

SOFIA Mirror Coating System Description and Components List

Mirror Coater Functional Description The Mirror Coater's primary function is to aluminize the SOFIA Primary Mirror to a coating thickness of approximately 200 nm. The Mirror Coater has a removable lid, and when removed the SOFIA Primary Mirror Assembly (PMA) is loaded, face down at mid-height in the vessel. Air evacuation for both the volumes above and below the PMA takes place, by sequentially rough pumping followed by Meissner Trap operation, followed by cryopump operation. In a typical mirror coating run, the roughing pumps are able to evacuate the chamber to a pressure of 15 mTorr within 2.5 hours. The Meissner Trap surfaces are next cooled to freeze out any present water, then the cryopumps are engaged to pump the chamber down to a pressure of less than 5 μ Torr. The Mirror Coater also includes a Glow Discharge System for cleaning the surface of the mirror while at low pressure and prior to aluminization. A Filament Deposition system is then used for aluminization by melting and evaporating aluminum which is pre-loaded on a array of tungsten filaments.

1. The Mirror Coater consists of the following:

1.1. Main vacuum vessel

- 1.1.1. Vacuum Vessel: 13.2' high by 13.9' wide stainless steel cylinder with 3-leg floor mount, with approx. 28 peripheral surface vacuum seals
- 1.1.2. Vacuum Vessel Top Head: 2.6' high by 13.9' wide, with lift lugs
- 1.1.3. Numerous passive components internal & external to Main Vacuum Vessel
 - 1.1.3.1. Mirror Seals (fixed and movable)
 - 1.1.3.2. Mirror Support Assembly (3 brackets)
 - 1.1.3.3. Internal Platform (floor assembly)
 - 1.1.3.4. Manway (24")
 - 1.1.3.5. Platform and Ladder Assemblies

1.2. Rough pumping system

- 1.2.1. Two-stage conventional vacuum pumps (Roots Blower, 500 m³/hr + Rotary Piston Pump, 200 m³/hr)
- 1.2.2. 6" rigid roughing line
- 1.2.3. Two 2" rigid cryopump roughing lines
- 1.2.4. Pump vent system

1.3. Meissner Trap system

- 1.3.1. Two LN₂ cooled Meissner Traps (internal to Main Vacuum Vessel, 3.5 m² each)
- 1.3.2. Conventional ¾" (insulated) plumbing
- 1.3.3. Two waste GN₂ vents

1.4. Cryopump system

- 1.4.1. Two GHe refrigerated light molecule traps (CVI 20" each)
- 1.4.2. Two GHe compressors with 1" flex lines (CVI 5.5 KW each)

1.5. Glow discharge system

- 1.5.1. GAr supply lines
- 1.5.2. Glowrod Assembly (internal to Main Vacuum Vessel)
- 1.5.3. High Voltage DC Supply (3 KW)

1.6. Deposition system

- 1.6.1.1. Filament Array (internal to Main Vacuum Vessel, bus bars + 63 tungsten filament mounts)
- 1.6.1.2. Filament Power Supply (63 KW)
- 1.6.1.3. Deposition thickness sensor

1.7. Vent system

1.8. Control system

- 1.8.1. PLC with touch screen interface
- 1.8.2. Vacuum gauge and thickness sensor controllers
- 1.8.3. Mirror temperature sensor
- 1.8.4. Five vacuum gauge clusters
- 1.8.5. Ten automated valves + eleven hand valves
- 1.8.6. Computer interface to PLC
- 1.8.7. Power cabinet, controls cabinet
- 1.8.8. Dozens of instrumentation cables wired around the chamber itself
- 1.8.9. Hundreds of signal wires between the control cabinet and the power cabinet

1.9. Power systems

- 1.9.1. Main electrical supply
- 1.9.2. Main and backup pneumatic supply
- 1.9.3. High voltage, low current supply for glow discharge
- 1.9.4. Low voltage, high current supply for deposition

1.10. Vacuum Vessel Top Head Support Frame

2. **Additional GSE:** These tools and equipment are used for handling the Primary Mirror Assembly (PMA) and preparing and coating the Primary Mirror

2.1. PMA Lifting Device (PLD)

2.2. Second Load path Structure (SLS)

2.3. Tertiary Mirror Pedestal Positioning Device

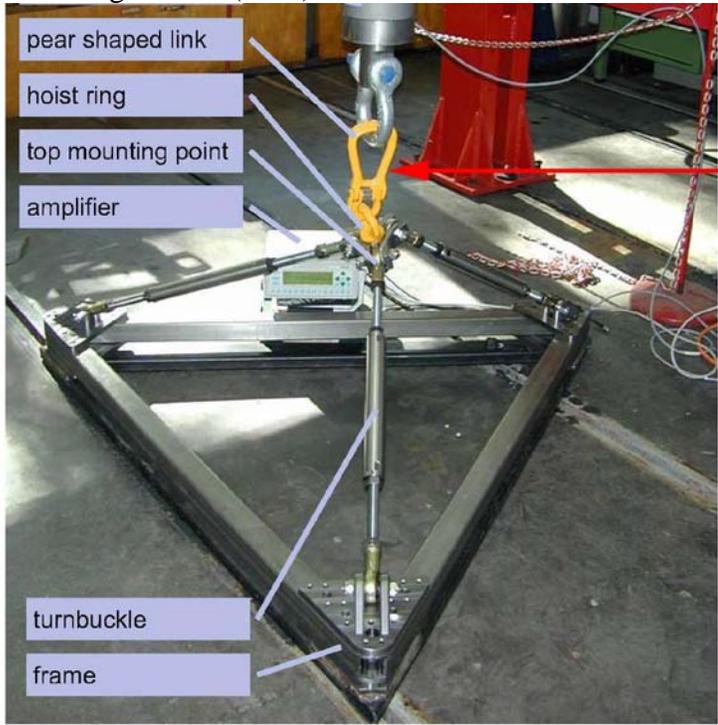
2.4. Dummy PMA

2.5. Dummy PM

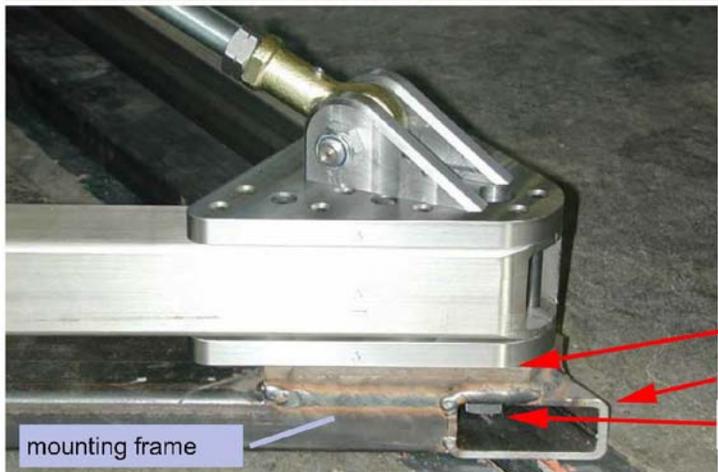
2.6. Coating Test Bracket (an arc-shaped structure that holds coating samples)

- 2.7. PM Cleaning Scaffolding
- 2.8. Inner and Outer Stripping Seals
- 2.9. PMA/MCF Interface components – Pads
- 2.10. Fluid Catchment hardware
- 2.11. Other Lab furnishings, stools, clean room vacuum cleaner, lighting

PMA Lifting Device (PLD)



PLD begins at Pear Link

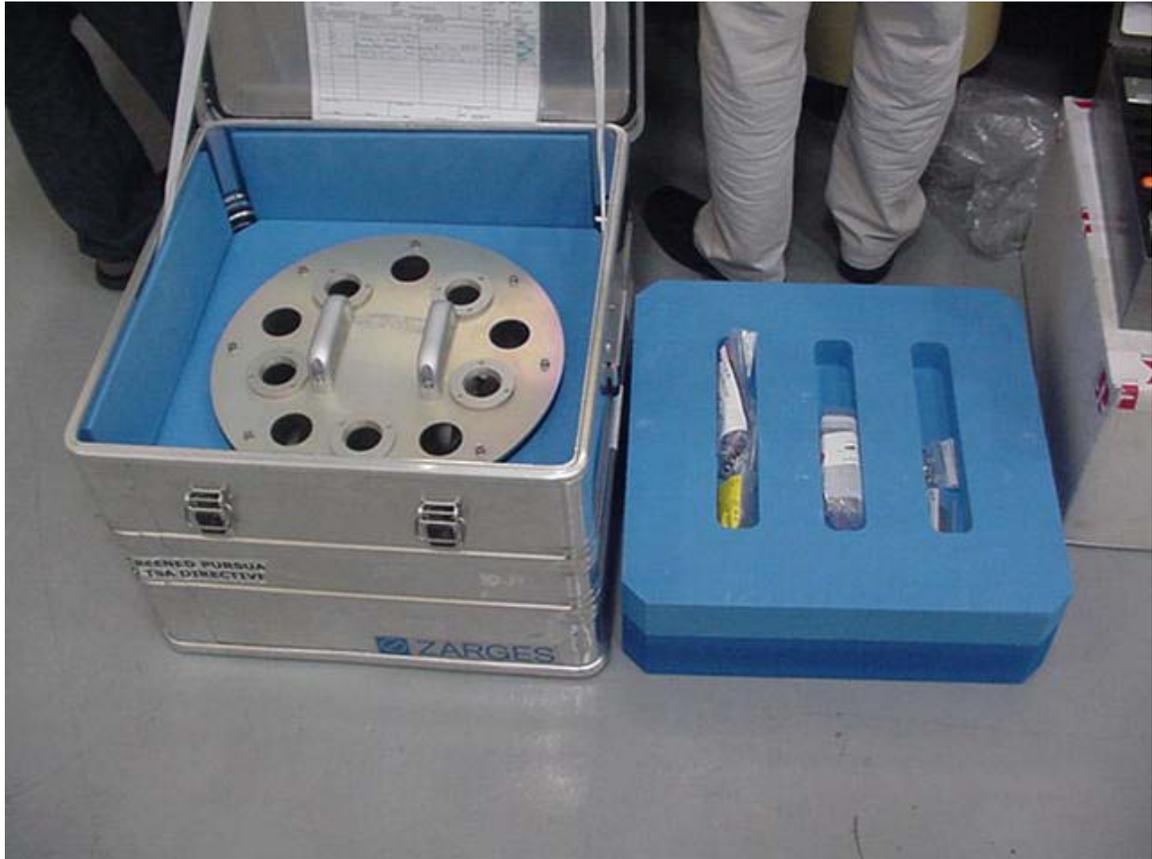


PLD ends at Lower Plate

Prior test hardware shown



Second Loadpath Structure (SLS), in custom container



Tertiary Mirror Pedestal Positioning Device (TMPD), shown be lowered to hangar floor.

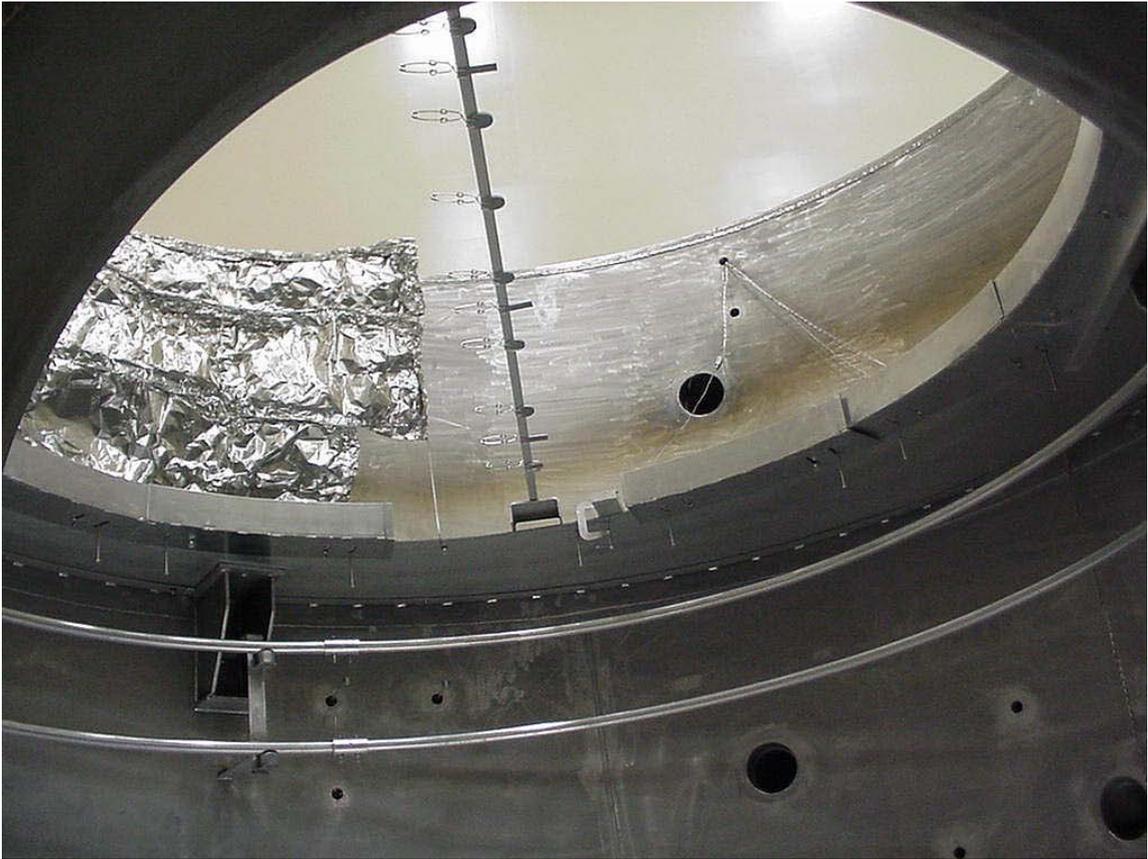


Dummy PMA (shown before 4" feet installed)



Dummy PM, a mockup of the 2.7 m primary made of light weight polycarbonate panels, approx. 50 lbs.

Coating Test bracket is the arc-shaped bracket just left of center in the photo below.



PM Cleaning scaffolding.



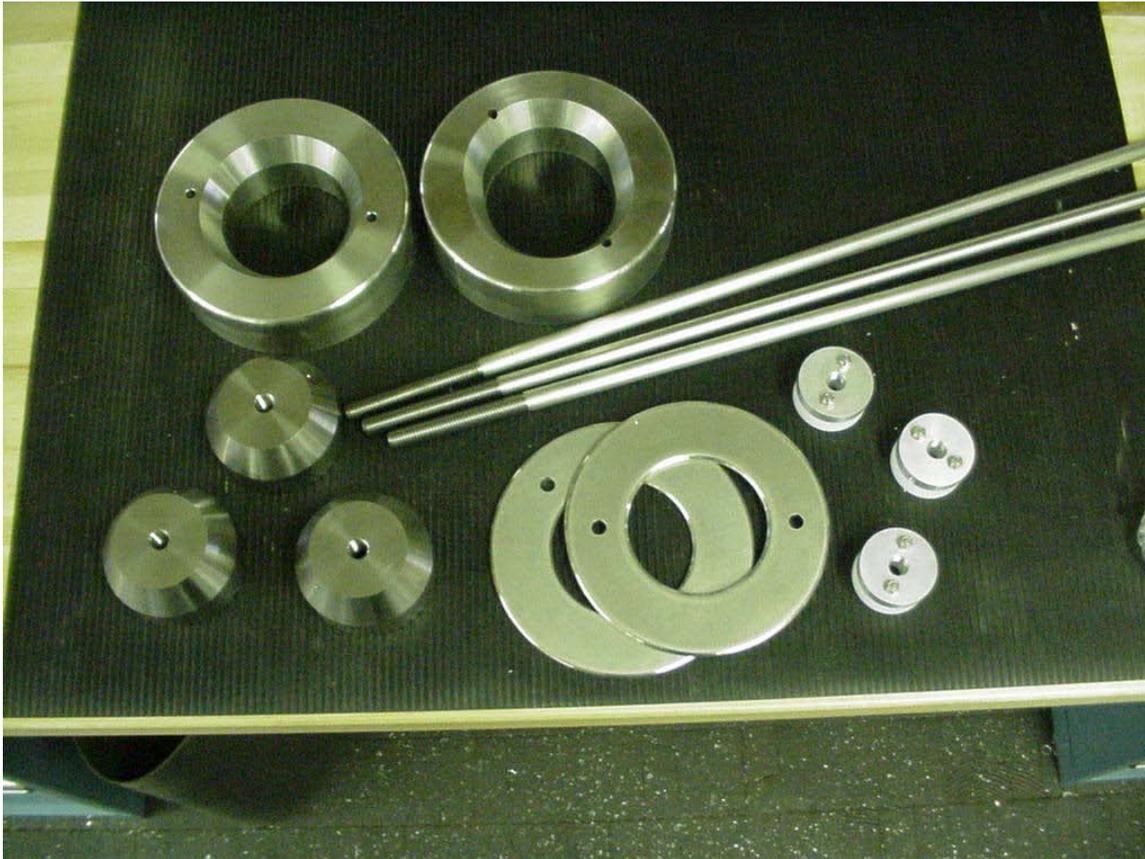
Below, the Inner Stripping Seal is shown in place in the center of the Primary Mirror



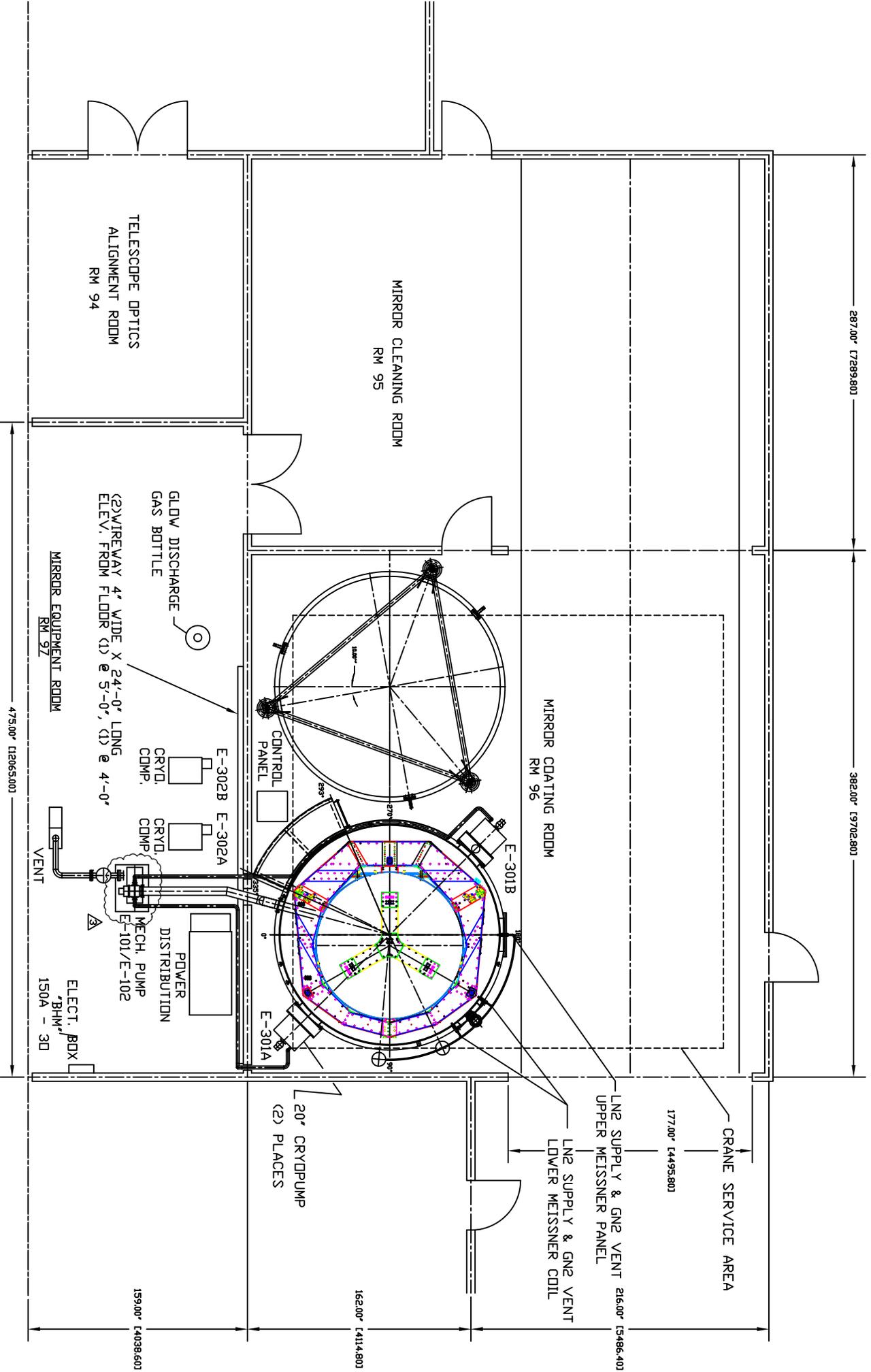
The Outer Stripping Seal



PMA/MCF Interface components – Pads

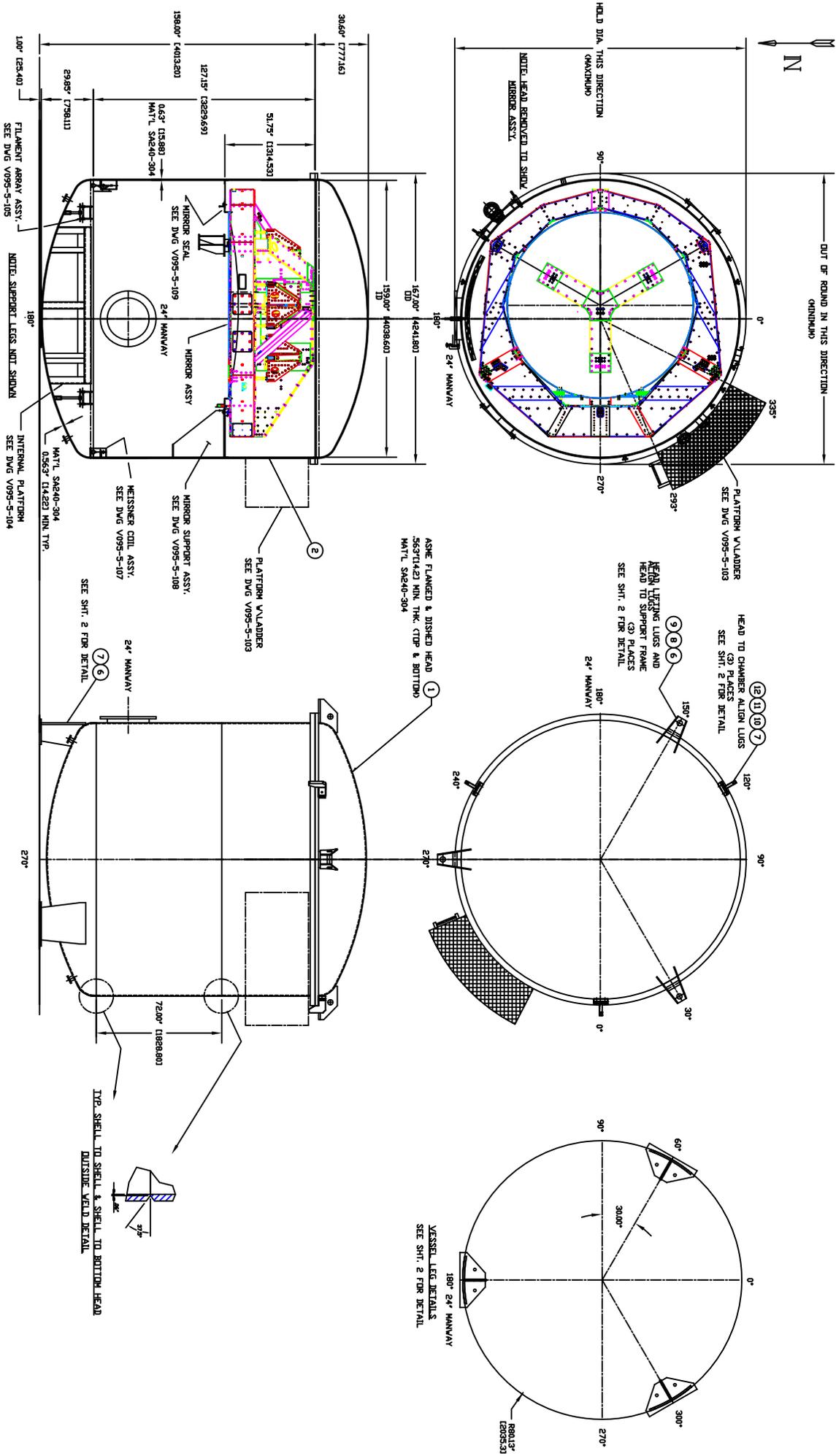


Equipment Layout in Existing Facility



CORRIDOR C-1

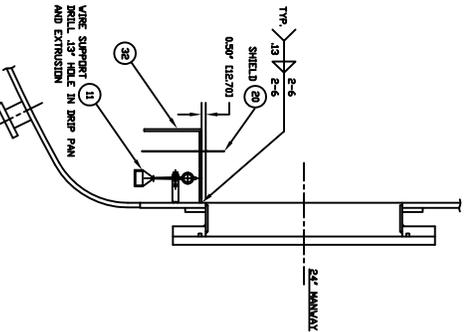
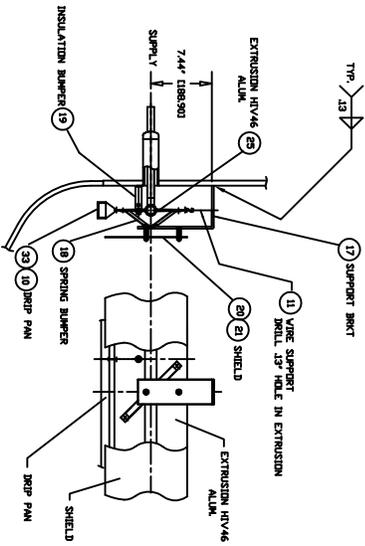
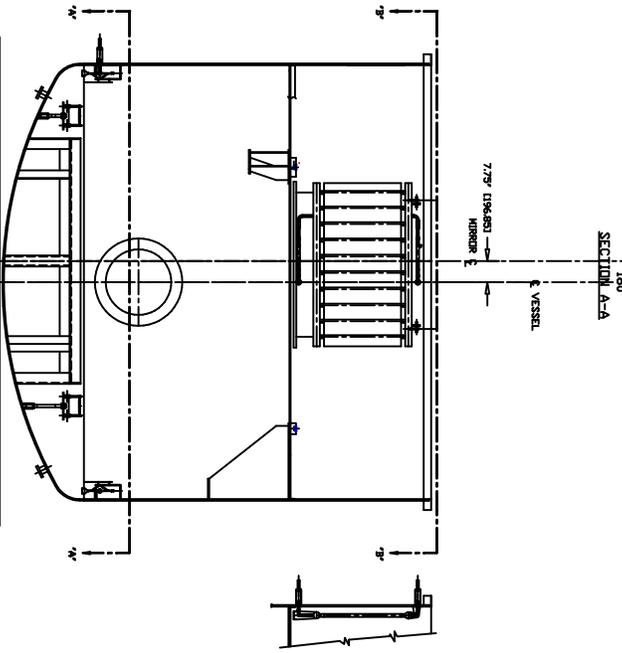
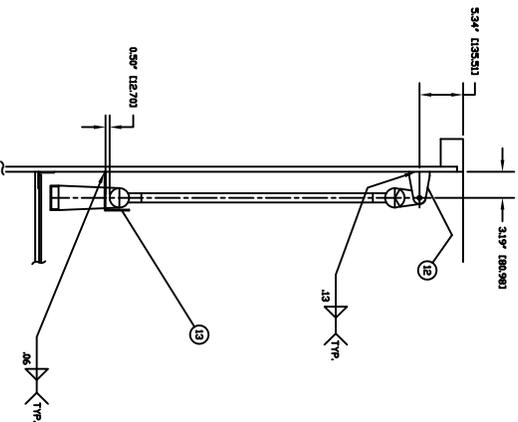
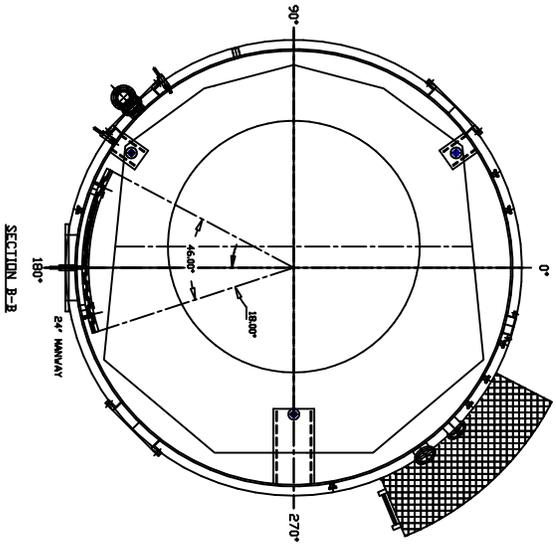
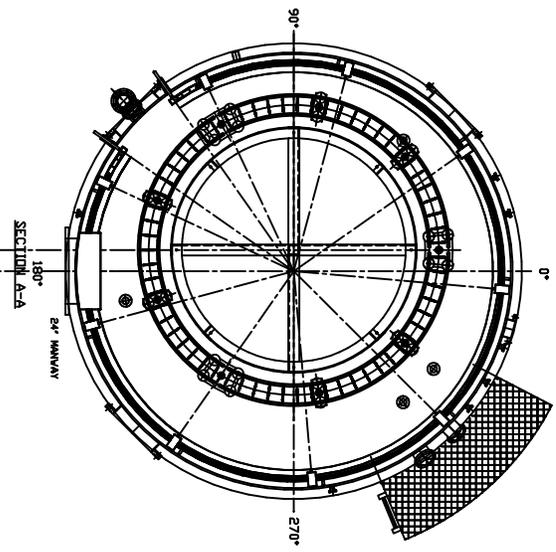
Vacuum Vessel





Glow Discharge Electrode

Weissner Coils Subassembly



ELEVATION WEISSNER COIL

LOWER WEISSNER COIL

LOWER WEISSNER COIL AT MANWAY

- NOTES**
1. DESIGN PRESSURE 100 PSIG
 2. PNEUMATIC TEST PRESSURE 100 PSIG
 3. LEAK TEST & METHOD PER PSI SPEC. V099-2-409

ROOM FINISH SCHEDULE

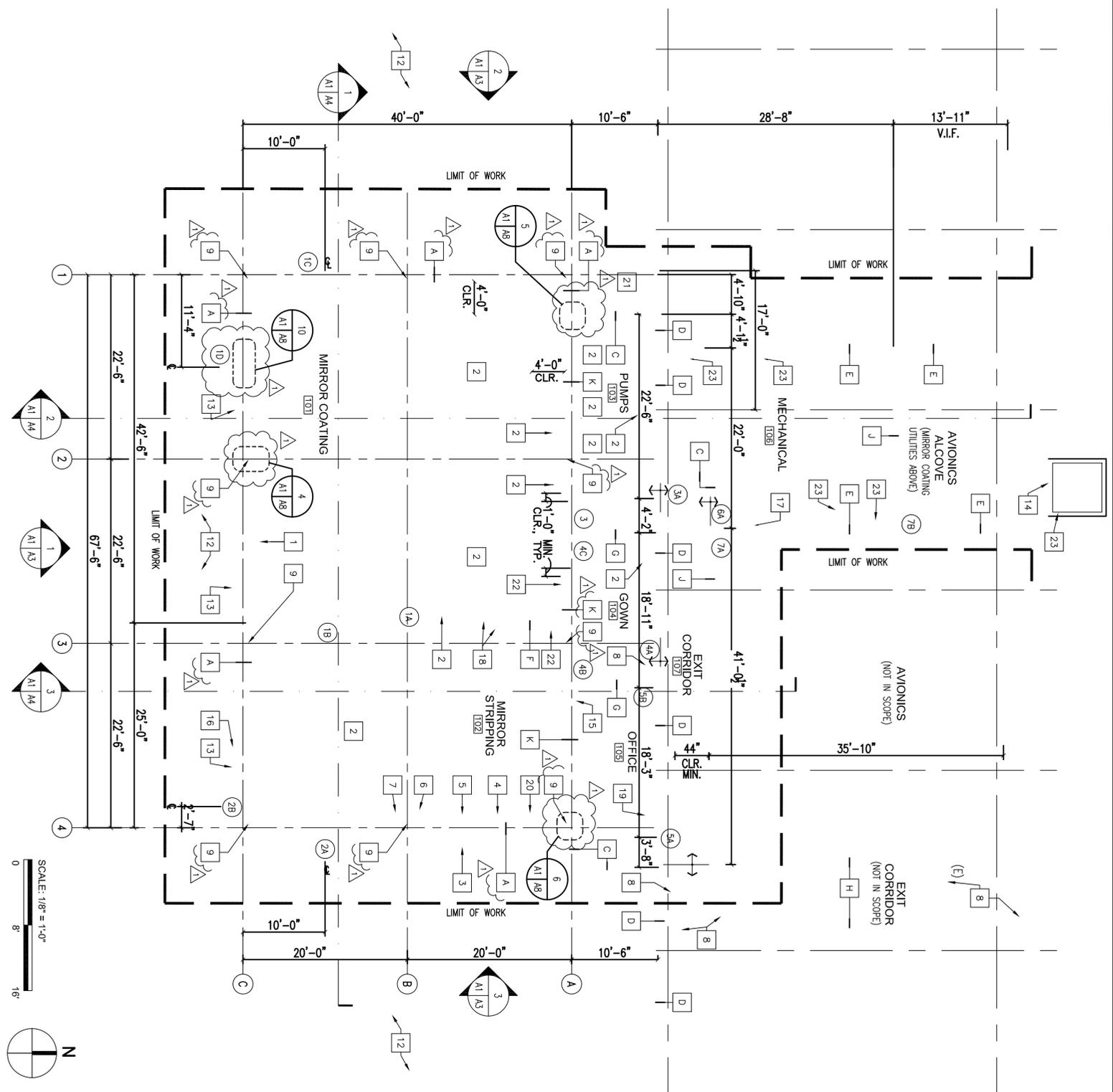
RM#	NAME	FLOOR	WALL	CEILING
		VINYL COMPOSITION TILE (VCT)		
		SEALED CONCRETE		
		HEAVY DUTY EPOXY FLOORING		
		VINYL COVE BASE		
		5/8" GYPSUM BD. LEVEL 4 FIN., PAINT		
		MPI GLOSS LEVELS		
		SUSPENDED ACOUSTIC CEILING TILE (A.C.T.) GRID		
		1-HR RATED GYPSUM WALL BOARD CEILING, PAINTED		
		SUSPENDED G.W.B. CEILING		
		CEILING HT. (A.F.F.)		
101	MIRROR COATING			30'-0"
102	MIRROR STRIPPING			16'-0"
103	PUMPS			10'-0"
104	GOWN			9'-0"
105	OFFICE			9'-0"
106	MECHANICAL			OPEN
107	EXIT CORRIDOR			9'-0"

FINISH LEGEND

V.C.T	ARVSTRONG EXGELON IMPERIAL TEXTURE - #51836 "SHELTER WHITE" - 12" SQUARE, 3/8" THICK
WALL BASE	ARMSTRONG 4" VINYL COVE BASE - COLOR T.B.D.
A.C.T.	USG "RADAR", 2'X4', 3/8" THICK FOR GRID CEILING AREAS
CEILING GRID	DOWN DX-USG 13/16" WIDE T-BAR WITH 3/8" EDGE ANGLE, FLAT WHITE
PLAM BASE	T.B.D. (WILSONART OR APPROVED EQUAL)
PAINT	ACRYLIC SEMI-GLOSS ENAMEL - NASA BEIGE SEE SCHEDULE FOR SHEEN

GLOSS LEVEL	DESCRIPTION	UNITS @ 60'	UNITS @ 60'
G1	MATTE OR FLAT	0 TO 5	10 MAX
G2	VELVET	0 TO 10	10 TO 35
G3	EGGSHELL	10 TO 25	10 TO 35
G4	SATIN	20 TO 35	35 MIN
G5	SEMI-GLOSS	35 TO 70	
G6	GLOSS	70 TO 85	
G7	HIGH GLOSS		

NOTE: ALL FINISHES TO BE PROVIDED AS SPECIFIED OR APPROVED EQUAL.



LEGEND

- FLOOR FINISH TRANSITION
- EXISTING 2-HOUR WALL TO REMAIN (D)
- EXISTING 1-HOUR WALL TO REMAIN (H)
- NEW 1-HOUR WALL TO REMAIN
- NEW WALL (G.F.B.)
- NEW 1-HOUR PER WALL (A)
- NEW DOOR - SEE SCHEDULE ON SHEET AS
- OFFSET 12" ABOVE DOOR OR WINDOW

FLOOR PLAN

SCALE: 1/8" = 1'-0"

SCALE: 1/8" = 1'-0"



FLOOR PLAN KEYNOTES

- 1 EXTENT OF TRAVEL OF 5 TON CAPACITY, THREE-AXIS UNDERBIRD BRIDGE CRANE AND HOIST, SUSPENDED FROM ROOF STRUCTURE ABOVE
- 2 EXISTING MIRROR COATING EQUIPMENT BY GOVERNMENT TO BE RELOCATED FROM NASA AIMS
- 3 WASTE WATER TANK STORAGE AREA. (TANKS ARE N.I.C.)
- 4 30"x60" FIBERGLASS LAB SINK WITH INTEGRAL BACKSPASH - REFER TO PLUMBING DRAWINGS
- 5 STAINLESS STEEL COUNTERTOP WITH INTEGRAL BACKSPASH AND PLASTIC LAMINATE BASE CABINETS
- 6 EYEWASH AND SAFETY SHOWER (SELF-CONTAINED UNIT) - PROVIDED BY GOVERNMENT
- 7 HOSE BIBB @ 3'-0" A.F.F.
- 8 (E) DOORS AT EXIT CORRIDOR TO REMAIN
- 9 1-HR RATED STEEL COLUMN WITH THIN-FILM INTUMESCENT FIREPROOFING, UL NO. X-625 ALBI CLAD TF OR APPROVED EQUAL
- 10 NOT USED
- 11 NOT USED
- 12 EXISTING HANGAR AREA
- 13 RELOCATE EXISTING 4" AFFE PIPING FROM HANGAR WALL EXTEND WITH 4" SCHEDULE 40 BLACK STEEL GROOVED PIPE WITH VERTICAL FITTINGS
- 14 NEW CONCRETE CHILLER PAD - SEE MECHANICAL DRAWINGS
- 15 4'-0"x4'-0" WINDOW - SEE DETAIL 5/A6
- 16 RELOCATE EXISTING AFFE HOSE ASSEMBLY
- 17 10 LB. ABC MULTIPURPOSE DRY CHEMICAL FIRE EXTINGUISHER - SEE DETAIL 11/A6 SURFACE MOUNTED
- 18 12"x 10 GA. BACKING PLATE @ 11'-0" A.F.F. BOTH SIDES OF WALL (FOR HANGING EQUIPMENT)
- 19 EXISTING FLOOR TRENCH TO BE COVERED. SEE DETAIL 6/A6.
- 20 FUME HEAD
- 21 UN2/N STORAGE AREA (EQUIPMENT PROVIDED BY GOVERNMENT)
- 22 10 LB. BC AMEREX (HALON) PORTABLE FIRE EXTINGUISHER - SEE DETAIL 11/A6 SEE MECHANICAL AND ELECTRICAL FOR EQUIPMENT.
- 23

WALL TYPES

- A (N) 1-HR RATED COMPOSITE INSULATED WALL PANEL SYSTEM WITH EXTERIOR METAL CLADDING ON P.E.B. FRAME
- B (N) G.W.B. PARTITION ON 3 5/8" METAL STUDS AT INSIDE FACE OF Z-CIRTS - FLOOR TO CEILING, TYP.
- C (N) 1-HR RATED G.W.B. PARTITION - CONCRETE FLOOR SLAB TO STRUCTURAL DECK
- D (E) 2-HOUR FIRE-RATED G.W.B. SEPARATION WALL AT MAIN HANGAR
- E (N) 1-HOUR RATED FULL HEIGHT PARTITION WALL - CONCRETE FLOOR SLAB TO STRUCTURAL DECK
- F (N) G.W.B. PARTITION ON 6" METAL STUDS - FLOOR TO CEILING
- G (N) G.W.B. PARTITION ON 3 5/8" METAL STUDS - FLOOR TO CEILING
- H (E) 1-HOUR RATED FULL HEIGHT PARTITION WALL - CONCRETE FLOOR SLAB TO STRUCTURAL DECK
- J (N) 1-HOUR RATED PARTITION WALL - CONCRETE FLOOR SLAB TO STRUCTURAL DECK

NOTE: PRE-ENGINEERED BUILDING DESIGN STRUCTURAL STEEL AND CALCULATIONS TO BE PROVIDED BY PRE-ENGINEERED BUILDING PROVIDER. FULL SHOP DRAWINGS REQUIRED.

NOTE: REFER TO SHEET A7 FOR WALL TYPE DRAWINGS.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

DRYDEN FLIGHT RESEARCH CENTER
EDWARDS, CA

APPROVALS

DATE

Chief Facilities Engineering & Asset Mgmt. Office
Project Manager
Project Inspector
Safety Office

DATE SHD
DATE RMD
DATE PND

FLOOR PLAN

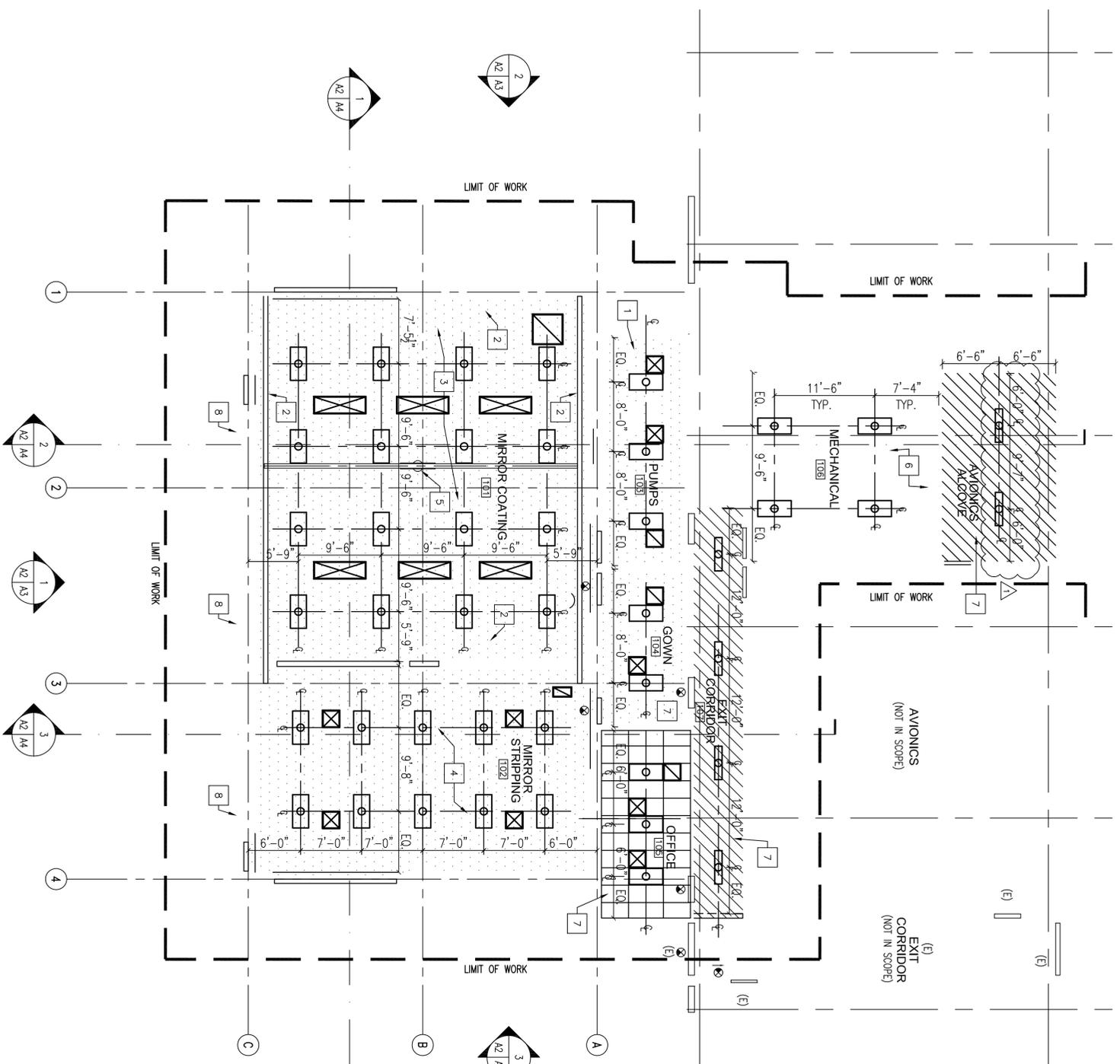
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DAOF BUILDING 703
100% FINAL DESIGN

DRAWN BY DRM
NO. #
PLOT SCALE
CDO FILE NAME

DATE SHD 4-18-08
DATE RMD 7-13-09
DATE PND EDM-1695
SHEET No. 4 of 40

DEVELOPMENT ONE, INC.
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DATE	SYMBOL	REVISION	BY	APPD
7/2/09		Pinmode Comments Amendment		



REFLECTED CEILING PLAN

SCALE: 1/8" = 1'-0"

0 8' 16'

APPROVALS

DATE	1
APPROVALS	1/8" = 1'-0"

PROJECT TITLE
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DRAWING TITLE
REFLECTED CEILING PLAN

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION
DRODEN FLIGHT RESEARCH CENTER
EDWARDS, CA

APPROVALS

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Project Manager	
Project Inspector	
Senior Office	
Technician	

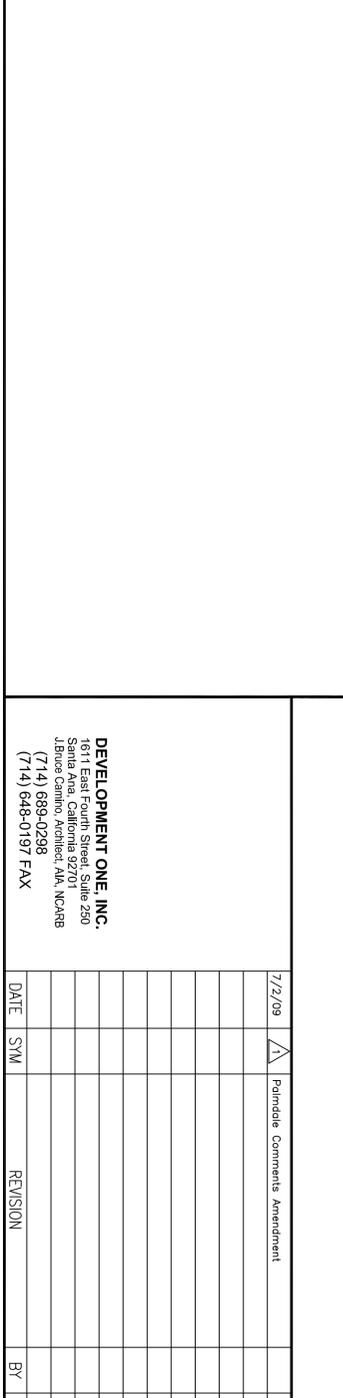
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PLT SCALE	TRAC		EDM-1695
CAD FILE NAME	A2	SHEET No.	5 of 40

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DATE	SYN	REVISION	BY	APD



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SCALE: 1/8" = 1'-0"

0 8' 16'

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APPROVALS	1/8" = 1'-0"

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DRODEN FLIGHT RESEARCH CENTER
EDWARDS, CA

APPROVALS

Chief, Facilities Engineering & Asset Mgmt. Office	DATE
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Project Inspector	
Senior Office	
Technician	

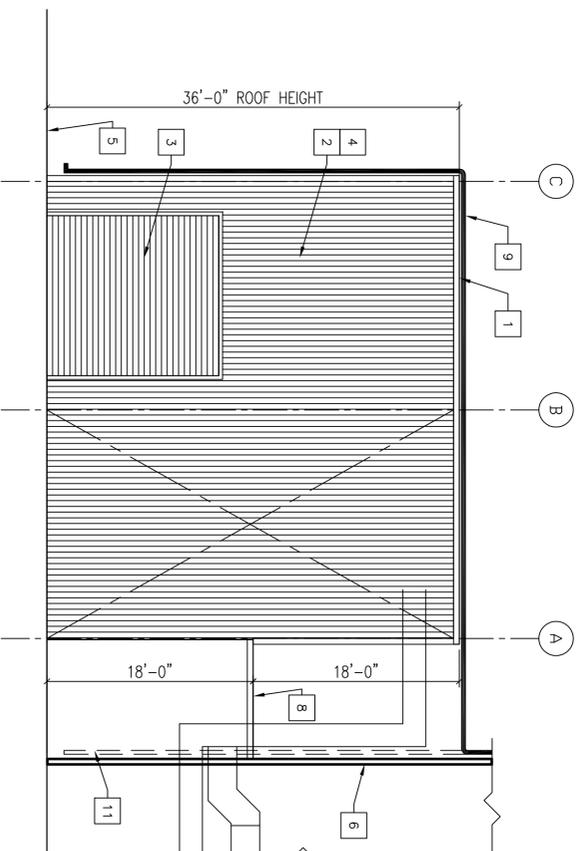
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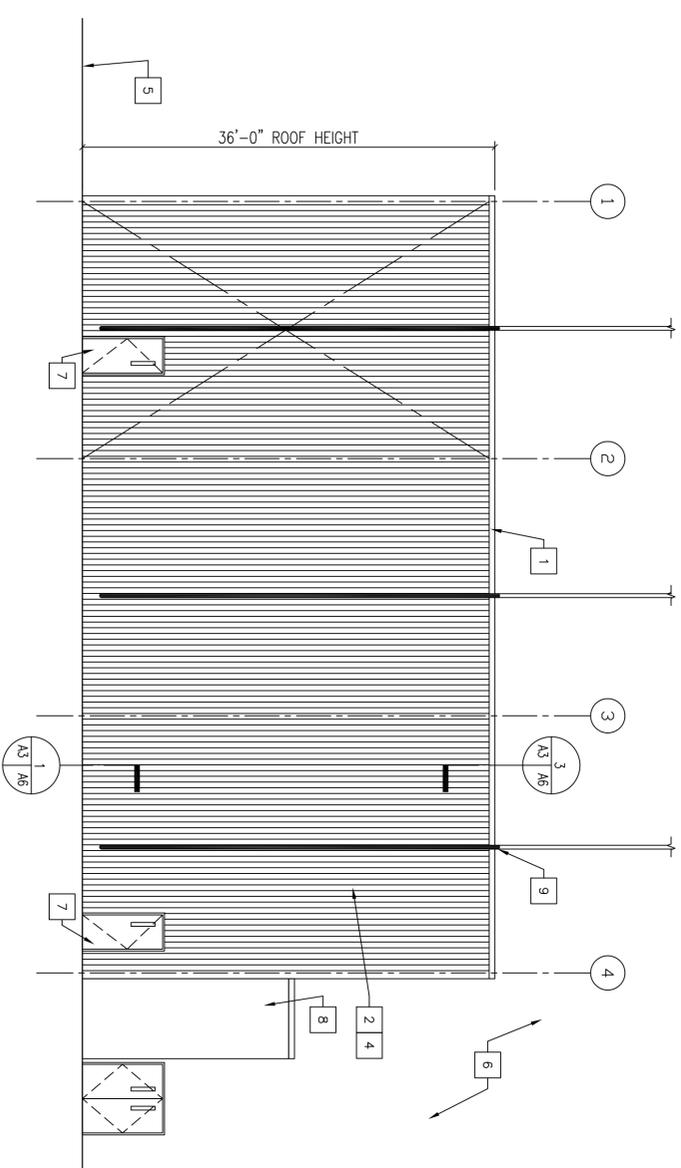
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EAST ELEVATION

SCALE
1/8" = 1'-0"

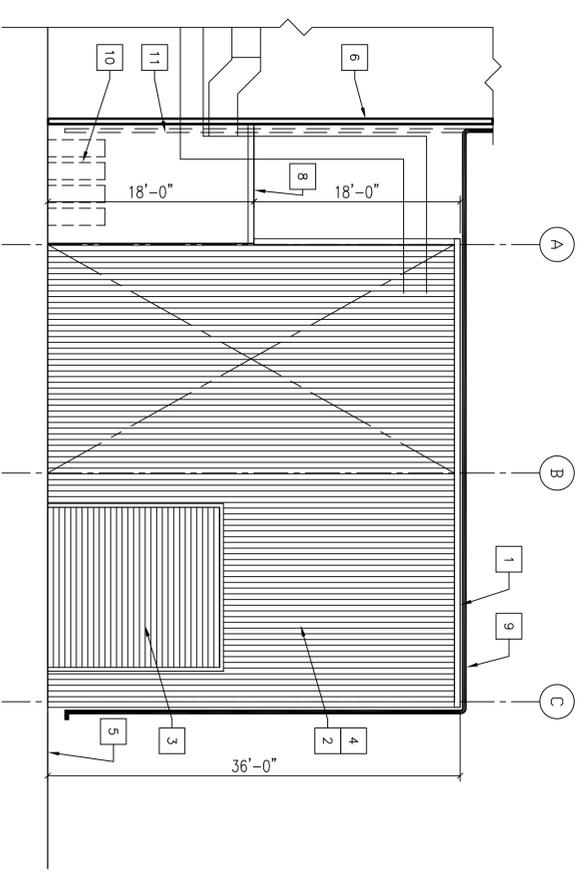
3
A3 A3



SOUTH ELEVATION

SCALE
1/8" = 1'-0"

1
A3 A3



WEST ELEVATION

SCALE
1/8" = 1'-0"

2
A3 A3

ELEVATION KEYNOTES

- 1 1-HR FIRE-RATED COMPOSITE INSULATED PANEL SYSTEM WITH EXTERIOR METAL CLADDING AT ROOF
- 2 1-HR FIRE-RATED COMPOSITE INSULATED WALL PANEL SYSTEM WITH EXTERIOR METAL CLADDING
- 3 OVERHEAD COILING DOOR
- 4 PRE-ENGINEERED BUILDING (PEB) AND SUPPORTING STRUCTURAL STEEL TO BE DESIGNED AND CALC'D BY PEB CONTRACTOR
- 5 (E) HANGAR FLOOR SLAB - 12" THICK - WITH (E) STEEL REINFORCEMENT
- 6 EXISTING 2-HOUR WALL (6" METAL STUDS W/ 2 LAYERS 5/8" TYPE "X" GWB ON EACH SIDE) AT MAIN HANGAR AREA
- 7 EMERGENCY EXIT DOOR WITH NARROW LIFE VISION PANEL.
- 8 1-HR FIRE RATED FRAMED GWB ENCLOSURE BETWEEN P.E.B. AND EXISTING HANGAR WALL
- 9 RELOCATE EXISTING 4" AFF PIPING (3 LOCATIONS) AND 1 HOSE REEL ASSEMBLY
- 10 UNZ/N STORAGE AREA (EQUIPMENT PROVIDED BY OTHERS)
- 11 (E) LOCATION OF AFF PIPING TO BE RELOCATED

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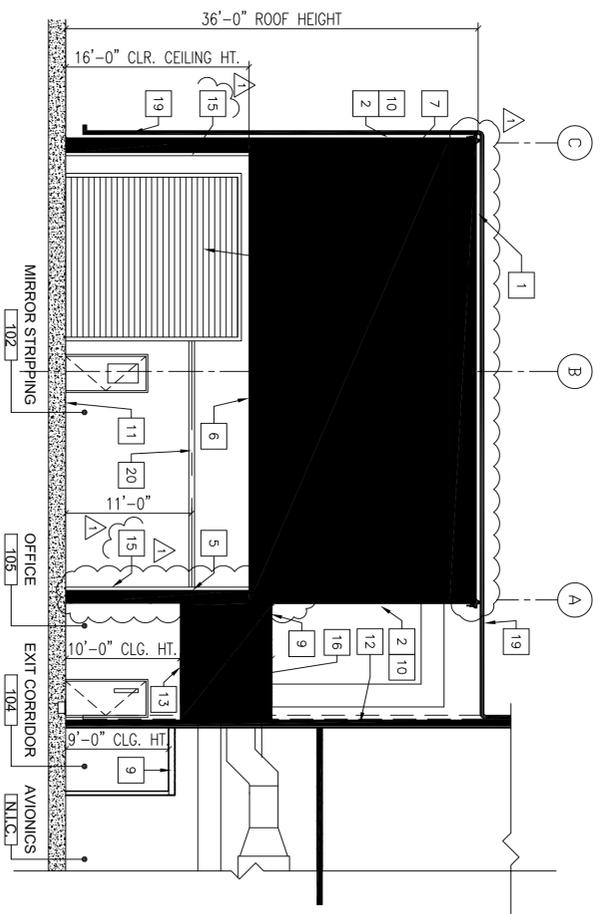
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DRDEN FLIGHT RESEARCH CENTER
 EDWARDS, CA

DRAWING TITLE
 ELEVATIONS

PROJECT TITLE
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 DAOE BUILDING 703
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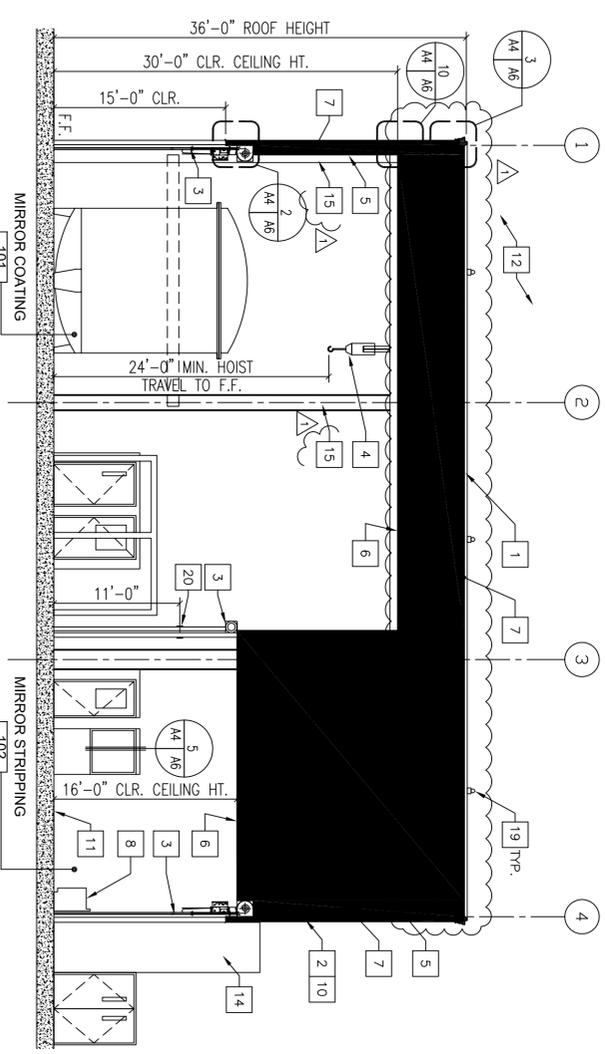
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Chief, Facilities Engineering & Asset Mgmt. Office	
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Project Inspector	
Designer	
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A3	



SECTION FACING WEST

SCALE
1/8" = 1'-0"

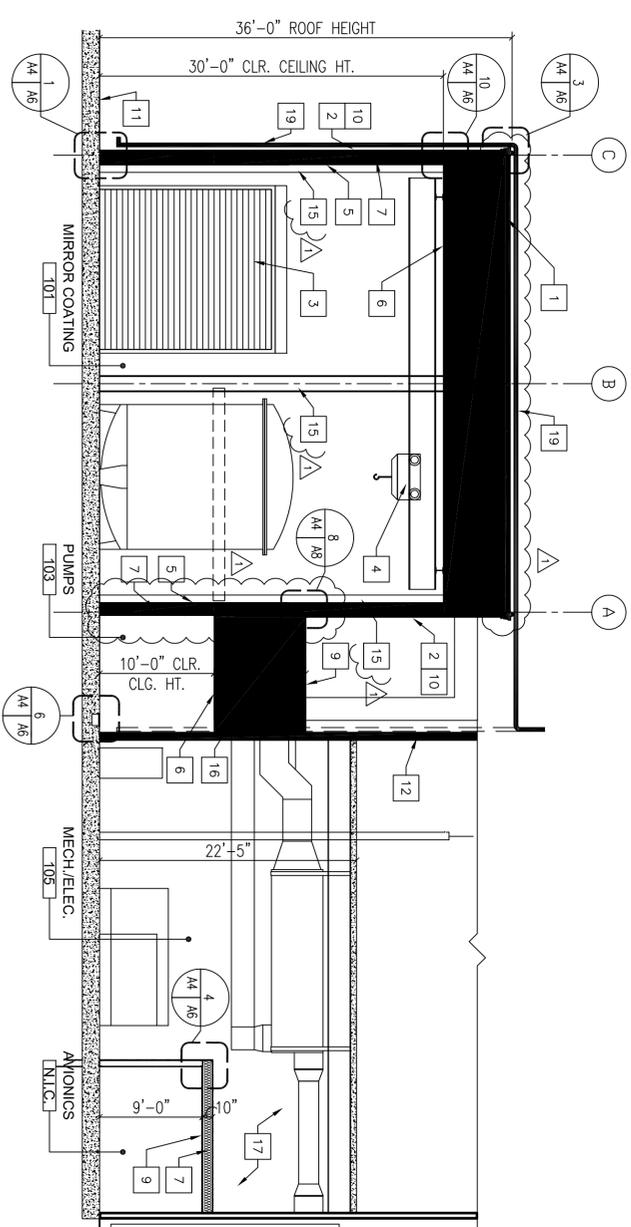
3
A4 A6



SECTION FACING NORTH

SCALE
1/8" = 1'-0"

1
A4 A6



SECTION FACING WEST

SCALE
1/8" = 1'-0"

2
A4 A6

SECTION KEYNOTES

- 1 1-HR FIRE RATED COMPOSITE INSULATED PANEL SYSTEM WITH EXTERIOR METAL CLADDING AT ROOF
- 2 1-HR FIRE RATED COMPOSITE INSULATED WALL PANEL SYSTEM WITH EXTERIOR METAL CLADDING
- 3 OVERHEAD COILING DOOR
- 4 5 TON CAPACITY, THREE-AXIS UNDERHUNG BRIDGE CRANE AND HOIST, SUSPENDED FROM ROOF STRUCTURE
- 5 GMB FLOORING ON 3 3/8" METAL STUDS AT INSIDE FACE OF Z-GIRTS - FLOOR TO CEILING, TYP.
- 6 SUSPENDED GMB CEILING, PAINTED
- 7 R-19 INSULATION, W/MT. SCRM-FACED
- 8 STAINLESS STEEL COUNTERTOP WITH INTEGRAL BACKSPASH
- 9 1-HR FIRE RATED GMB CEILING - SEE DETAIL 4/A6 (SM.)
- 10 PRE-ENGINEERED BUILDING (PEB) STRUCTURAL STEEL TO BE DESIGNED AND CALC'D BY PEB CONTRACTOR
- 11 (E) HANGAR FLOOR SLAB - 12" THICK
- 12 EXISTING 2-HOUR WALL (6" METAL STUDS W/ 2 LAYERS Z-GIRTS - FLOOR TO CEILING, TYP.)
- 13 2X4 SUSPENDED GRID CEILING
- 14 1-HR FIRE RATED FRAMED GMB ENCLOSURE BETWEEN P.E.B. AND EXISTING HANGAR WALL
- 15 1-HR RATED STEEL COLUMN WITH THIN-FILM INTUMESCENT FIREPROOFING, UL NO. X-625, ALUM CLAD TF OR APPROVED EQUAL
- 16 UTILITY CHASE FROM MECHANICAL ROOM TO PEB.
- 17 UTILITY CONNECTION AREA FROM MECHANICAL ROOM TO EXTERIOR OF HANGAR STRUCTURE ABOVE ALCOVE AT AVIONICS AREA.
- 18 UTILITY AREA AT EXTERIOR OF HANGAR BUILDING. SEE MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS.
- 19 RELOCATE EXISTING 4" AFF PIPING (3 LOCATIONS) AND 1 HOSE REEL ASSEMBLY
- 20 12" x 10 GA BACKING PLATE AT 11'-0" AFF. O.C. (ANCHOR TO WALL STUDS UNDER GMB) BOTH SIDES

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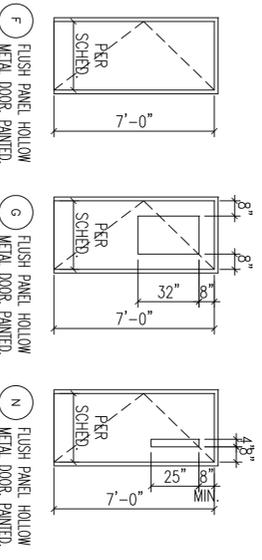
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7/2/09	△	Point-to-Point Comments Amendment	

DRAWING TITLE		APPROVALS	
SECTIONS		Chief, Facilities Engineering & Asset Mgmt. Office	DATE
PROJECT TITLE		Project Manager	
CONSTRUCT MIRROR COATING FACILITY		Project Engineer	
DAOF BUILDING 703		Security Office	
100% FINAL DESIGN		Project Registrar	
DRAWN BY DRM		DATE SHD	4-18-08
PLOT SCALE		DATE PENDING	7-13-09
CDD FILE NAME		DATE	EDM-1695
SHEET No. 2 of 40			

DOOR SCHEDULE

NUMBER	TYPE	SIZE			HARDWARE	RATING	DOOR MATERIAL	FRAME MATERIAL	DETAILS			FINISH	
		WIDTH	HEIGHT	THICKNESS					HEAD	JAMB	PERIMETER SEAL	DOOR	FRAME
1A	G	3'-0"	7'-0"	1-3/4"	2	-	HOLLOW METAL	H.M.	5	7	1	PT.	PT.
1B	B	14'-0"	15'-0"	-	-	-	STEEL	STEEL	4	2	-	PT.	PT.
1C	B	14'-0"	15'-0"	-	-	-	STEEL	STEEL	2/16	2	-	PT.	PT.
1D	N	3'-0"	7'-0"	1-3/4"	5	-	HOLLOW METAL	H.M.	11/16	10/16	1	PT.	PT.
2A	B	14'-0"	15'-0"	-	-	-	STEEL	STEEL	2/16	2	-	PT.	PT.
2B	N	3'-0"	7'-0"	1-3/4"	5	-	HOLLOW METAL	H.M.	5	7	1	PT.	PT.
3	N	3'-6"	7'-0"	1-3/4"	6	-	HOLLOW METAL	H.M.	11/16	10/16	1	PT.	PT.
3A	N	3'-6"	7'-0"	1-3/4"	4	90MIN	HOLLOW METAL	H.M.	5	7	-	PT.	PT.
4A	(E)	-	-	-	3	90MIN (V.I.F.)	-	-	-	-	1	-	-
4B	G	3'-0"	7'-0"	1-3/4"	4	-	HOLLOW METAL	H.M.	11/16	10/16	-	PT.	PT.
4C	G	3'-6"	7'-0"	1-3/4"	4	-	HOLLOW METAL	H.M.	11/16	10/16	-	PT.	PT.
5A	N	3'-6"	7'-0"	1-3/4"	1	90MIN	HOLLOW METAL	H.M.	5	6	-	PT.	PT.
5B	N	3'-0"	7'-0"	1-3/4"	2	-	HOLLOW METAL	H.M.	5	7	1	PT.	PT.
6A	N	3'-6"	7'-0"	1-3/4"	1	20MIN	HOLLOW METAL	H.M.	5	7	-	PT.	PT.
7A	N	3'-6"	7'-0"	1-3/4"	1	20MIN	HOLLOW METAL	H.M.	5	7	-	PT.	PT.
7B	N	3'-0"	7'-0"	1-3/4"	1	20MIN	HOLLOW METAL	H.M.	5	7	-	PT.	PT.

NOTES:
 1. ALL RATED DOORS AND WINDOWS SHALL DISPLAY VISIBLE UL RATING DECAL.
 2. VERIFY LOCATION OF EXISTING ROLL-UP DOOR IS CLEAR OF ANY NEW CONSTRUCTION.
 3. ALL OPENINGS IN CORRIDORS SHALL COMPLY WITH THE REQUIREMENTS SET FORTH IN BUILDING CODE 1004.3.4.3.2 INCLUDING TIGHT FITTING SMOKE-AND-DRAFT-CONTROL DOOR ASSEMBLIES HAVING A 20 MINUTE FIRE-RESISTIVE RATING, AND 45 MINUTE FIRE-RESISTIVE FIXED GLAZED WINDOWS.



HARDWARE SET 1
 3 EA. HINGE
 1 EA. STOREROOM FUNCTION LEVER
 PERIMETER GASKET
 LATCH SET
 1 EA. THRESHOLD
 1 EA. SURFACE CLOSER

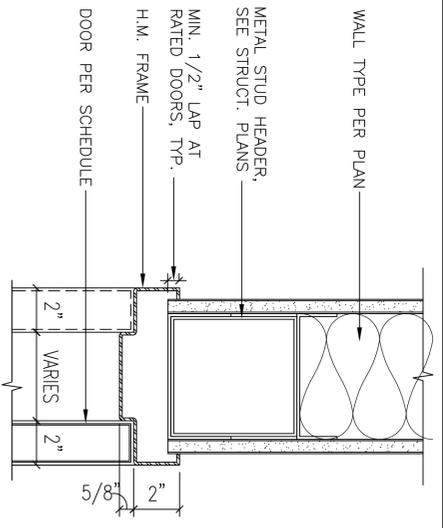
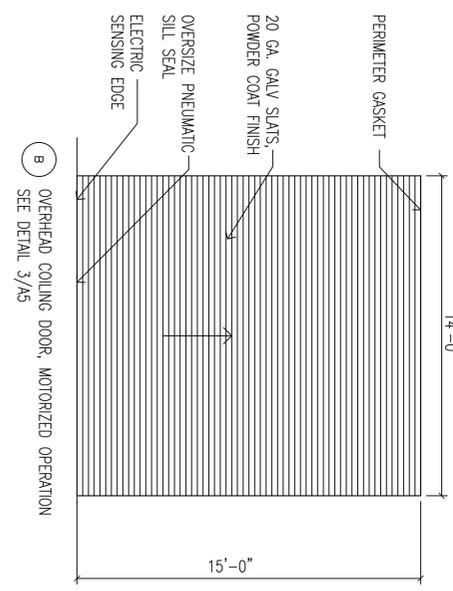
HARDWARE SET 2
 3 EA. HINGE
 1 EA. LEVER PASSAGE LATCHSET
 PERIMETER GASKET
 AUTOMATIC DROP BOTTOM
 FLUTELESS ALUMINUM THRESHOLD

HARDWARE SET 3
 3 EA. HINGE
 1 EA. STOREROOM LOCK LEVER
 PERIMETER GASKET
 AUTOMATIC DROP BOTTOM
 FLUTELESS ALUMINUM THRESHOLD

HARDWARE SET 4
 3 EA. HINGE
 1 EA. STOREROOM LEVER LOCK
 DEVICE
 1 EA. SURFACE CLOSER
 PERIMETER GASKET
 AUTOMATIC DROP BOTTOM
 FLUTELESS ALUMINUM THRESHOLD

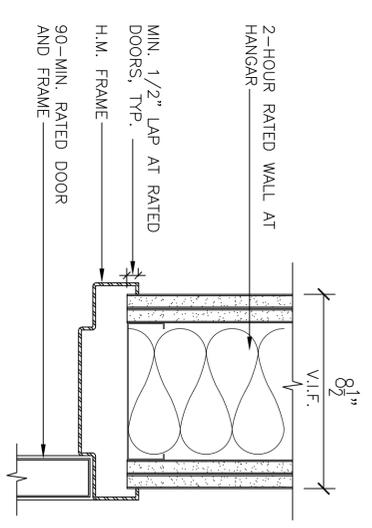
HARDWARE SET 5
 3 EA. HINGE
 1 EA. STOREROOM LEVER LOCK
 DEVICE
 1 EA. SURFACE CLOSER
 PERIMETER GASKET
 AUTOMATIC DROP BOTTOM
 FLUTELESS ALUMINUM THRESHOLD

HARDWARE SET 6
 3 EA. HINGE
 1 EA. LEVER PASSAGE LATCHSET
 PERIMETER GASKET
 AUTOMATIC DROP BOTTOM
 FLUTELESS ALUMINUM THRESHOLD



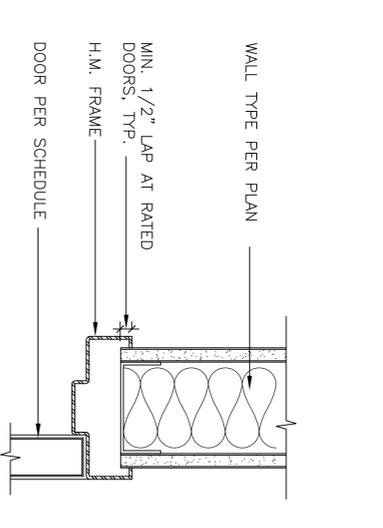
DOOR HEAD

SCALE: 3" = 1'-0"



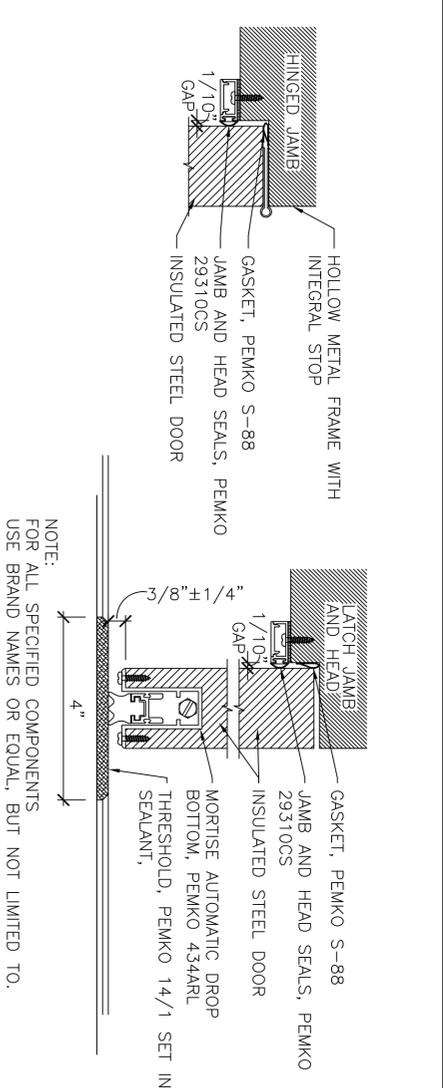
90 MIN. RATED DOOR JAMB

SCALE: 3" = 1'-0"



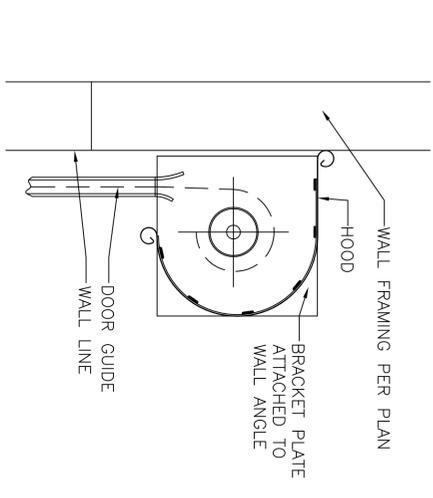
DOOR JAMB

SCALE: 3" = 1'-0"



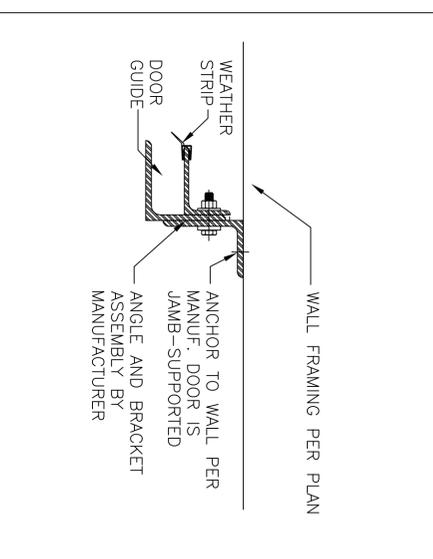
DOOR PERIMETER GASKET

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



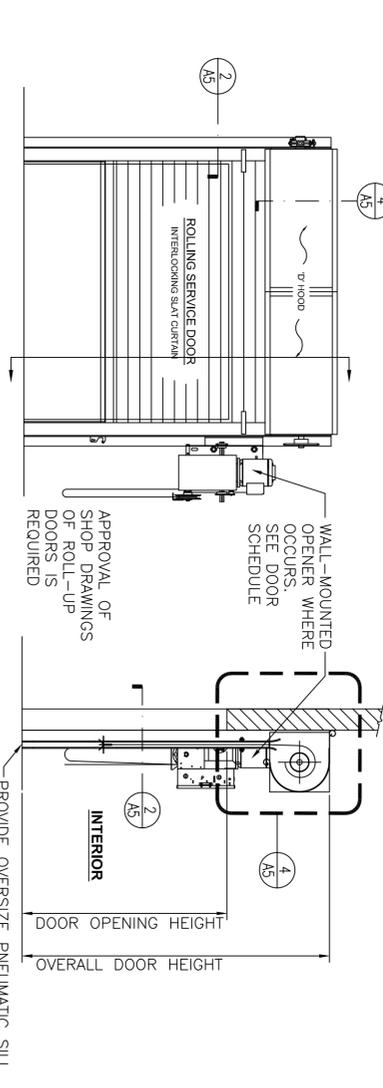
ROLL-UP DOOR HEAD

SCALE: N.T.S.



ROLL-UP DOOR JAMB

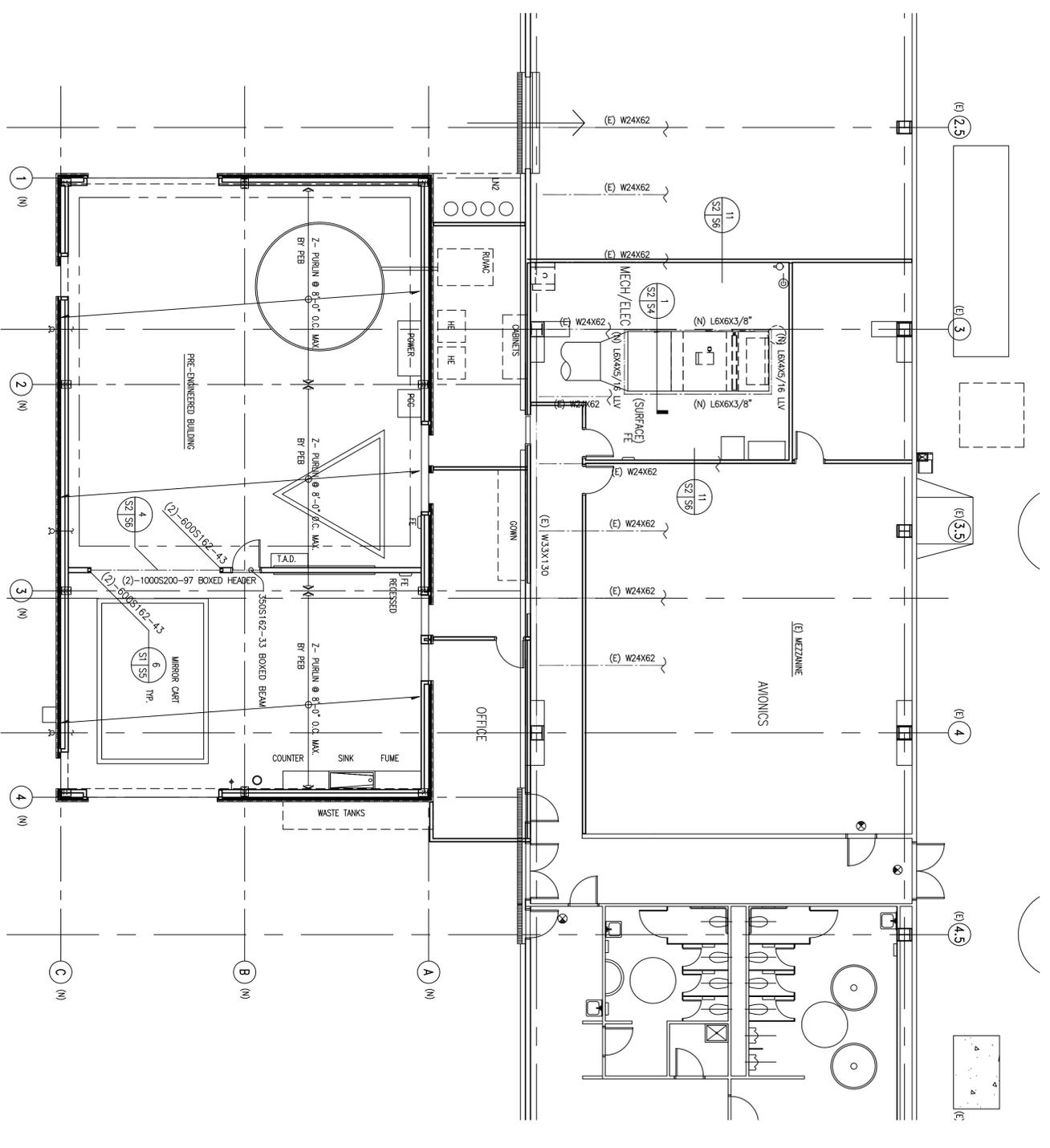
SCALE: N.T.S.



DOOR HEAD (JAMB SIM.)

SCALE: N.T.S.

<p>DEVELOPMENT ONE, INC. 16111 East Fourth Street, Suite 250 Santa Ana, California 92701 Jbuse Camino, Archidat, Ala, MOCARB (714) 689-0298 (714) 648-0197 FAX</p>		<p>DATE: 7/2/09</p> <p>REVISION:</p>
<p>NATIONAL AERONAUTICS AND SPACE ADMINISTRATION DRODEN FLIGHT RESEARCH CENTER EDWARDS, CA</p>		<p>APPROVALS:</p> <p>DATE: 7/13/09</p>
<p>DOOR SCHEDULE AND DETAILS</p> <p>PROJECT TITLE: CONSTRUCT MIRROR COATING FACILITY DAOF BUILDING 703 100% FINAL DESIGN</p>		<p>DATE: 4-18-08</p> <p>DATE: 7-13-09</p> <p>EDM-1695</p> <p>SHEET No. 8 of 40</p>



PLAN NOTES:
 1. REFER TO ARCH. PLANS FOR HEIGHTS AND LOCATIONS OF NEW INTERIOR WALLS.
 SEE SCHEDULE FOR METAL STUD SIZES.

LIGHT-GAGE STEEL STUD SCHEDULE AT INTERIOR WALLS

STUD	HEIGHT (MAX.)
350S125-33 @ 16" O.C.	12'-0"
600S125-33 @ 16" O.C.	24'-0"

PRE-ENGINEERED BUILDING ROOF AND (E) MEZZ FRAMING PLANS

	7/2/09	▶	Permdole Comments Amendment
NATIONAL AERONAUTICS AND SPACE ADMINISTRATION			
DRYDEN FLIGHT RESEARCH CENTER			
EDWARDS, CA			
Project Manager			
Security Office			
Project Registrar			
Safety Office			
Telcom			
APPROVALS			
			DATE
DRAWING TITLE			
PRE-ENGINEERED BUILDING ROOF AND (E) MEZZ PLAN			
PROJECT TITLE			
CONSTRUCT MIRROR COATING FACILITY			
DAO# BUILDING 703			
100% FINAL DESIGN			
DRAWN BY	KZ	DATE SHRD	4-18-08
W.O. #	2009-612	DATE PRIND	4-14-09
PLAT SCALE	SCALE	TRAIL	EDM-1685
OAD FILE NAME	S2	SHEET No.	14 of 40

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