



General Motors Company

# **BATTERY ABUSE LAB RENOVATION**

General Motors Specifications

**Project Number 1200869 (SPEC-02151)**

**13 November 2015**

**SPEC-02151**



## 15303 - ENCAPSULATOR AGENT CONCENTRATE CONTROL SUPPLY (CCS) SYSTEM SPECIFICATION

### 15303.1 GENERAL

#### 1.1 Summary

- A. Specification covers the supply and certification of complete Encapsulator Agent Concentrate Control Supply (CCS) System design for fire suppression as specified herein.

### 15303.2 PRODUCTS

#### 2.1 Fire Suppression Agent

- A. Fire suppression agent shall meet all of the following requirements.
1. Fire suppression agent shall be F-500 Encapsulator Agent, manufactured by Hazard Control Technologies Inc. or equivalent.
    - a. Installer:
      - 1) Shambaugh & Son, L.P.  
7614 Opportunity Drive  
Fort Wayne, IN 46825  
Phone: 260-487-7777  
Fax: 260-487-7701
- B.
- C.
- D.
- E.
1. Agent shall be UL Listed and/or FM Approved for Class A and Class B applications.
  2. Agent shall be listed and/or approved as a water additive to be mixed with waters from rivers, lakes and sea without compromising the agent's fire suppression efficiency.
  3. Agent shall be 100% bio-degradable.
  4. Agent shall be free of PFOS/PFOA.
  5. Agent shall have a corrosion rate no greater than 200µm/yr as confirmed by a test following EPA SW-846 1110 or equivalent.
  6. Agent shall be listed and/or approved by internationally recognizable agencies, such as U.S. EPA, as a non-toxic agent.
  7. Agent shall be able to extinguish Class A fires without the need for aerating equipment such as compressed air systems or aerating nozzles.

8. Agent shall be able to extinguish Class B fires without the need for creating/maintaining a foam blanket (i.e. "aqueous film") or aerating equipment such as compressed air systems or aerating nozzles.
9. Agent shall be capable of suppressing three dimensional fires.
10. Agent shall have the capability to form micelles to trap hydrocarbons and render them non-flammable as proven by successfully passing the Emulsification Test described in NFPA 18A - Section 7.6.
11. Agent shall be liquid at normal operating conditions.

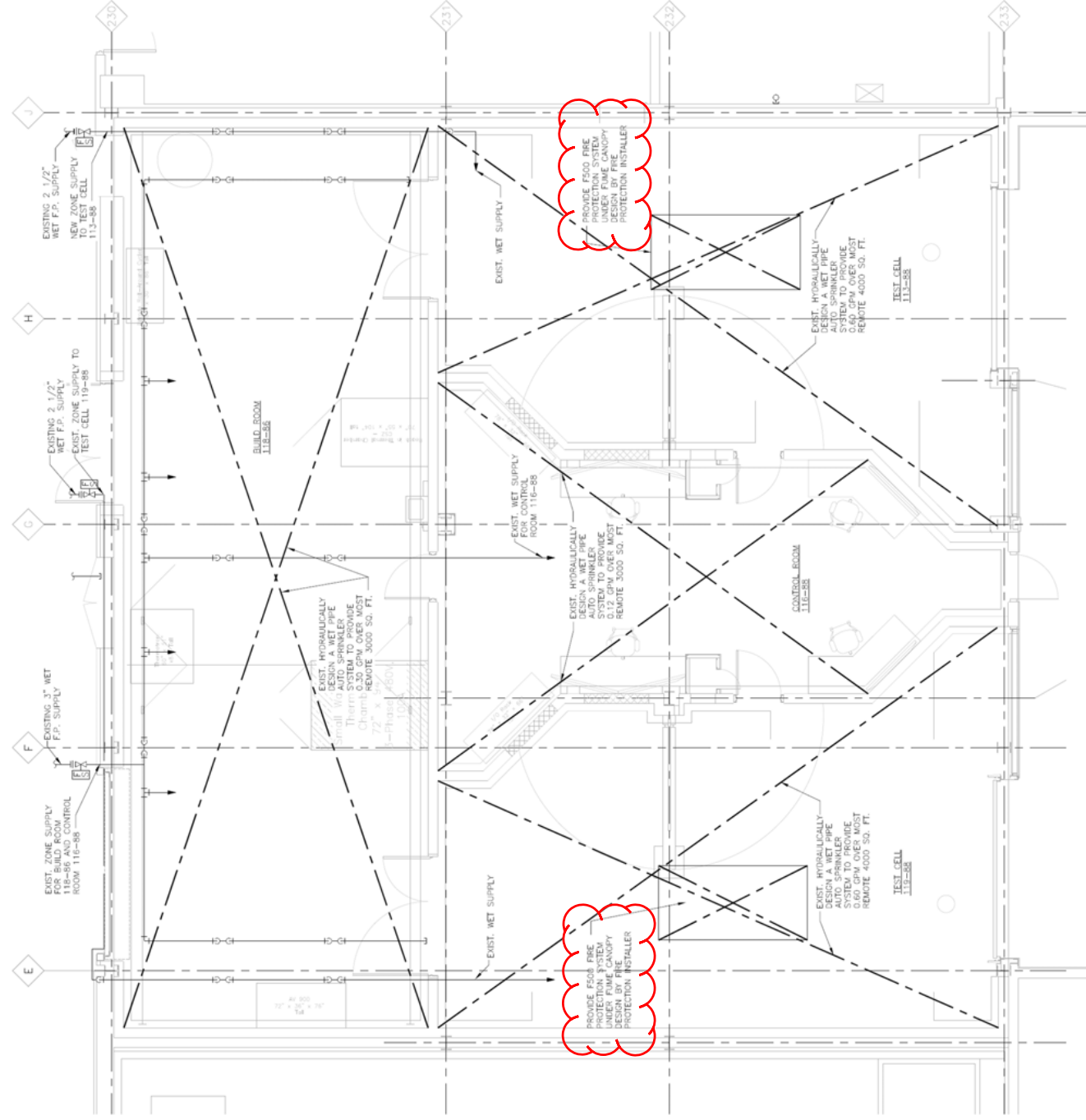
**2.2 System Equipment**

- A. The equipment shall meet all of the following requirements.
  1. Agent tank and bladder shall follow UL Standard for Safety for Foam Equipment and Liquid Concentrates, UL 162.
  2. Agent tank shall be design, constructed, tested, inspected and marked in accordance with Section VIII, Division 1 of the ASME Boiler and pressure Vessels Code, 1986.
  3. Agent tank shall be made of steel with minimum design working pressure of 175 PSI, hydrostatically tested at 1.5 times the design pressure.
  4. Inner concentrate bladder shall be made of flexible vulcanized rubber other than silicone rubber with minimum tensile strength of 1500 PSI and minimum ultimate elongation of 150 percent.
  5. Seams, outlets, end caps and nozzles on inner concentrate bladder shall be made of same material as bladder and shall not use adhesives (e.g. glue, cement, vinyl chloride). Only permitted form of bond is through heat and pressure.
  6. Tank shall be fitted with pressure relief valve designed to relief tank pressure by discharging water at or below design working pressure of tank.
  7. All equipment, including but not limited to tank, bladder, control valves and proportioning devices shall be compatible with chosen agent as specified by agent manufacturer.

**15303.3 EXECUTION****3.1 Services**

- A. Services shall meet all of the following requirements.
  1. System shall be inspected by technician appointed by agent manufacturer prior to commissioning, who shall provide Owner with signed report containing at least items verified and their compliance with manufacturer's specifications.
  2. System shall be commissioned according to agent manufacturer's specification and signed report shall be provided to Owner containing at least agent type and quantity used, proportioning test results and their compliance to design specifications.

**END OF SECTION**



**FIRE PROTECTION FIRST FLOOR PLAN**

- FIRE PROTECTION SCOPE OF WORK NOTES:
- CONTRACTOR SHALL MAINTAIN EXISTING FP COVERAGES AS NOTED ON THIS PLAN.
  - CONTRACTOR SHALL PROVIDE 5'x10' WORKBENCH HOOD (5'x10' AREA) WITH HIGH TEMPERATURE HEADS.
  - CONTRACTOR SHALL COORDINATE INSTALLATION OF F-600 FIRE PROTECTION FLUID SYSTEM FOR WORKBENCH/BATTERY BELOW HOOD.

DATE	DESCRIPTION	BY	CHECKED
12/17/15	ISSUE FOR PERMITS	T. MEYETTE	
12/17/15	ISSUE FOR PERMITS	T. MEYETTE	



REVISIONS

NO.	DATE	DESCRIPTION	BY
1	15/03/2011	ISSUED FOR PERMITS	T. MEYETTE
2		REVISED DRAWING	T. MEYETTE
3		REVISED DRAWING	D. HELBIG
4		REVISED DRAWING	T. BROUILLARD

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 2000 River Street, Warren, MI 48090

WARREN TECHNICAL CENTER CAMPUS  
 Site ID: 1563  
 ALTERNATIVE ENERGY CENTER (ACC)  
 Structure ID: 04800  
 Level: 01

ENLARGED PLANS  
FIRE PROTECTION

DATE	BY	CHECKED
12/17/2015	T. MEYETTE	

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