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www.CWSarch.com

THE RENOVATIONS TO
SOUTHERN MAINE DIALYSIS
PORTLAND, MAINE #1190
1600 CONGRESS STREET
PORTLAND, MAINE 04101

Owner:
FRESENIUS
MEDICAL SERVICES
DIALYSIS SERVICES
NORTH AMERICA
1256 MAIN STREET
WALTHAM, MA 02451
(781) 891-0829
(781) 891-0830

REVISIONS:	Description:	Date:

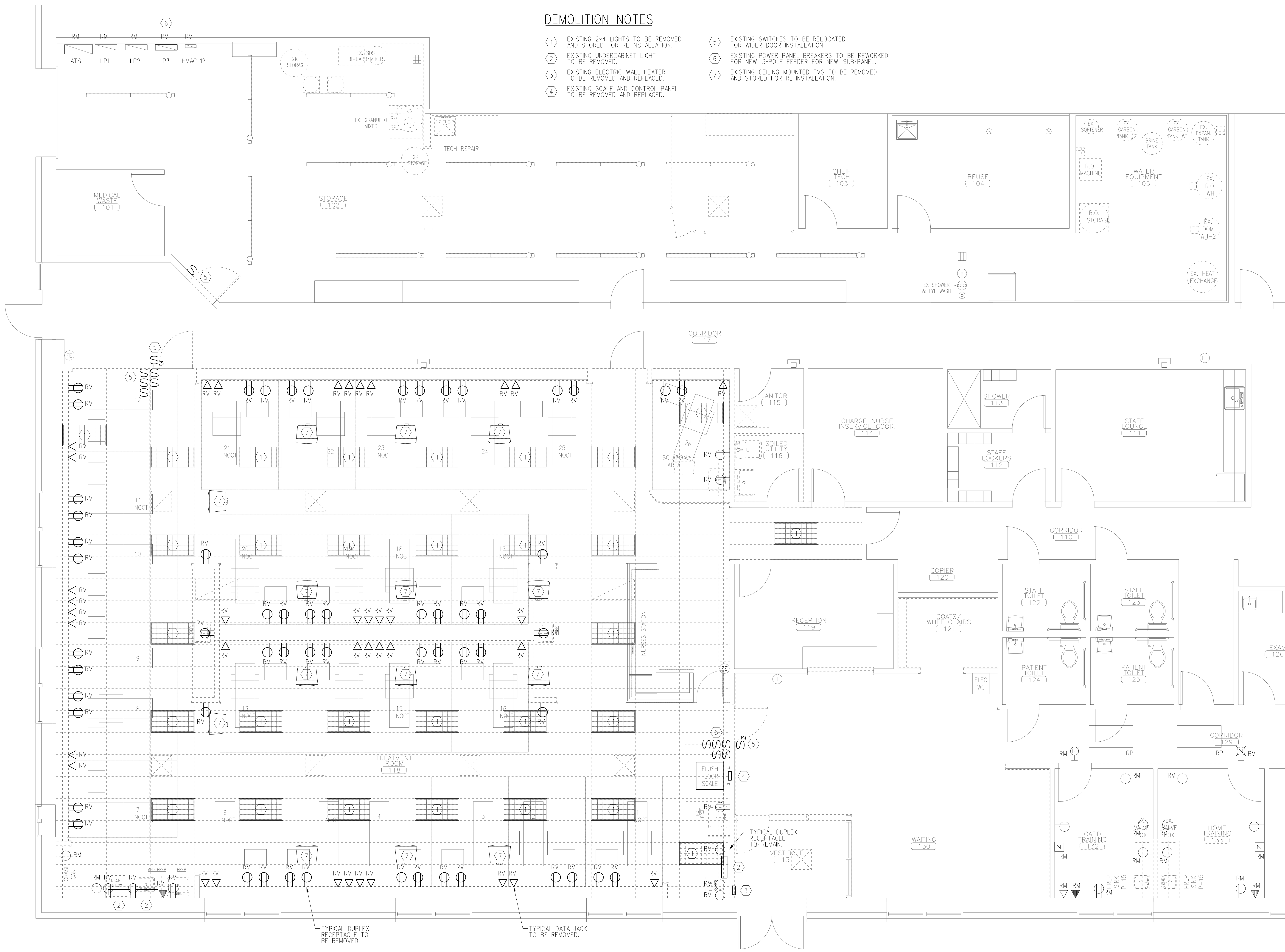
Drawing Title:
**ELECTRICAL
REMOVALS PLAN**

Scale: 1/4" = 1'-0"
Date: 9/04/2007
CWS Proj. No.: 2006-4474pt

Drawing Number:
DE1.1

DEMOLITION NOTES

- ① EXISTING 2x4 LIGHTS TO BE REMOVED AND STORED FOR RE-INSTALLATION.
- ② EXISTING UNDERCABINET LIGHT TO BE REMOVED.
- ③ EXISTING ELECTRIC WALL HEATER TO BE REMOVED AND REPLACED.
- ④ EXISTING SCALE AND CONTROL PANEL TO BE REMOVED AND REPLACED.
- ⑤ EXISTING SWITCHES TO BE RELOCATED FOR WIDER DOOR INSTALLATION.
- ⑥ EXISTING POWER PANEL BREAKERS TO BE REWORKED FOR NEW 3-POLE FEEDER FOR NEW SUB-PANEL.
- ⑦ EXISTING CEILING MOUNTED TVS TO BE REMOVED AND STORED FOR RE-INSTALLATION.

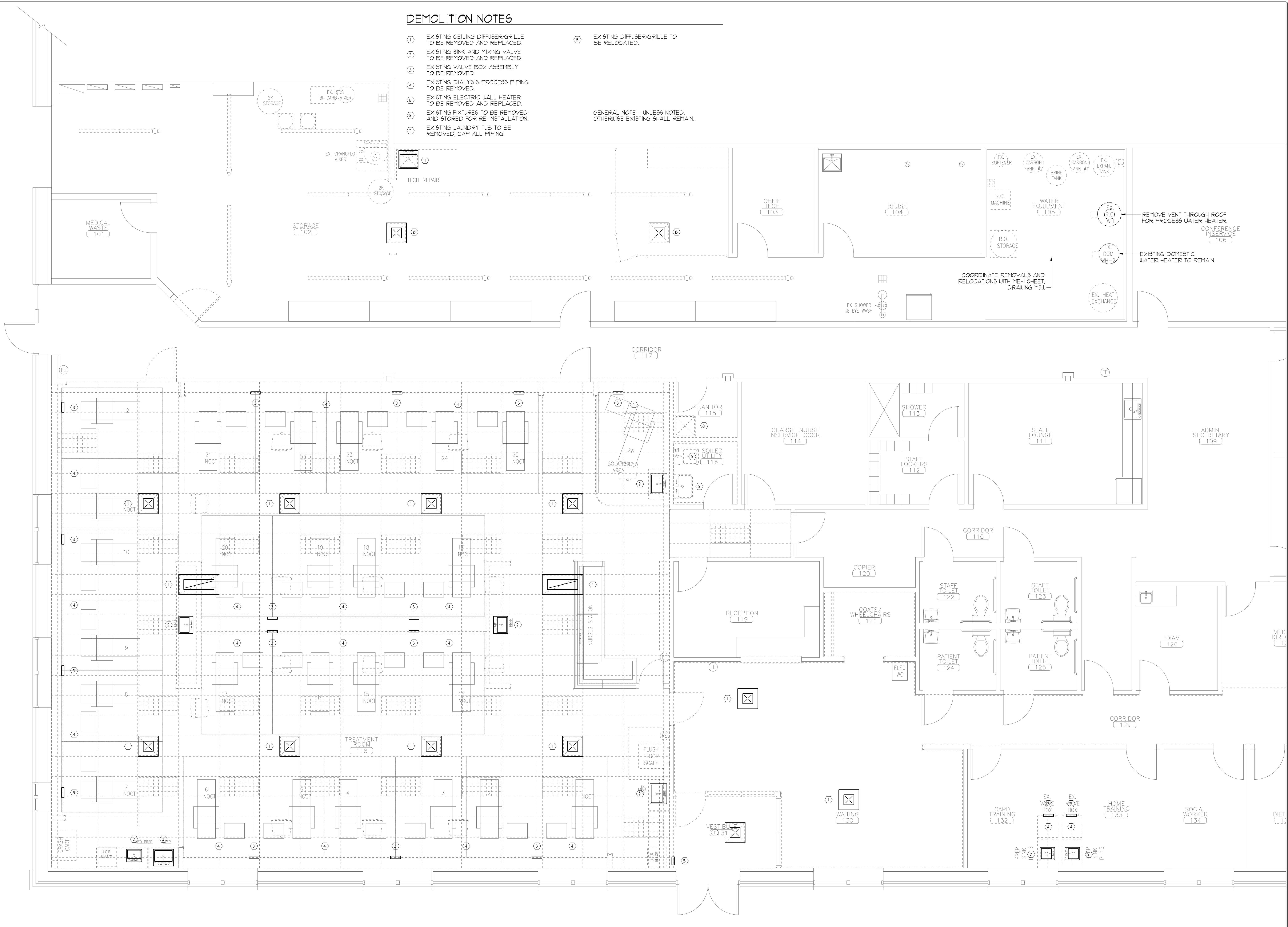


TYPICAL DUPLEX RECEPTACLE TO BE REMOVED.

TYPICAL DATA JACK TO BE REMOVED.

DEMOLITION NOTES

- ① EXISTING CEILING DIFFUSER/GRILLE TO BE REMOVED AND REPLACED.
 - ② EXISTING SINK AND MIXING VALVE TO BE REMOVED AND REPLACED.
 - ③ EXISTING VALVE BOX ASSEMBLY TO BE REMOVED.
 - ④ EXISTING DIALYSIS PROCESS PIPING TO BE REMOVED.
 - ⑤ EXISTING ELECTRIC WALL HEATER TO BE REMOVED AND REPLACED.
 - ⑥ EXISTING FIXTURES TO BE REMOVED AND STORED FOR RE-INSTALLATION.
 - ⑦ EXISTING LAUNDRY TUB TO BE REMOVED, CAP ALL PIPING.
- ⓐ EXISTING DIFFUSER/GRILLE TO BE RELOCATED.
- GENERAL NOTE - UNLESS NOTED OTHERWISE EXISTING SHALL REMAIN.



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Owner: FRESENIUS MEDICAL SERVICES DIALYSIS SERVICES NORTH AMERICA

REVISIONS:	Date:	Description:

Drawing Title: **MECHANICAL REMOVALS PLAN**

Scale: 1/4" = 1'-0"

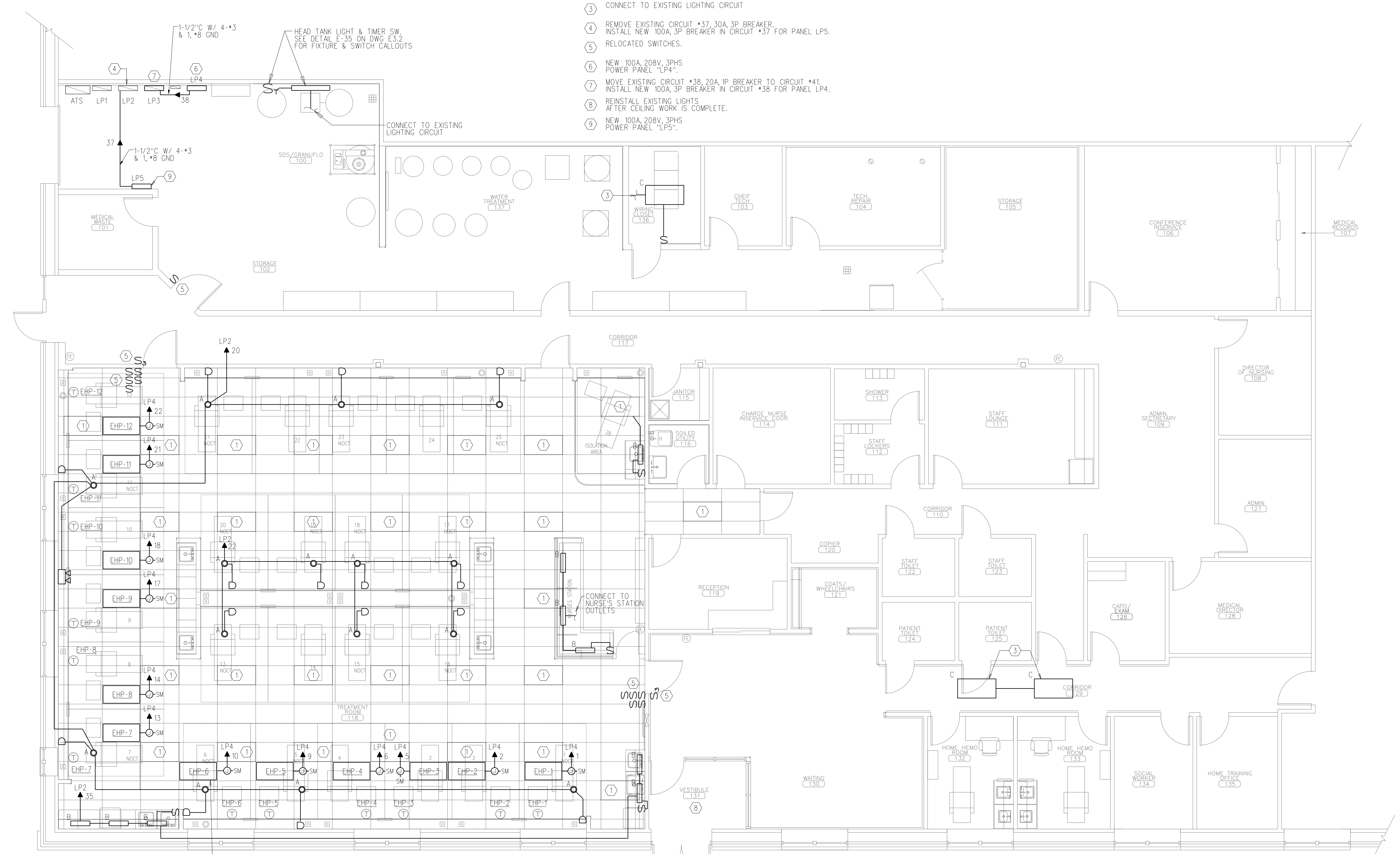
Date: 9/04/2007

CWS Proj. No.: 2006-447-4pt

Drawing Number:
DM1.1

ELECTRICAL NOTES

- 1 REINSTALL EXISTING 2x4 LIGHTS AFTER CEILING WORK IS COMPLETE.
- 2 NOT USED
- 3 CONNECT TO EXISTING LIGHTING CIRCUIT
- 4 REMOVE EXISTING CIRCUIT #37, 30A, 3P BREAKER. INSTALL NEW 100A, 3P BREAKER IN CIRCUIT #37 FOR PANEL LP5.
- 5 RELOCATED SWITCHES.
- 6 NEW 100A, 208V, 3PHS POWER PANEL "LP4".
- 7 MOVE EXISTING CIRCUIT #38, 20A, 1P BREAKER TO CIRCUIT #41. INSTALL NEW 100A, 3P BREAKER IN CIRCUIT #38 FOR PANEL LP4.
- 8 REINSTALL EXISTING LIGHTS AFTER CEILING WORK IS COMPLETE.
- 9 NEW 100A, 208V, 3PHS POWER PANEL "LP5".



RECESSED ELECTRIC RADIANT
CEILING PANEL, MARKEL • CP707,
750W @ 208V, 1PHS (TYPICAL)
REFER TO REFLECTED
CEILING PLAN FOR
EXACT LOCATION (TYP).

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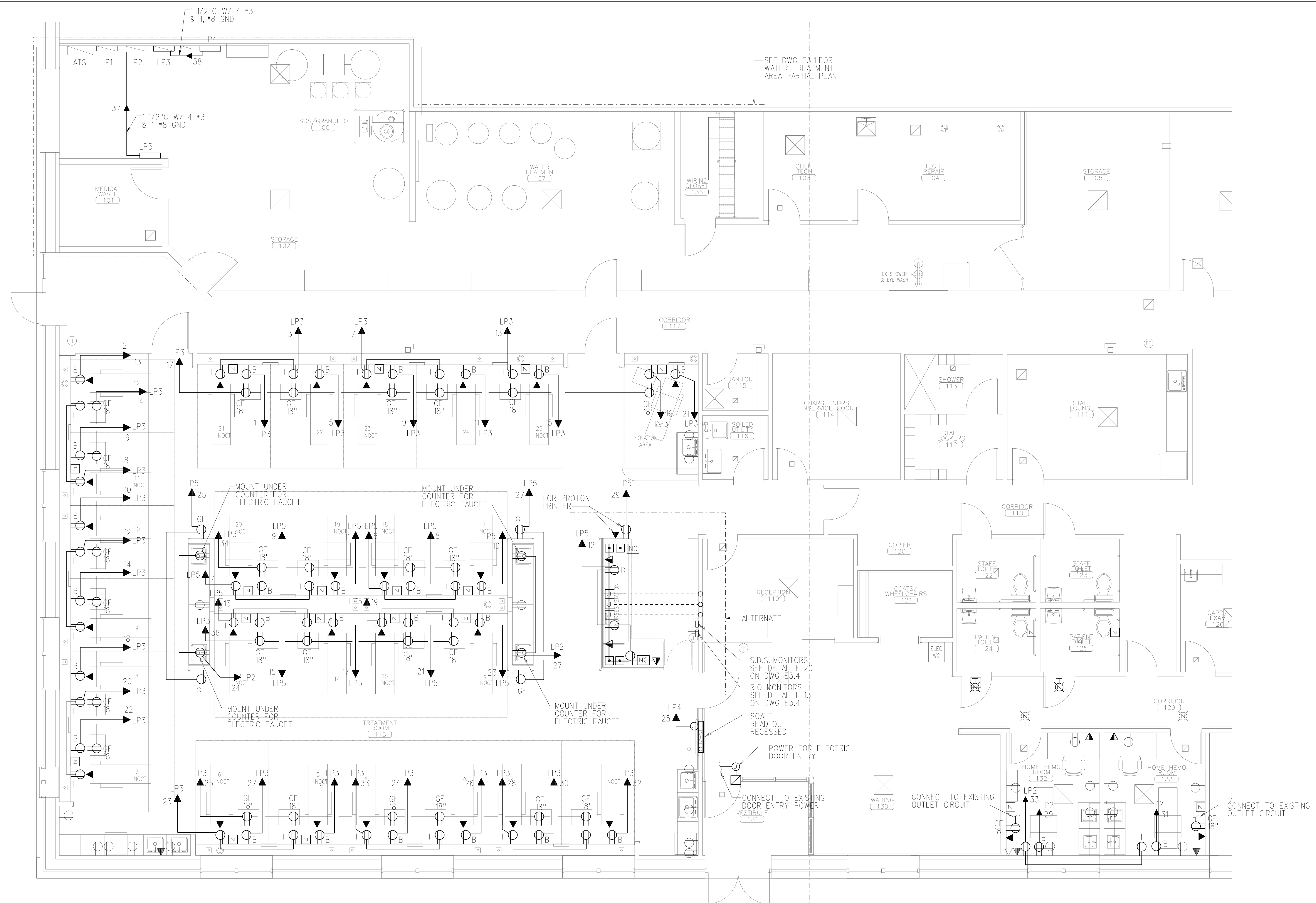
Owner: FRESENIUS MEDICAL SERVICES DIALYSIS SERVICES NORTH AMERICA

REVISIONS:	Description:	Date:

Drawing Title:
ELECTRICAL PLAN

Scale: 3/16" = 1'-0"
Date: 9/04/2007
CWS Proj. No.: 2006-447-4pt

Drawing Number:
E1.1



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REVISIONS:

No.	Date:	Description:

Drawing Title:
**DIALYSIS ROOM
ELECTRICAL PLAN**

Scale:
1/4" = 1'-0"

Date:
9/04/2007

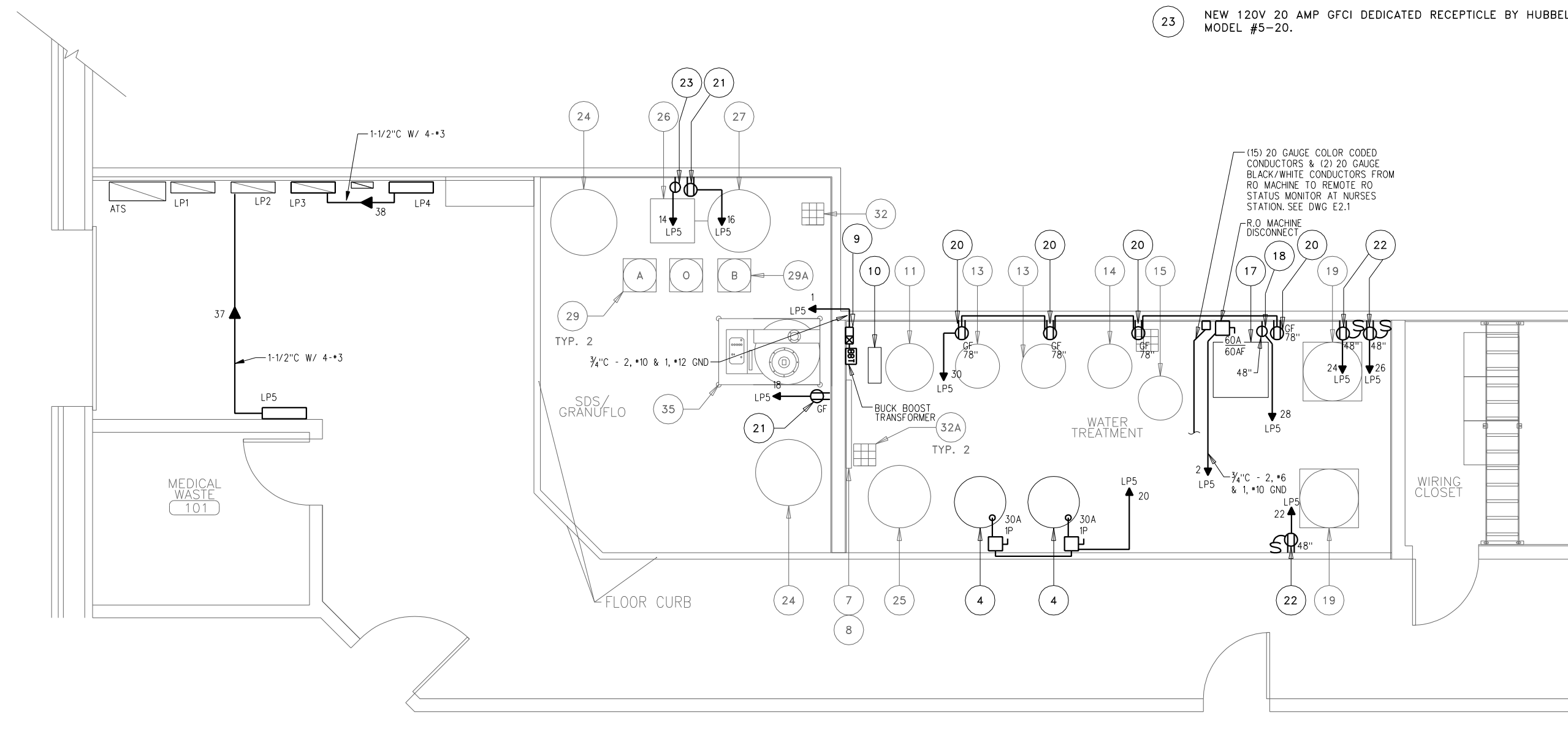
CWS Proj. No.: 2006-447-4pt

Drawing Number:
E2.1

LIGHTING FIXTURE SCHEDULE			
TYPE	DESCRIPTION	LAMPS QUANTITY & TYPE	REMARKS
A	PORTFOLIO *HD6CP-6700-BB-TRM6p-H277	(1) 200W MAX. A21	RECESSED IN GRID CEILING
B	LEGION LIGHTING *311-13-ACP-HES	(1) F13T5	UNDERCABINET LIGHT
C	METALUX *2GR8-332A-120-TEB81	(3) F32T8/SP35	1 - 3 LAMP BALLAST ELECTRONIC LHD 10%

- 4 NEW WATER HEATER (FOR PROCESS ONLY) (BY P.C.)
- 9 NEW 230V ELECTRICAL DISCONNECT SWITCH RATED AT 20 AMPS FOR BOOSTER PUMP. (BY E.C.)
- 10 NEW PROCESS WATER BOOSTER PUMP (20 GPM @ 125 FT. HEAD) MFG. BY TEEL. GRANGER CAT# 2PC19, 4-1/4" IMPELLER, 1 HP., 3450 RPM. (BY P.C.) WITH (D.F.I.) 2-POLE LOW PRESSURE CUT OFF SWITCH SQUARE D MODEL 9013 F50-232444 GRANGER CAT# 2FH10, (230V-1PH) - IF BUILDING IS PROVIDED WITH 208V SERVICE, A BUCK-BOOST TRANSFORMER SHALL BE USED. (BY E.C.)
- 17 NEW OSMONICS Z-12000 R.O. MACHINE (D.F.I.) WITH 75% RECOVERY.
- 18 NEW ELECTRICAL POWER RECEPTACLE FOR R.O. MACHINE NEMA TYPE L15-30R (FEMALE) 4"-0" A.F.F. (BY E.C.)
- 20 NEW 120 VOLT 20 AMP GFCI DUPLEX RECEPTACLE 6"-6" A.F.F., 4"-0" ON CENTER, FROM BOOSTER PUMP TO R.O. MACHINE (BY E.C.).
- 21 NEW 120 VOLT 20 AMP GFCI DEDICATED DUPLEX RECEPTACLE.
- 22 NEW 120 VOLT 20 AMP DEDICATED SWITCHED TWIST-LOCK RECEPTACLE MFR. BY BRYANT MODEL # 7052DFR WITH WR104-CV FOR DISTRIBUTION PUMP. 4"-0" A.F.F. (BY E.C.)
- 23 NEW 120V 20 AMP GFCI DEDICATED RECEPTACLE BY HUBBELL MODEL #5-20.

- SYMBOL LEGEND**
- NEW PANELBOARD - SEE PANELBOARD SCHEDULE
 - ELECTRIC MOTOR DRIVEN EQUIPMENT SHOWN UNFUSED DISCONNECT SWITCH - SIZE & RATINGS AS NOTED.
 - MANUAL MOTOR STARTER SWITCH WITH THERMAL OVERLOAD DEVICE, MOUNTED AT UNIT
 - JUNCTION BOX
 - LIGHTING FIXTURES: CAPITAL LETTERS DENOTE TYPE AS PER LIGHTING FIXTURE SCHEDULE. LOWER CASE LETTERS INDICATE SWITCH CONTROL. "0" INDICATES REBUILT LAMPS CONTROLLED BY SWITCH. "O" OUTBOARD CONTROLLED BY SWITCH. "D" DIAGONAL INDICATES NIGHT LIGHT (UNSWITCHED)
 - EXIT LIGHT FIXTURE-UNSWITCHED
 - EMERGENCY BATTERY UNIT - WITH TWO HEADS - MOUNT 6"-8" AFF DUAL-LITE 4x20 15WATTS FOR 90 MINUTES, 6V
 - RACEWAY & WIRING RUN CONCEALED IN WALLS/CEILING.
 - RACEWAY & WIRING RUN EXPOSED
 - RACEWAY & WIRING RUN CONCEALED UNDER FLOOR
 - HOME RUN TO PANEL - ARROWS INDICATE QUANTITY OF CIRCUITS. NUMERALS INDICATE CIRCUIT NUMBERS
 - FLEXIBLE STEEL CONDUIT W/ WP TO RECESSED FLUORESCENT FIXTURE.
 - CONDUIT TURNING UP
 - CONDUIT TURNING DOWN
 - COMBINATION CIRCUIT BREAKER & MAGNETIC MOTOR STARTER - NEMA SIZE 1 W/4 AUX CONTACTS AND HAND-OFF-AUTO SWITCH W/RED POWER ON PILOT LIGHT.
 - SINGLE POLE SWITCH 120V, 20 AMP SPEC GRADE, GROUNDING TYPE, MOUNT 48" AFF. 3/4" MAX. 4x4 MAX. 2-PHASE 2-POLE SWITCH WEATHERPROOF. LOWER CASE LETTERS INDICATE FIXTURE OR CONTROLLED LOAD. PILOT LIGHT SWITCHES SHALL BE PROVIDED BY CONTRACTOR IDENTIFYING USE.
 - SPECIAL PURPOSE RECEPTACLE - NEMA CONFIGURATION AS NOTED.
 - DUPLEX RECEPTACLE - HOSPITAL GRADE W/ ISOLATED GROUND - 20A 120V, GROUNDING TYPE "FLUSH MOUNTED" AFF. UNLESS OTHERWISE NOTED. LETTERS DENOTE COLOR AND CONFIGURATION AS FOLLOWS:
 - "I" - IVORY MAXIMUM 2 PER CIRCUIT
 - "B" - BROWN ON A DEDICATED CIRCUIT
 - "D" - DOUBLE DUPLEX RECEPTACLE - MOUNT IN 2 SINGLE GANG BOXES
 - "N" - DENOTES CEILING MOUNTED
 - "M" - DENOTES MICROWAVE OVEN
 - "C" - DENOTES COFFEE MAKER
 - "R" - DENOTES REFRIGERATOR
 - "N" - IVORY MAXIMUM 3 PER CIRCUIT
 - DUPLEX RECEPTACLE - 20A 120V HOSPITAL GRADE, GROUNDING TYPE AND MATCHING IVORY PLATE - FLUSH MOUNTED 42" AFF. UNLESS OTHERWISE NOTED
 - DUCT MOUNTED SMOKE DETECTOR
 - REMOTE TEST STATION FOR DUCT MOUNTED SMOKE DETECTOR.
 - SMOKE DETECTOR, PHOTOELECTRIC TYPE - SYSTEM CONNECTED
 - FIRE ALARM HEAT DETECTOR, FIXED TEMPERATURE 200°F HEAT DETECTOR
 - FIRE ALARM CONTROL PANEL - RECESSED
 - FIRE ALARM PULL STATION MOUNT 48" AFF
 - FIRE ALARM AUDIO-VISUAL MOUNT 6'-8" AFF (ADA) BELOW CEILING. ALL VISUAL ALARM SIGNALS SHALL FLASH AT A RATE OF SIXTY (60) FLASHES PER MINUTE (PER ADA REGULATIONS) PROVIDE THE PROPER CANDELA STRIBES FOR THE ROOM SIZES AS FOLLOWS: ROOM SIZE 50'x50' - 50'x60' 30'x30' - 50'x75' 65'x40' 40'x75' 65'x50' - 100' 65' FOR LARGER ROOMS USE EQUIVALENT FACILITY TO PROVIDE PROPER CANDELA PER 1996 NFPA 72 CODE AND SHALL BE SYNCHRONIZED WHERE 2 OR MORE ARE VISIBLE WITHIN THE SAME ROOM.
 - FIRE ALARM VISUAL STROBE ONLY - FLUSH MOUNT 6'-8" AFF (ADA)
 - DIGITAL ALARM COMMUNICATOR TRANSMITTER
 - SPRINKLER FLOW SWITCH
 - NURSE CALL CORRIDOR DOME LIGHT MOUNT 6" ABOVE DOOR
 - NURSE CALL SYSTEM EMERGENCY PULL STATION
 - NURSE CALL SYSTEM MASTER STATION
 - NURSE CALL SYSTEM POWER SUPPLY
 - INTERCOM SYSTEM DOOR STATION
 - INTERCOM SYSTEM MASTER STATION
 - INTERCOM SYSTEM POWER SUPPLY
 - ELECTRONIC DOOR STRIKES - FURNISHED AND INSTALLED BY G.C. WIRED BY E.C. AS SHOWN.
 - CABLE TV JUNCTION BOX "CTV" - SIZE AS REQUIRED BY CABLE TV CO.



GENERAL NOTES:
1. SEE DRAWING W/1 FOR FURTHER DETAIL OF WATER TREATMENT AREA.

PARTIAL FLOOR PLAN
SCALE: 1/4"=1'-0"

ALL OUTLETS AND WIRING SHALL BE SURFACE MOUNTED IN WATER TREATMENT ROOM. COORDINATE EXACT LOCATIONS OF ALL DEVICES WITH EQUIPMENT INSTALLER.

PROJECT: SOUTHERN MAINE DIALYSIS		THREE PHASE PANELBOARD SCHEDULE		PANEL DESIGNATION: LP4 (NEW PANEL)	
MAIN LUGS: 100A		VOLTS: 120/208		PHASE: 3	
WIRE: 4		KVA LOAD		KVA LOAD	
.38	ELECTRIC HEAT PANEL, EHP-1	1	2P	2	ELECTRIC HEAT PANEL, EHP-2
.38		20		20	
.38	ELECTRIC HEAT PANEL, EHP-3	5	2P	6	ELECTRIC HEAT PANEL, EHP-4
.38		20		20	
.38	ELECTRIC HEAT PANEL, EHP-5	9	2P	10	ELECTRIC HEAT PANEL, EHP-6
.38		20		20	
.38	ELECTRIC HEAT PANEL, EHP-7	13	2P	14	ELECTRIC HEAT PANEL, EHP-8
.38		20		20	
.38	ELECTRIC HEAT PANEL, EHP-9	17	2P	18	ELECTRIC HEAT PANEL, EHP-10
.38		20		20	
.38	ELECTRIC HEAT PANEL, EHP-11	21	2P	22	ELECTRIC HEAT PANEL, EHP-12
.38		20		20	
1.0	ELECTRIC SCALE	25	1P	26	SPACE
	SPACE	27		28	SPACE
	SPACE	29		30	SPACE
TOTAL CONN. LOAD		10.1 KVA			

PROJECT: SOUTHERN MAINE DIALYSIS		THREE PHASE PANELBOARD SCHEDULE		PANEL DESIGNATION: LP5 (NEW PANEL)	
MAIN LUGS: 100A		VOLTS: 120/208		PHASE: 3	
WIRE: 4		KVA LOAD		KVA LOAD	
3.0	NEW LOW PRESSURE CUT OFF SWITCH	1	2P	2	NEW R.O. MACHINE
3.0		30		60	
1.5	MIXING VALVE POWER	5	1P	6	OUTLETS - RM 118
1.0	OUTLETS - RM 118	7	1P	8	OUTLET - RM 118
.50	OUTLET - RM 118	9	1P	10	OUTLET - RM 118
.50	OUTLET - RM 118	11	1P	12	OUTLET - RM 118
1.0	OUTLETS - RM 118	13	1P	14	OUTLET @ SDS
.50	OUTLET - RM 118	15	1P	16	OUTLET @ SDS
.50	OUTLET - RM 118	17	1P	18	OUTLET @ GANUFLO
1.0	OUTLETS - RM 118	19	1P	20	PROCESS WATER HEATERS
.50	OUTLET - RM 118	21	1P	22	SWITCHED OUTLET @ R.O. STORAGE TANK
.50	OUTLET - RM 118	23	1P	24	SWITCHED OUTLET @ R.O. STORAGE TANK
1.0	OUTLETS - RM 118	25	1P	26	OUTLET @ RO MACHINE
1.0	OUTLETS - RM 118	27	1P	28	OUTLET @ RO MACHINE
1.0	PROTON PRINTER	29	1P	30	OUTLETS - WATER TREATMENT
TOTAL CONN. LOAD		38.4 KVA			

EXISTING LOAD TO BE DISCONNECTED. BREAKER TO BE REUSED AS INDICATED.

EXISTING LOAD TO BE DISCONNECTED. BREAKER TO BE REUSED AS INDICATED.

EXISTING LOAD TO BE DISCONNECTED. BREAKER TO BE REUSED AS INDICATED.

PROJECT: SOUTHERN MAINE DIALYSIS		THREE PHASE PANELBOARD SCHEDULE		PANEL DESIGNATION: LP3 (EXISTING TO REMAIN)	
MAIN BRKR: 225A		VOLTS: 120/208		PHASE: 3	
WIRE: 4		KVA LOAD		KVA LOAD	
.50	OUTLET - RM 118	1	1P	2	OUTLET - RM 118
1.0	OUTLETS - RM 118	3	1P	4	OUTLETS - RM 118
.50	OUTLET - RM 118	5	1P	6	OUTLET - RM 118
1.0	OUTLETS - RM 118	7	1P	8	OUTLETS - RM 118
.50	OUTLET - RM 118	9	1P	10	OUTLET - RM 118
.50	OUTLET - RM 118	11	1P	12	OUTLETS - RM 118
.50	OUTLET - RM 118	13	1P	14	OUTLET - RM 118
.50	OUTLET - RM 118	15	1P	16	ISOLATION REC.
1.2	OUTLETS - RM 118	17	1P	18	OUTLET - RM 118
.50	OUTLET - RM 118	19	1P	20	OUTLETS - RM 118
.50	OUTLET - RM 118	21	1P	22	OUTLET - RM 118
.50	OUTLETS - RM 118	23	1P	24	OUTLET - RM 118
1.2	OUTLETS - RM 118	25	1P	26	OUTLET - RM 118
.50	OUTLET - RM 118	27	1P	28	OUTLETS - RM 118
.50	OUTLET - RM 118	29	1P	30	OUTLET - RM 118
.50	OUTLET - RM 118	31	1P	32	OUTLET - RM 118
1.0	OUTLETS - RM 118	33	1P	34	OUTLETS - RM 118
.80	TEL. EQUIPMENT	35	1P	36	OUTLETS - RM 118
.80	GFI @ GENERATOR	37	1P	38	PANEL LP4
3.4	WATER HEATER	39	1P	3P	
3.4	GENERATOR BLOCK HEATER	41	1P	100	
TOTAL CONN. LOAD				TOTAL DEM. LOAD	

EXISTING LOAD TO BE DISCONNECTED. BREAKER TO BE REUSED AS INDICATED.

EXISTING LOAD TO BE DISCONNECTED. BREAKER TO BE REUSED AS INDICATED.

EXISTING LOAD TO BE DISCONNECTED. BREAKER TO BE REUSED AS INDICATED.

PROJECT: SOUTHERN MAINE DIALYSIS		THREE PHASE PANELBOARD SCHEDULE		PANEL DESIGNATION: LP2 (EXISTING TO REMAIN)	
MAIN BRKR: 225A		VOLTS: 120/208		PHASE: 3	
WIRE: 4		KVA LOAD		KVA LOAD	
	EMERGENCY	1	1P	2	LIGHTING RM 02
	LIGHTING RM 2-4	3	1P	4	LIGHTING RM 6,8,27,28,07
	LIGHTING RM 9, 10, 17	5	1P	6	LIGHTING RM 15,16,14,11,22-25
	LIGHTING RM 19, 30, 31	7	1P	8	LIGHTING RM 18
	LIGHTING RM 18	9	1P	10	LIGHTING RM 32-35
	REC OUT RM 04	11	1P	12	REC OUT RM 04
	REC OUT RM 04	13	1P	14	REC OUT RM 04
	REC OUT RM 18	15	1P	16	REC OUT RM 18
	REC OUT TV'S IN CLG	17	1P	18	REC OUT TV'S IN CEILING
	REC OUT CRASH CART	19	1P	20	LIGHTING - TREATMENT RM
	REC OUT RM 18	21	1P	22	LIGHTING - TREATMENT RM
	REC OUT RM 18	23	1P	24	OUTLETS - TREATMENT RM
	REC OUT RM 18	25	1P	26	REC OUT RM 18
.40	OUTLETS - TREATMENT RM	27	1P	28	REC OUT RM 18
.50	OUTLET 132	29	1P	30	REC OUT PUMP 1 RM 05
.50	OUTLET - 133	31	1P	32	REC OUT PUMP 2 RM 05
1.0	OUTLETS - 132 & 133	33	1P	34	REC OUT RM 18
.40	LIGHTING - TREATMENT RM	35	1P	36	REC OUT CORRIDOR 17
12.8	PANEL LP5	37	1P	38	ELEC. HEAT LOBBY
12.8		39	3P	20	
12.8		41	100	42	SPACE
TOTAL CONN. LOAD				TOTAL DEM. LOAD	

EXISTING LOAD TO BE DISCONNECTED. BREAKER TO BE REUSED AS INDICATED.

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Owner: _____

Drawn: _____

Checked: _____

Date: _____

DESCRIPTION: _____

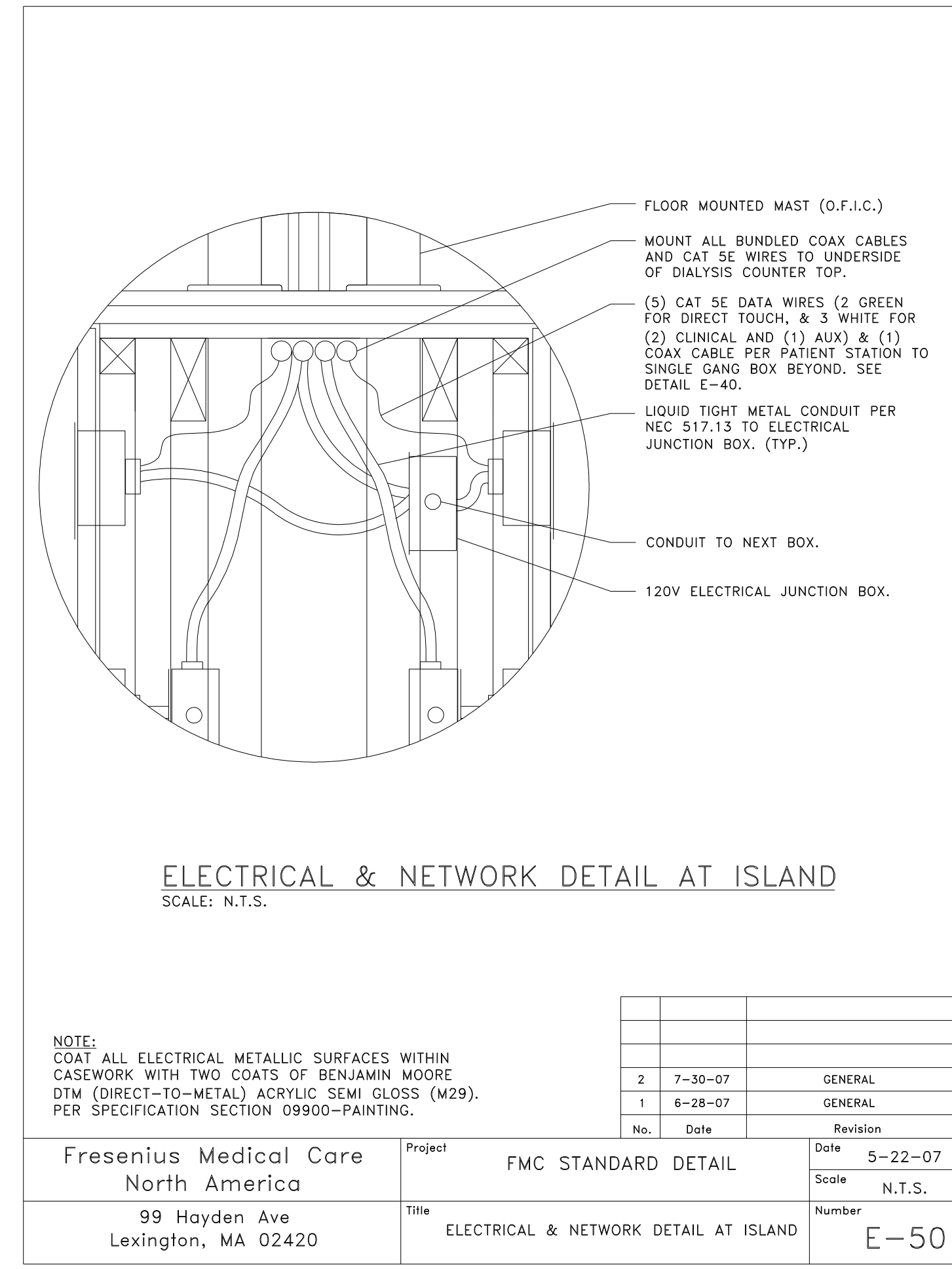
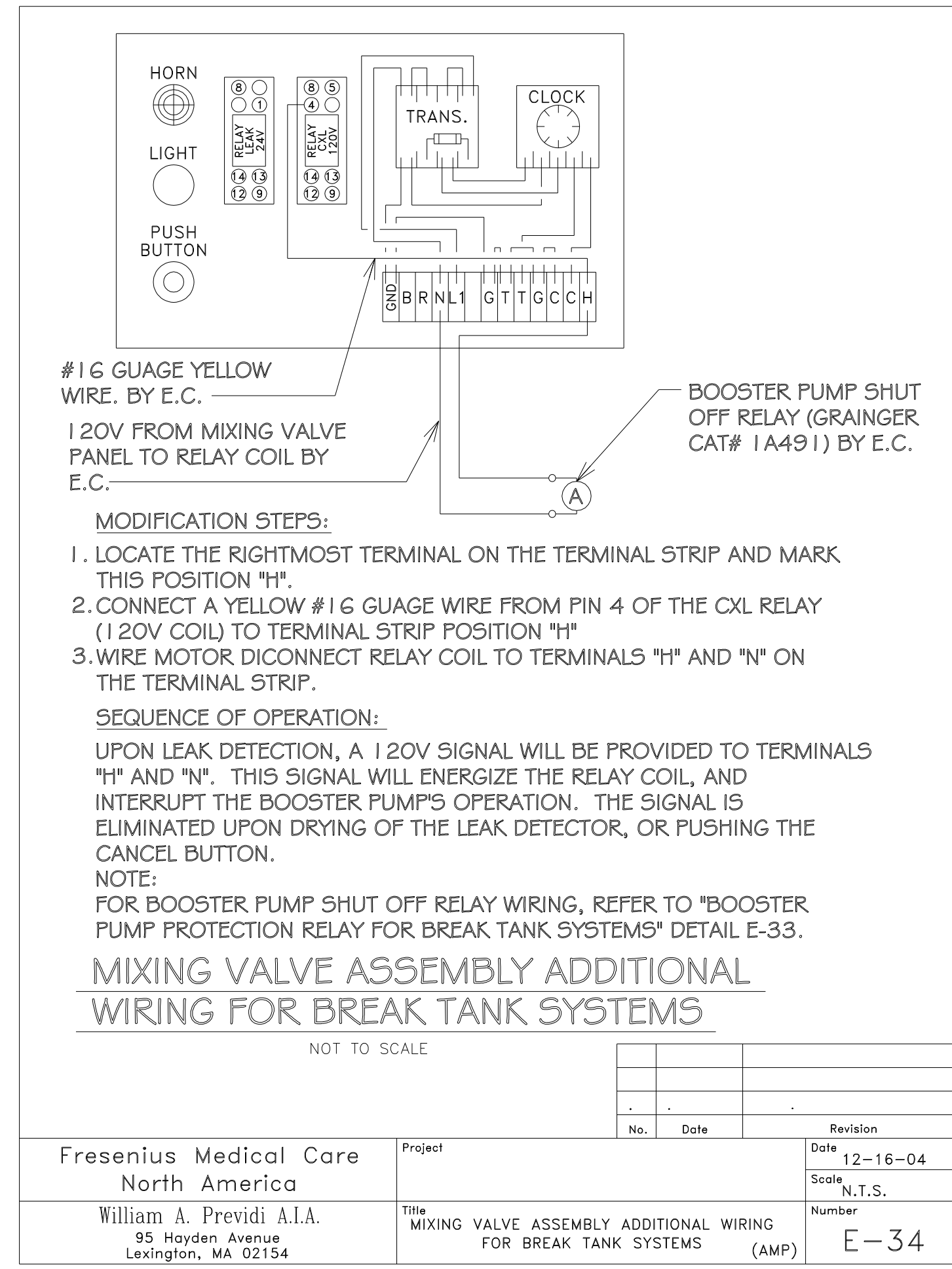
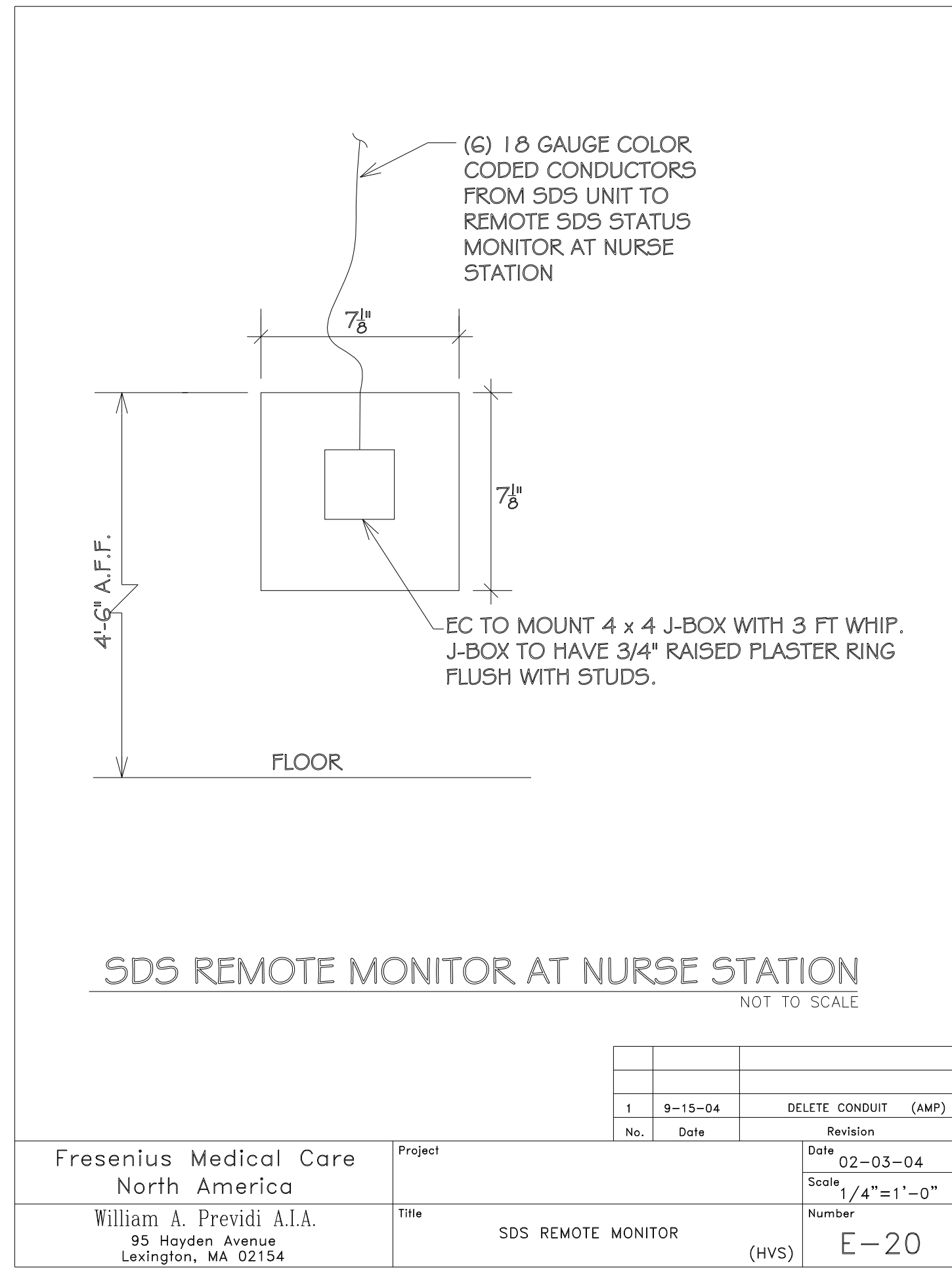
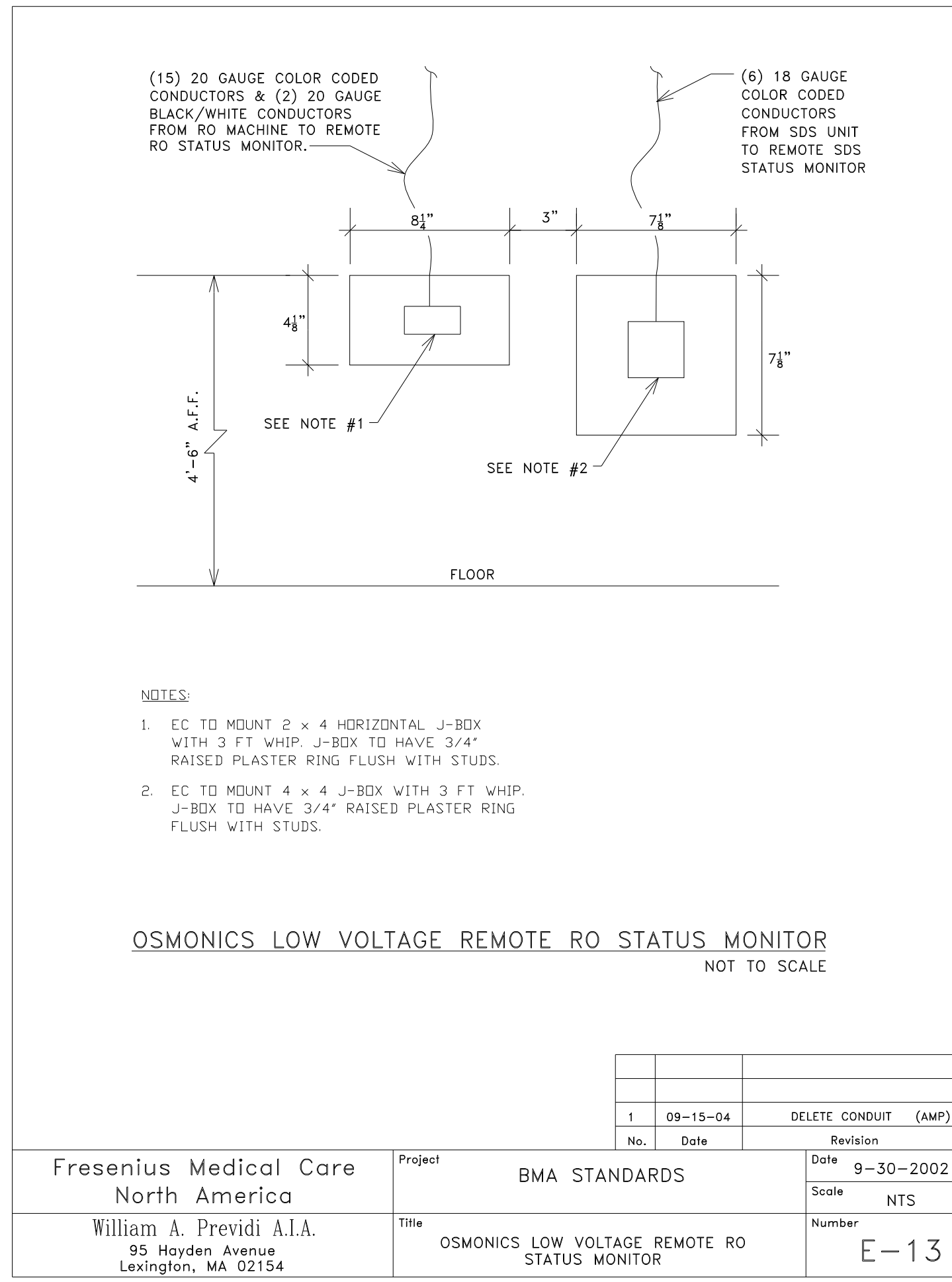
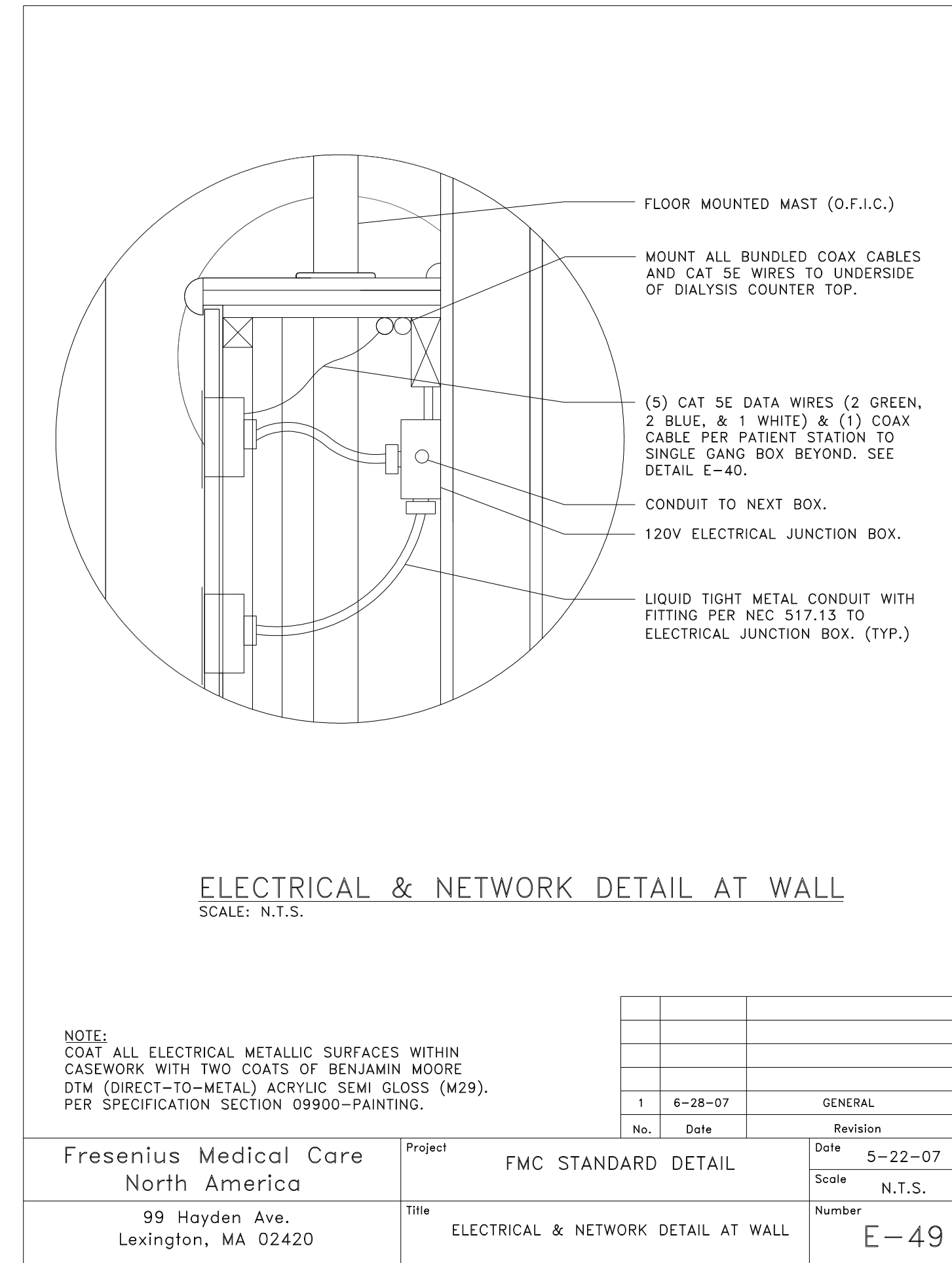
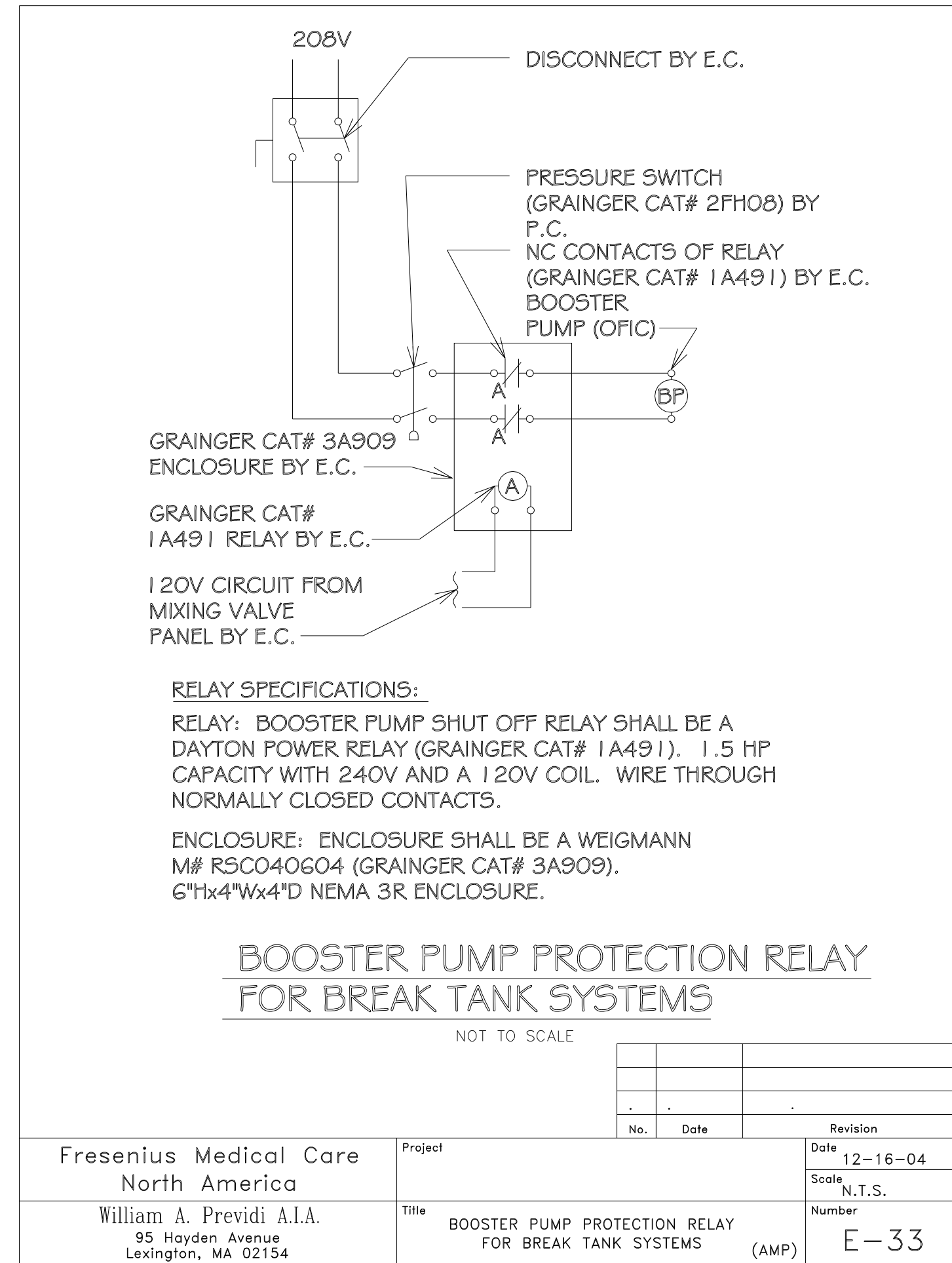
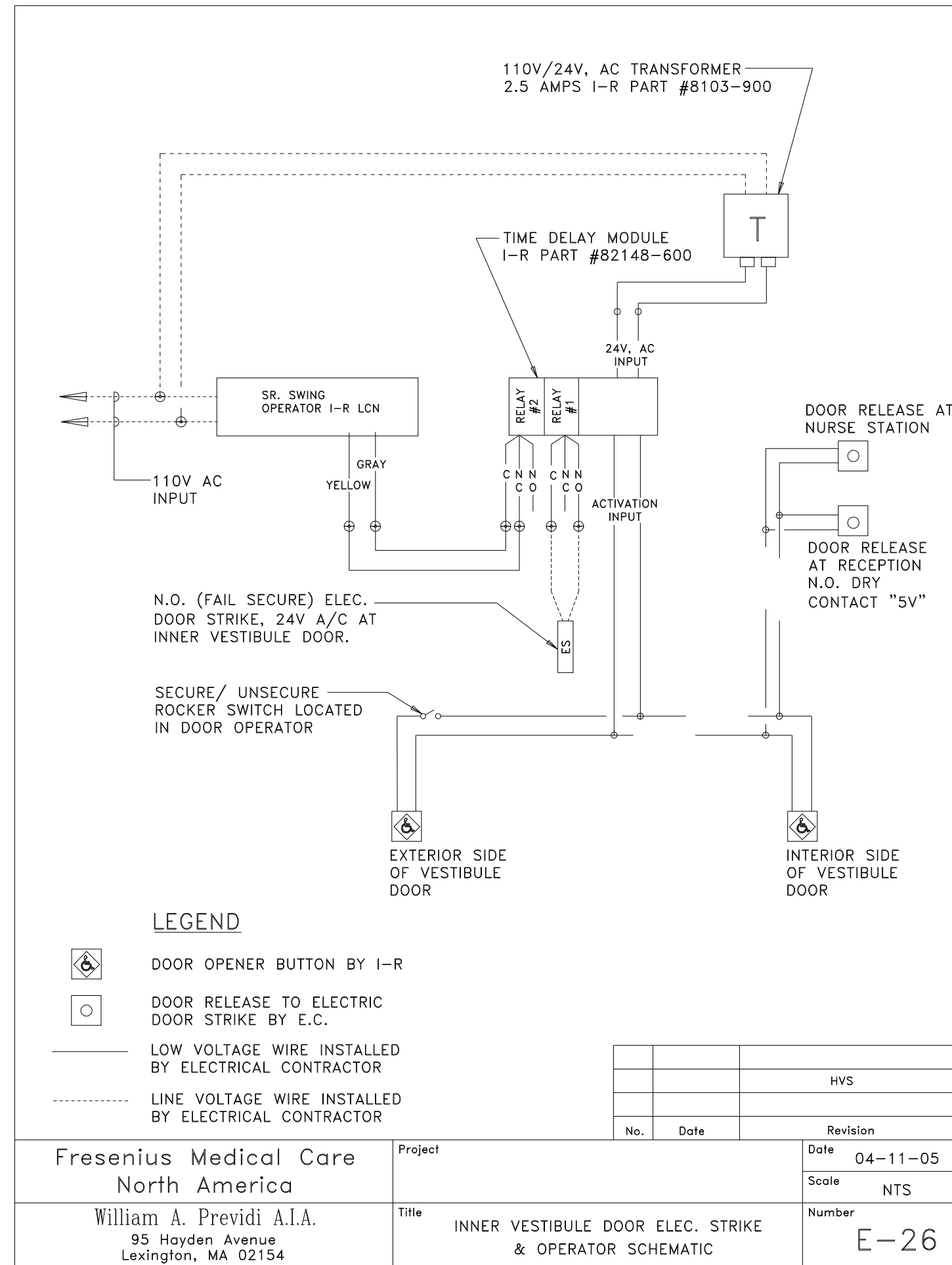
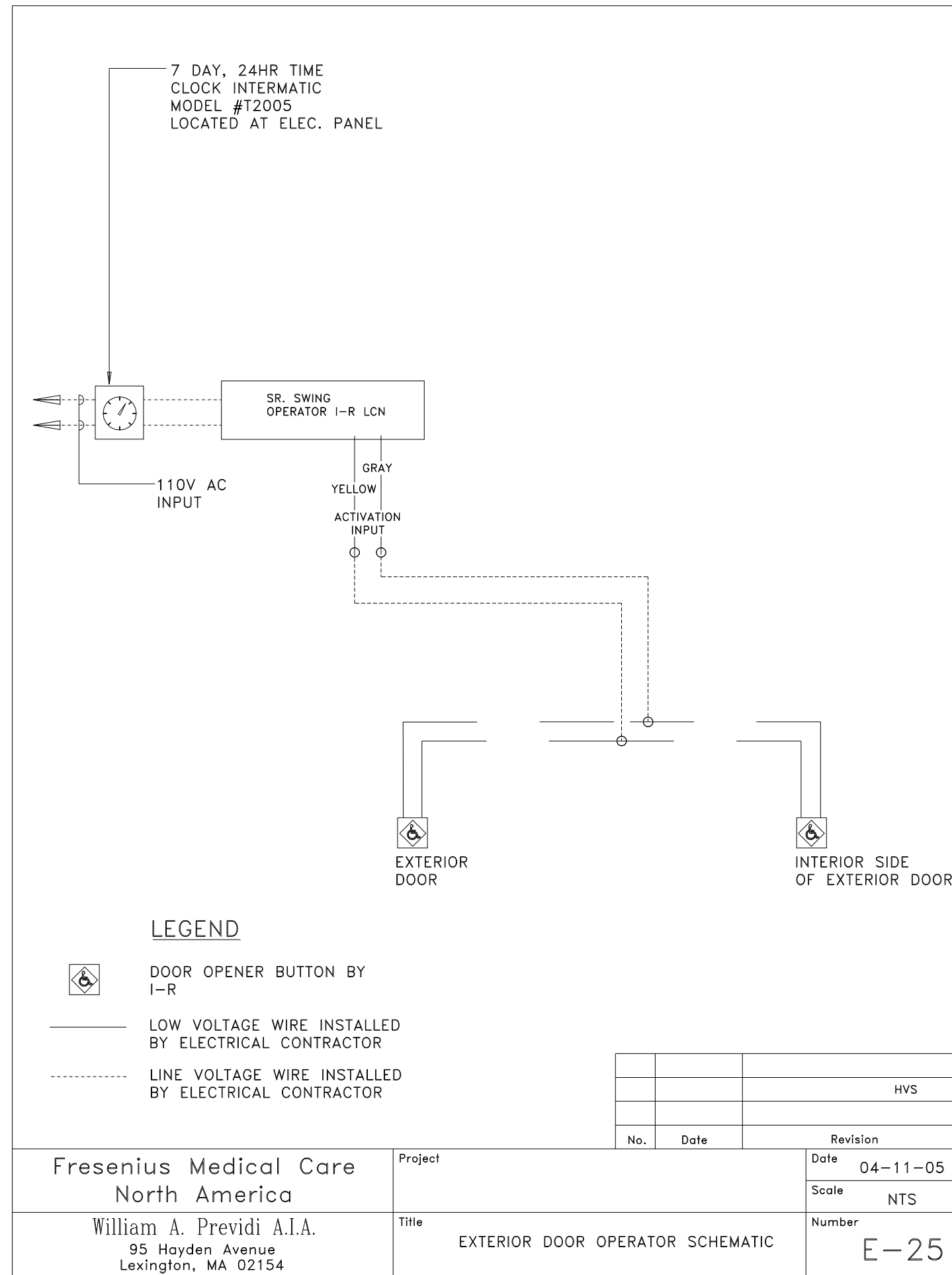
Drawing Title: **ELECTRICAL DETAILS**

Scale: None

Date: 9/04/2007

CWS Proj. No.: 2006-447.tpt

Drawing Number: **E3.1**



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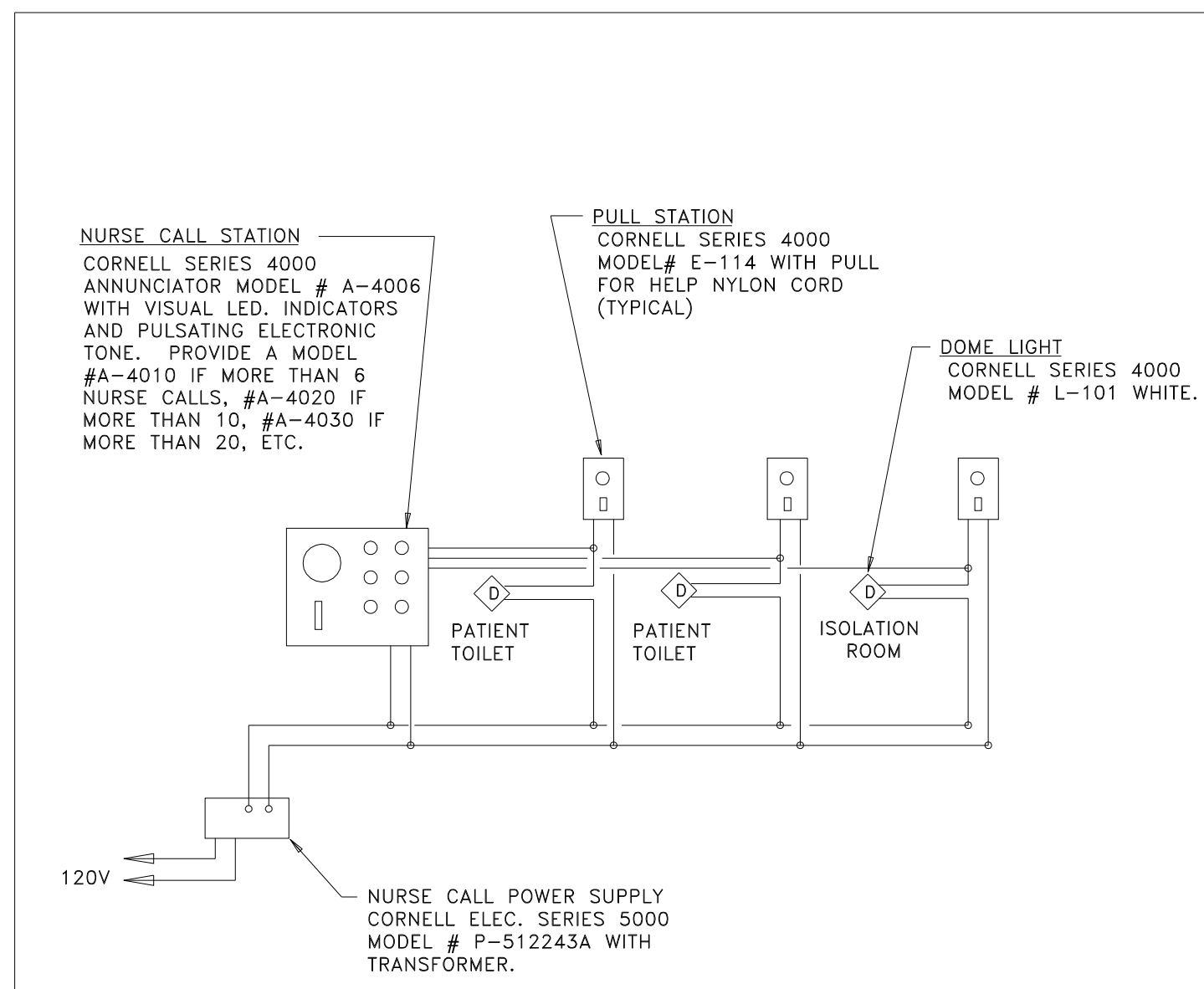
REVISIONS:

No.	Date	Description

ELECTRICAL DETAILS

9/04/2007
Scale: None
CWS Proj. No.: 2006-447-4pt

Drawing Number: **E3.4**



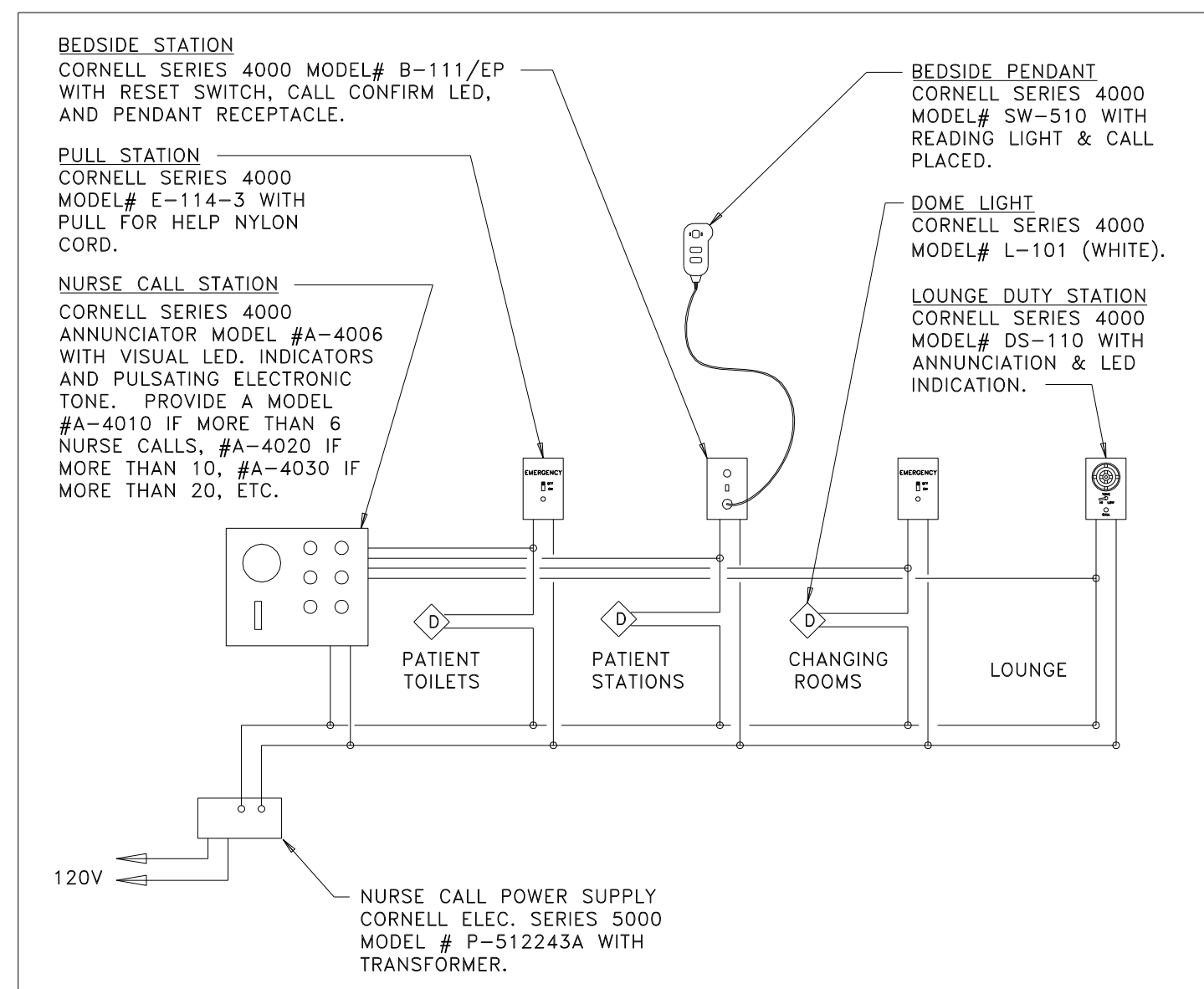
NURSE CALL WIRING SCHEMATIC

NOT TO SCALE

* EDIT THE QUANTITY AND LABELING OF NURSE CALLS TO REFLECT THE NUMBER OF NURSE CALLS REQUIRED.

No.	Date	Revision
2	03/15/05	NURSE CALL MODEL# (AMP)
1	04/04/02	TRANSFORMER MODEL# (HVS)

Fresenius Medical Care North America	Project	Date	4-17-97
William A. Previdi A.I.A.	Title	Scale	AS NOTED
95 Hayden Avenue Lexington, MA 02154	NURSE CALL WIRING SCHEMATIC	Number	E-5



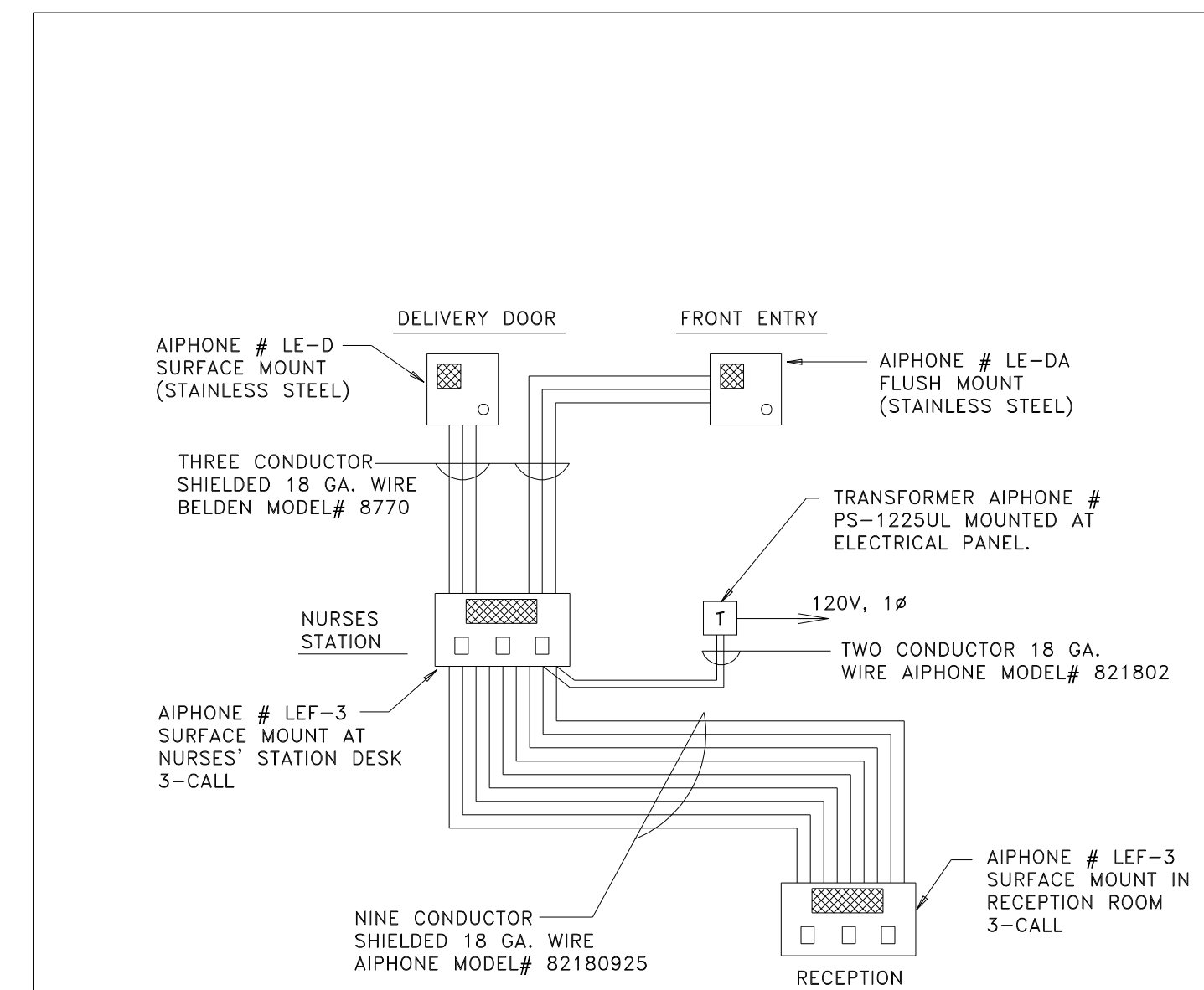
NOCTURNAL NURSE CALL WIRING SCHEMATIC

NOT TO SCALE

* EDIT THE QUANTITY AND LABELING OF NURSE CALLS TO REFLECT THE NUMBER OF NURSE CALLS REQUIRED.

No.	Date	Revision
1	05-11-06	WIRES (AMP)

Fresenius Medical Care North America	Project	Date	05-11-06
95 Hayden Avenue Lexington, MA 02154	Title	Scale	AS NOTED
	NOCTURNAL NURSE CALL WIRING SCHEMATIC	Number	E-5A

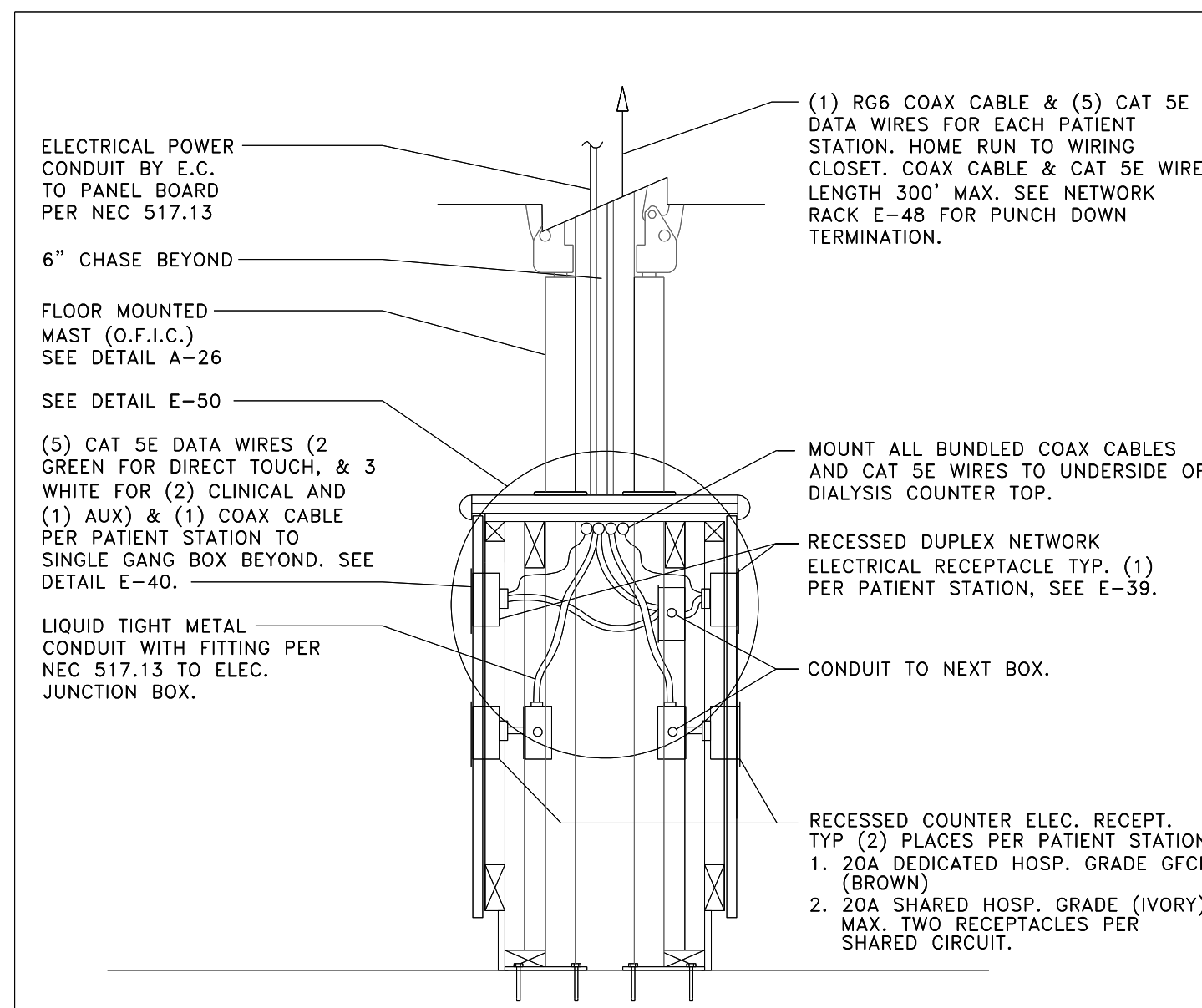


INTERCOM WIRING SCHEMATIC

NOT TO SCALE

No.	Date	Revision
1	2/2/04	WIRES (AMP)

Fresenius Medical Care North America	Project	Date	4-17-97
William A. Previdi A.I.A.	Title	Scale	AS NOTED
95 Hayden Avenue Lexington, MA 02154	INTERCOM WIRING SCHEMATIC	Number	E-6

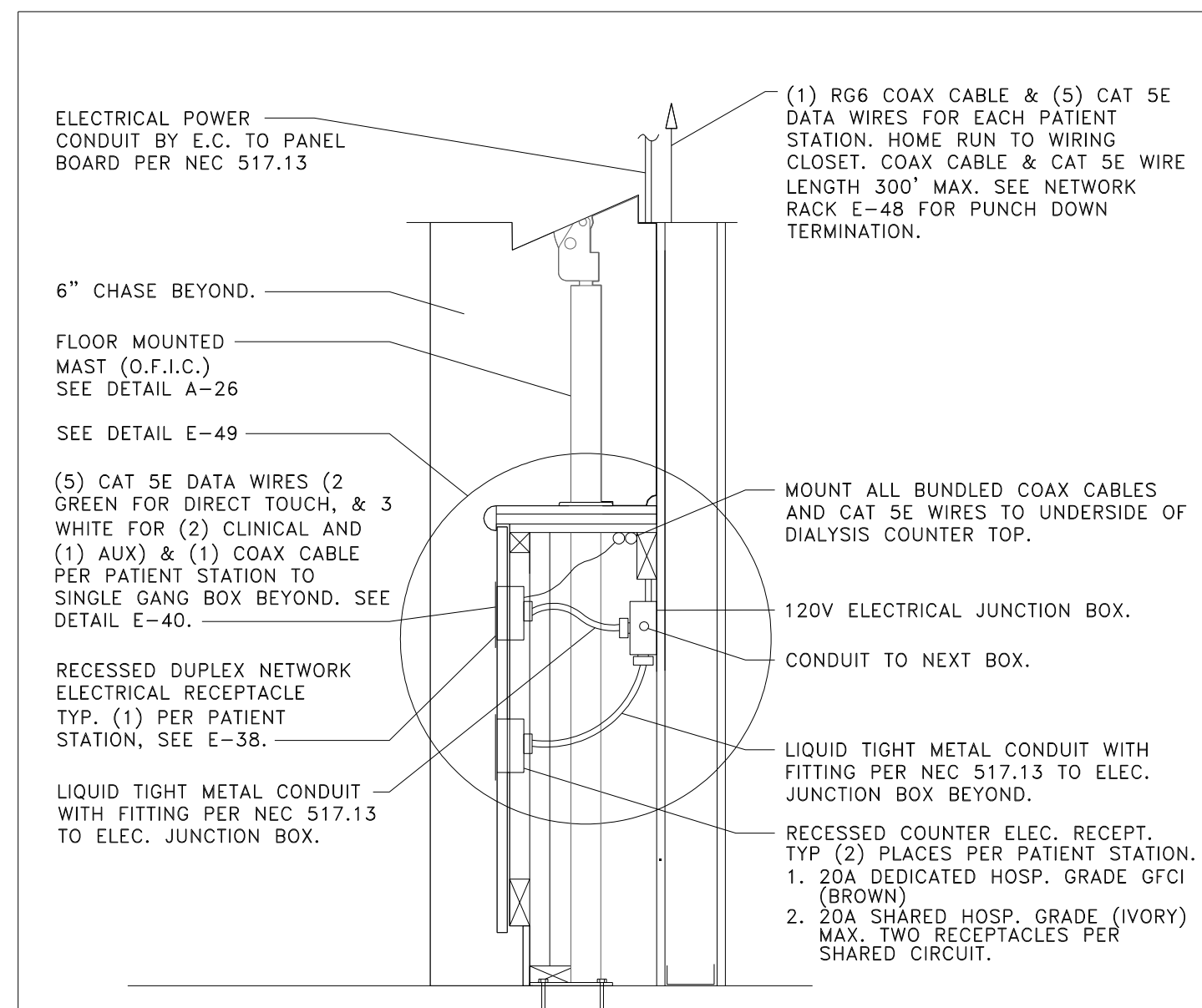


ELECTRICAL & NETWORK SECTION AT ISLAND
SCALE: 1"=1'-0"

No.	Date	Revision
8	7-30-07	GENERAL
7	6-28-07	GENERAL
6	5-17-07	DIRECT TOUCH REVISIONS
5	2-21-07	NEW TV/AUDIO SYSTEM
4	10-8-05	MOVE MOUNTS TO MATCH AD-50
3	9-22-05	ADD COLEMAN #92045 & CATS

NOTE: COAT ALL ELECTRICAL METALLIC SURFACES WITH TWO COATS OF BENJAMIN MOORE DTM (DIRECT-TO-METAL) ACRYLIC SEMI GLOSS (M29). PER SPECIFICATION SECTION 09900-PAINTING.

Fresenius Medical Care North America	Project	Date	9-30-2002
99 Hayden Ave Lexington, MA 02420	Title	Scale	1"=1'-0"
	ELECTRICAL & NETWORK SECTION AT ISLAND	Number	E-14

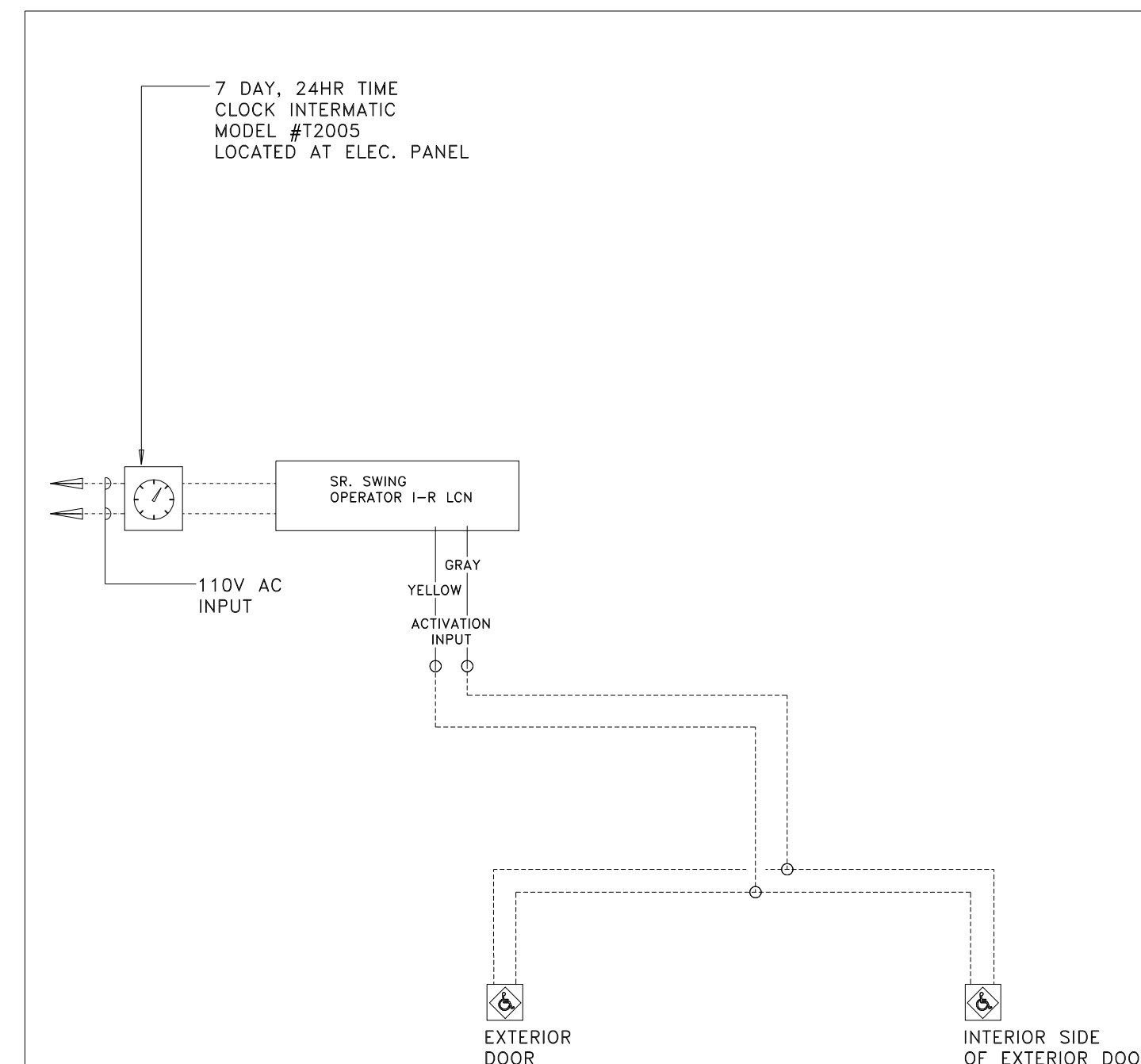


ELECTRICAL & NETWORK SECTION AT WALL
SCALE: 1"=1'-0"

No.	Date	Revision
8	7-30-07	GENERAL
7	6-28-07	GENERAL
6	5-17-07	DIRECT TOUCH REVISIONS
5	2-21-07	NEW TV/AUDIO SYSTEM
4	9-22-05	ADD COLEMAN #92045 & CAT 5
3	4-18-03	NEC 517-13
2	2-13-03	NEC 517-61(C)(1)

NOTE: COAT ALL ELECTRICAL METALLIC SURFACES WITH TWO COATS OF BENJAMIN MOORE DTM (DIRECT-TO-METAL) ACRYLIC SEMI GLOSS (M29). PER SPECIFICATION SECTION 09900-PAINTING

Fresenius Medical Care North America	Project	Date	9-30-2002
99 Hayden Avenue Lexington, MA 02420	Title	Scale	1"=1'-0"
	ELECTRICAL & NETWORK SECTION AT WALL	Number	E-15

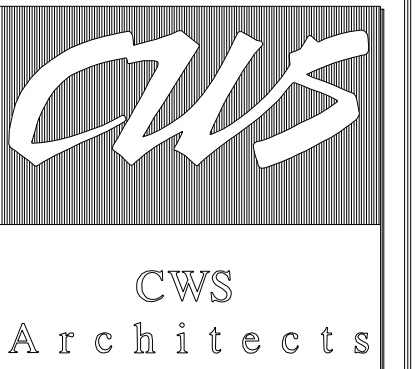


LEGEND

- DOOR OPENER BUTTON BY I-R
- LOW VOLTAGE WIRE INSTALLED BY ELECTRICAL CONTRACTOR
- LINE VOLTAGE WIRE INSTALLED BY ELECTRICAL CONTRACTOR

No.	Date	Revision
		HVS

Fresenius Medical Care North America	Project	Date	04-11-05
William A. Previdi A.I.A.	Title	Scale	NTS
95 Hayden Avenue Lexington, MA 02154	EXTERIOR DOOR OPERATOR SCHEMATIC	Number	E-25



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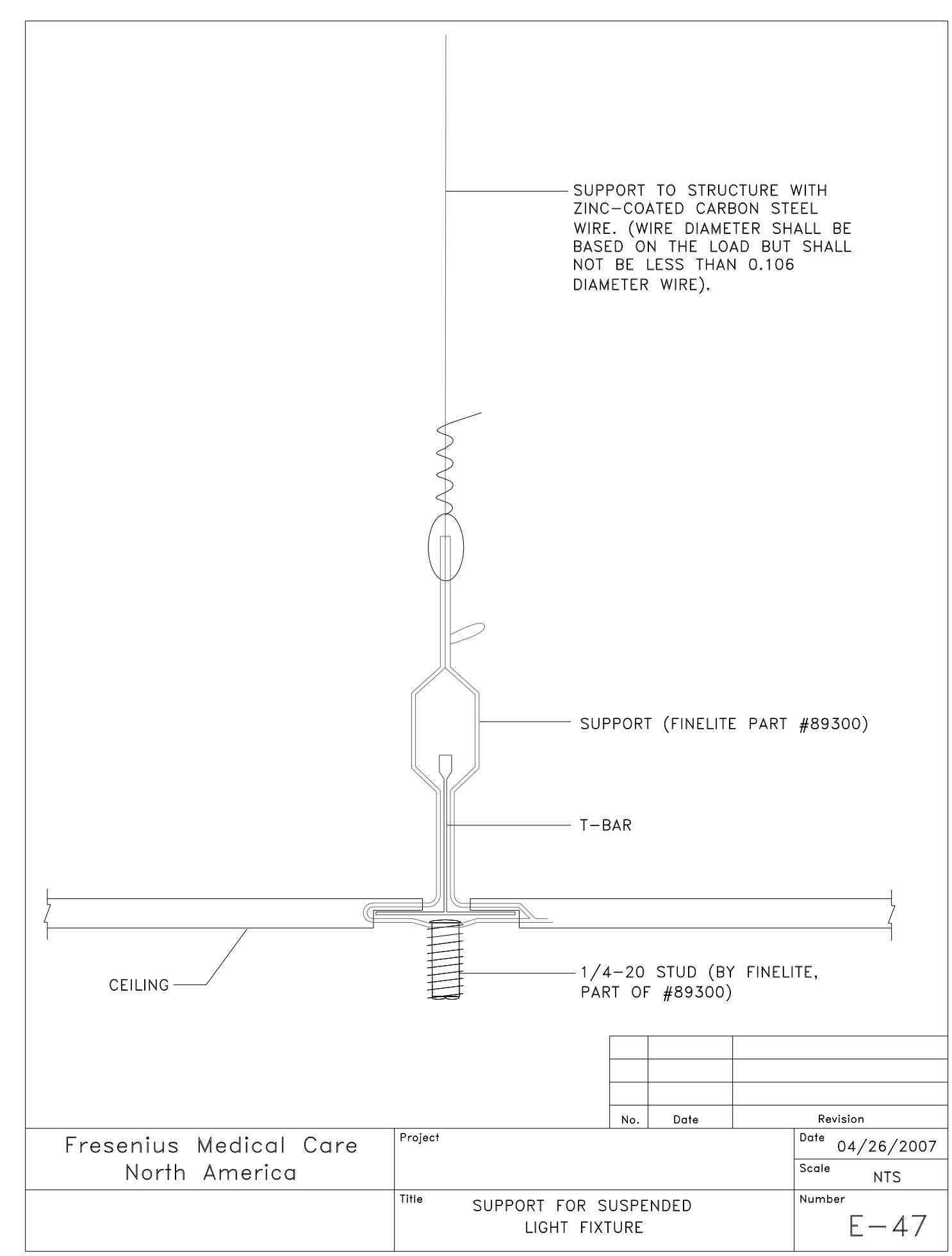
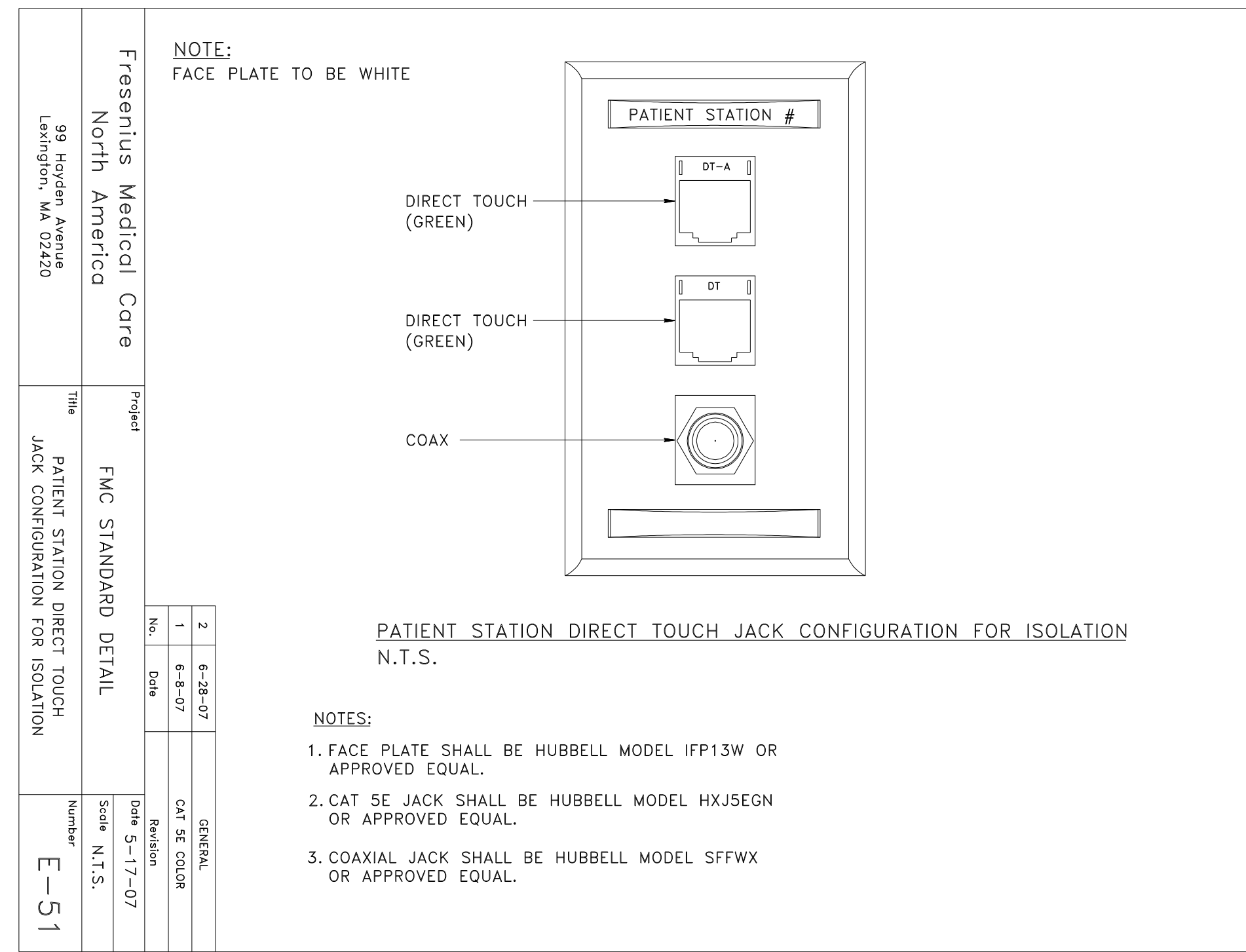
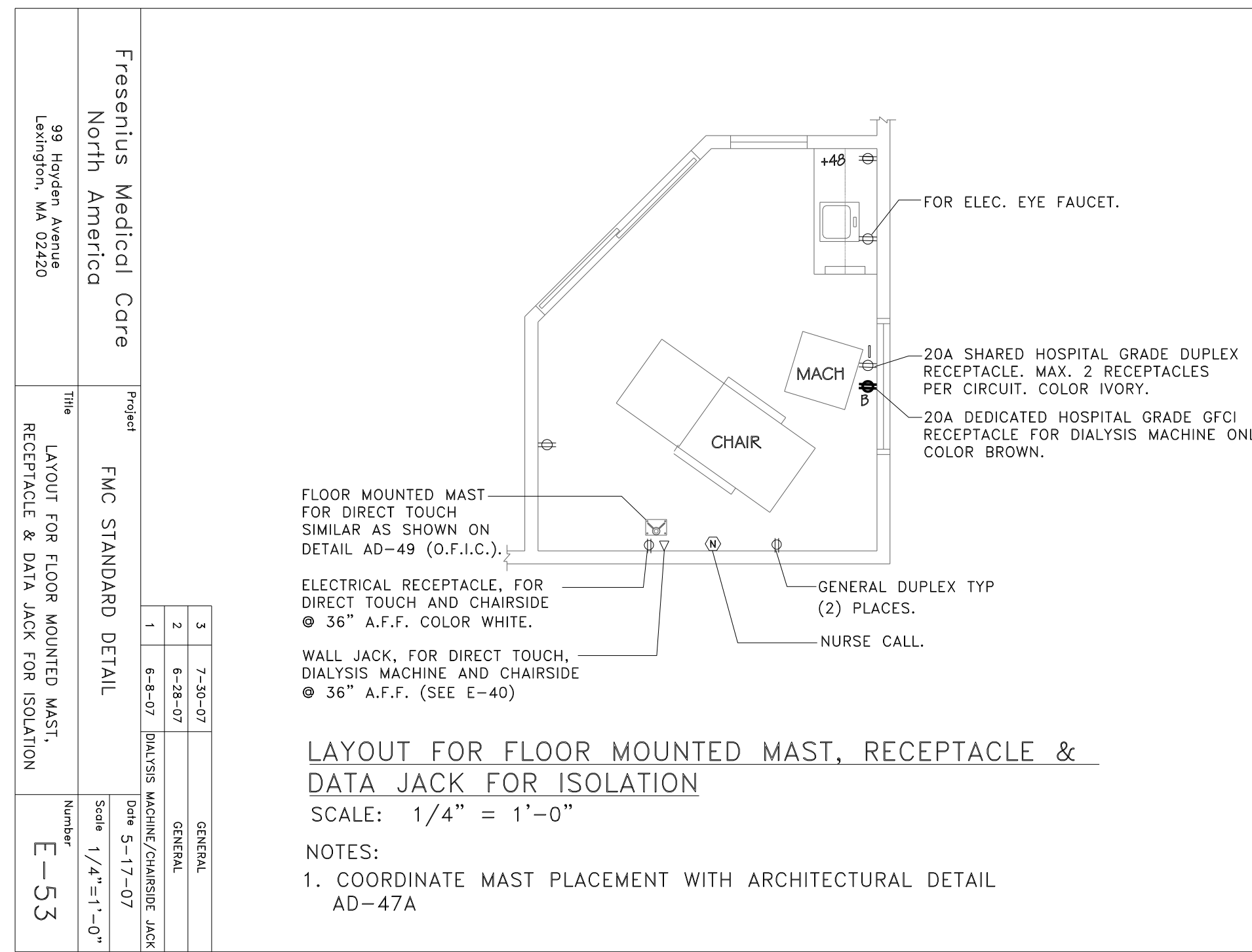
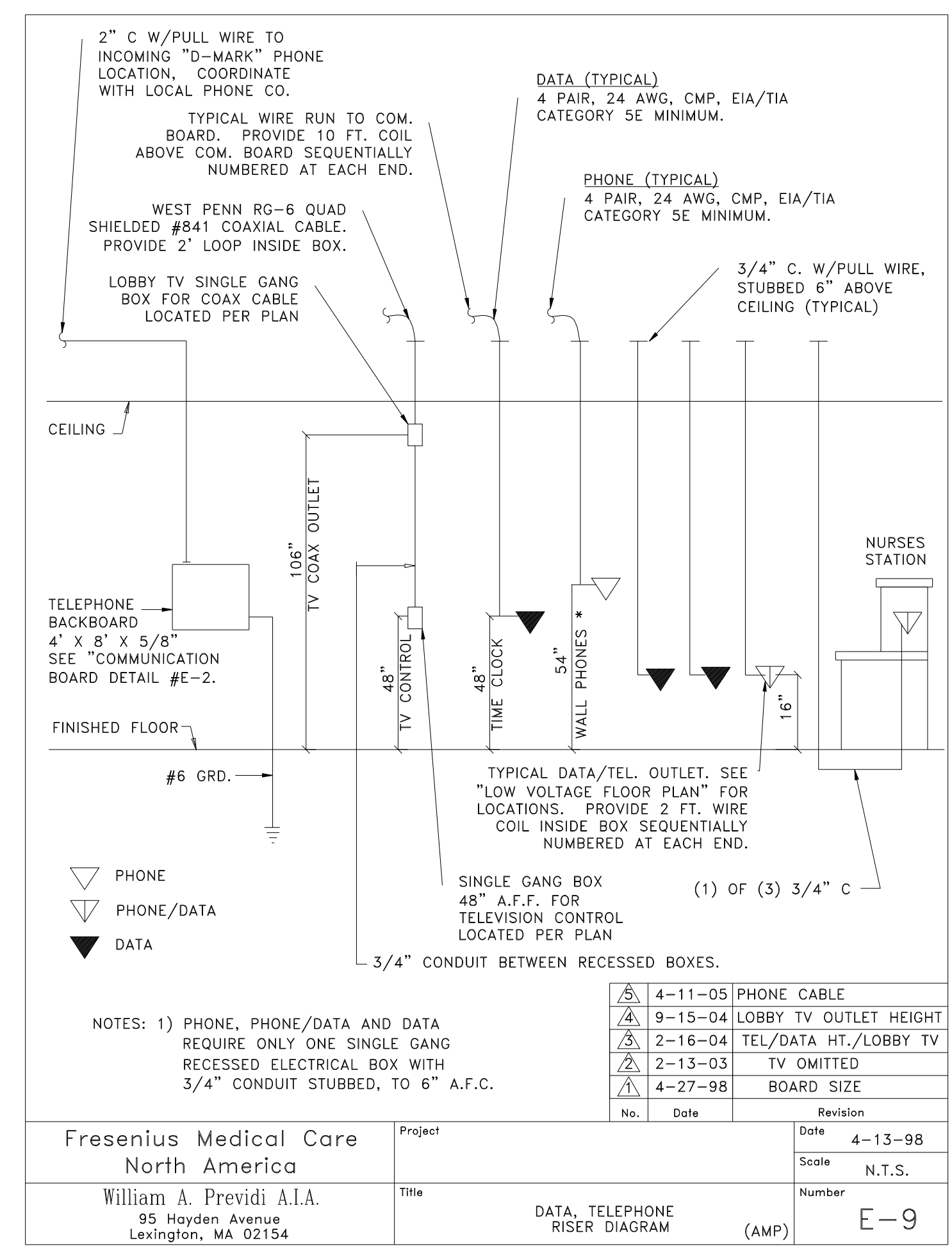
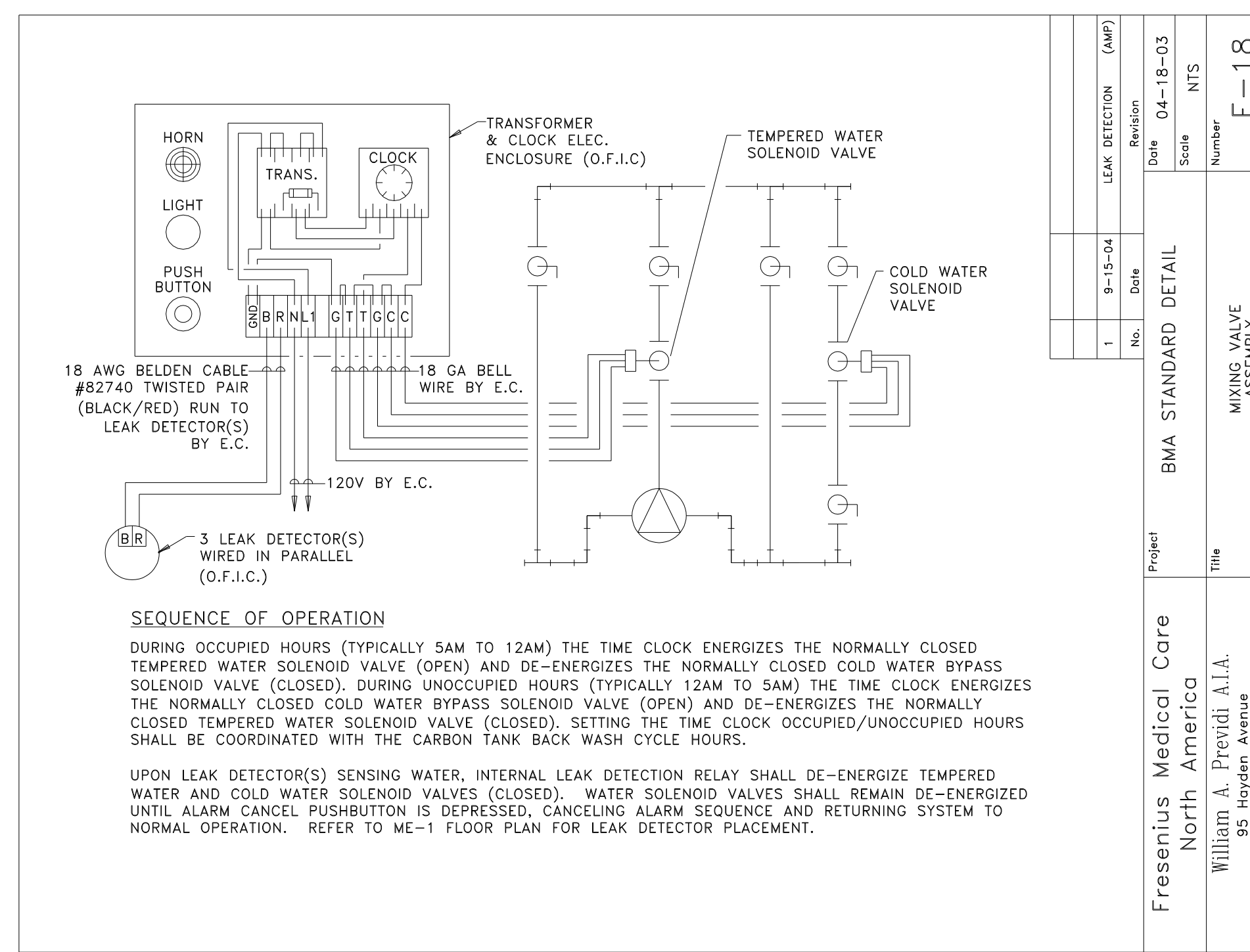
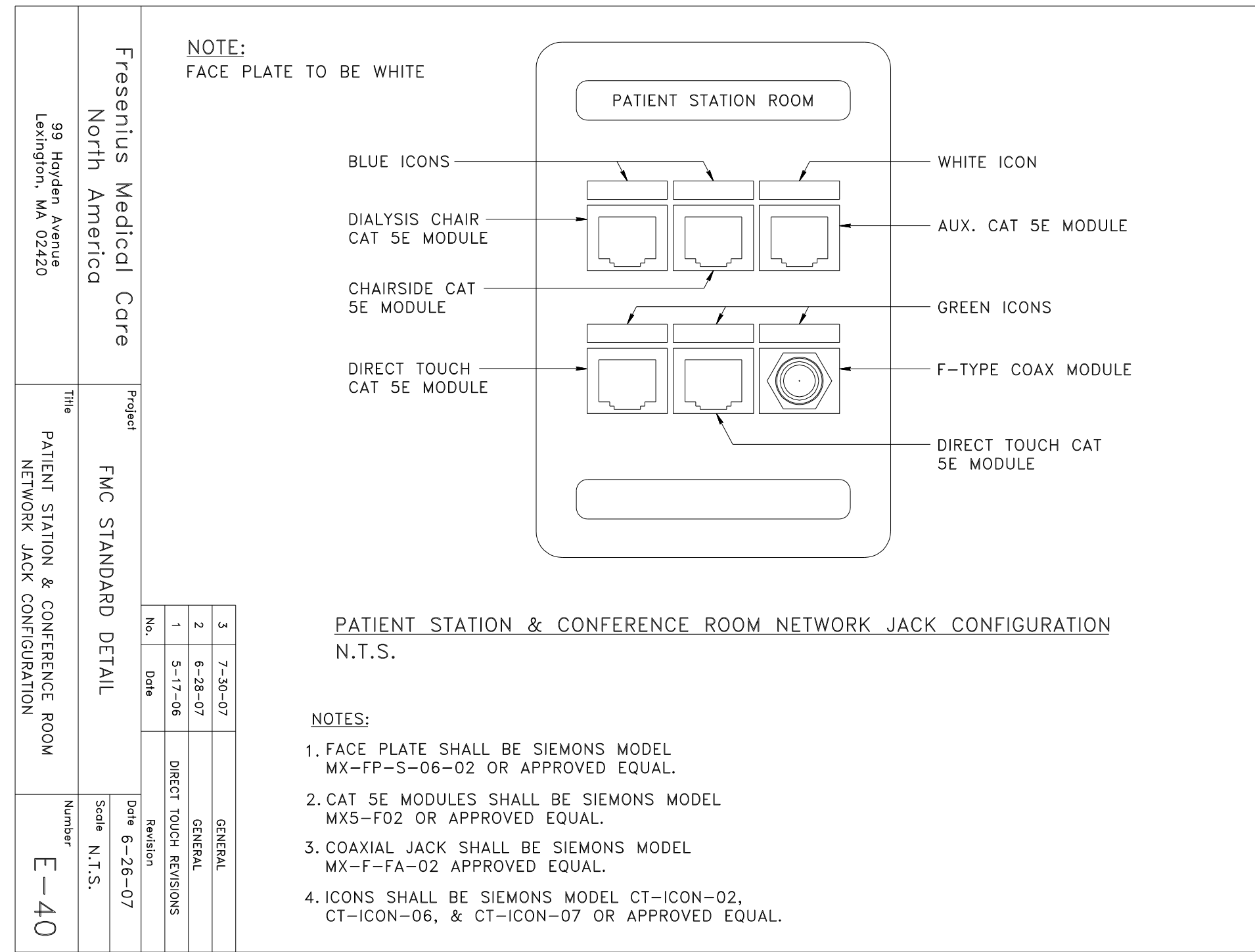
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NORTH AMERICA
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REVISIONS:	Date:	Description:

Drawing Title:
ELECTRICAL
DETAILS
Scale: 9/04/2007
Date: None
CWS Proj. No.: 2006-447-4pt

Drawing Number:
E3.5



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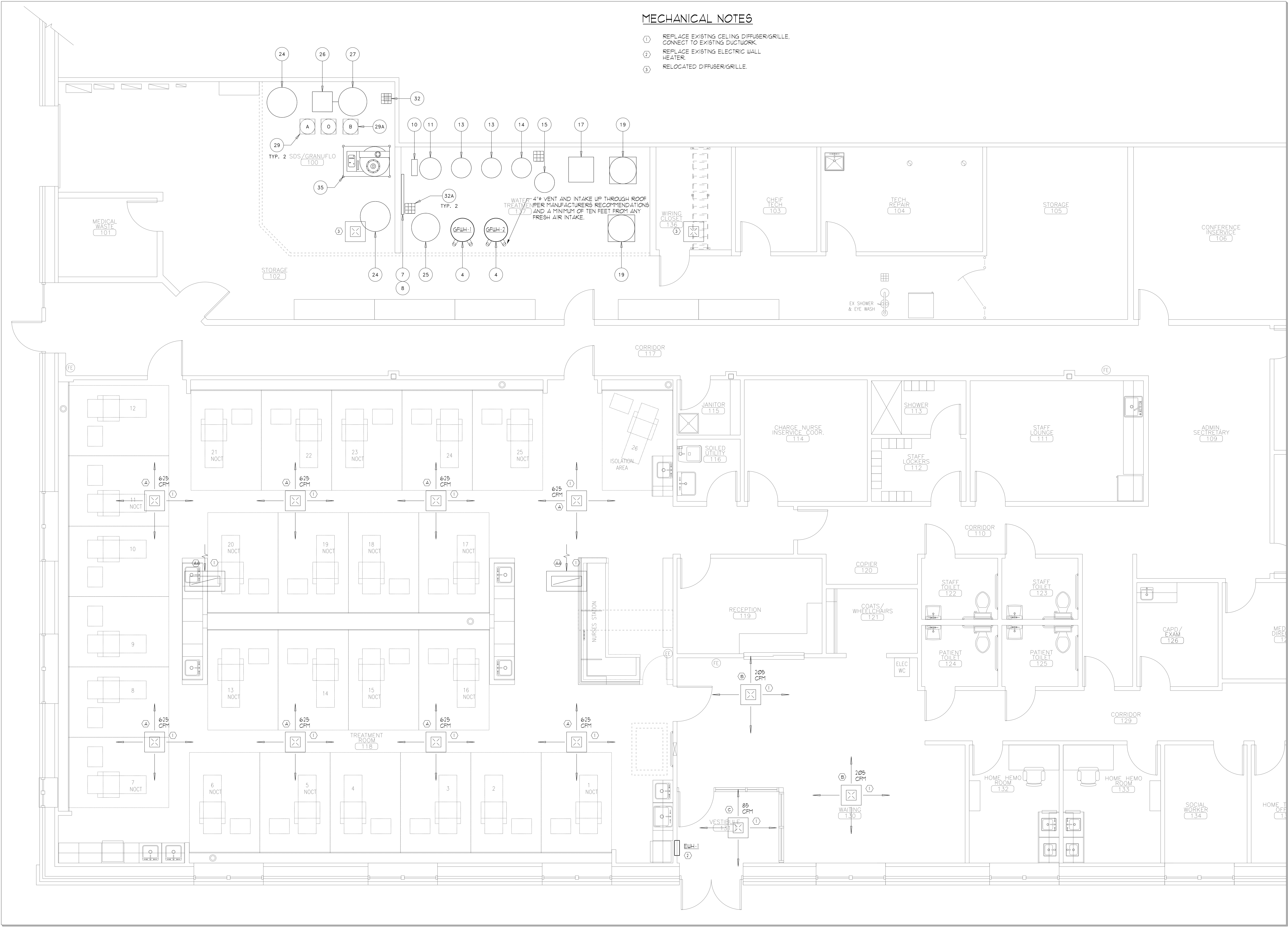
Date:	Description:

ELECTRICAL DETAILS
Drawing Title: ELECTRICAL DETAILS
Scale: None
Date: 9/04/2007
CWS Proj. No.: 2006-447.tpt

E3.6
Drawing Number: E-47

MECHANICAL NOTES

- ① REPLACE EXISTING CEILING DIFFUSER/GRILLE. CONNECT TO EXISTING DUCTWORK.
- ② REPLACE EXISTING ELECTRIC WALL HEATER.
- ③ RELOCATED DIFFUSER/GRILLE.



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REVISIONS:	Date:	Description:

Drawing Title: **MECHANICAL PLAN**

Scale: 1/4" = 1'-0"

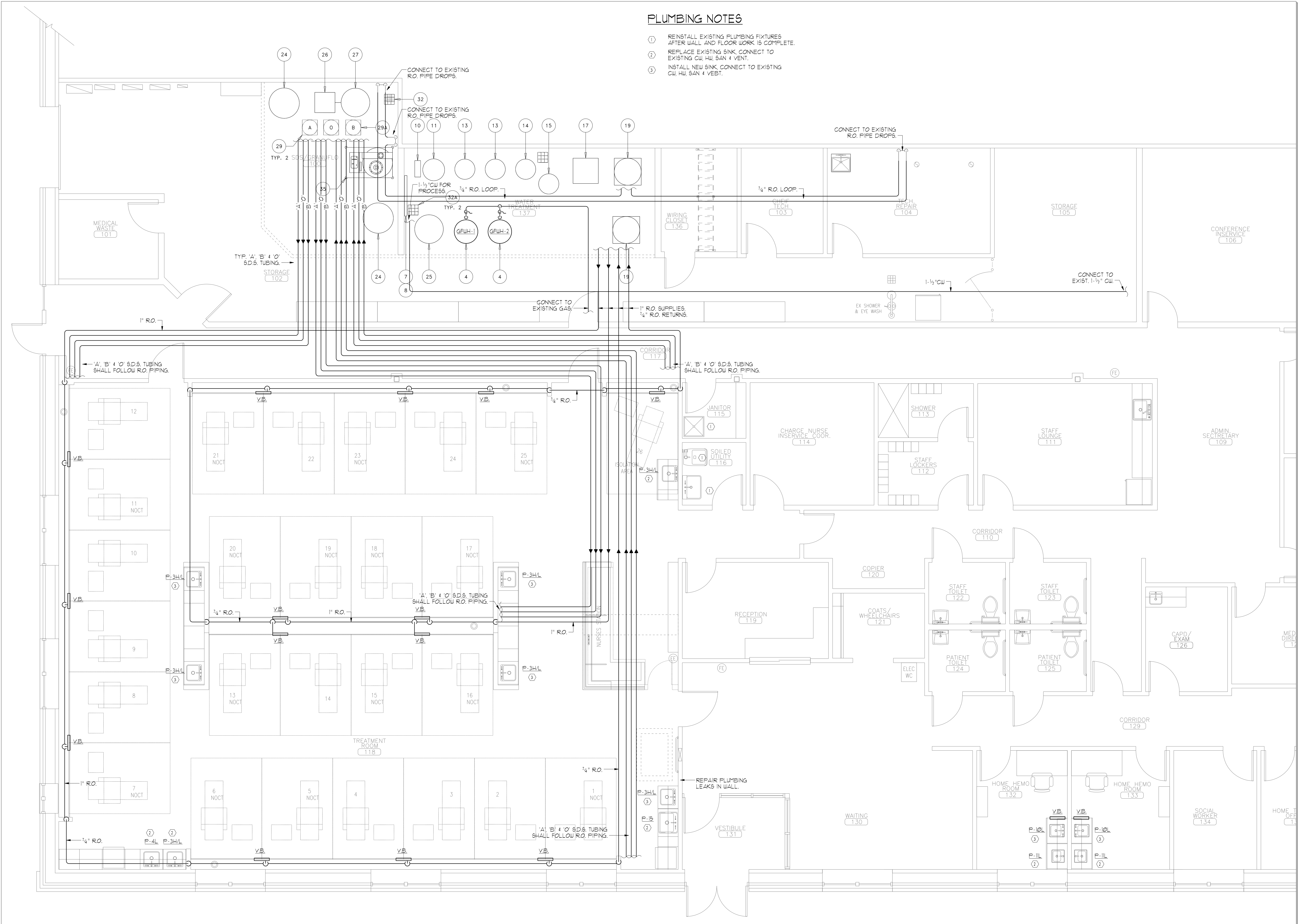
Date: 9/04/2007

CWS Proj. No.: 2006-4474pt

Drawing Number:
M1.1

PLUMBING NOTES

- ① REINSTALL EXISTING PLUMBING FIXTURES AFTER WALL AND FLOOR WORK IS COMPLETE.
- ② REPLACE EXISTING SINK, CONNECT TO EXISTING CW, HW, SAN & VENT.
- ③ INSTALL NEW SINK, CONNECT TO EXISTING CW, HW, SAN & VENT.



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REVISIONS:

No.	Date:	Description:

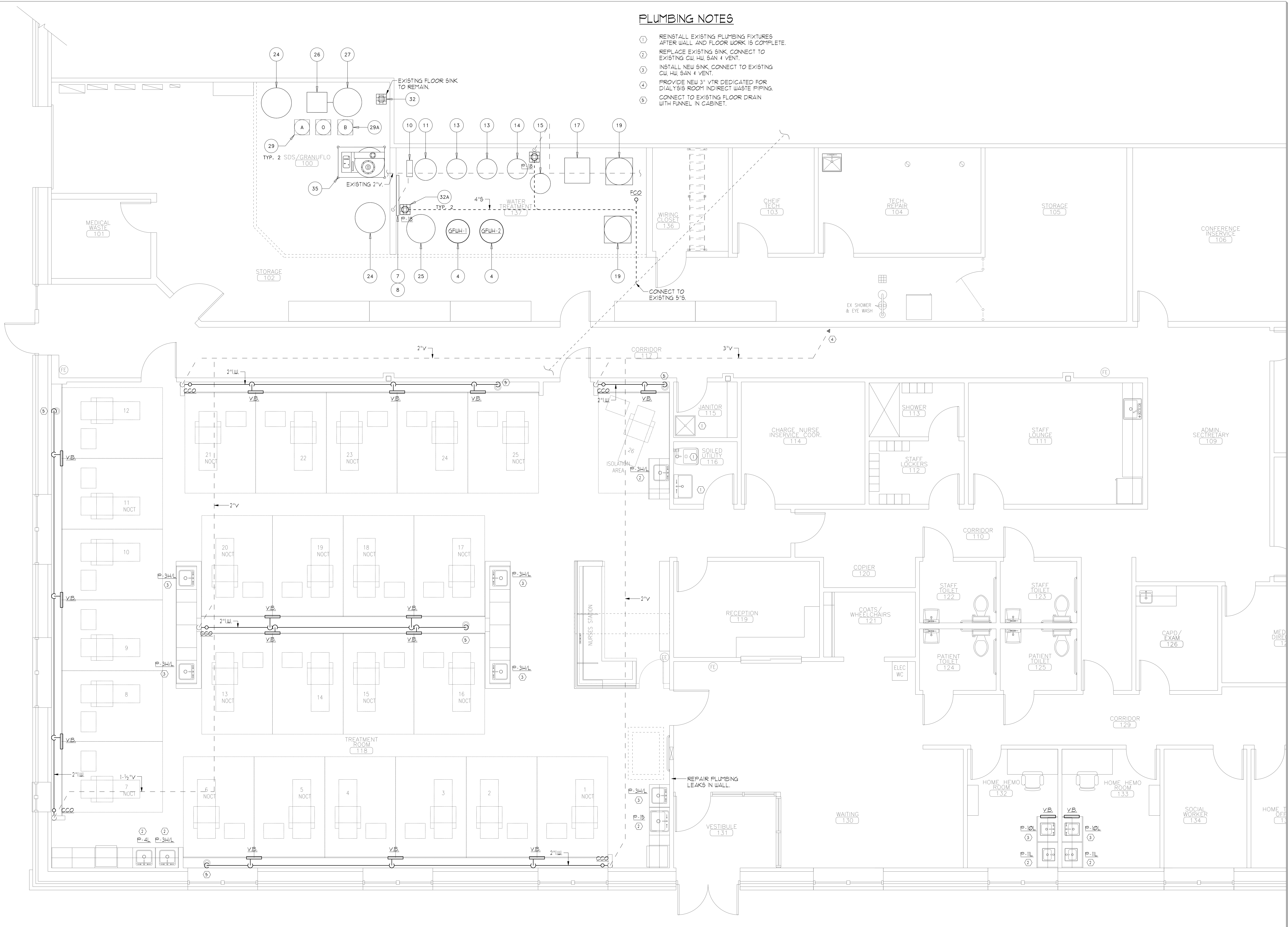
Drawing Title:
**SUPPLY PLUMBING
PLAN**

Scale: 1/4" = 1'-0"
Date: 9/04/2007
CWS Proj. No.: 2006-4474pt

Drawing Number:
M2.1

PLUMBING NOTES

- ① REINSTALL EXISTING PLUMBING FIXTURES AFTER WALL AND FLOOR WORK IS COMPLETE.
- ② REPLACE EXISTING SINK, CONNECT TO EXISTING CW, HW, SAN & VENT.
- ③ INSTALL NEW SINK, CONNECT TO EXISTING CW, HW, SAN & VENT.
- ④ PROVIDE NEW 3" VTR DEDICATED FOR DIALYSIS ROOM INDIRECT WASTE PIPING.
- ⑤ CONNECT TO EXISTING FLOOR DRAIN WITH FUNNEL IN CABINET.



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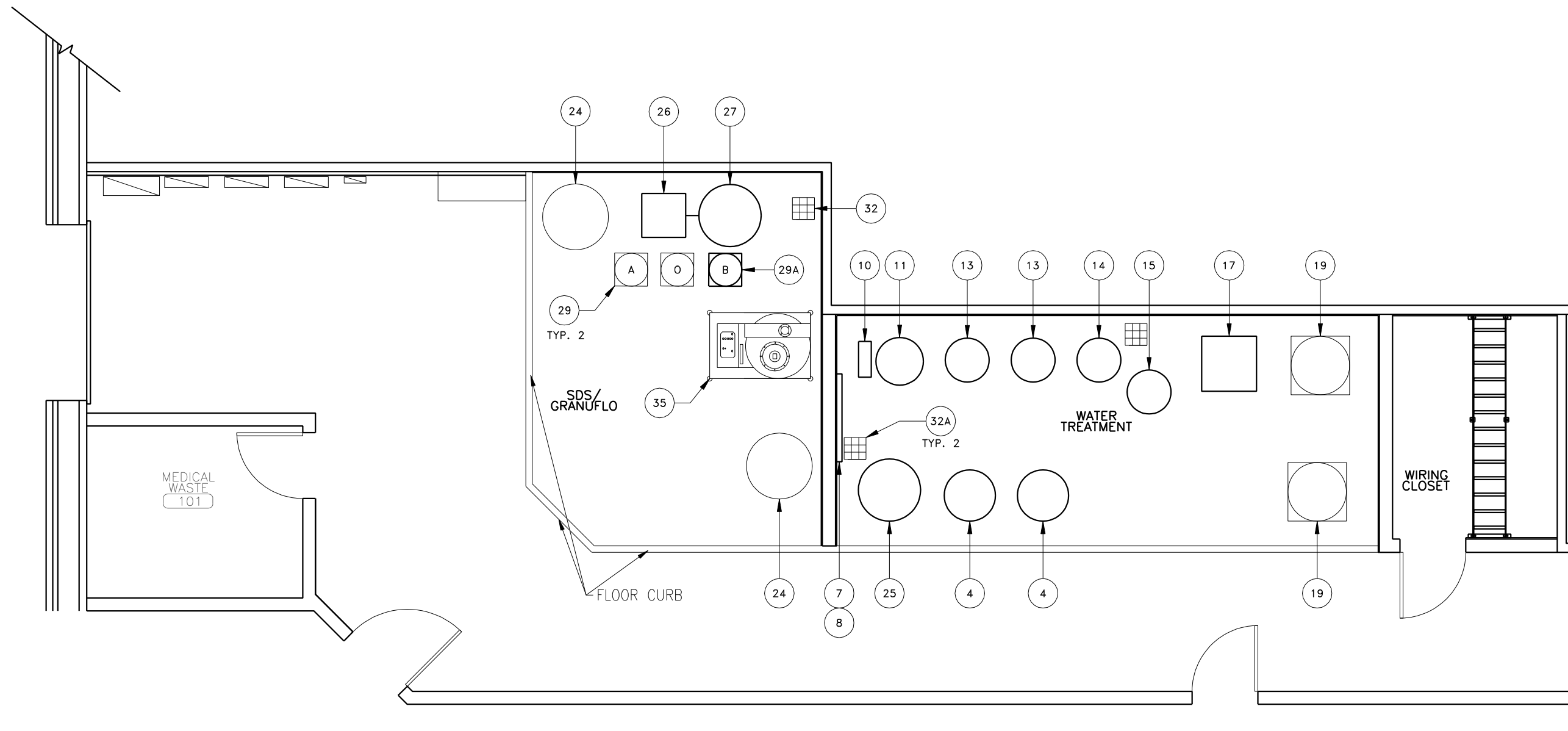
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Scale: 1/4" = 1'-0"

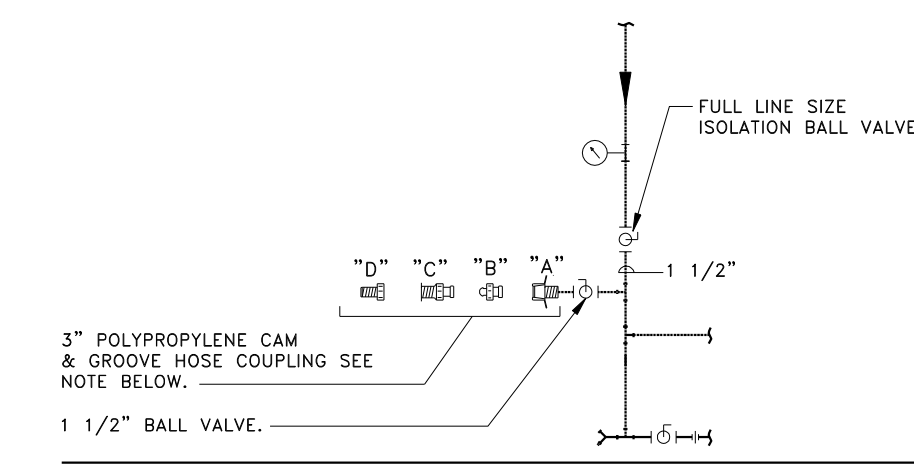
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Drawing Number:
M2.2

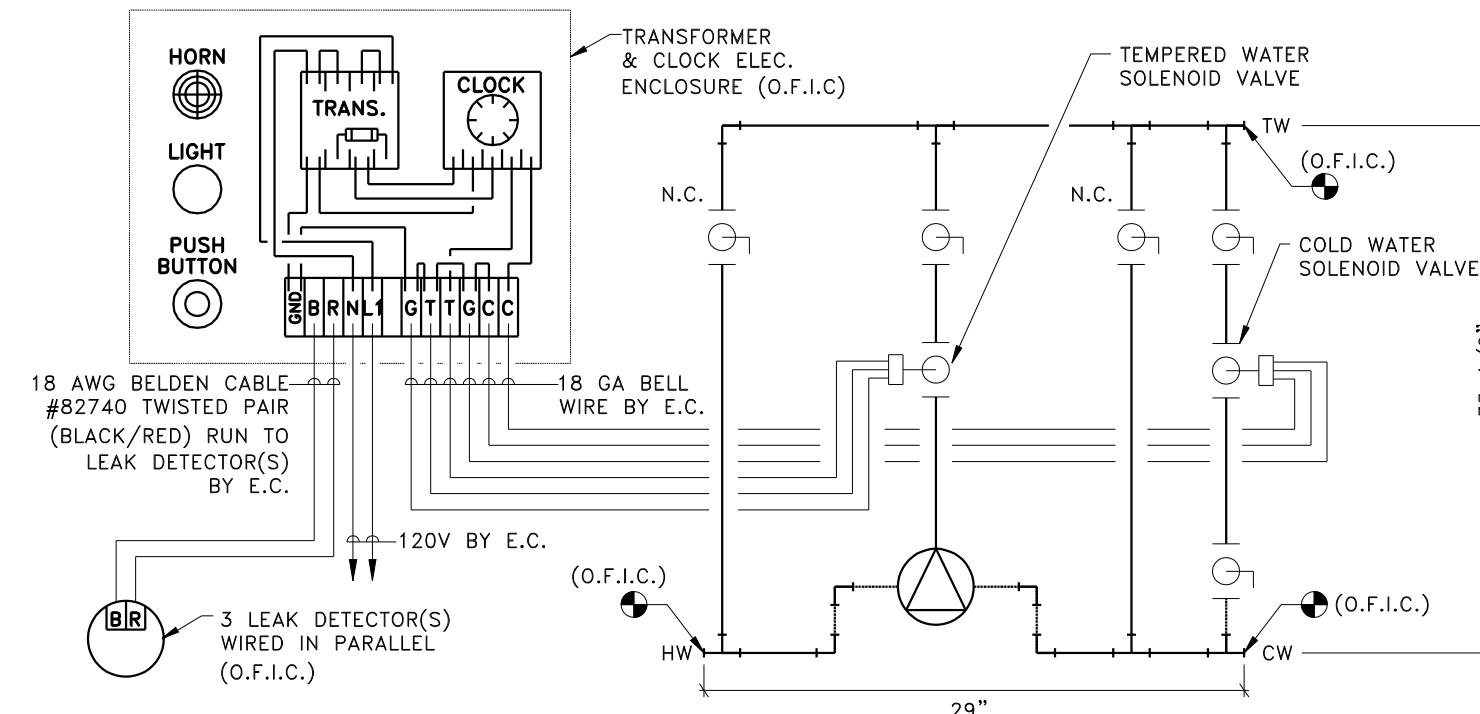


PARTIAL FLOOR PLAN
SCALE: 1/8" = 1'-0"



NOTE: PROVIDE FOOD-GRADE POLYPROPYLENE CAM & GROOVE HOSE COUPLINGS FROM MCMASTER-CARR (732-329-3200) WITH NEOPRENE GASKETS.
 "A" 1-1/2" NPT MALE END X FEMALE ADAPTER END, PART #91105K58.
 "B" 1-1/2" FEMALE DUST PLUG, PART #91105K92.
 "C" 1-1/2" NPT MALE END X FEMALE COUPLER END, PART #91105K81.
 "D" 3" NPT MALE X 1-1/2" NPT FEMALE REDUCER, PART #4596K447.

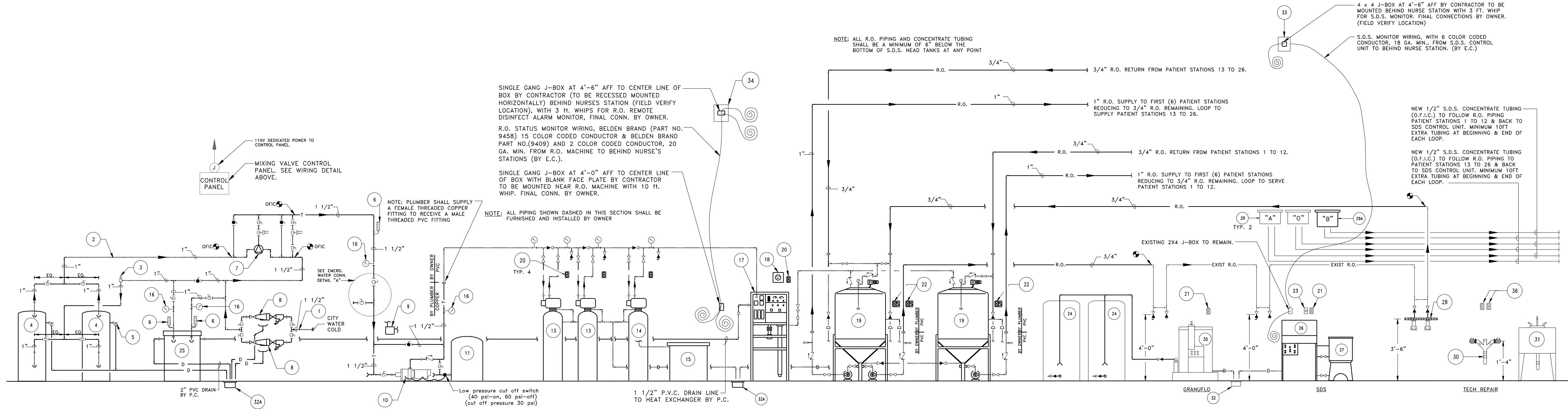
EMERGENCY WATER CONNECTION DETAIL "A"
NTS



SEQUENCE OF OPERATION

DURING OCCUPIED HOURS (TYPICALLY 5AM TO 12AM) THE TIME CLOCK ENERGIZES THE NORMALLY CLOSED TEMPERED WATER SOLENOID VALVE (OPEN) AND DE-ENERGIZES THE NORMALLY CLOSED COLD WATER BYPASS SOLENOID VALVE (CLOSED). DURING UNOCCUPIED HOURS (TYPICALLY 12AM TO 5AM) THE TIME CLOCK ENERGIZES THE NORMALLY CLOSED COLD WATER BYPASS SOLENOID VALVE (OPEN) AND DE-ENERGIZES THE NORMALLY CLOSED TEMPERED WATER SOLENOID VALVE (CLOSED), SETTING THE TIME CLOCK OCCUPIED/UNOCCUPIED HOURS SHALL BE COORDINATED WITH THE CARBON TANK BACK WASH CYCLE HOURS.
 UPON LEAK DETECTOR(S) SENSING WATER, INTERNAL LEAK DETECTION RELAY SHALL DE-ENERGIZE TEMPERED WATER AND COLD WATER SOLENOID VALVES (CLOSED). WATER SOLENOID VALVES SHALL REMAIN DE-ENERGIZED UNTIL ALARM CANCEL. PUSHBUTTON IS DEPRESSED, CANCELING ALARM SEQUENCE AND RETURNING SYSTEM TO NORMAL OPERATION.

MIXING VALVE ASSEMBLY DIAGRAM



-REVERSE OSMOSIS PROCESS WATER DISTRIBUTION SCHEMATIC-

- | | | |
|---|--|---|
| 1 CITY WATER COLD (BY P.C.) | 14 NEW SOFTENER (O.F.I.) | 26 NEW S.D.S. CONTROL UNIT (O.F.I.) |
| 2 NEW PROCESS HOT WATER PIPING (120" F) (BY P.C.) | 15 NEW SOFTENER BRINE TANK (O.F.I.) | 27 NEW CONCENTRATE "B" TANK (O.F.I.) |
| 3 NEW VACUUM BREAKER (BY P.C.) | 16 NEW STAINLESS STEEL PRESSURE GAUGE (0-100 PSI) (BY P.C.) | 28 EXISTING TECH REPAIR R.V. VALVE ASSEMBLY TO REMAIN. |
| 4 NEW WATER HEATER (FOR PROCESS ONLY) (BY P.C.) | 17 NEW OSMONICS 2-12000 R.O. MACHINE (O.F.I.) WITH 75% RECOVERY. | 29 EXISTING S.D.S. HEAD TANKS TO REMAIN. |
| 5 NEW PRESSURE RELIEF VALVE PIPED TO FLOOR SINK WITH 2" AIR GAP (BY P.C.) | 18 NEW ELECTRICAL POWER RECEPTACLE FOR R.O. MACHINE NEMA, TYPE L15-30R (FEMALE) 4-0" A.F.F. (BY E.C.) | 29A NEW 15 GAL. S.D.S. HEAD TANKS (O.F.I.C.) - TANK BOTTOM NOT TO EXCEED 11'-0" A.F.F. |
| 6 NEW THERMOMETER 30-100°F. MFG BY TERRECI MODEL # 8X9 IN SEPARABLE BRASS WELL WITH OPTIONAL ORGANIC SPIRIT FILL (NO MERCURY) (BY P.C.) | 19 NEW 175 GAL. R.O. STORAGE TANK (O.F.I.) (CONTR. SHALL BE RESPONSIBLE FOR FINAL CONN. TO OWNER SUPPLIED UNIONS AS SHOWN) TANK HEIGHT IS 8'-4", CEILING HEIGHT SHALL BE AT LEAST 9'-0" AFF. | 30 EXISTING 2" STAND PIPE FOR TECH REPAIR TO REMAIN. |
| 7 NEW MIXING VALVE ASSEMBLY (O.F.I.C.) | 20 NEW 120 VOLT 20 AMP GFCI DUPLEX RECEPTACLE 6'-6" A.F.F., 4'-0" ON CENTER, FROM BOOSTER PUMP TO R.O. MACHINE (BY E.C.) | 31 EXISTING LAUNDRY TUB TO REMAIN. |
| 8 NEW 909 BACKFLOW PREVENTER MFG. BY WATTS REG. CO. WITH WYE STRAINER, WITH DRAIN FUNNELS, BLOW OFF BALL VALVE AND 5/8" HOSE BIBB TYP. (2) PL. (BY P.C.) | 21 EXISTING 120 VOLT 20 AMP GFCI DEDICATED DUPLEX RECEPTACLE TO REMAIN. | 32 EXISTING FLOOR SINK TO REMAIN. |
| 9 NEW 230V ELECTRICAL DISCONNECT SWITCH RATED AT 20 AMPS FOR BOOSTER PUMP. (BY E.C.) | 22 NEW 120 VOLT 20 AMP DEDICATED SWITCHED TWIST-LOCK RECEPTACLE MFR. BY BRYANT MODEL # 70550R WITH WR104-CV FOR DISTRIBUTION PUMP. 4'-0" A.F.F. (BY E.C.) | 32A NEW FLOOR SINK (P.V.C.) MFG. BY PLASTIC ODDITIES, INC. MODEL # PFS-400H W/ HALF GRATE. (BY P.C.) |
| 10 NEW PROCESS WATER BOOSTER PUMP (20 GPM @ 125 FT. HEAD) MFG. BY TEEL, GRANGER CAT # GPC19, 4-1/4" IMPELLER, 1 HP., 3450 RPM. (BY P.C.) WITH (O.F.I.C.) 2-POLE LOW PRESSURE CUT OFF SWITCH SQUARE D MODEL 9013 F30-2324M GRANGER CAT # 2P10, (230V-1PH) - IF BUILDING IS PROVIDED WITH 208V SERVICE, A BUCK-BOOST TRANSFORMER SHALL BE USED. (BY E.C.) | 23 EXISTING 120V 20 AMP GFCI DEDICATED RECEPTACLE BY HUBBELL MODEL #5-20 TO REMAIN. | 33 NEW S.D.S. MONITOR LOCATED BEHIND NURSE STATION. FINAL CONNECTIONS BY OWNER. |
| 11 NEW PROCESS WATER EXPANSION TANK (86 GALLONS) AMTROL MODEL # WX302. (BY P.C.) | 24 EXISTING GRANUFLO 250 GALLON "A" BULK STORAGE TANK TO REMAIN | 34 NEW R.O. AUDIO VISUAL INTERLOCK MONITOR LOCATED BEHIND NURSES STATION. FINAL CONNECTIONS BY OWNER. |
| 12 NOT USED. | 25 NEW HEAT EXCHANGER (O.F.I.C.) | 35 EXISTING GRANUFLO MIXING UNIT TO REMAIN. |
| 13 NEW (TWO) 10 CU. FT. CARBON TANKS (O.F.I.) | | 36 EXISTING 120 VOLT 20 AMP HOSPITAL GRADE GFCI DEDICATED DUPLEX RECEPTACLE TO REMAIN. |

NOTES

- ALL CHANGES IN PIPE SIZE NECESSARY TO MATCH EQUIPMENT SHALL BE MADE AS CLOSE TO EQUIPMENT AS POSSIBLE.
- MOUNT BACKFLOW PREVENTERS FAR ENOUGH AWAY FROM WALL TO ALLOW ADEQUATE ROOM FOR REMOVAL.
- ALL PIPING CUTS SHALL BE MADE WITH P.V.C. SHEARS TO ENSURE THAT THERE ARE NO BURRS.
- CONTRACTOR SHALL TAKE EXTREME CARE WITH AMOUNT OF P.V.C. CEMENT USED TO ENSURE THAT EXCESS CEMENT WILL NOT CREATE RESTRICTIONS IN PIPING JOINTS.
- FOR THREADED FITTINGS USE ONLY TEFLON TAPE NO PIPE DOPE.
- ALL PIPING SHALL BE IDENTIFIED WITH "BRADY" TYPE MARKERS LOCATED AT 5'-0" MAX. INTERVALS AND ALL CHANGES IN DIRECTION, SHOWING CONTENTS AND DIRECTION OF FLOW AS REQUIRED BY OSHA AND OTHER APPLICABLE CODES.
- CONTRACTOR SHALL TAG ALL VALVES WITH 1 1/2" STAMPED BRASS TAGS (SEQUENTIALLY NUMBERED)

PROCESS HOT WATER HEATER CAPACITY SELECTIONS BASED ON A.O. SMITH CYCLONE (94% EFF.)

GAS WATER HEATER:	
TANK CAPACITY (GAL.)	2 @ 100
RECOVERY RATE G.P.H. @ 100°F. RISE	2 @ 171
NATURAL GAS B.T.U.H. INPUT	2 @ 150,000

LEGEND

- | | | | |
|-----|---|--------------|---|
| 101 | BRASS BALL VALVE (R.O.) NORMALLY OPEN | — | COPPER PIPE (TEMPERED WATER) |
| 102 | BRASS BALL VALVE (N.C.) NORMALLY CLOSED | — | COLD WATER PIPING (CU. TYPE "L") |
| 103 | DOUBLE TRUE UNION (PVC) BALL VALVE - CLOSED | — | HOT WATER PIPING (CU. TYPE "L") |
| 104 | DOUBLE TRUE UNION (PVC) BALL VALVE - OPEN | — | DRAIN LINE (COPPER) |
| 105 | DOUBLE TRUE UNION BALL VALVE W/ PVC GARDEN HOSE ADAPTOR | — EXST. R.O. | PVC PIPE (SCH 80) (REVERSE OSMOSIS) |
| 106 | CHECK VALVE | — R.O. | PVC PIPE (SCH 80) (REVERSE OSMOSIS) |
| 107 | BRASS HOSE BIBB W/ CAP | A.F.F. | ABOVE FINISHED FLOOR |
| 108 | PRESSURE/TEMP. RELIEF VALVE | O.F.I.C. | OWNER FURNISHED INSTALLED BY CONTRACTOR |
| 109 | VACUUM BREAKER | O.F.A. | OWNER FURNISHED AND INSTALLED |
| 110 | POINT OF CONNECTION | E.C. | ELECTRICAL CONTRACTOR |
| 111 | SOLENOID | P.C. | PLUMBING CONTRACTOR |
| 112 | UNION | + | CONNECT TO EXISTING. |
| 113 | BALL VALVE W/ GARDEN HOSE CONN. | ⊗ | TEMPERING VALVE |
| | | ⊙ | JUNCTION BOX |



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FMC-SOUTHERN MAINE, ME #1190-1
 CONGRESS STREET
 PORTLAND, ME 04102

MECHANICAL EQUIPMENT SCHEMATIC

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REVISIONS:

No.	Date	Revision

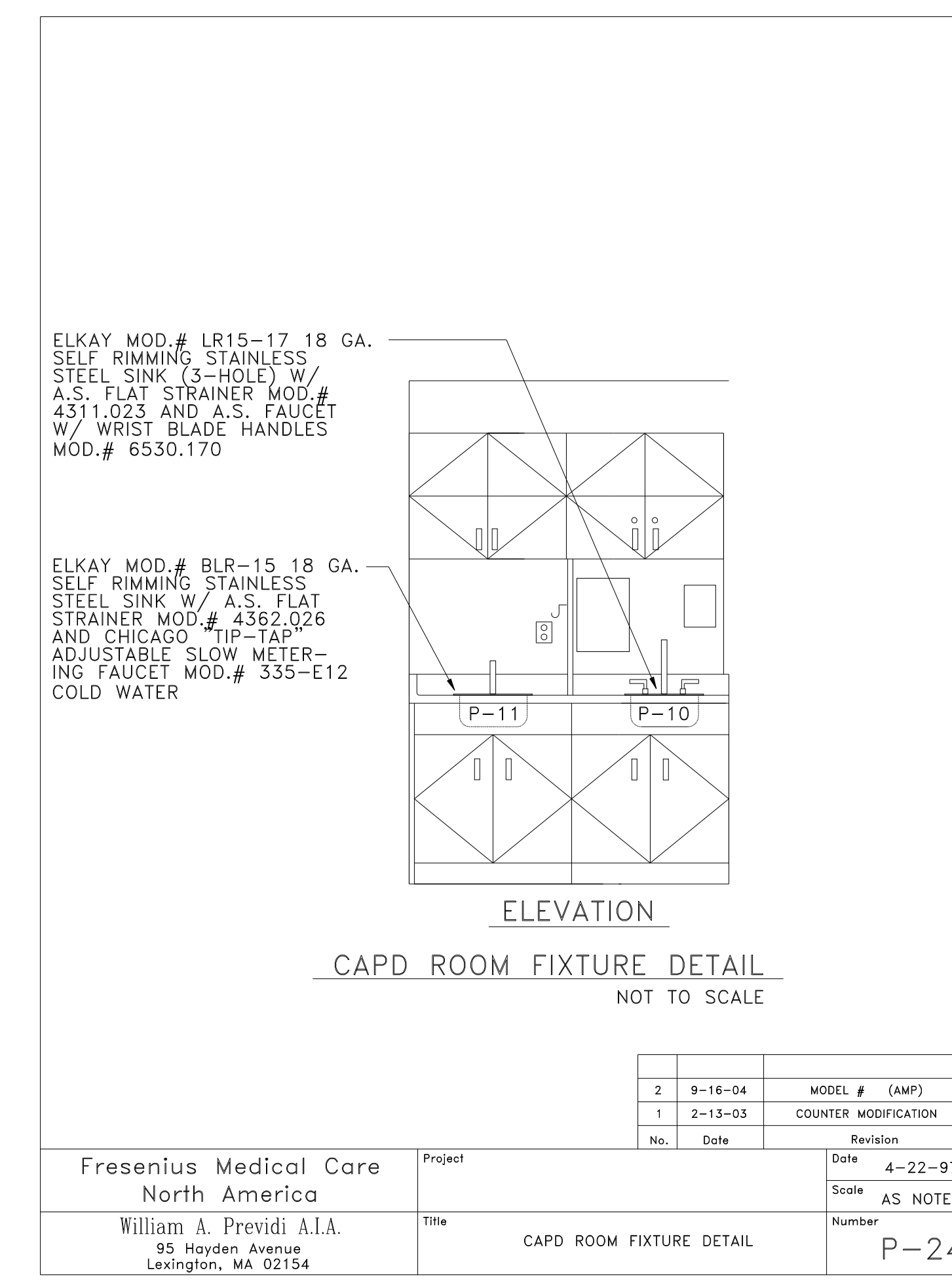
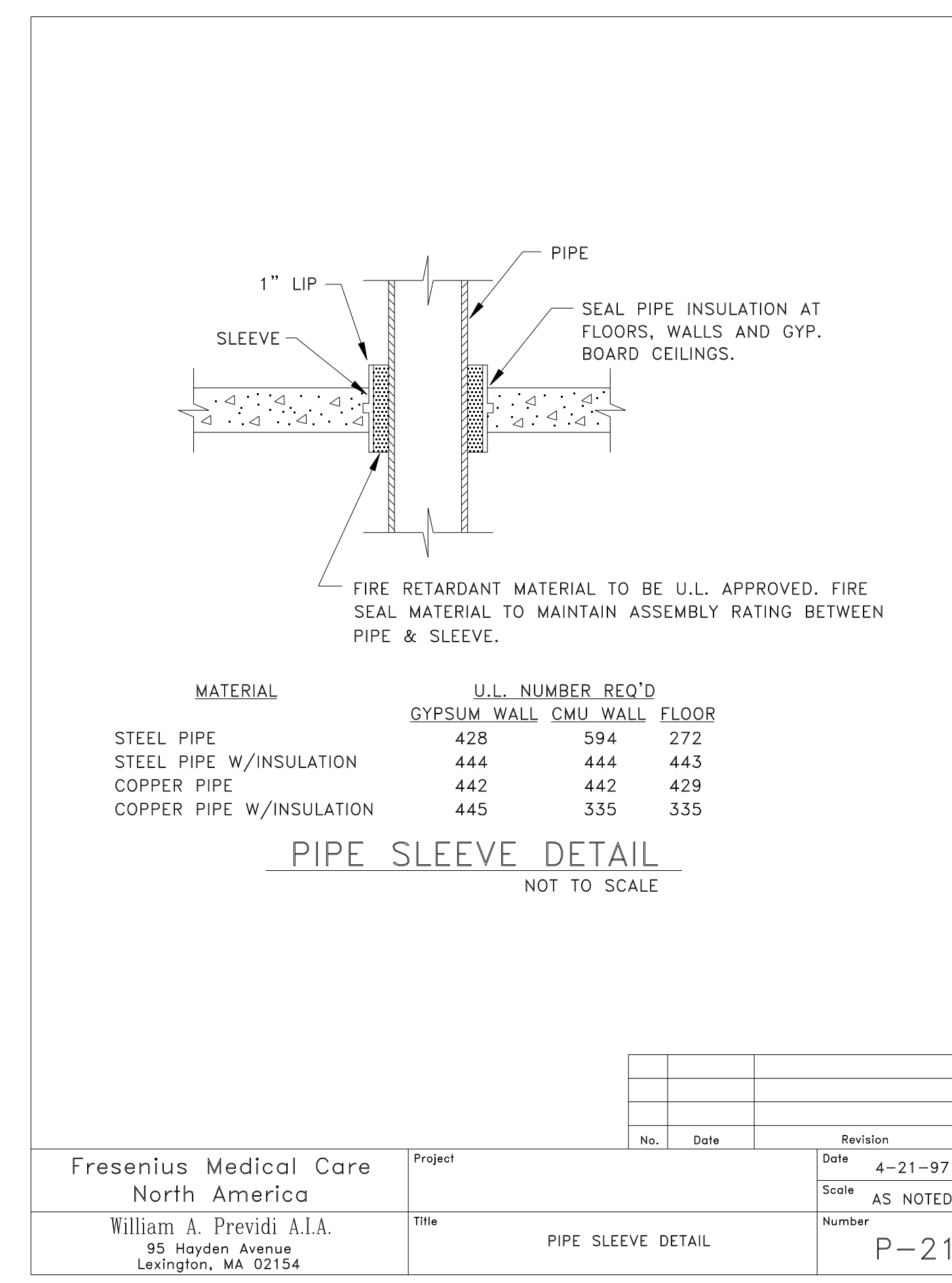
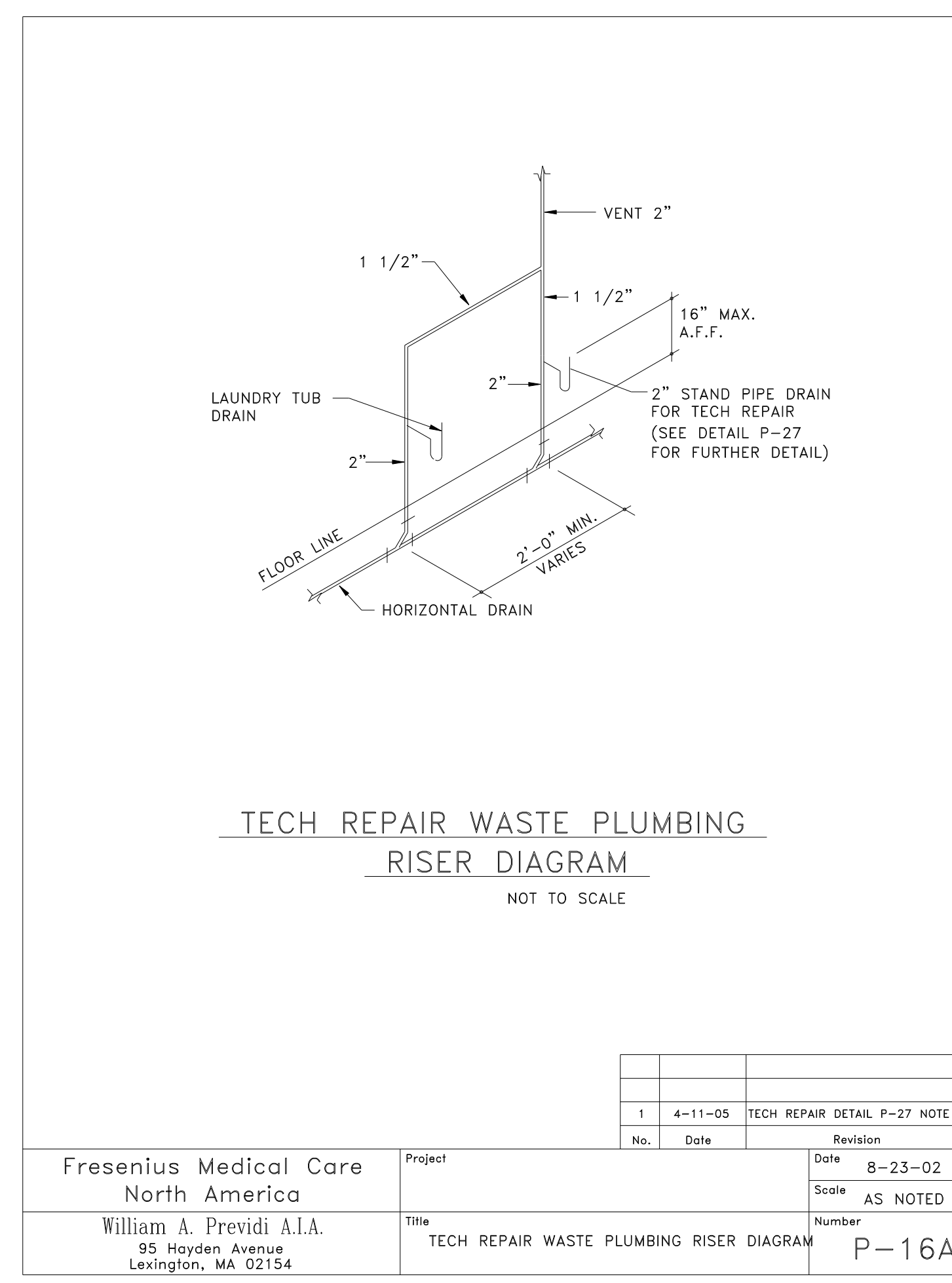
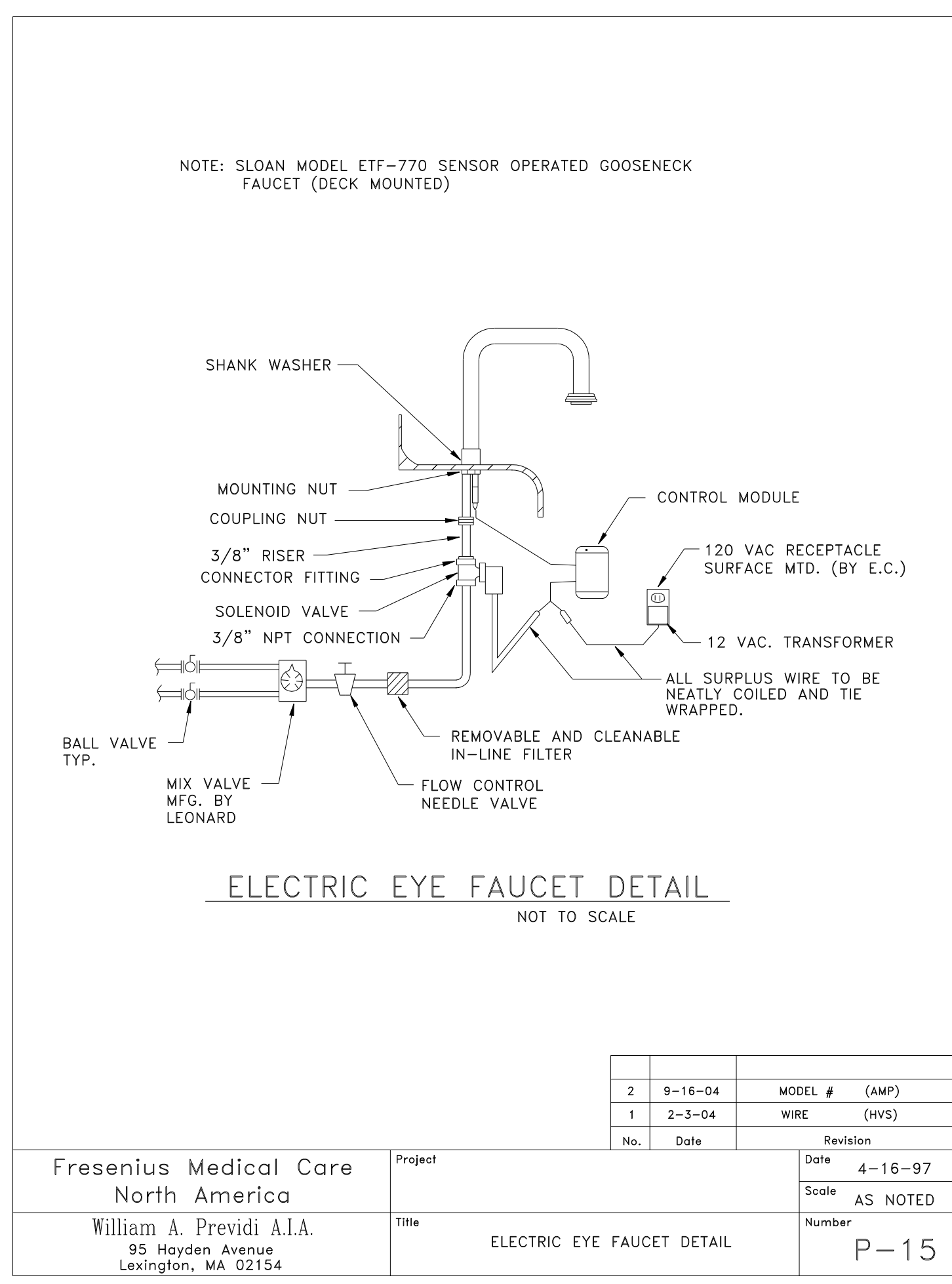
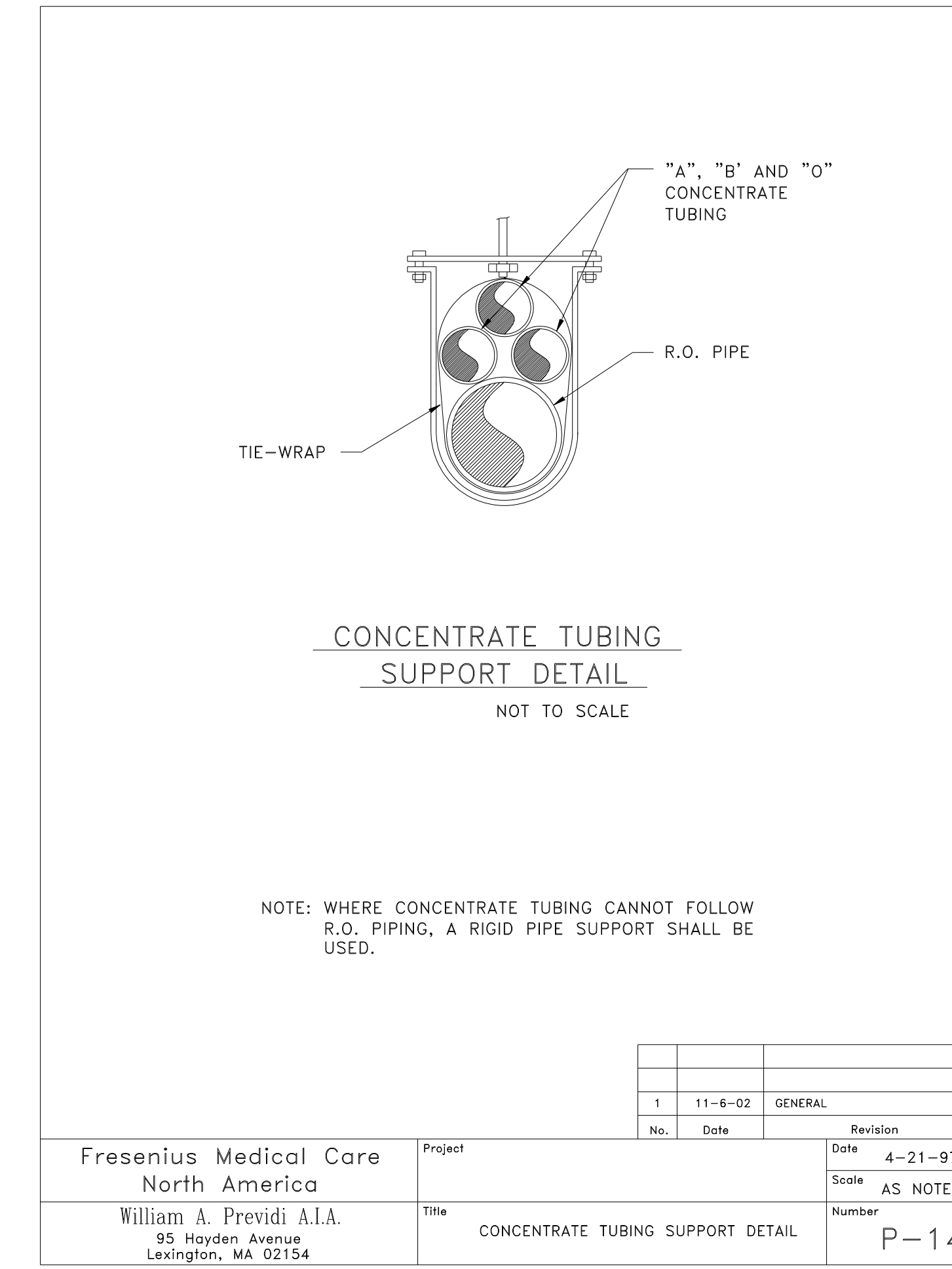
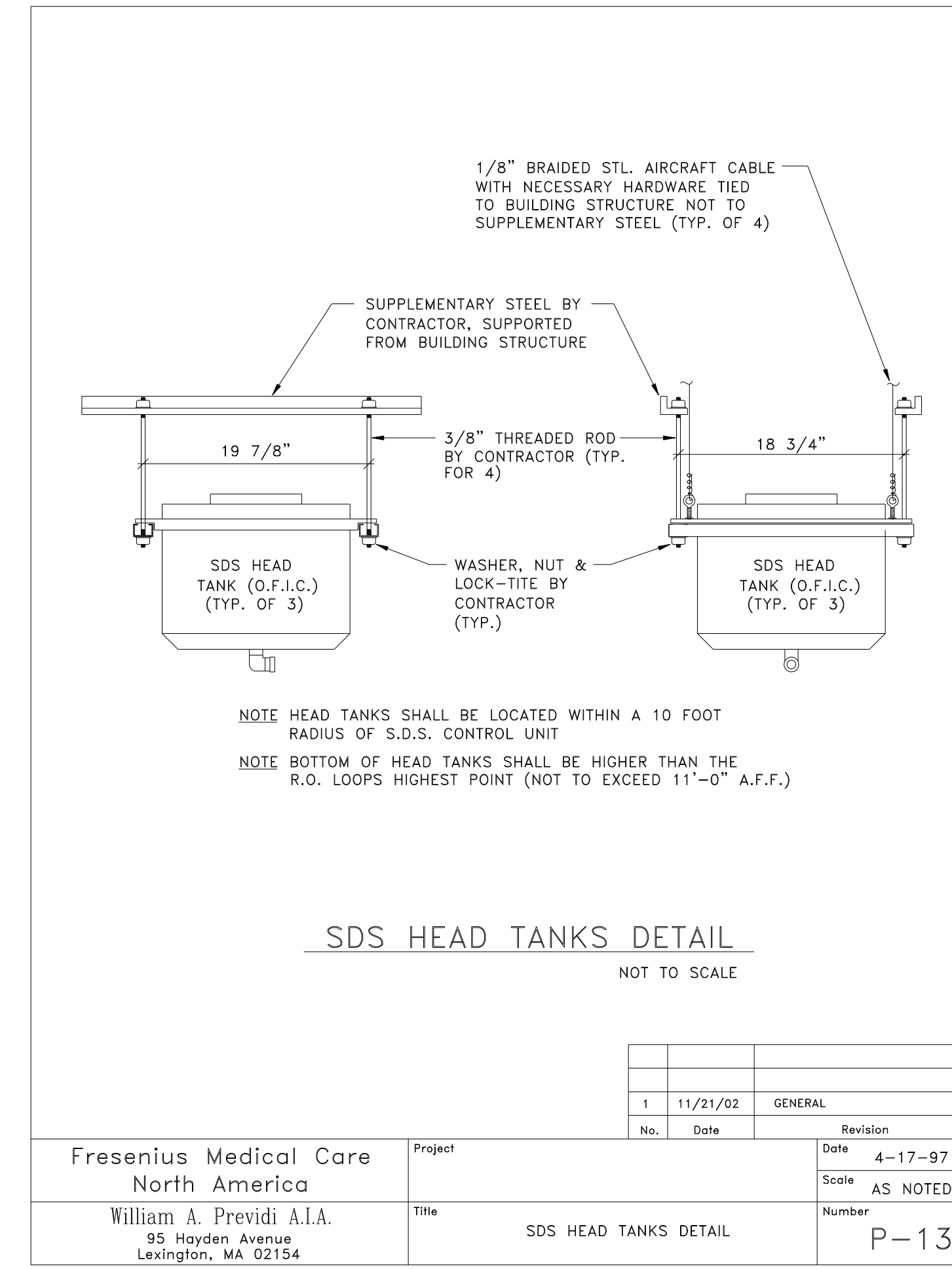
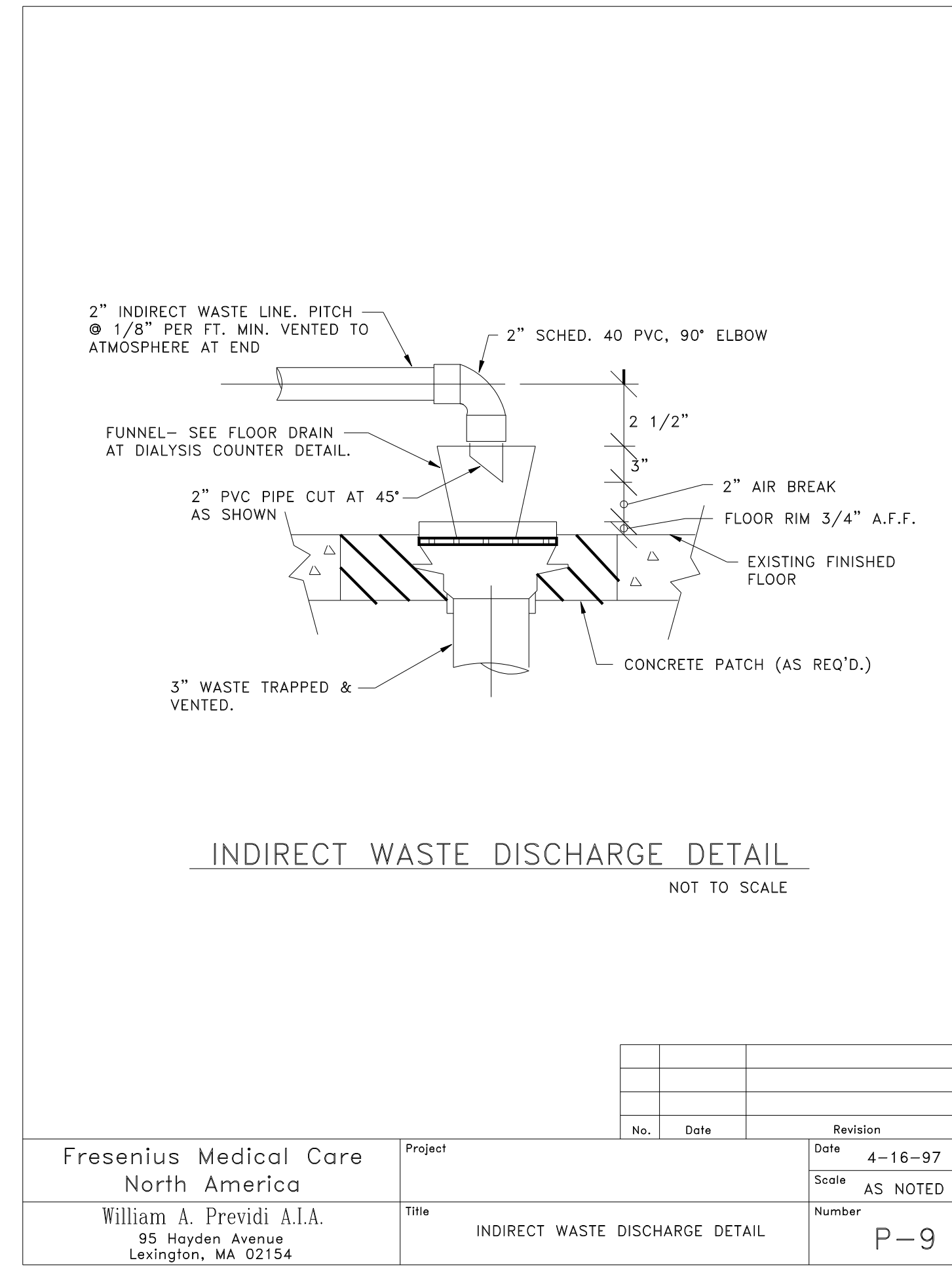
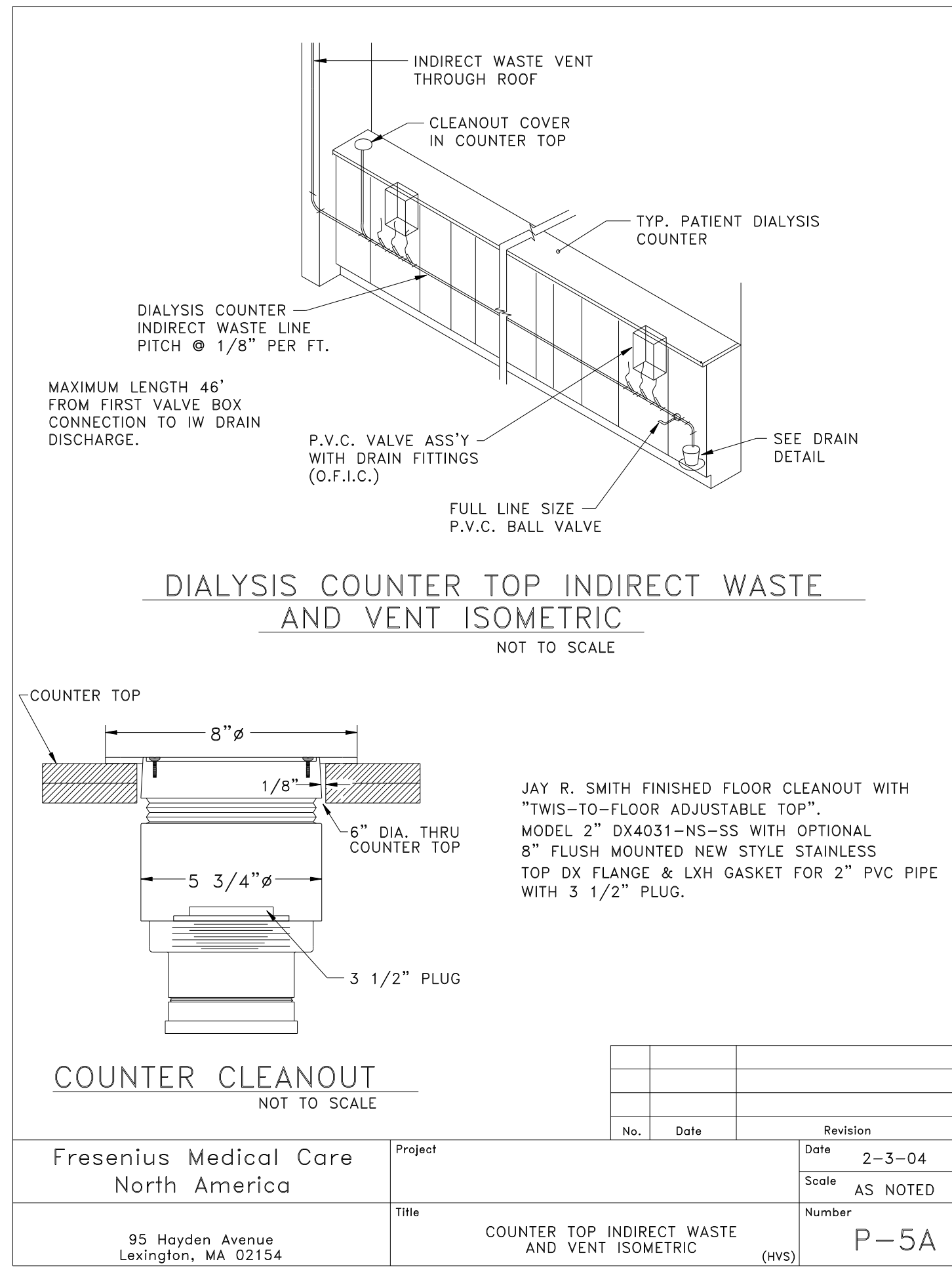
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 Scale: As Noted
 Date: 9/04/2007
 CWS Proj. No.: 2006-447.tpt

No.	Date	Revision

Date: 7-13-07
 Scale: AS NOTED
 Drawn By: HVS
 Checked By: MMM

Sheet Number: **ME-1**

Drawing Number: **M3.1**



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REVISIONS:

Date:	Description:

MECHANICAL DETAILS
Drawing Title:
Scale: 9/04/2007
Date:
CWS Proj. No.: 2006-447-1pt

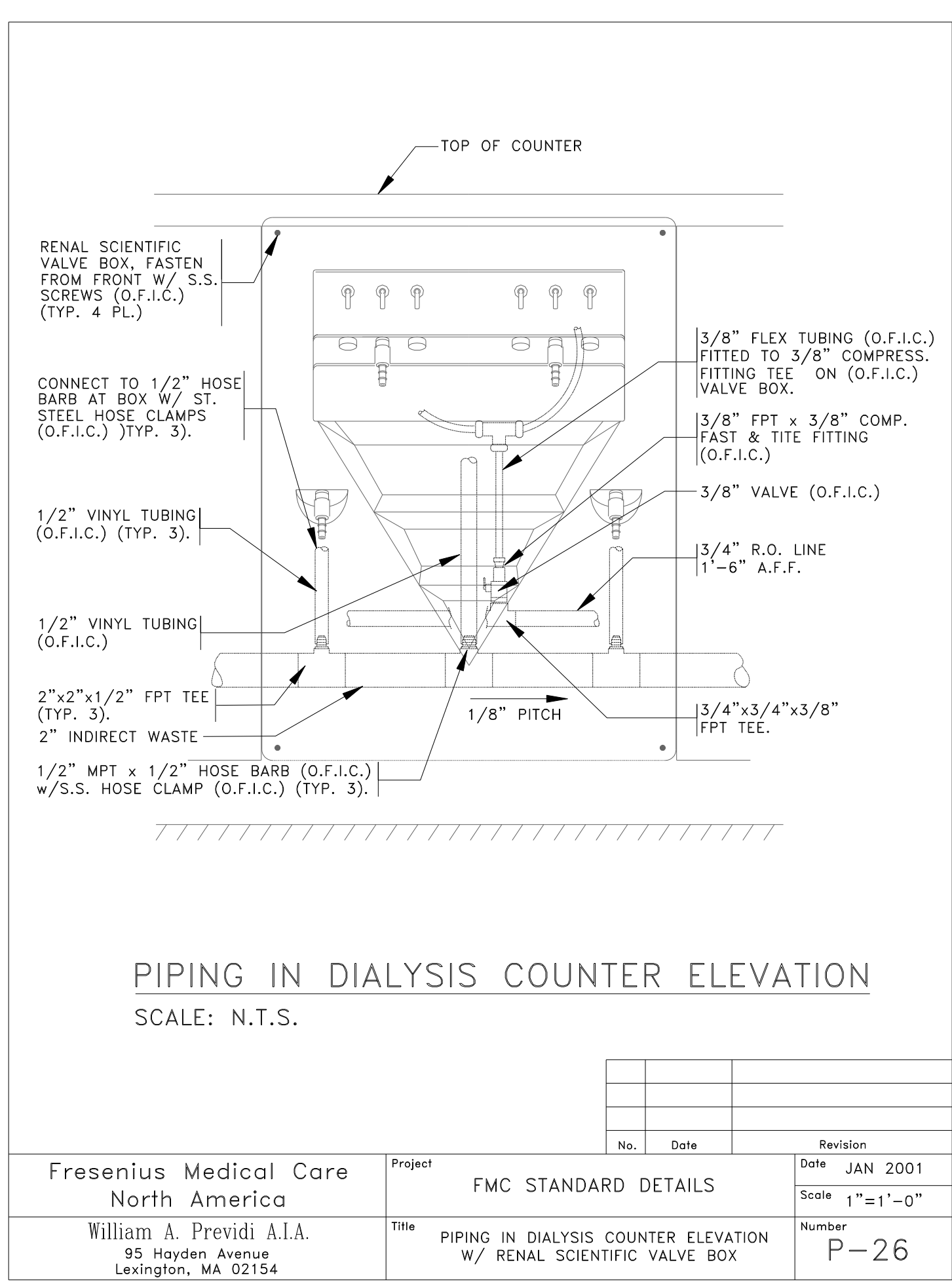
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M3.2

REVISIONS:

No.	Date	Description

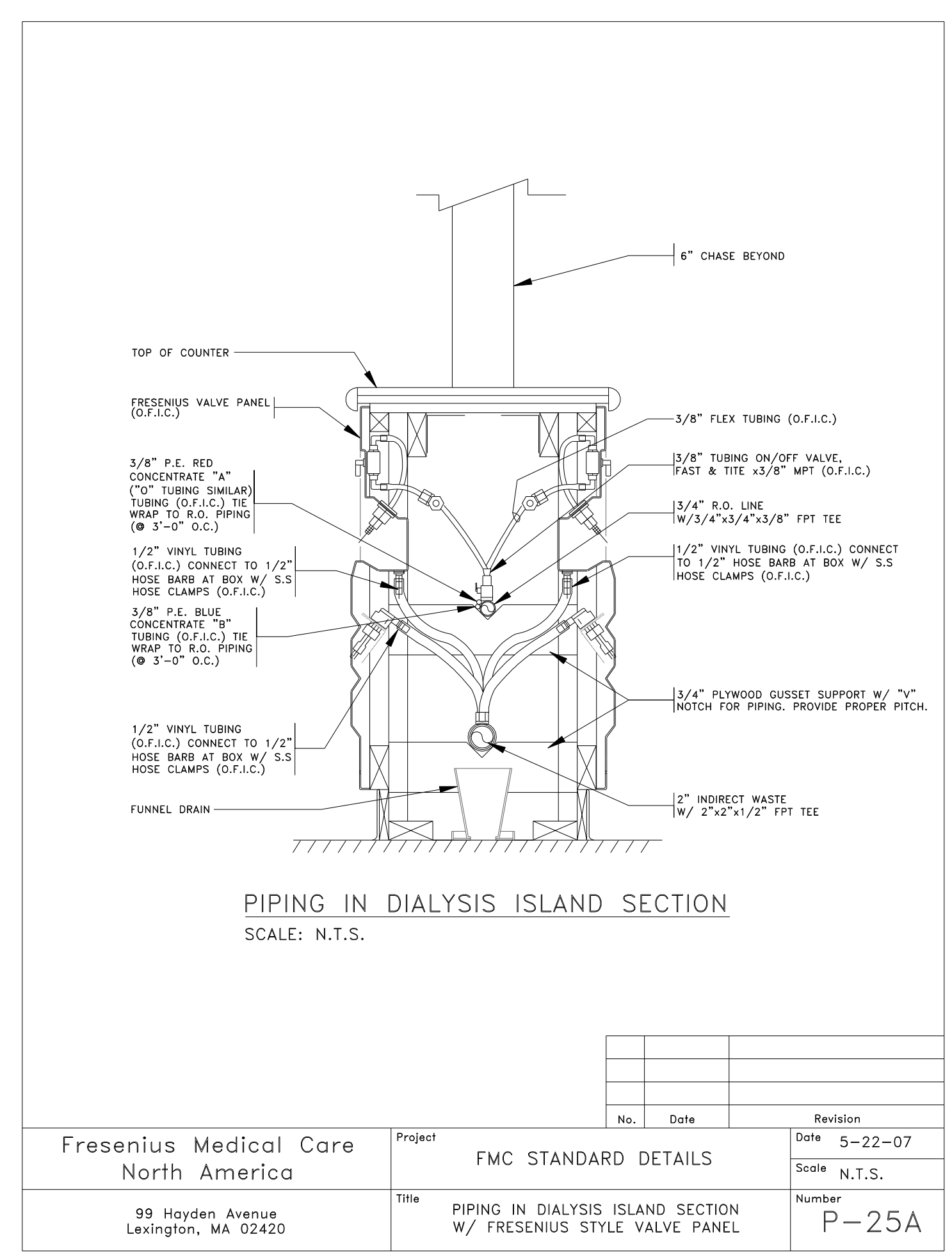
Drawing Title:
**MECHANICAL
DETAILS**

Scale: None
Date: 9/04/2007
CWS Proj. No.: 2006-4474pt



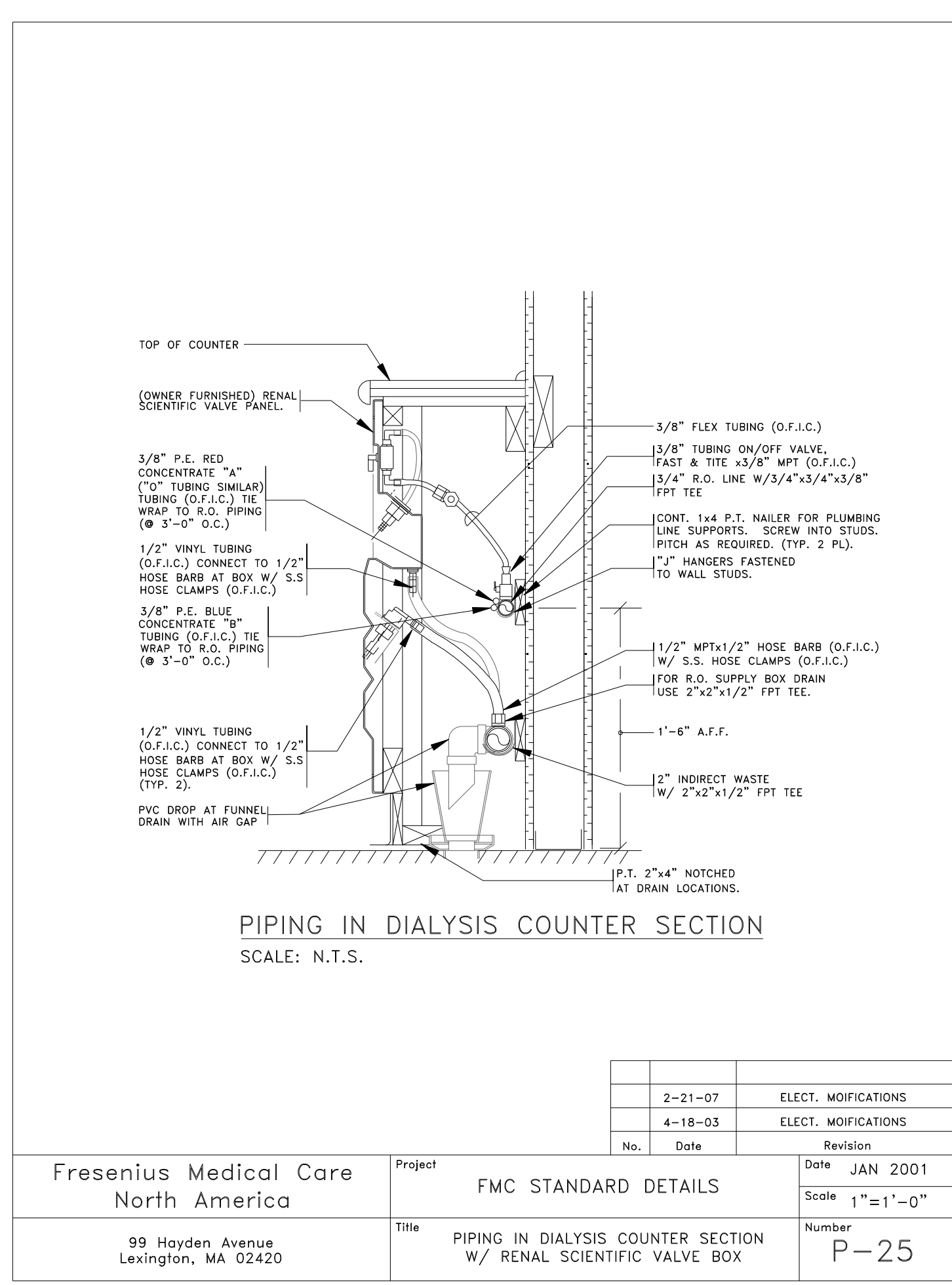
No.	Date	Revision

Fresenius Medical Care North America	Project	FMC STANDARD DETAILS	Date	JAN 2001
99 Hayden Avenue Lexington, MA 02420	Title	PIPING IN DIALYSIS COUNTER ELEVATION W/ RENAL SCIENTIFIC VALVE BOX	Scale	1"=1'-0"
William A. Previdi A.I.A.	Number	P-26		
95 Hayden Avenue Lexington, MA 02154				



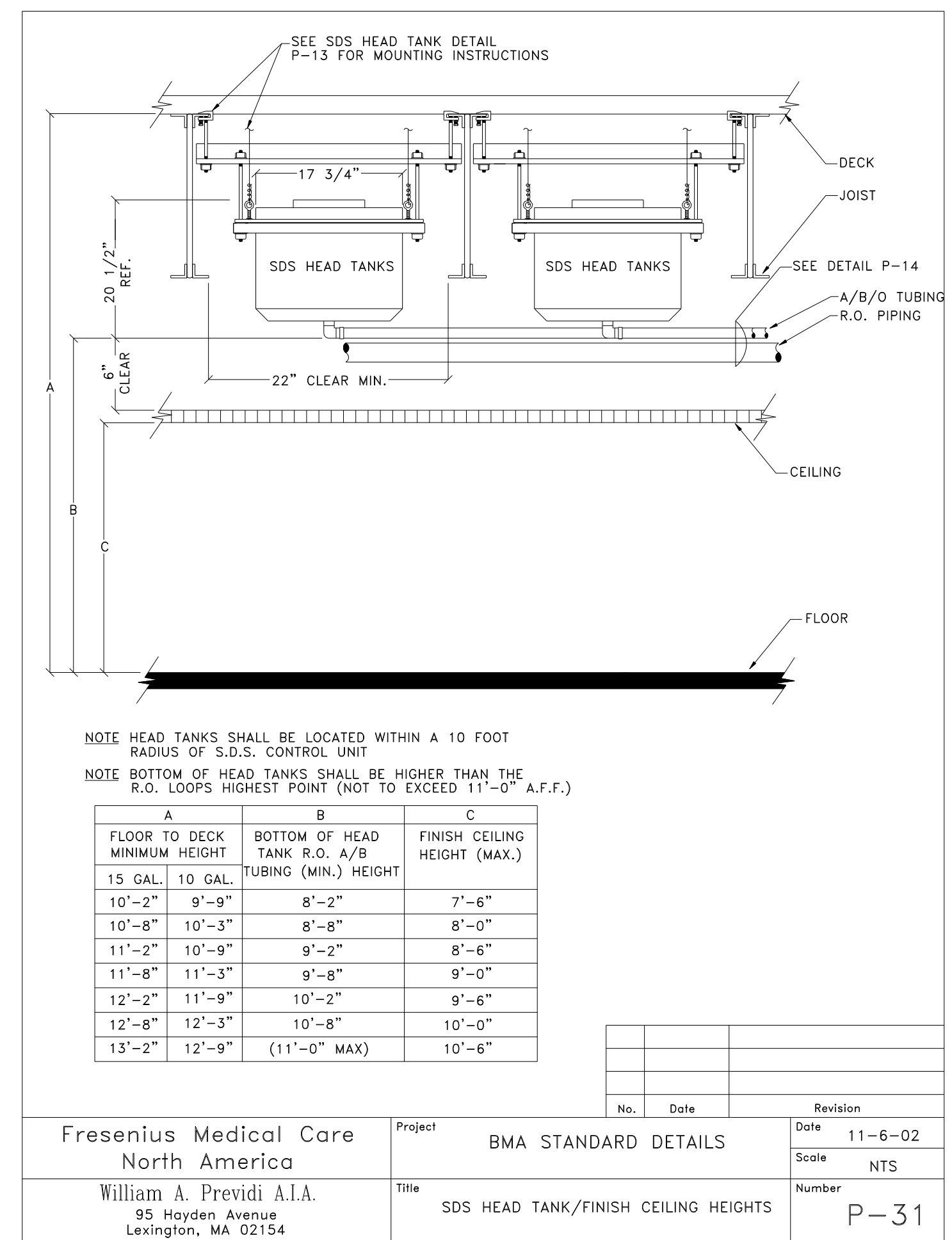
No.	Date	Revision

Fresenius Medical Care North America	Project	FMC STANDARD DETAILS	Date	5-22-07
99 Hayden Avenue Lexington, MA 02420	Title	PIPING IN DIALYSIS ISLAND SECTION W/ FRESENIUS STYLE VALVE PANEL	Scale	N.T.S.
William A. Previdi A.I.A.	Number	P-25A		
95 Hayden Avenue Lexington, MA 02154				



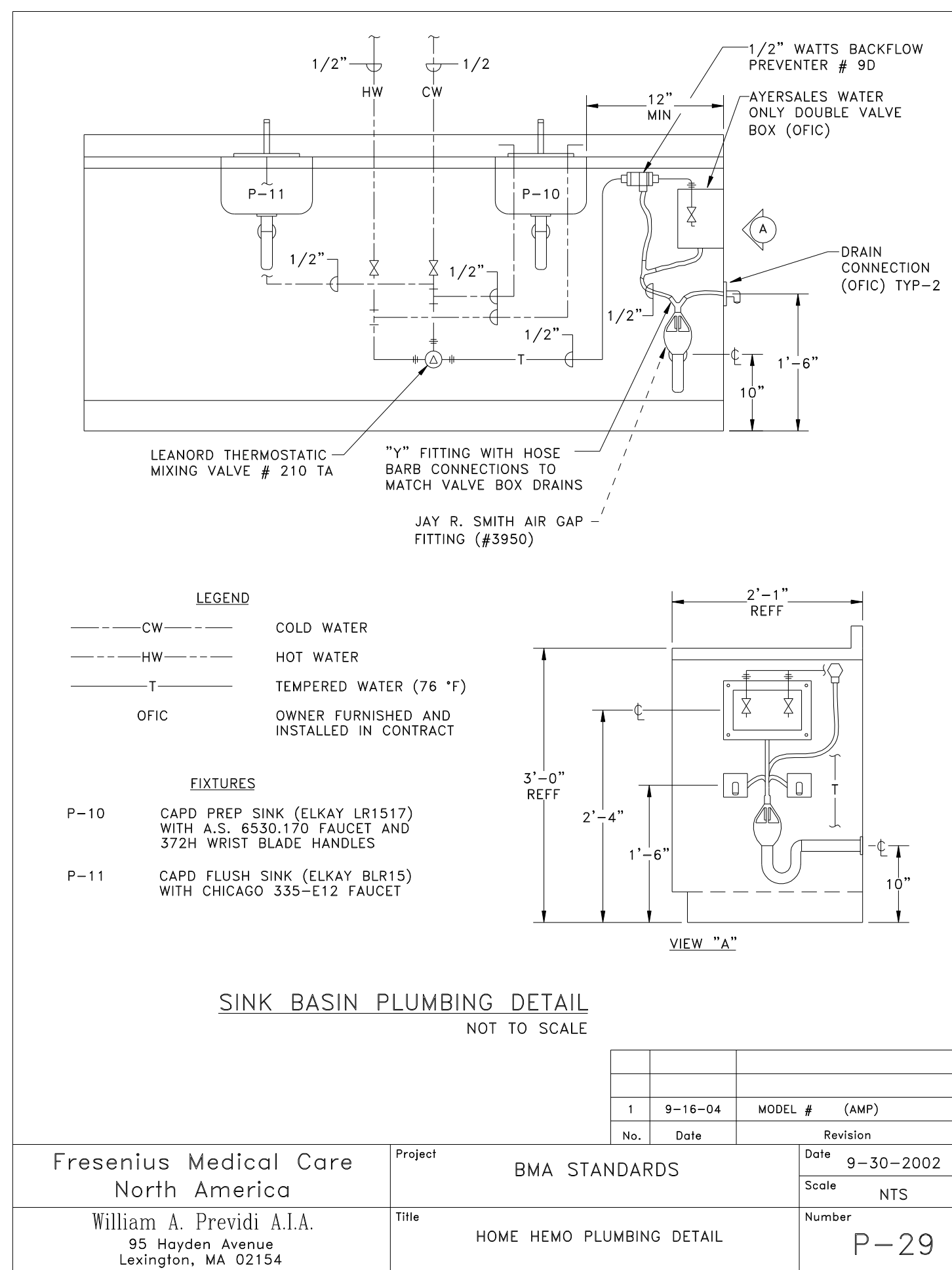
No.	Date	Revision

Fresenius Medical Care North America	Project	FMC STANDARD DETAILS	Date	JAN 2001
99 Hayden Avenue Lexington, MA 02420	Title	PIPING IN DIALYSIS COUNTER SECTION W/ RENAL SCIENTIFIC VALVE BOX	Scale	1"=1'-0"
William A. Previdi A.I.A.	Number	P-25		
95 Hayden Avenue Lexington, MA 02154				



No.	Date	Revision

Fresenius Medical Care North America	Project	BMA STANDARD DETAILS	Date	11-6-02
William A. Previdi A.I.A.	Title	SDS HEAD TANK/FINISH CEILING HEIGHTS	Scale	NTS
95 Hayden Avenue Lexington, MA 02154	Number	P-31		





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AIR DEVICE PERFORMANCE SCHEDULE										
TAG	PANEL SIZE (IN)	NECK SIZE (IN)	AIRFLOW (CFM)	SP. LOSS (IN.W.G.)	THROW(L)	THROW(S)	Nc	BASIS OF DESIGN - METALAIR		
								DUCT CONN.(IN)	PATTERN	MODEL
A	24x24	15x15	625	0.05	-	-	25	SEE DWGS	SEE DWGS	5000D
B	24x24	9x9	205	0.05	-	-	25	SEE DWGS	SEE DWGS	5000D
C	24x24	6x6	85	0.05	-	-	25	SEE DWGS	SEE DWGS	5000D
AA	-	48x24	2500	0.05	-	-	30	SEE DWGS	1/2", 35"	RHD

GAS-FIRED WATER HEATER PERFORMANCE SCHEDULE									
TAG	STORAGE (GALS)	INPUT (MBH)	RECOVERY 100°F RISE (GPH)	ELECTRICAL REQUIREMENTS			BASIS OF DESIGN - A.O. SMITH "CYCLONE"		
				AMPS	WATTS	V/PH/Hz	SERVICE	FUEL	MODEL
GFUH-1	100.0	150.0	111.0	6.2	-	120/1/60	PROCESS DHW	NATURAL GAS	BTH-150
GFUH-2	100.0	150.0	111.0	6.2	-	120/1/60	PROCESS DHW	NATURAL GAS	BTH-150

PROVIDE WITH EXHAUST SOUND Baffles (MUFFLERS) AND ROOF CAPS.

PLUMBING FIXTURE CONNECTION SCHEDULE					
TAG	DESCRIPTION	6AN	VENT	CW	HW
P-3L	PREP SINK	1-1/2"	1-1/2"	1/2"	1/2"
P-3H/L	ADA PREP SINK	1-1/2"	1-1/2"	1/2"	1/2"
P-4L	MEDICINE SINK	1-1/2"	1-1/2"	1/2"	1/2"
P-10L	CAPD SINK	1-1/2"	1-1/2"	1/2"	1/2"
P-11L	CAPD SINK	1-1/2"	1-1/2"	1/2"	1/2"
P-15	BLOOD SINK	1-1/2"	1-1/2"	1/2"	1/2"
P-18	FLOOR DRAIN	4"	2"	-	-

MINIMUM SIZE OF BELOW SLAB SANITARY 4 VENT PIPING SHALL BE 2".
P-3L & P-3H/L SHALL HAVE ELECTRIC EYE FAUCETS, SEE DETAIL P-15
REFER TO SPECIFICATIONS SECTION 15200 FOR MODEL NUMBERS.

MECHANICAL AND PLUMBING SYMBOLS AND ABBREVIATIONS LEGEND

NOTE - USE SYMBOLS AND ABBREVIATIONS AS APPLICABLE FOR THIS MECHANICAL DRAWING SET.
SOME SYMBOLS AND ABBREVIATIONS IN THIS LEGEND MAY NOT APPLY.

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION	ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION	ABBREVIATION	DESCRIPTION
	COMPRESSED AIR PIPING (CA)		BACKFLOW PREVENTER (BFP)		PRESSURE GAGE WITH GAGE COCK	AAV	AUTOMATIC AIR VENT	EDB	ENTERING DRY BULB	I-B-R	INSTITUTE OF BOILER AND RADIATOR MANUFACTURERS	RLA	RUNNING LOAD AMPS
	CONDENSATE DRAIN PIPING (C)		CHECK VALVE		THERMOMETER IN WELL	AD	ACCESS DOOR	EDC	ELECTRIC DUCT COIL TAG	RFM	REVOLUTIONS PER MINUTE	RPM	REVOLUTIONS PER SECOND
	COOLING TOWER RETURN PIPING (CTR)		BALANCING VALVE (ADJUSTABLE)		WATER FLOW SWITCH	AFF	ABOVE FINISHED FLOOR	EER	ENERGY EFFICIENCY RATIO	IFUH	INDIRECT FIRED WATER HEATER TAG	RPZ	REDUCED PRESSURE ZONE
	COOLING TOWER SUPPLY PIPING (CTS)		AUTOMATIC FLOW CONTROL VALVE		PRESSURE SWITCH OR SENSOR	AHU	AIR HANDLING UNIT TAG	EF	EXHAUST FAN TAG	IN	INCHES	RR	RETURN REGISTER TAG
	CHILLED WATER RETURN PIPING (CWR)		RELIEF VALVE (RV)		EMULSION TEMPERATURE SENSOR	AMS	AIR FLOW MONITORING STATION	EFF	EFFICIENCY	IV	INTAKE VENT TAG	RTU	ROOM TEMPERATURE SENSOR
	CHILLED WATER SUPPLY PIPING (CWS)		BALL VALVE		DUCT MOUNTED SMOKE DETECTOR	AMPS	AMPERES	EG	EXHAUST GRILLE TAG	L	LOUVER TAG	RV	RELIEF VALVE
	FUEL OIL RETURN PIPING (FOR)		BALL VALVE		ROOM TEMPERATURE SENSOR	AP	ACCESS PANEL	ER	EXHAUST REGISTER TAG	LB	POUNDS	RUL	RAINWATER LEADER
	FUEL OIL SUPPLY PIPING (FOS)		3/4" BALL VALVE WITH 3/4" HOSE END GATE VALVE		THERMOSTAT OR SENSOR ON WALL	APD	AIR PRESSURE DROP	ESP	EXTERNAL STATIC PRESSURE	LD	LINEAR DIFFUSER TAG	SA	SUPPLY AIR
	GAS PIPING (G)		PRESSURE REDUCING VALVE		TSTAT OR SENSOR W/ TAMPERPROOF GUARD	AS	AIR SEPARATOR TAG	ET	EXPANSION TANK TAG	LTHU/SR	LOW TEMPERATURE HOT WATER LOCKED ROTOR AMPS	SAN	SANITARY (DRAIN & WASTE)
	HOT WATER RETURN PIPING (HUR)		FUSIBLE VALVE		MANUAL AIR VENT	ATC	AUTOMATIC TEMPERATURE CONTROL	EUB	ENTERING WET BULB	LWCO	LOW WATER CUTOFF	SD	SMOKE DAMPER
	HOT WATER SUPPLY PIPING (HWS)		STRAINER W/BLOWDOWN BALL VALVE		NOTE TAG (NUMBER)	B	BOILER TAG	EWT	ENTERING WATER TEMPERATURE	LWT	LEAVING WATER TEMPERATURE	SEER	SEASONAL ENERGY EFFICIENCY RATIO
	REFRIGERANT LIQUID PIPING (RL)		2-WAY CONTROL VALVE		AIR DEVICE TAG (LETTER) WITH CFM ROOM NUMBER	BD	BYPASS DAMPER TAG	EXG	EXISTING	MAX	MAXIMUM	SF	SUPPLY FAN
	REFRIGERANT GAS PIPING (RG)		SOLENOID VALVE		TURNING VANES	BFP	BACKFLOW PREVENTER TAG	EXH	EXHAUST	MBH	THOUSANDS OF BTU PER HOUR	SG	SUPPLY GRILLE TAG
	SANITARY PIPING BELOW FLOOR (SAN)		3-WAY CONTROL VALVE		DUCT W/MANUAL DAMPER	BHP	BRAKE HORSEPOWER	FC	FLEXIBLE CONNECTION	MCA	MINIMUM CIRCUIT AMPACITY	SP	STATIC PRESSURE
	SANITARY PIPING ABOVE FLOOR (SAN)		3-WAY CONTROL VALVE (TOP VIEW)		DUCT W/FLEXIBLE CONNECTION (FC)	BTUH	BRITISH THERMAL UNITS PER HOUR	FCO	FLOOR CLEANOUT	MIN	MINIMUM	SP	SUMP PUMP TAG
	SANITARY VENT PIPING		4-WAY CONTROL VALVE (TOP VIEW)		LAGGED DUCT	CBD	COUNTER BALANCED DAMPER	FD	FIRE DAMPER	NC	NOISE CRITERION	SR	SUPPLY REGISTER TAG
	RAINWATER LEADER ABOVE SLAB (RWL)		2 BUTTERFLY VALVES W/SINGLE ACTUATOR		DUCT W/ACOUSTIC LINING	CC	COOLING COIL TAG	FD	FLOOR DRAIN TAG	NIC	NOT IN CONTRACT	SQFT	SQUARE FEET
	COLD WATER PIPING (CW)		BUTTERFLY VALVE W/ACTUATOR		DUCT W/SQUARE-TO-ROUND TRANSITION	CFM	CUBIC FEET PER MINUTE	FLA	FULL LOAD AMPS	NTG	NOT TO SCALE	TEMP	TEMPERATURE DIFFERENTIAL
	HOT WATER PIPING (HW)		TRIPLE-DUTY VALVE		FLEXIBLE DUCT	CHLR	CHILLER TAG	FOR	FUEL OIL RETURN	OA	OUTSIDE AIR	TEMP	TEMPERATURE
	RECIRCULATED HOT WATER PIPING (RHW)		UNION		MOTOR OPERATED DAMPER	CO	CLEANOUT	FOS	FUEL OIL SUPPLY	OB	OFFSEED BLADE DAMPER	TCP	TEMPERATURE CONTROL PANEL
	PIPE CAP		PIPE FLANGE		DIAMETER OR FLAT OVAL	CONV	CONVECTOR TAG	FFHB	FROST PROOF HOSE BIBB	OD	OUTSIDE DIAMETER	TMV	THERMOSTATIC MIXING VALVE TAG
	DIRECTION OF FLUID FLOW		PIPE FLANGE		DIAMETER OR FLAT OVAL	CUH	CABINET UNIT HEATER TAG	FFM	FEET PER MINUTE	OFD	OPEN ENDED DUCT	TSP	TOTAL STATIC PRESSURE
	ELBOW UP		PUMP WITH FLANGES		DIAMETER OR FLAT OVAL	CP	CIRCULATING PUMP TAG	F5	FLOOR SINK TAG	OPD	OVERCURRENT PROTECTIVE DEVICE	TYP	TYPICAL
	ELBOW DOWN		BASE MOUNTED PUMP		DIAMETER OR FLAT OVAL	CT	COOLING TOWER TAG	FT	FEET	PF	PLUMBING FIXTURE TAG	UH	UNIT HEATER TAG
	PIPE TEE UP		CARTRIDGE TYPE INLINE PUMP		DIAMETER OR FLAT OVAL	Cv	VALVE COEFFICIENT	FTR	FINTUBE RADIATION TAG	P	PENETRATION	VAV	VARIABLE AIR VOLUME BOX TAG
	PIPE TEE DOWN		VERTICAL INLINE PUMP		DIAMETER OR FLAT OVAL	CW	COLD WATER	G	GAGE	PEN	PENETRATION	VB	VACUUM BREAKER
	PIPE REDUCER		PETCOCK		DIAMETER OR FLAT OVAL	CHWS/R	CHILLED WATER SUPPLY AND RETURN	GA	GALLONS	PF	PADDLE FAN TAG	VFD	VARIABLE FREQUENCY INVERTER DRIVE
	PIPE WITH GUIDE				DIAMETER OR FLAT OVAL	DB	DRY BULB	GAL	GALLONS	PSIA	POUNDS PER SQUARE INCH ABSOLUTE	VTR	VENT THRU ROOF
	PIPE WITH ANCHOR				DIAMETER OR FLAT OVAL	dB RE	DECIBELS RELATIVE TO	GPH	GALLONS PER HOUR	PSIG	POUNDS PER SQUARE INCH GAGE	VPH/Hz	VOLTS/PHASES/HERTZ
	BUTTERFLY VALVE				DIAMETER OR FLAT OVAL	DC	DOUBLE CHECK	GPM	GALLONS PER MINUTE	PVC	POLYVINYL CHLORIDE (PIPE)	WB	WET BULB
	OS & Y GATE VALVE				DIAMETER OR FLAT OVAL	DCA	DOUBLE CHECK ATMOSPHERIC	GWH	GAS UNIT HEATER TAG	RA	RETURN AIR	WCO	WALL CLEANOUT

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