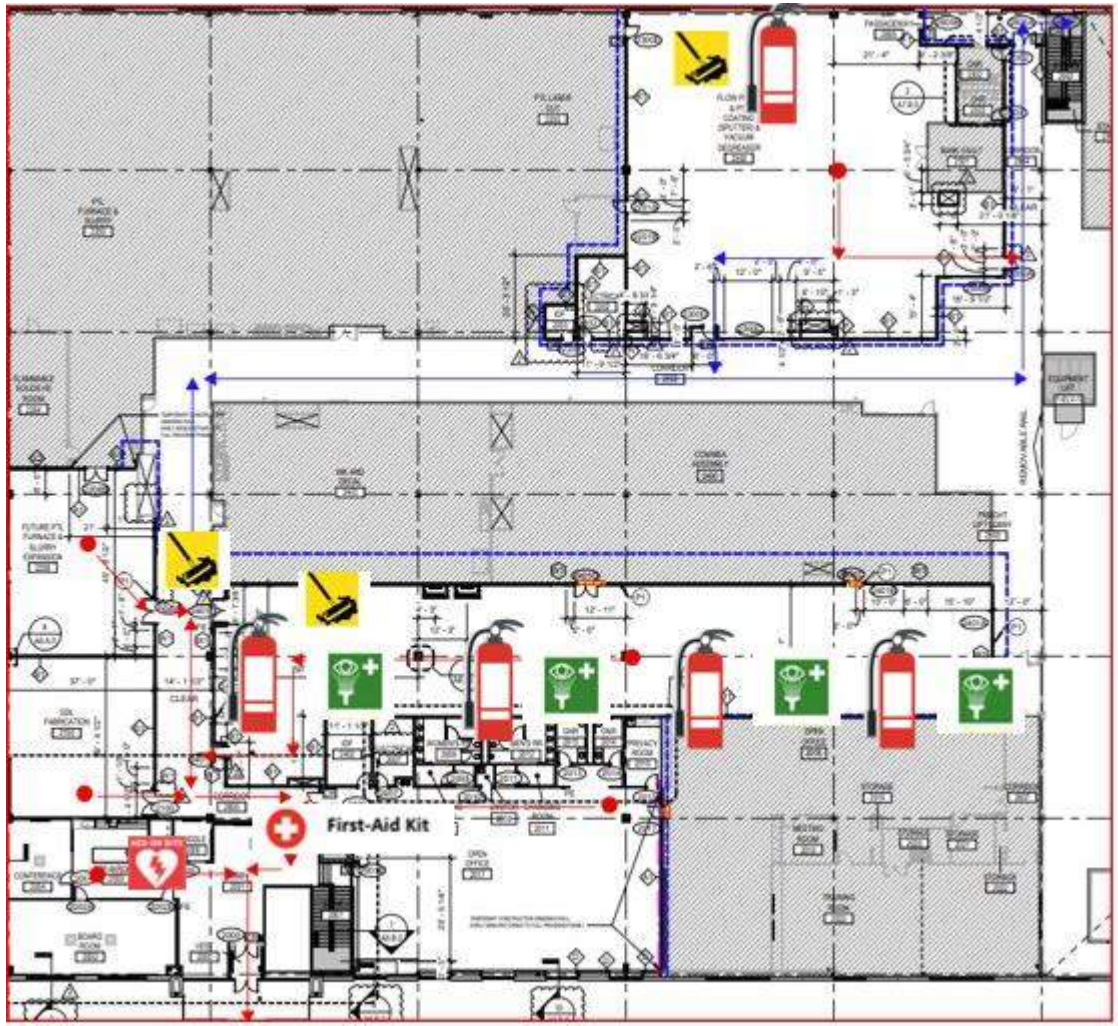
- Fire Extinguisher
- AED
- First-Aid Kit
- Emergency Eyewash/ Shower/ Drench Hose
- Spill Cleanup Materials
- Fire Alarm Pull Station



Emergency Evacuation and Equipment Maps: Maps show the locations of emergency equipment such as AEDs, Fire Extinguishers, First Aid Kits, Emergency Eyewashes and more, as well as egress routes.

Devens: Level 2 Emergency Evacuation and Equipment Map

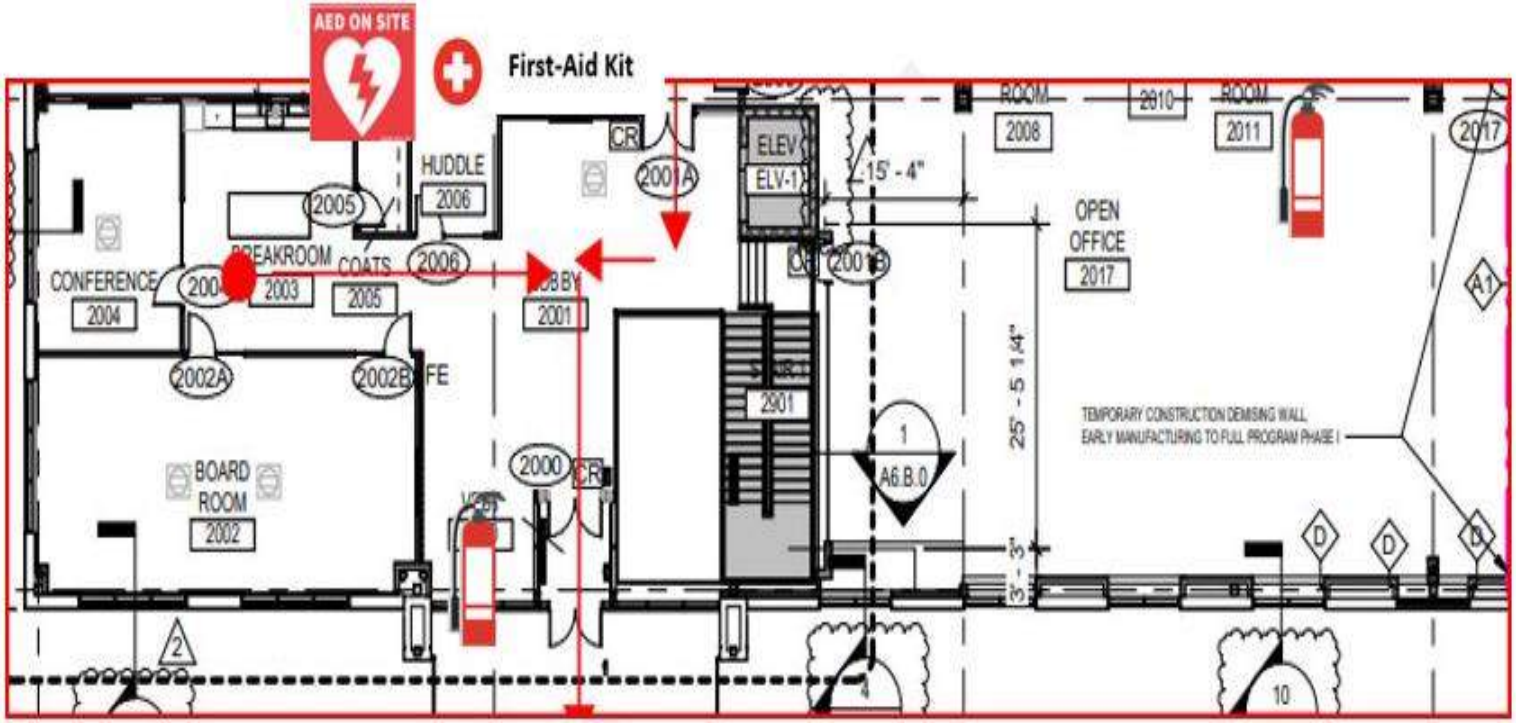
- Fire Extinguisher
- AED
- First-Aid Kit
- Emergency Eyewash/ Shower/ Drench Hose
- Spill Cleanup Materials
- Fire Alarm Pull Station



Emergency Evacuation Map Location: Maps show the locations of emergency equipment such as AEDs, Fire Extinguisher, First Aids Kits, Emergency Eyewashes and more, as well as egress routes.

Devens: Office Emergency and Equipment Map

- Fire Extinguisher
- AED
- First-Aid Kit
- Emergency Eyewash/ Shower/ Drench Hose
- Spill Cleanup Materials
- Fire Alarm Pull Station



DEVENS FACILITY ACTION PLAN

Fire Plan: Any employee who observes a fire in the building must IMMEDIATELY pull the nearest fire alarm pull station.

Fire is Observed

R — **REMOVE** anyone in the room and close the nearest fire rated door.

A — **ACTIVATE** the fire alarm.

C — **CLOSE** all remaining doors and windows, then turn off equipment.

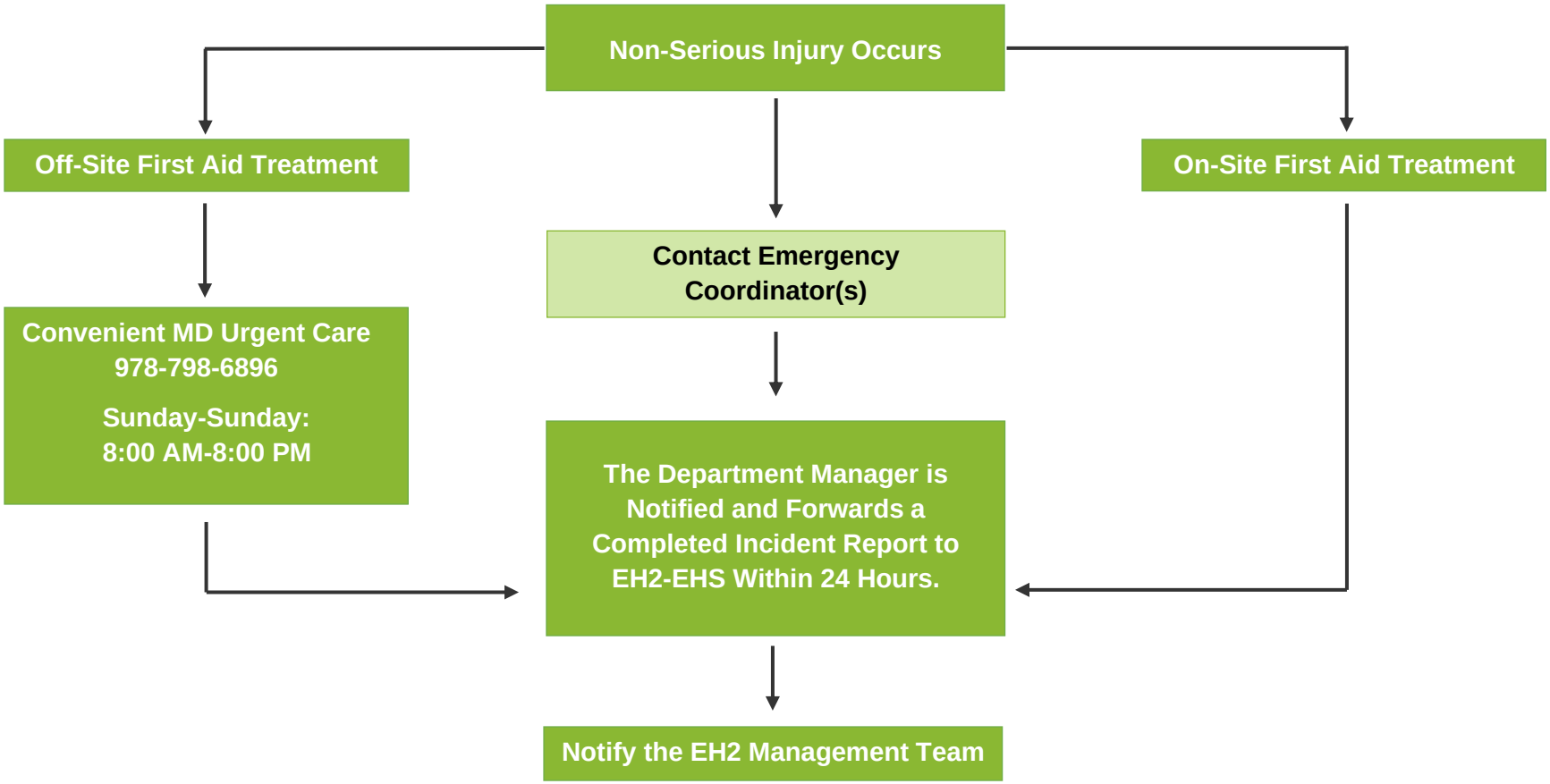
E — **EVACUATE** to the nearest assembly area. **Do not leave** assembly area until All-Clear has been given.

Emergency Coordinator(s)

- Ensure all employees and visitors are safely evacuated.
- Identify the location and type of fire.
- Take appropriate actions(s)
- Coordinate with Devens Fire Department and Establish the Incident Command Post
- Notify EH2 Management Team

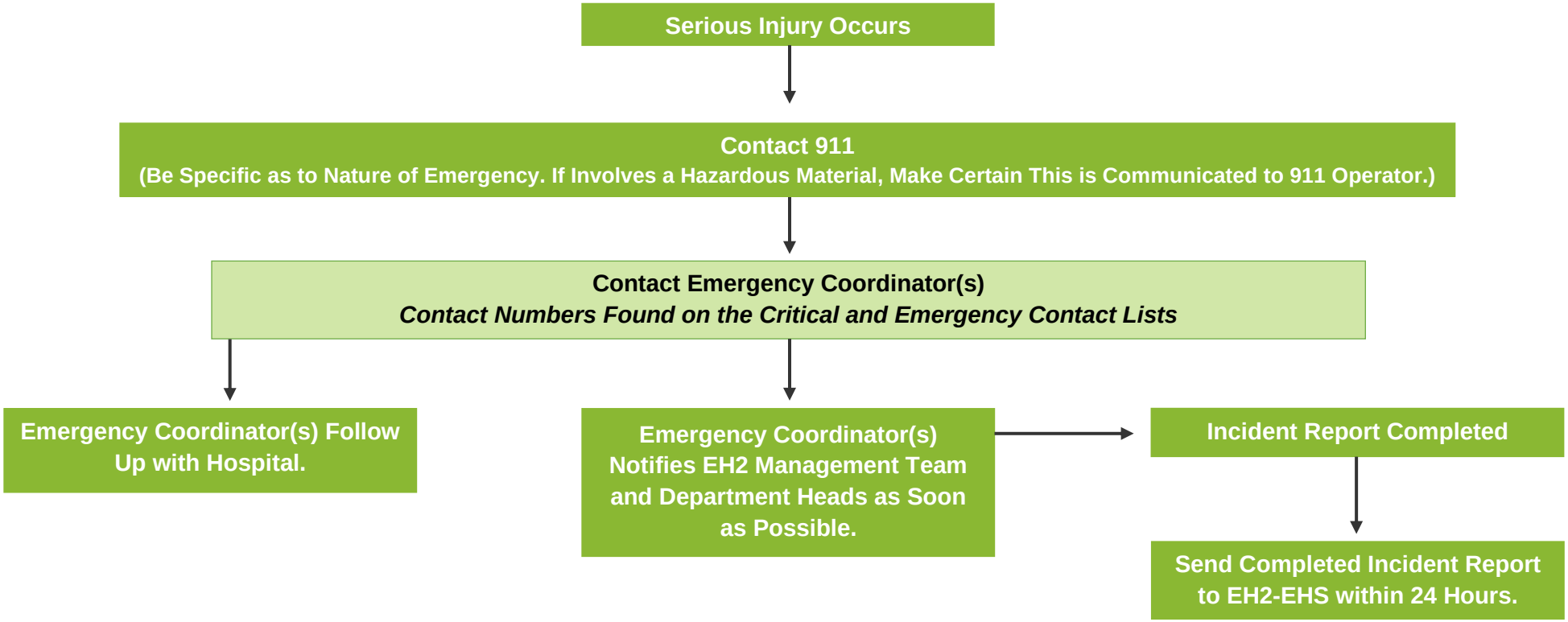
NOTE: Remain at Assembly Area until given additional instructions. Do NOT attempt to extinguish a fire unless you can quickly and safely do so with minimal risk to yourself.

Safety Event Reporting Process (Non-Serious): Incident reporting helps identify hazards in the workplace. This prevents similar incidents from reoccurring in the future and, helps keep our associates safe.



NOTE: Never allow an injured Employee and/or Visitor to travel alone or drive to seek aid in the event of a work-related injury or illness.

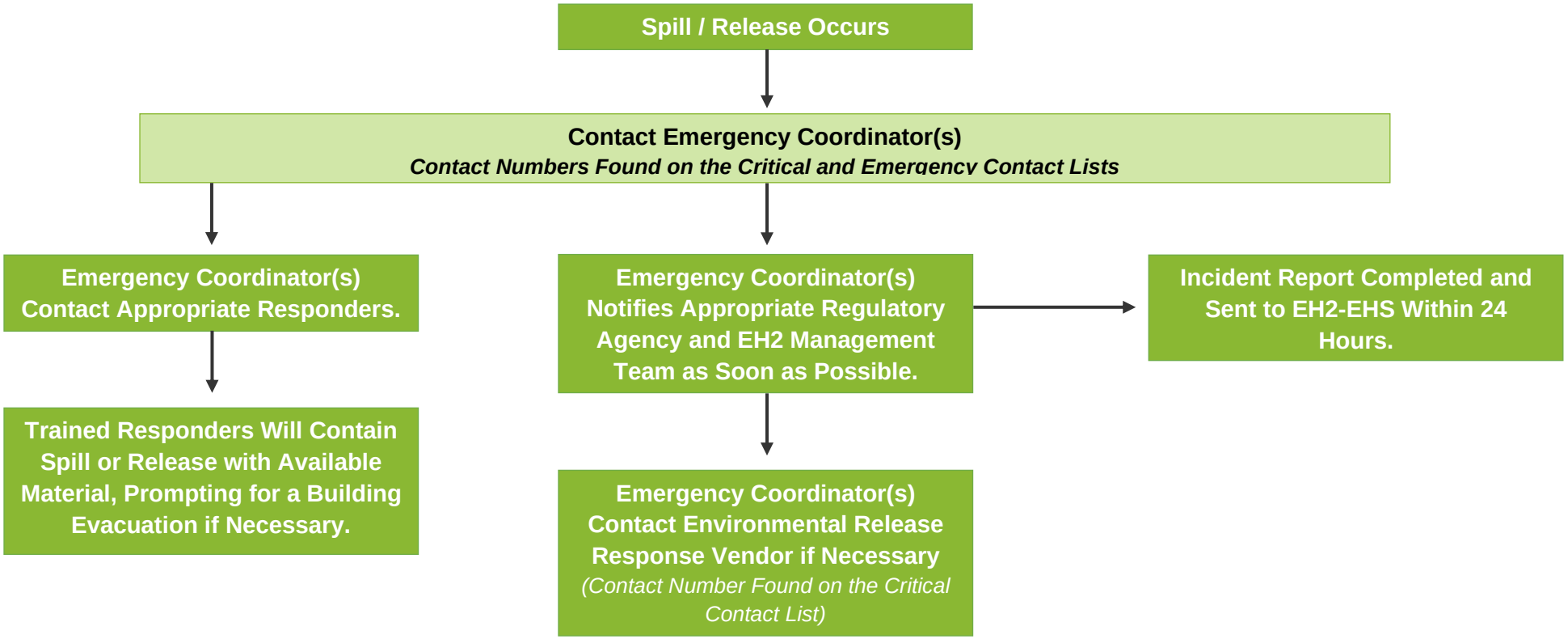
Safety Event Reporting Process (Serious): Incident reporting helps identify hazards in the workplace. This prevents similar incidents from reoccurring in the future and, helps keep our associates safe.



Criteria Requiring Emergency Transportation to a Hospital Include:	
1. Heart concerns	2. Respiratory concerns
3. Head trauma	4. Loss of consciousness
5. Severe medical conditions	6. Severe loss of blood
7. Electrical shock	8. Acute medical distress where law enforcement mediation is required

NOTE: Never allow an injured Employee and/or Visitor to travel alone or drive to seek aid in the event of a work-related injury or illness.

Hazardous Material Spill/Release Event: Associates should respond to a hazardous material spill/release event. If the Emergency Coordinator determines the Spill/Release poses an immediate danger to life and health, then the Devens Fire Department will be contacted. The site is not required to prepare or implement an SPCC Plan as it does not meet the criteria to do so at this time.



Questions to Identify:	
1. Materials hazardous or non-hazardous?	2. Location of the Spill/Release?
3. Number of Individuals exposed to and/or injured during Spill/Release?	4. Is the correct PPE available to respond accordingly?
5. Was the area secured and was the Spill/Release contained?	6. What notification was given to employees and was it sufficient?

Safety Data Sheets are available in hard copy form outside areas with chemicals and an online repository.
For incident and event reporting procedures, please view the information on pages 7-10 & 14.

Powdered Metal Safety: EH2 uses powdered metals which pose various safety hazards. Only trained associates should handle these materials.

1. Maintain all hazardous powdered metals in quantities below the maximum allowable quantity (MAQ).
2. The use of powdered metals in open containers is prohibited. We enforce a strict closed-use policy.
3. Powdered metals shall be stored in designated flame-resistant cabinets to reduce fire hazards.
4. Powdered metals shall be separated from other materials at all times, and segregated when necessary.
5. The information outlined in this action plan and the internal EH2-EHS Powdered Metals Handling Guidance are designed to be scalable and will be adapted to accommodate the growth of EH2's operations.
6. Shipments received containing powdered metals are compliant with DOT regulations.
7. Disposal of powdered metals is in strict accordance with Resource Conservation Recovery Act (RCRA) standards.
8. Only trained employees shall handle powdered metals.

Review the EH2-EHS Powdered Metal Handling Guidance for more information about safe powdered metals handling, spill response, and disposal.

Hazardous Material Label Requirement: Hazardous chemicals in the workplace must be properly labeled, tagged, or marked with the correct information.

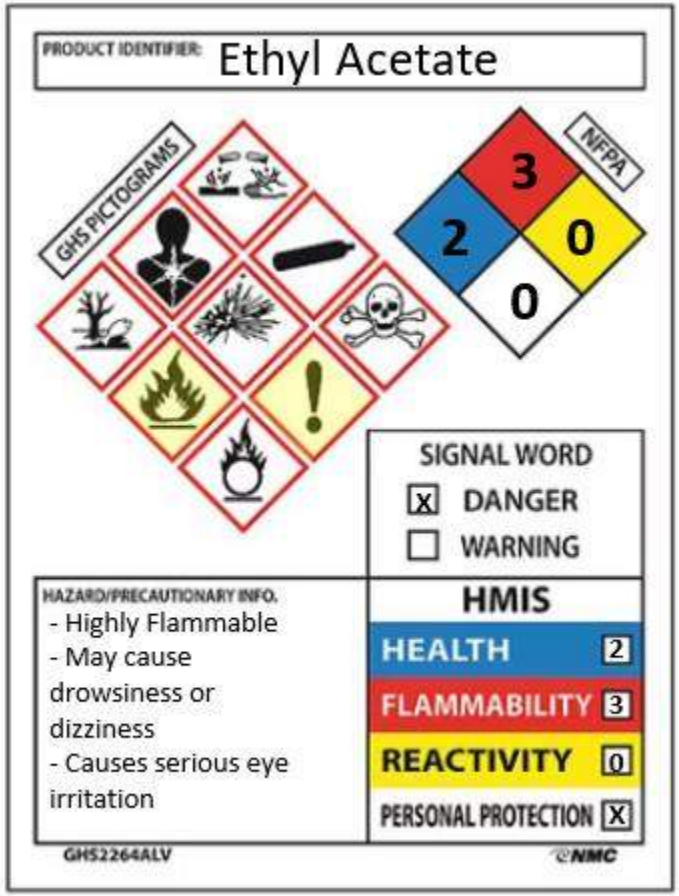
Original Containers

- Name and address of chemical manufacturer
- Identity of chemical
- Hazard warnings
  - Written, GHS Pictogram, or both.

Secondary Containers & Hazardous Waste

- Identity of chemical
- Hazard warnings
  - Written, GHS Pictogram, or both.
- Signal Word
  - Danger or Warning
- If PPE is required

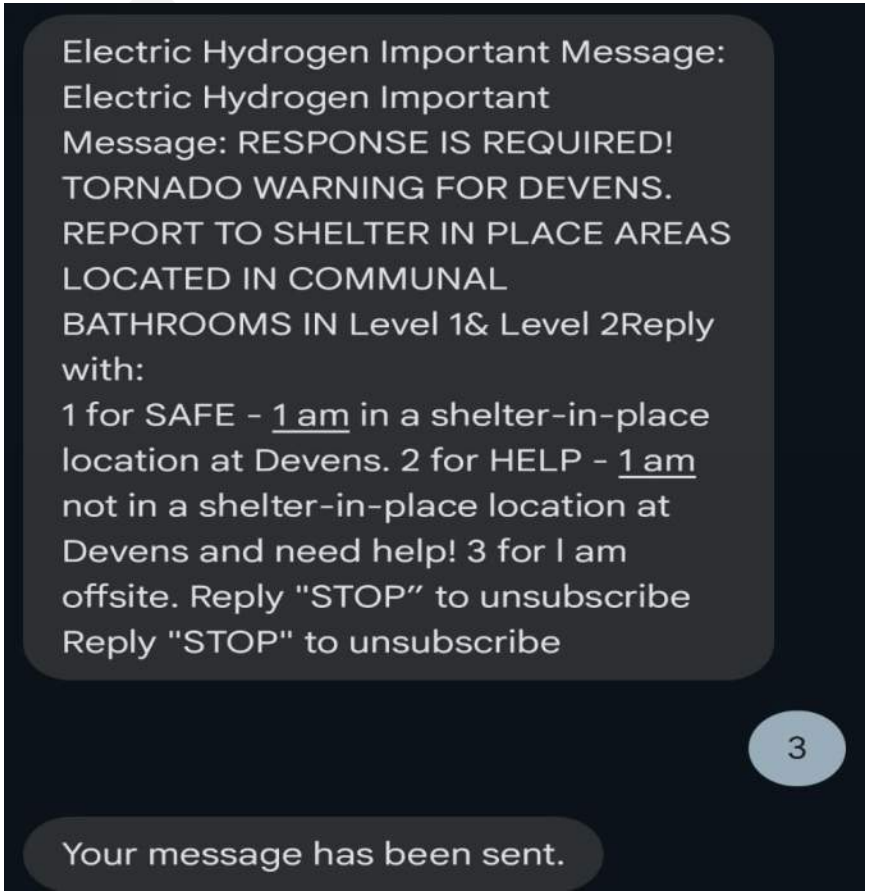
If container is missing a label, then it must be reported to your manager and/or EH2-EHS so the label can be replaced!



All new chemical purchases should be approved by EH2-EHS prior to purchase. Visitors are NOT allowed to bring chemicals into the building without prior approval from EH2-EHS.

Natural Disaster (Weather and Power Loss): In the event of severe weather, natural disaster, or power loss, guidance will be communicated to the site via AlertMedia.

- In the event of a power outage, all employees are to assemble in the Level 1 Kitchen.
- The Natural Disaster (weather) actions should not be initiated without specific instruction by EH2-EHS, EH2-FAC, or EH2 Management.
    - Action items will include, but are not limited to:
        - **Respond accurately and in a timely manner to AlertMedia notification if sent.**
        - Inform Emergency Coordinator(s) or Supervisor(s) of any missing employees.
        - Move away from windows.
        - Store all equipment in safe areas or as directed by the Department Supervisor.
        - Unplug all unnecessary equipment and appliances, including sensitive electrical instruments and computers.
        - Shut down critical instruments and computers.
        - Assemble with workgroup and take shelter in the Level 1 kitchen.
- In the event of a shelter-in-place event, report to nearest shelter-in-place location.
    - **Respond accurately and in a timely manner to AlertMedia Notification!**
- In the event weather or an emergency condition warrants the closing of the Facilities, EH2-EHS will push an alert from AlertMedia alert, an email, and another form of communication to all employees who are based out of that office.



All associates are required to respond to AlertMedia notifications when an alert is received. Shelter-in-place locations are shown on the Emergency Equipment and Evacuation Route Maps on Pages 4, 5 and 6.

Incident Reporting Documentation Process: Associates are required to report work-related incidents to their manager, who will then work with the associate to submit an incident report via Go/EHSReports.

- Managers are required to notify EH2-EHS when an incident occurs within 24hours or sooner depending on the severity of the event. If you are unsure about the need to report a certain incident, or have any questions related to incident reporting, please contact EH2-EHS.
- If the event could result in an investigation by a local or federal agency (i.e., EPA, OSHA), contact EH2-EHS immediately. Please refrain from responding to any media inquiries and pass any inquiries on to EH2-EHS who will work with media@eh2 to respond.

Who? What? When? Where? Why? How to Prevent?

- **Who:** Associate name and title, how long they have been with EH2.
- **What:** Describe the event in as much relevant detail as possible. Include if the person was performing their typical job role, or if the task was something new. Has this happened before? What happened leading up to the event, during the event, and following the event? Did the person receive medical attention? Who responded (include their job title)? What was the person thinking about before the event occurred?
- **When:** Time event occurred, time it was reported to manager or responder, time associates responded to event, time associates shift started.
- **Where:** Specific location of the event down to the lab bench, work cell, etc.,
- **Why:** Root Cause → Use a "5-Whys" Analysis unless told otherwise by EH2-EHS.
- **How to Prevent?** Corrective Actions to mitigate the hazard that resulted in the incident. Use elimination, substitution, engineering controls, administrative controls, or PPE.

Corrective Actions

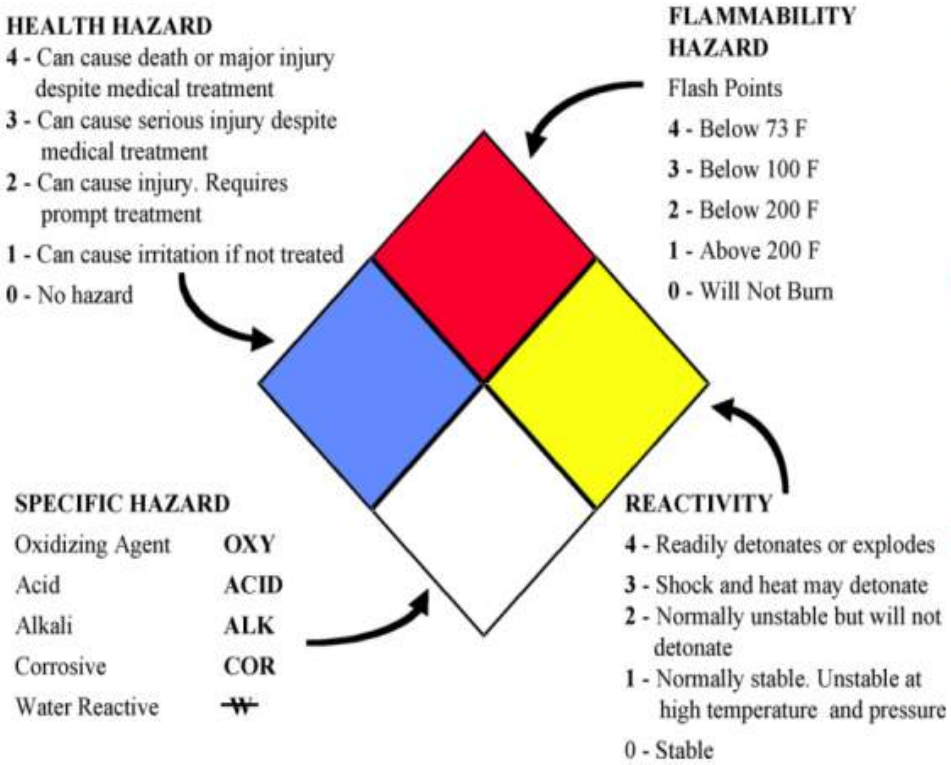
- Include corrective actions that were immediately taken after the event (ex: moved associate away from a hazardous release), and that need to take place in the future to prevent the event from repeating.
- Corrective actions should be communicated to all stakeholders and implemented within a reasonable timeframe. If a corrective action takes more than a few days to implement, ensure the timeline is communicated with EH2-EHS.

Root Cause Analysis

- For most events, a **"5-Whys" Analysis** should be performed to determine the root cause.
  - 5-Whys → Ask "why did this happen?" 5 times, expanding on the previous ask each time.
  - Look at direct causes & indirect causes.
- For events that are more serious, a more in-depth analysis should be performed to determine the root cause looking at a broader scope of potential factors and causes. There must be agreement within the affected parties on the root cause.

NOTE: Never allow an injured Employee and/or Visitor to travel alone or drive to seek aid in the event of a work-related injury or illness.

NFPA Hazard Rating System: The National Fire Protection Agency (NFPA) Diamond identifies the hazards associated with the many types of materials. Consult the safety data sheet (SDS) for more detailed hazard information and handling instructions. SDS binders are in all buildings.



All New chemical purchases should be approved by EH2-EHS prior to purchase. Visitor are NOT allowed to bring chemicals into the building without the prior approval from EH2-EHS.

EH2-EHS Powdered Metals Handling Guidance

This document provides guidance on recommended handling practices, spill response, and disposal methods for all powdered metals present at Electric Hydrogen (EH2) in Devens, MA. The quantity of powdered metals will not surpass the maximum allowable quantities and will be stored in a compliant method. The guidance provided is designed to be scalable and will be adapted to accommodate the growth of our operations. All users receive training on correct material handling and spill response for powdered metals, while a select group of users receive training on hazardous waste disposal for powered metals.

Material Handling

- All users will receive hazardous material training specific to the hazards associated with applicable powdered metals.
- Powdered metals shall be stored below all maximum allowable quantities (MAQs).
- Powdered metals shall be stored in flammable cabinets and used with engineering controls i.e. fume hoods.
- Any powdered metal that has the potential to generate combustible dust is only to be used with engineering controls i.e. glove box with an inert atmosphere.

Spill Response

- Solid Spill
  - If solid powdered metals were to spill, the user should immediately:
    - Ensure required PPE is being worn.
    - Attempt to stop the spill if safe to do so.
    - Contain the spill using spill containment material that is located near the use areas.
    - Contact an EH2-EHS team member or other emergency contact as found in the Devens Facility Action Plan.
- Liquid Spill
  - If a liquid containing powdered metals were to spill, the user should immediately:
    - Ensure required PPE is being worn.
    - Attempt to stop the spill if safe to do so.
    - Contain the spill using spill containment material that is located near the use areas.
    - Contact an EH2-EHS team member or other emergency contact as found in the Devens Facility Action Plan.

Disposal

- Disposal of solid debris contaminated with powdered metals, and liquid solutions containing powdered metals shall be treated as hazardous waste.
- Employees who have been trained in hazardous waste handling are the only ones who can transfer waste from Satellite Accumulation Areas (SAA) to the Main Accumulation Area (MAA).
- Filled satellite waste containers shall be transferred to the MAA within 3 days.
- Hazardous waste shall be stored in RCRA compliant containers and separated or segregated when necessary, from incompatible materials at all times.
- Non-compatible materials shall not be mixed or stored together.
- All hazardous waste storage by EH2 is in compliance with RCRA standards and regulations.