

Metropolitan Edison Company
Post Office Box 480
Middletown, Pennsylvania 17057
717 944-4041

Writer's Direct Dial Number

December 13, 1979
GQL 1541

TMI-2 Support
c/o Three Mile Island Nuclear Station
Attn: John T. Collins
U.S. Nuclear Regulatory Commission
Middletown, Pennsylvania 17057

Dear Sir:

Three Mile Island Nuclear Station, Unit 2 (TMI-2)
License No. DPR-73
Docket No. 50-320
No. 2 Personnel Air Lock Contamination Control
Facility Design Descriptions

Enclosed are three (3) sets of No. 2 Personnel Air Lock Contamination Control Facility Design Descriptions with associated drawings for your information and review. These represent the present design for the modifications to the Unit 2 air lock, anteroom and hot instrument shop in support of the Unit 2 Reactor Building Reentry Program.

Sincerely,

/s/ R. F. Wilson

R. F. Wilson
Director, TMI-2

RFW:JRS:hah

- Enclosures:
- 1) Design Description, No. 2 Personnel Air Lock Contamination Control Facility, dated October 26, 1979 (3 copies)
 - 2) Bechtel Drawings:
 - 2-A-810-1 Rev. 0 (3 copies)
 - 2-A-810-2 Rev. 0 (3 copies)
 - 2-E-810-1 Rev. 1 (3 copies)
 - 2-P-810-1 Rev. 0 (3 copies)

Mrs. Pat Higgins
Edison Electric Institute
90 Park Avenue
New York, New York 10016

Mr. E. L. Blake, Jr.
Shaw, Pittman, Potts & Trowbridge
1800 "M" Street, NW
Washington, D.C. 20036

Mr. R. Sanacore
American Nuclear Insurers
The Exchange - Suite 245
270 Farmington Avenue
Farmington, CT 06032

President's Commission on the
Accident at Three Mile Island
Attn: Stanley M. Gorinson Esq.
2100 "M" Street NW
Washington, D.C. 20037

R Fein
Ekm
B. C. Rusche - Rad. Waste Trailer
J. J. Barton - Trailer #102
L. W. Harding - TMI Licensing
R. M. Klingaman - Met-Ed
N. Kazanas - Mt. Lakes
J. F. Wilson - NRC Trailer #14
J. B. Logan TMI
T. A. Mackey - TMI
G. P. Miller - TMI
R. C. Arnold - TMI Trailer #201
D. G. Mitchell - Met-Ed
C. A. Nixdorf - TMI
T. L. Seelinger - TMI

E. Fuller - GMU
J. Chwastyk - TMI

File: 02.0016.0001.0001.02

02.0060.0003.0006

Dr Steve Long, Director
Power Plant Siting
Department of Natural Resources
Texas State Office Building
550 Taylor Ave
Ampelis Bid 21401

Mr. W. R. Gibson
Babcock & Wilcox
P.O. Box 1260
Lynchburg, VA 24505

Mr. T. F. Hartley, Jr.
Marsh & McLennan, Inc.
1221 Avenue of the Americas
New York, New York 10020

Mr. A. S. Dam
Burns & Roe, Inc.
650 Winters Avenue
Paramus, New Jersey 07652

Ms. Margaret Reilly
Chief Div. of Reactor Review
PA. Dept. of Environmental Resources
Fulton Bank Building
Harrisburg, PA 17120


J G Herberg
J. R. Stair - TMI-Licensing
W. N. Moreau - TMI Trailer #22
J. T. Collins (NRC) Trailer #1
E. G. Wallace - Mt. Lakes
R. F. Wilson - Mt. Lakes
GRC Chairman - TMI-2 - (send both to
GRC Secretary - TMI-2 - W.F. Schmauss - Parsippa
TMI GORB Secretary - D. H. Reppert - Parsippa
Chairman - TMI-1 PORC - W.E. Potts - TMI
Secretary - TMI-1 PORC - M.A. Shatto - TMI
Chairman - TMI-2 PORC - R. Warren - TMI
Secretary - TMI-2 PORC - M. Bezilla - TMI
Chairman - RORC - G.A. Kunder - TMI
Secretary - RORC - Dale Bates - TMI

R Hwaal
K F Wilson
Mr. Robert L. Rider
Bechtel
Trailer 107A

BEV HOCKLEY -
Discovery Room

~~J.W. Kungenbach~~
A. P. Morrell

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SERVICE CONDITIONS	FLUID	AIR		
	MAX. PRESSURE, PSIG	ATM.		
	MAX. TEMPERATURE, °F	120		
	VELOCITY IN DUCT, FPM	1200		
BODY	CONNECTION SIZE & TYPE	2" MNPT		
	NETTED PARTS MATL.	3/16 SS		
	INSERTION LENGTH (U), inch	9		
HOUSING	ENCLOSURE TYPE	NEMA 4 MIN.		
	CONDUIT CONN. SIZE & TYPE	1 1/4" FNPT		
	POWER REQUIREMENTS	110 VAC, 60HZ		
SWITCH	TYPE	DPST		
	NO. OF SWITCHES	1		
	SET POINT, FPM	#1	#2	
	DIFFERENTIAL TO RESET	5 MV		
PURCH.	M.R./P.O. NUMBER			
	MANUFACTURER	FCI OR EQUAL		
	MODEL NO.	12-6A-4 OR EQUAL		
GENERAL	P. & I.D. NUMBER			
	SERVICE	AIR LOCK No. 2 HVAC SYS.		
INSTRUMENT TAG NO.		AH-FSL-		
NO.	DATE	REVISIONS	NOTES	
0	10/9/79	ISSUED FOR CONSTRUCTION		
		FLOW SWITCHES-THERMAL GPU SERVICE CORP. THREE MILE ISLAND - UNIT 2		JOB No. 13587-005 DATA SHEET NUMBER DS-J-001
				REV. 0

DESIGN DESCRIPTION

NO. 2 PERSONNEL AIR LOCK
CONTAMINATION CONTROL FACILITY

FOR

THREE MILE ISLAND UNIT 2
GENERAL PUBLIC UTILITIES SERVICES CORPORATION

BECHTEL POWER CORPORATION
Gaithersburg, Maryland
October 26, 1979

Originator R.L. Mays
Group Supervisor T.M. Patterson
Project Engineer RL Rider

THREE MILE ISLAND UNIT 2
CONTAINMENT RECOVERY ENGINEERING
BECHTEL JOB 13587

NO. 2 PERSONNEL AIR LOCK
CONTAMINATION CONTROL FACILITY

1.0 FUNCTION

The No. 2 Personnel Air Lock Contamination Control Facility consists of temporary barrier partition walls and ceiling near the No. 2 personnel air lock to provide a controlled access path and to prevent the spread of radioactive contamination when the containment is reentered via the lock. The facility is provided with supporting services including ventilation, electrical power, and lighting required to perform its function.

2.0 DESCRIPTION

2.1 Structure

Temporary barrier walls and ceiling are added to divide the area near the No. 2 personnel air lock into contamination control areas. The barriers are constructed of gypsum panels on steel channel framing to provide rigid, non-flammable partitions. The construction of the barriers is detailed on Bechtel Drawing Nos. 2-A-810-1 and 2-A-810-2. The new barrier partitions are coated with an epoxy painting system to permit ease of decontamination if the need arises, as are the permanent walls, floor, and ceiling in the area. All seams, joints and penetrations in the facility structure are sealed to prevent the uncontrolled flow of contaminated air.

Personnel traffic flow in the facility is controlled using doorways in combination with step-off pads to minimize cross contamination due to foot traffic. Entry to the facility is made via the hot instrument shop, which will be cleaned and, if necessary, decontaminated prior to the reentry operation.

2.2 Ventilation System

The facility is ventilated by the existing HVAC system in the area, rebalanced to provide a positive flow of air from clean areas to areas of progressively higher contamination within the facility. The ventilation system layout and flow diagram are shown on Bechtel Drawing No. 2-P-810-1. Since the total flows into and out of the area have been maintained at the same values as the permanent system design, operation of the system in this facility will not affect the other functions of the permanent ventilation system. To ensure that no potential exists for uncontrolled spread of contamination through the duct system outside the area, tight shutoff dampers are provided in the main supply and exhaust ducts serving the facility. Should exhaust

flow from the area stop, a flow switch in the exhaust duct will close the shutoff dampers in the supply and exhaust ducts, and thereby isolate the ducts from the rest of the building. The switch will also sound an audible alarm in the area to alert the operating personnel. The following evaluation indicates that no spread of contamination will result from ventilation system failure:

<u>FAILURE</u>	<u>RESPONSE</u>
Supply to facility fails; exhaust from facility continues	Exhaust system will maintain the correct air flow patterns at a reduced air flow rate
Exhaust from facility fails; supply to facility continues	Automatic shutoff dampers close, isolating facility. Supply system maintains adjacent rooms at positive pressure with respect to facility, thus preventing spread of contamination
Supply and exhaust to facility both fail	Automatic shutoff dampers close, isolating facility. No significant differential pressure will exist between facility and adjacent areas, and therefore no significant flow of contaminated air from facility will occur

Supporting the above evaluation are two key features of the permanent plant ventilation system being used to serve the facility:

- a. The supply and exhaust fans are interlocked such that the supply fan will not operate unless at least one of the exhaust fans is operating. This minimizes the possibility of pressurizing the facility.
- b. Redundant exhaust fans are provided, thus minimizing the chance of exhaust system failure.

2.3 Electrical System

Electrical services are provided to the facility for the following purposes:

- a. 120 and 208 VAC outlets for plug-in type equipment in the facility.
- b. 120 VAC power for the motor-operated dampers in the ventilation equipment (see 2.2 above) and the associated controls and alarm.
- c. Modification of the existing lighting system in the personnel air lock ante-room.

- d. Provisions for emergency lighting in the ante-room.

Power sources for the electrical systems are:

- a. 120 VAC for outlets - from spare circuits in RPS-1A and MPS-1B, located in the service building.
- b. 208 VAC for outlets and 120 VAC for dampers - from panel MPS-1B, located in the service building.
- c. Emergency lighting supply - from receptacle panel No. RPS-1A, located in the service building.

The existing lighting systems in the facility are used for general area lighting, except for the hot instrument decon room where surface-mounted fixtures are added with a new ceiling. The lighting system in the personnel lock ante-room is modified to permit turning off all but one light fixture in the room just prior to the reentry. The resulting low light level in the room will help the reentry team adjust to the low level expected in the containment building. To guard against complete loss of lighting in the ante-room during the reentry, an emergency lighting pack is mounted in the room.

The electrical systems and the control system for the automatic dampers are shown on Bechtel Drawing No. 2-E-810-1.

TESTING AND BALANCING REQUIREMENTS

1. SYSTEM TO BE BALANCED TO THE FLOWS SHOWN, WITH THE FOLLOWING TOLERANCES:

SUPPLY : +0 ; -10%
EXHAUST: -0 ; +10%
2. SYSTEM TO BE BALANCED AFTER NEW PARTITION WALLS ARE INSTALLED BUT BEFORE NEW CEILING IN HOT INSTR. DECON. ROOM (CONTAMINATION CONTROL AREA NO. 2) IS INSTALLED, TO ALLOW ACCESS TO DAMPERS IN OVERHEAD.
3. VAPOR OR VISIBLE SMOKE TESTING SHALL BE PERFORMED TO ENSURE THE PROPER AIR FLOW DIRECTION AT THE FOLLOWING LOCATIONS:
 - A) ACROSS THE NEW PARTITION WALL BETWEEN THE SOILED CORRIDOR AND CONTAMINATION CONTROL AREA NO. 2, THERE SHOULD BE NO FLOW. IF ANY FLOW IS NOTED, IT MUST BE INTO CONTAM. CONTR. AREA NO. 2.
 - B) ACROSS THE NEW PARTITION WALL BETWEEN CONTAMINATION CONTROL AREA NO. 2 AND THE PERSONNEL LOCK ANTE ROOM, FLOW MUST BE INTO THE ANTE ROOM.
 - C) ACROSS THE DOOR BETWEEN THE HOT INSTR. SHOP AND CONTAMINATION CONTROL AREA NO. 2. FLOW MUST BE INTO THE CONTAM. CONTROL AREA
4. MEASURE AND RECORD THE AIR FLOW RATE IN THE MAIN SUPPLY AND EXHAUST DUCTS TO THE AREA. ANY HOLES MADE IN THE DUCTS TO PERFORM THE MEASUREMENTS SHALL BE SEALED AFTERWARDS.
5. AS SHOWN, FLOW THROUGH LOUVERED DOOR BETWEEN HOT INSTRUMENT SHOP AND CONTAMINATION CONTROL AREA NO. 2 IS TO BE 400 CFM. IF NECESSARY, PORTIONS OF THE LOUVERED OPENING SHALL BE BLOCKED OFF TO ACHIEVE THIS FLOW RATE. AFTER BALANCING, BLOCKING OFF SHALL BE DONE USING GALVANIZED SHEET METAL SECURED TO THE DOOR BY SHEET METAL SCREWS. ANY BLOCK-OFF PLATE(S) SHALL BE INSTALLED ON THE HOT INSTRUMENT SHOP SIDE OF THE DOOR.
6. A BALANCING REPORT SHALL BE SUBMITTED TO GPUSC, WITH THE FOLLOWING DATA:
 - A) MEASURED FLOW RATES THROUGH ALL REGISTERS AND DIFFUSERS, THROUGH THE DAMPERED OPENING IN THE NEW PARTITION WALL, AND THROUGH THE LOUVERED OPENING IN THE DOOR BETWEEN THE HOT INSTRUMENT SHOP AND CONTAMINATION CONTROL AREA NO. 2. LIST INSTRUMENT(S) USED TO MAKE THE MEASUREMENTS.
 - B) MEASURED FLOW RATE IN THE MAIN SUPPLY AND EXHAUST DUCTS TO THE AREA. LIST INSTRUMENT(S) USED TO MAKE THE MEASUREMENTS.

DUCTS TO PERFORM THE MEASUREMENTS SHALL BE SEWLED
AFTERWARDS.

5. AS SHOWN FLOW THROUGH LOUVERED DOOR BETWEEN HOT INSTRUMENT SHOP AND CONTAMINATION CONTROL AREA NO.2 IS TO BE 400 CFM. IF NECESSARY, PORTIONS OF THE LOUVERED OPENING SHALL BE FLOCKED OFF TO ACHIEVE THIS FLOW RATE. AFTER BALANCING, BLOCKING OFF SHALL BE DONE USING GALVANIZED SHEET METAL SECURED TO THE DOOR BY SHEET METAL SCREWS. ANY BLOCK-OFF PLATE(S) SHALL BE INSTALLED ON THE HOT INSTRUMENT SHOP SIDE OF THE DOOR.

6. A BALANCING REPORT SHALL BE SUBMITTED TO GPUSC, WITH THE FOLLOWING DATA:

A) MEASURED FLOW RATES THROUGH ALL REGISTERS AND DIFFUSERS, THROUGH THE DAMPERED OPENING IN THE NEW PARTITION WALL, AND THROUGH THE LOUVERED OPENING IN THE DOOR BETWEEN THE HOT INSTRUMENT SHOP AND CONTAMINATION CONTROL AREA NO.2. LIST INSTRUMENT(S) USED TO MAKE THE MEASUREMENTS.

B) MEASURED FLOW RATE IN THE MAIN SUPPLY AND EXHAUST DUCTS TO THE AREA. LIST INSTRUMENT(S) USED TO MAKE THE MEASUREMENTS.

C) RESULTS OF THE VAPOR OR SMOKE TEST PERFORMED PER ITEM 3 ABOVE.

Bechtel Power Corporation

Engineers—Constructors

15740 Shady Grove Road
Gaithersburg, Maryland 20760
301-948-2700



September 14, 1979
GPU/TMI-0048

Mr. R. W. Heward, Jr.
Manager - Projects
GPU Service Corporation
260 Cherry Hill Road
Parsippany, New Jersey 07054

Subject: Containment Reentry
Three Mile Island
Containment Engineering
Bechtel Job No. 13587

Dear Mr. Heward:

This will confirm the September 12, 1979, telecons between Jim Langenbach and Ron Mays concerning the initial entry program and in particular the Bechtel scope of work regarding the No. 2 Personnel Air Lock contamination control envelope. Enclosed for your use is a sketch of the controlled area floor plan, and an outline of the engineering tasks in progress for the design of the control envelope and supporting systems/equipment. Per the discussion with Mr. Langenbach, the floor plan shows only two contamination control zones to be constructed for the initial entry, with a third zone to be constructed at a later date, as required, for additional entries. We consider the third zone essential in minimizing the spread of contamination during the period of time when continuing entries through the No. 2 Personnel Air Lock are planned.

As agreed, we will plan the power supply to the initial entry Command Center based on 100 ampere service with the principal outlets at 110 volts AC. If practical, we will also provide a 220 volts AC outlet. As requested, in addition to an engineering design package for the envelope, we will complete the body of the required ECM's and SECM's for procurement and construction. It is our intent to provide the package of design documents with ECM/SECMs by October 5, 1979, for your review. Upon your concurrence, it is our understanding that you may wish to have Bechtel personnel follow through on the ECMs/SECMs to assist in obtaining the various site approvals.

Bechtel Power Corporation

Mr. R. W. Heward, Jr.

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GPU/TMI-0048

Because of the short time available, we recommend that you take immediate action on the following activities in the control area:

1. Move the step-off pad, presently located in the service building north-south corridor at elevation 305', to the north far enough to provide a clean pathway down the corridor to the double doors into the hot instrument shop. If this is not practical, it will be necessary to either move the initial entry Command Center out of the hot instrument shop, or to accept access to the Center via a contaminated corridor.
2. Seal all large holes/openings in the No. 2 Personnel Air Lock anteroom with a grouting/sealing material that can later be decontaminated, as required. Of particular concern are the openings in the floor and ceiling of the anteroom in the southwest corner, and the pipe penetration in the floor near the center of the south wall of the anteroom. Sealing of these openings is required to enable control of contaminated air flow from the anteroom. The RTV material presently available at the plant will be sufficient for this purpose, and should be installed in a layer 3-4 inches thick. The RTV should be flush with the surface of the hole to give access for decontamination. Also, since the RTV is somewhat porous, we recommend covering it with a hard surface compound for decontamination purposes. Any of the following should be adequate:
 - Flamemastic (by Flame Master Corp., 213-982-1650; specify mastic)
 - 3-5000 (by Dow-Corning; obtain from Calbar, Inc. of Philadelphia, 215-739-9141)
 - Sylgard 170A & B (also by Dow-Corning; obtain from Calbar)
3. Locate and seal the crack at the roof line above the Personnel Air Lock. This crack presents a contamination problem due to rain water leaking down onto the anteroom floor, and provides an uncontrolled air flow path to the outdoors. The RTV caulking material available at the plant may be suitable for this purpose, but an inspection of the roofing in the area should be done and any cracks patched.

Bechtel Power Corporation

Mr. R. W. Heward, Jr.

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4. Seal all cracks and seams in the anteroom floor, walls and ceiling to provide a barrier to uncontrolled air flow. The RTV caulking available at the plant should be suitable in some cases. In other cases we suggest using waterproof silicone caulking, which should be available at any local hardware outlet. No sealing should be done to the temporary partition now in place at the entrance to the anteroom, because this wall will be modified or replaced.
5. Paint all exposed surfaces (not including the temporary partition wall presently installed at the entrance to the anteroom) in the anteroom, the chamber just outside the anteroom, and the hot instrument decontamination room using epoxy painting materials which can be decontaminated. It is our understanding that this can be accomplished with paint already available at the plant. All work with RTV and silicone caulking in the area should be complete prior to painting because these materials will not adhere to epoxy-painted surfaces and vice versa.
6. Clear the hot instrument shop and storage room of all loose furniture and materials and decontaminate the area, preparatory to installing initial entry Command Center equipment.

We will gladly provide you with any assistance needed to complete the items outlined above.

In addition to our control envelope design scope, as requested, we will provide our recommendations on which radiation monitoring equipment will be required in the contamination control envelope during the reentry. All such monitors will have remote readout and/or alarm in the initial entry Command Center.

We will remain in close contact with you during our design effort, and suggest Jim Langenbach visit our office late in the week of September 17th to review our completed work. Please let us know if such a visit is convenient.

If you have any questions or comments, please contact us.

Sincerely,



R. L. Rider
Project Engineer

RLR:RLM:TMP:vwg

Enclosures: (1) Sketch No. SK-P-1, Proposed No. 2 Personnel Air Lock Contamination Control Facility

(2) Description of Bechtel engineering tasks for facility design

cc addressees see page 4

Bechtel Power Corporation

Mr. R. W. Heward, Jr.

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September 14, 1979
GPU/TMI-0048

cc: J. Langenbach, w/1
R. F. Wilson, w/1
C. W. Sandford, w/1
J. W. Thiesing, w/1



BECHTEL
GAITHERSBURG, MD.

DRAWING CHANGE NOTICE

JOB NO.	DRAWING NO.	REV. NO.
13587	2-A-810-1	0
DCN NUMBER	PAGE	OF
2-A-810-1-1	1-3	

CHANGE REQUESTED BY: Client Engineering Field Supplier/Contractor

REASON FOR CHANGE: GYPSUM BOARD WALL INTERFERES WITH ELECTRICAL PANEL

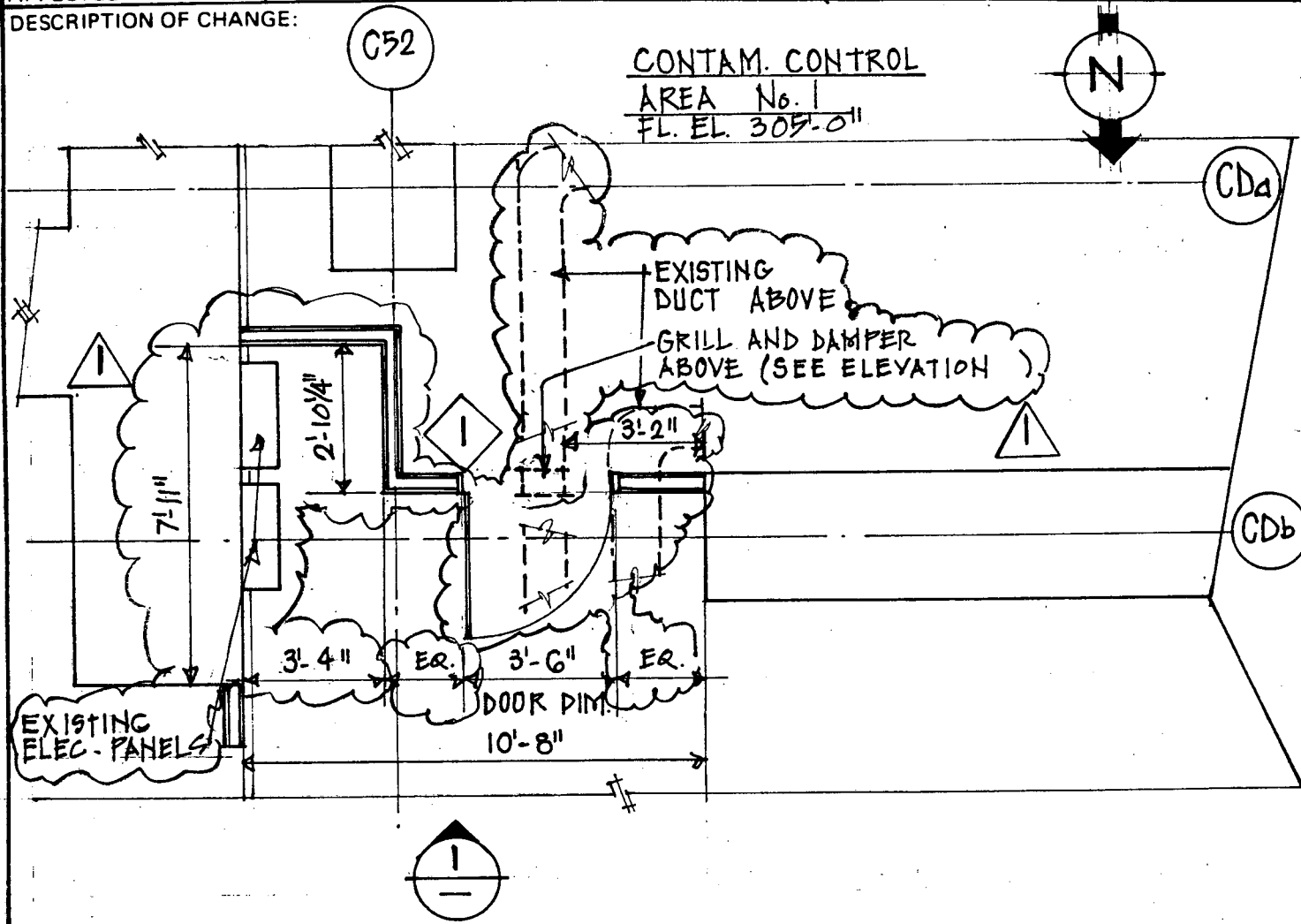
OTHER DOCUMENTS (Including PURCHASE ORDERS) AFFECTED BY THIS CHANGE: N/A

PM, MR OR OTHER DOCUMENTS PREPARED FOR DCN CHANGE? YES NO

MATERIAL PROCUREMENT RESPONSIBILITY: BECHTEL BECHTEL FIELD CLIENT SUPPLIER/CONTRACTOR NONE REQUIRED

DISPOSITION OF AFFECTED MATERIAL: Rework Scrap Use AS IS As Noted

DESCRIPTION OF CHANGE:



FLOOR PLAN
EL. 305'-0" SCALE 1/4" = 1'-0"

REVIEWED WITHOUT COMMENT	ARCHITECTURAL <i>cl.</i>	CIVIL <i>Jos</i>	CONTROL SYSTEMS	ELECTRICAL <i>EP</i>	PLANT DESIGN <i>TMT</i>	MECHANICAL <i>TMT</i>
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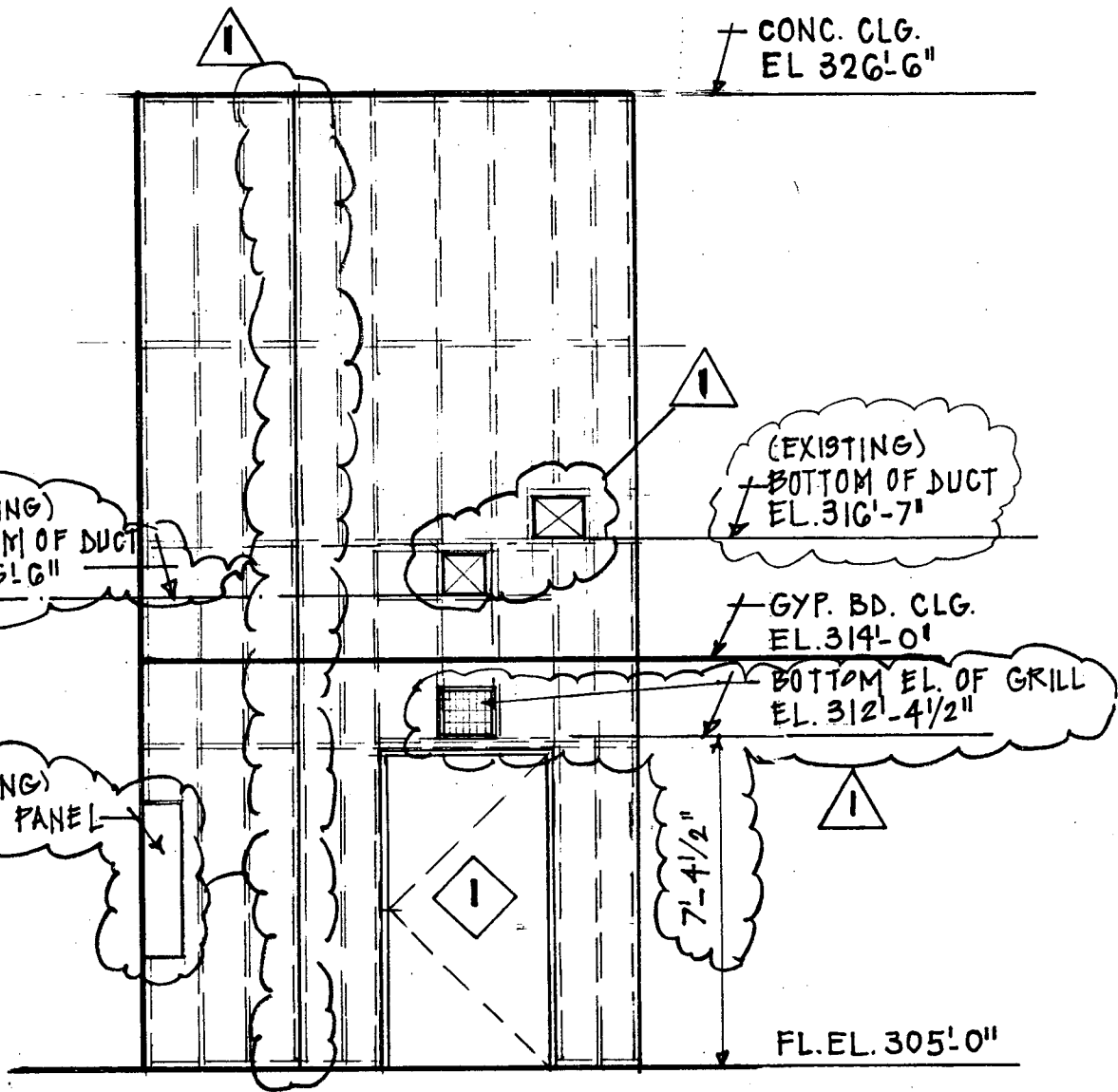
ORIGINATOR <i>W. ...</i>	CHECKED BY <i>cl.</i>	GROUP SUPERVISOR <i>Jos</i>	PROJECT ENGINEER <i>R.L. Peder</i>	DATE <i>12.14.79</i>
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GPD-27170 3/77

DRAWING CHANGE NOTICE

BECHTEL
GAITHERSBURG, MD.

JOB NO.	DRAWING NO.	REV. NO.
13587	2-A-810-1	0
DCN NUMBER	DATE	
2-A-810-1-1		
CONTINUATION SHEET		
PAGE	2	OF 3



 ELEVATION
SCALE: 1/2" = 1'-0"

GPD-27170-A-377

DRAWING CHANGE NOTICE

JOB NO. DRAWING NO. REV. NO.

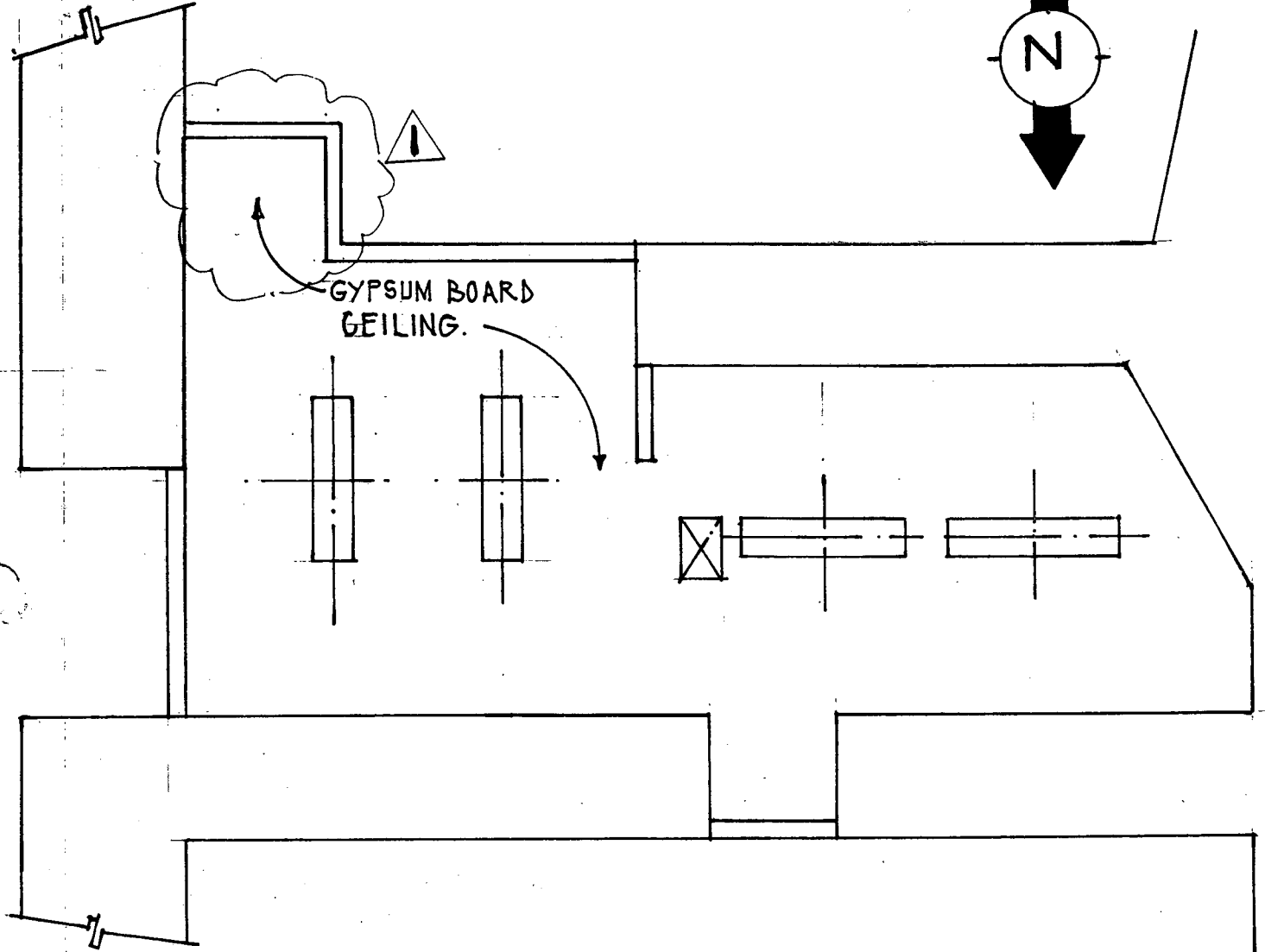
13587 2-A-810-1 0

DCN NUMBER DATE
2-A-810-1-1

CONTINUATION SHEET

PAGE 3 OF 3

BECHTEL
GAITHERSBURG, MD.



REFLECTED CLG. PLAN
SCALE : 1/4" = 1'-0"



BECHTEL
GAITHERSBURG, MD.

DRAWING CHANGE NOTICE

JOB NO.	DRAWING NO.	REV. NO.
13587	2-A-810-2	0
DCN NUMBER	PAGE	OF
2-A-810-2-1	1	2

CHANGE REQUESTED BY: Client Engineering Field Supplier/Contractor

REASON FOR CHANGE:
GYPSUM BOARD WALL INTERFERES WITH ELECTRICAL PANEL.

OTHER DOCUMENTS (Including PURCHASE ORDERS) AFFECTED BY THIS CHANGE: N/A.
PM, MR OR OTHER DOCUMENTS PREPARED FOR DCN CHANGE? YES NO

MATERIAL PROCUREMENT RESPONSIBILITY: BECHTEL BECHTEL FIELD CLIENT SUPPLIER/CONTRACTOR NONE REQUIRED

DISPOSITION OF AFFECTED MATERIAL: Rework Scrap Use AS IS As Noted

DESCRIPTION OF CHANGE:

BILL OF MATERIALS

1. STEEL FRAMED DRYWALL SYSTEM: BY U.S. GYPSUM SEE SPEC. 2.0.
1) SHEETROCK

QTY	DESCRIPTION
23 SHEETS	4'-0" x 8'-0" 5/8" THICK SQUARE CUT SHEETROCK FIRECODE "C" GYPSUM PANELS.

2) STEEL STUD, STEEL RUNNER, STEEL STIFFENER CHANNEL

QTY.	DESCRIPTION
35	12'-0" LONG 4" USG. ST 5 STEEL STUD, 20 GAGE
5	12'-0" LONG 4" USG. RUNNER 20 GAGE
3	12'-0" LONG 2 1/2" STIFFENER CHANNEL

3) FASTENER, TRIM, TAPE & STEEL COMPONENTS TO CONC.

QTY.	DESCRIPTION
110	3/16" x 1 5/8" ACORN SLOTTED HWH TAPCON FASTENER STEEL COMPONENTS TO CONC.
AS REQ'D	11 USG BRAND SCREWS TYPE S 12" O.C. TO STUDS @ JTS. & IN FIELD. 12" O.C. TO RUNNERS.
180'-0"	LINEAR FEET US.G. METAL TRIM #402
500'-0"	LINEAR FEET OF TAPE.



REVIEWED WITHOUT COMMENT	ARCHITECTURAL <i>CL</i>	CIVIL <i>JRS</i>	CONTROL SYSTEMS <i>NA</i>	ELECTRICAL <i>NA</i>	PLANT DESIGN <i>NA</i>	MECHANICAL <i>NA</i>
ORIGINATOR <i>4/11/79</i>	CHECKED BY <i>CL</i>	GROUP SUPERVISOR <i>JRS</i>	PROJECT ENGINEER <i>R.L. Feder</i>	DATE <i>12-14-79</i>		



BECHTEL
GAITHERSBURG, MD.

DRAWING CHANGE NOTICE

JOB NO.	DRAWING NO.	REV. NO.
13587	2-A-810-2	0
DCN NUMBER	DATE	
2-A-810-2-1		
CONTINUATION SHEET		
PAGE	2	OF 2

BILL OF MATERIALS

- III. DRYWALL BOARD CEILING BY U.S. GYPSUM SEE SPEC. 2.0.
 1) NO. 12 WIRE HANGER (VERIFY FIELD DIMENSION USE EXISTING WIRE HANGER IF EQUAL).
 2) SHEETROCK

QTY.	DESCRIPTION
10 SHEETS	4'-0" x 8'-0" 1/2" THICK SHEETROCK SQUARE CUT FIRECODE "C" GYPSUM BOARD, ONE HOUR FIRE RATED

- 3) 1 1/2" METAL CARRYING CHANNEL (GALVANIZED)

QTY.	DESCRIPTION
7	12'-0" LONG
1	14'-0" LONG

- 4) 3/4" METAL FURRING CHANNE (GALVANIZED)

QTY.	DESCRIPTION
20	10'-0" LONG

- 5) FASTENER, TRIM, TAPE, CHANNEL CLIP, WIRE TIE, SPLICE JOINT & DUST MEMBRANE.

QTY.	DESCRIPTION
AS REQ'D	CHANNEL CLIP, WIRE TIE, SPLICE JOINT
AS REQ'D	3/8" U.S.G. PAN HEAD SCREWS
100'-0"	LINEAR FEET U.S.G. METAL TRIM N#401
100'-0"	LINEAR FEET OF TAPE
100'-0"	LINEAR FEET DUST MEMBRANE