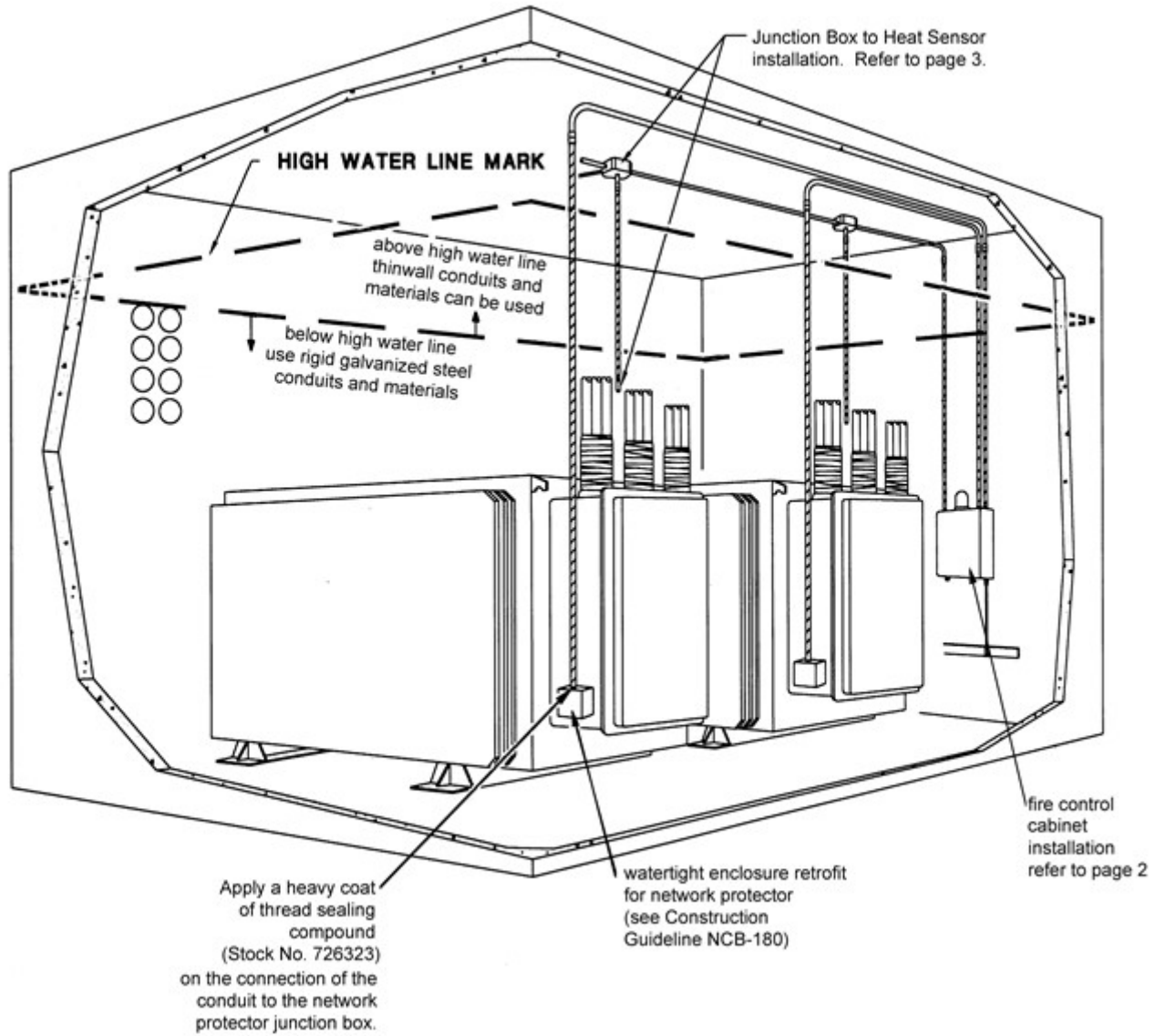


## Fire Detection Installation Details and Wiring Diagram for Wet Vaults

Figure 1. Typical Vault Showing High Water Line



Standard Coordinator  
Laura Vanderpool

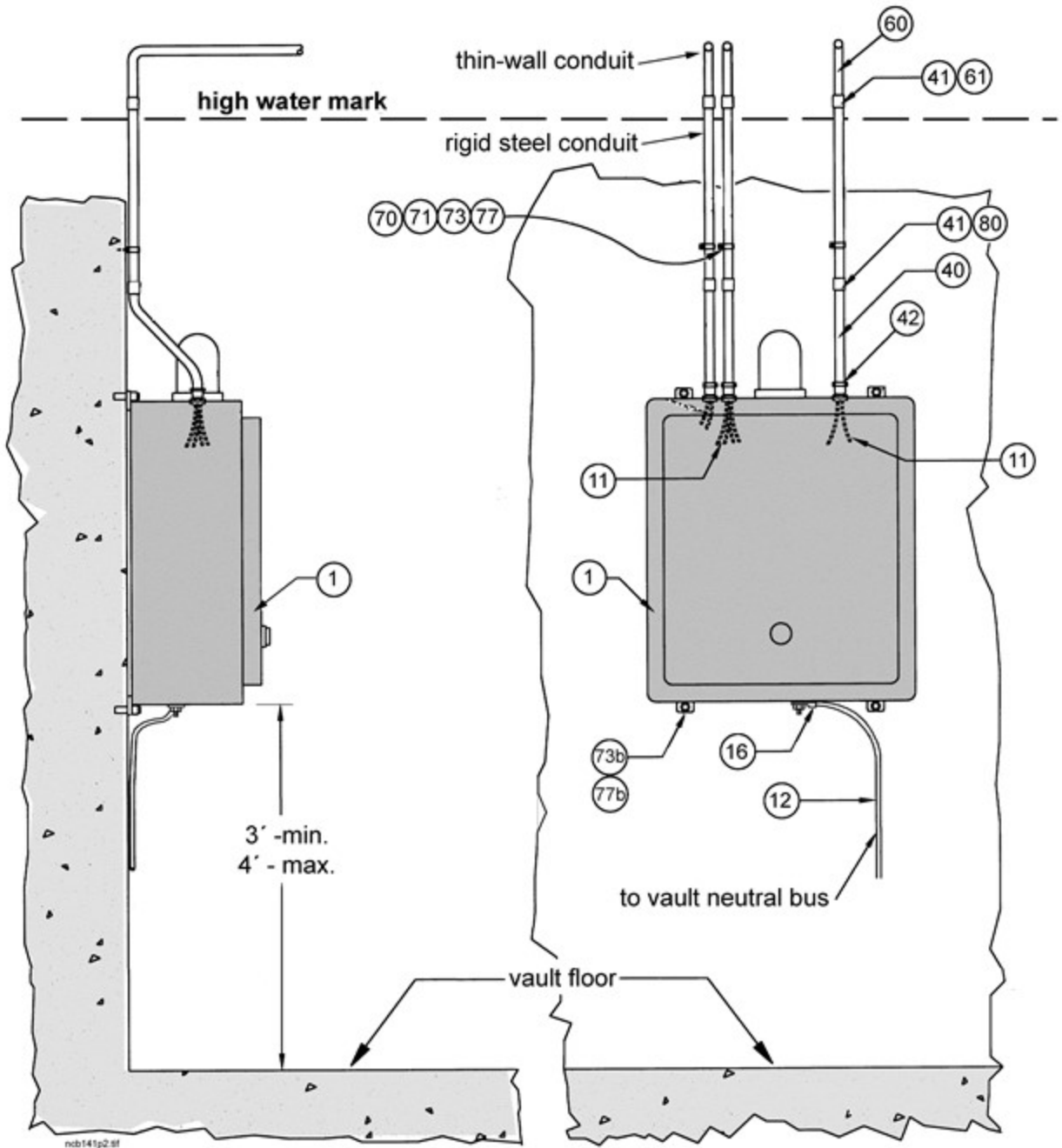
Standards Engineering Supervisor  
Brett Hanson

Division Director  
Bob Risch

# CONSTRUCTION GUIDELINE

Fire Detection Installation Details and Wiring Diagram for Wet Vaults

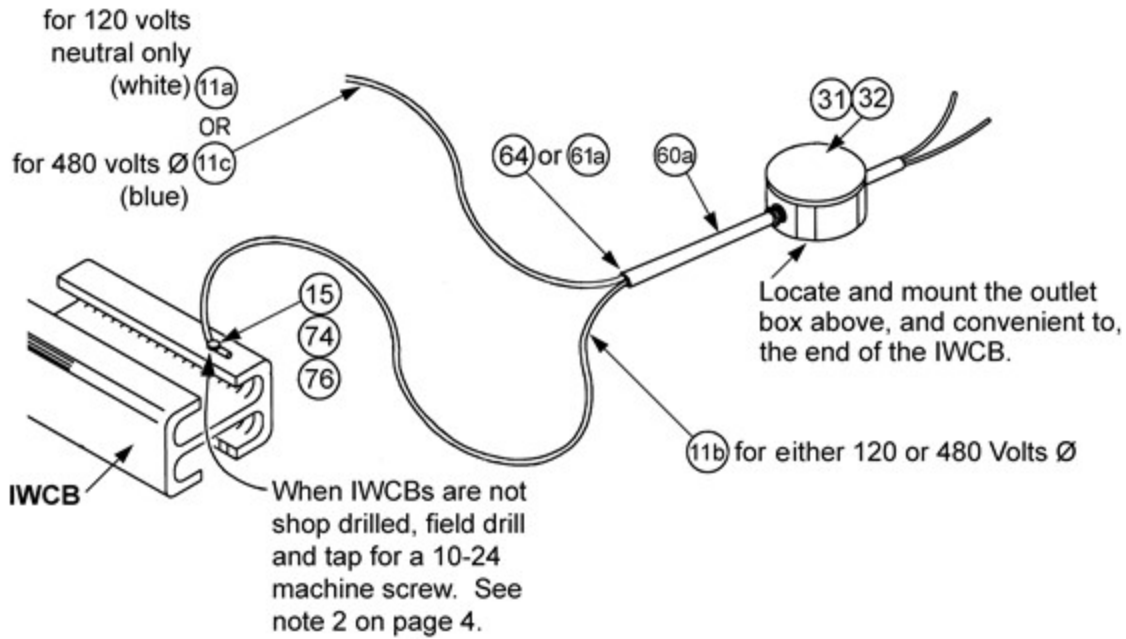
Figure 2. Fire Control Cabinet Installation



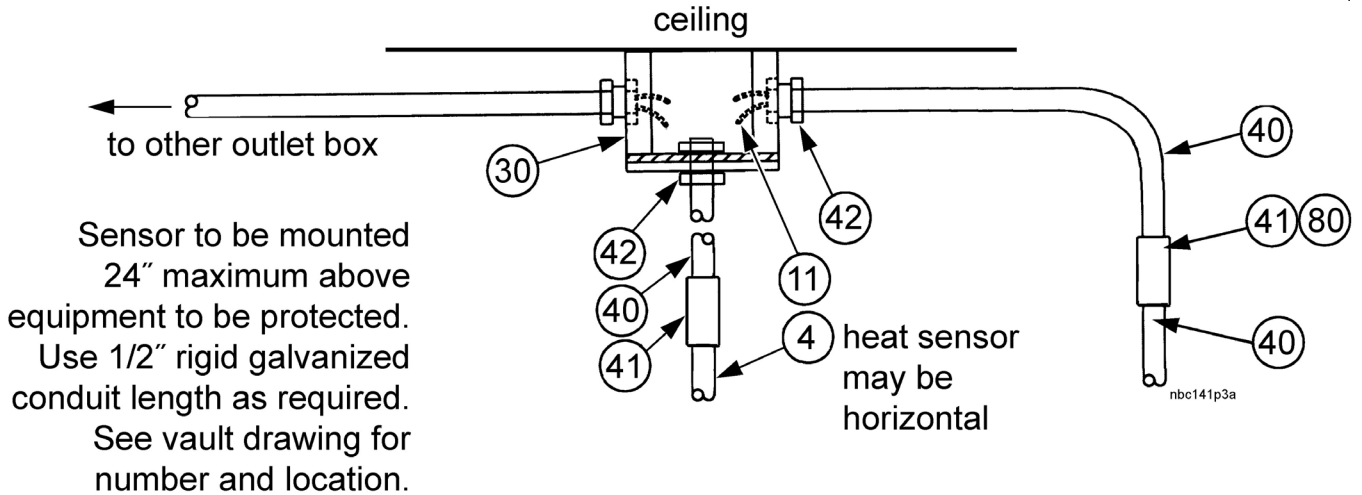
# CONSTRUCTION GUIDELINE

Fire Detection Installation Details and Wiring Diagram for Wet Vaults

**Figure 3. Power Pickup**

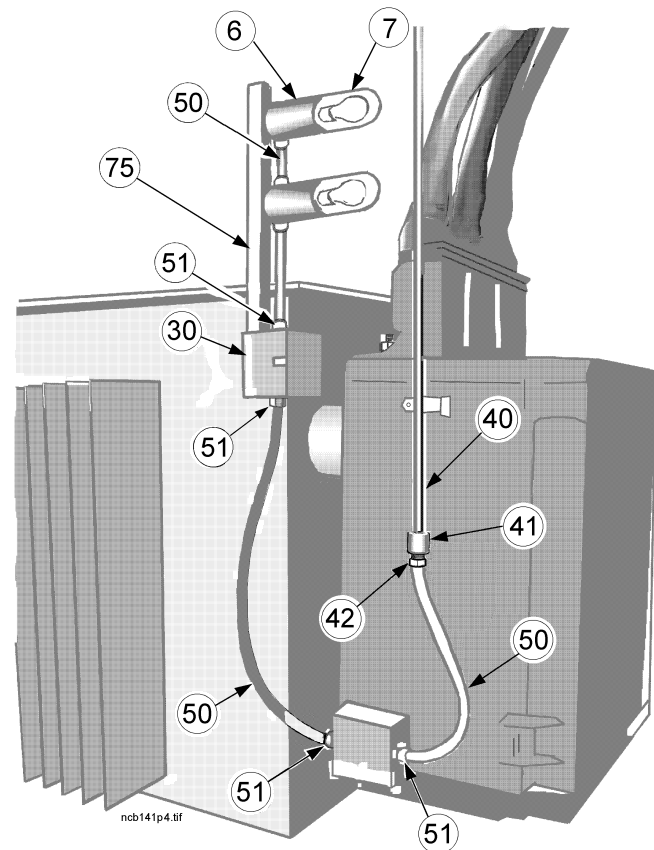


**Figure 4. Heat Sensor Installation Below Water Line**



**Notes:**

1. Below the high water line, use rigid steel conduit or liquid-tight flexible conduit. Make up all joints water tight. Thinwall conduit may be used above the high water line.
2. Clean all aluminum contact surfaces. Apply heavy coat of joint compound No. 2. Wire brush through compound, then install machine screw and tighten.
3. Fire protection control cabinet (Stock No. 682897) is assembled per drawing No. DU-770 (see Appendix, Sheet 1a). Basic cabinet is made for 120/208 volts. See item 2 on material list for transformer for 480 volt services.
4. **For 208Y/120-volt** installations, install jumper around neutral leg of fuse block. Install 10-amp fuse (Stock No. 682609) in hot leg of fuse block.
5. **For 480Y/277-volt** installations, connect leads from fuse to terminal block Nos. AC1 and AC2/L2. Install two 3-amp fuses (Stock No. 682607) in fuse block.
6. Install schedule 40 PVC conduit sleeve over rigid steel conduit above network protector or bus tie switch to a point above the network protector or bus tie switch to prevent electrical contact between the rigid steel conduit and the bus tie switch.
7. Run conduit and wiring to bus tie switch (if installed) from the No. 4 network terminals of the fire protection control cabinet.
8. Install schedule 40 PVC conduit sleeve over rigid steel conduit above network protector junction box to a point above the network protector to prevent electrical contact between the rigid steel conduit and the network protector.
9. Wiring color codes for fire protection control cabinets, BTS, and NP that were installed prior to this Guideline, may vary (September 2003).



**Figure 5. Rigid Conduit Termination on Network Protector**

**CONSTRUCTION GUIDELINE**

Fire Detection Installation Details and Wiring Diagram for Wet Vaults

Standard Number: **NCB-141**  
 Page: 5 of 7  
 Superseding: April 7, 2016  
 Effective Date: August 14, 2023

**Material List**

Item	Quantity	Description	Stock No.
1	1	FIRE PROTECTION CONTROL CABINET, see note 3	682897
2	0 or 1	TRANSFORMER, 480/240 V primary, 120/240 V Sec., 250 VA (see note 5)	682608
4	as required	SENSOR, Heat Detecting (Detect-A-Fire unit)	765845
5	1	FUSE, 10 AMP, 600V, (for 208 volt, see note 4) <b>or</b>	682609
	2	FUSE, 3 AMP, 600V, (for 480 volt, see note 5)	682607
6	6	LIGHT FIXTURE, Waterproof, Carlon E 960 BBD	682640
7	6	GLOBE, Clear Glass, for light fixture above, Carlon E 96 GLBT	682641
8	1	LAMP 120 V, 40 W equivalent, Green, Type A19 120 V, 40 W equivalent, Red, Type A19	
11a	as required	WIRE, Silicone Rubber insulation, #12 AWG white	612500
11b	as required	WIRE, Silicone Rubber insulation, #12 AWG black	612501
11c	as required	WIRE, Silicone Rubber insulation, #12 AWG blue	612502
11d	as required	WIRE, Silicone Rubber insulation, #12 AWG red	612503
11e	as required	WIRE, Silicone Rubber insulation, #12 AWG yellow	012183
12	as required	WIRE, Bare Copper, # 2 AWG	610434
15	2	TERMINAL, COMPRESSION, # 12 AWG, No. 10 stud	677160
16	1	CONNECTOR, Transformer Grounding, eye bolt, #8 to 2/0	676200
30	as required	JUNCTION BOX 4" x 4" x 3", waterproof, hinged cover 6" x 6" x 4", waterproof, hinged cover 8" x 8" x 4", waterproof, hinged cover	012093 012094 012095
31	as required	OUTLET BOX, Octagon, 4" x 2-1/8"	010379
32	as required	COVER, Outlet Box, 4", with 1/2" hub	732233
33	as required	GASKET, neoprene for outlet boxes	-
34	1	CONDULET, TYPE "T", 1/2", steel, galvanized	732625
35	1	PIPE PLUG, 1/2", steel, galvanized	713287
40	as required	RIGID CONDUIT, galvanized 1/2" 3/4" 1"	012085 012086 012087
41	as required	COUPLING, Rigid Conduit, galvanized 1/2" 3/4" 1"	731091 731092 731093
42	6	HUB, Liquid-Tight, Rigid Conduit 1/2"	012092
	5	HUB, Liquid-Tight, Rigid Conduit 3/4"	731130
	2	HUB, Liquid-Tight, Rigid Conduit 1"	731131
50	25 feet	CONDUIT, Liquid-Tight, flexible 1/2"	012096
	15 feet	CONDUIT, Liquid-Tight, flexible 3/4"	012097

**CONSTRUCTION GUIDELINE**

Fire Detection Installation Details and Wiring Diagram for Wet Vaults

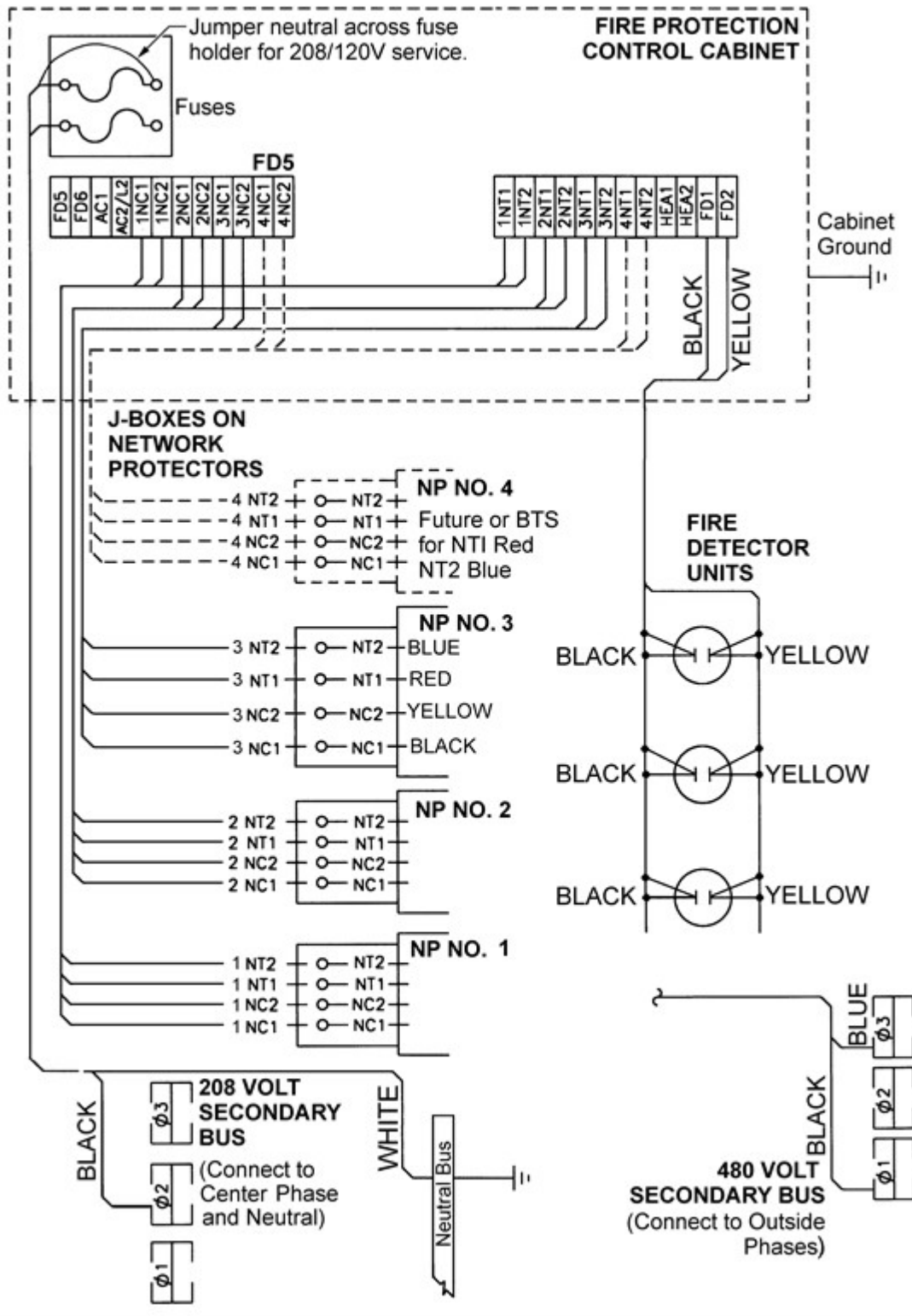
Standard Number: **NCB-141**  
 Page: 6 of 7  
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51	as required	CONNECTOR, Liquid-Tight, flexible	1/2", straight	012088
			3/4", tight	012089
			1/2", 90 degree	012090
			3/4", 90 degree	012091
55	as required	CONDUIT, PVC, Schedule 40	1/2"	734525
			3/4"	734526
56	as required	COUPLING, ADAPTER, PVC to rigid steel	1/2" male	734920
			3/4" male	734914
			1/2" female	734508
			3/4" female	734540
60a	as required	CONDUIT, Thinwall	1/2" steel	734880
60b	as required	CONDUIT, Thinwall	3/4" steel	734881
61a	as required	CONNECTOR, Thinwall, set screw	1/2"	012290
61b	as required	CONNECTOR, Thinwall, set screw	3/4"	012291
62	as required	COUPLING, Thinwall, set screw	1/2"	012287
			3/4"	012288
63	as required	LOCK RING, Steel, Conduit, galvanized	1/2"	731490
			3/4"	731491
64	as required	BUSHING, Plastic, 1/2"		731565
70	as required	PIPE STRAP, one hole	1/2"	713442
			3/4"	713443
			1"	713444
71	as required	SPACER, Pipe Strap	1/2"	713338
			3/4"	713452
72	as required	PIPE CLAMP, for Strut, galvanized steel, 1/2"		689754
73a	as required	ANCHOR, Light-Duty, Stud Bolt	1/4"	780092
73b	4	ANCHOR, Light-Duty, Stud Bolt	3/8"	780103
74	2	SCREW, Roundhead, machine, brass, 10-24 x 1"		–
75	as required	STRUT, Steel, 1-5/8" x 13/16"		723506
76	2	LOCK WASHER, bronze, No. 10		788119
77a	as required	LOCK WASHER, galvanized	1/4"	584252
77b	as required	LOCK WASHER, galvanized	3/8"	584250
80	as required	SEALANT, Thread		726323

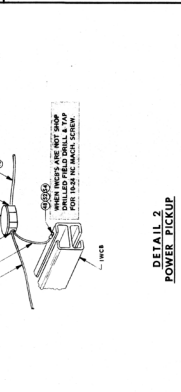
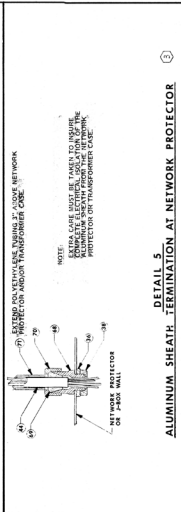
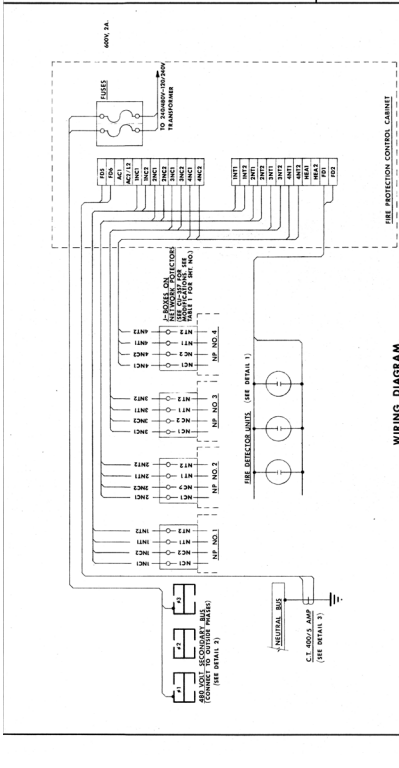
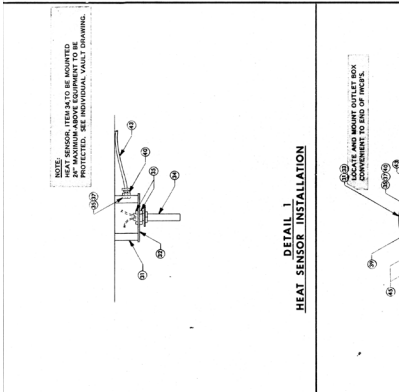
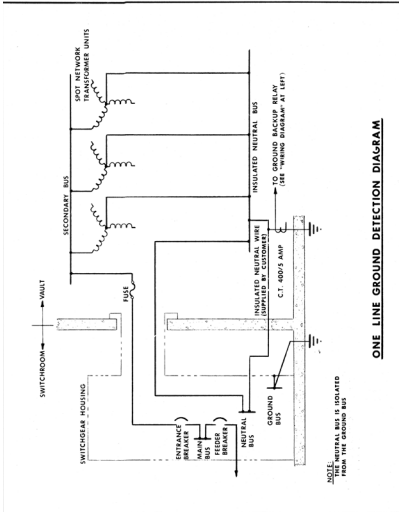
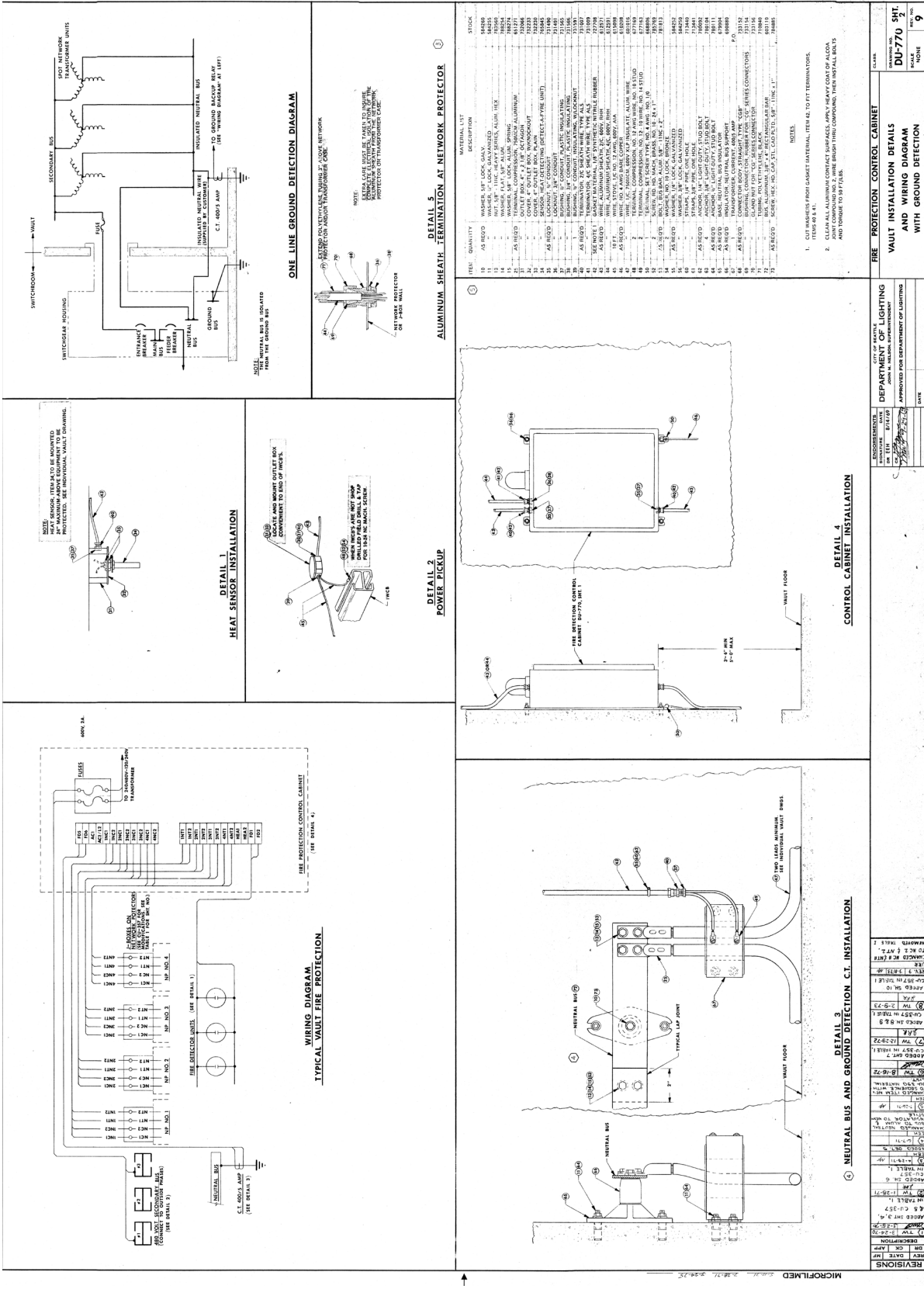
# CONSTRUCTION GUIDELINE

Fire Detection Installation Details and Wiring Diagram for Wet Vaults

Figure 6. Wiring Diagram



Appendix. Seattle City Light Drawing DU-770



ITEM	QUANTITY	DESCRIPTION
1	AS REQD	WASHER, 1/4" DIA., GALVANIZED
2	AS REQD	WASHER, 1/4" DIA., ALUMINUM, ALUM. FLEX
3	AS REQD	TERMINAL, ALUMINUM, 1/4" DIA., ALUMINUM
4	AS REQD	COVER, 1/4" DIA., ALUMINUM
5	AS REQD	COVER, 1/4" DIA., ALUMINUM
6	AS REQD	COVER, 1/4" DIA., ALUMINUM
7	AS REQD	COVER, 1/4" DIA., ALUMINUM
8	AS REQD	COVER, 1/4" DIA., ALUMINUM
9	AS REQD	COVER, 1/4" DIA., ALUMINUM
10	AS REQD	COVER, 1/4" DIA., ALUMINUM
11	AS REQD	COVER, 1/4" DIA., ALUMINUM
12	AS REQD	COVER, 1/4" DIA., ALUMINUM
13	AS REQD	COVER, 1/4" DIA., ALUMINUM
14	AS REQD	COVER, 1/4" DIA., ALUMINUM
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22	AS REQD	COVER, 1/4" DIA., ALUMINUM
23	AS REQD	COVER, 1/4" DIA., ALUMINUM
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26	AS REQD	COVER, 1/4" DIA., ALUMINUM
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28	AS REQD	COVER, 1/4" DIA., ALUMINUM
29	AS REQD	COVER, 1/4" DIA., ALUMINUM
30	AS REQD	COVER, 1/4" DIA., ALUMINUM
31	AS REQD	COVER, 1/4" DIA., ALUMINUM
32	AS REQD	COVER, 1/4" DIA., ALUMINUM
33	AS REQD	COVER, 1/4" DIA., ALUMINUM
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**REVISIONS**

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**APPROVED FOR DEPARTMENT OF LIGHTING**

CITY OF SEATTLE

DU-770 9/1

SCALE: NONE

9