VALUE ENGINEERING PAYS

SCHEDULE OF DRAWINGS

DISTRICT FILE NO.	SHT. NO.	DRAWING NO.	TITLE OF DRAWINGS
225-25-20	1		COVER SHEET
225-25-20	2		SOILS ANALYSIS
225-25-20	3		LEGENDS
225-25-20	4		DEMOLITION PLAN
225-25-20	5		SITE PLAN
225-25-20	6		PAVING PLAN
225-25-20	7		UTILITY PLAN
225-25-20	8		FLOOR PLAN
225-25-20	9		ELEVATIONS
225-25-20	10		BUILDING SECTION
225-25-20	11		INTERIOR ELEVATIONS & DETAILS
225-25-20	12		WALL SECTIONS
225-25-20	13		WALL SECTIONS
225-25-20	14		DOOR DETAILS
225-25-20	15		WINDOW DETAILS
225-25-20	16		FOUNDATION PLAN
225-25-20	17		TRENCH & PIT DETAILS
225-25-20	18		ROOF PLAN
225-25-20	19		ROOF FRAMING
225-25-20	20		MECHANICAL FDN. PLAN
225-25-20	21		PLUMBING PLAN
225-25-20	22		HEATING & VENT. PLAN
225-25-20	23		LIGHTING PLAN
225-25-20	24		POWER PLAN
225-25-20	25		PANEL DISTRIBUTION

AUTOMOTIVE MAINTENANCE SHOP

MALMSTROM AIR FORCE BASE MONTANA

CONTRACT NO. 74-C-0075

REVISION	DATE	DESCRIPTION	BY	BY

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: RAP
DRAWN: LWT
CHECKED: BL
SUBMITTED:

MALMSTROM AIR FORCE BASE MONTANA
AUTOMOTIVE MAINTENANCE SHOP
COVER SHEET

SIGNATURES AFFIXED BELOW INDICATE OFFICIAL RECOMMENDATION AND APPROVAL OF ALL DRAWINGS IN THIS SET AS INDEXED ON THIS SHEET

APPROVAL RECOMMENDED: CHIEF, MILITARY BRANCH
APPROVED: CHIEF, ENGINEERING DIVISION
DATE: 27 AUG 1973
PREPARED UNDER THE DIRECTION OF E. G. ROCKWELL, JR. COL., CORPS OF ENGINEERS, U. S. A. DISTRICT ENGINEER
SCALE: NONE
SPEC. No. 4506
SHEET 1
FILE No. 225-25-20

882

ENVIRONMENTAL ENHANCEMENT THRU ENGINEERING

SAFETY PAYS

DR 75 B-882 SH 25

ENVIRONMENTAL ENHANCEMENT THRU ENGINEERING

2 F - 9

Depth	F	*	N	MC	Description
0					Bituminous Surfacing
0.3'	F				Silty Sandy Gravel, brown, 1/2" max. (Fill)
1.5'					Sandy Clay, brown with grey traces about 20% fine sand. Frozen to 2.6'.
		CL	16	23	
3.8'					Clay, about 10% fine sand.
				29	
		CL	2		
				23	
			9		
9.0'					▽ Water level after completion of drilling. Clay, about 5% fine sand
			14	23	
		CH			Trace of fine sand
				22	
15.0'			16		

2 F - 10

Depth	F	*	N	MC	Description
0					Silty Sandy Gravel, brown, 1/2" max. (Fill)
1.0'	F				Clay, brown with grey zones, about 10% fine sand. Frozen to 2.5'.
		CL		27	
			12		Small water seep between 3.5' to 4.5'
				23	
			9		
6.5'					Clay, about 5% coarse sand.
				25	
			10		Trace of sand and gravel to 3/8".
				22	
		CH	14		
				19	
15.0'			20		About 10% fine to coarse sand, trace of organic.

2 F - 11

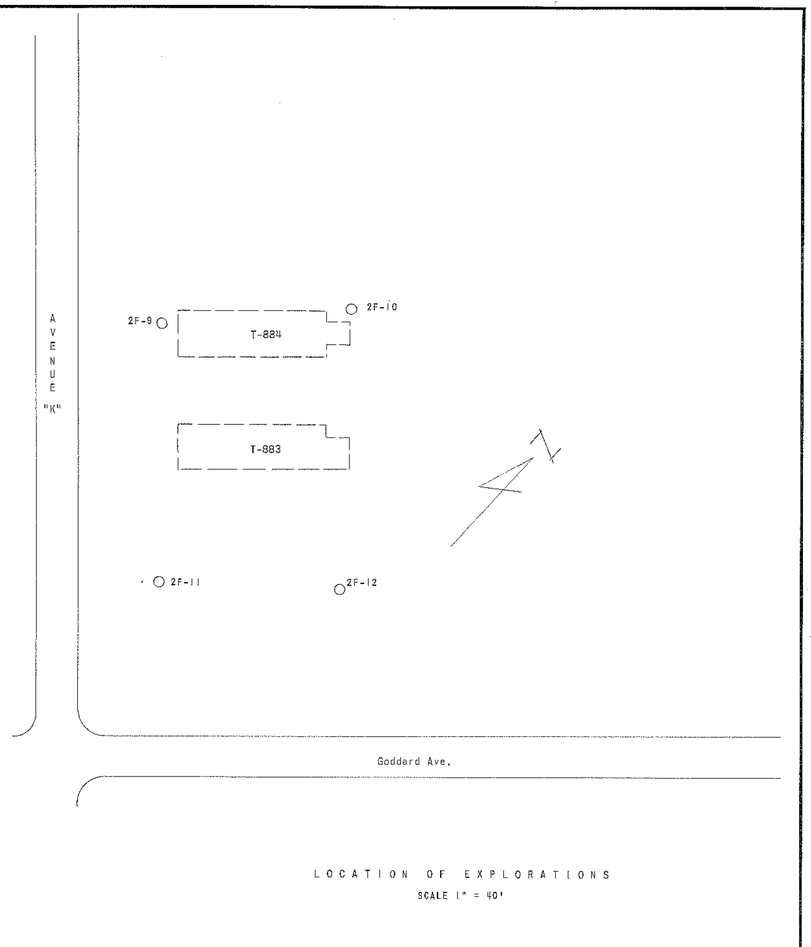
Depth	F	*	N	MC	Description
0					Bituminous Surfacing
0.3'	F				Silty Sandy Gravel, brown, 1/2" max. (Fill)
0.7'					Sandy Clay, brown and some grey zones, about 25% fine to medium sand.
		CL		28	
4.0'					Silty Clay, with traces of fine sand. Frozen to 3.9'.
		CL	9	21	
6.5'					Clay, with a trace of fine sand.
		CH	13	21	
9.0'					Sandy Clay, about 15% fine to medium sand.
			18	19	
		CL			
				21	
15.0'			15		

Sides of hole squeezing during drilling

2 F - 12

Depth	F	*	N	MC	Description
0					Blacktop (Oil)
0.1'	F				Silty Sandy Gravel, brown, 1/2" max. (Fill)
1.0'					Sandy Clay, dark grey to black blending down to grey green and brown, about 15% fine sand, hair roots. Liquid Limit 66, Plastic Index 41. Frozen to 3.6'.
4.0'					Clay, about 10% fine sand.
		CH	8		
6.5'					Sandy Clay, about 15% fine to medium sand. Liquid Limit 41, Plastic Index 23.
			10		
		CL	13		
15.0'			16		

Sides of Hole squeezing during drilling



LOCATION OF EXPLORATIONS

SCALE 1" = 40'

LEGEND:

- MC Moisture content, % dry weight.
- N Number of blows, standard penetrometer.
- F Visual Field Classification.
- * Laboratory Visual Classification.
- ○ Location of Explorations

NOTES:

1. Classifications are laboratory visual classifications in accordance with the Unified Soil Classification System, MIL-STD 619B. Field Classifications are shown for surface materials.
2. Holes were drilled to requested depth with a 7-inch diameter power auger during January 1973.
3. Water was encountered during drilling as indicated for Hole 2F-9

GRAPHIC SCALES

1" = 2' 0 1' 2' 4' 6' 8' 10'

1" = 40' 0 20' 40' 80' 120' 160' 200'

STANDARD PENETROMETER DESCRIPTIVE DATA

COHESIONLESS		COHESIVE	
Blows*	Relative Density	Blows*	Consistency
0-4	Very Loose	0-1	Very Soft
5-10	Loose	2-4	Soft
11-20	Firm	5-8	Firm
21-30	Very Firm	9-15	Stiff
31-50	Dense	16-30	Very Stiff
51+	Very Dense	31+	Hard

*Blows per 1.0 ft. of penetration of a 2-inch O.D. and 1 3/8-inch I.D. sampler driven by a 140-lb. hammer, 30-inch freefall.

REVISION	DATE	DESCRIPTION	BY	SY

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: FEB
DRAWN: TSG
CHECKED: FEB

MALMSTROM AIR FORCE BASE MONTANA

AUTOMOTIVE MAINTENANCE SHOP

SOILS ANALYSIS

SUBMITTED: 882 CHIEF ENG DES SECTION
DATE APPROVED: 27 AUG 1973
SCALE: AS NOTED
SPEC. No. 4506
SHEET 2
FILE No. 225-25-20

Drawer 75 Bldg. 882 Sheet 24

DR 75 B-882 SH 24

Malmstrom Auto Maintenance shop

GPO 191-289

ABBREVIATIONS

ELECTRICAL

CKT.	CIRCUIT
C.	CONDUIT
CONN.	CONNECTION
DISC.	DISCONNECT
E.H.	ENGINE HEATER OUTLET
EXH. FAN	EXHAUST FAN
HTR.	HEATER
H.P.	HORSEPOWER
L.A.	LIGHTNING ARRESTOR
MFR.	MANUFACTURER
N.L.	NIGHT LIGHT
ø	PHASE
P.E.	PNEUMATIC - ELECTRIC
P.R.V.	POWER ROOF VENTILATOR
O.L.	OVERLOAD
RECPT.	RECEPTACLE
T.C.	TEMPERATURE CONTROL
W/	WITH

MECHANICAL

A.D.	ACCESS DOOR
ALUM.	ALUMINUM
A.S.M.E.	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
A.W.T.	AVERAGE WATER TEMPERATURE
BTM.	BOTTOM
B.T.U.	BRITISH THERMAL UNITS
C	COMMON
C.F.G.	CUBIC FEET OF GAS
C.F.M.	CUBIC FEET PER MINUTE
CO.	COMPANY
CAT.	CATALOG
CONN.	CONNECTION
CU.	CUBIC
DN	DOWN
EA.	EACH
E.A.T.	ENTERING AIR TEMPERATURE
ELEC.	ELECTRIC
EMERG.	EMERGENCY
E.W.T.	ENTERING WATER TEMPERATURE
E.G.	EXHAUST GRILLE
EXH.	EXHAUST
EXT. S.P.	EXTERNAL STATIC PRESSURE
°F	DEGREES FAHRENHEIT
F.A.	FRESH AIR
F.D.	FIRE DAMPER
F.H.C.	FIRE HOSE CABINET
FT.	FOOT OR FEET
GA.	GAUGE
GALV.	GALVANIZED
G.P.M.	GALLONS PER MINUTE
H.P.	HORSEPOWER
HR.	HOUR
HTR.	HEATER
I.B.R.	INSTITUTE OF BOILER RATING
I.J.S.	IN JOIST SPACE
INSTAL'D.	INSTALLED
I.T.W.	INSTRUMENT TEST WELL
M.B.H.	BRITISH THERMAL UNITS PER HOUR (THOUSAND)
MFR.	MANUFACTURER
MT'D.	MOUNTED
M.U.	MAKE-UP AIR UNIT
N.C.	NORMALLY CLOSED
N.O.	NORMALLY OPEN
O.A.	OUTSIDE AIR
OZ.	OUNCE
P.E.	PNEUMATIC - ELECTRIC
P.S.I.	POUNDS PER SQUARE INCH
PRESS.	PRESSURE
RECMD.	RECOMMENDED
R.P.M	REVOLUTIONS PER MINUTE
R.G.	RETURN AIR GRILLE
SHT.	SHEET
SQ. FT.	SQUARE FEET
S.M. DUCT	SHEET METAL DUCT
STD.	STANDARD
S.A.V.	SOLENOID AIR VALVE
SPEC.	SPECIFICATION
T. & P.	TEMPERATURE & PRESSURE
TEMP.	TEMPERATURE
T. D.	TEMPERATURE DROP
U.H.	UNIT HEATER
U.L.	UNDERWRITERS LABORATORY
VIB.	VIBRATION
V.T.R.	VENT THRU ROOF
VEH.	VEHICLE
W/	WITH
ø	ROUND

ABBREVIATIONS

A.C.T.	ACOUSTIC TILE - LAY-IN
AGG.	AGGREGATE
AL.	ALUMINUM
APPROX.	APPROXIMATELY
BD.	BOARD
BIT.	BITUMINOUS
BKR	BREAKER
BKR'S	BREAKERS
BLK	BLOCK
BLDG	BUILDING
BM	BEAM
CAB	CABINET
℄	CENTER LINE
CLG	CEILING
CLR	CLEAR
CMPR	COMPRESSOR
C.M.U.	CONCRETE MASONRY UNIT
C.O.	CLEAN OUT
COMP.	COMPACTED
CONC.	CONCRETE
CONT.	CONTINUOUS
CR.	COURSE
DET.	DETAIL
DIM.	DIMENSION
D.F.	DRINKING FOUNTAIN
DWG	DRAWING
ELEC.	ELECTRIC
ELEV.	ELEVATION
ENG.	ENGINEERED
EXIST'G	EXISTING
EXT.	EXTERIOR
FDN.	FOUNDATION
FIN.	FINISH
FL.	FLOOR
FR.	FRAME
FURR'G	FURRING
GAL.	GALLON
GYP.	GYPSUM
H.M.	HOLLOW METAL
HORIZ.	HORIZONTAL
INSUL.	INSULATION
INTER.	INTERMEDIATE
JT.	JOINT
MAINT.	MAINTAIN
MAT'L.	MATERIAL
MAX.	MAXIMUM
MECH.	MECHANICAL
MGT	MATTE GLAZED TILE
MIN.	MINIMUM
MTL.	MTL
MSNRY	MASONRY
N. I. C.	NOT IN CONTRACT
NO	NUMBER
P.F. JT.	PERIMETER FELT JOINT
PNL.	PANEL
PROD.	PRODUCT
PT.	POINT
PTN.	PARTITION
O.C.	ON CENTER
OPNG	OPENING
R	RADIUS
REINF.	REINFORCEMENT
REQ'D	REQUIRED
SH.	SHEET
STAB.	STABELIZED
STL.	STEEL
SURF.	SURFACE
SDG.	SIDING
TYP.	TYPICAL
V.A.T.	VINYL ASBESTOS TILE
WDW.	WINDOW
∠	ANGLE
ø	DIAMETER

LEGEND OF MATERIALS

CROSS - SECTIONS

- CONC. MAS. UNITS (C.M.U.)
- CONC. (POURED IN PLACE)
- CONC. (PRE CAST)
- MORTAR SETTING BED
- INSULATION - BATT & BLANKET
- INSULATION - RIGID
- ENGINEERED FILL
- EARTH
- ACOUSTIC UNITS
- WOOD - (ROUGH)
- METAL - (LARGE SCALE)
- GYPSUM BOARD
- CERAMIC TILE
- METAL (SMALL SCALE)

FLOOR PLANS

- CONC. MAS. UNITS (C.M.U.)
- CONC. MAS. UNITS - FURRED
- GYPSUM BD. ON STEEL STUDS
- CONC. - STOOPS & WALKS
- STEEL FLOOR GRATING

7 — SECTION IDENTIFICATION NUMBER

7/7 — NUMBER OF SHEET ON WHICH SECTION IS TAKEN; NUMBER OF SHEET ON WHICH SECTION IS DRAWN.

ENVIRONMENTAL ENHANCEMENT THRU ENGINEERING

REVISION	DATE	DESCRIPTION	BY	BY

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: RAP
DRAWN: RAP
CHECKED: BL

MALMSTROM AIR FORCE BASE MONTANA

AUTOMOTIVE MAINTENANCE SHOP

LEGENDS

SUBMITTED: 882 DATE APPROVED: 27 AUG 1973

SCALE: AS NOTED SPEC. No. 4506

SHEET 3 FILE No. 225-25-20

Drawer 75 Bldg. 882 Sheet 23

DR 75 B-882 SH 23

D-GTO 257-399

NOTE

1. ALL EARTH, CONCRETE, ASPHALT, GRAVEL, DEBRIS TO BE HAULED TO DEBRIS DISPOSAL SITE INDICATED ON VICINITY MAP ON THIS SHEET.
2. ALL PIPE, WOOD, WIRE, CONDUIT, WILL BE REMOVED FROM THE BUILDING SITE BY THE GENERAL CONTRACTOR.
3. ASPHALT-CONCRETE PAVING IN ALL AREAS NOT OCCUPIED BY CONCRETE SLABS OR NOTED AS GRASSED AREAS.

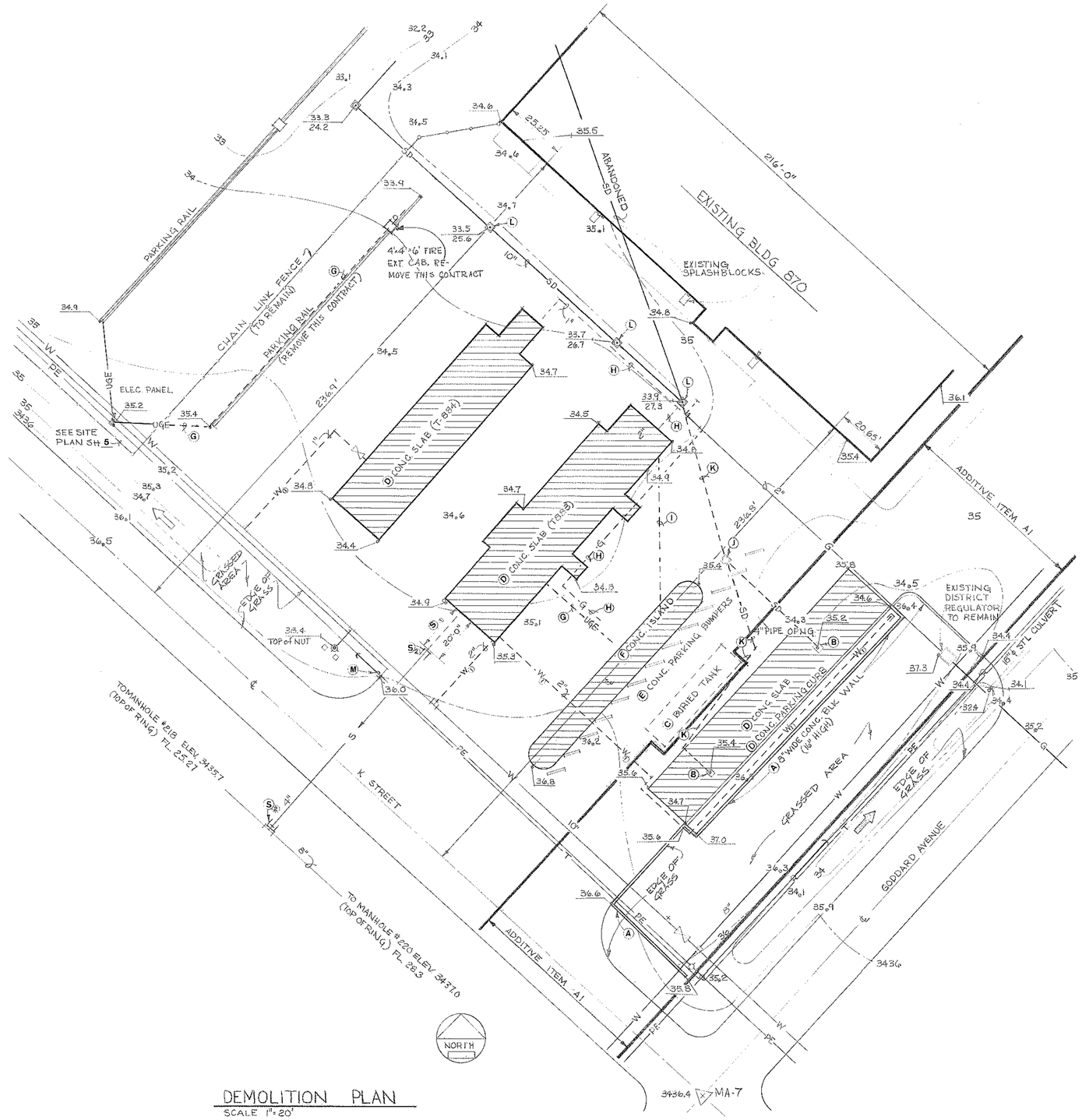
LEGEND

SYMBOL	DESCRIPTION	REMARKS
A	8"×16" HIGH CONC BLK WALL	REMOVE THIS CONTRACT
B	DRAINS	REMOVE THIS CONTRACT
C	TANK	REMOVE THIS CONTRACT
D	CONC. SLABS & CURB	REMOVE THIS CONTRACT
E	CONC. PARKING BUMPERS	REMOVE THIS CONTRACT
F	CONC. ISLAND	REMOVE THIS CONTRACT
G	ELEC CABLES	REMOVE THIS CONTRACT
H	GAS LINES	REMOVE THIS CONTRACT
I	COMPRESSOR AIR LINE	REMOVE THIS CONTRACT
J	STORM DRAIN INLET	REMOVE THIS CONTRACT
K	STORM DRAIN PIPE	REMOVE THIS CONTRACT
L	STORM DRAIN INLETS	SEE SH 5 SITE PLAN REUSE EXISTING INLETS
M	POLE-ELECTRICAL	REMOVE THIS CONTRACT
W_1	WATER LINES	REMOVE THIS CONTRACT*
S_1	SANITARY SEWER	REMOVE THIS CONTRACT
S_2	SANITARY SEWER	CAP AS REQ'D

* CAP - AS REQUIRED

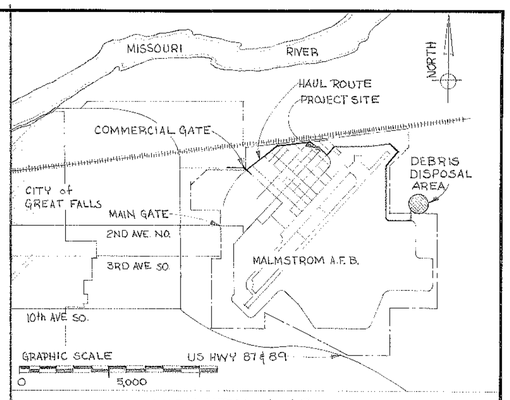
REFERENCE SOURCE of SURVEY DATA

1. TYPE: STADIA SURVEY
2. DATUM: USGS ELEV 3436.4
3. DATE: 1-24-73
4. DWG NO: 225-15-25 △1
5. BOOK NO: 56-464



DEMOLITION PLAN

SCALE 1" = 20'



VICINITY MAP

LEGEND

	EXISTING
BUILDING	
SIDEWALK	
CHAIN LINK FENCE	
CONCRETE	
SPOT ELEVATIONS	33.9 / 33.9
WATER LINE	—W—
SANATARY SEWER LINE	—S—
STORM DRAIN LINE	—SD—
STORM DRAIN INLET	ELEV / INVERT
FIRE HYDRANT	
GATE VALVE	
STORM DRAIN INLET (BURIED)	
UNDERGROUND ELECTRICITY	—UGE—
TELEPHONE (OVERHEAD)	—T—
ASPHALT PAVING	
SURVEY MONUMENT	△ MA-7
UTILITY POLE	
NATURAL GAS	—G—
CONTOUR	
AREA DRAINAGE	
PRIMARY ELECTRICITY (OVERHEAD)	—PE—
GUY WIRE	
WHEEL GUARDS	
8" WIDE CONC. BLK WALL (16" HIGH)	
COMPRESSED AIR LINE	

GRAPHIC SCALE

1" = 20' 0 5' 10' 15' 20' 40' 60' 80' 100'

REVISION	DATE	DESCRIPTION	BY	BY
1	9-25-73	ADDED SURVEY DATA REFERENCES	MAP	MAP

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: RAP
DRAWN: T
CHECKED: BL

MALMSTROM AIR FORCE BASE MONTANA

AUTOMOTIVE MAINTENANCE SHOP

DEMOLITION PLAN

SUBMITTED: 882 — DATE APPROVED: 8 AUG 1973

SCALE: AS NOTED — SPEC. No. 4506

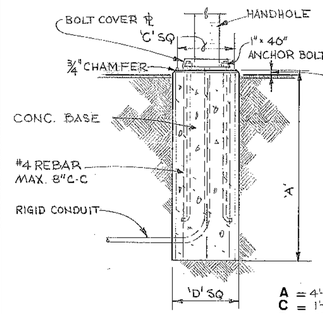
SHEET 4 — FILE No. 225-25-20

Drawer 75 Bldg. 882 Sheet 22

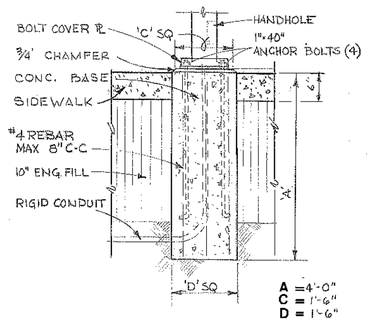
DR 75 B-882 SH 22

Amend No 001

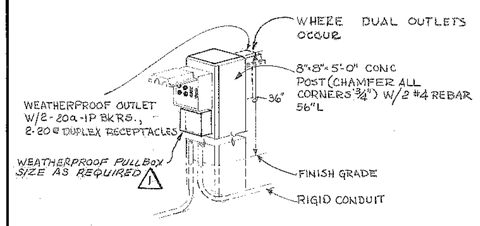
GPO 797-099



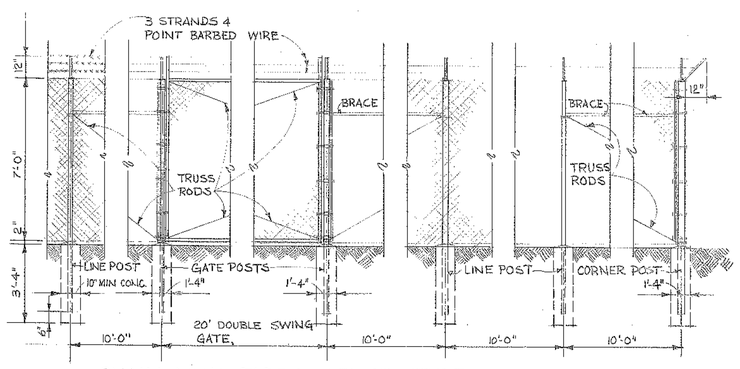
X 5|5 POST LIGHT BASE DETAIL
NO SCALE — ADDITIVE ITEM A1



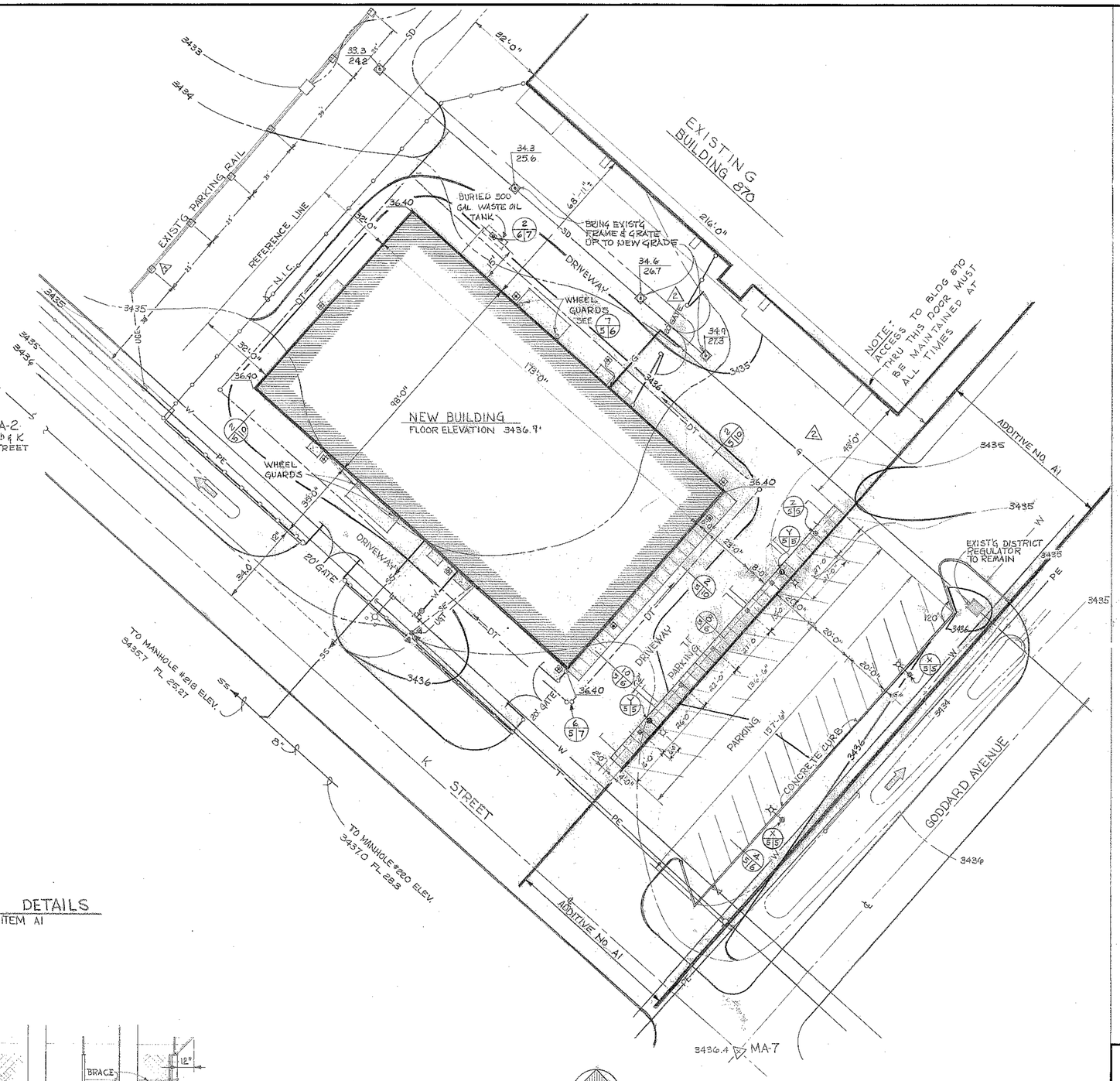
Y 5|5 POST LIGHT BASE DETAIL
NO SCALE — ADDITIVE ITEM A1



Z 5|5 ENGINE HEATER OUTLET DETAILS
NO SCALE — ADDITIVE ITEM A1



CHAIN LINK FABRIC FENCE TYPE FE-6
SCALE 3/8" = 1'-0" — ADDITIVE ITEM A2



SITE PLAN
SCALE 1" = 20'

EXCAVATION NOTE:

THE AREA OF THE STRUCTURE PLUS 10 (TEN) FEET BEYOND SHALL BE EXCAVATED TO A DEPTH OF 4.0 FEET BELOW THE LEVEL OF THE BASE OF THE FLOOR SLAB. THE 4.0-FOOT DEPTH SHALL BE NEAR THE CENTER OF THE STRUCTURE, SLOPING TO 4.5 FEET AT THE EDGES, WHERE A 6-FOOT-MINIMUM DEPTH EXCAVATION, CENTERED ON THE FOOTINGS SHALL BE MADE. THE EXCAVATION BENEATH THE FOOTINGS SHALL ALSO SLOPE TO THE OUTSIDE TO WHERE A SHALLOW DITCH WILL BE PREPARED FOR A SUBDRAIN SYSTEM.

SOURCE: FOUNDATION REPORT FOR MAFB AUTOMOTIVE MAINTENANCE SHOP 1 FEBRUARY 1973

GRAPHIC SCALES
1" = 20' — 0 5' 10' 15' 20' 40' 60' 80' 100'
3/8" = 1'-0" — 0' 1' 2' 3' 4' 5' 6' 7'

LEGEND

NEW		EXISTING
	BUILDING	
	SIDEWALK	
	CONCRETE	
	CHAIN LINK FENCE	
	ASPHALT PAVING	
	CONCRETE POST	
	WHEEL GUARDS	
35.5	SPOT ELEVATIONS	35.4
	SURVEY MONUMENT MA-7 & MA-2	
	CONTOUR	
	AREA DRAINAGE	
—W—	WATER LINE	—W—
—SS—	SANITARY SEWER	—SS—
—SD—	STORM DRAIN	—SD—
	FIRE HYDRANT	
	GATE VALVE	
TOP of ELEV / INVERT. ELEV	STORM DRAIN ELEVATIONS	
—DT—	DRAIN TILE → (SLOPE)	
	STORM DRAIN INLET	
—UGE—	UNDERGROUND ELECTRICITY	
	TRANSFORMERS	
	UTILITY POLE	
	PRIMARY ELECTRICITY (OVERHEAD)	—PE—
	EXTERIOR BUILDING LIGHTS	
	PARKING LOT YARD LIGHT	
—U&T—	UNDERGROUND TELEPHONE	
—G—	NATURAL GAS	—G—
	GUY WIRE (USE EXISTING ANCHOR)	
	DRAIN TILE CLEANOUT	
	CURB BOX STOP	
	TELEPHONE	—T—
—SE—	SECONDARY ELECTRICAL (UNDERGROUND)	

REVISION	DATE	DESCRIPTION	BY	BY
3	11/25/80	INSTALL A/C OUTLETS	G.P.	
2	10/15/75	REMOVED & RELOCATED 20' GATE & FENCE	SL	
1	9-25-73	ADD PULLBOX	JG	

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: RAP
DRAWN: T
CHECKED: BL

MALMSTROM AIR FORCE BASE — MONTANA

AUTOMOTIVE MAINTENANCE SHOP

SITE PLAN

SUBMITTED: 882
DATE APPROVED: 27 AUG 1973
SCALE: AS NOTED | STC. No. 4506
SHEET 5 | FILE No. 225-25-20

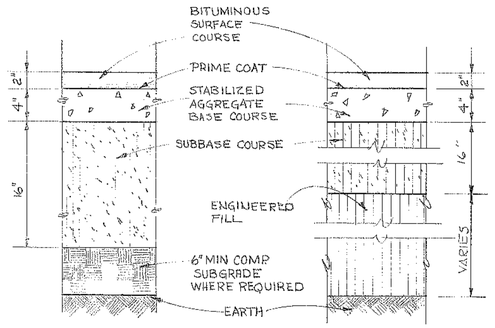
DR 75 B-882 SH 21

Amend No. 0001

Drawer: 75 Bldg: 882 Sheet: 21

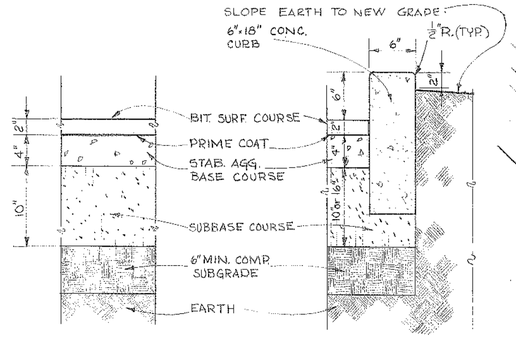
ENVIRONMENTAL ENHANCEMENT THRU ENGINEERING

GPO 793-599



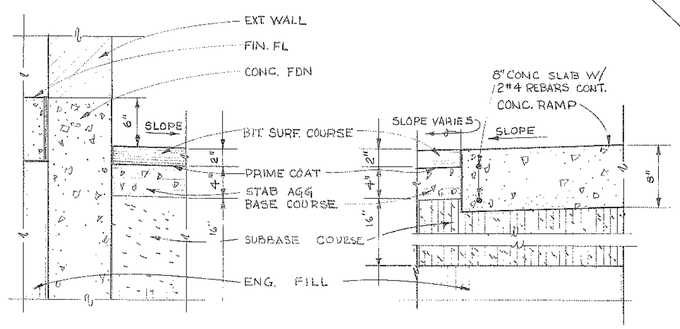
PAVEMENT- HEAVY VEHICLE (1/6/6) SCALE 1½"=1'-0"

PAVEMENT- HEAVY VEHICLE (2/6/6) SCALE 1½"=1'-0"



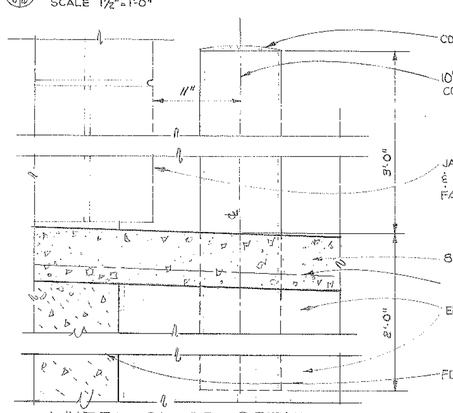
PAVEMENT- PASSENGER VEHICLE (3/6/6) SCALE 1½"=1'-0"

CURB - SECTION (4/6/6)

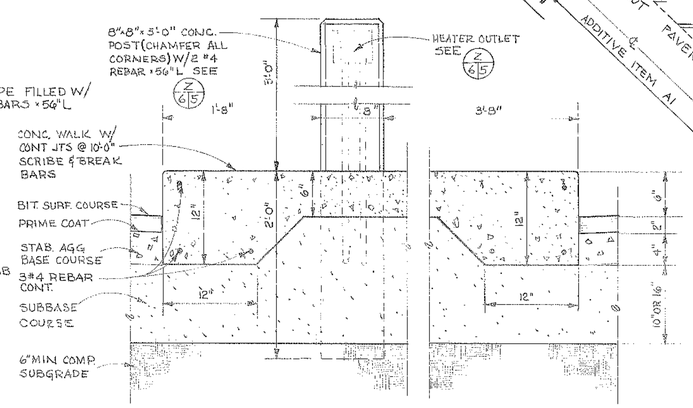


WALL - PAVEMENT SECTION (5/6/6) SCALE 1½"=1'-0"

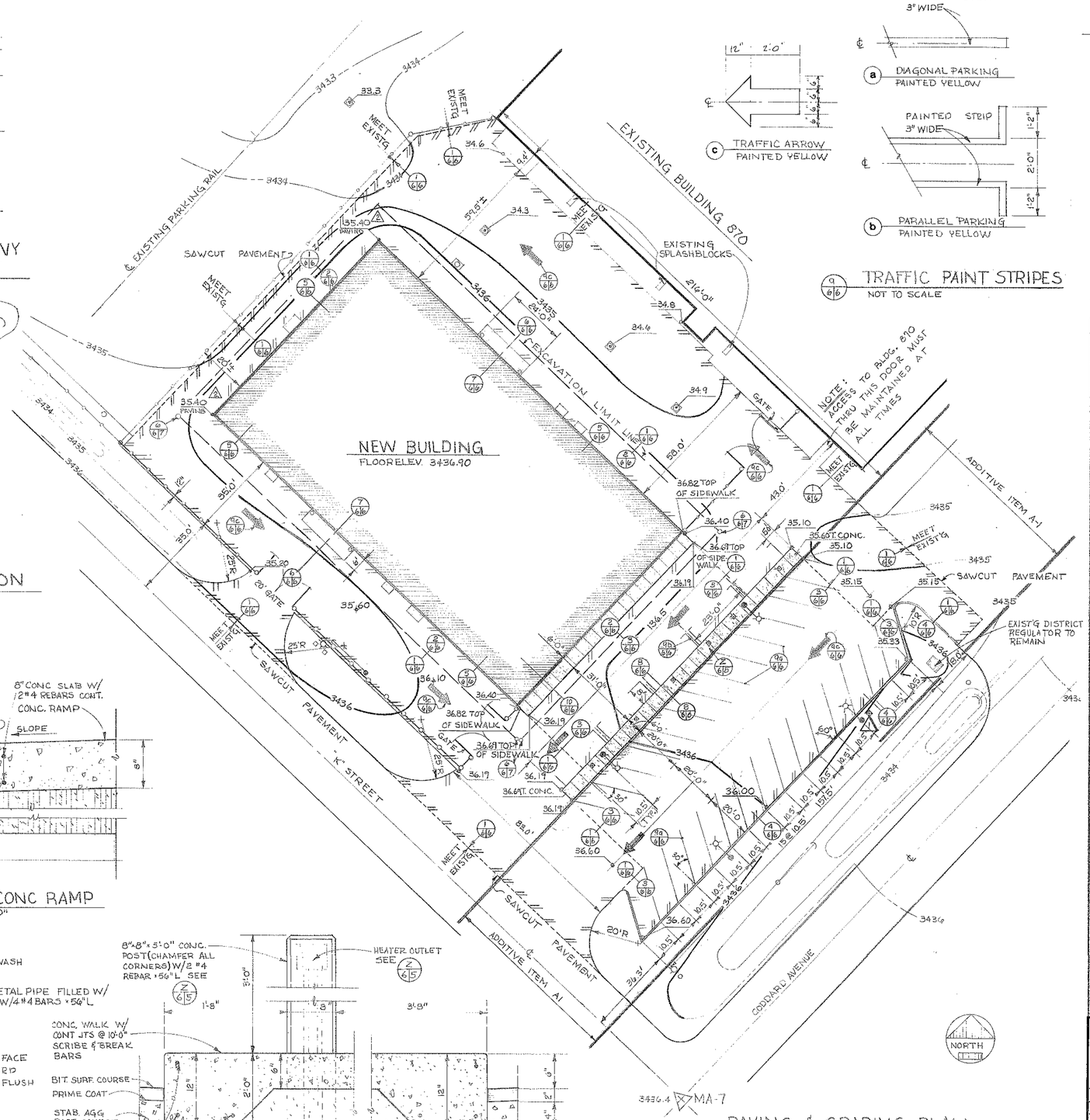
PAVING-CONC RAMP (6/6/6) SCALE 1½"=1'-0"



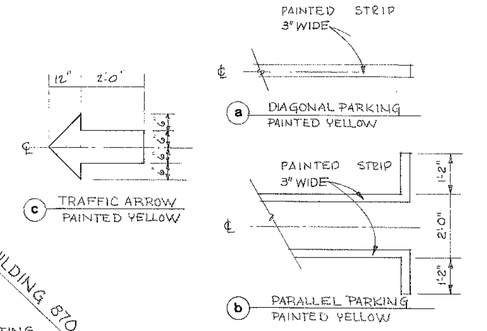
WHEEL GUARD DETAIL (7/6/6) SCALE 1½"=1'-0"



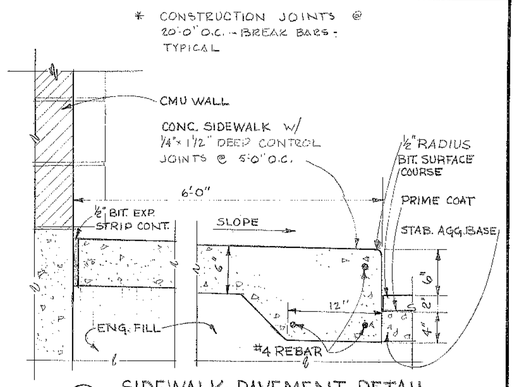
PARKING CURB (8/6/6) SCALE 1½"=1'-0"



PAVING & GRADING PLAN
SCALE 1"=20'



TRAFFIC PAINT STRIPES
NOT TO SCALE



SIDEWALK- PAVEMENT DETAIL
SCALE 1½"=1'-0"

LEGEND

NEW		EXISTING
	BUILDING	
	SIDEWALK	
	CONCRETE	
	CHAIN LINK FENCE	
	ASPHALT PAVING	
	ENGINE HEATER OUTLET POST	
	WHEEL GUARDS	
35.5 35.6	SPOT ELEVATIONS	
	SURVEY MONUMENT MA-2 & MA-7	
3436	CONTOUR	3436
	FIRE HYDRANT	
	STORM DRAIN INLET (REUSE EXISTING)	
	UTILITY POLE	
	TRAFFIC DIRECTION ARROW	
	DRAINTILE CLEAN OUT ACCESS	
	WASTE OIL TANK CLEANOUT	
	SAWCUT PAVEMENT	
	LIGHT POLE	

REVISION	DATE	DESCRIPTION	BY
2	15 OCT 75	35.40' PAVING WAS 36.40	S.L.
1	26 Sept 73	ADD CONC. POST	JG

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: RAP
DRAWN: T
CHECKED: BL

MALMSTROM AIR FORCE BASE MONTANA

AUTOMOTIVE MAINTENANCE SHOP

PAVING PLAN

SUBMITTED: 882
DATE APPROVED: 27 AUG 1973
SCALE: AS NOTED
SMC. No. 4506
SHEET 6
FILE No. 225-25-20

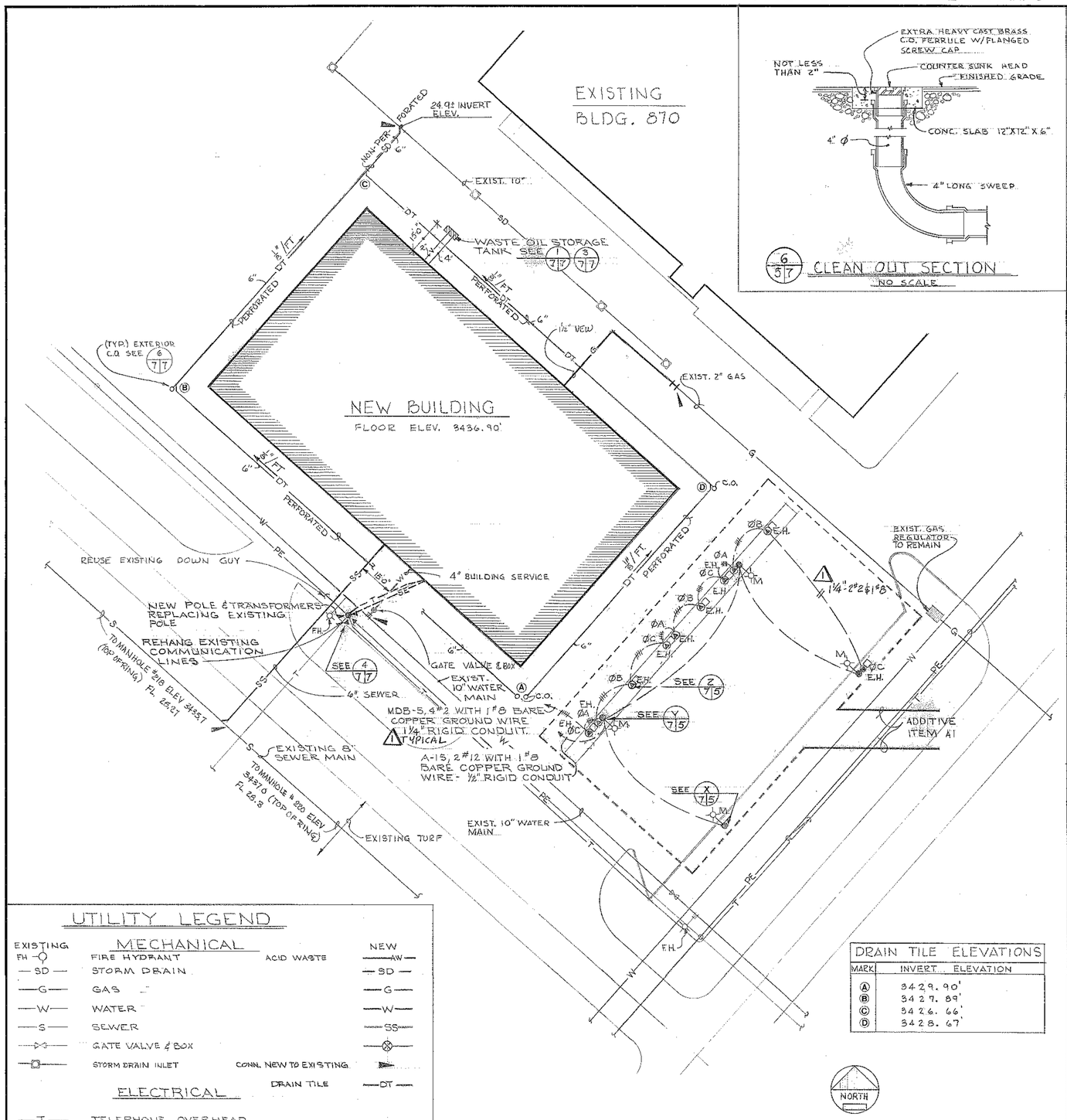
GRAPHIC SCALES
1"=20'
1-1/2"=1'-0"

ENVIRONMENTAL ENHANCEMENT THRU ENGINEERING

Drawer 75 Bldg. 882 Sheet 20

DR 75 B-882 SH 20 Amend NO 0002

GPO 792-399



UTILITY SITE PLAN

SCALE 1" = 20'-0"

DRAIN TILE ELEVATIONS	
MARK	INVERT ELEVATION
A	3429.90'
B	3427.89'
C	3426.66'
D	3428.67'

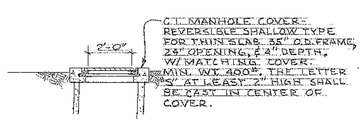
GRAPHIC SCALE

1" = 20'-0" 0 5 10 15 20 40 60 80 100

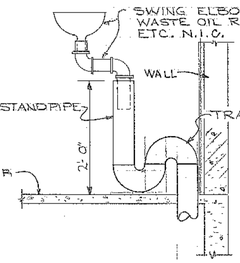
UTILITY LEGEND

EXISTING	MECHANICAL	NEW
FH	FIRE HYDRANT	
	ACID WASTE	AW
SD	STORM DRAIN	SD
G	GAS	G
W	WATER	W
S	SEWER	SS
	GATE VALVE & BOX	
	STORM DRAIN INLET	
	CONN. NEW TO EXISTING	
	DRAIN TILE	DT
	ELECTRICAL	
T	TELEPHONE OVERHEAD	
	TELEPHONE UNDERGROUND	T
PE	PRIMARY ELECTRICAL OVERHEAD	
	SECONDARY ELECTRICAL UNDERGROUND	SE
	POLE LIGHT	
	TRANSFORMER	
	DOWN GUY	
	ENGINE HEATER OUTLET	E.H.
O	POLE	
	POST FOR ENGINE HEATER OUTLET	

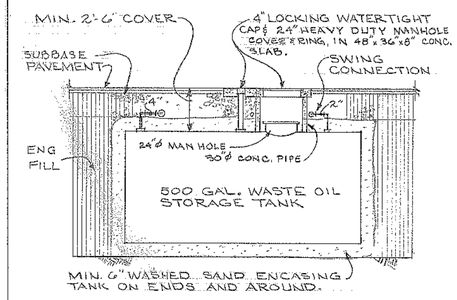
6/5/7 CLEAN OUT SECTION
NO SCALE



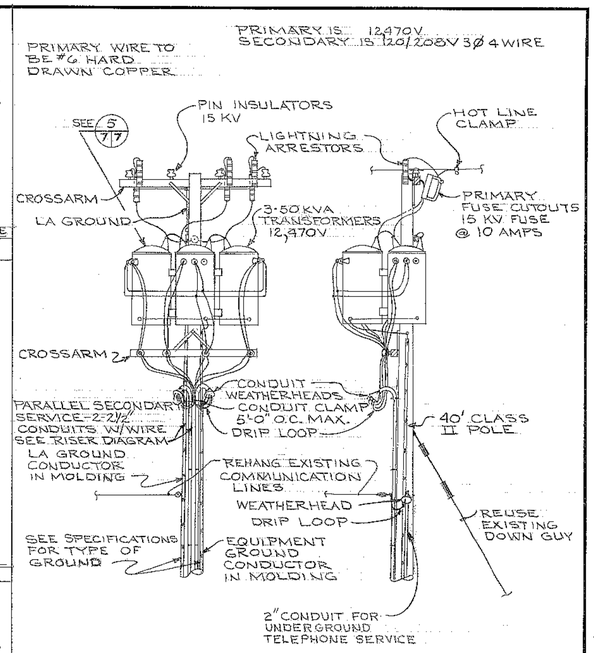
1/7/7 MANHOLE COVER DETAIL
NO SCALE



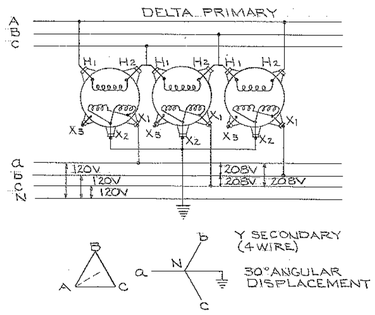
2/7/21 WASTE OIL STANDPIPE DET.
NO SCALE



3/7/7 WASTE OIL STORAGE TANK DETAIL
NO SCALE



4/7/7 POLE DETAIL
NO SCALE



5/7/7 TRANSFORMER CONNECTION DIAGRAM
NO SCALE

REVISION	DATE	DESCRIPTION	BY	
1	9-25-73	CLARIFY WIRE & CONDUIT SIZE	JG	

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GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: RAP
DRAWN: LWT
CHECKED: BL

MALMSTROM AIR FORCE BASE MONTANA

AUTOMOTIVE MAINTENANCE SHOP

UTILITY PLAN

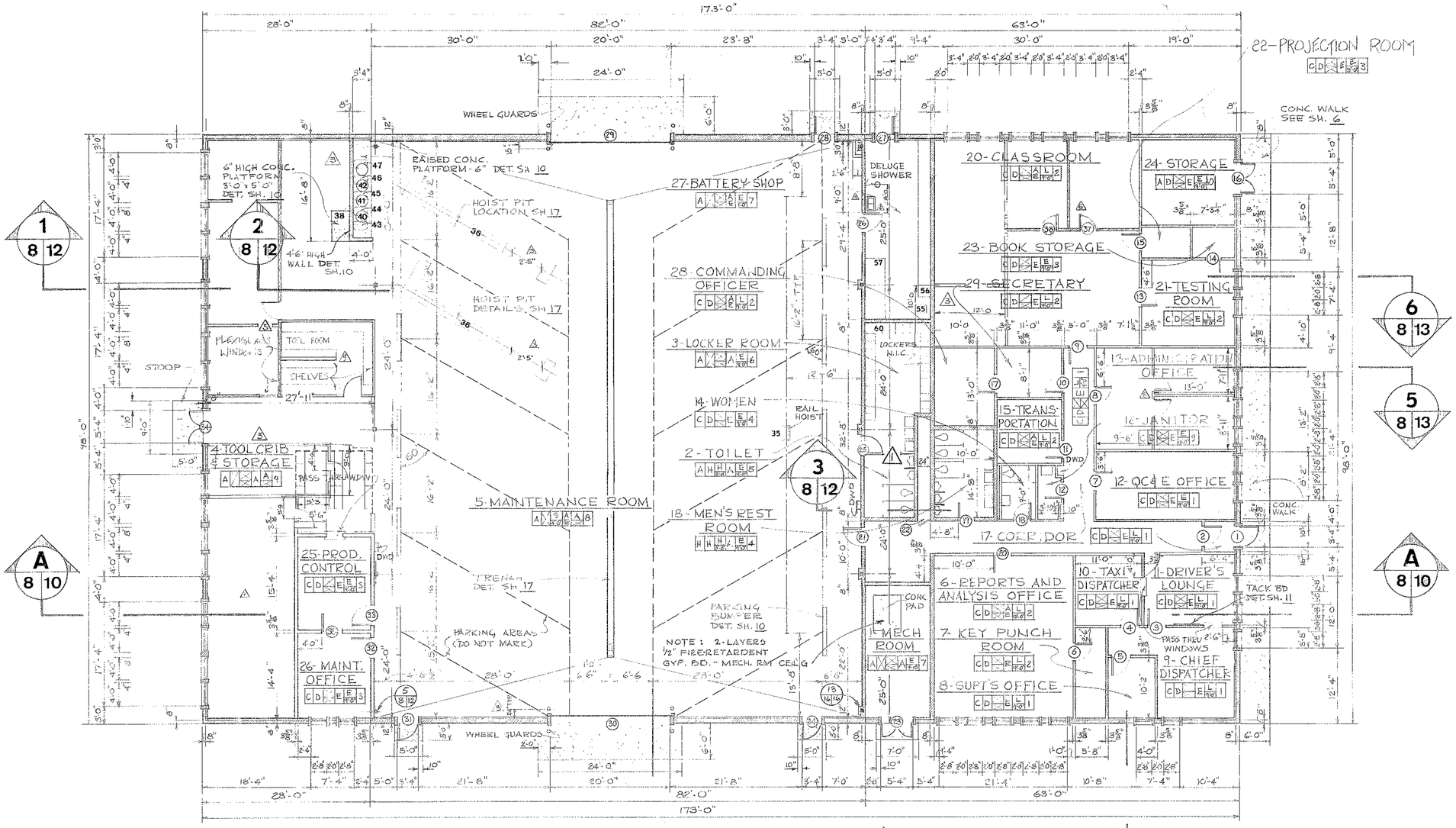
SUBMITTED: 882
DATE APPROVED: 27 AUG 1973
SCALE: AS NOTED
SPEC. No. 4506
SHEET 7
FILE No. 225-25-20

Drawer 75 Bldg. 882 Sheet 19

DR 75 B-882 SH 19

Amend No. 0561

ENVIRONMENTAL ENHANCEMENT THRU ENGINEERING



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

EQUIPMENT LIST

NO.	DESCRIPTION	STATUS
35	RAIL HOIST	CF/CI
36	FLOOR HOIST	CF/CI
38	AIR COMPRESSOR	GF/CI
40	PUMP & DRUM COVER ASSEMBLY (CHASSIS LUBRICATION)	GF/GI
41	PUMP & DRUM COVER ASSEMBLY (GEAR LUBRICATION)	GF/GI
42	PUMP & DRUM COVER ASSEMBLY (MOTOR OIL)	GF/GI
43	REEL CASE & HOSE ASSEMBLY (AIR)	GF/GI
44	REEL CASE & HOSE ASSEMBLY (CHASSIS LUBRICATION)	GF/GI
45	REEL CASE & HOSE ASSEMBLY (WATER)	GF/GI
46	REEL CASE & HOSE ASSEMBLY (GEAR LUBRICATION)	GF/GI
47	REEL CASE & HOSE ASSEMBLY (MOTOR OIL)	GF/GI
55	BATTERY RECTIFIER	GF/CI
56	SHELVES - (BATTERY STORAGE)	GF/GI
57	WORK BENCH	GF/GI
~~58~~	~~WIRE PARTITIONS~~ REMOVED	GF/GI
59	STORAGE BINS	GF/GI
60	METAL LOCKERS	GF/GI

STATUS OF EQUIPMENT AS FOLLOWS:

CF/CI — CONTRACTOR FURNISHED & CONTRACTOR INSTALLED

GF/CI — GOVERNMENT FURNISHED & CONTRACTOR INSTALLED

GF/GI — GOVERNMENT FURNISHED & GOVERNMENT INSTALLED

WALL AND PARTITION LEGEND

CONC. MAS. UNITS (C.M.U.)

CONC. MAS. UNITS - FURRED

GYPSUM BD. ON STEEL STUDS

GROSS AREA
173' x 98' = 16,954 SQ. FT.

EXTERIOR COLOR COMBINATION SCHEDULE

FOUNDATION	WALLS	SIDING	FASCIA	DOORS	OVHD DOORS	COPING
CONC NONE	CMU 36555 BUFF	METAL 36555 BUFF	METAL 20140 MED. BRONZE	METAL 20219 BROWN	METAL FACTORY FINISH	METAL 26555 BUFF

NOTES:

1. DOOR TRIM — MATCH DOORS.
2. OVERHEAD DOORS - PREFINISHED WHITE.
3. WINDOW SILLS — MATCH WALL - 36555 BUFF
4. THE COLOR NUMBERS USED REFER TO FEDERAL STANDARD NO. 595 COLORS, 3 JAN 68, AND ARE FOR COLORS ONLY
5. DOWNSPOUTS AND DOWNSPOUT HEADS PAINTED 26555 BUFF

INTERIOR COLOR COMBINATION SCHEDULE

COLOR CODE	FLOOR	BASE	WAINSCOT	WALLS	CEILING	DOORS
1	VAT LIGHT OLIVE	RB BROWN	NONE	36586 YELLOW GRAY	ACST OFF-WHITE	24672 PALE GREEN
2	VAT TAN-WHITE	RB BROWN	NONE	31643 MEDIUM EGGSHELL	ACST OFF-WHITE	24672 PALE GREEN
3	VAT TAN	RB BROWN	NONE	34672 PALE GREEN	27778 WHITE	24672 PALE GREEN
4	CT TANS	MCT LIGHT GOLD	MCT LIGHT GOLD	17855 CREAM	27778 WHITE	24672 PALE GREEN
5	HARDENER	MCT LIGHT GOLD	MCT LIGHT GOLD	17855 CREAM	27778 WHITE	24672 PALE GREEN
6	HARDENER	NONE	NONE	17855 CREAM	27778 WHITE	NONE
7	HARDENER	NONE	NONE	NONE	27778 WHITE	20219 BROWN
8	HARDENER	NONE	NONE	27778 WHITE	NONE	20219 BROWN
9	HARDENER	NONE	NONE	27778 WHITE	NONE	20219 BROWN
10	HARDENER	RB BROWN	NONE	27778 WHITE	27778 WHITE	20219 BROWN

NOTES: 1 DOOR TRIM — MATCH DOOR COLOR.
2 TOILET PARTITIONS — 22816 COPPER GLOW
3 HEATING COVERS - MATCH WALL COLOR.
4 THE COLOR NUMBERS USED REFER TO FEDERAL STANDARD NO. 595, COLORS, 2 JAN 68, AND ARE FOR COLORS ONLY.
5 ROOMS NOT PAINTED - PAINT DOORS & DOOR TRIM 24672 - PALE GREEN

GRAPHIC SCALE
1/8" = 1'-0" 8' 4' 0' 8' 16'

KEY TO FINISHES

FLOOR BASE WAINSCOT WALL CEILING COLOR CODE — HEIGHT
SEE FLOOR PLAN FOR FINISHES

A	EXPOSED	H	CERAMIC TILE	P	PAINT
B	ASPHALT TILE	J	QUARRY TILE	R	SEE NOTE (2)
C	VINYL ASB. TILE	K	GLAZED STR. UNIT	S	CEM. ASB. BD.
D	VINYL	L	ACOUSTIC	T	
E	GYPSUM BOARD	M	WOOD	U	
F	PLASTER	N	PLYWOOD	V	
G	KEENE'S CEM. PLAS	O	HARDBOARD	W	

NOTES:
(1) X = NOT APPLICABLE
(2) APPLY 2 LAYERS GYP BRD ON 3 INTERIOR WALLS. APPLY ACOUSTICAL TILE ON 4 WALLS FROM CLG DOWN 4'-0" SEE DETAIL SH. 11

REVISION	DATE	DESCRIPTION	BY	BY
4	26SEP85	CONSTRUCT TOOL ROOM, W.O. 58141	CRL	RAP
3	12APR82	BUILD WALLS IN RM 6 PANEL ONE ACCENT WALLS W.O. 75192	CRL	TS
2	4SEP75	CONST. TRAINING ROOM W.O. 62125	RCE	BU
6	20MAY87	CONST. OFFICE SPACE AS PER W.O. 40701	LJZ	BU
5	7APR87	CONSTRUCT SHOP & STORAGE SPACE PER W.O. 65003	LJZ	DLP
4	13SEP82	INSTALL DOUBLE SINK AS PER W.O. # 40718	[illegible]	[illegible]
3	10/14/75	ADDED PARTITIONS, 24" TYP. WAS 15", OTHER DIM. ADDED	[illegible]	[illegible]
2	10/10/73	DELETE NOTE REGARDING OIL INTERCEPTOR	WEL	[illegible]
1	9.25.73	RELOCATED DOOR 25	ABP	[illegible]

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: RAP
DRAWN: LWT
CHECKED: BL
SUBMITTED: 882
DATE APPROVED: 27 AUG 1973

MALMSTROM AIR FORCE BASE — MONTANA

AUTOMOTIVE MAINTENANCE SHOP

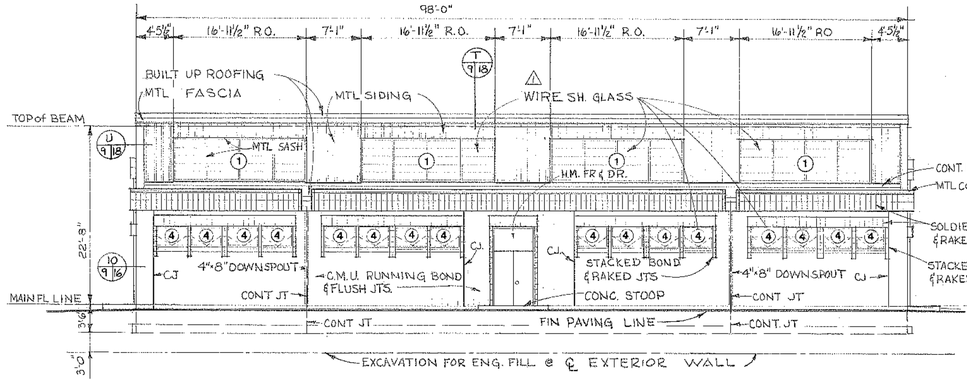
FLOOR PLAN

SCALE: 1/8" = 1'-0" | SPEC. No. 4506
SHEET 8 | FILE No. 225-25-20

DR 75 B-882 SH 18

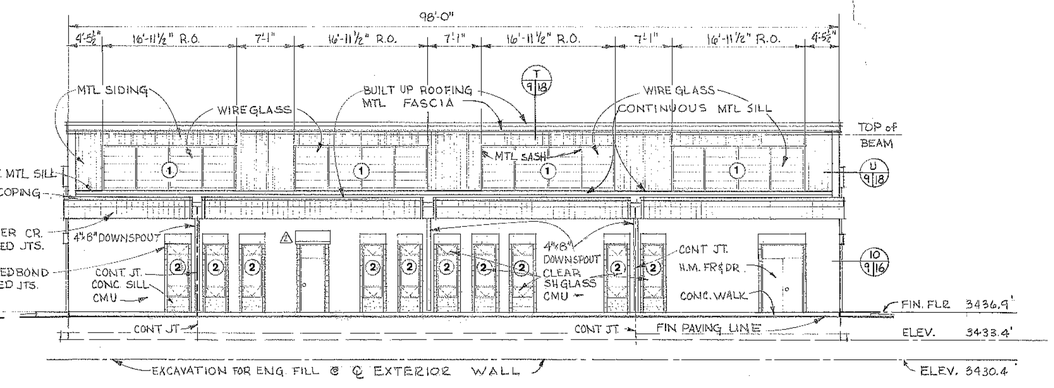
SAFETY PAYS

GPO 793-379



NORTHWEST ELEVATION

SCALE 1/8" = 1'-0"

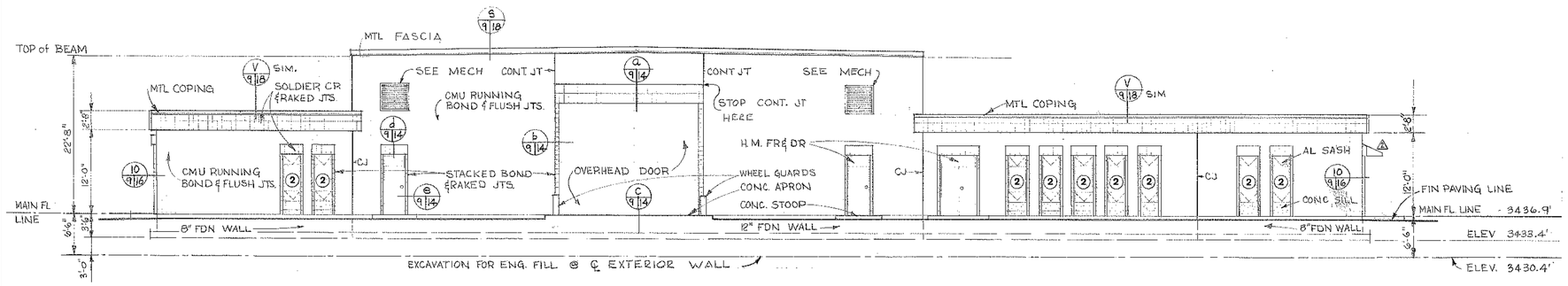


SOUTHEAST ELEVATION

SCALE 1/8" = 1'-0"

NOTES:

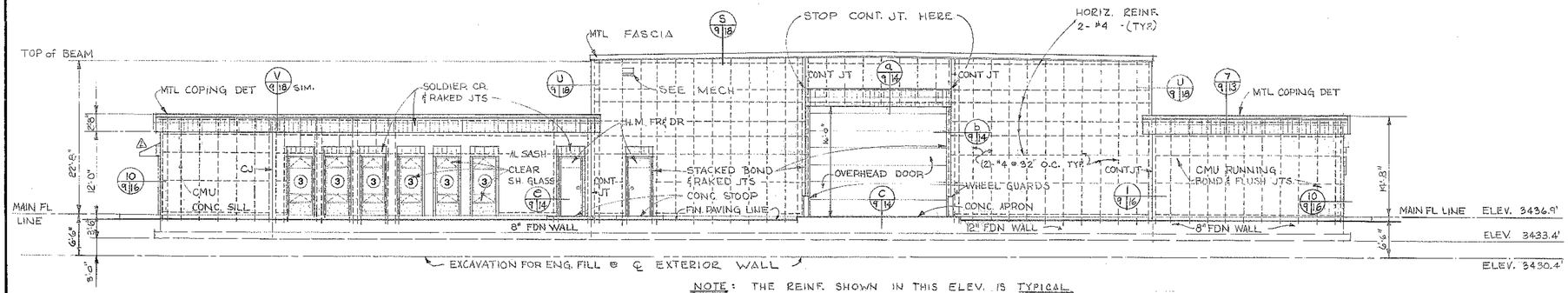
1. (1) REFERS TO WINDOW TYPE
2. LOCATE CONTROL & CONTRACTION JOINTS AT 8" MSNRY MODULE



SOUTHWEST ELEVATION

SCALE 1/8" = 1'-0"

EXT. WALL REINFORCEMENT		
WALL	HORIZ.	VERT.
8" C.M.U.	(2)-#4	(1)-#5 @ 32" O.C.
12" C.M.U.	(2)-#4	(2)-#4 @ 32" O.C.



NORTH EAST ELEVATION

SCALE 1/8" = 1'-0"

NOTE: THE REINF. SHOWN IN THIS ELEV. IS TYPICAL THROUGHOUT THE STRUCTURE. REFER TO SHEETS 12 & 13 FOR ANY VARIATIONS FROM TYPICAL.

GRAPHIC SCALE

1/8" = 1'-0"

REVISION	DATE	DESCRIPTION	BY	BY
2	11 APR 88	BUILD ENCLOSED ENTRY OR AWNING W.O. # 37010	SRL	TS
1	10/15/75	"WIRE" WAS "CLEAR"	SL	

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: RAP
DRAWN: T
CHECKED: BL

MALMSTROM AIR FORCE BASE MONTANA

AUTOMOTIVE MAINTENANCE SHOP

ELEVATIONS

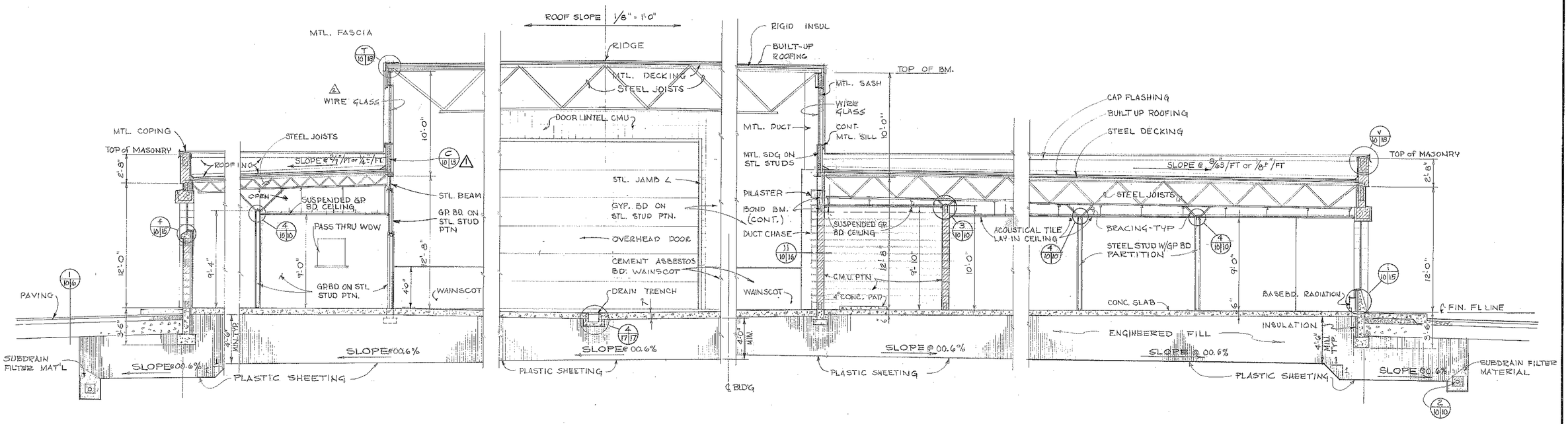
SUBMITTED: 082
DATE APPROVED: 27 AUG 1973
SCALE: 1/8" = 1'-0" SPEC. No. 4506
SHEET 9
FILE No. 225-25-20

Drawer 75 Bldg. 882 Sheet 17

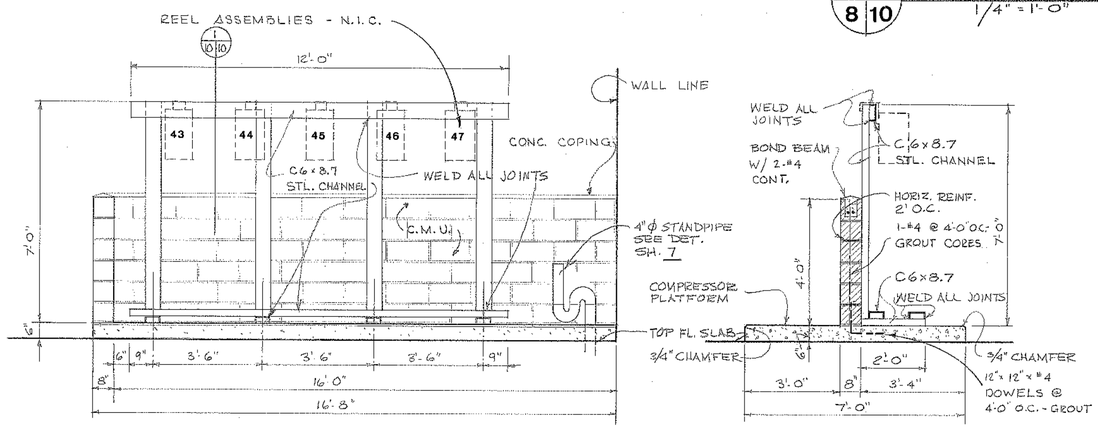
DC 75 18-882 SH 17

ENVIRONMENTAL ENHANCEMENT THRU ENGINEERING

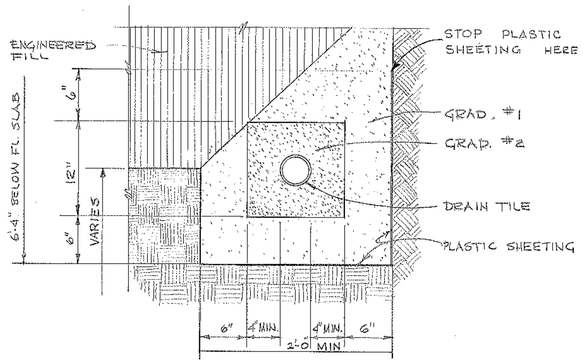
G GTO 769-339



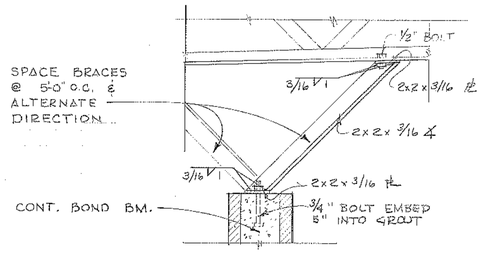
A 8|10 SECTION
1/4" = 1'-0"



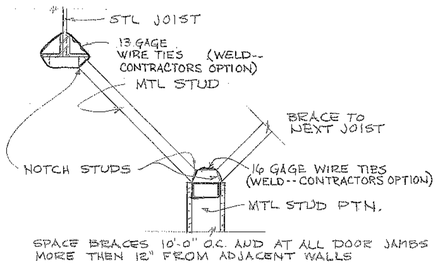
LUBE RACK DETAILS
SCALE: 1/2" = 1'-0"



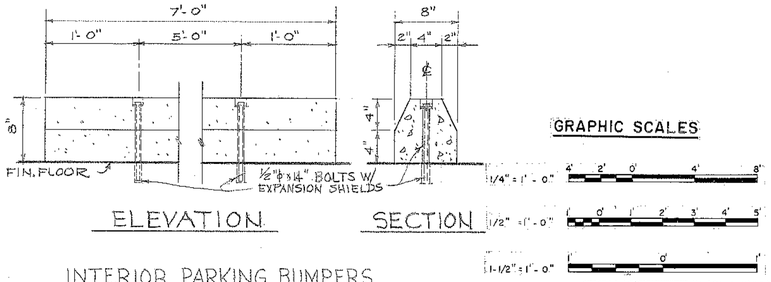
DRAIN TILE DETAIL
SCALE: 1 1/2" = 1'-0"



CMU PTN. BRACING DET.
SCALE: 1 1/2" = 1'-0"



MTL. STUD PTN. BRACING DET
SCALE: 1 1/2" = 1'-0"



INTERIOR PARKING BUMPERS
SCALE: 1 1/2" = 1'-0"

REVISION	DATE	DESCRIPTION	BY	BY
2	10/15/75	"WIRE" WAS "CLEAR"		
1	9-25-73	CLARIFIED CLERESTORY REFERENCE	ARP	

AMUNDSON BEER LUND
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DEPARTMENT OF THE ARMY
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SACRAMENTO, CALIFORNIA

DESIGNED: RAP
DRAWN: LWT
CHECKED: BL

MALMSTROM AIR FORCE BASE MONTANA

AUTOMOTIVE MAINTENANCE SHOP

BUILDING SECTION

SUBMITTED: 882
DATE APPROVED: 27 AUG 1973
SCALE: AS NOTED
SPEC. No. 4506
SHEET 10
FILE No. 225-25-20

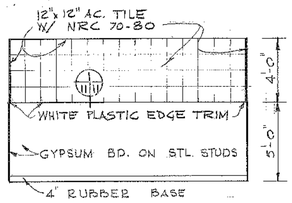
Drawer: 73 Bldg. 882 Sheet 16

DE 75 B-882 SH 16

Amend No 1

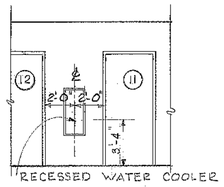
ENVIRONMENTAL ENHANCEMENT THRU ENGINEERING

GPO 793-399



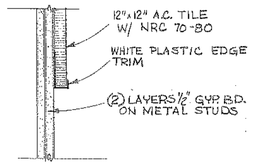
TYP. ELEV. - ROOM 7

SCALE 1/4" = 1'-0"



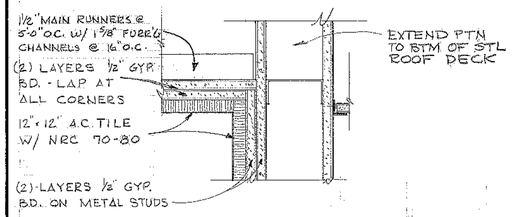
ELEV. - FOUNTAIN

SCALE 1/4" = 1'-0"

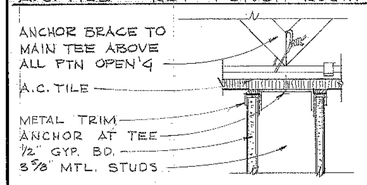


A.C. TILE DETAIL

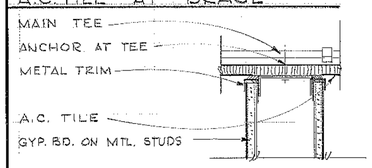
SCALE 3"=1'-0"



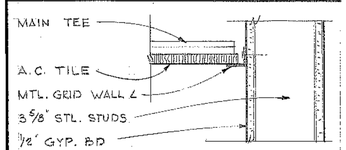
A.C. TILE - KEY-PUNCH ROOM 7



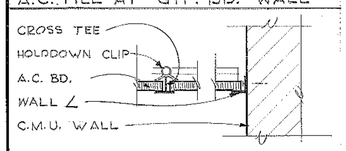
A.C. TILE AT BRACE



A.C. TILE OVER GYP. BD. WALL

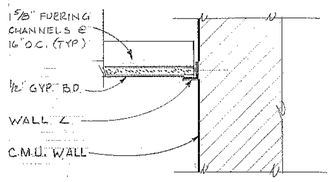


A.C. TILE AT GYP. BD. WALL

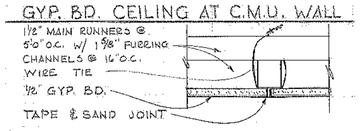


A.C. TILE AT C.M.U. WALL

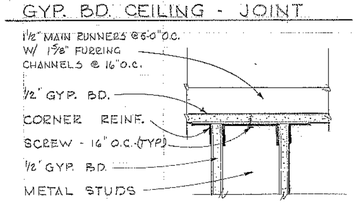
NOTE:
A.C. BD. IS 2'-0" x 4'-0" W/ NRC-60



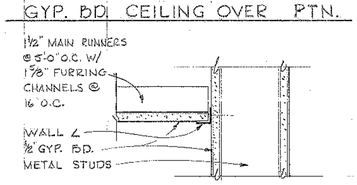
GYP. BD. CEILING AT C.M.U. WALL



GYP. BD. CEILING - JOINT



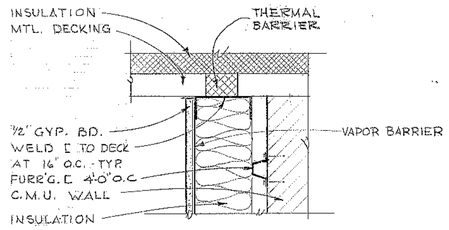
GYP. BD. CEILING OVER PTN.



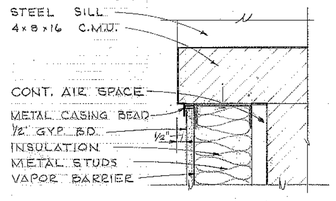
GYP. BD. CEILING AT PARTITION

CEILING DETAILS

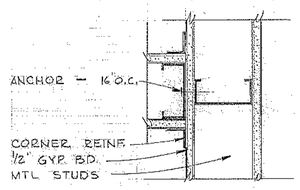
SCALE 3" = 1'-0"



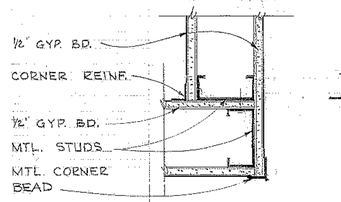
GYP. BD. PTN. AT ROOF DECK



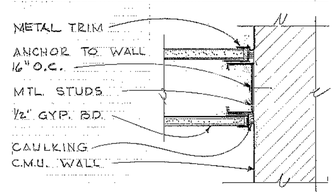
GYP. BD. AT WDW. JAMB



GYP. BD. PTN. INTERSECTION



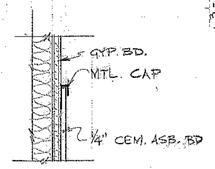
GYP. BD. PTN. AT CORNER



GYP. BD. PTN. AT C.M.U

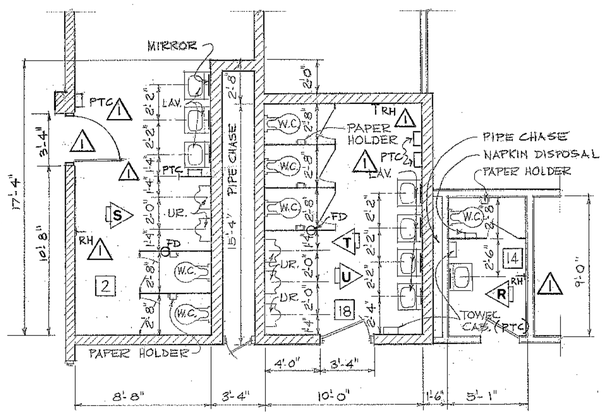
WALL DETAILS

SCALE 3" = 1'-0"

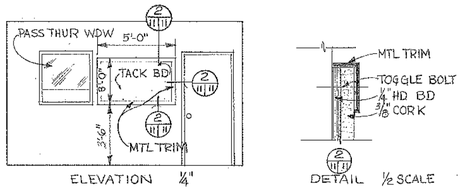


CEM. ASB. BD WAINSCOT DET.

SCALE: 3" = 1'-0"

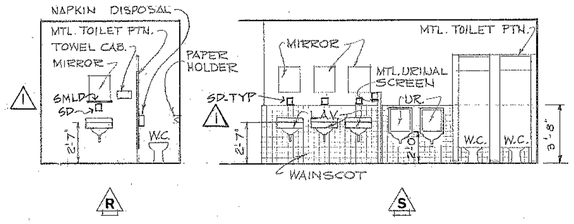


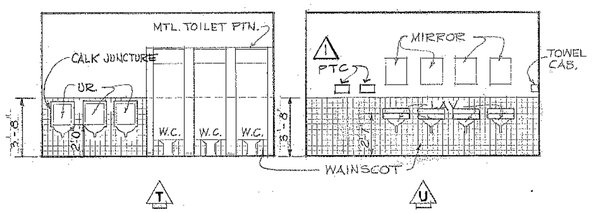
FLOOR PLAN



RM #11 TACK BOARD DETAILS

SCALE AS NOTED





ELEVATIONS

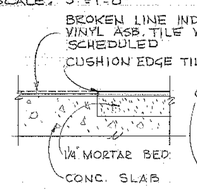
TOILET ROOM DETAILS

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

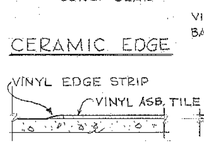
GRAPHIC SCALES

1/4" = 1'-0" 4' 2' 0' 4' 8'

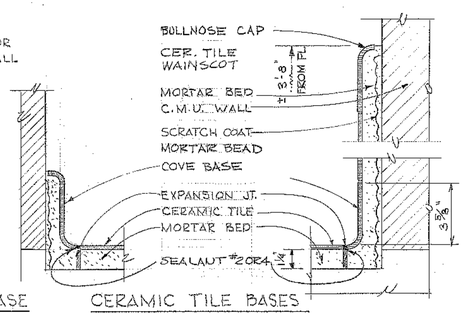
3" = 1'-0" 3" 0" 3" 6" 9" 12"



CERAMIC EDGE



VINYL EDGE VINYL BASE



CERAMIC TILE BASES
JOINT TYPE MJ1

EDGE DET.

SCALE 3" = 1'-0"

BASE DETAILS

SCALE 3" = 1'-0"

REVISION	DATE	DESCRIPTION	BY	BY
1	9-25-73	CLARIFIED TOIL. ACCESSORIES, RELOCATED DOOR	RAP	RAP

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: RAP
DRAWN: LWT RAP
CHECKED: BL

MALMSTROM AIR FORCE BASE MONTANA

AUTOMOTIVE MAINTENANCE SHOP

INTERIOR ELEV. & DET.

SUBMITTED: 882

DATE APPROVED: 22 AUG 1973

SCALE: AS NOTED SPEC. No. 4506

SHEET 11 FILE No. 225-25-20

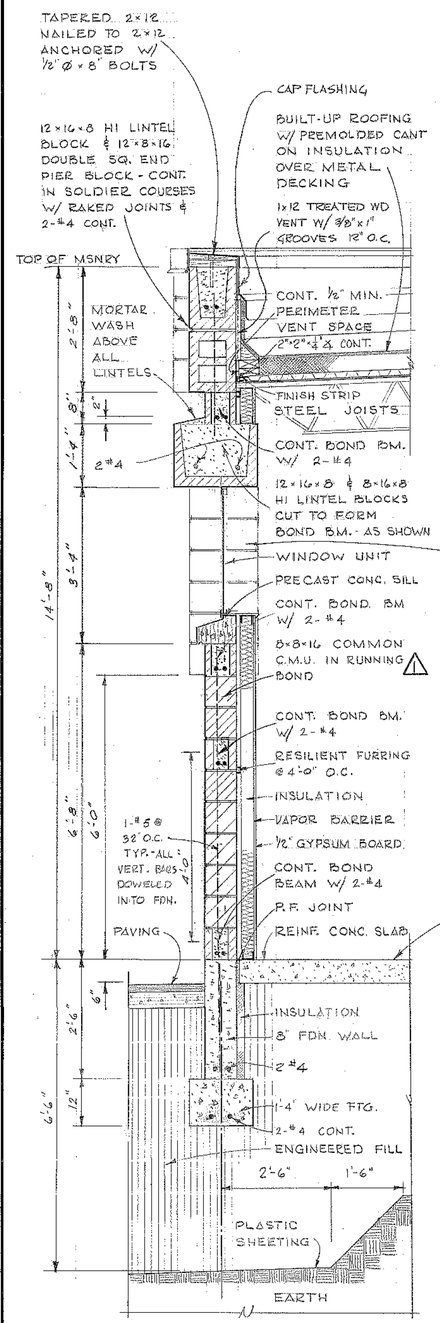
Drawer 75 Bldg. 882 Sheet 15

DE 75 B-882 SH 15

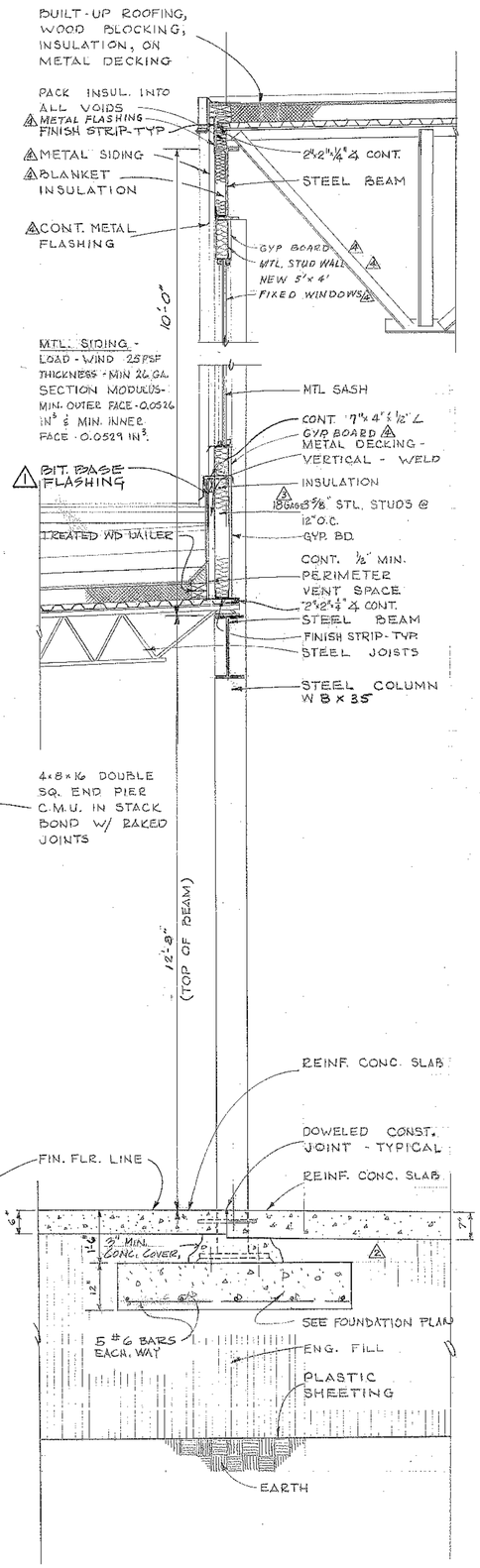
Amend No 1

ENVIRONMENTAL ENHANCEMENT THRU ENGINEERING

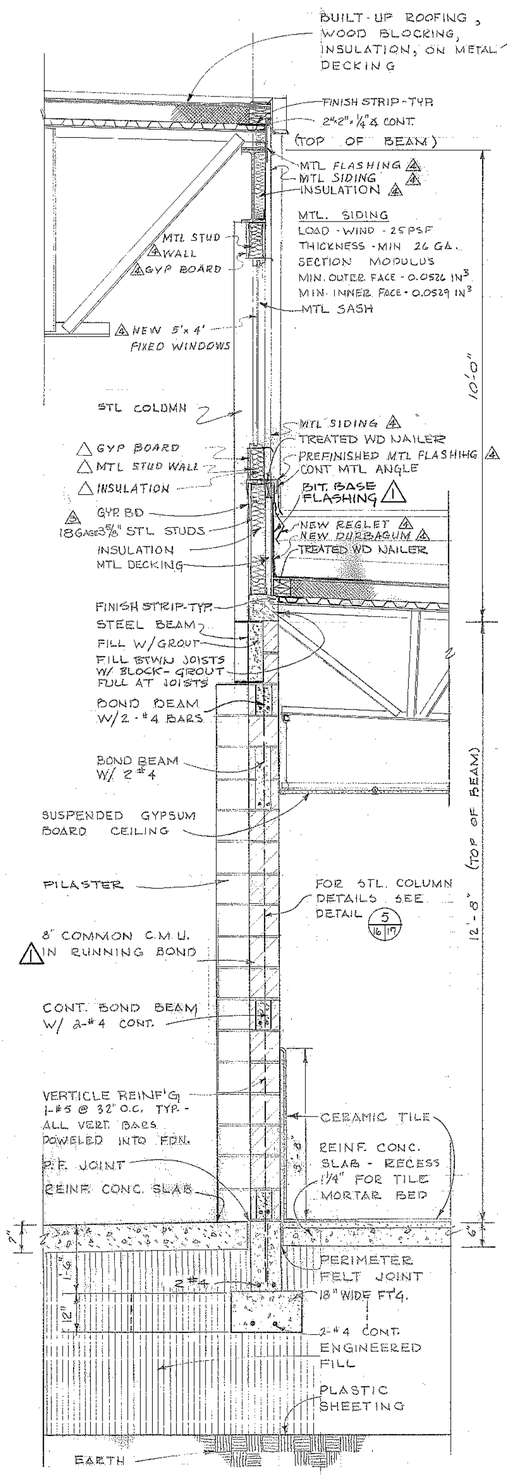
GPO 792-209



1 / 8|12 WALL SECTION
SCALE 3/4" = 1'-0"

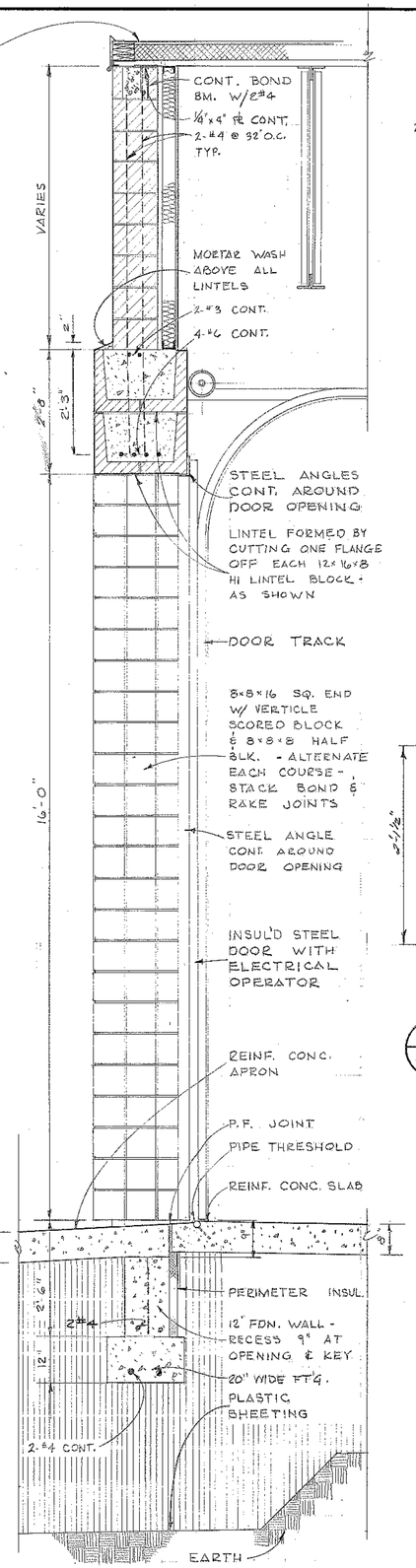


2 / 8|12 WALL SECTION
SCALE 3/4" = 1'-0"



NOTE:
ALL FOOTINGS SHALL HAVE MIN. OF 2-#4 BARS CONT.

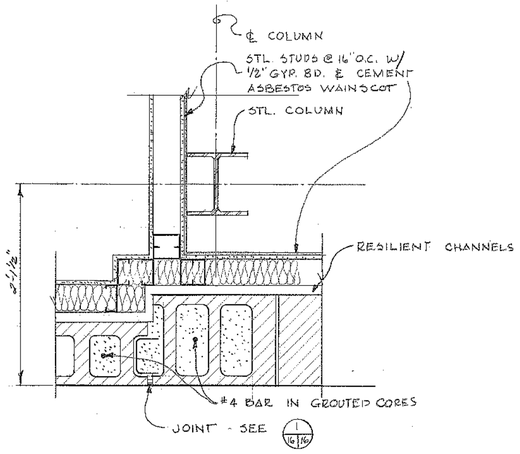
3 / 8|12 WALL SECTION
SCALE 3/4" = 1'-0"



4 / 8|12 WALL SECTION
SCALE 3/4" = 1'-0"

GENERAL NOTE:

1. ALL WOOD NAILERS & VENTS SHALL BE TREATED
2. GROOVE VENTS & NAILERS 12" O.C. W/ 3/8" × 1" GROOVES



5 / 8|12 WALL DETAIL
SCALE 1 1/2"

GRAPHIC SCALE
3/4" = 1'-0"

REVISION	DATE	DESCRIPTION	BY	BY
4	7 NOV 96	WINDOW REPLACEMENT ~ SABER DO # 5163	JRC/RAP	AK
3	10-15-75	ADDED "18 GAGE", & "12" O.C."		SL
2	2-18-74	REVISE COL. BASE TO AGREE WITH 5/17	RWD	RAP
1	7-25-73	CLARIFIED CMU JOINTS & BASE FLASHING	ABP	MAM

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

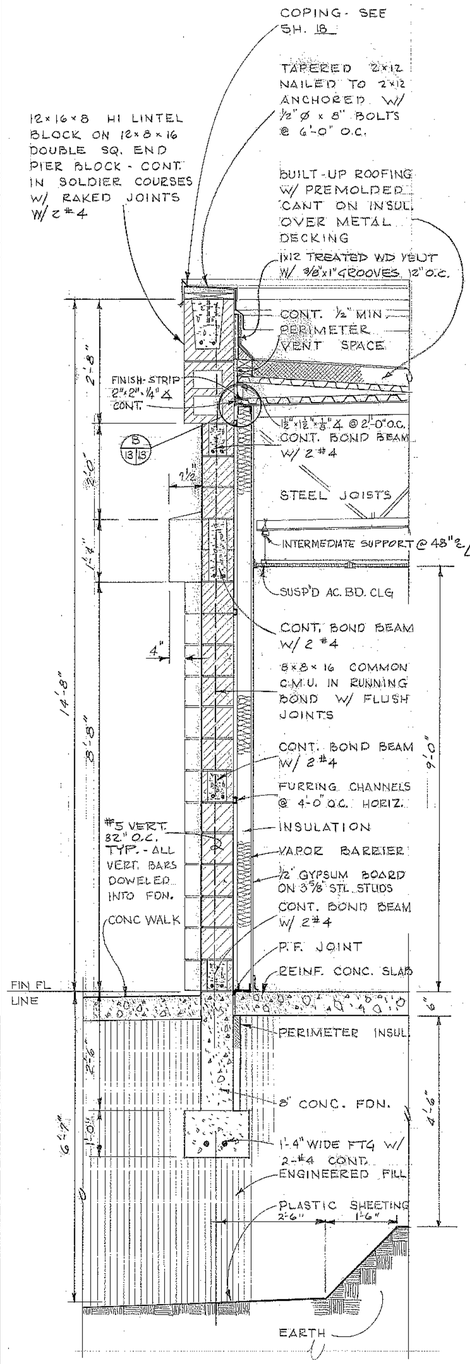
DESIGNED: RAP
DRAWN: RAP
CHECKED: BL
SUBMITTED: 882
DATE APPROVED: 27 AUG 1973

MALMSTROM AIR FORCE BASE MONTANA

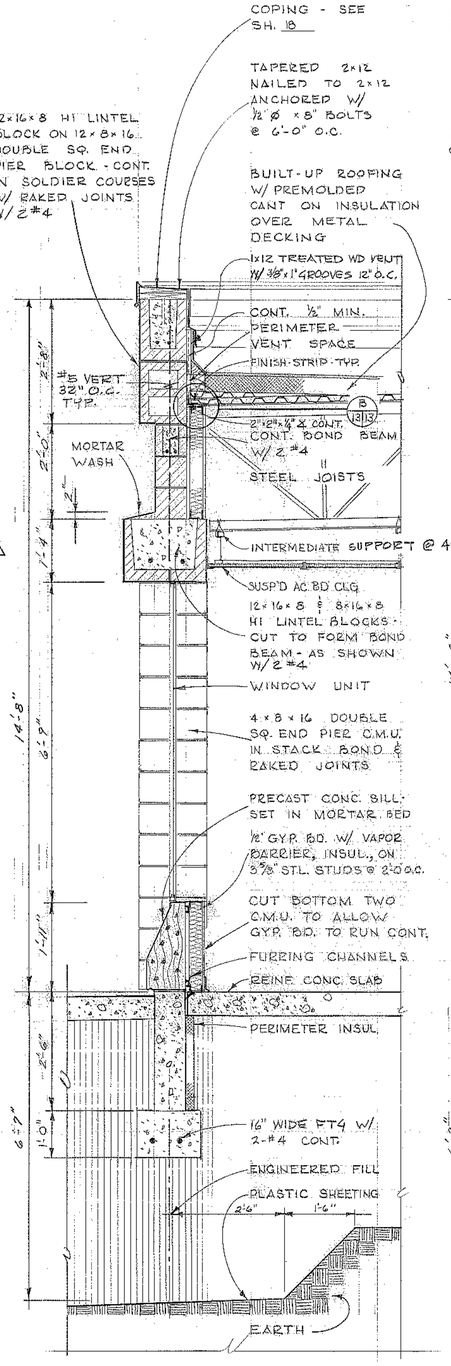
AUTOMOTIVE MAINTENANCE SHOP
WALL SECTIONS

SCALE: 3/4"=1'-0" SPEC. No. 4506
SHEET 12
FILE No. 225-25-20

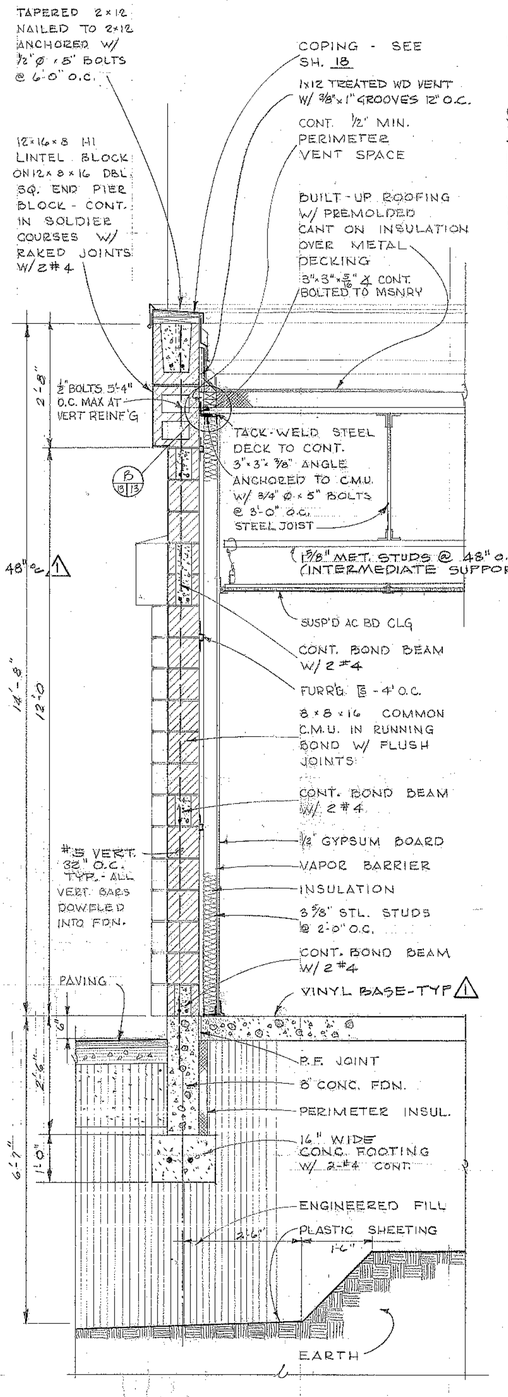
ENVIRONMENTAL ENHANCEMENT THRU ENGINEERING



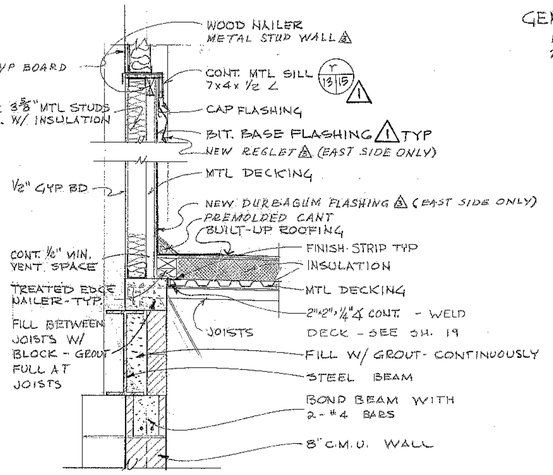
5 / 8|13 WALL SECTION
SCALE 3/4" = 1'-0"



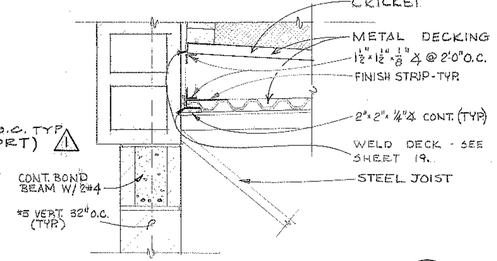
6 / 8|13 WALL SECTION
SCALE 3/4" = 1'-0"



7 / 8|13 WALL SECTION
SCALE 3/4" = 1'-0"



C / 10|13 CONNECTION DETAIL



DECK-WALL JOINT B / 13|13

GENERAL NOTES:
1. ALL WOOD NAILERS & VENTS SHALL BE TREATED WD.
2. GROOVE VENTS & NAILERS 12" O.C. W/ 3/8"×1" GROOVES

GRAPHIC SCALES
3/4" = 1'-0"
1" = 1'-0"

REVISION	DATE	DESCRIPTION	BY	BY
2	7NOV 84	WINDOW REPLACEMENT ~ SABER DO # 5163	JPC	AK
2	10-15-75	ADDED "18 GAGE" & "@ 12" O.C."	S.L.	
1	9-25-73	MISC. CLARIFICATIONS	ABP	NAW

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: RAP
DRAWN: RAP
CHECKED: BL

MALMSTROM AIR FORCE BASE MONTANA

AUTOMOTIVE MAINTENANCE SHOP

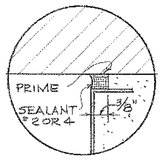
WALL SECTIONS

SUBMITTED: 882
DATE APPROVED: 27 AUG 1973
SCALE: AS NOTED
SPEC. No. 4506
SHEET 13
FILE No. 225-25-20

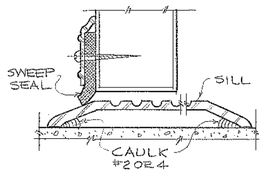
Drawer 75 Bldg. 882 Sheet 13

DR 75 B-882 SA 13

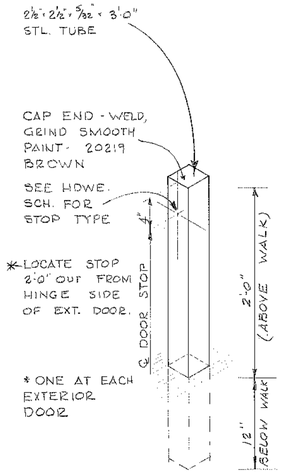
Amend No. 1



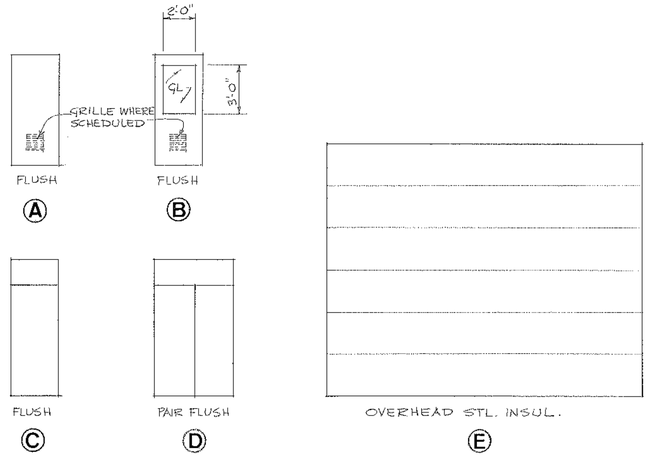
DOOR FRAME CAULKING - TJD
NO SCALE



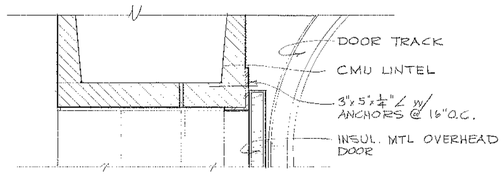
SILL - TJD
NO SCALE



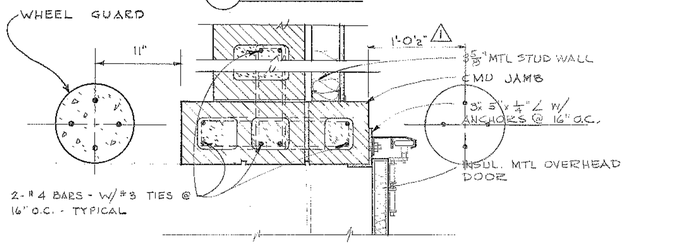
EXT. DOOR STOP
NO SCALE



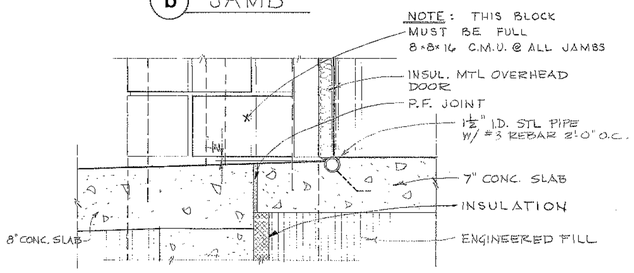
DOOR TYPES
NO SCALE



a HEAD

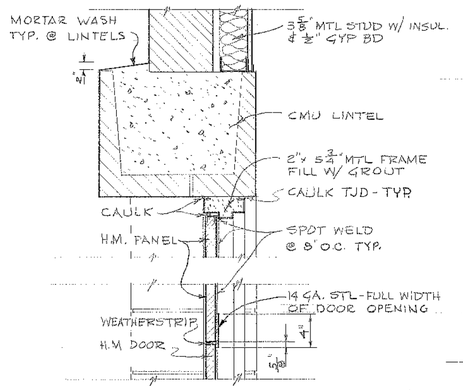


b JAMB

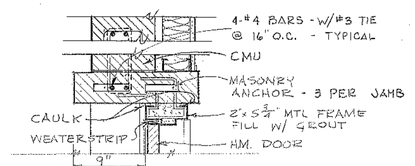


c SILL

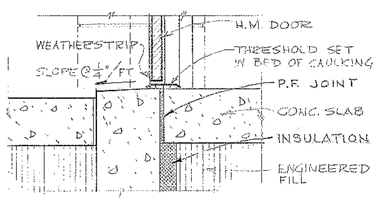
OVERHEAD DOOR DETAILS
SCALE: 1½" = 1'-0"



d HEAD

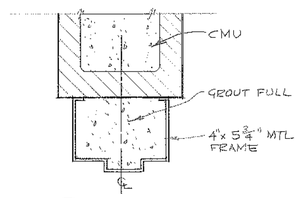


e JAMB

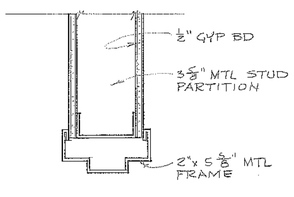


f SILL

EXT. DOOR DETAILS
SCALE: 1½" = 1'-0"



g HEAD



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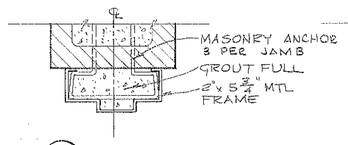
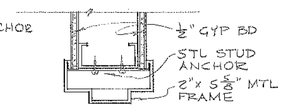
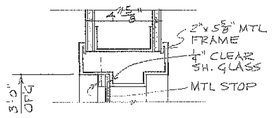


h JAMB



j JAMB

INT. DOOR DETAILS
SCALE: 3" = 1'-0"



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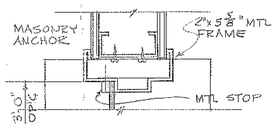
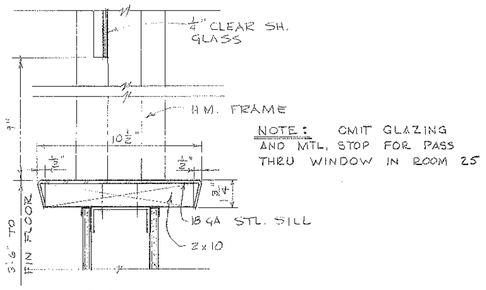


JAMB



SILL

PASS THRU WINDOW DETAILS - TYPICAL
SCALE: 3" = 1'-0"

GRAPHIC SCALES
1-1/2" = 1'-0" 1' 0' 1'
3" = 1'-0" 3" 0" 3" 6" 9" 12"

DOOR SCHEDULE

NO	TYPE	SIZE W	SIZE H	SIZE T	MATL	FINISH	FR MATL	HDW	GRILLE	KEY	DETAILS H	DETAILS J	DETAILS S	REMARKS
1	C	3°	7°	1 3/4	HM	PTD	HM	HW1		A	d	e	f	
2	B	3°	7°	1 3/4	HM	PTD	HM	HW2			i	j		
3	B	3°	7°	1 3/4	HM	PTD	HM	HW3			i	j		
4	B	3°	7°	1 3/4	HM	PTD	HM	HW3			i	j		
5	B	3°	7°	1 3/4	HM	PTD	HM	HW4		B	i	j		
6	A	3°	7°	1 3/4	HM	PTD	HM	HW4	10"x10"	B	i	j		SOUND INSUL
7	B	3°	7°	1 3/4	HM	PTD	HM	HW4	12"x12"	B	i	j		
8	B	3°	7°	1 3/4	HM	PTD	HM	HW4	12"x12"	B	i	j		
9	B	3°	7°	1 3/4	HM	PTD	HM	HW3	18"x18"		i	j		
10	B	3°	7°	1 3/4	HM	PTD	HM	HW4	10"x10"	B	i	j		
11	B	3°	7°	1 3/4	HM	PTD	HM	HW4	10"x10"	B	i	j		
12	A	3°	7°	1 3/4	HM	PTD	HM	HW5	10"x10"	C	i	j		
13	B	3°	7°	1 3/4	HM	PTD	HM	HW4	12"x12"	B	i	j		
14	A	2⁶	7°	1 3/4	HM	PTD	HM	HW3			i	j		
15	A	2⁶	7°	1 3/4	HM	PTD	HM	HW4		B	i	j		
16 PR	D	2⁶	7°	1 3/4	HM	PTD	HM	HW6		D	d	e	f	
17	B	3°	7°	1 3/4	HM	PTD	HM	HW4	10"x10"	B	i	j		
18	A	2⁶	7°	1 3/4	HM	PTD	HM	HW7	10"x10"		i	j		
19	A	3°	7°	1 3/4	HM	PTD	HM	HW7	12"x12"		g	h		
20	B	3°	7°	1 3/4	HM	PTD	HM	HW4	12"x12"	B	i	j		
21	A	3°	7°	1 3/4	HM	PTD	HM	HW8		A	g	h		"B" LABEL
22	A	1⁶	7°	1 3/4	HM	PTD	HM	HW5		C	g	h		
23 PR	D	2⁶	7°	1 3/4	HM	PTD	HM	HW6		H	d	e	f	DO NOT MASTER KEY
24	C	3°	7°	1 3/4	HM	PTD	HM	HW9		E	d	e	f	8"x20" JAMB △1
25	A	3°	7°	1 3/4	HM	PTD	HM	△1 HW2			g	h		"B" LABEL
26	A	3°	7°	1 3/4	HM	PTD	HM	△1 HW2			g	h		"B" LABEL
27	C	3°	7°	1 3/4	HM	PTD	HM	HW9		E	d	e	f	
28	C	3°	7°	1 3/4	HM	PTD	HM	HW9		E	d	e	f	8"x20" JAMB △1
29	E	20°	16°		STL	PTD	STL ℄	BY MFG		BY MFG	a	b	c	INSUL.
30	E	20°	16°		STL	PTD	STL ℄	BY MFG		BY MFG	a	b	c	INSUL.
31	C	3°	7°	1 3/4	H.M.	PTD	HM	HW9		E	d	e	f	8"x20" JAMB △1
32	B	3°	7°	1 3/4	HM	PTD	HM	HW5		F	i	j		
33	B	3°	7°	1 3/4	HM	PTD	HM	HW5		F	i	j		
34 PR	D	2⁶	7°	1 3/4	HM	PTD	HM	HW6		G	d	e	f	
35	A	3°	7°	1 3/4	HM	PTD	HM	HW3			i	j		
36	C	2⁶	6⁸	1 3/8	HW	PTD	HW			BY MFG	D	e	f	
37	B	3°	7°	1 3/4	WD		WD	SANDEY PT79		FALCON CAUCL				
38	B	3°	7°	1 3/4	WD		WD	SANDEY PT79		FALCON CAUCL				

REVISION	DATE	DESCRIPTION	BY	BY
△2	26 MAY 87	ADDED DOORS 37 & 38 TO DOOR SCH. W.O. 40701	WJZ	WL
△1	10-15-75	ADDED RT. WHEEL GUARD 2"WASH" & 8"x2"WASH" 8"x20" JAMB	SL	

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: RAP
DRAWN: LWT
CHECKED: BL

MALMSTROM AIR FORCE BASE — MONTANA

AUTOMOTIVE MAINTENANCE SHOP

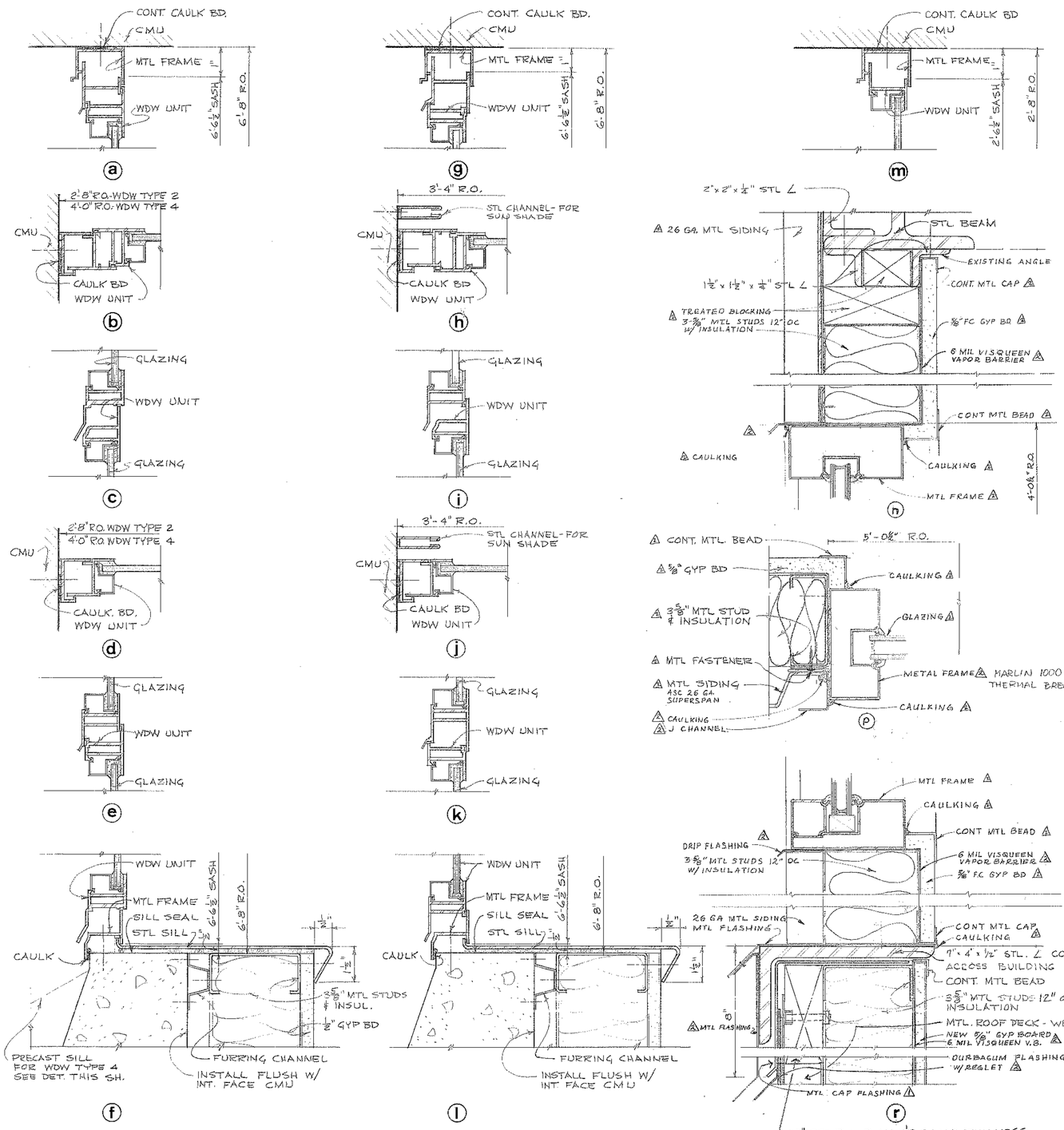
DOOR DETAILS

SUBMITTED: 882
DATE APPROVED: 27 AUG 1973
SCALE: AS NOTED
SPEC. No. 4506
SHEET 14
FILE No. 225-25-20

ENVIRONMENTAL ENHANCEMENT THRU ENGINEERING

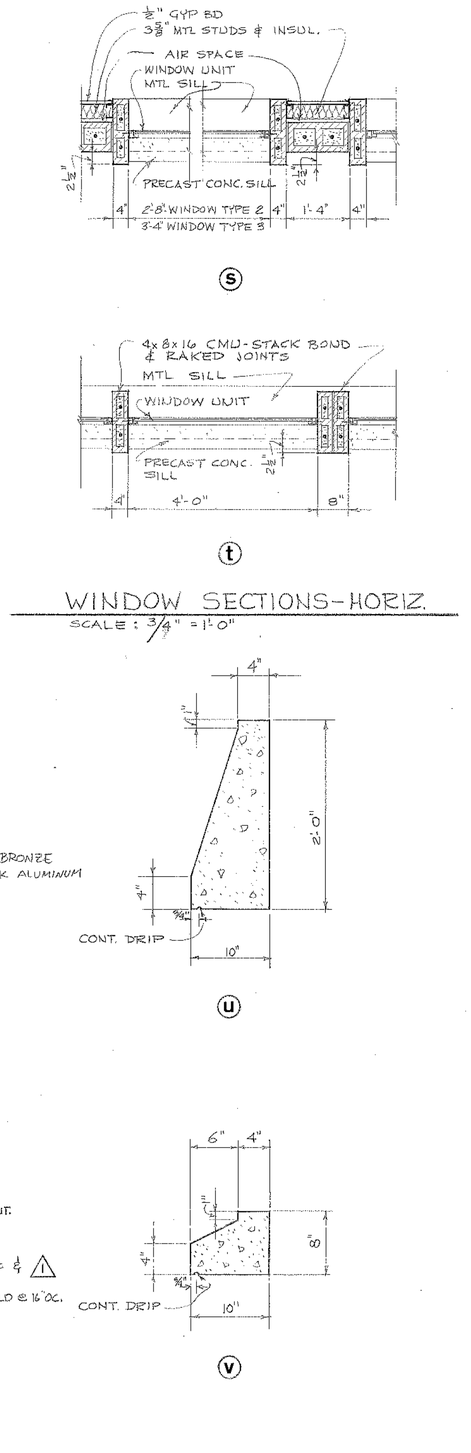
Drawer 75 Bldg. 882 Sheet 12
DE 75 B-882 SH 12
GPO 792-309

ENVIRONMENTAL ENHANCEMENT THRU ENGINEERING



METAL WINDOW DETAILS
1/2 SCALE

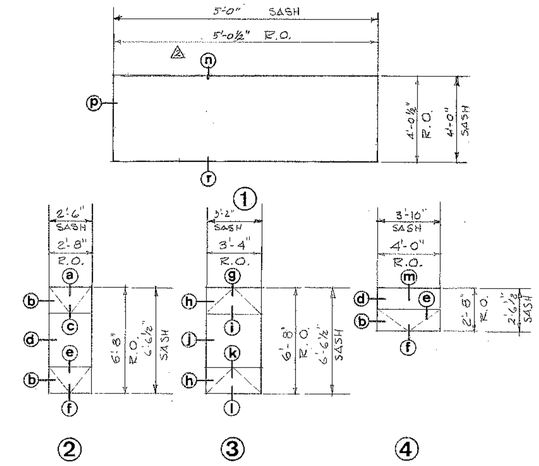
NOTE: ALL CAULKING NOTED THIS SHEET IS SEALANT # 2



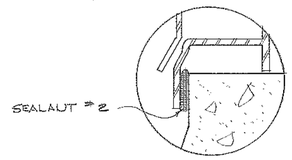
WINDOW SECTIONS-HORIZ.
SCALE: 3/4" = 1'-0"

PRECAST SILL DETAILS
SCALE: 1 1/2" = 1'-0"

TYPE	SIZE W	SIZE H	FR. MATL	FINISH	GLAZING	STOOL	DETAILS H	DETAILS J	DETAILS S	DETAILS M	REMARKS
1	5'-0"	4'-0"	AL		WIRE GL. 1" THERMOPANE	r	n	p	r	o	SEE BLDG ELEV.
2	2'-6"	6'-6½"	AL		CLR. SH.	f	a	s	u	s	
3	3'-2"	6'-6½"	AL		CLR. SH.	l	g	s	u	s	
4	3'-10"	2'-6½"	AL		CLR. SH.	f	m	t	v	t	



WINDOW TYPES
NO SCALE



JOINT TYPE TJB
NO SCALE

GRAPHIC SCALES

3/4" = 1'-0"
1-1/2" = 1'-0"
6" = 1'-0"

REVISION	DATE	DESCRIPTION	BY	BY
2	7 NOV 94	WINDOW REPLACEMENT ~ SABER DO # 5163	TRA	AK
1	9-25-73	CLARIFIED SILL DET.	ABP	MTA

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

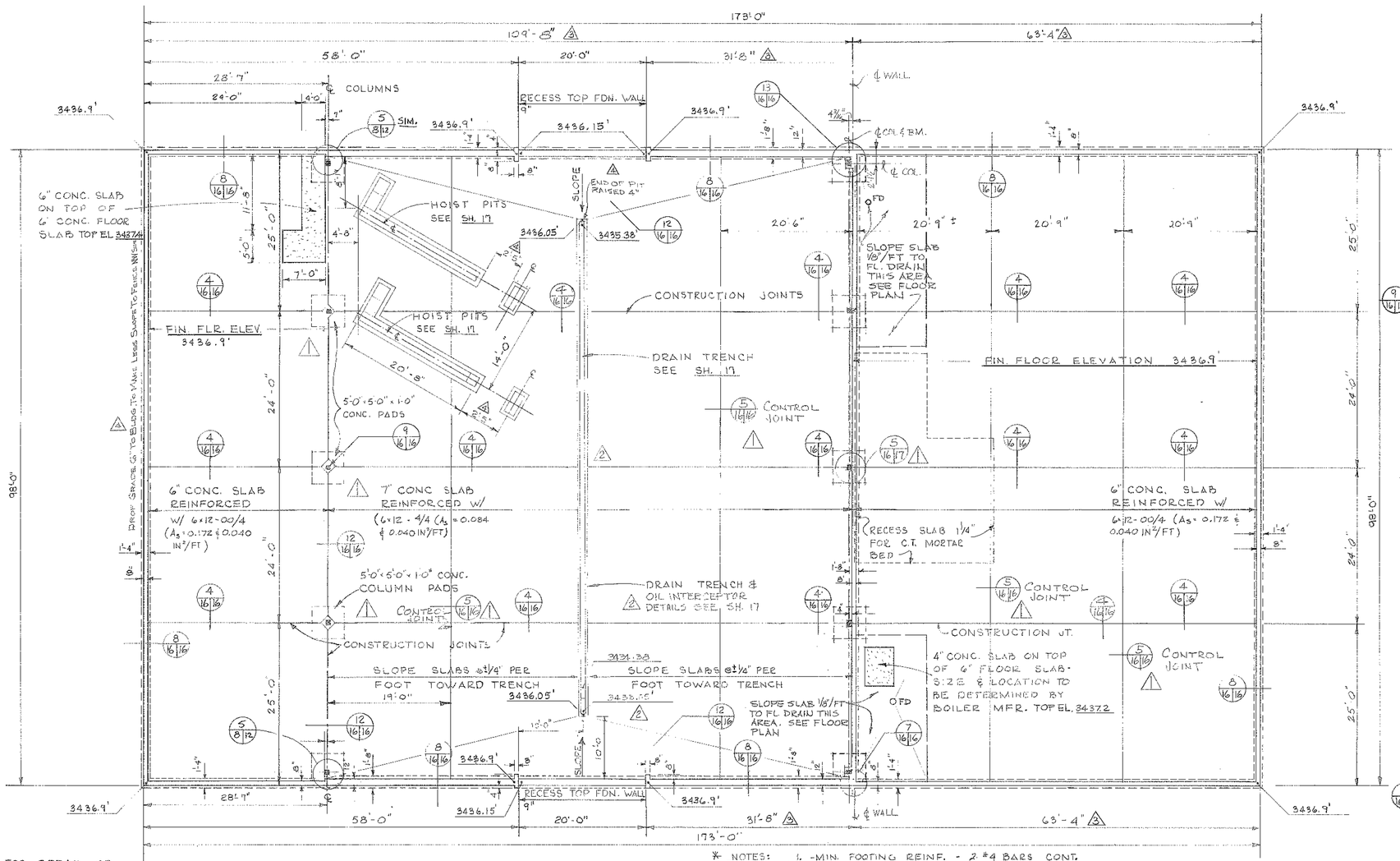
DESIGNED: RAP
DRAWN: LWT
CHECKED: BL

MALMSTROM AIR FORCE BASE MONTANA
AUTOMOTIVE MAINTENANCE SHOP
WINDOW DETAILS

SUBMITTED: 882
DATE APPROVED: 27 AUG 1973
SCALE: AS NOTED
SPEC. No. 4506
SHEET 15
FILE No. 225-25-20

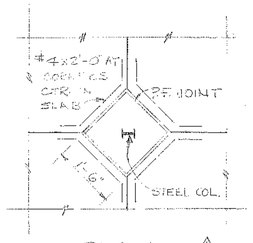
Drawer 75 Bldg. 882 Sheet 11

DR 75 B-882 SH 11 Amend No. 1



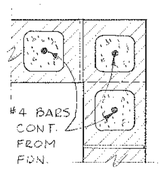
SLAB & FOUNDATION PLAN
SCALE 1/8" = 1'-0"

* NOTES:
1. -MIN. FOOTING REINF. - 2 #4 BARS CONT.
2. -ALL VERT. BARS WILL BE DOWELED INTO FDN. WALL.
3. - FOR ALL EXT. WALLS & STRUCTURAL PTN, PROVIDE MIN. 1-#4 DEFORMED BAR ON ALL SIDES OF & ADJACENT TO EVERY OPENING WHICH EXCEEDS 24" IN EITHER DIRECTION

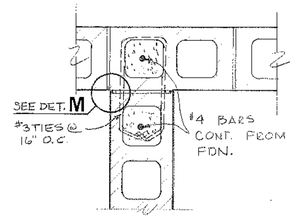


PLAN

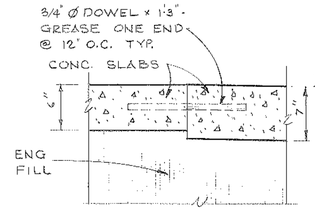
9/16|16 STEEL COLUMN-BLOCK-OUT DETAILS
NO SCALE



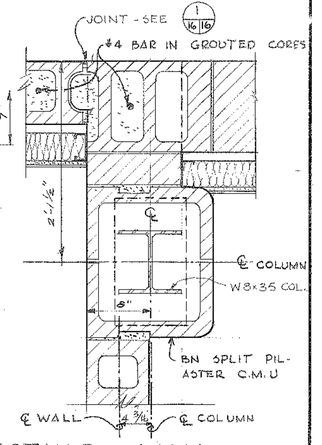
10/16|16 EXT. CORNER
NO SCALE



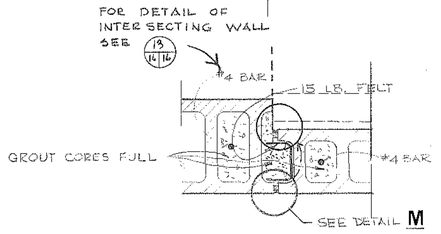
11/16|16 INTERSECTING PTN.
NO SCALE



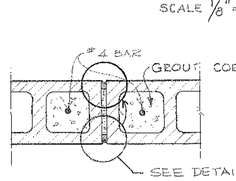
12/16|16 DOWELED CONST. JOINT
NO SCALE



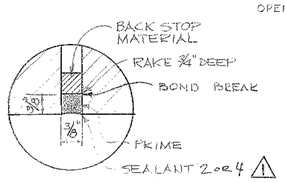
13/16|16 INTERSECTING WALL



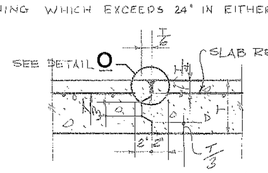
1/16|16 12" CMU TO 8" CMU MICHIGAN TYPE JOINT



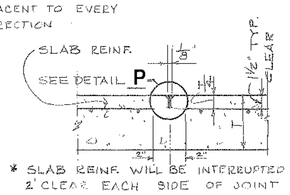
2/16|16 INT. - MJL



DETAIL M
NO SCALE

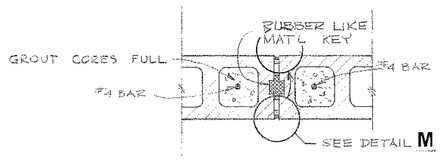


4/16|16 CONSTRUCTION

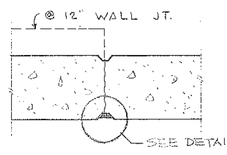


* SLAB REINF. WILL BE INTERRUPTED 2" CLEAR EACH SIDE OF JOINT

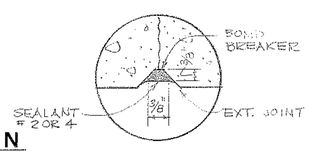
5/16|16 CONTROL JOINT



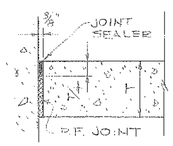
6/16|16 EXT. - MJAB



7/16|16 FOUNDATION-MJO



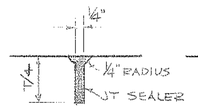
DETAIL N
NO SCALE



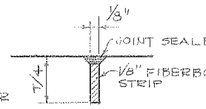
8/16|16 EXPANSION JOINT

CONTROL JOINT DETAILS
SCALE: 1½" = 1'-0"

FLOOR SLAB JOINT DETAILS
SCALE: 1½" = 1'-0"



DETAIL O
NO SCALE



DETAIL P
NO SCALE

GRAPHIC SCALES
1/8" = 1'-0"
1-1/2" = 1'-0"

NOTE: JOINT DETAILS FROM DWG. 150-25-1006

REVISION	DATE	DESCRIPTION	BY	BY
A	10/15/76	2'S WAS 6'-6"; ADDED 2 NOTES	SL	
3	3/18/74	REVISED DIMENSIONS TO AGREE WITH APPR. PLANS	LWT	RAP
2	19 OCT 73	REVISED CAIN TRENCH & OIL INTERCEPTOR DETAILS	TWJ	RAP
1	11/5/72	REVISED DETAIL SECTIONS [illegible]	[illegible]	[illegible]

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

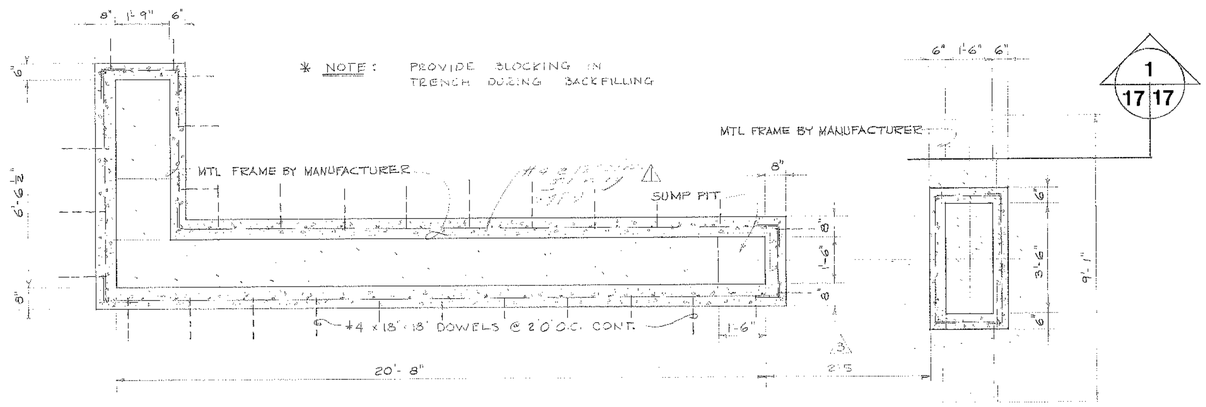
DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: RAP
DRAWN: LWT RAP
CHECKED: BL
SUBMITTED: 882
DATE APPROVED: 27 AUG 1973

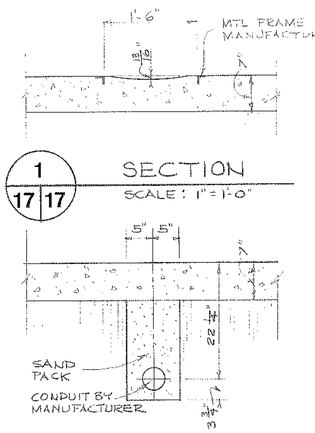
MALMSTROM AIR FORCE BASE MONTANA
AUTOMOTIVE MAINTENANCE SHOP
FOUNDATION PLAN

SCALE: 1/8" = 1'-0" SPEC No. 4506
SHEET 16 FILE No. 225-25-20

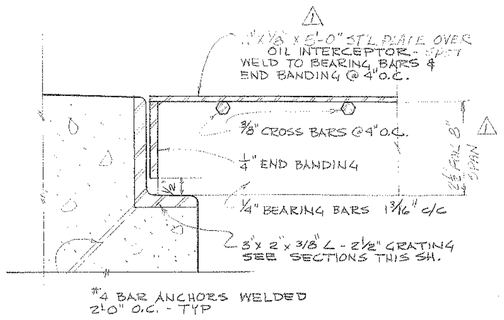
DR 75 B-882 SH 10



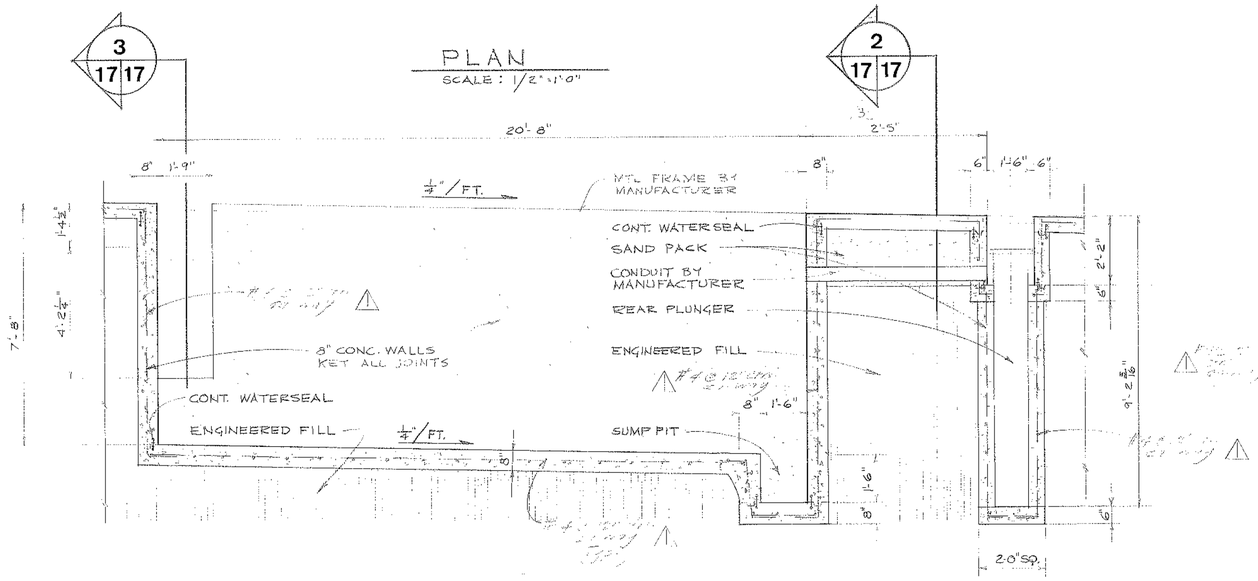
PLAN
SCALE: 1/2" = 1'-0"



SECTION
SCALE: 1" = 1'-0"

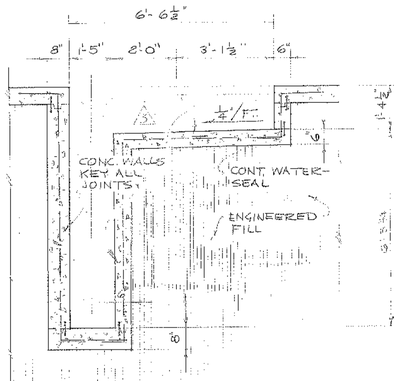


STEEL GRATING DETAIL
HALF SCALE

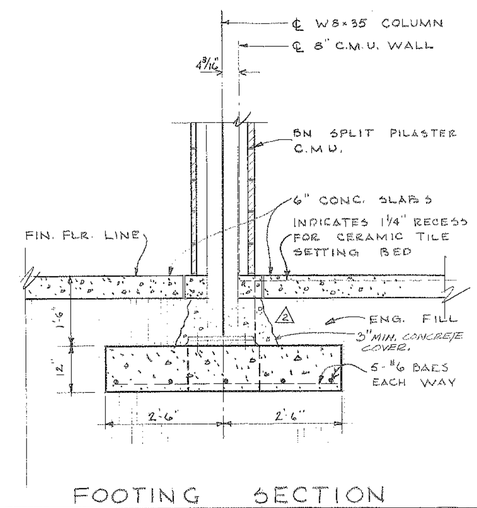


ELEVATION
SCALE: 1/2" = 1'-0"

NOTE: CONT. VERIFY ALL DIMENSIONS W/ LIFT MANUFACTURER

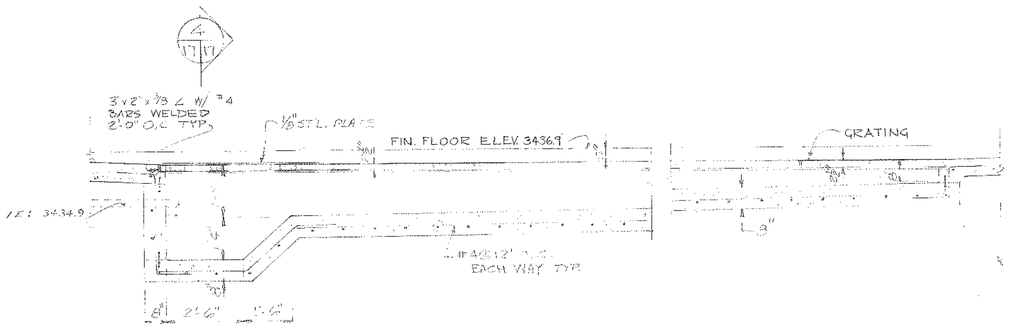


3 17 17 SECTION
SCALE: 1/2" = 1'-0"

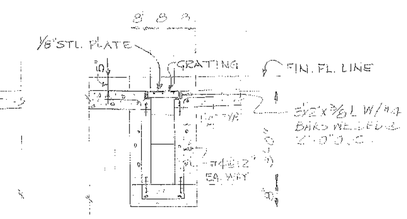


5 14 17 FOOTING SECTION
SCALE 3/4" = 1'-0"

LIFT TRENCH DETAILS

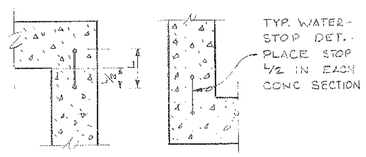


SECTION THRU SAND & OIL INTERCEPTOR
SCALE: 1/2" = 1'-0"



NOTE: WELD 1" x 1/4" x 5'-0" STL. PLATE TO GRATING OVER INTERCEPTOR & PROVIDE 2-1" HOLES FOR REMOVABLE PANEL.

4 17 17 SECTION
SCALE: 1/2" = 1'-0"



WATERSTOP DETAILS
NO SCALE

GRAPHIC SCALES
1/2" = 1'-0"
1" = 1'-0"

REVISION	DATE	DESCRIPTION	BY	BY
4	10/6/75	2'-5" WAS 6'-6"; FILLED IN CONTRACTOR ACCESS	SL	
3	3/18/74	CLARIFIED COLUMN BASE DETAIL.		
1	4/10/72	[illegible]		
		REVISED OIL INTERCEPTOR DETAILS & GRATING		

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: RAP
DRAWN: LWT
CHECKED: BL

MALMSTROM AIR FORCE BASE MONTANA

AUTOMOTIVE MAINTENANCE SHOP

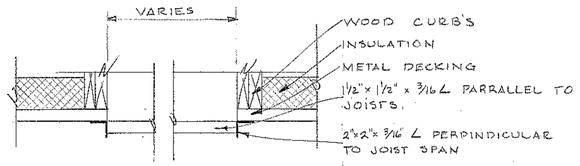
TRENCH & PIT DETAILS

SUBMITTED: 882
DATE APPROVED: 27 JUL 1972
SCALE: AS NOTED
SPEC. No. 4506
SHEET 17
FILE No. 225-25-20

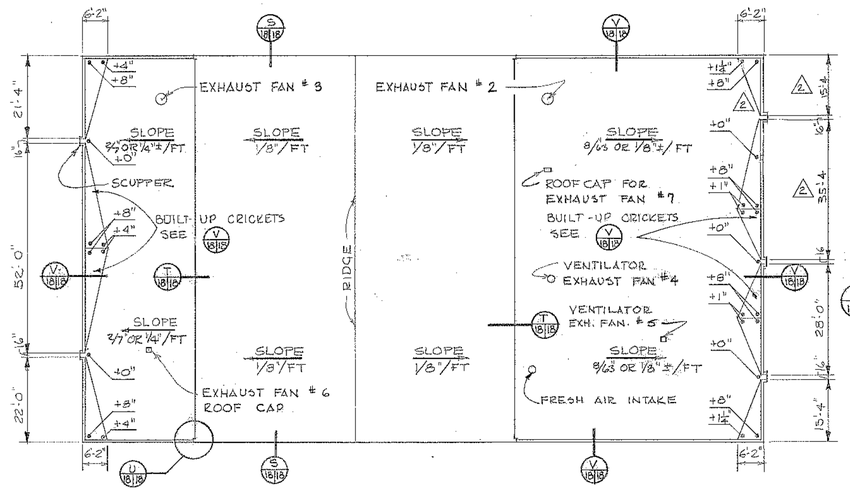
Drawer 75 Bldg. 882 Sheet 9

DR 75 B-882 SH 9

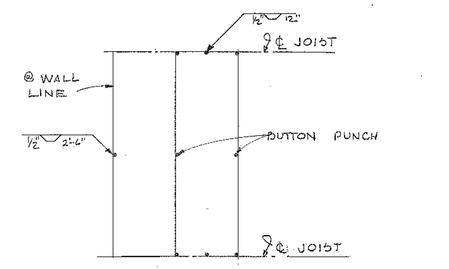
ENVIRONMENTAL ENHANCEMENT THRU ENGINEERING



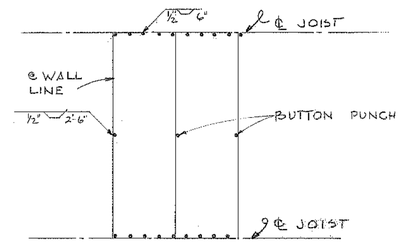
TYP. FRAMING @ ROOF OPENINGS
SCALE - 1½" = 1'-0"



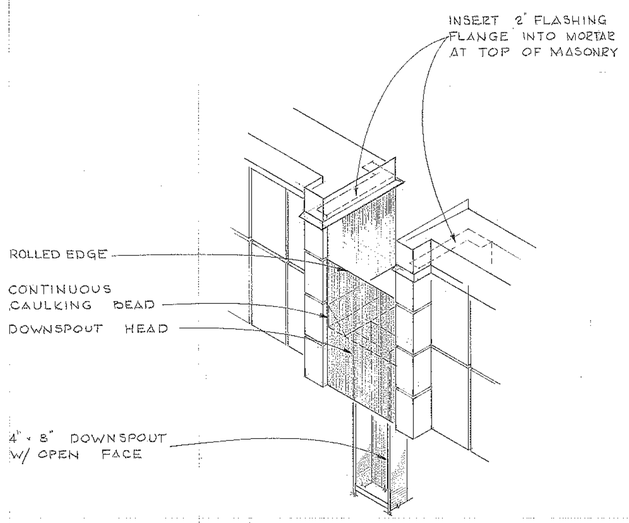
ROOF DRAINAGE PLAN
SCALE : 1/16" = 1'-0"



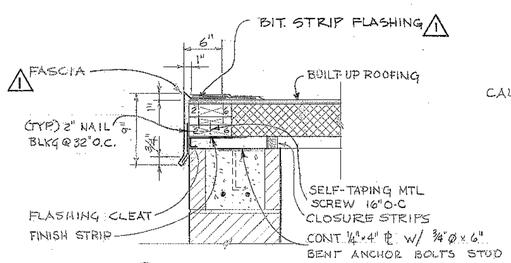
1/17/18 WELD PATTERN - 22 GA. DECK
NOT TO SCALE



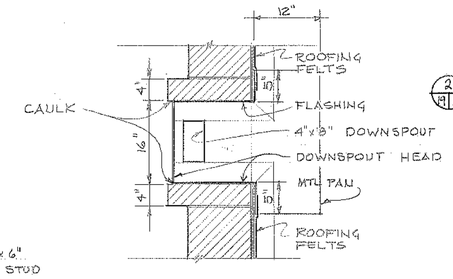
2/18/18 WELD PATTERN - 18 GA. DECK.
NOT TO SCALE



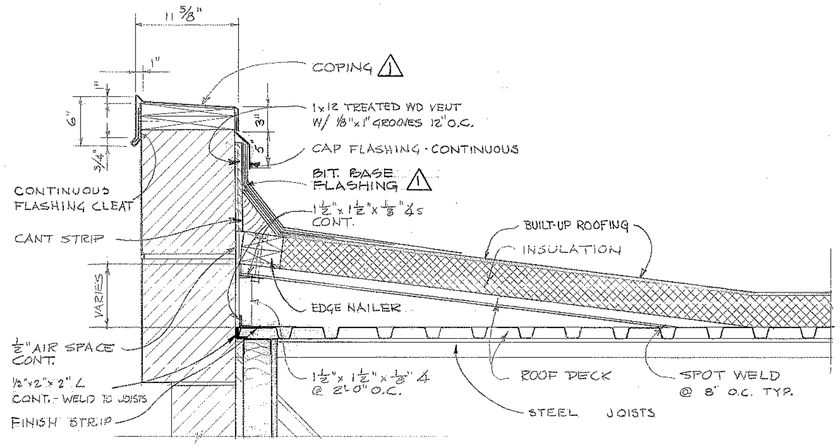
DOWNSPOUT HEAD - ISOMETRIC
NO SCALE



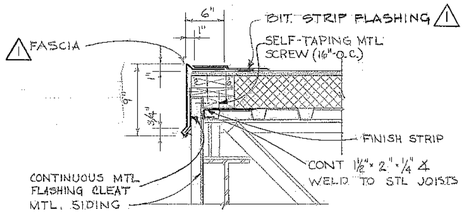
S/18/18 DETAIL



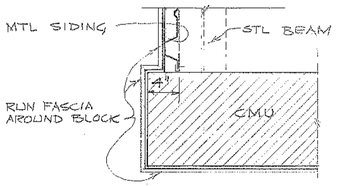
PLAN



V/18/18 COPING & CRICKET DETAIL
SCALE : 1 1/2" = 1'-0"

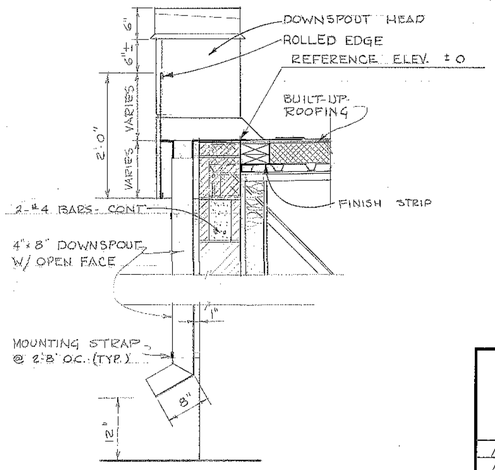


T/18/18 DETAIL



U/18/18 DETAIL

FASCIA DETAILS
SCALE: 1½" = 1'-0"



SECTION

DOWNSPOUT DETAILS
SCALE: 1" = 1'-0"

GRAPHIC SCALES

1/16" = 1'-0"
1" = 1'-0"
1-1/2" = 1'-0"

REVISION	DATE	DESCRIPTION	BY	BY
2	10/16/75	"15'-4" WAS "26'-0"; "35'-4" WAS "24'-8"	SL	
1	9-25-73	CLARIFIED FLASHING DETAILS	APP	

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: RAP
DRAWN: LWT RAP
CHECKED: BL

MALMSTROM AIR FORCE BASE — MONTANA

AUTOMOTIVE MAINTENANCE SHOP

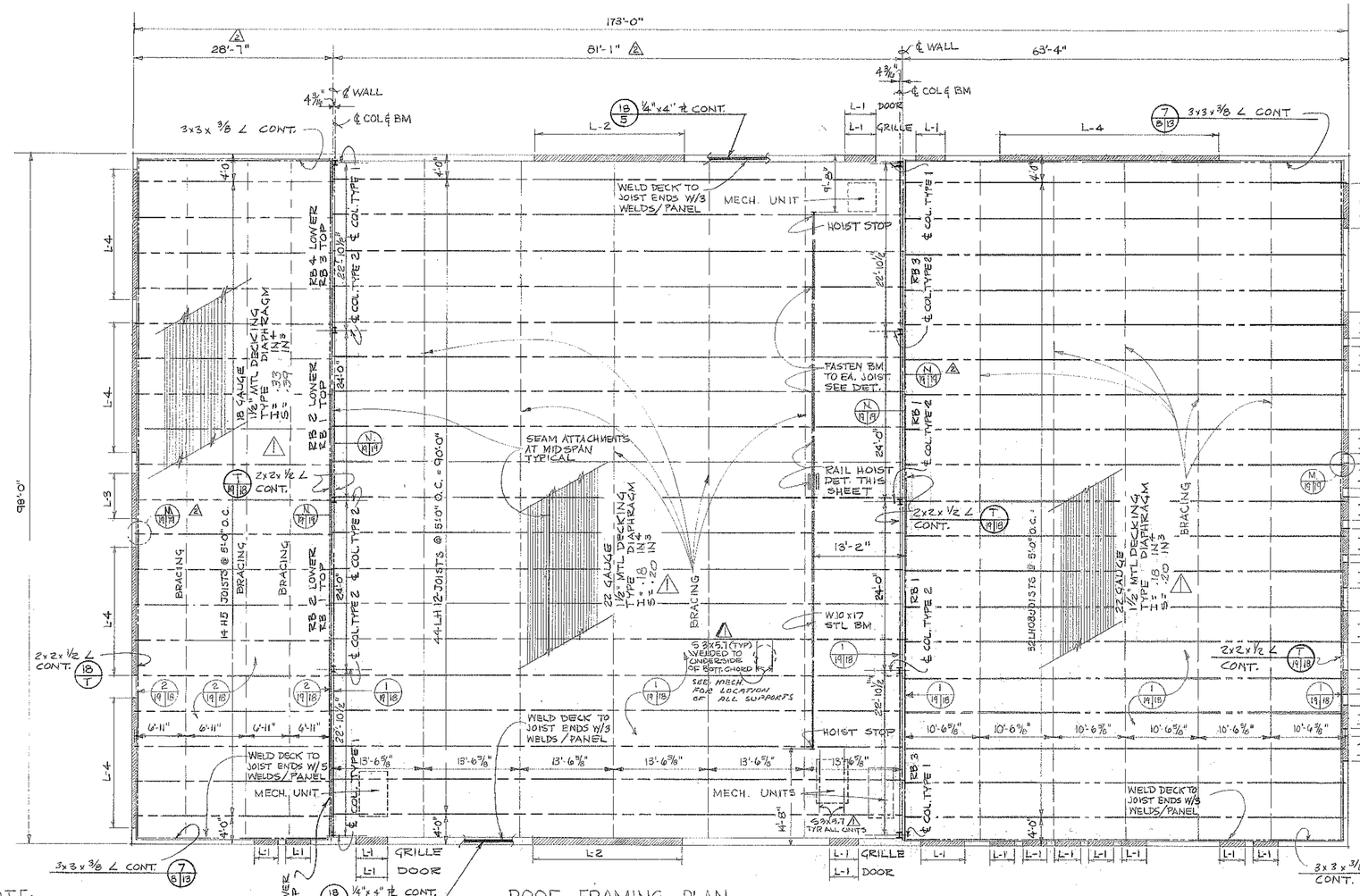
ROOF PLAN

SUBMITTED: 882
DATE APPROVED: 27 AUG 1973
SCALE: AS NOTED
SPEC. No. 4506
SHEET 18
FILE No. 225-25-20

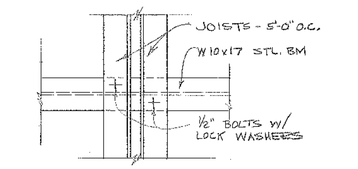
Drawer 75 Bldg. 882 Sheet 6

DE 75 B-882 SH 8 Amend No 1

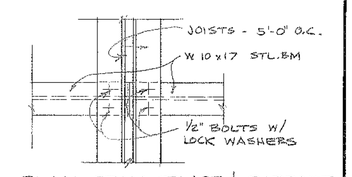
ENVIRONMENTAL ENHANCEMENT THRU ENGINEERING



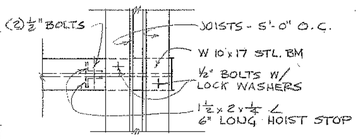
ROOF FRAMING PLAN
SCALE 1/8" = 1'-0"



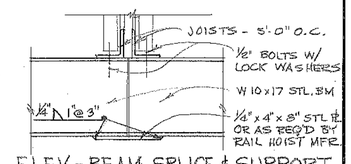
PLAN - INTER. SUPPORT



PLAN - BEAM SPLICE & SUPPORT

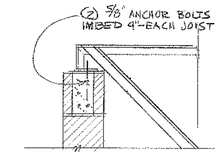


PLAN - END SUPPORT & STOP

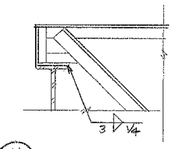


ELEV. - BEAM SPLICE & SUPPORT

BEAM DETAILS - RAIL HOIST
SCALE: 1 1/2" = 1'-0"



M 19/19 DETAIL



N 19/19 DETAIL

TYP. JOIST CONNECTIONS
SCALE: 1" = 1'-0"

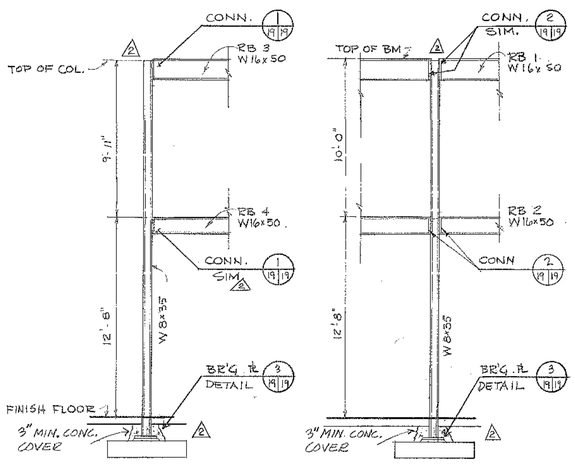
LINTELS	
MARK	REINFORCING 1
L-1	8" #4
L-2	8" #3 #3 STIRRUPS @ 16" CTRS #6
L-3	#3 #3 STIRRUPS @ 8" CTRS #5
L-4	10" #4'S TOP & BOTTOM

1. EXTEND ALL BARS GROUT 16" PAST OPENING. BEND BARS UP 8" AT ENDS

NOTE:
1. SUPPORTS FOR MECH. EQPT. ARE TO BE SUPPLIED BY MECH. CONTRACTOR.

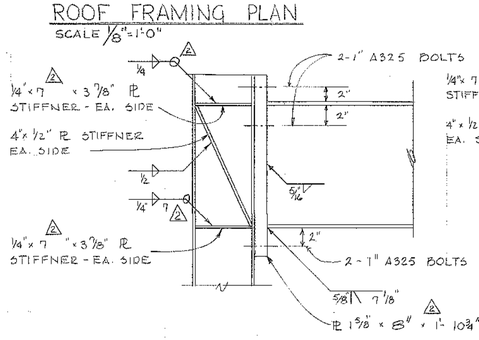
SEISMIC DESIGN DATA
ZONE 2
K = 1.33 BEARING WALL STRUCTURES
Z = 0.50 PER TM5-809-10 TABLE 1-4-1
C = 0.10 PER UBC ONE STORY BUILDING

SEISMIC GOVERNS TRANSVERSLY AND LONGITUDINALLY EXCEPT ON 98.0' WALLS WHERE WIND GOVERNS.

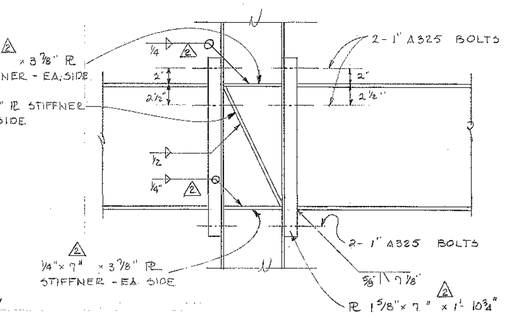


COL. TYPE 1
SCALE: 1/4" = 1'-0"

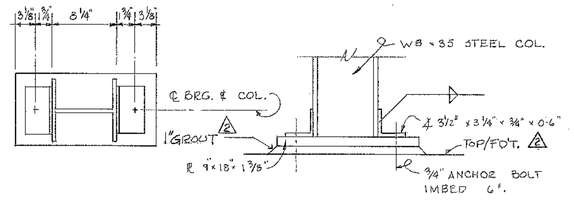
COL. TYPE 2
SCALE: 1/4" = 1'-0"



1 19/19 BEAM CONNECTION
SCALE 1 1/2" = 1'-0"



2 19/19 BEAM CONNECTION
SCALE 1 1/2" = 1'-0"



3 19/19 BEARING PLATE DET.
SCALE 1 1/2" = 1'-0"

GRAPHIC SCALES
1/8" = 1'-0"
1/4" = 1'-0"
3/4" = 1'-0"
1" = 1'-0"
1-1/2" = 1'-0"

REVISION	DATE	DESCRIPTION	BY	BY
2	3/18/74	REVISED DIMENSIONS, BEAM DETAILS & COL. DETAILS	RWD	
1	7/25/73	ADDED MECH. UNITS SUPPORT BEAMS REV. DECKING	EWD	

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

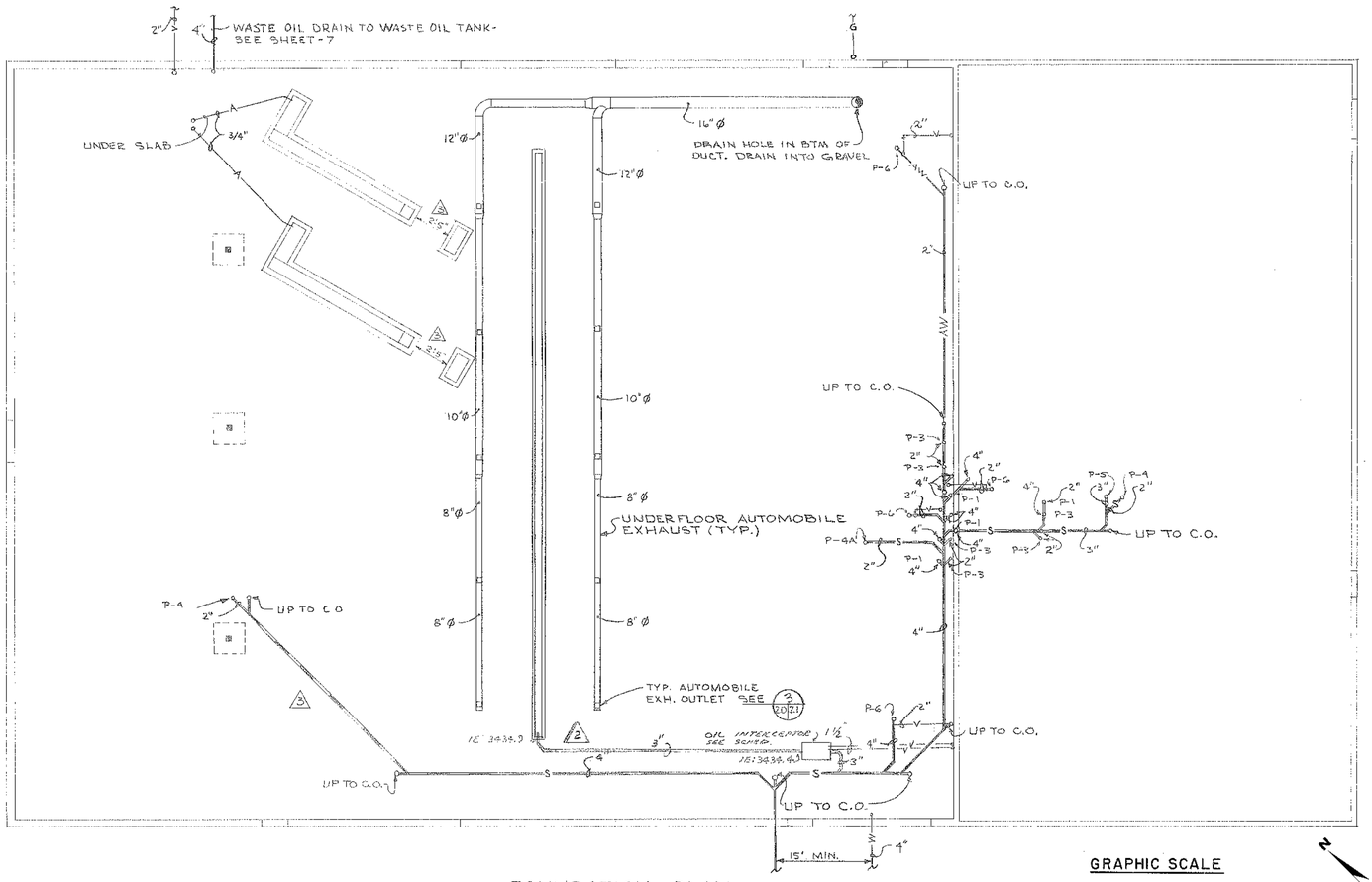
DESIGNED: RAP
DRAWN: T
CHECKED: BL
SUBMITTED: 882
DATE APPROVED: 27 AUG 1973

MALMSTROM AIR FORCE BASE MONTANA
AUTOMOTIVE MAINTENANCE SHOP
ROOF FRAMING

SCALE: AS NOTED
SPEC. No. 4506
SHEET 19
FILE No. 225-25-20

Drawer 75 Bldg. 882 Sheet 7

DR 75 B-882 SH 7



FOUNDATION PLAN

SCALE 1/8" = 1'-0"

GRAPHIC SCALE

1/8" = 1'-0"

BOILER SCHEDULE

TYPE		HOT WATER TYPE
MANUFACTURER	*	
MODEL	*	
SIZE	*	120 G.P.M. @ 220°F
AGA SEA LEVEL RATING NATURAL GAS	INPUT	2,380,000 B.T.U.
	OUTPUT	1,904,000 B.T.U.
GAS TRAIN QUANTITY & SIZE		TWO – 1¼"
FLUE SIZE		20" DIAMETER

NOTES: * INDICATES TO BE DESIGNATED ON "AS BUILT DRAWINGS".
BOILER COMPLETE WITH ACCESSORIES AS NOTED IN SPECIFICATIONS.

PUMP SCHEDULE

PUMP NO.	MFR. *	CAT. NO. *	NOTES	CAPACITY G.P.M.	CAPACITY HEAD (FT)	MOTOR H.P.	MOTOR R.P.M.	MOTOR ELECT.
1			1,2	94	23	1	1750	200V/3Ø
2			2	23	20	1/3	1750	115V/1Ø

NOTES: * INDICATES TO BE DESIGNATED ON "AS BUILT DRAWINGS".
1. SUPPLIED WITH MAGNETIC MOTOR STARTER.
2. IN-LINE FLANGED PUMP

FAN SCHEDULE

MARK	MFR. *	MODEL & SIZE *	NOTES	C.F.M.	S.P.	TIP SPEED	R.P.M.	MOTOR H.P.	MOTOR ELECT.	AREA EXHAUSTED
EXH. FAN #1			6,7,9,10	4000	3"	--		5	200V 3Ø	VEH. EXHAUST SYSTEM SHOP
POWER ROOF VENT. #2 & #3			3, 5,9,10	3300	3/8"	4173	740	1	200V 3Ø	GENERAL SHOP EXHAUST
POWER ROOF VENT. #4			3, 5, 9	2020	1/4"	4050	810	1/2	115V 1Ø	TOILET ROOM EXHAUST & INTERIOR ROOMS
POWER ROOF VENT #5			3, 5, 8, 9	700	1/8"	2800	960	1/6	115 V 1Ø	TAXI DISPATCHER OFFICE, KEY PUNCH ROOM
EXH. FAN #6			1, 4, 9	540	1/8"	--	1050	1/8	115V/1Ø	PRODUCTION CONTROL
EXH. FAN #7			2, 7, 9	315	1/4"	1260	507	1/6	115V/1Ø	BATTERY ROOM

NOTES: * INDICATES TO BE DESIGNATED ON "AS BUILT DRAWINGS".
1. WITH VARIABLE SPEED CONTROLLER FOR WALL MOUNTING.
2. INTERIOR LINING TO BE ACID RESISTANT, DIRECT DRIVE UTILITY SET, F.C. FAN WHEEL.
3. SUPPLIED WITH DISCONNECT IN HOUSING AND BACKDRAFT DAMPER AS SPECIFIED.
4. CEILING FAN WITH ROOF CAP & BACK-DRAFT DAMPER.
5. ROOF BELT DRIVE CENTRIFUGAL, BACKWARD CURVED FAN WHEEL.
6. BELT DRIVE UTILITY SET. BACKWARD CURVED FAN WHEEL.
7. UTILITY SETS TO BE SUPPLIED WITH VIBRATION RAILS.
8. UNIT WITH 2-SPEED MOTOR AND 2-SPEED SWITCH WITH PILOT
9. ALL EXHAUST FAN SWITCHES TO HAVE IDENTIFICATION PLATES.
10. SUPPLIED WITH MAGNETIC STARTERS WITH ON-OFF SWITCHES WITH PILOTS.
11. EXHAUST FAN #1 TO BE SUPPLIED WITH NON-SPARKING WHEEL

GRILLE & REGISTER SCHEDULE

MARK	TYPE	DEFLECT	MAT'L	FINISH	ACCESSORIES
RG. #1	DOOR GRILLE		STEEL	STD	SEE DOOR SCHEDULE FOR SIZE & LOCATION.
S.D. #1	SUPPLY DIFFUSER	YES	STEEL	WHITE	ADJUSTABLE AIR PATTERN, DAMPER UNIT.
E.G. #1	½"X½"X½" EGG CRATE		ALUM.	WHITE	DAMPER SEPERABLE MOUNTING FRAME.
E.G. #2	EXHAUST GRILLE		STEEL	STD.	HORIZONTAL BLADE, HEAVY DUTY CONSTRUCTION.

UNIT HEATER SCHEDULE

MARK	UNIT TYPE	MFR. *	MODEL SIZE *	CAPACITY M.B.H. DESIGN	CAPACITY M.B.H. INSTALD	G.P.M.	C.F.M.	MOTOR H.P.	MOTOR R.P.M.	MOTOR ELECT	NOTES:
UH-1	DN.-FLOW			145.8		7.8	3180	1/3	1075	115-V/1Ø	1 3 5
UH-2											1 3 5
UH-3											1 3 6
UH-4				145.8		7.8	3180	1/3	1075		1 3 6
UH-5				62.9		3.4	1395	1/12	1550		1 3 6
UH-6	DN.-FLOW			62.9		3.4	1395	1/12	1550		1 3 6
UH-7	HORIZ.-FLOW			20.0		2.0	330	1/40	1550		2 ADJUSTABLE LOUVER 7
UH-8											2 " 7
UH-9	HORIZ. FLOW			20.0		2.0	330	1/40	1550	115V/1Ø	2 ADJUSTABLE LOUVER 7
UH-10				20.0		2.0	330	1/40	1550	115V/1Ø	2 " " "

NOTES: * INDICATES TO BE DESIGNATED ON "AS BUILT DRAWINGS".
1. UNIT RATINGS @ 220°F E.W.T., 180°F L.W.T., 60° EAT
2. UNIT RATINGS @ 220°F E.W.T., 200°F L.W.T., 60° EAT
3. 3-RING DIFFUSER
4. MOUNT UNITS AS HIGH AS POSSIBLE.
5. 60°F M.A.T. 102°F E.A.T.
6. 60°F M.A.T. 101°F E.A.T.
7. 60°F M.A.T. 118°F E.A.T.

OIL INTERCEPTOR

NOTE: OIL INTERCEPTOR SHALL BE COMPLETE WITH STEEL EXTENSION BOLTED TO BODY. SIMILAR TO WADE - W-5320 XT, OR EQ. INTERCEPTOR SHALL MEET AH-1 IN TRUCK AREA

WALL RADIATION SCHEDULE

MARK	MFR. & MODEL *	MINIMUM OUTPUT B.T.U.	SPEC TYPE	ELEMENT LENGTH	COVER LENGTH	NOTES
FT-1		34,000	1	22'-0"	WALL TO WALL	3.5 GPM
FT-2		3,040		2'-0"		.3 GPM
FT-3		13,730		9'-0"		1.4 GPM
FT-4		21,400		14'-0"		2.1 GPM
FT-5		15,500		10'-0"		1.5 GPM
FT-6		6,200	1	4'-0"		.7 GPM
FT-7		15,500		10'-0"		1.5 GPM
FT-8		7,800		5'-0"		.8 GPM
FT-9		9,500		6'-0"		1.0 GPM
FT-10		6,300		4'-0"		.6 GPM
FT-11		3,120		2'-0"		.3 GPM
FT-12		34,500		22'-0"		3.5 GPM
FT-13		11,800		7'-6"	WALL TO WALL	1.2 GPM
FT-14		2,360		2'-0"	4'-0"	.2 GPM

NOTES: * INDICATES TO BE DESIGNATED ON "AS BUILT DRAWINGS".
1 RATINGS @ 210°F A.W.T. 20 T.D. I.B.R. CORRECTED FOR VELOCITY.
2. ELEMENT LENGTH IS NOMINAL, UNIT MOUNTED 4" ABOVE FLOOR.
3. TYPE DESCRIPTION - 12" HIGH X 4¼", 14 GAUGE COVER, 1¼" TUBE ELEMENT, PUNCHED LOUVER FLAT TOP COVER WITH SCREW TYPE ADJUSTABLE DAMPERS.

MAKE-UP AIR UNIT SCHEDULE

MARK	MANUFACTURER * SIZE & MODEL	M.B.H. OUTPUT	C.F.M.	TOTAL S.P.	R.P.M.	MOTOR H.P.	MOTOR ELECT.	NOTES
MU-1		583.5	6500	1/4"	850	3/4	200V/3Ø	SEE DETAIL 3 - SHT 22
MU-2		583.5	6500	1/4"	850	3/4	200V/3Ø	SEE DETAIL 3 - SHT 22
MU-3	MIN. 12"Ø FAN WHEEL	98.2	1090	1½	850	1/2	115 V/1Ø	SEE DETAIL 4 - SHT. 22

NOTES: * INDICATES TO BE DESIGNATED ON "AS BUILT DRAWINGS".
1. UNITS RATED CAPACITY @ 220°F. E.W.T., 180°F L.W.T., -13°F E.A.T., 70°F L.A.T.
2. MU-1 & MU-2 SUPPLIED WITH MAGNETIC STARTERS WITH ON-OFF SWITCHES & PILOT LIGHTS.
3. UNITS RATED AT SEA LEVEL.
4. MU-3 SUPPLIED WITH 2-SPEED BLOWER MOTOR & 2-SPEED SWITCH.

DAMPER & LOUVER SCHEDULE

MARK	TYPE	MAT'L	FINISH	ACCESSORIES
S.D.	SPLITTER DAMPER	STEEL	STD.	W/ LOCKING QUADRANT
F.D.	FIRE DAMPER	STEEL	STD.	FOLDING BLADE, 165° FUSIBLE LINK. DAMPER UL RATED FOR 1½ HR ACCESS DOOR
LOUVER #1	WEATHER PROOF	ALUM.	STD.	½" MESH BIRD SCREEN, 8.9 SQ.FT. FREE AREA, 4" DEEP, 2" BLADE SPACING
LOUVER #2	WEATHER PROOF	ALUM.	STD.	½" MESH BIRD SCREEN, 8.9 SQ.FT. FREE AREA, 4" DEEP, 2" BLADE SPACING VERTICLE MULLION 12" RIGHT SIDE FOR DUCT ATTACHMENT.
BACK-DRAFT DAMPER		NON-MET.	STD.	MOUNTED IN VERTICLE POSITION
SHUT-OFF DAMPER		STEEL	GALV.	OPPOSED BLADE DESIGN

REHEAT COIL SCHEDULE

MARK	MANUFACTURER *	MODEL & SIZE *	CAPACITY MIN. DESIGN	CAPACITY INSTALLED	G.P.M.	C.F.M.	NOTES
RH-1			8500		.73	260	

NOTES: * INDICATES TO BE DESIGNATED ON "AS BUILT DRAWINGS".
1. 220°F E.W.T.
2. RAISE 260 CFM. FROM 60°F TO 90°F.
3. COIL RATED AT SEA LEVEL.

WATER HEATER SCHEDULE

MARK	MANUFACTURER *	MODEL & SIZE *	MIN. M.B.H. INPUT	STORAGE CAPACITY	RECOVERY CAPACITY G.P.H.	RECOVERY CAPACITY TEMP. RISE	NOTES
#1			37.0	30	31.1	100°	

NOTES: * INDICATES TO BE DESIGNATED ON "AS BUILT DRAWINGS".
1. NATURAL GAS FIRED, GLASS LINED TANK W/ A.S.M.E. RATED T & P RELIEF VALVE.

REVISION	DATE	DESCRIPTION	BY	BY
3	10/16/73	RELOCATED DRAIN LINE; ADDED 2 ELL'S		
2	10/15/73	PROVIDE 100 T. UNIT HEATER & PROVIDE OIL INTERCEPTOR	NCL	
1	9/24/73	CLARIFY SCHEDULES	NCL	

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: RAP
DRAWN: T
CHECKED: BL

MALMSTROM AIR FORCE BASE MONTANA

AUTOMOTIVE MAINTENANCE SHOP

MECH FDN PLAN

SUBMITTED: 882 — Chief, Facilities Division

DATE APPROVED: 27 AUG 1973

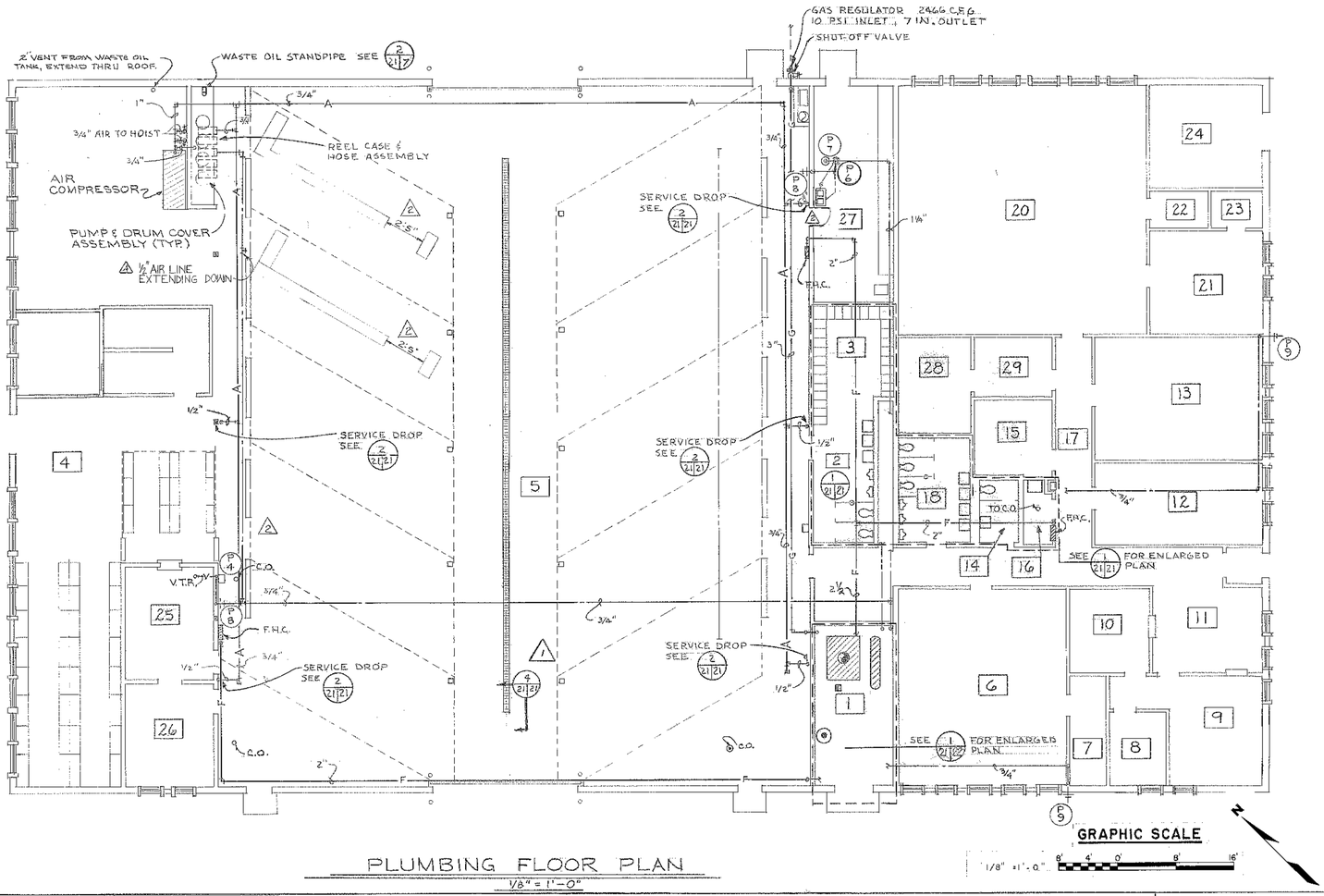
SCALE: 1/8" = 1'-0" SPEC. No. 4506

SHEET 20 FILE No. 225-25-20

Drawer 75 Bldg. 882 Sheet 6

DR 75 B-882 SH 6

ENVIRONMENTAL ENHANCEMENT THRU ENGINEERING



PLUMBING FLOOR PLAN
1/8" = 1'-0"

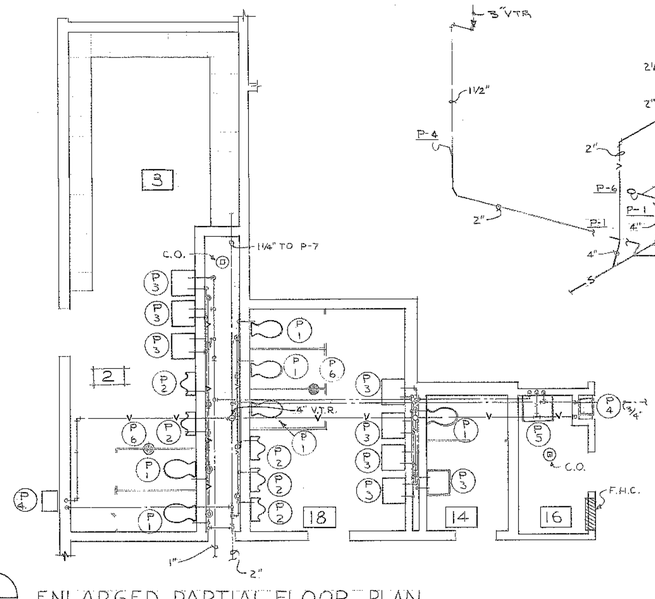
PLUMBING LEGEND

- DOMESTIC COLD WATER
- DOMESTIC HOT WATER
- SANITARY SEWER BELOW GRADE
- SANITARY SEWER ABOVE GRADE
- VENT
- COMPRESSED AIR
- C.O. CLEANOUT
- PLUMBING FIXTURE MARK
- ROOM NUMBER, REFER TO SHEET 8 FOR ROOM DESCRIPTION.
- GAS
- ACID WASTE
- FIRE HOSE LINE

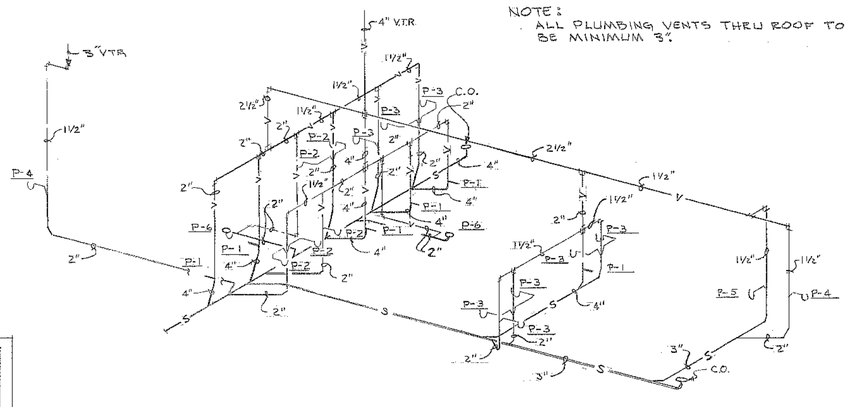
PLUMBING FIXTURE SCHEDULE

MARK	DESCRIPTION OR FEDERAL OUTFIT NUMBER	INSTALLED FIXTURE MFR.	INSTALLED FIXTURE MODEL#	CONNECTIONS CW	CONNECTIONS HW	CONNECTIONS WASTE	CONNECTIONS VENT	NOTES
P-1	WATER CLOSET, FLOOR MOUNTED BACK OUTLET SIPHON JET, VW-16, SEAT TYPE CEW FLUSH VALVE RUBBER BUMPER ON STOP TYPE LC.			1"	–	4"	2"	
P-2	URINAL, WALL HUNG, WASH OUT VU-13W FLUSH VALVE TYPE LU.			1"	–	2"	1 1/2"	
P-3	LAVATORY, VL-20P TRIM TYPE 140 SUPPLIES TYPE PV-378 CAST BRASS P-TRAP TYPE 115.			1/2"	1/2"	1 1/2"	1 1/2"	
P-4	DISP. DRINKING WATER MECH. COOLED 00-D00566, TYPE I, SIZE 5. WALL HUNG			1/2"	–	1 1/2"	1 1/4"	115 V.
P-5	FLOOR MOUNTED SERVICE SINK, MOLDED STONE, CAST IRON P-TRAP, TRIM TYPE 49.			1/2"	1/2"	3"	2"	1
P-6	FLOOR DRAIN TYPE 216			SEE PLANS			2"	
P-7	EMERGENCY SHOWER AND EYEWASH UNIT			1 1/4"	–	–	–	2
P-8	WALL FAUCET			1 1/4"	–	–	–	
P-9	WALL HYDRANT - TYPE 205			3/4"	–	–	–	FREEZE PROOF
	COMPRESSOR GOVERNMENT FURNISHED, CONTRACTOR INSTALLED							

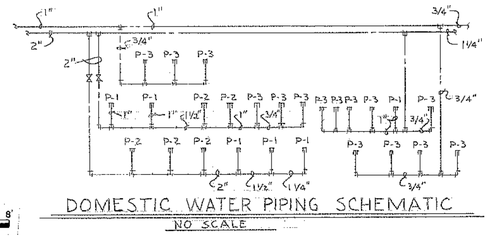
NOTES: # INDICATES TO BE DESIGNATED ON "AS BUILT DRAWINGS".



1/21/21 ENLARGED PARTIAL FLOOR PLAN
1/4" = 1'-0"

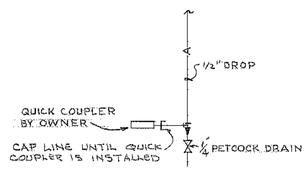


WASTE & VENT PIPING DIAGRAM
NO SCALE

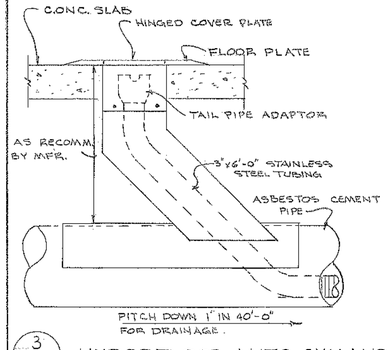


DOMESTIC WATER PIPING SCHEMATIC
NO SCALE

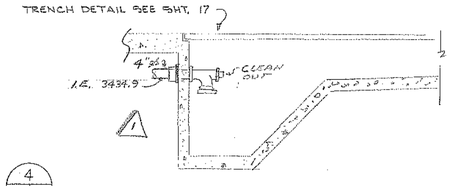
GRAPHIC SCALE
1/4" = 1'-0"



2/21/21 AIR DROP DETAIL
NO SCALE



3/20/21 UNDERFLOOR AUTO. EXHAUST OUTLET DETAIL
NO SCALE



4/21/21 DRAIN TRENCH SECTION
NO SCALE

REVISION	DATE	DESCRIPTION	BY	BY
4	22 NOV 86	INSTALL AIR LINE W.O. # 36104	SRL	RAP
3	9/19/80	INSTALL DOUBLE SINK AS PER W.O. # 40518	B.V.	GAG
2	10/16/75	MOVED C.W. LINE; ADDED 2'-5" DIM.; MOVED DOORWAY	SL	
1	10/23/71	CHANGE OIL INTERCEPTOR DETAILS	NFL	RPK

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: RAP
DRAWN: T
CHECKED: BL

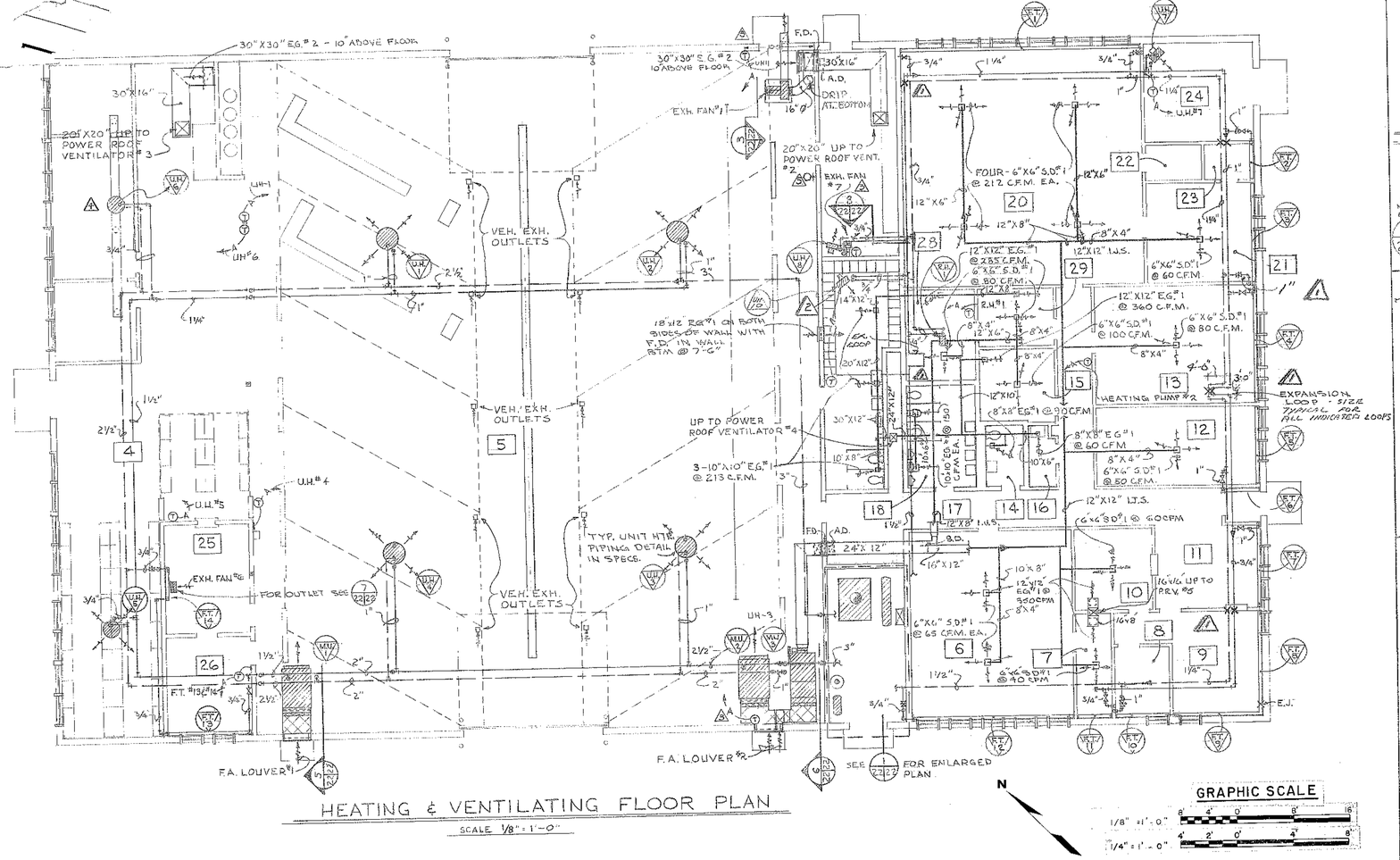
MALMSTROM AIR FORCE BASE MONTANA

AUTOMOTIVE MAINTENANCE SHOP
PLUMBING PLAN

SUBMITTED: 882
DATE APPROVED: 27 AUG 1970
SCALE: AS NOTED
SPEC. No. 4506
SHEET 21
FILE No. 225-25-20

ENVIRONMENTAL ENHANCEMENT THRU ENGINEERING

Drawer 75 Bldg. 882 Sheet 5 DR 75 B-882 SH 5



HEATING & VENTILATING FLOOR PLAN

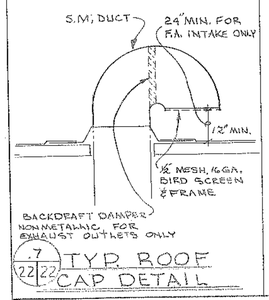
SCALE 1/8" = 1'-0"

N

GRAPHIC SCALE

1/8" = 1'-0" 8' 4' 0' 8' 16'

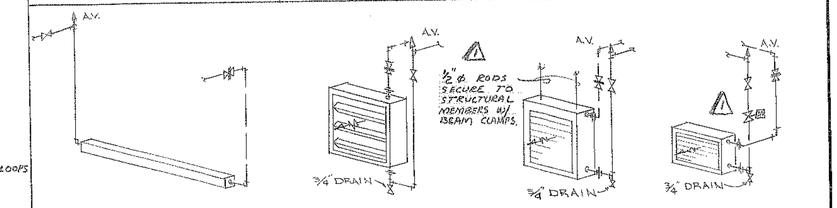
1/4" = 1'-0" 4' 2' 0' 4' 8'



7/22/22 TYP. ROOF CAP DETAIL

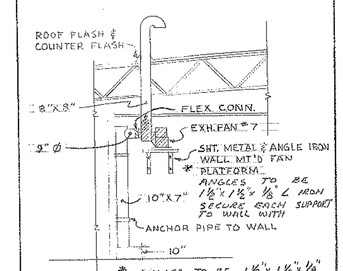
HEATING & VENTILATING LEGEND

- HEATING WATER SUPPLY.
- HEATING WATER RETURN.
- GATE VALVE.
- MOTORIZED VALVE.
- SD SUPPLY DIFFUSER.
- RG RETURN GRILLE.
- SHEET METAL DUCT.
- SHEET METAL DUCT - (EXTERIOR INSULATION).
- UH UNIT HEATER.
- FT FINNED TUBE.
- MU MAKEUP AIR UNIT.
- RH REHEAT COIL.
- EJ EXPANSION JOINT.
- T-A THERMOSTAT.
- F.D. FIRE DAMPER.
- A.D. ACCESS DOOR.
- I.J.S. IN JOIST SPACE.
- C.F.M. CUBIC FEET PER MINUTE.
- F.A. FRESH AIR.
- STRAINER.
- UNION.
- R RELIEF VALVE.
- PRESSURE REDUCING VALVE.
- SQUARE HEAD BALANCE COCK.
- A.V. AUTOMATIC AIR VENT.
- X ANCHOR.
- AIR HORN.



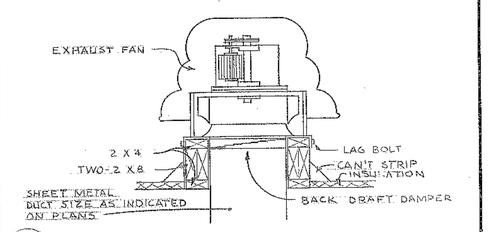
FINNED TUBE MAKE-UP AIR UNITS UNIT HEATERS REHEAT COIL

8/22/22 HEATING UNIT COIL PIPING DIAGRAMS



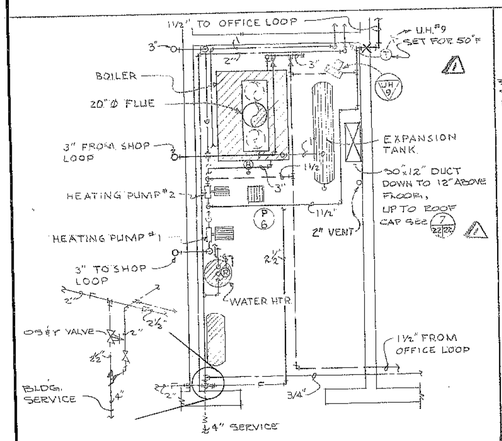
9/22/22 SECTION

1/4" = 1'-0"



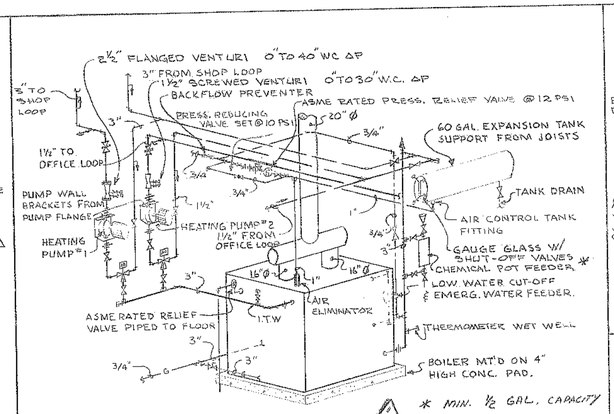
10/22/22 POWER ROOF VENTILATOR DETAIL

NO SCALE



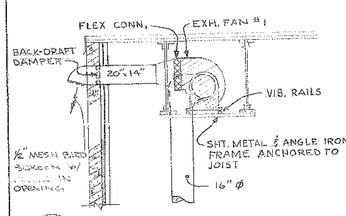
1/22/22 ENLARGED MECH. ROOM PLAN

SCALE 1/4" = 1'-0"



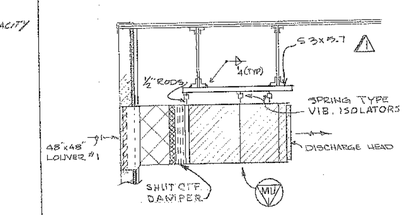
2/22/22 BOILER & PUMP PIPING DIAGRAM

NOTE: 20" ϕ VENT FOR CAST IRON SECTIONAL BOILER ONLY. EXTEND FLUE TO ABOVE UPPER ROOF, SUPPORT FLUE FROM WALL. VENT SIZE ALTERNATE BOILER TYPES TO BE IN ACCORD WITH MANUFACTURER DATA AND GOVERNING CODES.



3/22/22 SECTION

1/4" = 1'-0"

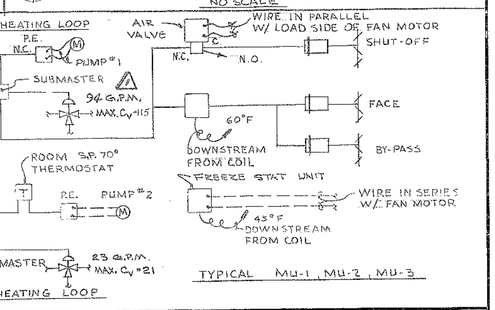


5/22/22 SECTION

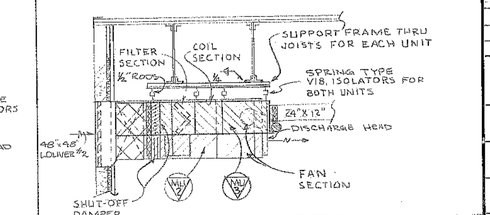
1/4" = 1'-0"

4/22/22 TEMP. CONTROL DIAGRAM

NO SCALE



TYPICAL MU-1, MU-2, MU-3



6/22/22 SECTION

1/4" = 1'-0"

REVISION	DATE	DESCRIPTION	BY	BY
5	7DEC87	INSTALL AIRHORN PER W.O. 60289	SLB	
4	7APR 87	ADDED DUCTWORK & DIFFUSERS AS PER W.O. 65003	LJZ	
3	10/20/75	RELOCATED THERMOSTATS & EXHAUST FAN #3	SL	
2	10/13/75	PROVIDE ADD'L HEATING & PLUMBING	AIR	
1	9/25/73	REVISE EXPANSION LOOPS & MISCELLANEOUS DETAILS	WFL	WEW

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

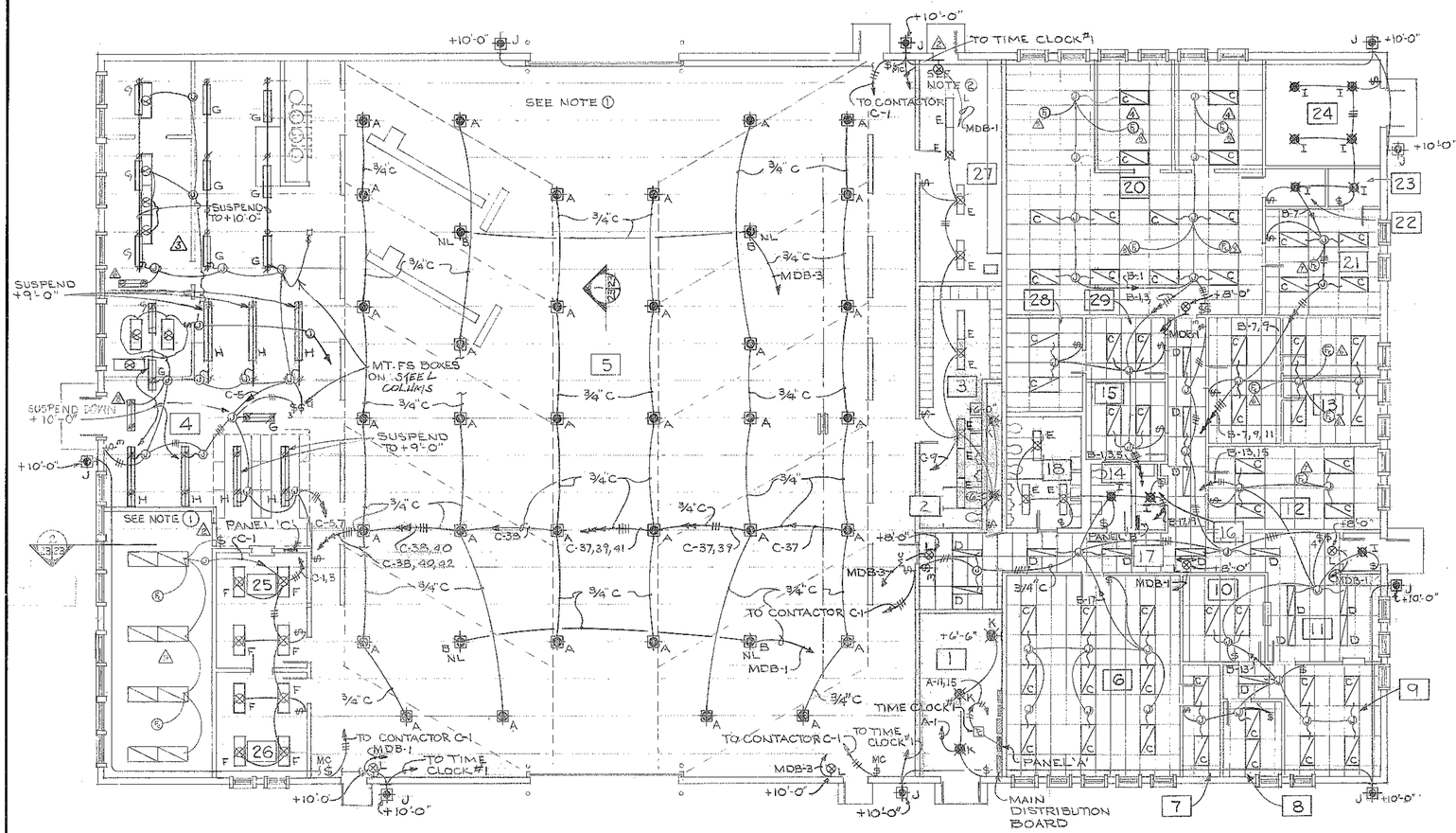
DESIGNED: RAP
DRAWN: T
CHECKED: BL

MALMSTROM AIR FORCE BASE — MONTANA

AUTOMOTIVE MAINTENANCE SHOP

HTG & VENT PLAN

SUBMITTED: 882
DATE APPROVED: 27 AUG 1973
SCALE: 1/8" = 1'-0"
SPEC. No. 4506
SHEET 22
FILE No. 225-25-20



LIGHTING FLOOR PLAN

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

GRAPHIC SCALE

1/8" = 1'-0" 8' 4' 0' 8' 16'

GENERAL NOTES

1. THE MAINTENANCE AREA & ADJOINING TOOL CRIB & STORAGE AREAS SHALL BE CLASSIFIED AS CLASS I, DIVISION II HAZARDOUS AREAS AND ALL WIRING OF ELECTRICAL DEVICES AND INSTALLATION SHALL CONFORM TO ARTICLE 511 OF THE CURRENT NATIONAL ELECTRICAL CODE.
2. ALL WIRING AND INSTALLATION OF ELECTRICAL DEVICES IN THE BATTERY ROOM SHALL CONFORM TO ARTICLE 480 OF THE CURRENT NATIONAL ELECTRICAL CODE.
3. ALL CONDUIT SHALL BE 1/2" UNLESS OTHERWISE NOTED ON PLANS OR IN THE LEGEND. CONDUITS FOR LIGHTING & MOTOR CIRCUITS IN THE MAINTENANCE & TOOL CRIB STORAGE AREAS WITH OPEN WEB JOISTS MAY BE RUN EXPOSED.
4. COORDINATE LOCATION OF HEAT DETECTORS WITH MECHANICAL EQUIPMENT & DUCT WORK.
5. MINIMUM SIZE TELEPHONE CONDUIT TO BE 3/4".
6. HEAT DETECTORS ARE MOUNTED ABOVE THE CEILING IN ADMINISTRATION & OFFICE AREAS.

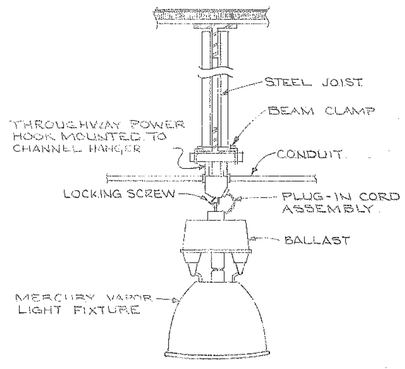
ELECTRICAL LEGEND

- ELECTRICAL PANEL
- TELEPHONE TERMINAL CABINET
- FIRE ALARM PANEL
- DISCONNECT SWITCH
- STARTER - COMBINATION MAGNETIC
- STARTER - MAGNETIC
- BRANCH CIRCUIT CONCEALED IN WALL OR CEILING
- BRANCH CIRCUIT CONCEALED IN OR UNDER FLOOR
- EMPTY CONDUIT - 3/4" UNLESS OTHERWISE NOTED
- HOME RUN TO PANEL. NUMBER OF ARROWS INDICATES NUMBER OF CIRCUITS.
- NUMBER OF HASHMARKS INDICATES NUMBER OF CONDUCTORS. NO HASHMARKS INDICATES TWO CONDUCTORS.
- INCANDESCENT LIGHT FIXTURE (CEILING OR WALL MOUNT)
- MERCURY VAPOR FIXTURE (CEILING OR WALL MOUNT)
- MERCURY VAPOR FIXTURE (NIGHT LIGHT)
- FLUORESCENT LIGHT FIXTURE (SURFACE)
- FLUORESCENT LIGHT FIXTURE (SUSPENDED)
- FLUORESCENT LIGHT FIXTURE (RECESSED)
- EXIT LIGHT (EMERGENCY BATTERY PACK)
- DUPLEX CONVENIENCE RECEPTACLE - GROUNDED TYPE
- DUPLEX RECEPTACLE MOUNTED HORIZONTALLY - GROUNDED TYPE
- TELEPHONE OUTLET
- MOTOR
- SPECIAL EQUIPMENT OUTLET AS NOTED
- JUNCTION BOX OR J-BOX
- TIME CLOCK
- SWITCH
- FIRE ALARM BREAK-GLASS STATION
- FIRE ALARM HORN
- HEAT DETECTOR
- TWISTLOCK RECEPTACLE AT BOTTOM OF JOIST (NEMA L5-15R)
- DROP CORD WITH DUPLEX RECEPTACLE
- 26 ROOM NUMBER - REFER TO SHEET 8 FOR ROOM DESCRIPTION
- P.R.V. POWER ROOF VENTILATOR
- $3 SWITCH 3-WAY
- $4 SWITCH 4-WAY
- $MC SWITCH - MOMENTARY CONTACT
- PUSH BUTTON
- 3Ø TWISTLOCK RECEPTACLE AT BOTTOM OF JOIST 3Ø NEMA L11-20R W/PLUG NEMA L11-20P
- DROP CORD, SEE DETAIL 24/24
- CHANNEL HANGER
- CLOCK OUTLET
- SWITCH FURNISHED BY MECHANICAL
- BATTERY LIGHT SET - SEE SPECS
- CEILING FAN

LIGHT FIXTURE SCHEDULE

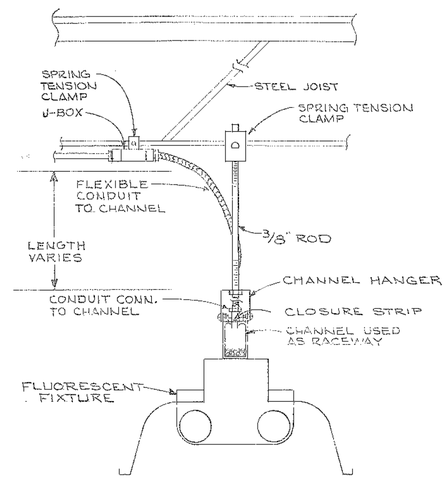
LETTER SYMBOL	FIXTURE	CORP. DRAWING NO. 40-06-04 TYPE	SHEET	LOCATION	LAMP TYPE	TYPE	NO.	WATTS	REMARKS
A		—	400W-J-HI	7A	CEILING	SUSP.	400DX	1	450	① 1.35 : 1 MAX. SPACING RATIO 120V
B	NL	—	400W-J-HI	7A	CEILING	SUSP.	400DX 250W QUARTZ	1 1	450 250	①⑦ 1.35 : 1 MAX. SPACING RATIO 120V
C		—	RF-22	51	CEILING	REC.	F40CW	4	190	④ 120V
D		—	RF-21	51	CEILING	REC.	F40CW	2	95	④ 120V
E			—	—	CEILING	SURF.	F40CW	2	95	1'×4' ALL PLASTIC GASKETED FLUORESCENT UNIT WITH HIGH IMPACT ACRYLIC ENCLOSURE, CONTINUOUS NEOPRENE GASKET FOR TIGHT SEAL, SIX CAPTIVE LATCHES. VAPORPROOF UNIT.
F		—	SF-22	55	CEILING	SURF.	F40CW	4	190	④ 120V
G		—	F-9	43	CEILING	SUSP.	F40CW	2	95	⑥ 120V
H		—	F-10	43	CEILING	SUSP.	F40CW	4	190	⑥ 120V
I			—	—	CEILING	SURF.	100A	2	200	SINGLE PIECE DIE FORMED CEILING PAN W/ACRYLIC PRISMATIC SQUARE REFRACTOR 120V
J			—	—	WALL	SURF.	175MV	1	205	PRISMATIC REFRACTOR, DIECAST ALUMINUM WEATHERPROOF HOUSING & DOOR. ASYMMETRIC REFLECTOR, SEALED LAMP COMPARTMENT, GUARD. 208V ⑤
K			—	LR	2	CEIL/WALL	SURF.	100A	1	100	120V
L		EXIT	—	—	WALL	SURF.	F8T5	3	16	EXIT FIXTURE WITH NI-CAD BATTERIES, BATTERY CHARGER, INVERTER, AUTOMATIC TRANSFER, TEST LIGHT & SWITCH. 120V ②
M			—	—	PARKING LOT	POST LIGHT	400DX	1	450	CAST ALUMINUM HOUSING, HEAT & IMPACT RESISTANT PRISMATIC GLASS REFRACTOR, ANODIC SURFACED ALUMINUM REFLECTOR. GASKETED WITH BREATHING SEAL. TYPE III LIGHT DISTRIBUTION. ③⑤

1. THROUGHWAY POWER HOOK WITH CORD ASSEMBLY.
2. ARROWS AS NOTED ON PLANS.
3. WITH 4'-0" UPSWEEP BRACKET AND 25' ALUMINUM STANDARD CONFORMING TO SPECIFICATIONS.
4. FIXTURE MOUNTING ACCESSORIES TO BE COMPATIBLE TO TYPE OF CEILING CONSTRUCTION.
5. LOW TEMPERATURE CONSTANT WATTAGE BALLAST.
6. WIRE GUARDS
7. AUXILIARY 250 WATT QUARTZ LAMP WITH RELAY INTEGRAL WITH FIXTURE FOR WARMUP AND POWER INTERRUPTION EMERGENCY LIGHT.



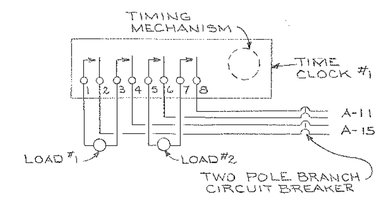
1/23/23 FIXTURE A & B MT'G. DETAIL

NO SCALE



2/23/23 FIXTURE H & G MT'G. DETAIL

NO SCALE



4PST TIME CLOCK, 24 HOUR WITH ASTRO FEATURE & SKIP-A-DAY FEATURE.

3/24/23 TIME CLOCK #1 WIRING DIAGRAM

REVISION	DATE	DESCRIPTION	BY	BY
2	13 NOV 88	INSTALL 4' FLUORESCENT LIGHTS W.O.# 38024	SRL	MZ
1	12 APR 88	INTL. TWO CEILING FANS W.O. # 75288	SRL	MZ
1	12 APR 88	INTL. PANELING, WALL PAPER, CEILING FANS W.O. # 75420	SRL	TS
1	12 APR 88	INTL. 3 CEILING FANS W.O. # 75344	SRL	TS
1	26 MAY 87	REMOVED & REARRANGED LIGHT FIXTURES W.O. 40701	LJZ	BK
1	7 APR 87	ADD FIXTURES & SWITCH AS PER W.O. 65003	LJZ	[illegible]
1	10/20/75	RELOCATED EXIT LIGHT AND SINGLE POLE SWITCH	SL	MZ
1	4-25-73	ADD SYMBOLS & CORRECT DETAIL FIXT. H & G	JG	[illegible]

AMUNDSON BEER LUND
ARCHITECTS ENGINEERS PLANNERS
GREAT FALLS, MONTANA

DEPARTMENT OF THE ARMY
SACRAMENTO DISTRICT, CORPS OF ENGINEERS
SACRAMENTO, CALIFORNIA

DESIGNED: RAP
DRAWN: T
CHECKED: BL
SUBMITTED: 882
DATE APPROVED: 27 AUG 1973

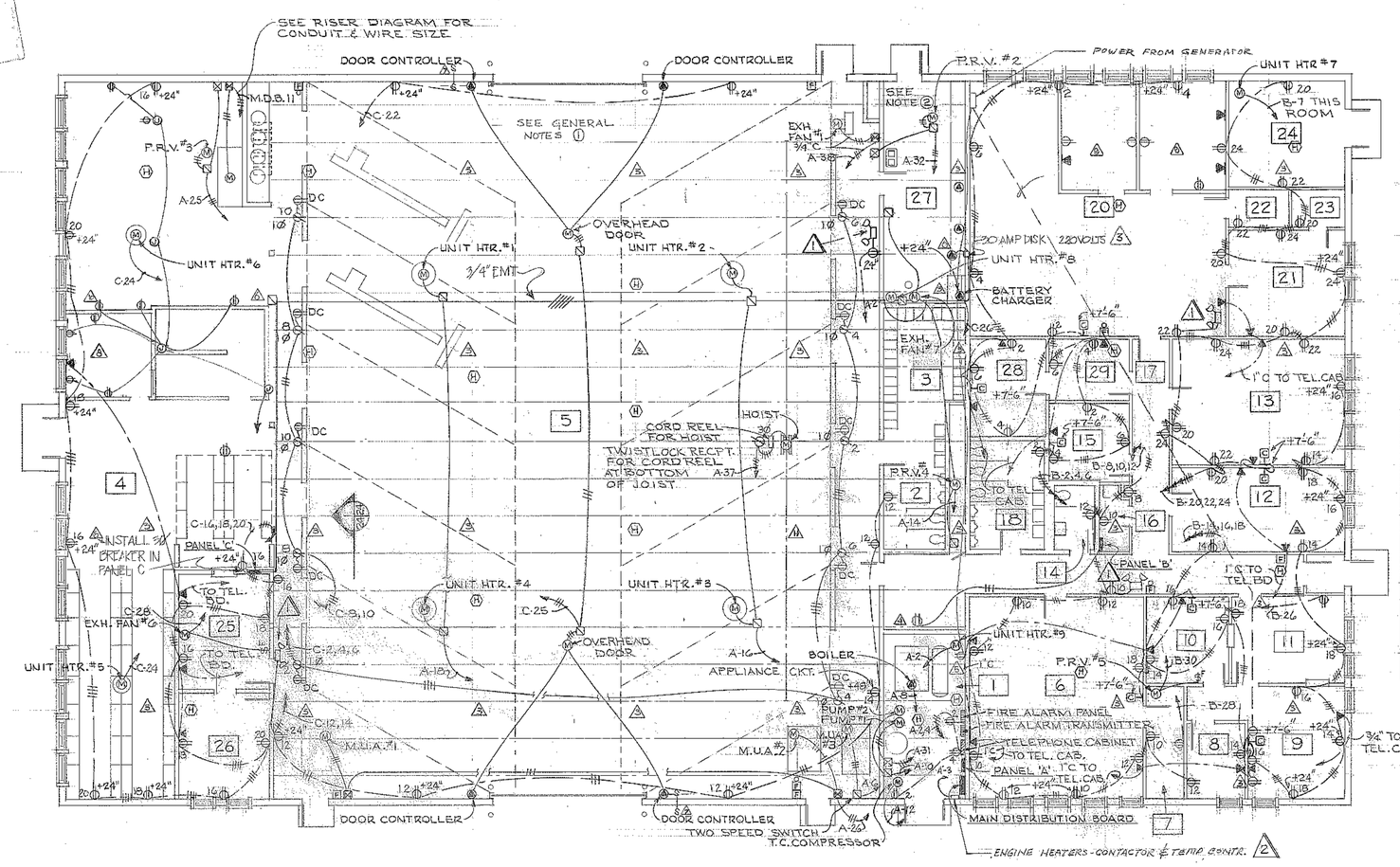
MALMSTROM AIR FORCE BASE — MONTANA

AUTOMOTIVE MAINTENANCE SHOP

LIGHTING PLAN

SCALE: AS NOTED | SPEC. No. 4506
SHEET 23 | FILE No. 225-25-20

DR 75 B-882 SH 3



POWER & SPECIAL SYSTEMS FLOOR PLAN

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

1 NOTE:
ALL CONDUITS FROM CLASS I DIV. II AREAS TO PANELS IN NON-HAZARDOUS LOCATIONS SHALL HAVE SEALS PER N.E.C.

SCHEDULE OF MOTORS

UNIT	MOTOR * H.P.	PH	VOLTS	
COMPRESSOR #1 2	10	3	208	
OVERHEAD HOIST	5	3	208	
PUMP #1	1½	3	208	
PUMP #2	½	1	120	
OVERHEAD DOOR #1 & 2	1	3	208	
MAKE UP AIR #1 & 2	¾	3	208	
MAKE UP AIR #3	½	1	120	4
UNIT HTR #1, 2, 3, & 4	⅓	1	120	
UNIT HTR #5 & 6	1/12	1	120	
UNIT HTR. #7, 8, & 9	1/40	1	120	
EXH. FAN #1	5	3	208	
P.R.V. #2 & 3	1	3	208	3
P.R.V. #4	½	1	120	
P.R.V. #5	1/6	1	120	
EXH. FAN #6	1/8	1	120	
EXH. FAN #7	½	1	120	
T.C. COMPRESSOR	½	1	120	1
BOILER	—	1	120	2

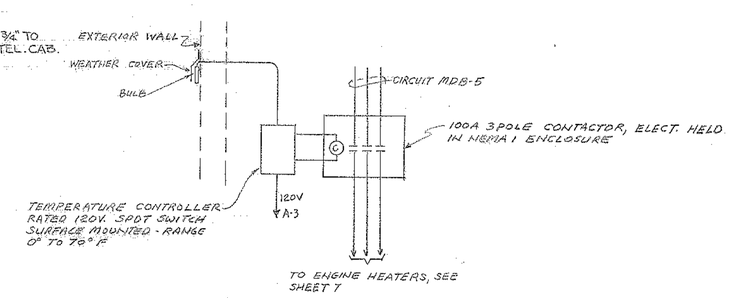
* MOTOR SIZES LISTED ARE GUIDE ONLY. ACTUAL SIZE WILL DEPEND ON EQUIPMENT SUPPLY.

1 CURRENT REQUIRED DEPENDS ON OPTIONAL CONTROL SYSTEM SELECTED BY THE MECHANICAL CONTRACTOR.

2 CURRENT REQUIRED DEPENDS ON OPTIONAL BOILER SELECTED BY THE MECHANICAL CONTRACTOR.

3 PROVIDE WEATHERPROOF DISCONNECT ON ROOF AT UNIT.

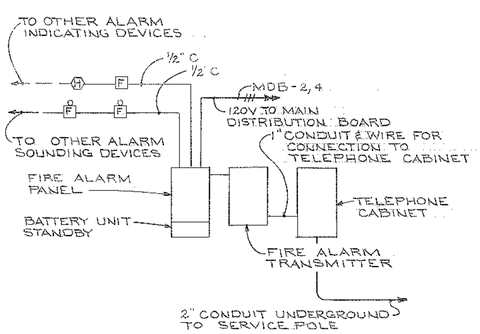
4 2 SPEED MOTOR & 2 SPEED SWITCH.



2 CONTROL DIAGRAM FOR ENGINE HEATER OUTLETS

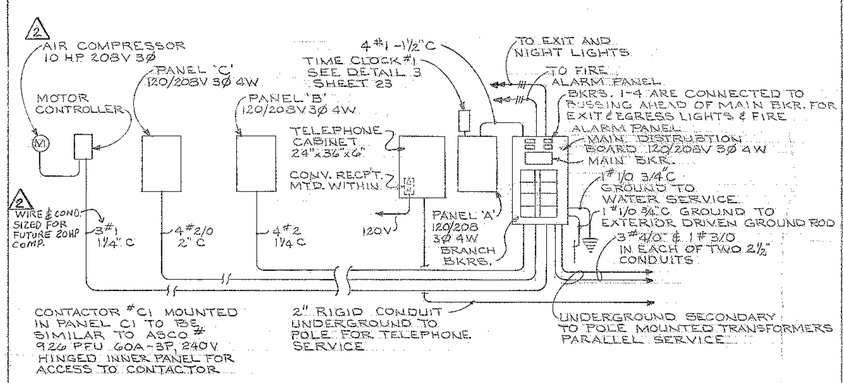
GRAPHIC SCALE

1/8" = 1'-0" 8' 4' 0' 8' 16'



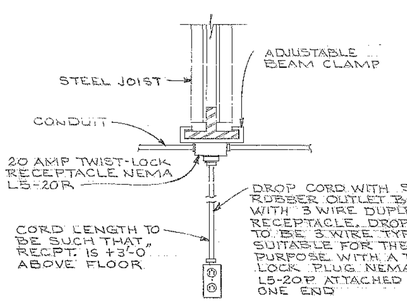
RISER DIAGRAM - FIRE ALARM

NO SCALE



RISER DIAGRAM - ELECTRICAL DISTRIBUTION

NO SCALE



1/24 24 DROP CORD DETAIL

NO SCALE

REVISION	DATE	DESCRIPTION	BY	BY
4	28NOV88	INSTALL OUTLET W.O. # 38104	SRL	
3	26MAY87	ADDED OUTLETS TO OFFICE SPACE W.O. 40701	LJZ	BW
2	7APR87	INSTALL SERVICE OUTLETS AS PER W.O. 65003	LJZ	DWS
1	14DEC86	INSTALL DOOR CONTROL SWITCH AS PER W.O. 60800	BW	DWS
0	19SEP86	INSTALL OUTLET-BATTERY CHARGER PER W.O. 40518	BW	EBS
	11SEP85	TELEPHONE BACKUP POWER OUTLET W.O. 50296	FTP	PJD
	6AUG85	INSTALL OUTLET PER W.O. # 40531	WO	WE
	18OCT83	MOD. PER W/O NO. A 20175	TW	BW
	10-17-73	CHG. 20HP TO 10HP & ADD ENGINE HEATER CONTROLS	JG	[illegible]
	9-25-73	ADD BATT. LIGHT SETS & CIRCUITS	JG	[illegible]

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DESIGNED: RAP
DRAWN: T
CHECKED: BL

MALMSTROM AIR FORCE BASE MONTANA

AUTOMOTIVE MAINTENANCE SHOP

POWER PLAN

SUBMITTED: 882
DATE APPROVED: 27 AUG 1973
SCALE: 1/8" = 1'-0"
SPEC No. 4506
SHEET 24
FILE No. 225-25-20

Drawer 75 Bldg. 882 Sheet 2

DR 75 B-882 SH 2

Amend No 1

PANEL MDB CHARACTERISTICS 120/208V 3Ø 4W
MOUNTING SURFACE MAINS 600 AMP NEUTRAL 600 AMP
CONNECTED LOAD 168.5 KW AMPS 468 PER Ø
SPARE LOAD 27 KW AMPS 75 PER Ø
DEMAND FACTOR LIGHTS 100%, ENG. HTRS. 70% PROVS. 25% AIR COMP. 100%, 85%, DIVERSITY ON EVERYTHING EXCEPT LIGHTS.
DEMAND LOAD 122.3 KW AMPS 340 PER Ø
MISC. 450A-3P MAIN BKR. CKTS. 1-4 AHEAD OF 450A-3P MAIN BKR. ALL BKRS. RATED MINIMUM OF 18,000 SYM. AMPS. * TIME LIMIT CKT. BKR.

CKT	FRAME	WIRE	LOAD	WATTS
1	20A-1P	#12	EXIT & NIGHT LIGHTS	1020
3	20A-1P	#12	EXIT & NIGHT LIGHTS	1020
5	100A-3P	#2	ENGINE HEATER FEEDER	29880
7				—
9				—
11*	50A-3P	#1	AIR COMPRESSOR 10 H.P.	10440
13				—
15				—
17	125A-3P	#1	PANEL 'A'	31680
19				—
21				—
23	150A-3P		PROVISION	9000
25				—
27				—
2	20A-1P	#12	FIRE ALARM PANEL	240
4	20A-1P	#12	FIRE ALARM PANEL	240
6	100A-3P	#2	PANEL 'B'	20880
8				—
10				—
12	125A-3P		PROVISION	9000
14				—
16				—
18	150A-3P	2/0	PANEL 'C'	34720
20				—
22				—
24	150A-3P		PROVISION	9000
26				—
28				—

PANEL A CHARACTERISTICS 120/208V 3Ø 4W
MOUNTING SURFACE MAINS 225 AMPS NEUTRAL 225 AMPS
CONNECTED LOAD 35.4 KW AMPS 98 PER Ø
SPARE LOAD 6.6 KW AMPS 18 PER Ø
DEMAND FACTOR LIGHTING & MOTORS 100% C.O. 50% & PROVISIONS 50%
DEMAND LOAD 31.6 KW AMPS 88 PER Ø
MISC. ALL BKRS. RATED MINIMUM OF 18,000 SYM. AMPS.

CKT	FRAME	WIRE	LOAD	WATTS
1	20A-1P	#12	LIGHTS	900
3		#12	TEMP. CONTROLLER 1	600
5			SPARE	600
7			SPARE	600
9	20A-1P		PROVISION	600
11	20A-2P	#12	TIME CLOCK #1	1845
13				—
15	20A-2P	#12	TIME CLOCK #1	1800
17				—
19	20A-3P		PROVISION	1800
21				—
23				—
25	20A-3P	#12	POWER ROOF VENT. #3 1 H.P.	1440
27				—
29				—
31	20A-3P	#12	PUMP #1 1½ H.P.	1800
33				—
35				—
37	20A-3P	#12	HOIST #1 3 H.P.	3600
39				—
41				—
2	20A-1P	#12	CONVENIENCE RECPT.	240
4		#12	CONVENIENCE RECPT. (TEL.)	240
6		#12	MAKE UP AIR #3 ½ H.P.	1200
8		#12	BOILER + U.H. #7 FR. H.P.	600
10		#12	PUMP #2 ⅓ H.P.	840
12	20A-1P	#12	T.C. COMP. ½ H.P.	1130
14	30A-1P	#10	F.R.V. #4 ½ H.P., E.F. #7 U.H. #8	1560
16	30A-1P	#10	UNIT HTRS. #2 & 3 ⅓ H.P. EA.	1680
18	30A-1P	#10	UNIT HTRS. #1 & 4 ⅓ H.P. EA.	1680
20	20A-3P		PROVISION	1800
22				—
24				—
26	20A-3P	#12	MAKE UP AIR #1 & 2 ¾ H.P. EA.	2160
28				—
30				—
32	20A-3P	#12	POWER ROOF VENT. #2 1 HP.	1440
34				—
36				—
38	40A-3P	#12	EXH. FAN #1 5 H.P.	5760
40				—
42				—

PANEL C CHARACTERISTICS 120/208V 3Ø 4W
MOUNTING FLUSH MAINS 225 AMP NEUTRAL 225 AMP
CONNECTED LOAD 46 KW AMPS 128 PER Ø
SPARE LOAD 7.2 KW AMPS 20 PER Ø
DEMAND FACTOR LIGHTING & MOTORS 100%, C.O.'S 50% PROVISIONS 50%
DEMAND LOAD 36.7 KW AMPS 102 PER Ø
MISC. SPLIT BUS CKTS. 1-36 & CKTS. 37-42 CKTS. 37-42 FED BY CONTACTOR C-1. ALL BKRS. RATED MINIMUM OF 10,000 SYM. AMPS. CONTACTOR C-1 MOUNTED WITHIN

CKT	FRAME	WIRE	LOAD	WATTS
1	20A-1P	#12	LIGHTS	1400
3		#12	LIGHTS	1600
5		#12	LIGHTS	1500
7		#12	LIGHTS	1100
9		#10	LIGHTS	1300
11			SPARE	600
13			PROVISION	600
15				600
17				600
19				600
21				600
23	20A-1P		PROVISION	600
25	20A-3P	#12	DOOR MOTOR #1 & 2 1 H.P. EA.	2800
27				—
29				—
31	60A-3P		PROVISION	1800
33				—
35				—
37	40A-1P	#8	LIGHTS	3150
39	40A-1P	#8	LIGHTS	2250
41	40A-1P	#8	LIGHTS	2250
2	20A-1P	#10	TWIST LOCK	1200
4		#10	TWIST LOCK	1200
6		#10	TWIST LOCK	1200
8		#12	TWIST LOCK	1200
10		#12	TWIST LOCK	1200
12		#10	CO	1200
14		#10	APPLIANCE CKT	1200
16		#12	CO	720
18		#12	CO	720
20		#12	CO	720
22		#12	CO	1200
24		#12	UNIT HEATER #5 & 6 ½ H.P. EA.	720
26		#10	BATTERY CHARGER 1.4 KW	1400
28		#12	EXH. FAN #6	380
30	20A-1P		SPARE	600
32	60A-3P	#6	CONTACTOR #C-1	15300
34				—
36				—
38	40A-1P	#8	LIGHTS	2250
40	40A-1P	#8	LIGHTS	2250
42	40A-1P	#8	LIGHTS	3150

PANEL B CHARACTERISTICS 120/208V 3Ø 4W
MOUNTING SURFACE MAINS 225 AMP NEUTRAL 225 AMP
CONNECTED LOAD 39.7 KW AMPS 109 PER Ø
SPARE LOAD 10.2 KW AMPS 28 PER Ø
DEMAND FACTOR LIGHTING 100%, C.O.'S 25% PROVISIONS 25%
DEMAND LOAD 20.8 KW AMPS 58 PER Ø
MISC. ALL BKRS. RATED MINIMUM OF 10,000 SYM. AMPS.

CKT	FRAME	WIRE	LOAD	WATTS
1	20A-1P	#12	LIGHTS	1600
3				1600
5				1200
7				1200
9				800
11				1200
13				1700
15				1600
17				1800
19		#12	LIGHTS	1500
21			SPARE	600
23			SPARE	600
25			PROVISION	600
27				600
29				600
31				600
33				600
35				600
37				600
39				600
41	20A-1P		PROVISION	600
2	20A-1P	#12	CONVENIENCE RECPT.	720
4				720
6				720
8				1080
10				1080
12				1080
14				1080
16				1080
18				1080
20				1080
22				1080
24				1080
26				1200
28			CONVENIENCE RECPT.	1200
30		#12	POWER ROOF VENTILATOR #5 1/6 H.P.	510
32			SPARE	600
34			SPARE	600
36			PROVISION	600
38				600
40				600
42	20A-1P		PROVISION	600

EQUIVALENT ALUMINUM CONDUCTORS & RACEWAY SIZES FOR COPPER CONDUCTORS & RACE-WAYS INDICATED ON DWGS.

CONDUCTOR AWG SIZE		MINIMUM RACEWAY SIZE 3 SINGLE CONDUCTOR		4 SINGLE CONDUCTOR	
COPPER	EQUIVALENT ALUMINUM	COPPER	ALUMINUM	COPPER	ALUMINUM
6	4	1"	1¼"	1"	1¼"
4	2	1¼"	1¼"	1¼"	1¼"
3	1	1¼"	1¼"	1¼"	1½"
2	1/0	1¼"	1½"	1¼"	2"
1	2/0	1¼"	1½"	1½"	2"
1/0	3/0	1½"	2"	2"	2"
2/0	4/0	1½"	2"	2"	2½"
3/0	250 MCM	2"	2½"	2"	2½"
4/0	300 MCM	2"	2½"	2½"	3"
250 MCM	400 MCM	2½"	3"	2½"	3"
300 MCM	500 MCM	2½"	3"	3"	3½"
350 MCM	500 MCM	2½"	3"	3"	3½"
400 MCM	2-4/0 OR 1-600 MCM	3"	2-2" OR 1-3"	3"	2-2½" OR 1-3½"
500 MCM	2-250 OR 1-750 MCM	3"	2-2½" OR 1-3½"	3½"	2-2½" OR 1-4"
600 MCM	2-250 MCM	3"	2-2½"	3½	2-2½"
750 MCM	2-350 MCM	3½"	2-2½"	4"	2-3"

REVISION	DATE	DESCRIPTION	BY	BY
1	10-19-73	CHG C.B. SIZE FOR 10HP	J.G.	

AMUNDSON BEER LUND
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DESIGNED: RAP
DRAWN: T
CHECKED: BL

MALMSTROM AIR FORCE BASE MONTANA

AUTOMOTIVE MAINTENANCE SHOP
PANEL SCHEDULES

SUBMITTED: 882
DATE APPROVED: 27 AUG 1973
SCALE: AS NOTED SPEC. No. 4506
SHEET 25 FILE No. 225-25-20

Drawer 75 Bldg. 882 Sheet 1

ENVIRONMENTAL ENHANCEMENT THRU ENGINEERING

DRAWER 75 B-882 SH 1

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