FIRE SAFETY PLAN

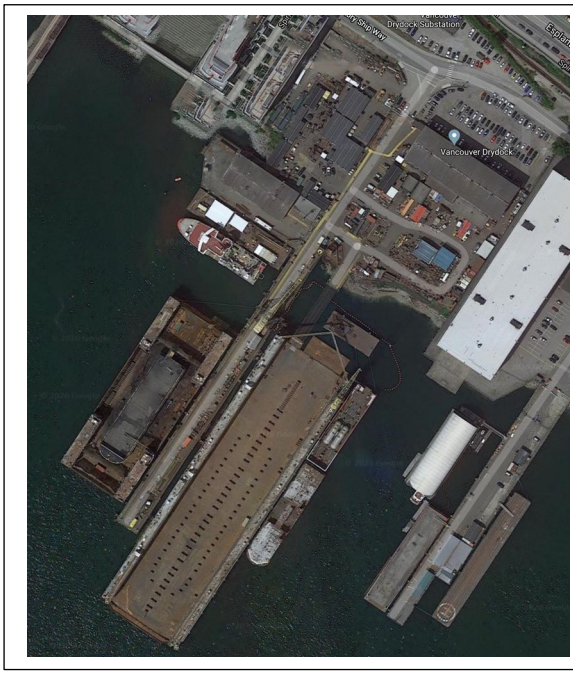
for

VANCOUVER DRYDOCK

203 Esplanade East

North Vancouver, B.C.

V7L 1A1



PREPARED BY:
Robert Furlong Design Co.
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Email: bfurlong@rfdesignco.com

This "Robert Furlong Design Co. *"Fire Safety Plan*" is prepared in compliance with the BC Fire Code (2018), FPOABC Fire Safety Planning Guideline (2014) and City of North Vancouver Fire Department Fire Safety Planning Guideline. The Fire Safety Plan is rendered and developed from an inspection of the premises and from data supplied by or on behalf of the Customer. Robert Furlong Design Co. does not purport to list or identify all hazards or provide engineering services or analysis. While procedures and information referred to in the plan are designed to upgrade protection and loss prevention of the premises, Robert Furlong Design Co. assumes no responsibility for the management and control of these activities. Robert Furlong Design Co. will not be responsible to the Customer for any losses or damages, whether consequential or otherwise, however caused, incurred or suffered, as a result of or arising out of the services being provided. All the content of this document and related information herein is the property of Robert Furlong Design Co. It is not to be used or copied without written permission from Robert Furlong Design Co.

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FIRE DEPARTMENT INFORMATION

Our Fire Safety Plan includes the requirements of the BC Fire Code (2018) Subsection 2.8. for "Emergency Planning". Our Fire Safety Plan includes:

- Information required to assist the City of North Vancouver Fire Department's emergency response to our property,
- Identification of those persons responsible for implementing our Fire Safety Plan,
- Descriptions of our building for the benefit of emergency responders,
- Descriptions of basic fire prevention and fire control capabilities within the property, and
- An overview of the required inspection and testing of fire protection equipment, systems and features within our property.

This Part of our Fire Safety Plan describes the site, building(s), construction/protection features and how the site and building spaces are generally being used.

Alternative Solutions	Not applicable.
Smoke Control Measures	Not applicable
Fire Department Lock Box	Not applicable
Guard Service	Paladin Security

MUSTER AREAS
In the event of an evacuation due to emergency, all occupants will assemble:
(See Site Plan)

MUSTER AREA #1 – Guardhouse

MUSTER AREA #2 – Employee Parking Lot, northeast of Machine Shop building.

Evacuees will remain at this location until otherwise directed by the Fire Safety Director, appointed alternate or the Fire Department. The Fire Safety Director or appointed alternate will use this location to perform a head count to ensure all occupants are accounted for.

EMERGENCY CONTACTS

FIRE SAFETY DIRECTOR	Aaron Agyeman, Safety Advisor (604) 833-1774 Aaron.Agyeman@seaspan.com
DEPUTY FIRE SAFETY DIRECTOR	Dennis Brode, Senior Director HSE (604) 790-3810 Dennis.brode@seaspan.com
ALTERNATES	Greg Clarke, (250) 812-5956 gclarke@seaspan.com Daryl Calvert – HSE Programs & Process Specialist (778) 984-7531 daryl.calvert@seaspan.com Rob Paterson – Health & Safety Manager (604) 842-1697 Robert.Paterson@Seaspan.com
24/7 EMERGENCY CONTACT	Paladin Security (604) 980-7550
Fire protection & life safety equipment is to be inspected by an ASTTBC endorsed "Registered Fire Protection Technician" (RFPT) only. The Fire Safety Director or designate will ensure that an ASTTBC "RFPT" completes inspections and tests as required.	
EMERGENCY LIGHTING	SURVIVETEC (DBC MARINE) (604) 214-4305
FIRE ALARM SYSTEM	
FIRE EXTINGUISHER	SURVIVETEC (DBC MARINE) (604) 214-4305
FIRE HYDRANTS	TYCO 1 (800) 492-4063
SPECIAL FIRE SUPPRESSION	GREAT WEST FIRE (604) 570-0062
SPRINKLER SYSTEM	TYCO 1 (800) 492-4063
STANDPIPE SYSTEM	SURVIVETEC (DBC MARINE) (604) 214-4305
PRAXAIR	1-800-930-0537
Note: **The Fire Safety Director should complete and maintain a current list of the above noted contact fields to facilitate quick contact should the need arise.**	

DEFINITIONS:

Fire Safety Director (FSD) means the appointed supervisory staff member who has responsibility for the administration and maintenance of the Fire Safety Plan.

Deputy Fire Safety Director (DFSD) means the appointed supervisory staff member who has responsibility for assisting the Fire Safety Director administer and maintain the Fire Safety Plan.

Supervisory staff means those occupants of a building who have some delegated responsibility for the fire safety of other occupants under the Fire Safety Plan.

EMERGENCY SERVICES PROVIDER NUMBERS

FIRE DEPARTMENT EMERGENCY	911
FIRE DEPARTMENT NON-EMERGENCY	(604) 980-5021
POLICE EMERGENCY	911
POLICE NON-EMERGENCY	(604) 985-1311
AMBULANCE EMERGENCY	911
AMBULANCE NON-EMERGENCY	(604) 872-5151
ENVIRONMENTAL EMERGENCY Pep – (Provincial Emergency Program) Spills – Reporting Flood Earthquake	1-800-663-3456 (24 hour)
Department of Fisheries And Oceans	(604) 666-0384
Gas Leaks & Odours – Fortis BC	1-800-663-9911
Power Emergencies – BC Hydro	Emergency Dispatch (604) 526-8875
	1-800-567-5111 or cellular *311
City of North Vancouver	City Hall (604) 985-7761 Building Permits (604) 990-4220 Engineering (604) 983-7333 City Operations Centre (604) 987-7155 Bylaw Services (604) 982-8302 After Hours Emergency (604) 988-2212
Crisis Centre	1-800-784-2433
Health Link Bc	811
Poison Control Centre	1-800-567-8911
Lions Gate Hospital 231 15th Street East, North Vancouver	(604) 988-3131
WorkSafe BC	(604) 276-3100
Telus Emergency	(604) 310-2255

GENERAL DESCRIPTION OF BUILDING

BUILDING ADDRESS: 203 Esplanade East, North Vancouver, BC

OCCUPANCY (GENERAL): Group F Division 2 – Medium Hazard Industrial

Group F Division 1 – High Hazard Industrial (Paint storage and spraying area, sea can storage)

Consists of Machine Shop Building 1,740 m^2 (18,750 ft^2), Outfitting/Repair Pier (210 m length) and drydock facilities (Panamax and Careen).

FIRE HYDRANTS

- Public:
  - Northwest of facility at the intersection of St. Georges Avenue and Victory Ship Way (See Site Plan)
- Private:
  - On street side of Security Gatehouse (photo right)

  - At northwest corner or Machine Shop Building, inside secured site (lower photo) (See Site Plan)

FIRE DEPARTMENT LOCK BOX

- Not applicable

MACHINE SHOP BUILDING

GENERAL CONSTRUCTION

Description: 2-Storey (height 30 m) of structural steel with metal cladding; (See Floor Plans); Roof: structural steel

FIRE ALARM SYSTEM

Control Panel Location: Not applicable

MACHINE SHOP BUILDING FEATURES - GENERAL

ELECTRICAL ROOM & EQUIPMENT

- Main electrical disconnect in Main Electrical room, south exterior side of building; interior and exterior access. (See Site and Floor Plan)

EMERGENCY POWER AND LIGHTING

- In the event of normal A/C power failure, 12-volt emergency lighting units have been provided to supply a reasonable degree of emergency lighting for a minimum duration of thirty (30) minutes.

EXITING

- Exits as required by the BC Building Code are noted on floor plans. Exit doors are to be readily operable travelling in the direction of exit path and open without requiring keys or special knowledge.
- Exit doors are marked with exit signs mounted above exit doors.
- Exit signs are connected to an emergency power battery pack.

EXIT SIGNS

- Location: All designated fire exits
- Connected to emergency power: Yes (battery pack)

FIRE DEPARTMENT ACCESS

- Vehicle access is provided from Victory Ship Way to the north to a private internal roadway through the centre of the site. (See Site Plan)
- Primary access to building interior on northwest side of building, near Security Gatehouse
- Alternate access to building interior on southwest and southeast sides of building.

FIRE DEPARTMENT CONNECTION

- Not applicable.

FIRE EXTINGUISHERS

- ABC Multipurpose Dry Chemical extinguishers, and Carbon Dioxide (See Floor Plan for locations)
    - **CO_2** – Suitable for Class C fires (energized electrical equipment). Suitable for Class B Flammable or Combustible liquid fires
    - **ABC dry chemical type** – Specifically located for ordinary combustibles and oil-filled equipment. NOT preferred for use on computer, relay, Protection & Control equipment, or other sensitive electronics due to dry chemical residue (conductive). Suitable for Class A (ordinary combustible materials), Class B (flammable or combustible liquids) fires and Class C (energized electrical equipment) fires.

CO_2	ABC Dry Chemical
	

FIRE RATED DOORS

- Compressor Room exterior doors
- Electrical Room interior door connecting to Machine Shop area

HEATING, VENTILATION

- Electric in portable buildings

NATURAL GAS SHUT-OFF

- Northeast exterior corner of building (See Site Plan)

ROOF ACCESS

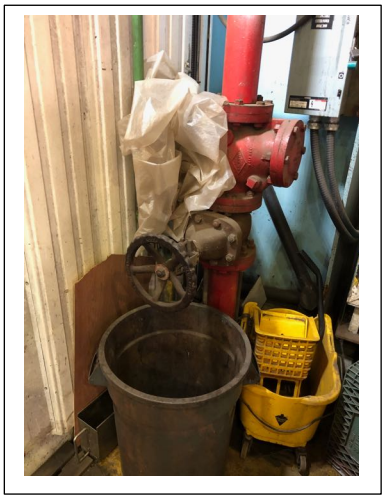
- No interior access to roof.

SPRINKLER SYSTEM

- Not applicable

STANDPIPE SYSTEM

- 1.5-inch fire hose Intended for trained occupant use.
- Located along south wall of building.
- Main water control valve located at west corner of building. (See Floor Plan for location)
- Valve open indicator on side of valve (valve open, not secured by any means)



WATER SUPPLY SHUT-OFF

- Underground valve st northeastcorner of property
- Domestic water shutoff in hot water tank rooom under stairs (See Floro Plan)

PAINT STORAGE AREA & REFUELING BUILDINGS (HIGH HAZARD)

GENERAL CONSTRUCTION

Description: 1-Storey (See Floor Plan)
Primarily metal frame construction;
Roof: Metal
Protection: Special fire suppression system

FIRE ALARM SYSTEM

- Not applicable

PAINT STORAGE AREA & REFUELLING BUILDING'S FEATURES - GENERAL

ELECTRICAL ROOM & EQUIPMENT

- Electrical breaker on exterior supplying to explosion proof electrical equipment inside painting storage area and adjacent shipping container (C-Can) storage (See Appendix for Shipping Container requirements)

EMERGENCY POWER AND LIGHTING

- Not applicable .

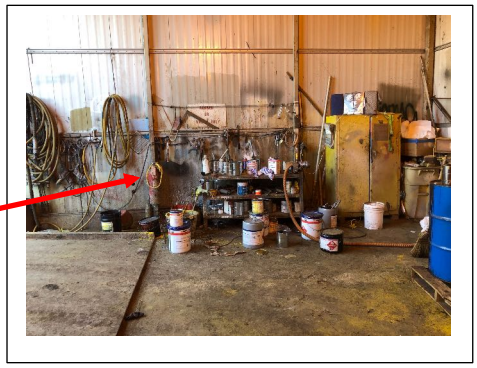
EXITING

- Provided by open side.

FIRE DEPARTMENT ACCESS

- Vehicle access is provided by private internal roadway from west Side of Machine Shop, along south face of Machine Shop to Paint Storage Area / Refuelling building. (See Site Plan)
- Primary access to building interior on west side of building.

- Paint Storage Area and Refuelling Shed back onto adjacent fenced property (W-Building – 3 St. Andrews Avenue))



FIRE EXTINGUISHERS

Portable fire extinguishers are required by the Fire Code. (See Floor Plans for locations CO_2 extinguisher)

FIRE RATED DOORS

- Not applicable

HEATING, VENTILATION

- Not applicable

NATURAL GAS SHUT-OFF

- Not applicable

ROOF ACCESS

- Roof access by ground ladders. No internal roof access points.

SPECIAL FIRE SUPPRESSION SYSTEMS

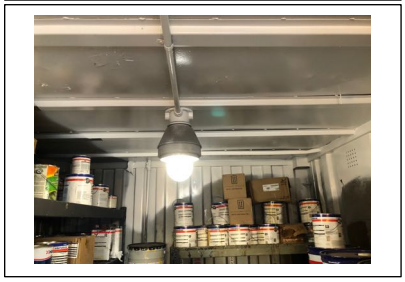
- Protection of Paint Storage building, Refueling Station and C-Can (Shipping container) liquid storage.
- Multiple 45-pound dry Badger DC-145 chemical pre-engineered Dry Chemical (monoammonium phosphate) type systems, with automatic and manual release.

Manual Release:

- Twist while pulling retaining pin and pull D-ring handle hard until system trips. (photo)

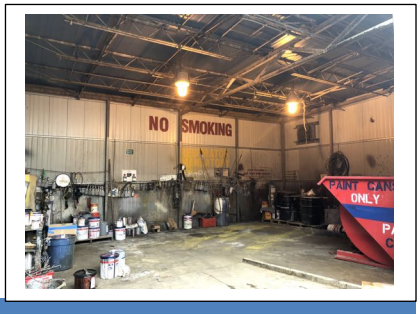
Shipping Containers used for storage of flammable liquids

- Fixed dry chemical system protects shipping containers storing flammable paints and solvents. System has automatic (fusible link) and manual discharge capability.
- Shipping container provided with roof and side wall ventilation openings. (See Appendix Shipping Container Evaluation checklist – evaluate each container)
- Shipping container provided with explosion proof electrical equipment



Paint storage / mixing building

- Fixed dry chemical system protects storage of flammable paints and solvents. System has automatic (fusible link) and manual discharge capability.
- Provided with floor area and face nozzles at building wall opening
- Provided with explosion proof electrical equipment
- No mechanical ventilation
- Curbed to contain spills within building.



Refuelling Building

- Fixed dry chemical system protects building. System has automatic (fusible link) and manual discharge capability.
- Provided with explosion proof electrical equipment
- No mechanical ventilation
- Aboveground double-wall Diesel Fuel tank
- Aboveground double-wall Gasoline Fuel tank
- Portable fuel tanks
- Curbed area
- Fueling pump power switches on outside of north wall. (see floor plan & photo below left)

** See also Notes in Hazards section of this Part of the Fire Safety Plan

SPRINKLER SYSTEM

- Not applicable

STANDPIPE SYSTEM

- Not applicable

WATER SUPPLY SHUT-OFF (DOMESTIC)

- Not applicable.

PORTABLE BUILDINGS

GENERAL CONSTRUCTION

Description: 1-Storey wood frame construction, with metal siding.
Roof:

FIRE ALARM SYSTEM

Control Panel Location: Not applicable

PORTABLE BUILDING FEATURES - GENERAL

ELECTRICAL ROOM

- Main electrical disconnects in electrical panels within each portable of building

EMERGENCY POWER AND LIGHTING

- In the event of normal A/C power failure, 12-volt emergency lighting units have been provided to supply a reasonable degree of emergency lighting for a minimum duration of thirty (30) minutes

EXITING

- Exits are as required by the BC Building Code are noted on floor plans. Exit doors are to be readily operable travelling in the direction of exit path and open without requiring keys or special knowledge.

EXIT SIGNS

- Location: random
- Connected to emergency power: Yes (battery pack), if exit signs provided

FIRE DEPARTMENT ACCESS

- Vehicle access is provided by private internal roadway from Esplanade East, through Security Gatehouse gate into the site. (See Site Plan)

FIRE EXTINGUISHERS

- Portable fire extinguishers are required by the Fire Code. ABC Multipurpose Dry Chemical extinguishers, suitable to the fire hazard.

FIRE RATED DOORS
- Not applicable

HEATING, VENTILATION
- Natural gas-fired unit heaters

ROOF ACCESS
- Not interior access to the roofs.

SPRINKLER SYSTEM
- Not applicable

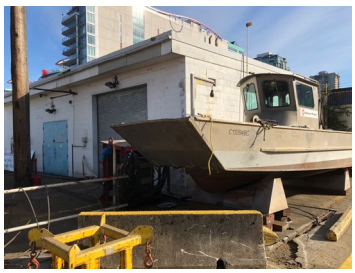
WATER SUPPLY SHUT-OFF (DOMESTIC)
- Within each portable building.

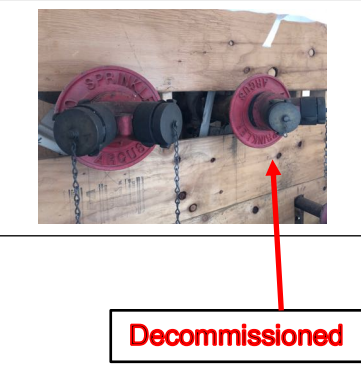
BOILER ROOM / ELECTRICAL VAULT / WOOD PIER

GENERAL CONSTRUCTION
- Pier – Combustible; dry sprinkler beneath; light storage only
- Boiler Room / Electrical vault – Non-combustible

SPRINKLER BENEATH PIER
- Dry sprinkler system; control valve electrically supervised open.
- Valve station inside heated fabric enclosure; Fire Department connection on exterior (not labelled to indicate connection serves below pier sprinklers)
- Sprinkler design: 0.25 gpm/ft^2 over 5000 ft^2 Demand: 1392 usgpm@ 71.4 psi

  “Shops bldg.” Demolished - sprinkler valve “off”; Sprinkler valve and fire department connection decommissioned.





OUTFITTING/REPAIR PIER and DRYDOCKS (PANAMAX & CAREEN)

GENERAL CONSTRUCTION

Description: Outfitting/ Repair Pier and drydocks are of non-combustible construction (concrete).

Old combustible construction pier structure – out of service and use. Dry sprinkler system below pier structure.

FIRE ALARM SYSTEM

Manufacturer: Not applicable to pier structure.

- Internal evacuation alarm system within each drydock structure.
- Initiated by manual pull stations, fire detectors, gas detectors, sprinkler flow.

DRYDOCKS (FLOATING PANAMAX & CAREEN)

A **floating dry dock** is a type of pontoon for **dry** docking ships, possessing floodable buoyancy chambers and a "U"-shaped cross-section. ... When the water is pumped out of the chambers, the **dry dock** rises and the ship is lifted out of the water on the rising deck, allowing **work** to proceed on the ship's hull.

Panamax Drydock: 204 m over 5 pontoons x 59 m width

Careen Drydock: 131 m over single pontoon x 49 m width

OUTFITTING/REPAIR PIER and DRYDOCKS (PANAMAX & CAREEN) FEATURES - GENERAL

ELECTRICAL EQUIPMENT

- Electrical disconnects individual building breaker panels. (See Floor Plan)

EMERGENCY POWER AND LIGHTING

- Not applicable to pier
- Drydocks equipped with normal and emergency lighting within the facility

EXITING

- Pier: egress along pier to shore
- Drydocks: internal egress pathways, ladders and hatches within the facility.

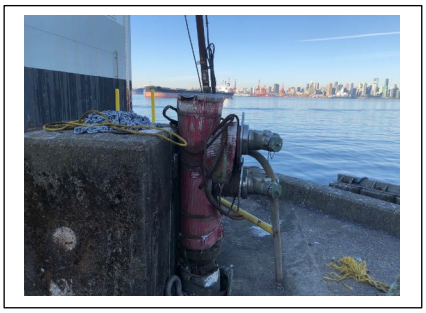
FIRE DEPARTMENT ACCESS

- Vehicle access is provided to the Pier and Drydocks by private internal roadway (See Site Plan)

FIRE DEPARTMENT CONNECTION

- Two 2.5-inch fire hose connections serve under "Old" pier dry sprinkler system
- Located at fabric heated sprinkler valve enclosure. (See Photo and Site Plan)
- Maximum pumping pressure is 150 psi.

- Panamax drydock fire department connection in sallyport opening pier-side (port side) of drydock.



- Fire Department connection at south end of pier, serving drydocks; Positioned for fireboat use to connect to sprinkler systems. (See Photo)

FIRE EXTINGUISHERS

- Portable fire extinguishers are required by the Fire Code. (See Floor Plans for locations) ABC Multipurpose Dry Chemical extinguishers, size suitable to the fire hazard.

FIRE RATED DOORS

- Not applicable on Pier
- Fire compartments within Drydock structures

NATURAL GAS SHUT-OFF

- Not applicable

SPRINKLER SYSTEM

- Drydocks: Sprinkler protection within both drydocks
- Drydock sprinkler systems fire pump water supply only and fire department connection (secondary supply)
- Panamax Fire Pump: Below deck diesel and electric fire pumps; auto-start; 2000 gpm discharge (estimated)

- Careen Fire Pump: Below deck electric fire pumps; manual-start only; Manual start at drydock control room; 2000 gpm discharge (estimated)

STANDPIPE SYSTEM

- On pier and within drydocks (See Sit and Floor Plans for approximate lcoations)

WATER SUPPLY – FIRE

- Along outfitting/ repair pier
- Water supply shut-off at shore end of pier.

HAZARDS

Location: Paint storage area, shipping container and refuelling station

Description: Flammable / combustible liquids dispensing

Description: In case of fire: manual or automatic activation of special fire suppression system, exhaust fan continues to run; make-up air provided through open adjacent bay doors

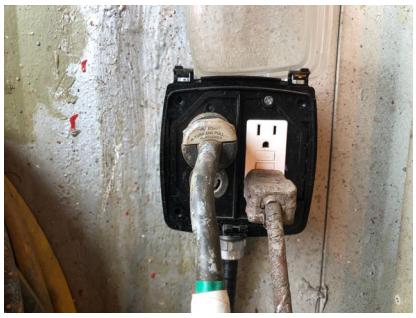
HAZARD NOTES:

Location: Paint storage building and adjacent C-can storage containers immediately south of Machine Shop building

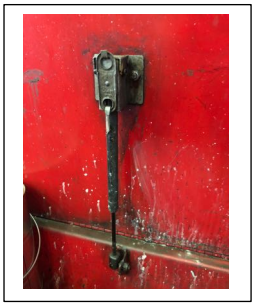
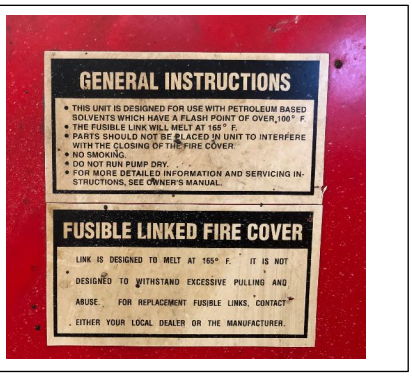
Description: Miscellaneous flammable liquid solvents and paints.

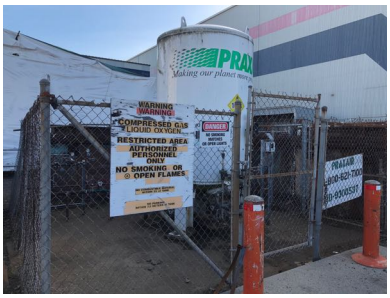
Hazards: Potential for inadvertent sources of ignition being introduced (portable electrical lighting, cords, portable ventilation fans, portable heating equipment, vehicles operating within 6m of openings, etc.) where flammable vapours are normally present.

Discontinue use of non-approved electrical in paint storage area; photo below illustrative of non-approved electrical.



Location: Paint storage shed adjacent to paint storage Description: Open side container with spill tray Hazards: Potential for inadvertent sources of ignition being introduced (portable electrical lighting, cords, portable ventilation fans, portable heating equipment, vehicles operating within 6m of openings, etc.) where flammable vapours are normally present.	
Location: Refuelling building. Description: Aboveground diesel fuel and gasoline double-wall tanks Diesel – 4500 L (Mfg. 2017) UN 1202 Gasoline – 4500 L (Mfg. 2017) UN 1203 Hazard: Potential explosive vapours in presence of sources of ignition during dispensing and refilling of fuel tanks. Provide and use bonding – grounding straps during refuelling	
Location: See Site Plan Description: Sea-can storage containers Hazard: Storage of flammable liquids, combustible liquids and/or compressed gases. See Appendix evaluation checklist for all shipping containers used for storage.	
Location: Pier – See Site Plan Description: Miscellaneous storage of compressed gases on concrete pier between Panamax and Careen drydocks UN#: See Site Plan	

Location: Pier – Oxygen Supply line Pier – Natural Gas Supply line Pier – Steam line Description: Oxygen from Oxygen tank underground to and within pier substructure Natural gas from gas meter at exterior northeast corner of Machine Shop underground to and within pier substructure Steam line from Boiler Room underground to and within pier substructure	
Location: Machine Shop Description: Flammable liquids storage Hazard: Miscellaneous risks involving storage of flammable liquids in vicinity of hot work.	
Location: Machine Shop Description: Solvent parts wash tank Hazard: Ensure use of manufacturer's specified solvent (check flash point on solvent MSDS and compare to tank label) Note: label specifies using solvent with a flash point > 100° F. Ensure fusible link is intact and paint free. (photo right) 	 

Location: Near north end of ramp to Panamax Description: Compressed gases UN#: <u>Exterior:</u> Propane UN# 1075 <u>Interior:</u> Oxygen UN# 1072 Carbon Dioxide UN# 1013 Propane UN# 1075 Acetylene UN# 1001 See Product MSDS	 
Location: Southwest of paint storage Description: Liquid oxygen tank UN 1073 Supplies high-pressure oxygen to drydocks via piping underground and within concrete pier roadway. Hazards: See product MSDS Provide and maintain <u>minimum</u> 7.5 m (25 foot) clearance to any combustible materials. No parking within 7.5 m (25 foot) of tank	

SITE AND FLOOR PLANS

(See next few pages)

ELECTRIC FIRE PUMP
BELOW DECK
(MANUAL START)

CAREEN FLOATING DRYDOCK
(DWGS. #9-13)

SEAWATER STANDPIPE
SYSTEM CONTROLS
(FIRE PUMP)

PIER STANDPIPE FDC
FOR FIRE BOAT

CONCRETE PIER

WOOD
PIER

SPRINKLER
VALVES
FOR PIER
+ WHARF

LEFT FDC FOR
WOOD PIER
DRY SPRINKLER
SYSTEM

North Sprinkler system and FDC decommissioned

ELEC.
BLDG.

MAIN
OFFICE

OFFICE
TRAILER
CLUSTER

FABRIC
BUILDING

SAFETY
OFFICE

MUSTER
#1

VICTORY SHIP WAY

ST. GEORGE AVENUE

ELEC.
SUBSTATION

PARKING

EAST ESPLANADE AVENUE

DIESEL AND ELECTRIC
FIRE PUMPS
BELOW DECK
(AUTO START)

PANAMAX FLOATING DRYDOCK
(DWGS. #5-8)

TWO 2X2½ FDC
ON SALLYPORT
WALKWAY

RAMP

SAND BLAST
BOOTH

SECURITY

MAINTENANCE
QUANSET

ELEC. VAULT

MACHINE
SHOP
(DWGS. #3-4)

MUSTER
#2

FABRIC
BLDG.

STORES/
SHIPPING

PARKING

CARBON DIOXIDE UN #1013
ARGON UN #1006
OXYGEN UN #1072
ARGON N.O.S. UN #1956
ACETYLENE UN #1001

PAINT AREA
(DWG. #2)

BURRARD INLET

COMPRESSED
GAS
UQ OXYGEN
UN #1073

GASOLINE UN #1203
DIESEL UN #1202

Adjacent Seaspan Property at 3 St.Andrews Avenue
Not within scope of this Fire Safety Plan.

3 STREET ANDREWS AVENUE

LOW LEVEL ROAD

SYMBOL LEGEND

- BUILDING/ STRUCTURE
- ROADWAY
- RIVER
- RAILROAD
- FENCE
- GATE
- SPRAY BOOTH
- C-CAN/SHIPPING CONTAINER
- TRAILER OFFICES
- ELECTRICAL/ SUBSTATION/ VAULT
- COMPRESSED GAS STORAGE
- NATURAL GAS SHUT-OFF
- MUSTER POINT
- PRIVATE FIRE HYDRANT
- PUBLIC FIRE HYDRANT
- FIRE DEPARTMENT CONNECTION
- SPRINKLER VALVE
- STANDPIPE CONNECTION

DATE: AUG/20/2020

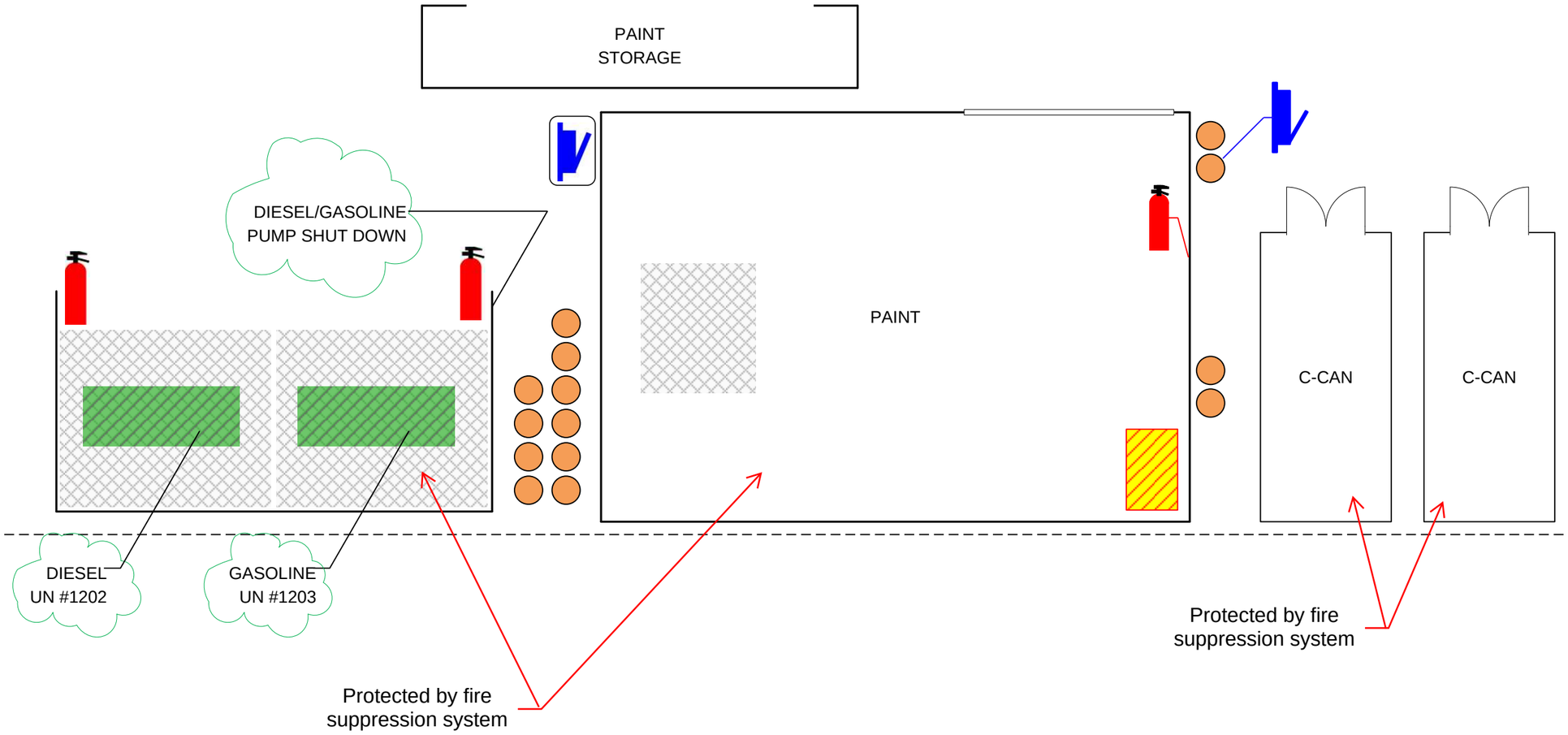
NOT TO SCALE

TITLE: Site Plan

DWG #: 1

ROBERT FURLONG DESIGN CO.
FIRE SAFETY PLANS & FIRE CODE CONSULTING
RFDESIGNCO.COM 778 · 298 · 0073

SEASPAN – Vancouver Dry Dock
203 East Esplanade Avenue,
North Vancouver, B.C.



SYMBOL LEGEND

- FIRE EXTINGUISHER
- FIRE SUPPRESSION SYSTEM MANUAL RELEASE/ABORT PANEL
- FIRE SUPPRESSION SYSTEM
- FLAMMABLE STORAGE CABINET
- DIESEL/GAS STORAGE
- OVERHEAD/ SLIDING DOOR
- CURBED AREA
- FENCE

DATE: AUG/20/2020 | **NOT TO SCALE**

TITLE: Site Plan – Paint Area

DWG #: 2

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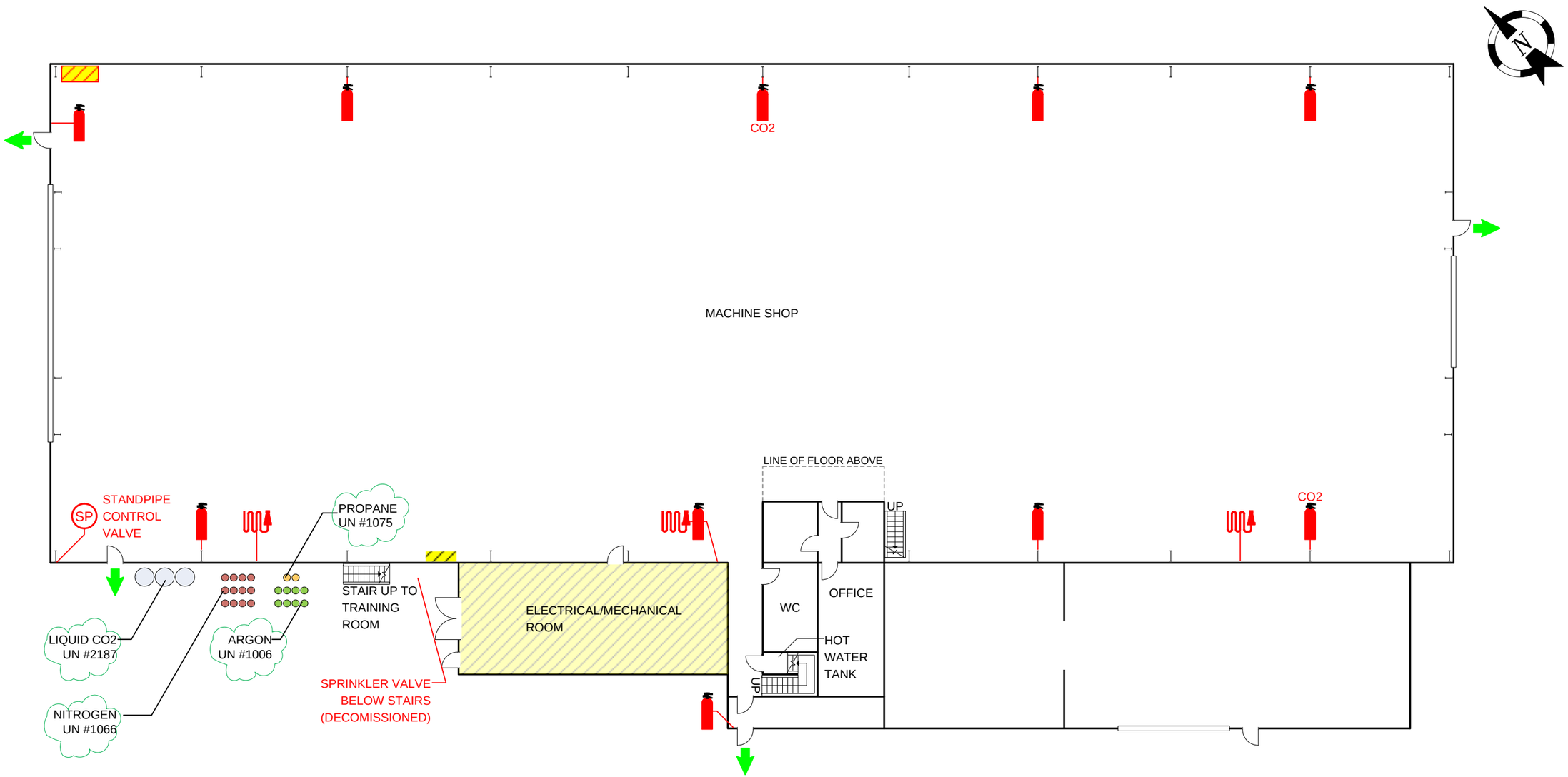
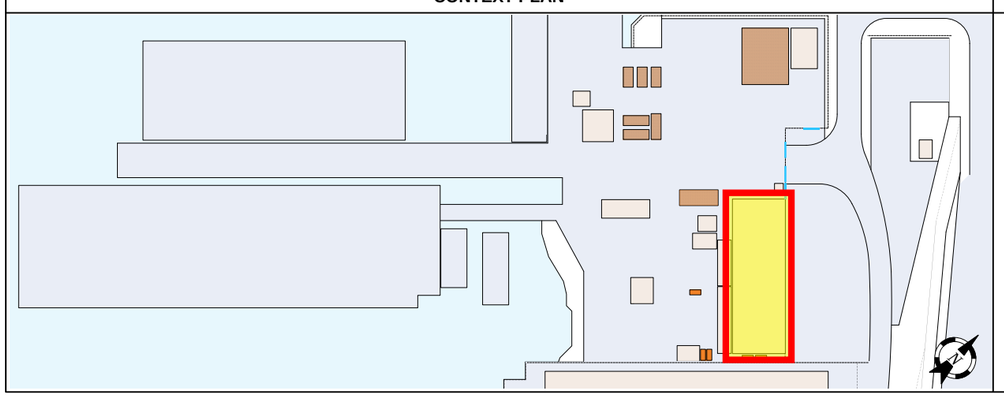


CONTEXT PLAN



SYMBOL LEGEND

- FIRE EXTINGUISHER
- FIRE EXIT
- FLAMMABLE STORAGE CABINET
- ELECTRICAL/ELECTRICAL ROOM
- STANDPIPE CONNECTION
- FIRE HOSE CABINET
- OVERHEAD/ SLIDING DOOR

CYLINDER STORAGE SYMBOL LEGEND

- LIQUID CO2 UN #2187
- NITROGEN UN #1066
- ARGON UN #1006
- PROPANE UN #1075

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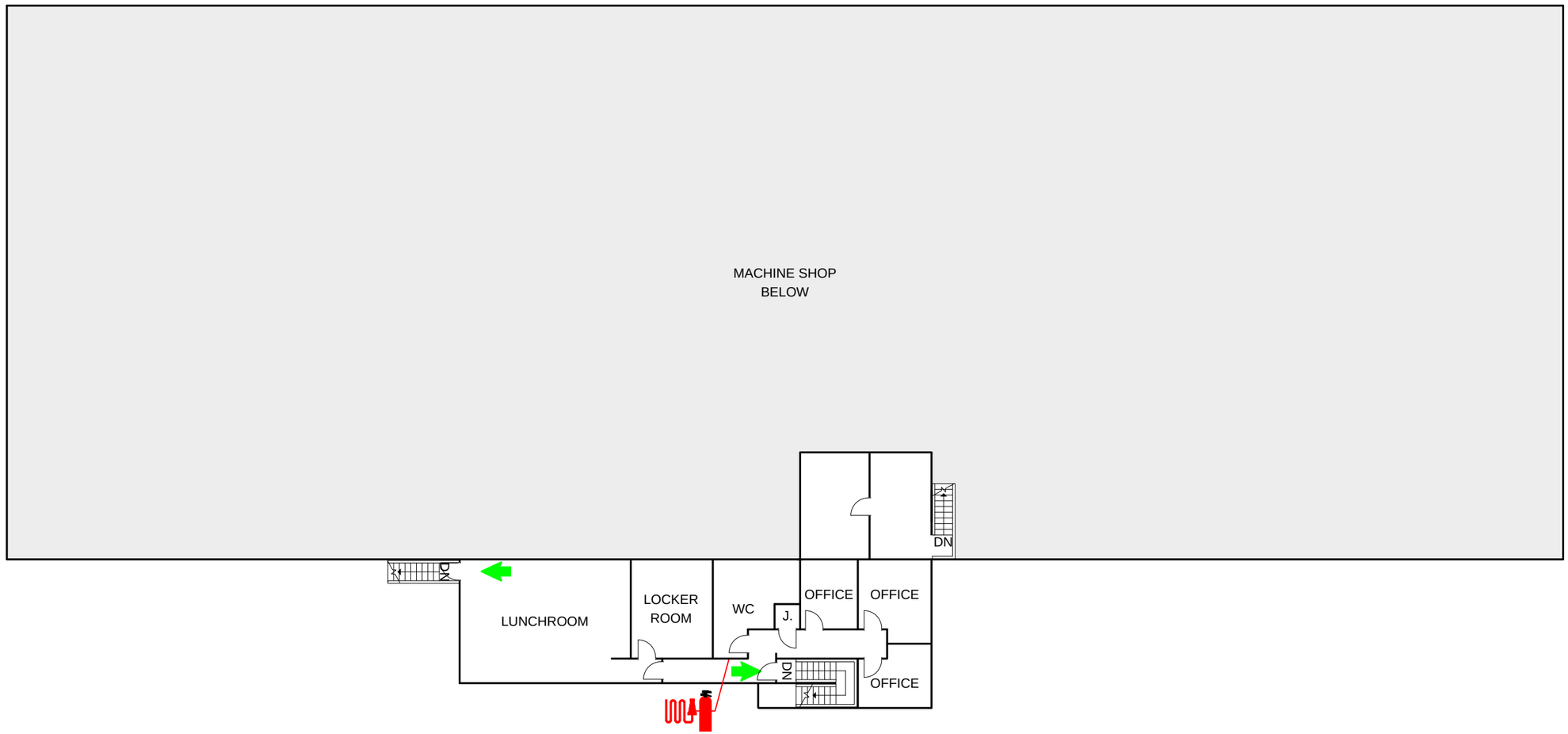
DATE: AUG/20/2020	**NOT TO SCALE**
TITLE: Machine Shop Ground Level	
DWG #: 3	



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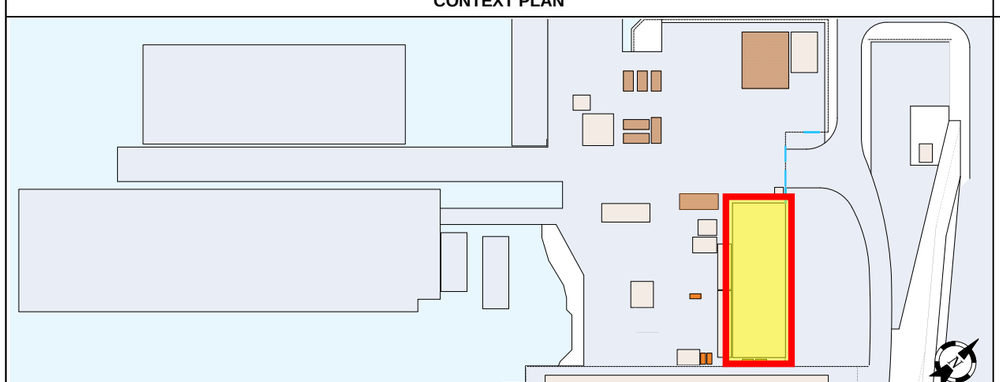

SYMBOL LEGEND

- FIRE EXTINGUISHER
- FIRE EXIT
- FIRE HOSE CABINET

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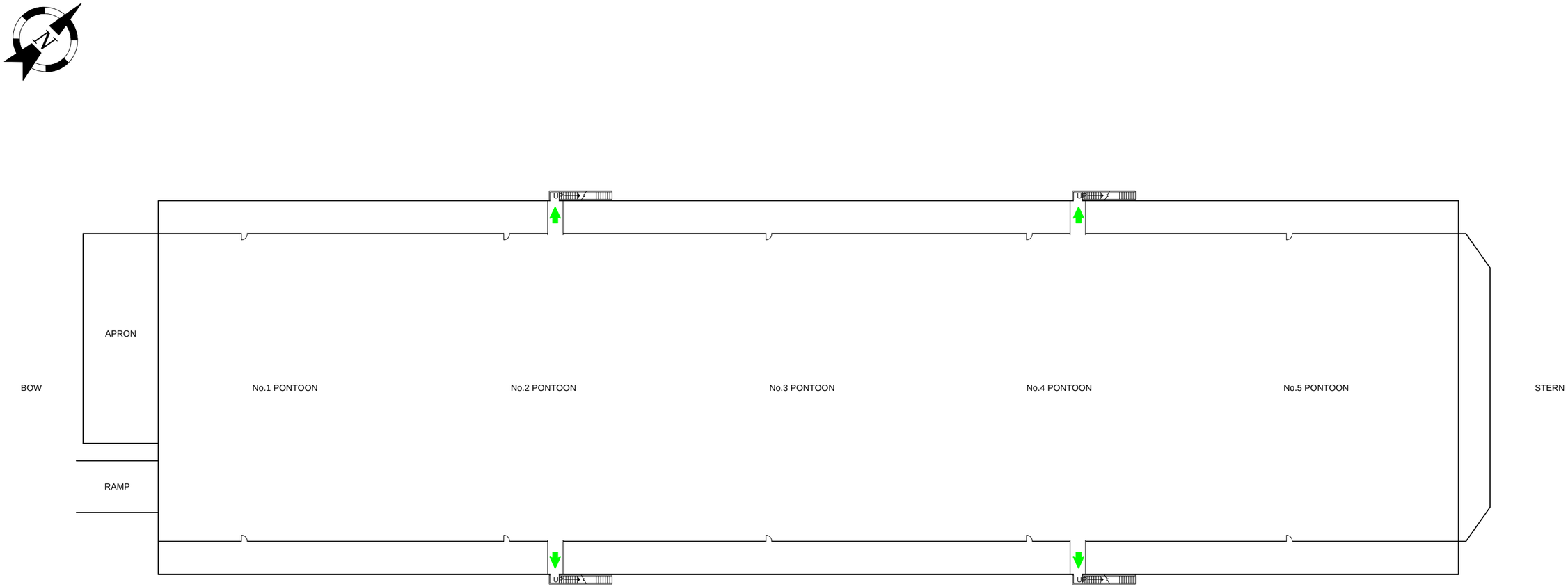
DATE: AUG/20/2020	**NOT TO SCALE**
TITLE: Machine Shop Upper Level	
DWG #: 4	



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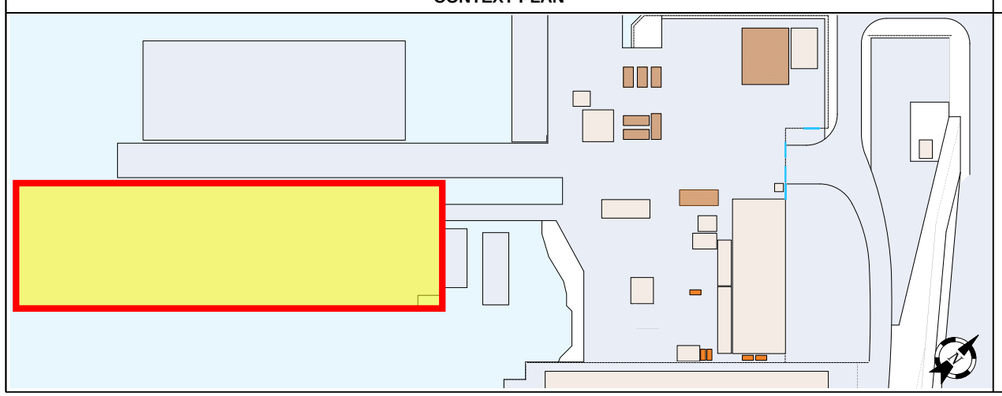

SYMBOL LEGEND

FIRE EXIT

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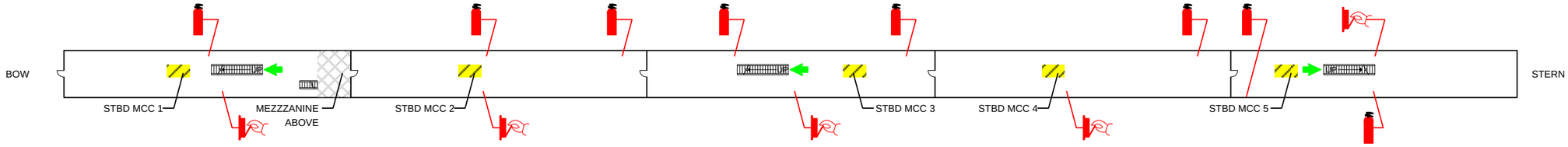
DATE: AUG/20/2020 | **NOT TO SCALE**

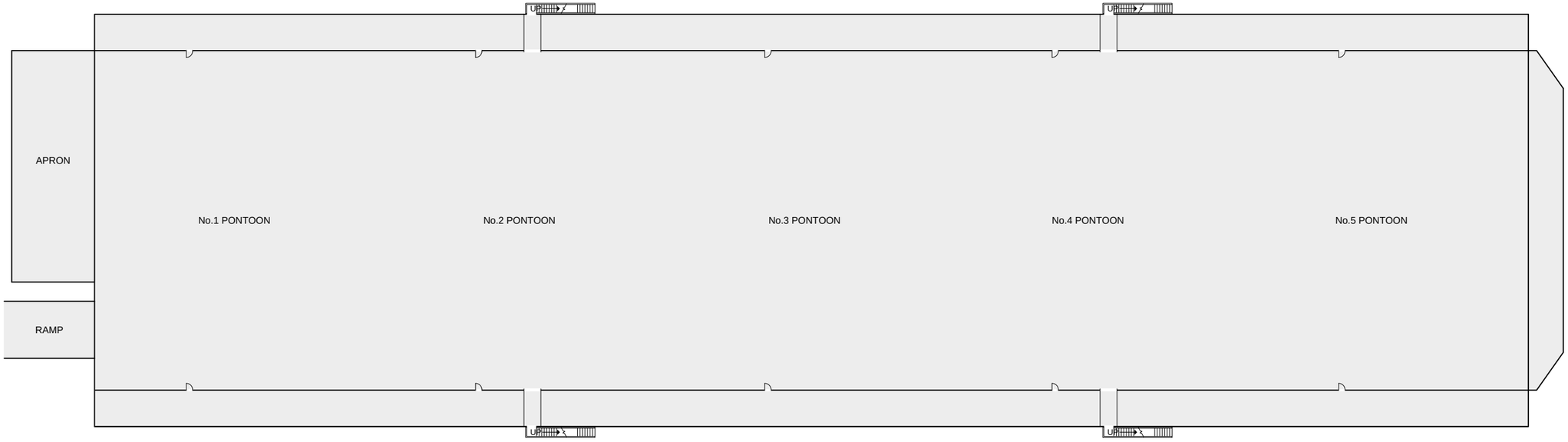
TITLE:
Panamax Floating Drydock
Pontoon Deck

DWG #: 5

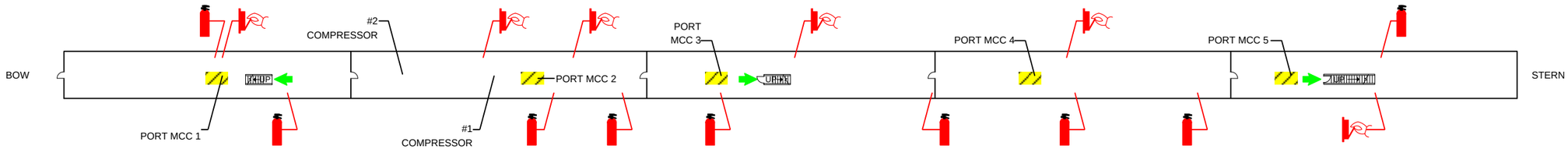
SAFETY DECK
STARBOARD



PONTOON
DECK PLAN
BELOW
(DWG. 5)



SAFETY DECK
PORT SIDE



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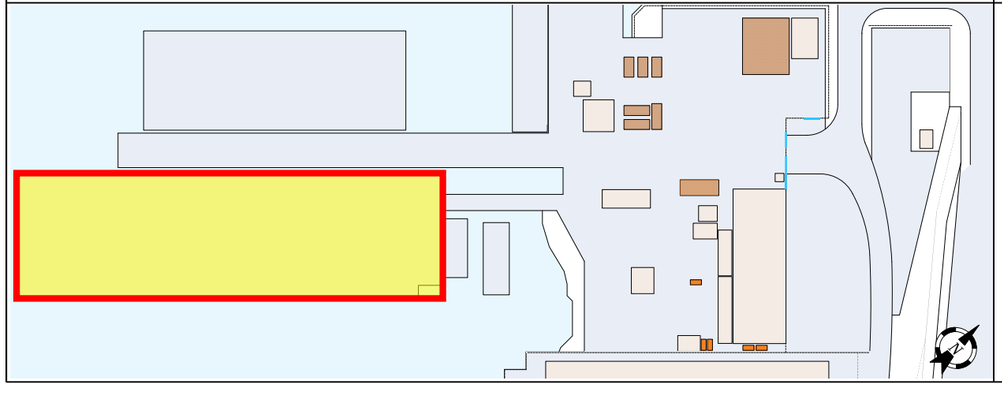

SYMBOL LEGEND

- FIRE EXTINGUISHER
- FIRE EXIT
- MCC/ELECTRICAL ROOM
- MANUAL PULLSTATION

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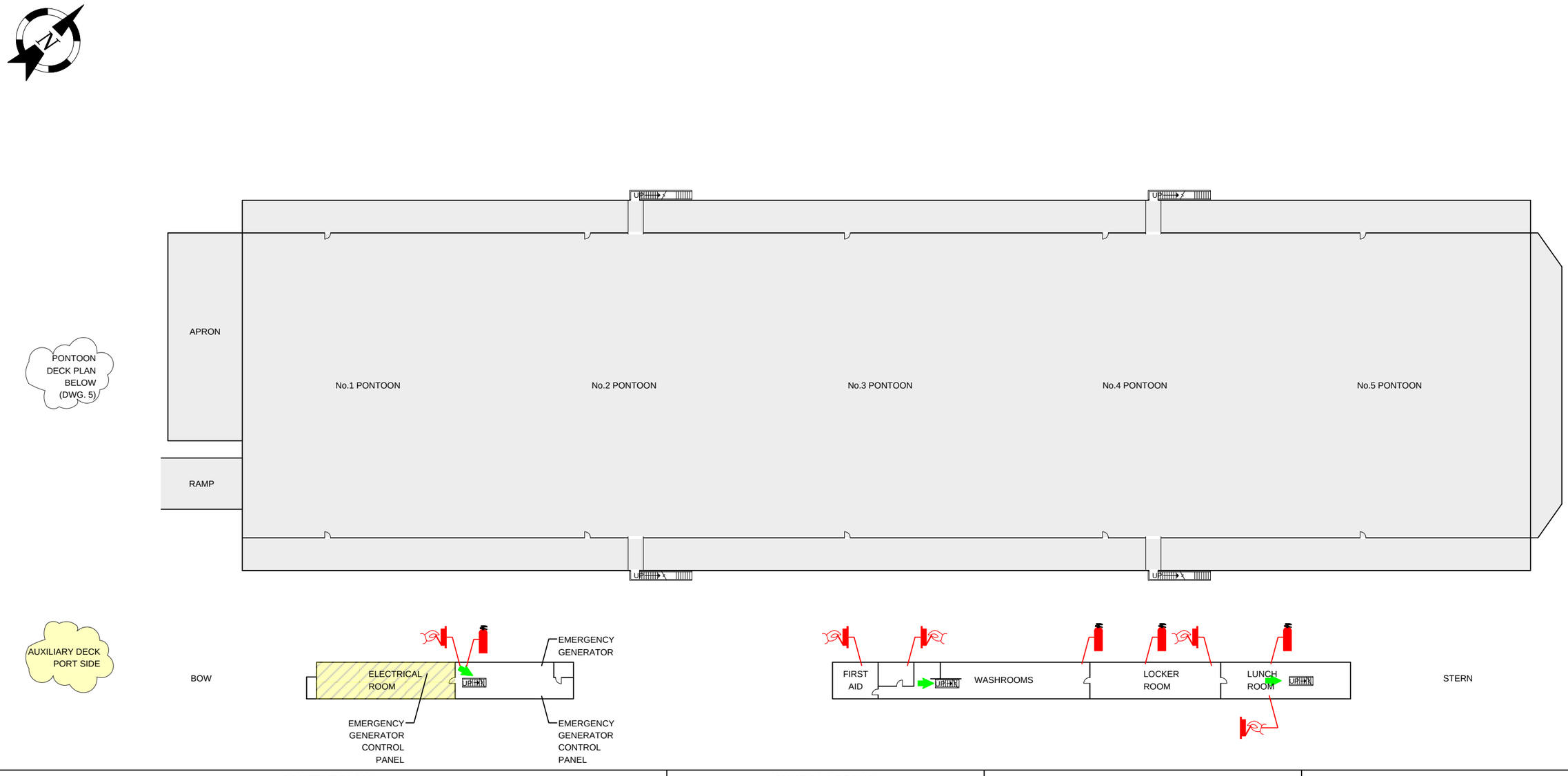
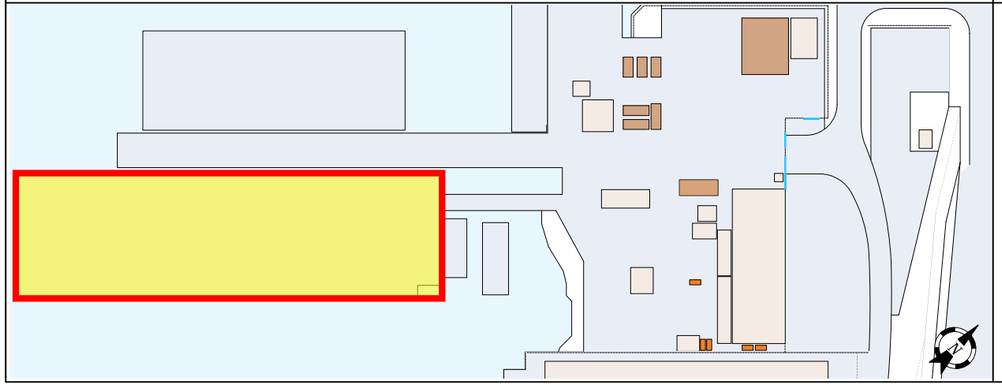
DATE: AUG/20/2020 **NOT TO SCALE**

TITLE:
Panamax Floating Drydock
Safety Deck

DWG #: 6



CONTEXT PLAN



SYMBOL LEGEND

- FIRE EXTINGUISHER
- FIRE EXIT
- MCC/ELECTRICAL ROOM
- MANUAL PULLSTATION

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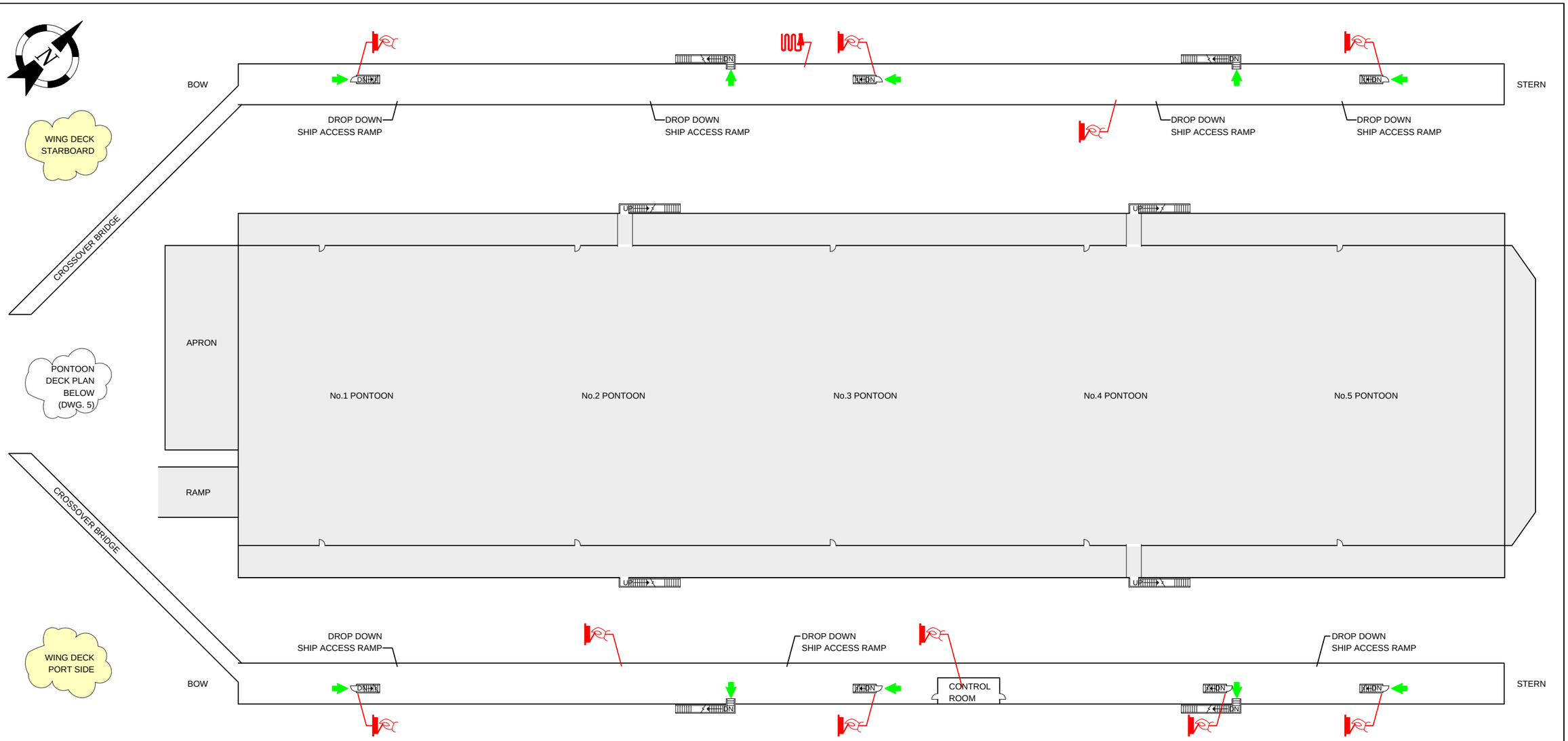
DATE: AUG/20/2020 | **NOT TO SCALE**

TITLE:
Panamax Floating Drydock
Auxiliary Deck

DWG #: 7



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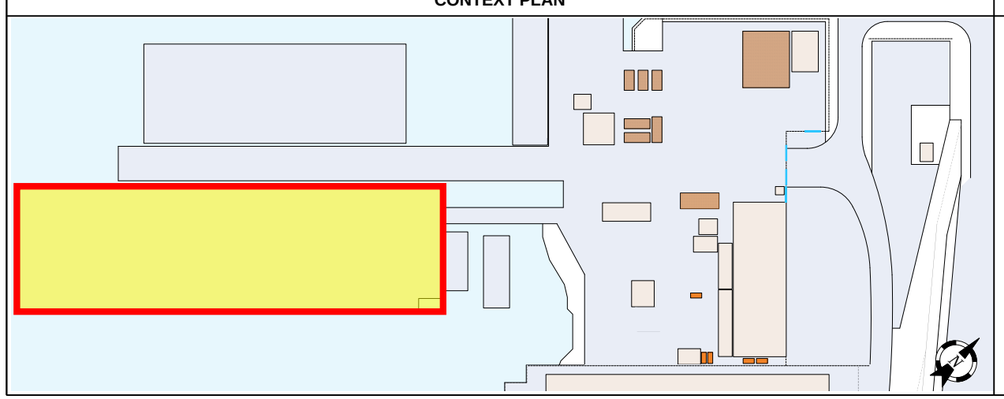

SYMBOL LEGEND

- FIRE EXTINGUISHER
- FIRE EXIT
- FIRE HOSE
- MANUAL PULLSTATION

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DATE: AUG/20/2020 | **NOT TO SCALE**

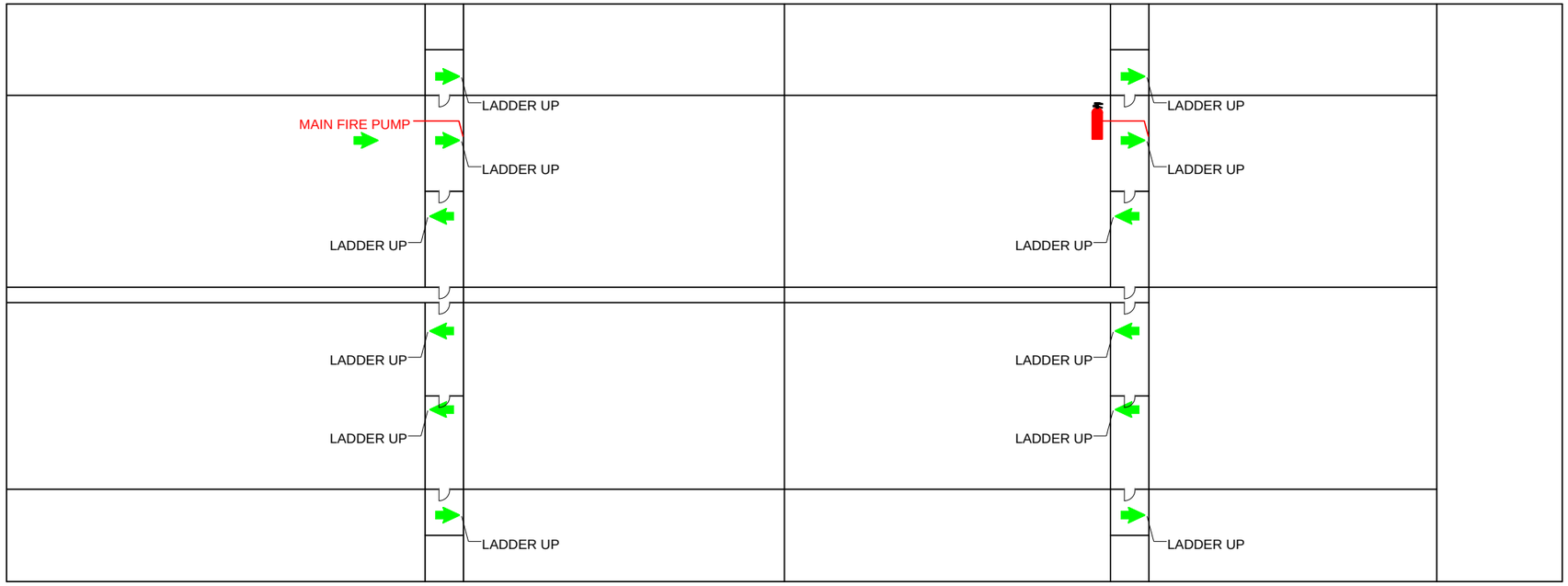
TITLE:
Panamax Floating Drydock Wing Deck

DWG #: 8

STARBOARD

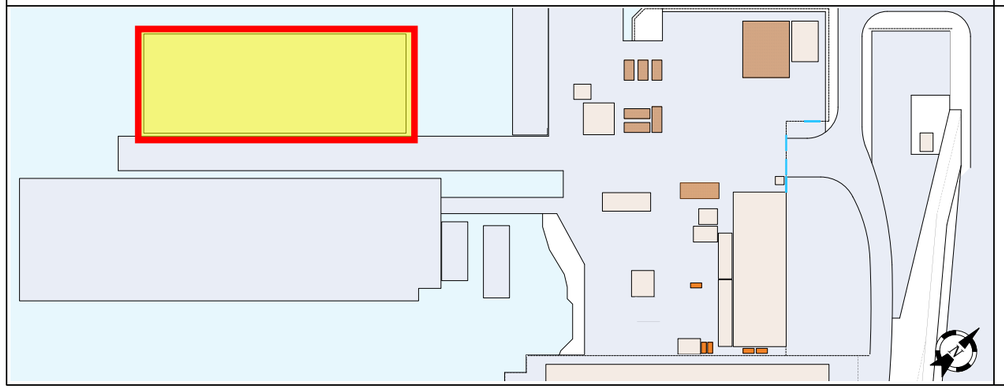
BOW

STERN



PORT

CONTEXT PLAN



SYMBOL LEGEND

FIRE EXTINGUISHER

FIRE EXIT

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DATE: AUG/20/2020 | **NOT TO SCALE**

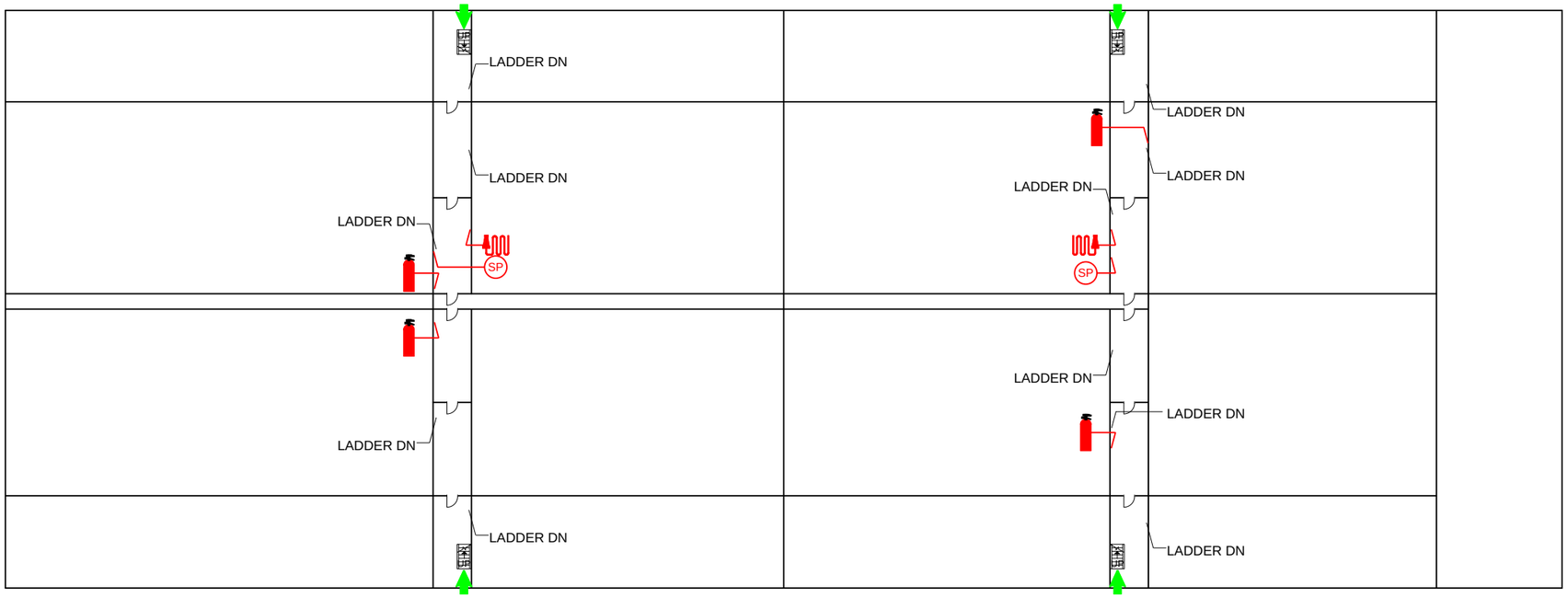
TITLE: Careen Floating Drydock
Bottom Deck

DWG #: 9

STARBOARD

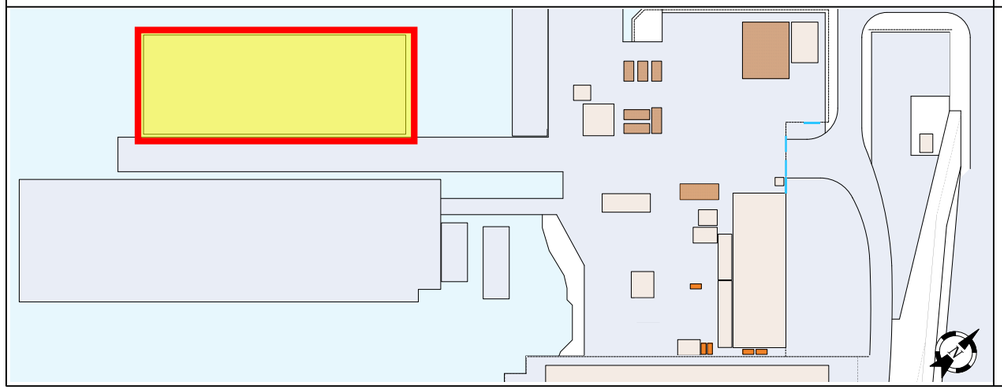
BOW

STERN



PORT

CONTEXT PLAN



SYMBOL LEGEND

- FIRE EXTINGUISHER
- FIRE EXIT
- SP — STANDPIPE CONNECTION
- FIRE HOSE CABINET

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DATE: AUG/20/2020 | **NOT TO SCALE**

TITLE: Careen Floating Drydock
Lower Deck

DWG #: 10

STARBOARD

BOW

STERN

#1

FWD. STARBOARD
TOWER

#3

AFT STARBOARD
CONTROL TOWER

FWD.
PORT TOWER

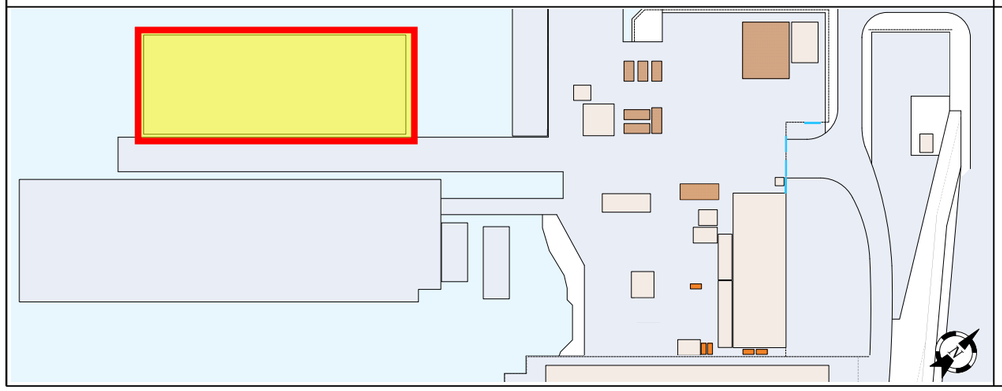
#2

AFT
PORT TOWER

#4

PORT

CONTEXT PLAN



SYMBOL LEGEND

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SEASPAN – Vancouver Dry Dock
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DATE: AUG/20/2020 **NOT TO SCALE**

TITLE:
Careen Floating Drydock
Main Deck

DWG #: 11

STARBOARD

BOW

STERN

PORT

#1

FWD. STARBOARD
TOWER

UP DN

LADDER UP

#3

LADDER UP

GENERATOR
ROOM

AFT STBD.
TOWER

OFFICE

WC

GALLY

DN UP

LADDER UP

EMERGENCY
FUEL
SHUT-DOWN

LADDER UP

FWD. PORT
TOWER

UP DN

#2

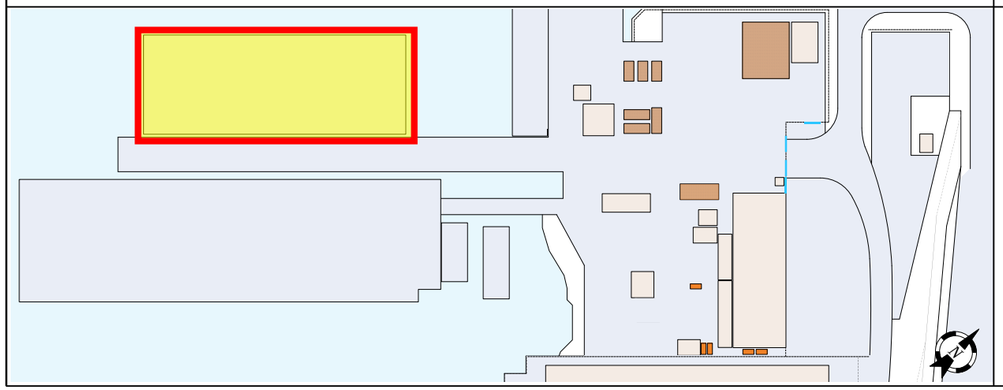
LADDER UP

AFT PORT
TOWER

DN UP

#4

CONTEXT PLAN



SYMBOL LEGEND

FIRE EXTINGUISHER

FIRE EXIT

STANDPIPE
CONNECTION

FIRE HOSE CABINET

MANUAL PULLSTATION

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DATE: AUG/20/2020 **NOT TO SCALE**

TITLE:
Careen Floating Drydock
Main Deck

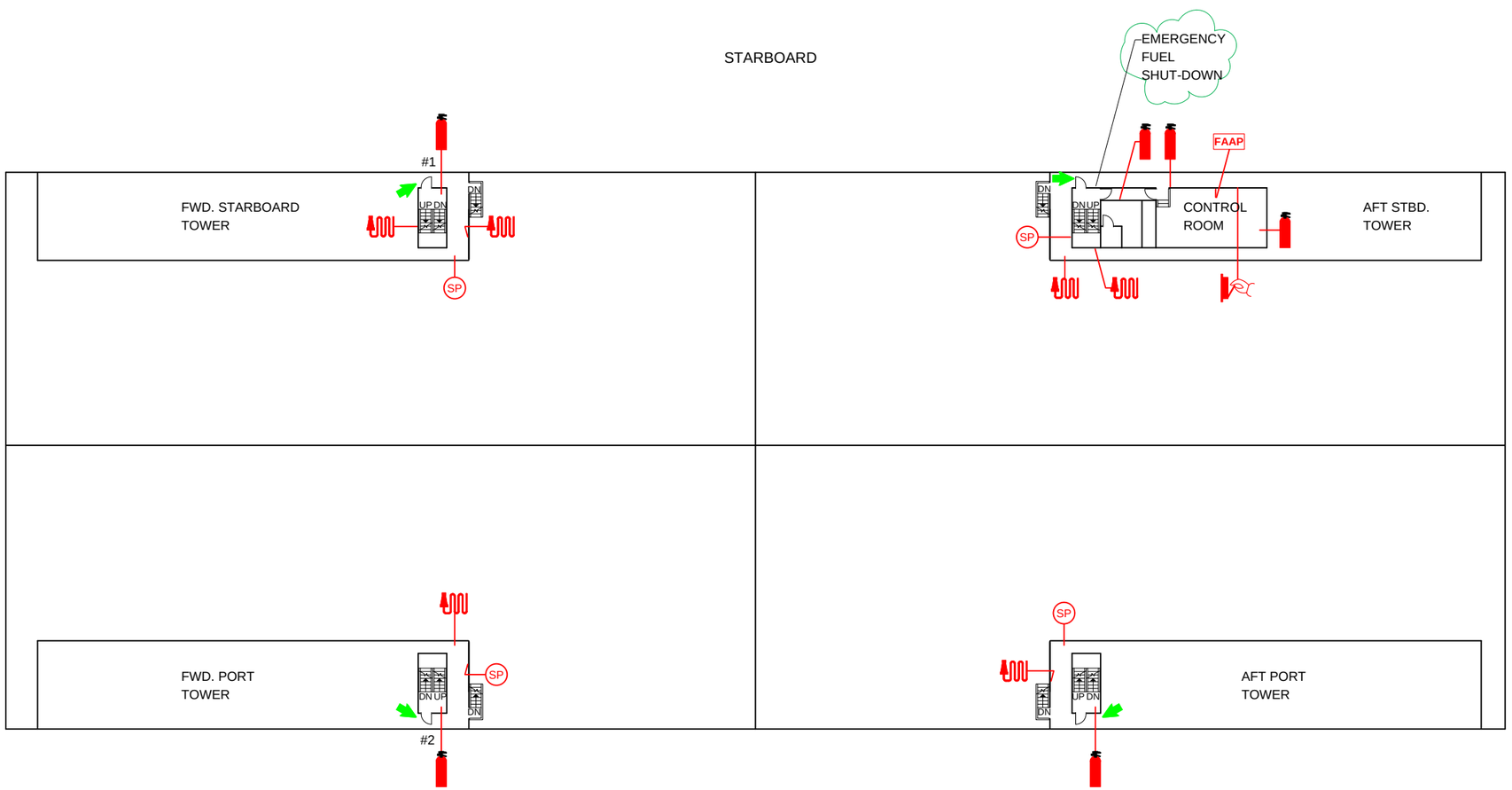
DWG #: 12

STARBOARD

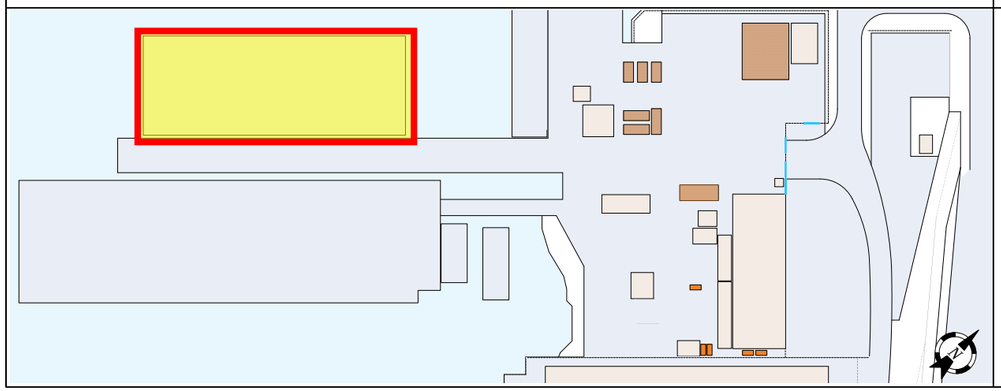
BOW

STERN

PORT



CONTEXT PLAN



SYMBOL LEGEND

- FIRE EXTINGUISHER
- FIRE EXIT
- SP — STANDPIPE CONNECTION
- FIRE HOSE CABINET
- MANUAL PULLSTATION
- FAAP — FIRE ALARM ANNUNCIATOR PANEL

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DATE: AUG/20/2020 | **NOT TO SCALE**

TITLE: Careen Floating Drydock
Top Deck

DWG #: 13

PART 1 – OBJECTIVES

OBJECTIVES OF OUR FIRE SAFETY PLAN - GENERAL

Our Fire Safety Plan has 3 primary objectives:

- Fire hazard control
- Fire protection system maintenance
- Emergency evacuation

INTENT OF OUR FIRE SAFETY PLAN

Our Fire Safety Plan limits the probability of fire and limits the probability that:

- Designated persons will not be appointed and organized to respond to fire emergencies. Occupants will be unaware of the procedures and their duties to follow in a fire emergency, which could lead to inappropriate actions being taken, which could lead to the spread of fire, which could lead to damage to the building.
- There will be delayed in carrying out emergency procedures, operating fire alarm systems or providing access to fire protection systems in a fire situation.
- Emergency responders will not be notified of a fire emergency such that the emergency responders will be delayed in carrying out their duties.
- Instructions, including schematic diagrams, describing the type, location and operation of building fire emergency systems will not be established.
- Changes in use or characteristics of the building will not be reflected in procedures to address a fire emergency, which could lead to inappropriate actions.
- Fire hazards will not be controlled.
- Building facilities, systems, equipment & devices will not be properly inspected or maintained.

Our Fire Safety Plan provides information for:

- Supervisory staff.
- Firefighters before and during an emergency incident.
- Fire inspectors.
- Fire and life safety system contractors performing inspections and testing.

The education of our appointed Fire Safety Director (and alternates) are crucial elements in clearly notifying and instructing occupants during an emergency. If special keys or devices are required to access the fire alarm system control panel, they should be made readily available to responding fire fighters.

PART 2 – RESPONSIBILTIES

The BC Fire Code (2018) specifies responsibilities as noted below:

2.2.1.1. Responsibility

1) *Unless otherwise specified, the owner or the owner's authorized agent shall be responsible for carrying out the provisions of this Bylaw.*

2.2.1.2. Records

1) *Where this Bylaw requires that tests, inspections, maintenance or operational procedures be performed on a fire safety system, records shall be made and the original or a copy shall be retained at the premises for examination by the authority having jurisdiction.*
2) *The initial verification or test reports for each system shall be retained throughout the life of the systems.*
3) *Records of tests, inspections, maintenance or operational procedures undertaken after the initial tests referred to in Sentence (2) shall be retained so that at least the current and the immediately preceding records are available.*
4) *Notwithstanding the conditions stated in Sentence (3), no record shall be destroyed within two years of having been prepared.*

The building owner or the owner's authorized agent will assume such responsibilities by default unless another person is appointed in writing to fulfill the responsibilities on the owner's behalf. This appointment does not relieve the building owner of the responsibilities, nor does the building owner have the authority to opt out of such responsibilities.

Our appointed person will be called Fire Safety Director within this Fire Safety Plan.

Definitions:

Fire Safety Director (FSD) means the appointed supervisory staff member who has responsibility for the administration and maintenance of our Fire Safety Plan.

Supervisory staff means those occupants of a building who have some delegated responsibility for the fire safety of other occupants under the Fire Safety Plan.

FIRE SAFETY DIRECTORS CHECKLIST

The Fire Safety Director and other designated staff have certain responsibilities as required by the BC Fire Code (2018). This checklist highlights such responsibilities but should not be considered as complete list. This Fire Safety Plan is to be used for reference and details.

- ☐ Fire Safety Director is appointed and has reviewed the Fire Safety Plan
- ☐ Fire Safety Director completes Emergency Contact page.
- ☐ Fire Safety Director has appointed Deputy Fire Safety Director's or alternates
- ☐ Fire Safety Director, Deputy Fire Safety Director(s) and alternates have read and understand the Fire Emergency Procedures
- ☐ Fire Safety Director, Deputy Fire Safety Director(s) and alternates have reviewed and understand the Responsibilities for Fire Safety

Fire Safety Director confirms:

- ☐ A complete Fire Drill will be conducted within 60-days of receipt of our Fire Safety Plan. The fire drill will confirm emergency evacuation and response procedures, demonstrate the sound of audible fire alarm signal and evaluate staff response to an alarm.
- ☐ Fire Drills will be conducted at least annually.
- ☐ An understanding of "Hot Work" or "Use of Flammable/Combustible Liquids" safety procedures when conducted in the building.

FIRE SAFETY DIRECTOR RESPONSIBILITIES

Administering and maintaining our Fire Safety Plan. This will include:

- Reviewing our Fire Safety Plan at least every 12-months, following evaluation of a false alarm or fire and after alterations are made to the building (See review forms in Appendix). This ensures that the Fire Safety Plan is amended upon consideration, evaluation and/or changes in use, or other characteristics of the building or an incident.
- Note that the following copies of our Fire Safety Plan exist:
    1) Fire Safety Director (FSD)
    2) Designates appointed by FSD (electronic copy)
    3) Fire Department (electronic copy)
- The maintenance records in at least the Fire Safety Director's copy of the Plan are periodically updated
- Training of Deputy Fire Safety Directors, supervisory staff and volunteers before being given responsibility.
- Recording information on fire incidents, false alarms, fire drills, and discharge or operation of fire equipment.

Ensuring that our fire protection systems and protective features are inspected, maintained and serviced in accordance with our Fire Safety Plan, Fire Bylaw, and manufacturer's requirements. Where an inspection, maintenance or testing procedure is required, as noted in our Plan, it is the Fire Safety Director's or appointed designate's responsibility to have a qualified contractor complete the procedure.

- Making necessary copies of the blank forms in our Fire Safety Plan. This ensures that blank forms and reports will be readily available.
- Ensuring that additional precautions are taken to offset the hazard to occupants where fire protection systems are inoperable. This will include:
    - Checking our Fire Safety Plan when fire systems need repair.
    - Advising the fire department of the system status.
    - Ensuring that building maintenance, alteration, renovation, or change of use does not expose the building or occupants to undue fire hazards, and precautions are taken to ensure building and occupant safety.
    - Checking our Fire Safety Plan and the Fire Bylaw to ensure that such activities meet safety regulations.
- Ensuring that supervisory staff is available to respond to the premises or fulfill their duties as outlined in our Plan.
    - Maintaining familiarity with our fire protection equipment. Familiarity with fire regulations. This will include obtaining and reviewing a copy of the City of North Vancouver Fire Bylaw #7709.
    - A number of conditions, responsibilities and expectations from the building owner or designated agent or representative, for the ongoing protection of life and property are contained within the Bylaw.
      This and other City of North Vancouver Bylaws can be reviewed at the following website:
      https://www.cnv.org/Your-Government/Bylaws-Search

- Providing staff with the necessary information in Part 3 and include information from Part 4 on maintenance of fire protection equipment that may be under their control.
- Maintaining familiarity with fire protection systems.
- Familiarity with fire regulations. This will include:
    - Obtaining and reviewing a copy of the BC Fire Code (2018).
    - Resolving any fire hazards which are observed or reported.
    - Ensuring that the storage conforms to the BC Fire Code (2018).
    - Ensuring that FIRE EMERGENCY PROCEDURES are practiced and documented as a record, on a regular basis.

PROCEDURES AFTER FIRE EQUIPMENT HAS OPERATED

PORTABLE FIRE EXTINGUISHER HAS BEEN OPERATED

Where a service company needs to remove a fire extinguisher for an extended length of time, a fire extinguisher of the same type will need to be provided temporarily in its place. When extinguishers have been used, even if only for a short time, they will be inspected and serviced by a qualified contractor.

FIRE ALARM SYSTEM HAS OPERATED

We will ensure the fire department is aware of incident. Call 911.

Where a fire has occurred and damaged system wiring or detection devices, it is likely that an “alarm” and “trouble” condition will be indicating on the fire alarm system. In this case a qualified contractor will be contacted to make the necessary repairs.

The FSD will arrange for the services of a qualified contractor to make repairs. Repairs may affect the building fire alarm system and will be coordinated to ensure the whole fire alarm system is restored to normal.

** Permission to reoccupy any portion of the building affected or not directly affected by fire damage will be at the sole discretion of the Fire Department and Building Officials.

SPRINKLER SYSTEM HAS OPERATED

- We will ensure the fire department is aware of an operating fire alarm. Call 911.
- When the basement level sprinkler system has been activated, the Fire Department will be made aware of the activation.
- If the sprinkler system is impaired or damaged in any way, the building owner/Fire Safety Director or designate, is responsible for implementing a Fire Watch in all affected areas AND for contacting a qualified contractor to make necessary repairs.

NOTE: If the above noted procedures (for sprinkler or fire alarm systems) ARE NOT able to be done, a Fire Watch program will be implemented in all cases.

SPECIAL FIRE SUPPRESSION SYSTEM HAS OPERATED

Following operation, the special fire suppression system protecting the spray area (shed) will be restored by a qualified contractor (ASTTBC certified personnel).

REPAIRS, ALTERATIONS & RENOVATIONS BUILDING

During alterations, maintenance or repairs we will ensure that the building and its occupants are not exposed to undue fire hazards created by contractor's equipment or supplies which are brought into the building. Check our Fire Safety Plan to confirm compliance with the BC Fire Code (2018).

Frequent inspections of the affected area and additional precautions to offset the hazard are required to ensure at least the following:

- Exits are free of obstructions.
- Work areas are inaccessible to the building occupants.
- Contractors have obtained necessary building and operation permits.
- Flammable and combustible liquids are handled and stored safely.
- Heat producing equipment are used safely.

Where a problem is suspected the Fire Department will be contacted in order to provide advice or perform an inspection.

ALTERNATE MEASURES FOR OCCUPANT FIRE SAFETY

In the event of any shutdown of fire protection equipment (specifically the fire alarm system, sprinkler system in the case of this building) the Fire Department, building occupants and owner should be notified. Instructions should be posted as to alternate provisions or actions to be taken in case of an emergency. These provisions should be acceptable to the Chief Fire Official and be in accordance with our accepted Fire Safety Plan.

An attempt to minimize the impact of inoperative equipment should be made (i.e. where portions of a, sprinkler or fire alarm system are taken out of service, the remaining portions will be maintained. Assistance and direction for specific situations should be sought from the Fire Department and be in accordance with our Fire Safety Plan.

Procedures to be followed in the event of any shut down of a fire protection system (in particular, the standpipe, sprinkler and/or fire alarm system) are as follows:

- Notify the fire department. Give your name, address and a description of the work and when you expect to be completed. The Fire Department should be notified in writing of shutdowns longer than 24 hours
- Post notices on all floors and at building entrances, stating the work and when it is expected to be completed.
- Have supervisory staff or other reliable persons patrol the affected areas at least once every half-hour (30 minutes), and
- Notify the Fire Department and building occupants/owner when work has been completed and systems are operational

Follow the Fire Emergency Procedures specified in this Section but in all cases report to the Fire Department Officer to act as a resource person.

FIRE WATCH PROCEDURES

This information is provided to clarify the requirements for our fire watch. A fire watch is the action of an on-site person whose **sole** responsibility is to watch for the occurrence of fire.

FIRE WATCH REQUIREMENTS

If a fire protection system fails, or there are an excessive number of accidental activations or nuisance alarms, a building owner (or their representative) will be required, by the Fire Department, to provide a fire watch until the system is repaired. Personnel providing and conducting the fire watch in accordance with this guideline are to be determined by the building owner or representative.

Note: a professional security company is not required but may be used as an alternative to have staff/employees perform the sole duty a of fire watch.

OWNER RESPONSIBILITIES

- Establish, instruct and maintain fire watch personnel
- Establish a method of warning building occupants of the need to evacuate.
- Notify the fire alarm monitoring company
- Notify the Fire Department that the system is not working, and again when the system is repaired. Call the Fire Department. A report from the servicing contractor may be required to be submitted to the Fire Department.
- Contact the repair company to fix the fire protection system(s).
- Post signs in the affected areas indicating that a Fire Watch is in progress. Fire Watch signs should identify the affected area(s), start date/time and expected end date/time. Fire Watch signs may be created by word processing software, printed and posted.
- If a Fire Department "*Fire Inspection Notice"* has been issued, contact the Fire Department at (604) 980-5021 when the system has been repaired.

Note: the building owner or Fire Safety Director is expected to initiate and maintain a fire watch procedure on his or her own initiative.

FIRE WATCH DUTIES

Personnel serving as a fire watch have the following duties:

- Establish at least one reliable means of direct communication with the Fire Department (911). A telephone or cell phone is acceptable.
- Have knowledge of the location and use of fire protection equipment, such as fire extinguishers.
- Attend the affected building areas always.
- Conduct periodic (hourly) inspections of the affected areas.
- Identify and correct any fire, life or safety hazard within the ability of the ***Fire Watch*** personnel **or** report such hazards directly to the building owner or owner's designated representative for corrective action
- Notify the Fire Department if a fire is discovered, by calling 911. Provide the exact address and type of emergency.
- Notify occupants of the facility of the need to evacuate. If the fire alarm system is still functional, use it to assist with evacuation of the building.
- Determine at least one means of direct communication with the Fire Department. A telephone is acceptable.
- Maintain a log record of fire watch activities.

- **Fire watch personnel cannot have other duties besides their assigned fire watch. However, the Fire Department may assign other duties.**

Note: The fire watch personnel are not expected to perform fire-fighting duties beyond the scope of an ordinary citizen.

Frequency of Fire Watch Inspections

Fire watch personnel shall patrol the entire building every 30-minutes unless another frequency is specifically directed by the Fire Department.

Note: Depending on the size, area and nature of the building, it may be necessary to provide the fire watch with two or more persons to maintain the required frequency of the inspection(s).

Record Keeping

Our Fire Watch Program log (See Fire Watch Log Form in Part 4) will be maintained in our office in the building. The log will be available to City of North Vancouver Fire Department, upon request, always during the Fire Watch.

Cancellation of fire watch

The Fire Safety Director or designated representative (property manager) will be responsible to cancel the fire watch once the fire protection system or equipment has been repaired and is fully restored. Once the fire watch has been cancelled, we will notify the Fire Department at (604) 980-5021 during normal business hours.

If we need additional information about fire protection systems or required inspection and testing of systems, we will contact the Fire Prevention Division at (604) 980-5021.

PART 3 – INSTRUCTIONS TO OCCUPANTS, FIRE DRILLS, FIRE PREVENTION, PREPAREDNESS AND FIRE CONTROL

Our Fire Safety Plan describes the "basic principles" for the evacuation practices for the event of a fire condition and a description of fire prevention and fire control. The Fire Safety Director and Deputy Fire Safety Director(s) should review and practice these principles.

TASK	RESPONSIBILTY
BE PREPARED • Be familiar with the evacuation procedures. • Wear appropriate clothing if fighting fire (NO nylon or polyester pants or hi-vis vest – these items are extremely flammable). • Keep required fire-fighting equipment on site. • Know where to access fire-fighting equipment. • Be familiar with operation of fire equipment (extinguishers, hoses, etc.). • Inspect work site for potential fire hazards and reduce where possible. • Be conscious of weather patterns. • Know the location of two paths of exit from your work area. • Know where alarm pulls are located and how to use them	Fire identifier
EVALUATE THE HAZARD • Consider the hazard to yourself, others, company & natural resource features • Be familiar with hazards associated with products used in the facility (e.g., flammability, reactivity/compatibility, likelihood of explosion, toxic smoke potential) • Evacuate if necessary.	
TAKE CONTROL Secure the area. • Activate the alarm as appropriate. • Move resources at risk out of danger where possible and if safe to do so. • Remove fuels or hazardous materials if possible. • Maintain communication at all times.	

CALL FOR HELP
• Call your Supervisor and report:
  ○ Location of fire and safe access routes
  ○ Time of fire
  ○ Type of fire (e.g., fuel type, products involved, smoke characteristics)
  ○ Rate and direction of spread
  ○ Estimated size of the fire
  ○ Fire-fighting resources available or required
  ○ Resources at risk (human life, buildings, etc.)
  ○ Fire suppression actions in progress	

RESPOND / TAKE ACTION • Follow directions from Supervisor or fire safety director. Ask for clarification if you do not understand your instructions • Assume lead role until Supervisor or fire department arrives • Take every precaution to prevent injury to yourself and others • Warn others of hazards • Shut down, and if possible, lock out, appropriate equipment • Communicate lock out status to others as required • Remove fuels to control spread of fire, if safe to do so. • Remain on scene until relieved or unsafe to do so	
Follow Up • Report all fires, even if they were immediately put out • Clean up the area and watch for re-ignition from "hot spots" • Describe all details of the incident to your Supervisor • Restock fire-fighting equipment • Return fire-fighting equipment to appropriate location	

INSTRUCTIONS TO OCCUPANTS IN CASE OF FIRE

IF YOU DISCOVER A FIRE …

- **REMOVE** people from immediate danger
- **LEAVE** the fire area, closing doors behind you.
- **ACTIVATE** a fire alarm pull station
- **PHONE** 9-1-1 at a safe location, to report a fire at:

  203 Esplanade East, North Vancouver

- **FIGHT FIRE** only if it is small & you are not alone
- **EVACUATE** via the nearest safe exit.
- **ASSIST** others to reach a safe exit
- **PROCEED to the Mustering Area**

IF YOU HEAR A FIRE ALARM OR CALL OF A FIRE …

- **EVACUATE** via the nearest safe exit.
- **CLOSE** doors behind you as you leave.
- **ASSIST** others reach a safe exit
- **PHONE 9-1-1** at a safe location, to report a fire at:

  203 Esplanade East, North Vancouver

- **PROCEED to the Mustering Area**
- **DO NOT RE-ENTER** the building until the ALL CLEAR has been given by the Fire Department.

MUSTERING AREA

- MUSTER AREA #1 – Guardhouse
- MUSTER AREA #2 – Employee Parking Lot, northeast of Machine Shop building.
- Remain at this location until otherwise directed by the Fire Safety Director, appointed alternate or the Fire Department. The Fire Safety Director or appointed alternate will use this location to perform a head count to ensure all occupants are best accounted for.
- Be aware of equipment, traffic and emergency vehicle movement.
- Be prepared to move to an alternate location should this area be contaminated with smoke.

FIRE EVACUATION ACTIONS – BASIC PRINCIPLES

Upon notification of the need to evacuate we will:

- Shut off equipment if safe to do so.
- Use a building telephone only if safe from the fire.
- Walk, Not Run to an exit. Shut all doors on office area, storage containers, cabinets while exiting (if safe to do so) and alert those who have difficulty hearing the signal to evacuate that an emergency evacuation of the building is under-way.
- Assist persons needing help to reach the Muster Area.
- Proceed to a safe exit. Do not push or jostle.
- Stay as low as possible when using an escape route where there is smoke. Crawling lets allows breathing the cleaner air when moving toward the exit.
- Before opening a closed door, feel it with the back of the hand. If it is hot, leave it closed and use an alternate escape route. If it feels normal, lean against and brace against the door and open it a crack - slam it shut if heat or smoke starts to rush in.
- If all pathways to exits are blocked by fire or smoke, enter a room or area preferably with an exterior window, and seal the cracks in the door with available materials to prevent smoke entering the room/area. If possible, phone the fire department (911) to report the situation and try attracting the attention of someone outside the building by any possible means.
- When reaching the outside of the building, move away from the building towards the mustering area, allowing others following behind to emerge.
- Do not attempt to drive a vehicle from any area in the building
- Do not enter the building again until permitted by a Fire Department Officer, Fire Safety Director or Supervisor.

FIRE EVACUATION - HOW TO ASSIST MOBILITY IMPAIRED PERSONS

Occupants are encouraged to help one another evacuate the building. Where a person is not readily self-capable of moving to a safe location, this section describes methods of assistance. To be effective, these methods should be demonstrated and practiced.

Mobility disabled persons may be transported to the nearest safe exit or area using the following technique:

ONE-PERSON METHOD

- If the person is prone, the rescuer should assist them to a sitting position and then to their feet. Grasp one arm, place it over your shoulder, and secure it by holding the wrist.
- Place your other arm around the person's waist and help the victim to walk.

BLANKET DRAG

This drag can be executed by placing a blanket or similar object (e.g. – coat) under the victim. Use the following steps:

- Place a blanket or similar object beside the face-up person and gather one edge close to the victim's side.
- Roll the person toward you and, while supporting the person, gather the blanket or similar object underneath. Roll the person onto the blanket or similar object and straighten it out.
- Grasp the blanket or similar object on each side of the person's head and raise enough to clear head and shoulders off the floor. In this manner drag the person to safety (use extremities carry downstairs).

EXTREMITIES CARRY

The extremities carry is a two-person carry that is easy to do. The steps are as follows:

- One assistant stands at the head of the person, and the second stands at the feet.
- The assistant at the head kneels and slips the arms under the disabled person's arms and around the chest, grasping the person's wrists.
- The assistant at the feet kneels with feet together between the person's legs. This assistant grasps the person under or just above the knees.

The two assistants then stand and carry the person to a place of safety (remember to use your leg muscles when standing up).

FIRE EMERGENCY PROCEDURES – FIRE SAFETY DIRECTOR

Fire Safety Director or Alternate

- Proceed to fire alarm annunciator and read the information provided.
- Phone 9-1-1 to report a fire at
- Assist in evacuating building occupants to the designated assembly area via safe exit(s).
- Keep people away from fire department access routes and the buildings.
- Close doors behind you, but do not lock.
- Communicate with other occupants as they leave the building and ensure no occupants are left in the building.
- Meet arriving fire department personnel at property entrance and assist as required.
- Maintain accurate recordkeeping of event and actions taken

FIRE EMERGENCY PROCEDURES – ….

Upon notification of a fire a Supervisor will:

- If safe to do so, perform a tour of the immediate area of responsibility to verify that employees or visitors have or are evacuating. Instruct employees and visitors to leave via the nearest safe exit. If safe to do so, check all areas.
- After checking an area, close as many doors as possible as you go along.
- Ensure that evacuees do not congregate outside exit and exit routes.
- Direct evacuees to move away from the building to the designated assembly area.
- Report to the FSD and/or fire department if anyone is left in the building and where they are located.
- Prevent people from re-entering the building until the “ALL CLEAR” has been given by the Fire Department’s Officer in charge.
- Once the area is clear, advise the Fire Safety Director of the status.

FIRE DRILL RESPONSIBILITIES

FIRE DRILL FREQUENCY:

- Fire drills shall be held at least once per year.
- A review of our Fire Safety Plan fire drill procedures by Supervisory Staff shall be done at least every 12 months.

PLANNING A FIRE DRILL

We will use the following guideline when planning a fire drill:

- Notify the occupants of the date and time of the drill.
- Notify the FIRE DEPARTMENT (phone their non-emergency number) and fire alarm system Monitoring Company/Security **IF** planning to have a fire drill involving activation of the fire alarm system, and that you will call them back when the drill is complete.
- Discuss evacuation procedures with supervisory staff prior to the drill.
- Supervisors will review the "*If You Discover a Fire*" scenario with staff in the "Fire Emergency Procedures" (simulate the call to the Fire Department; don't call the Fire Department emergency phone number).
- Staff will follow the Fire Emergency Procedures as detailed in the plan.
- If you have done a fire drill involving activation of the evacuation/fire alarm system, ensure that activated station /device is restored, and then reset the alarm system.
- Then, notify the fire department and alarm monitoring company that the fire drill is complete.
- Critique the Fire Drill: Discuss drill with staff and other interested parties in an attempt to identify problems and to develop/document improvements.
- Complete the "Fire Drill Evaluation Report"

RESPONSIBILITIES DURING A FIRE DRILL

The person in charge of the building/area will:

- Instruct all participating staff and visitors in the fire drill procedure.
- Arrange to make provision for the special care of any building occupant who may be limited in proceeding to an exit.
- Keep staff informed of the fire drills procedures and outcomes at safety meetings and posted notices.

GENERAL INFORMATION

- While exiting, walk, and do not run. Shut all doors behind you and alert those who have difficulty hearing that an emergency evacuation of the building is under way.

Proceed along corridors and through exits in a quiet and orderly manner. Do not push or jostle.

- Assist persons requiring assistance to reach the nearest safe exit and to the Muster Area.
- When you have reached the outside of the building, move away from the doorway to allow others behind you to emerge from the exit and proceed to the assembly area.
- **DO NOT RE-ENTER THE BUILDING/WORK AREA FOR ANY REASON** until you have been advised to do so by the Fire Department.

FIRE PREPAREDNESS

- We will ensure that all residents know the location of the two exits closest to their suites.
- We will be prepared to warn others of a fire by activating the alarm system.
- We have posted the Fire Department Emergency Number (911) and know how to call it from a safe area.
- Prior to a fire drill, we will do the following:
    - Review the Fire Emergency Procedures posted in the building and in the Fire Safety Plan.
    - Ensure that our residents know who the Fire Safety Director and Deputy Fire Safety Directors are and how to identify or contact them.
    - Read the other information provided in this Part.

FIRE PREVENTION

Fire prevention is our proactive method of reducing the likelihood of fire and minimizing the damage will a fire start. We will ensure that the following principles and practices are implemented.

GENERAL PRACTICES

To minimize the likelihood if a fire, we will:

- Smoke only within a designated area, using large non-tip ashtrays. We will empty the ashtray only after we are sure the ashes, matches and butts are cold.
- Check to make sure that no one, including visitors, has left cigarettes smouldering in waste-baskets or on furniture.
- Keep all heat-producing appliances away from the wall and away from anything that might burn, leaving plenty of space for air to circulate around equipment that normally gives off heat.
- Turned off non-critical appliances and equipment when not in use.
- Report fire hazards to the Fire Safety Director.

ACCESS TO EXITS

A vital necessity is to provide a safe and easily accessible means of egress for all the occupants by means of clearly defined aisles to the exit doors in case of fire or other emergency.

Corridors providing access to an exit are to conform to the following requirements:

- Corridors or pathways are provided on all floor areas to provide access to at least 2 exits and will be managed to minimize any possibility that both exit routes may be blocked by fire or other emergency conditions.
- Corridors and access to exits will be continuously maintained and kept free from all obstructions and will be equipped with an illumination level of not less than 50 lx.
- Walking surfaces will be kept in good repair and free from tripping and slipping hazards.

ACCESS TO EQUIPMENT

- We will provide and maintain at least 1-meter clear path of access to:
    - Electrical panels
    - Fire or life safety system controls or equipment (e.g. portable fire extinguishers, sprinkler system valves and emergency shut-down switches).
- We will maintain a clear operational space of at least 5-meters to the sides and front of any fire hydrant and at least 1-meter clear working space behind.

ELECTRICAL WIRING AND EQUIPMENT

Fires of electrical origin are from mostly from defective or inadequate wiring and equipment, overloaded circuits and substandard repairs or alterations. Electrical installations and portable equipment will be inspected regularly and kept in good repair.

- Outside/portable electrical equipment is used within a work will be acceptable to the Fire Safety Director or designate.
- Not condone overloading of circuits. A tripped circuit breaker is a warning. If the total current demand (amps) of connected equipment is greater than that which wiring/outlets are designed to supply, there is potential for an electrical fire.
- Where flammable liquids, gases/vapours or combustible dusts may be present, we will use only electrical equipment approved for such an application.
- We will not use faulty equipment or misuse equipment.
- Repair loose wire connections or cables which are kinked, frayed or otherwise damaged. Broken strands may pierce the insulated covering and become a shock or short circuit hazard.
- Check the amperage load specified by the manufacturer' instructions or the "listing laboratory" (e.g. CSA, ULC) and do not exceed it.
- Change poorly fitting plugs in socket connections. Use a standard receptacle and plug.
- Shut off the power on any electrical machine when not in use.
- Keep lamps well clear of combustible materials.
- Extension cords:
    - Extension cords are intended as a 'temporary' solution for power supply. If required, choose and extension cord that is tested and approved by a recognized testing laboratory. (e.g. CSA, ULC, UL, cUL)
    - We will not use any electrical cord that is cracked or has a broken connection.
    - When using extension cords protect them from damage – we will not put them across doorways or any place where they will be stepped on or chafed.
    - We will not plug one extension cord into another, and not plug more than one extension cord into one outlet.
    - Treat extension cords with care. Broken insulation can start fires. Replace them if they are damaged or show wear. Cords should not be strung around door jambs or placed or fastened in a manner that causes friction wear,

leading to insulation failure. Wherever practicable they will be replaced by fixed wiring.
- When using self-coiling extension cords, fully draw out the cord.

HOUSEKEEPING

Poor housekeeping is a factor that contributes to fires. All employees and outside contractors have a responsibility to maintain 'good housekeeping' in their own work area. The following rules will be observed. We will ensure that:

- Waste materials are directed into the proper waste containers or areas
- Non-critical electrical equipment is switched off when not in use.
- Aisles/pathways providing access to an exit are not obstructed in any way.
- Doors are kept free from obstructions or obstructed on the exterior side.
- Waste material is removed regularly to a safe/approved location.

Housekeeping will be carried out on a regular basis to ensure that no hazards or unnecessary combustibles accumulate in the area.

WASTE AND RECYCLING CONTAINERS

Waste and recycling containers will be made of non-combustible or approved slow burning material, as the use of combustible materials materially increases the fire risk. Fires in certain plastic waste or recycling containers are known to contribute to fire spread by melting the container and spilling the burning contents to surrounding combustible materials. The following rules will assist us to minimize waste or recycling container fires:

- Use non-combustible or ULC non-metallic containers in all areas.
- If plastic containers must be used to collect wastepaper for recycling purposes, they should not to be greater than 20 litres in size; no more than one container should be located at a workstation.
- Dispose of cleaning rags into covered metal waste containers of approved design.

SMOKING

Smoking is prohibited in the building and any area within 7 meters of the building. 'NO SMOKING' signs or glyphs will be posted in a conspicuous location, as needed.

FIRE CONTROL

HOW TO USE A MULTI-PURPOSE DRY-CHEMICAL TYPE FIRE EXTINGUISHER - BASIC

Portable fire extinguishers are useful only if you know how to use them, if they are right for the type of fire you are fighting, and if the fire is discovered at an early stage.

You should not attempt to fight even a small fire until people have been evacuated from the area and the Fire Department has been called. Never attempt to fight a fire if any of the following is true:

- You are uncertain about how to use the extinguisher.
- The fire is spreading beyond the immediate area where it started.
- The fire could block your escape route.
- You are alone.

Most fire extinguishers work according to the following directions, but some do not. Read and follow the directions on the fire extinguishers within your building ahead of time.

Remember the word: **PASS**

- **P**ULL the pin
- **A**IM low...pointing the extinguisher nozzle at the base of the fire
- **S**QUEEZE the handle...This releases the extinguishing agent
- **S**WEEP from side to side... at the base of the fire until it appears to be out

* Watch the fire area. If fire breaks out again, repeat use of the extinguisher.

REMEMBER

A typical portable fire extinguisher has a limited time duration lasting from less than 10 to 30 seconds of continuous discharge!

Report your actions and observations to a fire department officer upon arrival.

HOW TO USE A FIRE HOSE

The 1.5-inch fire hose station is intended for trained employee use. Fire hoses are useful only if you know how to use them. You should not attempt to fight even a small fire until people have been evacuated from the area and the Fire Department has been called.

Never attempt to fight a fire if any of the following is true:

- You are uncertain about how to use the hose.
- The fire is spreading beyond the immediate area where it started.
- The fire could block your escape route.

How to Use a Fire Hose

- PULL all hose out of the hose reel and remove kinks
- OPEN hose valve FULLY and ensure water flows into hose
- OPEN nozzle and ADJUST to create a wide spray pattern
- APPROACH the fire area
- ADJUST nozzle to produce narrower pattern (NOT a straight stream as this pattern may be less effective)

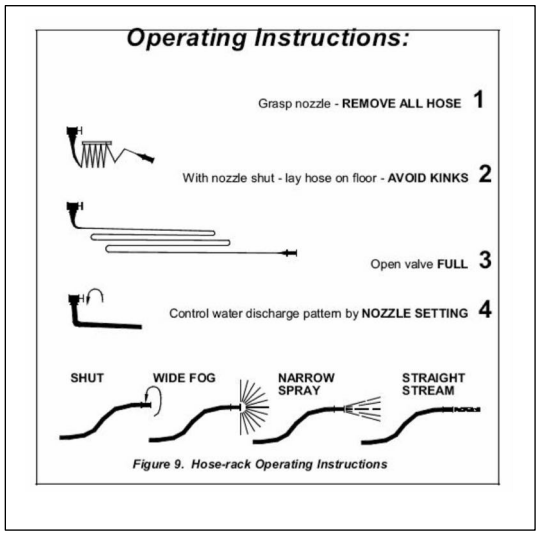


Figure 9. Hose-rack Operating Instructions

- DIRECT the water in a circular motion at the base of the flame
- BACK away when the fire appears extinguished, but watch for reignition
- REPORT to fire department officer.

PART 4 – INSPECTION, TESTING & MAINTENANCE OF FIRE PROTECTION EQUIPMENT

The goal of our inspection, testing, or maintenance operation is to ensure that our building and fire protection equipment is fully operational and that it is likely to remain in that condition until the next inspection. All inspection, testing, and maintenance operations will be performed by persons or qualified contractors who have developed competence through training and experience.

See the definition of "qualified contractor" below:

Qualified Contractor (see Fire Protection Technician)

Fire Protection Technician *means a person who has provided the* ***Fire Department*** *with acceptable documentation from the agency known as the Applied Science Technologist and Technicians of British Columbia that qualifies him/her to perform inspections and testing on* ***Fire Protection Equipment****.*

We will confirm that the contractor is qualified to inspect and/or test the specific system or equipment in question. We will ensure that the alarm receiving facility is notified before testing or shutting down any system or water supply to fire protection systems. Notification will be provided to our staff prior to system testing.

We recognize that the inspection, test and maintenance frequencies shown are minimums as noted in the referenced standards. Inspection and test results may indicate more frequent maintenance or additional maintenance activities.

We will immediately correct or repair any deficiencies found or advise the building owner of needed repairs as warranted. Fire protection system or equipment repairs will be performed by qualified personnel who may also need specific provincial trade qualification more than those of a qualified contractor (see definition above).

All systems returned to service must be thoroughly checked to make sure all valves are in their correct position, all breakers are turned on, all interlocks are removed, and that the system is in working order.

RESPONSIBILITY

The Fire Safety Director or a designate is responsible to ensure that daily, annual testing, inspection, and maintenance of all life safety equipment is properly recorded and certain systems under the City of North Vancouver Fire Bylaw requires a qualified contractor to perform these duties and record them.

GENERAL

The BC Fire Code (2018) requires that fire protection installations be maintained in operating condition in accordance with Part 6 of the BC Fire Code. In most cases, the BC Fire Code (2018) does not specify in detail the necessary inspection, maintenance and testing procedures; instead, it references standards such as those developed by the National Fire Protection Association, the Canadian Standards Association, and the Underwriters Laboratories of Canada. Where such standards are referenced by the BC Fire Code, they have been identified in this Fire Safety Plan as "*Reference Standard*".

RECORDS

Records of inspection, testing or maintenance of fire protection equipment will be completed by a qualified (certified) contractor only. Records of inspection, testing or maintenance of fire protection equipment will be retained for a period not less than two (2) years from the date of such service. Where the frequency between required inspections, tests or maintenance exceeds two years, the records will be kept for at least the time interval identified. There shall always be the previous record and a current record readily available.

** Any activities recorded on the Daily Inspection Check List are exempted from this requirement.

We will ensure that Applied Science Technologists & Technicians (ASTTBC) qualified contractors perform any inspections or testing of the fire protection systems, inspection and testing procedures must meet the minimum requirements set by the BC Fire Code (2018) or reference standard. Guidelines for use by the Fire Safety Director containing information of such procedures are available in this part of our Fire Safety Plan.

OUR REQUIRED ACTION:

COPY the appropriate checklist from Part 5 of our Fire Safety Plan.

COMPLETE AND SIGN/INITIAL the checklist once completed.

INSERT completed checklist into the back of our Fire Safety Plan.

BC FIRE CODE EXPECTATIONS

The checklists within our Fire Safety Plan and the inspection / test records of qualified contractors will be used as "records" to demonstrate our compliance with the BC Fire Code (2018). Our "records" will be kept in a location readily accessible to the Fire Department upon request. The Fire Safety Director is normally responsible for or may delegate the responsibility of maintaining required records.

PART 5 – CHECKLISTS

OUR REQUIRED ACTION:

COPY the appropriate checklist from this Fire Safety Plan.

COMPLETE AND SIGN/INITIAL the checklist

INSERT completed checklist into the back of the Fire Safety Plan.

DAILY INSPECTION CHECKLIST (NO DOCUMENTATION REQUIRED)

DAILY CHECKLIST – BC Fire Code (2018) Division B Part 2, Part 5 and Part 6	
❒	**FIRE ALARM SYSTEM** (quick check inside fire alarm / sprinkler valve enclosure) • A/C Power on • Trouble condition free • Alarm condition free
❒	**COMMON AREAS** • No combustible - refuse accumulations inside or outside • No worn electrical cords • No oily or stain - soaked rags • Fire extinguishers clear of obstruction to access • Access to exits free of obstructions • Exterior pathways leading to muster areas clear of obstructions • Emergency lighting appears to be damage free and pointed to path of travel
❒	**FIRE DEPARTMENT ACCESS ROUTES** • Free of obstruction and parked vehicles
❒	**TANKS** • Visual inspect for obvious leaks
❒	**FLAMMABLE / COMBUSTIBLE LIQUID STORAGE AREAS** • Visual check aboveground tanks, container, piping systems, pumps and ancillary equipment for obvious leakage and/or abnormal conditions. • Visual check that spill procedures are posted • Spill kits are readily available • Ensure the persons working in the Waste Water facility, have documented training in spill procedures
❒	**FIRE HYDRANTS** • Accessible • Obstructions – clear space of at least 1.5 meters to rear and sides • Parking – no vehicles within 5 meters
❒	**Other (identify)** • Receptacles provided for rags soaked with flammable or combustible liquids to be emptied and disposed of in a safe manner that will not create a fire hazard.

**** No need to retain a copy of this checklist

DAILY TANK INSPECTION CHECKLIST (DOCUMENTATION REQUIRED)

	TANKS – INSPECTION and MONITORING (Regulated by BC Fire Code 2018 Division B Part 4)
❒	Normal and emergency operational procedures posted for employees engaged in the inspection, operation of equipment used for transfer of flammable/combustible liquids.
❒	ONCE EACH SHIFT ❑ Check for obvious abnormal conditions ❑ Spill procedures posted ❑ Spill kit / supplies readily available near storage area
❒	ONCE EACH DAY – check aboveground tank, container, piping systems, pumps and ancillary equipment for leakage. Visual inspection of a storage tank to ensure that there has not been a leak or equipment failure and documented for operational readiness of: ❑ Foundations, tank walls, roof, and tank attachments; ❑ Dyke capacity, condition of the dyke wall and floor, and water removal systems; ❑ Pumps and product- handling equipment; ❑ Tank gauging equipment; ❑ Mechanical and automatic electronic leak detection equipment; ❑ Dispenser sumps and spill containment devices; ❑ Overfill protection devices. ❑ Single wall piping OR flexible hose lines over water:

Fire Safety Director or designate acknowledges completion of Daily Tank Inspection Requirements

Name: (print) _____

Signature: _____

Date: _____ Time: _____

WEEKLY INSPECTION CHECKLIST

WEEKLY CHECKLIST – BC Fire Code (2018) Division B Part 2, Part 4 and Part 6	
❒	**COMMON AREAS BCFC Division B Part 2** • Access to water-based fire protection control valves (sprinkler) unobstructed • Sprinkler system water control valves secured in the “open position”
❒	**WATER-BASED FIRE PROTECTION (SPRINKLER) SYSTEMS (NFPA-25-2017)** • During cold weather, check temperature in sprinkler valve enclosure to ensure MINIMUM 40 degrees F. or 4 degrees. C. is being maintained
❒	**TANK INVENTORY RECONCILLIATION WEEKLY** (**** Applicable to flammable and combustible liquids storage tanks only) • Liquid level in any storage tank shall measured • Level of water at the bottom of an underground storage tank measured • Comparison of the measurements with meter readings & a computation of any gain or loss of liquid • Record of the measurements for each storage tank and computations, readily available **Leak detection tests shall be conducted by an individual who has been trained in the proper use of the test device and the operating procedures.

**** Retain a copy for at least 2 years

MONTH	Week 1	Week 2	Week 3	Week 4	Week 5
January					
February					
March					
April					
May					
June					
July					
August					
September					
October					
November					
December					

Fire Safety Director or designate acknowledges completion of Weekly Requirements

Name: (print) _____

Signature: _____

MONTHLY INSPECTION/TEST CHECKLIST

MONTHLY CHECKLIST – BC Fire Code Part 2 and Part 6	
❒	**FIRE ALARM (CAN/ULC-S536-2013)** • Supervisory signal devices inspected for damage • One initiating device or pull station operated (on rotational basis) • Confirm audible alert and alarm signal, visual signal • Confirm annunciator displays correctly • Batteries inspected • Confirm common audible & visual trouble signal
❒	**FIRE SUPPRESSION SYSTEM** • Maintenance tag is in place and current; Operating instructions visible/readable • Manual actuators unobstructed • Tamper indicators and seals intact; No obvious physical damage to thermostats, detectors, agent cylinders, alarms, hose/tubes intact, nozzle caps (if provided) are intact/undamaged • Agent cylinders are clean; Pressure gauge free of damage and reads in normal range • No modifications to protected area • Fusible plug pressure relief is free of corrosion and has not been altered
❒	**EMERGENCY LIGHTING (CSA-C282 – 2009)** • Inspect battery packs and lighting for obvious damage • Check aim of lighting heads – point to stair tread or floor • Quick Test – Press test button, disconnect from power at circuit breaker OR unplug; lights to illuminate for at least 30 seconds, Reconnect to power after test.
❒	**SPRINKLER SYSTEM (NFPA-25 - 2014)** • System pressure gauges in good condition & read normal pressure • Fire Department sprinkler connection has no visible damage, hose connection/swivel turns, protective caps in place, no obstructions
❒	**FIRE PUMPS (NFPA-25 2013)** • Inspect fire pump room heat, ventilation, pump/piping damage/leak free, suction line pressure okay, valves fully open, controller power lamp “on”, transfer switch pilot light “on”, oil levels okay, fuel tank at least 2/3 full, controller selector in auto-position, battery voltage/charging readings okay, battery terminals corrosion free, alarm pilot lights “off”. • Pump operation “no flow” condition test (start pump, run for minimum 30-minutes, take and record all readings as required by NFPA-25
❒	**FIRE EXTINGUISHERS (NFPA-10 2013)** • Located in designated areas • Unobstructed access • Check service tag is current • Check that pressure seals and tamper devices not broken/missing on fire extinguishers • Examine fire extinguishers for obvious damage • Fire extinguisher pressure gauge in operable range • Operating instructions face outward. • Cabinets containing fire extinguishers provided with emergency access strike bar.

**** Copy this form, Insert “Year”. Initial each month after above noted checks are completed. Sign form at bottom of page and retain for at least 2 years.**

YEAR	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC

Fire Safety Director or designate acknowledges completion of Monthly Requirements for the year 20____

Name: (print) _____

Signature: _____

QUARTERLY INSPECTION/TEST CHECKLIST

QUARTERLY CHECKLIST – BC Fire Code (2018) Part 2 and Part 6	
❒	**SPRINKLER SYSTEM (NFPA-25 - 2014)** • Water flow devices free of obvious damage • Fire department connections accessible, free of damage, identification signs in place, protective caps in place. • Mechanical flow alarms (water motor gong) tested
❒	**FIRE ALARM (CAN/ULC-S536-2013)** • Supervisory signal devices inspected for damage • Batteries inspected for obvious damage or corrosion • Operation of common audible & visual trouble signal

❒	**FLAMMABLE / COMBUSTIBLE LIQUIDS STORAGE TANKS/TANK CONTAINMENT AREA**
	• Visual inspection of secondary containment:
	  ○ Obvious damage to containment integrity
	  ○ Liquid in containment area (safely remove, to maintain required containment capacity of sum of the capacity of the largest storage tank located in the contained space, and 10% of the greater of the largest tank or the aggregate capacity of all other storage tanks located in the contained space.)
	  ○ Free of storage
	• Signs indicating the location of manual emergency shut-off valves posted in conspicuous locations

**** Retain a copy of completed checklist for at least 2 years

YEAR	JAN – FEB - MAR	APR – MAY - JUN	JUL – AUG - SEP	OCT – NOV - DEC

Fire Safety Director or designate acknowledges completion of Quarterly Requirements

Name: (print) _____

Signature: _____

QUARTERLY OUTDOOR STORAGE AREA EVALUATION CHECKLIST

GENERAL CONDITIONS - Regulated by BC Fire Code (2012) Division B Part 3	
❒	Smoking prohibited – confirmed no smoking practices being implemented.
❒	Physically stable piles (under normal circumstances as well as under fire conditions (according to base area and shape, and the type of packaging, combustibility and chemical reactivity of the stored products.
❒	Clear space of not less than: • 6 meters (20 feet) between stored products and uncontrolled grass or weeds.
❒	Storage beneath power lines is not permitted. Conditions satisfactory.
❒	Fire Department Vehicle Access in storage yard is provided such that: • Clear width of 6 meters (20-feet) is maintained, including gates into and around site are clear of obstructions, including snow • The weight of the fire department vehicles is supported • The turning radius is not less than 12 meters to the centerline of the turn • Permits the approach of fire department vehicles to within 60-meters travelling distance of any part of an individual storage area. • Where the total storage area exceeds 6 000 m^2, the access route is to be connected with a public thoroughfare in at least 2-locations.
❒	Fire department connections and private valves controlling water supplies to fire protection systems are maintained and accessible to firefighters and their equipment at all times
❒	Portable fire extinguishers are to be provided in any building located in the outdoor storage area. Minimum rating of 2-A:30-B:C
❒	Each motorized vehicle operating in the outdoor storage area shall be equipped with at least one portable extinguisher having a minimum rating of 2-A:30-B:C.
❒	Other (identify)

** Retain completed copy for at least 2 years

Quarter	1	2	3	4

Fire Safety Director or designate acknowledges completion of Quarterly Requirements

Name: (print) _____

Signature: _____ Date: _____

SEMI-ANNUAL and ANNUAL FIRE PROTECTION SYSTEM & EQUIPMENT INSPECTIONS/TESTS

Inspection, tests and maintenance of fire and life safety/protection systems/equipment to be conducted by a qualified contractor only. A qualified contractor shall perform such tasks and provide written documentation of the results. Initial and date when completed. Retain records of qualified contractor as part of the Fire Safety Plan.

FIRE EXTINGUISHERS	**Initial**	**Date**
Perform the required annual and subsequent inspections, tests and maintenance of all portable fire extinguishers in accordance with the BC Fire Code (2018) Part 6 and NFPA 10 " Portable Fire Extinguishers" (2013)		
FIRE ALARM SYSTEMS	**Initial**	**Date**
Perform the required annual and subsequent inspections, tests and maintenance of fire alarm system in accordance with the BC Fire Code (2018) Part 6 and CAN/ULC S-536 “Inspection & Testing of Fire Alarm Systems” (2013)		
SPECIAL FIRE SUPRRESSION SYSTEMS (SEMI-ANNUAL)	**Initial**	**Date**
Perform the required annual and subsequent inspections, tests and maintenance of fire alarm system in accordance with the BC Fire Code (2018) Part 6 and NFPA-17 “Dry Chemical Fire Suppression Systems”		
EMERGENCY POWER SYSTEMS AND UNIT EQUIPMENT	**Initial**	**Date**
BATTERY PACKS – BC Fire Code (2018) Part 6 and CAN/CSA – C282 “Emergency Electrical Power Supply for Buildings” (2009)		
SPRINKLER / STANDPIPE/ FIRE PUMP / FIRE HYDRANT SYSTEMS	**Initial**	**Date**
Perform the required annual and subsequent inspections, tests and maintenance of all sprinkler system in accordance with the BC Fire Code (2018) Part 6 and NFPA 25 " Water Based Fire Protection Systems" (2014)		
CHIMNEYS, FLUES and FLUE PIPES	**Initial**	**Date**
Inspect annually in accordance with BC Fire Code (2018) Division B Part 2 to identify dangerous conditions; Clean as often as necessary as determined by inspection.		
HEATING AND VENTILATING EQUIPMENT (BUILDING)	**Initial**	**Date**
Operate system disconnect switch annually to ensure shut-down reliability in accordance with BC Fire Code (2018) Division B Part 2.		
SIGNS, NOTICES, PLACARDS – Fire Safety Director or designate to examine Signs required by the BC Fire Code (2018) to be examined: (Instruction to Occupant signs, fire door keep closed signs, water based fire protection valve identification signs, stair identification signs, hazard warning signs, fire protection/prevention notices, no smoking signs, street address numbers, etc.) • In place and in proximity to situation to which it refers • Conditions have not changed, warranting update/removal of sign, notice and/or placard • No damage and legible		

*** Retain a completed copy of this checklist and the records of the qualified contractor for at least 2 years

Fire Safety Director or designate acknowledges completion of Annual Requirements for the year 20_____

Name: (print) _____

Signature: _____

ANNUAL REVIEW OF FIRE SAFETY PLAN

Regulated by BC Fire Code (2018) Division B Part 2	
❒	Fire Safety Plan is kept in a readily accessible location for use by Fire Department?
❒	Fire Safety Director information current?
❒	Deputy Fire Safety Director information current?
❒	Floor Warden information current? (If appointed)
❒	Fire Safety Director's daily, weekly, monthly inspections of fire protection equipment and life safety components being recorded?
❒	Fire drills and fire drills for supervisory staff completed and recorded?
❒	Emergency contact information is up to date?
❒	Fire protection equipment service contractor contact information up to date?
❒	Have changes to the building been incorporated into the Fire Safety Plan?
❒	Have changes/replacements to fire and life safety equipment been incorporated into the Fire Safety Plan?
❒	Has a false alarm, fire alarm activation, fire or near-miss warranted evaluation and update to Plan?
❒	Have all other changes been incorporated into the Fire Safety Plan?
❒	Have changes/revisions to the Fire Safety Plan been forwarded to the Fire Department for review?
❒	Have changes/revisions to the Fire Safety Plan been distributed to person appointed to have some responsibility within the Plan?
❒	Fire Safety Plan is kept in a readily accessible location for use by Fire Department or designated persons?
❒	Other (specify)

** Retain copy of completed form for at least two years.

** Retain copy of completed form for at least two years.

Fire Safety Director acknowledges completion of Fire Safety Plan annual review requirements

Fire Safety Director Name: (print) _____

Fire Safety Director Signature: _____ Date: _____

FIRE WATCH CHECKLIST

Date: ___/___/___	Fire Watch by:	Start Time _____:_____
Fire Watch responsibility **Frequency: 60 minutes each complete tour**		Finish Time _____:_____

On a Fire Watch tour, check for the following:

Item	General Description	✓ OK X ATTENTION REQD.	Fire Safety Director Contacted
1	Fire Watch in place: (identify area(s) of responsibility)		
2	There is smoke, or a strong smell of smoke, or other evidence of a possible fire or life safety hazard.	Call for evacuation Call Fire Department 911	
3	See Floor Plan and Fire Safety Plan: ❒ Designated fire department access routes clear of obstruction ❒ Designated firefighter path of travel to response point clear of obstruction		
4	Access pathway to safe open area away from building is clear of obstructions, materials, equipment, etc.,		
5	Waste/recycling materials are not accumulating in a manner that constitutes a fire hazard.		
6	Fire extinguishers are not obstructed, missing or damaged.		
7	Smoking not permitted, except in designated outside areas		
8	Unauthorized persons or vehicles prevented from affected areas		
9	Fire alarm annunciator displays as alarm and trouble free, except as authorized by the Fire Department.		
OTHER (Describe)			

*** Use Log Record on next page to document Fire Watch

FIRE WATCH LOG

System out of Service	Identify: _____	Date: _____ Time: _____
Fire Watch Commenced	Date: _____ Time: _____	Assigned to:_____ Contact #: _____
Alarm Monitoring Notified	Name: _____ Tel: _____	Date: _____ Time: _____
System Back in Service	Date: _____ Time: _____ Alarm Monitoring Notified: ❒ Yes ❒ No	

CHECK INTERVALS	FIRE WATCH PERSONNEL	ACTIVITY/LOCATION	COMMENTS
00:00			
00:30			
00:00 **(1 hour)**			
00:30			
00:00 **(2 hours)**			
00:30			
00:00 **(3 hours)**			
00:30			
00:00 **(4 hours)**			
00:30			
00:00 **(5 hours)**			
00:30			
00:00 **(6 hours)**			
00:30			
00:00 **(7 hours)**			
00:30			
00:00 **(8 hours)**			
00:30			
00:00 **(9 hours)**			
00:30			
00:00 **(10 hours)**			
00:30			
00:00 **(11 hours)**			
00:30			
00:00 **(12 hours)**			

Start a new log sheet every 12 hours

FIRE DRILL REPORT

SIMPLIFIED FIRE ALARM ACTIVATION OR FIRE DRILL REPORT		
Date:	**Time:**	**Location:**
Comprehensive Fire Drill ☐ Silent Fire Drill ☐ Table Talk Drill ☐ Other ☐: _____		

INSTRUCTIONS - The Fire Safety Director (FSD) or appointed designate is responsible for conducting a FIRE DRILL at least once per year. Additional silent or table-talk fire drills may be conducted to reinforce fire response actions. During the fire drill, the FSD or designate shall monitor occupant responses and assessing building features during the fire drill and at any time the fire alarm audible signal activates. A copy of this completed record must be retained for a period of at least two (2) years for Fire Department review.

ASSESSMENT OF PERSONS DISCOVERING FIRE / RESPONDING TO FIRE ALARM SIGNAL

Describe fire drill scenario:

Fire Alarm Activation Yes ☐ No ☐	How was fire alarm activated or simulated? _____	**Yes**	**No**
Were people in immediate danger as simulated by fire drill, evacuated? Affected Zone(s) evacuated? Notes:			
Was the fire department called or notified (simulated) as required by "*Instruction to Occupants*" procedures?			
Did person(s) discovering fire evacuate to "safe" area within building OR by nearest "safe" exit to exterior?			
Did sufficient occupants respond and assist to evacuate endangered occupants in an organized and timely manner?			
Were drill instructions clear? Was fire drill scene supervision appropriate?			
Horizontal evacuation to another safe part of the building? Vertical Evacuation?			

Comments/observations/recommendations on emergency responses:

Assessment of Actions	**Yes**	**No**
Was the fire department notified of the fire drill by phone promptly and correctly?		
Were "*Instruction to Occupants*" provided prior to the fire drill?		
Did designated staff respond correctly to provide fire department assistance and access?		

If "No" was answered for question(s) above, provide comments/observations/recommendations:

Did occupants respond properly to the simulated fire alarm signal?	**Yes**	**No**
A) Evaluated risk prior to evacuation?		
B) Evacuated to "safe" area within building OR by nearest "safe" exit to exterior?		
C) Assembled clear of building and traffic flow at designated evacuation assembly area?		
D) Called Fire Department at 911 (simulated)?		

If "No" was answered for question(s) above, provide comments/observations/recommendations:

Fire Safety Director or Designate:

Print Name:

Signature: _____ Date: _____

PART 6 – LEGAL BASIS FOR FIRE SAFETY PLANNING

Although all provisions of Section 2.8 of the BC Fire Code (2018) will not apply to all buildings, it is reproduced in its entirety herein for information purposes. In British Columbia, the Fire Services Act stipulates the requirements for fire prevention within the province. The BC Fire Code is pursuant to the Fire Services Act and requires that emergency planning and fire safety planning be done as follows: (Applicable sections shown)

2.8.1. General

2.8.1.1. Application

a) Not applicable,
b) Every building required by the British Columbia Building Code to have a fire alarm system,
c) Not applicable,
d) Storage areas required to have a fire safety plan in conformance with Articles 3.2.2.5. and 3.3.2.9.,
e) areas where flammable liquids or combustible liquids are stored or handled, in conformance with Article 4.1.5.5., and
f) areas where hazardous processes or operations occur, in conformance with Article 5.1.5.1.

2.8.1.2. Training of Supervisory Staff

1) Supervisory staff shall be trained in the fire emergency procedures described in the fire safety plan before they are given any responsibility for fire safety.

2.8.1.3. Keys and Special Devices

1) Any keys or special devices needed to operate the fire alarm system or provide access to any fire protection systems or equipment shall be readily available to on-duty supervisory staff.

2.8.2. Fire Safety Plan

2.8.2.1. Measures in a Fire Safety Plan

1) In buildings or areas described in Article 2.8.1.1., a fire safety plan conforming to this Section shall be prepared in cooperation with the fire department and other applicable regulatory authorities and shall include
    a) the emergency procedures to be used in case of fire, including
        i) sounding the fire alarm
        ii) notifying the fire department,
        iii) instructing occupants on procedures to be followed when the fire alarm sounds,
        iv) evacuating occupants, including special provisions for persons requiring assistance (see Appendix A - Below),
        v) confining, controlling and extinguishing the fire,
    b) the appointment and organization of designated supervisory staff to carry out fire safety duties,
    c) the training of supervisory staff and other occupants in their responsibilities for fire safety,
    d) documents, including diagrams, showing the type, location and operation of the building fire emergency systems,
    e) the holding of fire drills,
    f) the control of fire hazards in the building, and

g) the inspection and maintenance of building facilities provided for the safety of occupants.

2) The fire safety plan shall be reviewed at intervals not greater than 12 months to ensure that it takes account of changes in the use and other characteristics of the building.

2.8.2.5. Retention of Fire Safety Plans

1) The fire safety plan shall be kept in the building for reference by the fire department, supervisory staff and other personnel.
2) Not applicable.

2.8.2.6. Distribution

1) A copy of the fire emergency procedures and other duties for supervisory staff, as laid down in the fire safety plan, shall be given to all supervisory staff.

2.8.2.7. Posting of Fire Emergency Procedures

1) At least one copy of the fire emergency procedures shall be prominently posted on each floor area.
2) through 5) Not applicable.

2.8.3. Fire Drills

2.8.3.1. Fire Drill Procedures

1) The procedure for conducting fire drills shall be determined by the person responsible in charge of the building, taking into consideration
a. the building occupancy and its fire hazards,
b. the safety features provided in the building,
c. the desirable degree of participation of occupants other than supervisory staff,
d. the number and degree of experience of participating supervisory staff,
e. Not applicable, and
f. the requirements of the fire department.

2.8.3.2. Fire Drill Frequency

1) Fire drills as described in Sentence 2.8.3.1.(1) shall be held at intervals not greater than 12 months for the supervisory staff

PART 6 – DEFINITIONS

Definitions that form an important part of this Fire Safety Plan. All other words shall have the meaning as described in the Webster's Canadian Dictionary.

Access to exit means that part of a means of egress within a floor area that provides access to an exit serving the floor area.

Authority having jurisdiction means the fire commissioner, inspectors and local assistants to the fire commissioner (LAFC). The LAFC is typically the Fire Inspector.

Class A fire means a fire involving combustible materials such as wood, cloth and paper.

Class B fire means a fire involving a flammable liquid or combustible liquid, fat or grease.

Class C fire means a fire involving energized electrical equipment.

Combustible liquid means a liquid having a flash point at or above 37.8°C and below 93.3°C.

Dangerous goods means those products or substances that are regulated by the Transportation of Dangerous Goods Act and its Regulations.

Exit means that part of a means of egress, including doorways, that leads from the floor area it serves to a separate building, an open public thoroughfare, or an exterior open space protected from fire exposure from the building and having access to an open public thoroughfare.

Fire Protection Equipment means, but is not limited to fire alarm systems, automatic sprinkler systems, special extinguisher systems, portable fire extinguishers, standpipe and hose systems and fixed pipe fire suppression systems.

Fire Protection Technician means a person who has provided the **Fire Department** with acceptable documentation from the agency known as the Applied Science Technologist and Technicians of British Columbia (or as deeded acceptable the Fire Chief) that qualifies him/her to perform inspections and testing on **Fire Protection Equipment**;

Fire Safety Director (FSD) means the appointed supervisory staff member who has responsibility for the administration and maintenance of our Fire Safety Plan.

Flammable liquid means a liquid having a flash point below 37.8°C and having a vapour pressure not more than 275.8 kPa (absolute) at 37.8°C as determined by ASTM D 323, "Vapour Pressure of Petroleum Products (Reid Method)."

Flash point means the minimum temperature at which a liquid within a container gives off vapour in sufficient concentration to form an ignitable mixture with air near the surface of the liquid.

Major occupancy means the principal occupancy for which a building or part thereof is used or intended to be used and shall be deemed to include the subsidiary occupancies that are an integral part of the principal occupancy. The major occupancy classifications used in the Building and Fire Codes applicable to this facility are as follows:

- **D** Business and personal services occupancies (office areas)
- **F2** Medium-hazard industrial occupancies
- **F3** Low-hazard industrial occupancies

Means of egress means a continuous path of travel provided for the escape of persons from any point in a building or contained open space to a separate building, an open public thoroughfare, or an exterior open space protected from fire exposure from the building and having access to an open public thoroughfare. Means of egress includes exits and access to exits.

Non-combustible construction means that type of construction in which a degree of fire safety is attained by the use of non-combustible materials for structural members and other building assemblies.

Qualified Contractor (see Fire Protection Technician)

Supervisory staff means those occupants of a building who have some delegated responsibility for the fire safety of other occupants under our Fire Safety Plan.

APPENDIX – OPERATIONAL CONSIDERATIONS & HAZARDS

OPERATIONAL HAZARDS

This section identifies operational hazards and fire risks associated with the day to day operation of the facility within the scope of responsibility of the facility owner and/or Fire Safety Director or appointed supervisory staff. This Part also identifies hazards that may be introduced to the facility, workers and outside contractors during repairs, alterations and construction activities imposed by outside contractors or agents.

HOT WORK

This section is applicable to contractors (anyone)that may be doing work in the building. If hot work will be conducted, this section provides information to promote an ongoing fire safe environment.

HOT WORK hazards involve open flames or production of heat or sparks, including, without being limited to, cutting, welding, soldering, brazing, grinding, adhesive bonding, thermal spraying & thawing pipes. All of these actions proved a source of ignition to adjacent combustible materials. Due care and attention is required. Assigning responsibility to those persons performing, supervising and allowing hot work in the building is part of our Fire Safety Plan.

TRAINING

Hot work shall be performed only by personnel trained in the safe use of necessary equipment and implementing safety precautions in conformance with the following:

HOT WORK EQUIPMENT

- Hot work equipment shall be maintained in good operating condition.
- Hot work equipment shall be examined for leakage or defects prior to each use.
- Leaks or defects found in hot work equipment shall be repaired prior to use.
- All valves shall be closed, and gas lines bled when Class 2 gas hot work equipment is not in use.
- Electric hot work equipment shall be de-energized when not in use.

LOCATION OF HOT WORK OPERATIONS

Hot work shall be carried out in an area free of combustible and flammable contents, with walls, ceilings and floors of *non-combustible construction* or lined with non-combustible materials.
When it is not practicable to undertake hot work in an area free of combustible and flammable contents, with walls, ceilings and floors of *combustible construction* or lined with combustible materials,
OR
When there is a possibility of sparks leaking onto combustible materials in areas adjacent to the area where hot work is carried out, openings in walls, floors or ceilings shall be covered or closed to prevent the passage of sparks to such adjacent areas,
The following shall apply to protect such areas: (legislated by BC Fire Code)

- Combustible and flammable materials within a 50-foot (15 m) distance from the hot work shall be protected against ignition in a manner acceptable to the authority having jurisdiction,

- a fire watch shall be provided during the hot work and for a period of not less than 60-minutes after its completion, and
- A final inspection of the hot work area shall be conducted 4-hours after completion of work.

The following safety precautions are to be taken to isolate combustible materials or fuel from sparks:

- Clean the exposed floor area, removing grease and oil spill spots.
- Remove flammable liquids like paints, oils and lacquers from the work area. Do not just seal them.
- Protect combustibles that cannot be moved, with fire-resistive tarpaulins or metal shields. This includes all storage or machinery with grease or lint deposits.
- Either eliminate explosive atmospheres or prohibit the hot work. Halt processes that generate explosive atmospheres, and continually monitor the area for accumulations of flammable vapours before, during and after hot work.

PROTECTION OF COMBUSTIBLE AND FLAMMABLE MATERIALS

Any combustible and flammable material, dust or residue shall be:

- Removed from the area where hot work is carried out, or
- Protected against ignition by the use of non-combustible materials.

Combustible materials or *building* surfaces that cannot be removed or protected against ignition shall be thoroughly wetted and maintained wet, where hot work is carried out.
Any process or activity creating flammable gases or vapours, *combustible dusts or combustible fibres* in quantities sufficient to create a fire or explosion hazard shall be Interrupted where hot work is carried out.

FIRE WATCH FOR HOT WORK AREAS

Where hot work is to be performed, the exposed areas shall:

- Be examined for ignition of combustible materials,
- Be examined by personnel equipped with fire extinguishing equipment, and
- Be examined by personnel trained in the use of fire extinguishing equipment.

While the hot work proceeds, the fire watch maintains a constant vigil (even during employee breaks and mealtimes) for stray sparks, ignition or other fire hazards, and is ready to provide initial fire response.

Once work is done, the fire watch remains in the area for one hour, and carefully inspects the work and adjacent areas for smouldering fires. The inspection extends to floors above and below the work and adjacent rooms.

The hot work areas will be monitored for an additional three (3) hours. Acceptable methods of monitoring include video, routine rounds, operations in the area, etc. The appropriate method will depend on local conditions.

When the monitoring period has ended the supervisor or equivalently trained person or designate, conducts a final inspection (at 4-hours).

WORK ON CONTAINERS, EQUIPMENT OR PIPING

Hot work **shall not be performed** on containers, equipment, or piping containing *flammable liquids or combustible liquids* or Class 2.1 flammable gases unless they have been cleaned, **and** are:

- Tested with a gas detector to ascertain that they are free of explosive vapours.
- Hot work **shall not be performed** on a totally enclosed container.
- Hot work **shall not be performed** on metal objects that are in contact with combustible materials unless safety precautions are taken to prevent their ignition by conduction.

WORK ADJACENT TO PIPING

When hot work is to be carried out near piping containing Class 2.1 flammable gas, the piping shall be cleaned, **and**

- Tested with a gas detector to ascertain that they are free of explosive vapours, **or**
- Be protected by a thermal barrier against the passage of heat.

FIRE EXTINGUISHING EQUIPMENT IN A HOT WORK AREA

At least one operationally ready portable fire extinguisher having a 4A-40B:C rating needs to be provided in the hot work area. At least one person in the hot work area needs to be trained in the use of portable fire extinguishers.

HOT WORK SAFE OPERATION PERMIT

BEFORE INITIATING HOT WORK, ENSURE PRECAUTIONS ARE IN PLACE! MAKE SURE AN APPROPRIATE FIRE EXTINGUISHER IS READILY AVAILABLE!

This Hot Work Permit is required for any operation involving open flames or producing heat and /or sparks. This includes, but is not limited to: Brazing, Cutting, Grinding, Soldering, Thawing Pipe, Torch-Applied Roofing and Cad welding.

INSTRUCTIONS	REQUIRED PRECAUTIONS CHECKLIST
A. Verify precautions listed at right (or do not proceed with the work. **B. Complete and retain this permit.**	□ Available sprinklers, hose streams and extinguishers in service and operable. □ Hot work equipment in good repair
HOT WORK BEING DONE BY: □ **EMPLOYEE** □ **CONTRACTOR** _____	**Requirements within 15m (50 feet) of work:** □ Flammable liquids, dust, lint and oil deposits removed. □ Explosive atmosphere in area eliminated. □ Floors swept clean. □ Combustible floors wet-down, covered with damp sand or fire-resistant sheets. □ Remove combustibles where possible; otherwise protect with fire resistant tarps or metal shields. □ All wall and floor openings covered. □ Fire resistant tarps suspended below work.
DATE: _____	
LOCATION/BLDG & FLOOR: _____	**Work on walls or ceilings/enclosed equipment:** □ Construction is non-combustible and without combustible covering or insulation. □ Combustibles on other side of walls moved away. □ Danger not exist by conduction of heat into other area □ Enclosed equipment cleaned of all combustibles. □ Containers purged of flammable liquids/vapours.
NATURE OF JOB/OBJECT: _____	
NAME OF PERSON DOING HOT WORK _____	**Fire watch/Hot work area monitoring:** □ Fire watch will be provided during and for 60 minutes after work, including any coffee or lunch breaks. □ Fire watch is provided with suitable extinguishers. □ Fire watch is trained in the use of this equipment AND in sounding alarm. □ Fire watch may be required for adjoining areas, above and below. □ Monitor hot work area hourly for 4-hours after job is completed.
I verify the above location has been examined, the precautions checked on the Required Precautions Checklist have been taken to prevent fire, and permission is authorized for work. **SIGNED:** _____	
PERMIT EXPIRES: **Date:** _____ **Time:** _____	**Other precautions taken:** □ Confined space entry permit required. □ Area protected with smoke or heat detection. □ Ample ventilation to remove smoke/vapour from work area. □ Lockout/tag out as required.
THIS PERMIT IS GOOD FOR ONE DAY ONLY!	

INDUSTRIAL TRUCKS

** As regulated by BC Fire Code (2018) Division B Part 5

The designation, use, maintenance and operation of industrial trucks (example: forklift, lift truck) shall be compatible with ambient conditions, taking into account the flammability, corrosiveness and explosive nature of normally, occasional and possible atmospheres.

FUEL- FIRED (PROPANE) INDUSTRIAL TRUCKS – TYPE DESIGNATION *LP*

Type Designation LP. An LP-Gas-powered unit that has minimum acceptable safeguards against inherent fire hazards.

WARNINGS:

- Do not operate within 3m of non-sealed or opened drums/containers of flammable liquids (e.g. clean or dirty solvent)
- Do not use to transport non-sealed or opened drums/containers of flammable liquids (e.g. Solvent)

- Each fuel-fired industrial truck needs to be equipped with at least one portable extinguisher having a minimum rating of 2-A:30-B:C.
- Fuel-fired industrial trucks needs to be stored in areas where the vehicles will not create a fire hazard to the storage area.
- Fuel-fired industrial trucks need to be refuelled only at designated locations outside and away from buildings.
- Fuel-fired industrial trucks that are fuelled by replaceable propane cylinders are permitted to have their cylinders replaced indoors provided cylinder replacement is:
    - done at a safe location that is at least 7.5 m from ignition sources, open pits and underground entrances,
    - the cylinders' valves are closed,
    - when an automatic quick-closing coupling that closes in both directions when uncoupled is not provided, the engine is operated until the fuel in the system is consumed, and spare propane cylinders are stored outdoors supported on raised concrete or other non-combustible platforms, and
    - located in an enclosure fenced acceptable to the Fire Department located:
        - not less than 1.5 m from any *building* opening, if the aggregate capacity of expanded gas is not more than 170 m^3,
        - 7.5 m from any *building* opening, if the aggregate capacity of expanded gas is more than 170 m^3 but less than 500 m^3, and
        - 15 m from any *building* opening, if the aggregate capacity of expanded gas is 500 m^3 or more.

PROPANE (LPG)

- Spare cylinders not connected to an appliance (forklift) are to be stored outdoors in a secure cage.
- Cylinders are to be free of corrosion and physical damage. Replace corroded or damaged cylinders.
- Cylinders connected to an appliance are to be connected in accordance with the appliance manufacturer's requirements.
- All equipment shall be installed in accordance with the latest edition of CAN/CGA B149.2 Standard for the Handling and Installation of Propane Gas Equipment.
- Depending on the time and volume of gas required, it may be advantageous to install a larger cylinder instead of several small cylinders. The larger cylinders are more stable and have less chance of being knocked over.
- Always maintain clearances to any combustible materials in accordance with CAN/CGA B149.2.
- Position cylinders so that the pressure relief valve is pointed away from areas the people may gather or where there may be another source of ignition. Never point the relief opening towards a tent or other combustible material.
- Cylinders shall be in an upright position.
- Entrances or exits shall not be blocked.
- Maintain al required clearances as established by the Provincial Gas Safety Branch inspector.
- Protect propane cylinders from any heat source within 6 feet.
- Protect and secure all gas piping and/or hoses
- Use only fittings and fixtures approved by the Gas Inspector.
- Connect cylinders only to LP gas approved appliances.

TRAINING

Only trained and authorized personnel are permitted to:

- Operate industrial trucks,
- Replace or refuel propane cylinders for fuel-fired industrial trucks,
- Refuel fuel-fired industrial trucks

DANGEROUS GOODS - HAZARDOUS MATERIAL COMPATABILITY

** As regulated by BC Fire Code (2018) Division B Part 4

Chemical Storage – General Compatibility

The BC Fire Code regulates the indoor storage of Dangerous Goods. Regulations include provisions for:

- Ignition sources
- Housekeeping
- Storage arrangements
- Spill control
- Ventilation
- Labelling and placards, and
- Separation from other dangerous goods.

The following Table is extracted from the BC Fire Code and is to be used by employees to determine if certain dangerous goods are compatible or non-compatible for storage within the storage container.

Classify the contents intended to be stored in the Hazardous Waste Storage Container.

To determine general compatibility, intersect the vertical (left column) and horizontal column (blue fill) classes for the chemicals in question.

Class[1]	2.1	2.2	2.3	3	4.1	4.2	4.3	5.1	5.2	6	8
2.1	-	P	X	P	P	A	DS	X	X	X	X
2.2	P	-	P	P	P	P	P	P	P	P	P
2.3	X	P	-	X	A	A	DS	A	X	DS	A
3	P	P	X	-	P	A	A	X	X	DS	A
4.1	P	P	A	P	-	A	DS	X	X	DS	A
4.2	A	P	A	A	A	-	DS	X	X	DS	A
4.3	DS	P	DS	A	DS	DS	-	X	X	DS	X
5.1	X	P	A	X	X	X	X	-	X	A	X
5.2	X	P	X	X	X	X	X	X	-	X	X
6	X	P	DS	DS	DS	DS	DS	A	X	-	A
8	X	P	A	A	A	A	X	X	X	A	-

X = Incompatible goods: do not store goods together in the same *fire compartment.*

A = Incompatible goods: separate goods by a horizontal distance of not less than 1 m.

P = Permitted: goods are permitted to be stored together.

DS = Refer to Material Safety Data Sheet.

Where classes of dangerous goods are deemed to be “incompatible” separate by at least 1-meter lateral distance as indicated or, where the Table indicates storage to be in another ‘fire compartment’, separate into another Hazardous Waste Storage Container.
Check MSDS where indicated “X”.

Dangerous Waste typically includes Class 2.1, 3, 4.1, 4.2, 6.1 and 9

FLAMMABLE LIQUIDS – GENERAL

** As regulated by BC Fire Code (2018) Division B Part 4

This section describes “general” safe work practices to use where flammable and combustible liquids are used or stored.

Refer to Material Safety Data Sheets (MSDS) for all hazards (fire, health, chemical reactivity) of these materials before use or making any changes.

FLAMMABLE AND COMBUSTIBLE LIQUIDS CLASSIFCATIONS

Flammable liquids needs to be Class I liquids, are subdivided into classifications for Fire Code purposes:

- **Class IA liquids**, include those having a flash point below 22.8°C and a boiling point below 37.8°C,
- **Class IB liquids**, include those having a flash point below 22.8°C and a boiling point at or above 37.8°C, and
- **Class IC liquids**, include those having a flash point at or above 22.8°C and below 37.8°C.

Combustible liquids are Class II or Class IIIA liquids, and are subdivided into:

- **Class II liquids**, which include those having a flash point at or above 37.8°C and below 60°C, and
- **Class IIIA liquids**, which include those having a flash point at or above 60°C and below 93.3°C.

IGNITION SOURCES

For a flammable or combustible liquid fire to start, a mixture of vapour and air must be ignited. There are many possible ignition sources:

- Sparks from electrical tools and equipment.
- Sparks, arcs and hot metal surfaces from welding and cutting.
- Smoking.
- Open flames from portable torches and heating units, boilers, pilot lights, ovens, and driers.
- Hot surfaces such as boilers, furnaces, steam pipes, electric lamps, hot plates, irons, hot ducts and flues, electric coils and hot bearings.
- Embers and sparks from incinerators, fireboxes and furnaces.
- Sparks from grinding and crushing operations.
- Sparks caused by static electricity from rotating belts, mixing operations or improper transfer of flammable or hot combustible liquids.

SPONTANEOUS COMBUSTION

Spontaneous combustion occurs when a material in contact with air can heat up sufficiently (without an outside heat source) to burn. The oils in some wastes and rubbish can slowly react with oxygen in the air. This reaction creates heat that can build up over time if the wastes are left undisturbed. When the heat level in a "self-heating material" is high enough (i.e., when the temperature reaches the auto-ignition temperature), a fire may start. For example, rag soaked with oil in the bottom of a pail could heat up enough to cause spontaneous combustion of the rag.

VENTILATION

Well-designed and maintained ventilation systems remove flammable vapours from the workplace and reduce the risk of fire and health problems. The amount and type of ventilation needed to minimize the hazards of flammable and combustible liquid vapours depend on such things as the kind of job, the kind and amount of materials used, and the size and layout of the work area.

If flammable vapours are likely to condense, the ducts should have welded joints. Other workplaces may only require a single, well-placed exhaust fan. Use non-ferrous fan blades and shrouds (housing), and explosion-proof electrical equipment in ventilation systems for these liquids. Regular cleaning of the ducts, filters, plenums, etc. will decrease the severity of any fires and will reduce the likelihood of spontaneous combustion if some self-heating material is present. Ventilation equipment used to handle solvent vapours should meet the relevant fire code requirements.

If the ventilation keeps vapour levels below the occupational exposure limit of a chemical, usually there is little risk of fire or explosion. Vapour levels harmful to people are, in most cases, much below the lowest concentration of vapour in air that can burn. Check the MSDS information for specific details

FLAMMABLE AND COMBUSTIBLE LIQUID CONTAINERS

Store flammable and combustible liquids according to the BC Fire Code (2018). The Fire Code specifies the kinds of storage areas, such as storage rooms and cabinets, allowed for these liquids. The Fire Code also specifies how to construct these storage areas and the amounts of flammable and combustible liquids in different types of containers that you can store in each kind of storage area. See Flammable liquids storage audit checklist.

In all cases:

- Allow only trained, authorized people into storage areas.
- Before storing, inspect all incoming containers to ensure that they are not damaged and are properly labelled. Do not accept delivery of defective containers.

- Store containers of flammable and combustible liquids separately, away from process and production areas, and away from other materials. This separation will reduce the spread of any fire to other materials in storage. It will also protect the stored flammable and combustible liquids from exposure to fires in other areas, and accidental contact with incompatible materials.
- Keep containers closed when not in use.
- Keep the amount of materials in storage as small as possible. It is a good practice to keep no more than one day's supply of flammable and combustible liquids in the immediate work area. Return any leftover material to the proper storeroom or storage cabinet at the end of the day.

Store flammable and combustible liquids in areas that are:

- Well ventilated to reduce vapour concentrations.
- Free of ignition sources.
- Cool (temperature controlled) and dry.
- Supplied with adequate firefighting and spill clean-up equipment (including clean spark resistant tools for collecting spills).
- Away from exits, or main aisles leading to exits.
- Accessible by firefighters.
- Labelled with suitable warning signs. For example: "No Smoking".

Inspect storage areas regularly for any deficiencies such as damaged or leaking containers, poor ventilation or non-approved equipment. Unapproved modifications or damage to approved or explosion-proof equipment or systems could result in unintended hazardous conditions. Correct all deficiencies as soon as possible.

TYPE OF CONTAINERS

Use approved, properly labelled safety containers when working with flammable and combustible liquids. "Approved" containers are containers that have been approved by testing laboratories acceptable to government enforcement agencies. These laboratories include Underwriters Laboratories of Canada (ULC), Canadian Standards Association (CSA) and Factory Mutual Research (FM).

CONTAINER LABELS

Properly label all containers used for flammable and combustible liquids. This helps prevent accidentally mixing one chemical with another and reduces the chances of mistaking one liquid for another. Plainly mark the name of the liquid and its hazard on the container. Keep the label clean so that it can be easily seen at all times. Never use a container for any liquid except the one that is marked on the label.

DISPENSING FLAMMABLE AND COMBUSTIBLE LIQUIDS

Take care when dispensing or transferring flammable and combustible liquids from one container to another. Dispense from only one container at a time. Finish dispensing one material before starting to dispense another. Be sure containers are closed after dispensing to control hazardous vapours and to avoid accidental spills. Approved transfer pumps and drum faucets that cannot be left running accidentally are available. Check these devices periodically to be sure that they work properly and do not leak.

- Use an approved safety drip can below each drum faucet to catch spills or drips from worn or damaged faucets, replace valves if drips are excessive.
- Never dispense flammable and combustible liquids near ignition sources. When dispensing in an open area, ensure that it is done at least 20 feet (6 meters) away from any ignition sources.
- Always make sure that metal containers are bonded and grounded when dispensing.
- Never transfer liquids by pressurizing their usual shipping containers with air. The pressure may damage ordinary drums and barrels or create a flammable atmosphere inside the containers.
- Mark dispensing areas with suitable warning signs.

DISPOSING OF WASTE FLAMMABLE LIQUIDS

Store waste flammable and combustible liquids in the same way as unused flammable and combustible liquids. Clean drums made of compatible material can be used to store waste liquids if they are vented, grounded and bonded similarly to dispensing drums.

Approved safety disposal cans are also available for waste liquids from safety equipment retailers. Do not overfill them and empty them at least at the end of every workday to reduce the chance of spontaneous combustion. Clearly label all waste containers with their contents.

BASIC SAFETY PRACTICES FOR FLAMMABLE AND COMBUSTIBLE LIQUIDS

Following these basic safe practices will help protect you from the hazards of flammable and combustible liquids:

- Obtain and read the relevant Material Safety Data Sheets (MSDS).
- Be aware of all of the hazards (fire/explosion, health, chemical reactivity) of the materials you work with.
- Know which of the materials that you work with, are flammable or combustible liquids. (Flammable being more volatile.)
- Avoid or eliminate ignition sources (sparks, smoking, flames, hot surfaces) when working with flammable and combustible liquids.
- Store, handle and use flammable and combustible liquids in well-ventilated areas.

- Use approved equipment, including labelled safety containers, for flammable and combustible liquids.
- Keep containers closed when not in use.
- Bond & ground metal containers when transferring flammable/combustible liquids.
- Wear the proper personal protective equipment for each of the jobs you do.
- Know how to handle emergencies (fires, spills, personal injury) involving the flammable and combustible liquids you work with.

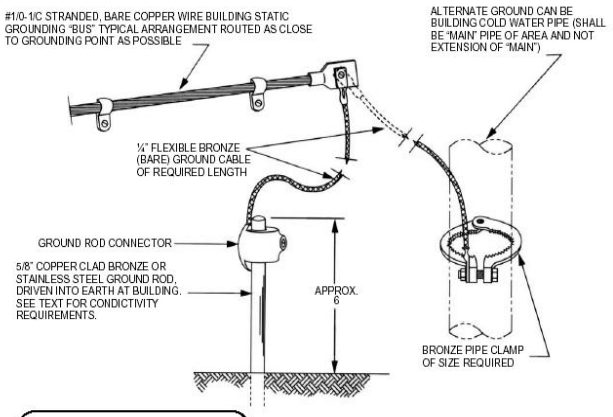
CONTROL OF STATIC ELECTRIC CHARGE

(See Static Electricity Bonding and Grounding schematics on next page

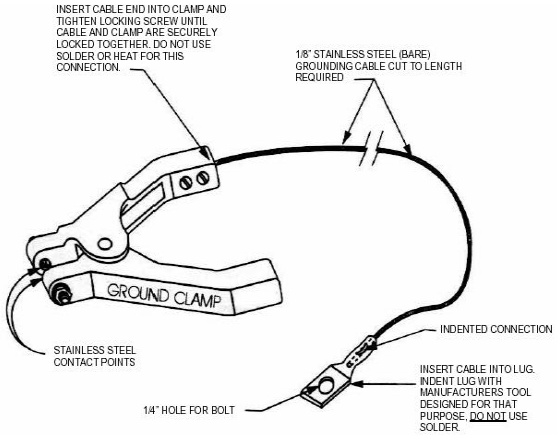
When flammable liquids are dispensed from or into a container:

- Made of metallic or electrically conducting material, such container or tank needs to be electrically connected to the fill stem, or rest on a conductive floor that is electrically connected to the fill stem, or
- If the container or tank is made of non-electrically conducting material, measures need to be taken to minimize the potential for static electric charge to develop.

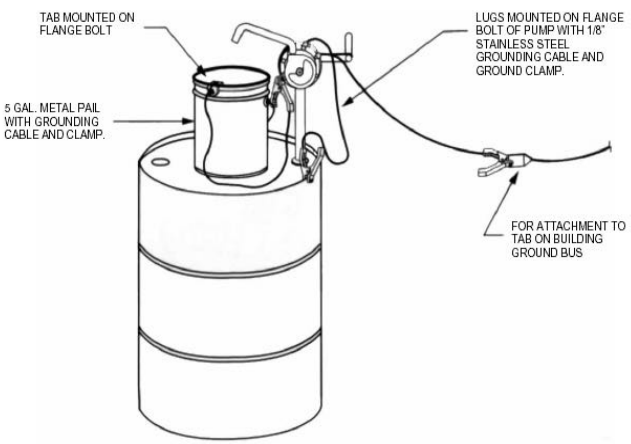
GROUND CONNECTION OF BUILDING GROUND BUS – TYPICAL ASSEMBLY



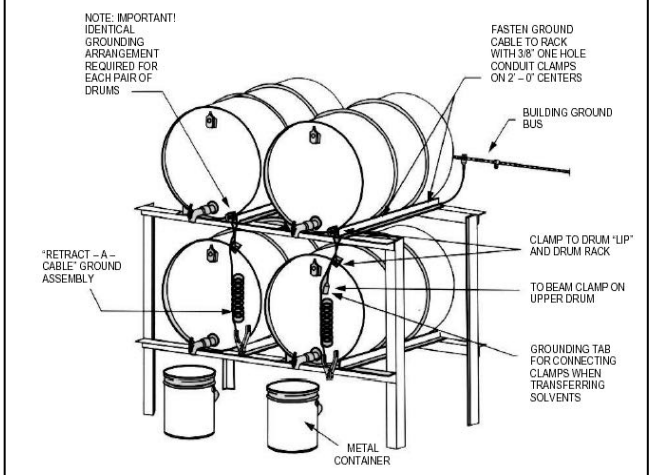
SMALL GROUND CLAMP TYPICAL ASSEMBLY



GROUNDING SYSTEM FOR SMALL VOLUME SOLVENT HANDLING – TYPICAL ASSEMBLY



STATIC GROUNDING OF 55 GALLON DRUMS IN STORAGE RACK – TYPICAL ASSEMBLY



FLAMMABLE / COMBUSTIBLE LIQUIDS OR COMPRESSED GAS LEAK

LIQUID SPILL / LEAK CONTROL

A spill / leak of flammable/combustible liquids is to be prevented from flowing outside the spill area and from reaching waterways, sewer systems and potable water sources, adjacent properties, means of egress, air intakes and firefighting equipment, by:

- Using products, materials and methods identified on manufacturer's product material safety data sheets (MSDS), and
- Materials contained in Spill Kits.

Minor Spill: A minor spill is small enough that it can be safely cleaned up using the spill kit.

Major Spill: A major spill is one that cannot be contained safely with the materials on the site and/or threatens to enter the sewer system or travel beyond the boundaries of the work area to endanger the environment.

The Fire Safety Director shall ensure that persons handling flammable or combustible liquids and compressed gases are adequately trained. At least one person is to be in responsible charge during operating hours, and available to respond to a day or night emergency.

The person in responsible charge of using a flammable/combustible liquid or compressed gas is to be trained in the correct procedures for the handling and storing of *dangerous goods* in accordance with:

- BC Fire Code (2018)
- "Transportation of Dangerous Goods Regulations," and
- "Workplace Hazardous Materials Information System" (WHMIS) available from WorkSafeBC.

RESPONSIBILITIES

WORKER

- Be prepared, evaluate, take control, call for help, respond/take action, follow up
- Ensure own personal safety and that of other workers in the vicinity of the spill/leak.

SUPERVISOR

- Supervise clean up
- Conduct follow up investigation, report incident to facility manager, corrective actions taken, disposal of cleanup materials, spill kits restocked, provide directives

FACILITY MANAGER

- Complete off-site notification protocols to appropriate agencies and Seaspan departments

SPILL OR COMPRESSED GAS LEAK- GENERAL PROCEDURES

TASK	RESPONSIBILTY
BE PREPARED • Know where spill kits are located and what they contain • Know where appropriate shut-off valves are on equipment • Know how to estimate the amount of a spill • Know the location of designated areas for waste disposal • Monitor storage areas, cylinders, tanks and other containers • Use preventative measures (i.e., designated storage areas, collision protection, proper storage containers, etc.) • Have safety and personal protective equipment readily available • Know the characteristics of the materials stored or used in your area (i.e., flammability, compatibility/reactivity, rocketing of cylinders, vapour toxicity, etc.) REFER to MSDS • Review plans/procedures for working in areas where hazardous materials are used/stored	Spill or Leak Identifier (Staff member, employee, contractor, etc.)
EVALUATE THE HAZARD • Consider the potential hazards to yourself, others and natural • and company resources • Evacuate if necessary and sound alarm(s) if required (100 metre evacuation radius recommended for compressed gas). • Stay upwind and away from low areas where gases may accumulate. • Determine the type of spill/gas leak. • Locate source of spill. • Estimate the size of the spill. • Do not touch or walk through gas or liquefied gas as it may cause burns, asphyxiation or health problem.	
TAKE CONTROL • Secure the area and warn others of hazards. • Move resources at risk out of danger where possible. • Remove ignition sources and shut down appropriate machinery. • Delegate people to tasks as necessary.	
CALL FOR HELP • Call your Supervisor and report: • Time of spill/leak • Location of spill/gas leak • Type of product involved • Origin or source of spill/gas leak • Size of spill/gas leak • Sensitive resources nearby	
RESPOND / TAKE ACTION • Follow directions of Supervisor. • Evacuate the area if required. • Take every precaution to prevent injury to yourself and others . • Act quickly but safely. • Avoid exposure to the product and wear appropriate personal protective equipment. • Isolate or stop the gas leak/spill flow if safe and feasible to do so • Contain spill from spreading (e.g., block drains, dam puddles, build barriers, etc.). • Divert water away from the area. • Use sorbent pads, booms, sandbags, plastic sheets, floor-dry as required. **Where spill is to water:** • Deploy containment boom across ditch or stream if possible • Place a string of boom-sticks immediately around the spill area to contain the released material as much as possible. • Surround the spill with a containment boom.	
FOLLOW UP • Describe all details of the incident to your Supervisor. • Dispose of cleanup materials in proper designated containers. • If directed by management, clean up contaminated soil and dispose of in an approved manner. • Restock spill kit.	

SPILLS / LEAKS TRAINING NEEDS

- Supervisors identify training needs for key personnel in the Workplace Hazardous Materials Information System (WHMIS) on an ongoing basis and ensure they are appropriately trained.
- Supervisors identify training needs for key personnel in Transportation of Dangerous Goods (TDG) on an ongoing basis and ensure they are appropriately trained every 3 years.
- Supervisors review spill response procedures, including cleanup, with all employees annually as described in the preceding sections.
- Training is documented in the Training database (or equivalent).

DRILLS OR TESTS OF SPILL / LEAK RESPONSE PROCEDURES

Drills or tests of the spill response procedures are to be completed once per year (an incident is considered a test). This exercise should involve all aspects of spill response, including disposal and cleanup. Some examples of drills and tests include:

- Responding to spilled material (e.g., a large pail of water)
- Setting up absorbent boom across a ditch or waterway
- Placing boom-sticks and a containment boom around a specified area on the water
- Tailgate exercises to discuss response to specific spill scenarios.
- Drills are documented in the minutes of the facility's Environment Committee Meeting.
- Spill Kit Requirements
- Supervisors and workers ensure that spill response materials and equipment are readily available to equipment, machines and personnel.

LEAKS INVOLVING HYDRAULIC EQUIPMENT

- Ground all hydraulic components and park machine with consideration for access to the hydraulic leak.
- Shut off machine.
- Cautiously relieve pressure from hydraulic tank, where possible.
- Once pressure relieved, reseal hydraulic tank to create a vacuum.
- Connect vacuum pump to hydraulic tank, if equipped (standard with all new machines).
- Seal leak as well as possible.
- Surround area with sorbent pads.
- Notify Supervisor.
- Notify maintenance, indicating type of leak and approximate amount of hydraulic oil required.

SHIPPING CONTAINER USED FOR STORAGE - EVALUATION CHECKLIST

Location of Shipping Container:
Distance to Building:
Distance to Unprotected Building Openings:
Distance to Property Line"

REGULATED BY BC FIRE CODE (2018) DIVISION B PARTS 3 and 4

In general, shipping containers are intended for transportation of product and/or temporary storage on a property while awaiting unloading. When used for storage of materials, the following requirements are applicable, otherwise remove from the property.

GENERAL REQUIREMENTS

❒ No electrical service to or within a container unless it exceeds all requirements of the BC Building, Fire and Electrical Codes for explosive/moist/wet environments. It must be fully explosion proof and tested regularly to ensure compliance.

❒ Dangerous Goods storage shall be restricted to materials that are declared and accepted at the Fire Department Permit stages. Any changes to the types of dangerous goods must be approved by the Fire Department.

❒ No smoking allowed in or within 6 m of the shipping container(s).

❒ Where flammable and/or combustible liquids are stored in the container, combustible materials shall be removed, provisions for spill containment installed and the container shall be grounded. The dispensing of flammable liquids is prohibited in the shipping container.

❒ Compressed gases shall not be stored in the shipping containers. Limited amounts of aerosols may be stored in the shipping container, only when stored in metal cabinets acceptable to the Fire Department.

❒ Shipping containers shall not be installed under power lines.

LOCATION REQUIREMENTS

❒ Minimum separation of 3 m between any combustible structure or 1.5 m between any non-combustible structure and the container
❒ Container is located at least 6 m from exits, windows or unprotected openings in the exposed building(s) or outdoor storage areas; Greater separation distances may be required based upon exposure to specific combustible materials or structure. (Fire Department review required)
❒ Container doors are positioned such that they face away from any other structure
❒ Container doors positioned such that they face away from any means of road access to the container for fire personnel
❒ No combustible materials, including standing vegetation within 3 m of the container.

IDENTIFICATION

❒ UN Placards for all stored Dangerous goods must be visible on the two container sides most visible to emergency responders
❒ The name of the company/person responsible for the storage and an emergency telephone contact number must be marked on the container in lettering visible from 10m
❒ Container and contents must be identified in our Fire Safety Plan

VENTILATION – When used for storage of ANY Flammable and/or Combustible liquids

Container less than 6 m length:

❒ At least one ventilation opening must be added within 150 mm of the floor in the container door primarily used for opening
❒ At least one ventilation opening must be added within 150 mm from the top of the container on the opposite end from the doors for cross ventilation. The high ventilation opening cannot be directly venting toward a structure
❒ Ventilation opening are NOT obstructed at any time and are kept clean of internal and external debris
❒ Ventilation openings to be at least 0.3 m X 0.3 m and will be covered by open grate wire mesh with greater than 50% free area
❒ At least one rooftop turbine vent/wind vent device, designed to generate a venturi effect during low wind speeds must be added at top center of container.

Container more than 6 in length:

❒ At least one ventilation opening must be added within 150 mm of the floor in the container door primarily used for opening
❒ At least one ventilation opening must be added within 150 mm from the top of the container on the opposite end from the doors for cross ventilation. The high ventilation opening cannot be directly venting toward a structure
❒ Ventilation openings are NOT obstructed at any time and are kept clean of internal and external debris
❒ Ventilation openings to be at least 0.5 m X 0.5 and will be covered by open grate wire mesh with greater than 50% free area
❒ Two rooftop turbine vents/wind vent devices, designed to generate a venturi effect during low wind speeds must be added at top center front and rear third of the container.

OPTION:

❒ **Shipping container DOES NOT MEET ALL requirements above. An engineered and documented solution will be presented to the Fire Department to demonstrate meeting objective and intent requirements of BC Fire Code and appropriate standard(s). This will require Professional analysis, appropriate permits and possibly additional work.**

Fire Safety Director or designate acknowledges completion of requirements OR removal from property.

Name: (print) _____ ❒ Complies with ALL requirements

Signature: _____ ❒ Removed from property - Date _____