

**BUILDING MATERIALS EVALUATION COMMISSION  
(BMEC)  
AUTHORIZATION REPORT**

**DATE OF AUTHORIZATION**  
**BMEC REFERENCE**  
**BMEC APPLICATION**

**JANUARY 30, 2003**  
**BMEC # 03-01-280**  
**BMEC # A 2002-12**

**POTTER ELECTRIC SIGNAL COMPANY.  
HydraTank N<sub>2</sub> System**

**1. Applicant**

Potter Electric Signal Company  
2081 Craig Road  
St. Louis, Missouri  
63146  
USA

Tel: (314) 878-4321  
Fax: (314) 878-7264

**2. Manufacturing Facilities**

Potter Electric Signal Company  
2081 Craig Road  
St. Louis, Missouri  
63146  
USA

**3. Description**

The Potter Electric Signal Co. HydraTank N<sub>2</sub> System is a self contained water supply system for use in a fire sprinkler system designed in accordance with NFPA 13D 2002 "Standard for Installation of Sprinkler Systems for One and Two Family Dwellings." The Potter Electric Signal Co. HydraTank N<sub>2</sub> System may be used where there is no reliable water supply, or the water supply is inadequate to meet the demand of the sprinkler system.

The Potter Electric Signal Co. HydraTank N<sub>2</sub> System consists of one or more filament wound composite water tanks, to store the water necessary to meet the demands of the sprinkler system; one or more nitrogen cylinders, to supply the pressure required to discharge the water into the system; a locked cabinet to securely store the nitrogen cylinders; UL listed pressure regulators, to maintain the systems's operating pressure; and a status and trouble alarm panel to supervise and indicate: water levels, nitrogen pressure, the battery condition, and AC power.

#### **4. Authorization Requested**

The applicant sought authorization for the use of a non-metallic filament wound composite water tank, tested and approved as per ASNI/NSF 44 "Residential Cation Exchange Water Softener" for use in the Potter Electric Signal Co. HydraTank N<sub>2</sub> System as it is described in Part 3 "Description" of this Authorization, as an acceptable material (i.e. water supply source) permitted to be used in accordance with Sentence 3.2.5.13.(3) of the 1997 Ontario Building Code as amended.

#### **5. Assessment**

Reports and assessments provided by the applicant show that if the non-metallic filament wound composite water tank forming a part of the Potter Electric Signal Co. HydraTank N<sub>2</sub> System, is designed, performance tested and installed in accordance with the manufacturer's instruction and limitations and in conformance with the specific terms and conditions stated in this authorization, the level of performance required by the 1997 Ontario Building Code as amended will be provided.

Reports, assessments and information reviewed:

1. Technical Background Information Memo relating to the Potter Electric Signal Co. HydraTank, BMEC A2002-12, dated September 24, 2002.
2. HydraTank Parts list.
3. ISO 9002: 1994 Certificate, dated August 12, 2001.
4. Certificate of Compliance, No. 201559 (107788) CSA Certificate for Power Supplies, dated November 9, 1999.
5. UL ZJCZ7.E11368 "Flexible Cord Certified for Canada", dated June 11, 2002.
6. UL ZJCZ7.Guide Info "Flexible Cord Certified for Canada", dated June 11, 2002.
7. UL NKPZ7.Guide Info "Float-And Pressure Operated Certified For Canada", dated June 6, 2002.
8. NKPZ8.E42816 "Motor Controllers Float and Pressure-Operated Certified For Canada - Component", dated June 11, 2002.
9. ZDUZ2.E52496 "Water Softeners and Demineralizes - Components" dated June 11, 2002.

10. ANSI/NSF Standard 044 "Residential Cation Exchange Water Softeners", dated March 30, 2001.
11. Potter Electric Signal Co. Technical Assembly Drawings No. 1119390-30-B, 1119380-30-C, 1119340-4-A, 1119330-30-C, 1119280-30-C, 11192261-04-D, 1119261-05-D, 1119240-30-E, 1119250-30-A, 1119215-30-B, AND 216-30-A.
12. Manufacturer Information regarding Wiki PM 01.01 "Bourdon Tube Pressure Gauges."
13. Manufacturer Information regarding Barksdale "Level Switches."
14. Manufacturer Information regarding Vibra-Seal® "ASME Safety Valves."
15. Manufacturer Information regarding Teflon® "Hose" and "Application."
16. Park Tank Specifications.
17. HydraTank System PSI and gas calculator spread sheets.
18. Manufacturer's Information relating to control devices, hose and check, safety, ball valves.
19. Spread sheets provided to assist in the determination of the system's nitrogen requirements.
20. Letter correspondence regarding BMEC A2002-12 Potter Electric Signal Co., HydraTank, dated October 30, 2002.
21. Letter correspondence regarding Jurisdiction and the Technical Standards and Safety Authority (TSSA), dated October 24, 2002.
22. Email correspondence regarding Technical Interpretation and NFPA 13D, dated July 29, 2002.
23. Potter Electric Signal Co. HydraTank Installation, Operation and Instructional Manual, Manual #5403529-Rev P, dated 5-02.
24. Potter Electric Signal Co. HydraTank manufacturer's information, Document #S119320, "Assembly Procedures."
25. Potter Electric Signal Co. HydraTank manufacturer's information, Document #S119261, "Assembly Procedures."

26. Potter Electric Signal Co. HydraTank manufacturer's information, Document #S119240, "Assembly Procedures."
27. Potter Electric Signal Co. HydraTank manufacturer's information, Document #S119280, "Assembly Procedures."
28. Potter Electric Signal Co. HydraTank manufacturer's information, Document #S119210, "Assembly Procedures."

## **6. Authorization**

The Potter Electric Signal Co. HydraTank N<sub>2</sub> System is authorized for use in a fire suppression system as a water storage system that satisfies the water storage supply requirements of NFPA 13D "Standard for Installation of Sprinkler Systems for One and Two Family Dwellings" which is incorporated by reference Sentence 3.2.5.13.(3) of the 1997 Ontario Building Code as amended, by incorporating the use of a non-metallic filament wound composite water tank in the design of the Potter Electric Signal Co. HydraTank N<sub>2</sub> System. The non-metallic filament wound composite water tank used in the design Potter Electric Signal Co. HydraTank N<sub>2</sub> System is authorized subject to the following terms and conditions:

### **A. Specific Terms and Conditions:**

1. This authorization is valid only for Potter Electric Signal Co. HydraTank N<sub>2</sub> System.
2. Notwithstanding the requirements of sections 5.1.3. and 6.2.3. of NFPA 13D, the design of the Potter Electric Signal Co. HydraTank N<sub>2</sub> System shall be in conformance with NFPA 13D, 2002 "Standard for Installation of Sprinkler Systems for One and Two Family Dwellings."
3. The design and general review of the Potter Electric Signal Co. HydraTank N<sub>2</sub> System shall be carried out by a Professional Engineer as defined in the *Professional Engineers Act*, (Ontario); the Professional Engineer shall provide the chief building official with a document certifying that the installation conforms with this authorization.
4. The composite fibreglass water storage tank shall be tested and approved in accordance with ANSI/NSF 44 "Residential Cation Exchange Water Softeners."
5. The tank(s) shall be marked in a conspicuous location indicating the review and evaluation by ANSI/NSF.

6. The water storage tanks used in Potter Electric Signal Co. HydraTank N<sub>2</sub> System shall have the following properties; the tanks shall be:
  - (a) made of a wound fibreglass reinforced epoxy laminate,
  - (b) rated for a minimum pressure of 1235 Kpa (150 psi) at a temperature of 48.8 °C (120 °F),
  - (c) capable of offering a supply range between 100 gal. (378.5 L) to 464 gal. (1756 L) capacity, and
  - (d) made of moulded thermoset plastic or fibreglass at the base.
7. The water tank liner used in Potter Electric Signal Co. HydraTank N<sub>2</sub> System shall have the following properties; the tank liner shall be:
  - (a) seamless,
  - (b) free from fibrous materials, and
  - (c) resistance to regenerating chemicals.
8. The Potter Electric Signal Co. HydraTank N<sub>2</sub> System shall be designed and installed in accordance with the requirements the "Installation, Operation and Instructional Manual", (Manual #5403529-Rev P, dated 5-02) for the Potter Electric Signal Co. HydraTank N<sub>2</sub> System.
9. When the HydraTank N<sub>2</sub> System is installed in a building, the system:
  - (a) shall be located in building that is fully sprinklered, or
  - (b) when located in a building that is partially sprinklered shall be:
    - (i) located in a room separated from the remainder of the building, and
    - (ii) the room shall be sprinklered.

**6. B. General Conditions**

1. The use of Potter Electric Signal Co.'s HydraTank N<sub>2</sub> System as described in 6. A. Specific Terms and Conditions No. 1. must comply with the *Building Code Act, 1992* as amended or re-enacted from time to time and except as specifically authorized herein, with the Ontario Building Code as amended or remade from time to time.

2. A copy of this Authorization shall accompany each application for a building permit and shall be maintained on the site of the construction with the building permit.
3. The Applicant named in Part 1 hereof shall promptly notify the BMEC of:
  - (a) the failure of the Applicant, or of the material, system or building design that is the subject matter of this Authorization, to comply with any of the terms and conditions set out in 6. A. above; or
  - (b) the occurrence of any of the events described in Conditions 6. B. 4. (a) and (b) below.
4. The BMEC may amend or revoke this Authorization where it determines that:
  - (a) any change has been made to:
    - i. the material, system or building design that is the subject matter of this Authorization;
    - ii. the address of the applicant specified in Part 1 of this Authorization; or,
    - iii. the ownership of the applicant specified in Part 1 of this Authorization.
  - (b) the use of the material, system or building design authorized herein;
    - i. does not comply with the *Building Code Act, 1992* or any relevant legislation as they may be amended or re-enacted from time to time; or
    - ii. provides an unsatisfactory level of performance, in situ.
  - (c) the Applicant, or the material, system or building design that is the subject matter of this Authorization, has failed to comply with any of the terms and conditions set out in this Authorization; or
  - (d) any Ontario Building Code provision relevant to this Authorization has been amended or remade.

5. Where the Commission receives additional information concerning the material, system or building design authorized herein, the Commission may review this Authorization and the Commission may after the review amend or revoke this Authorization as in the opinion of the Commission may be necessary.

at Toronto this 30<sup>th</sup> day of January 2003.

**BUILDING MATERIALS EVALUATION COMMISSION**

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Rashmi Nathwani, Chair