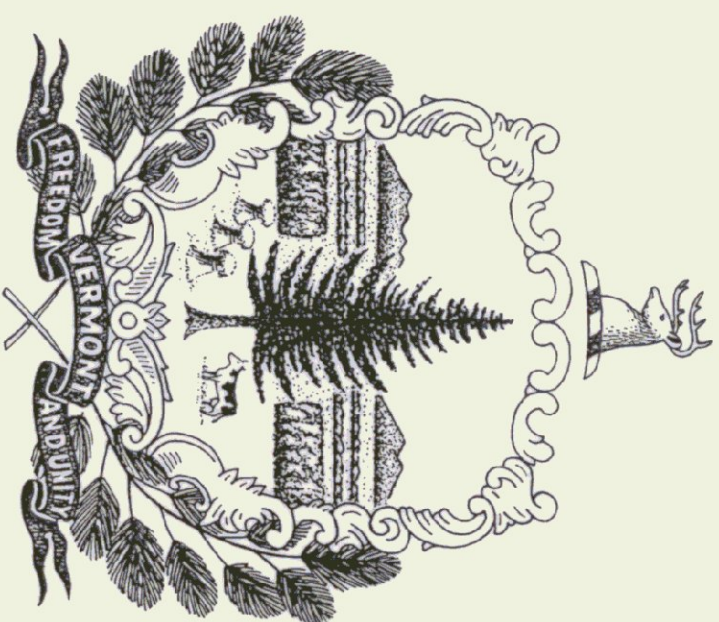


State of Vermont  
Agency of Transportation

# LYNDON REST AREA

In the Town of Lyndon on I-91 Southbound

Project consists of renovations to the existing facility incorporating ADA compliance, energy and security enhancement and associated site work.



Howard Dean, M.D.  
Governor

Agency of Transportation  
133 State Street  
Montpelier, Vermont 05602  
Glenn M. Gershaneck, Secretary

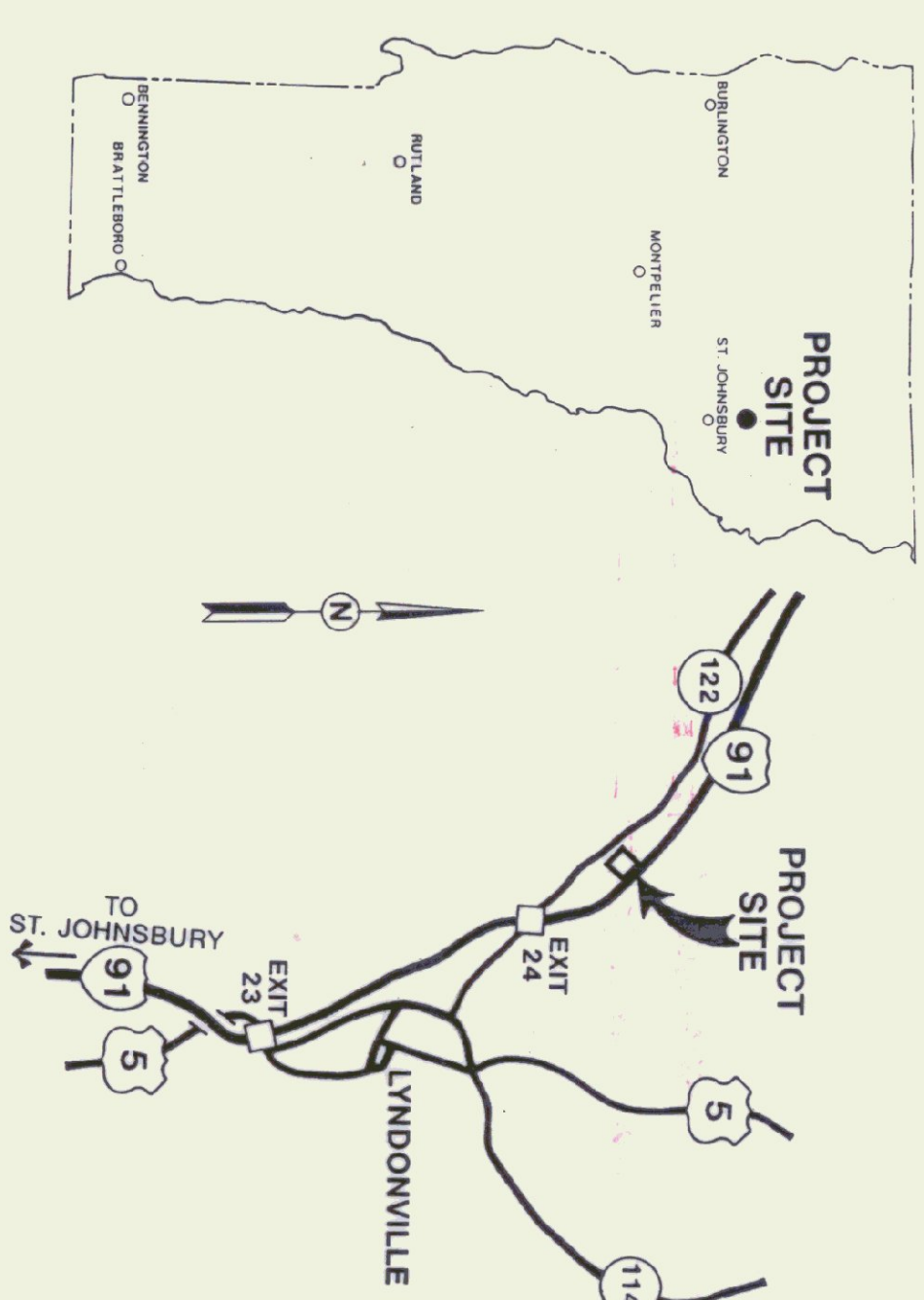
As Built 11/96

Agency of Administration  
Department of State Buildings  
2 Governor Aiken Avenue  
Montpelier, Vermont 05602  
John J. Zampieri, Commissioner

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10	A.O.T. - STANDARDS
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## Project Location

THESE PLANS ARE SUBJECT TO SUCH ENGINEERING CHANGES AS MAY BE REQUIRED BY THE FEDERAL HIGHWAY ADMINISTRATION OR THE DIRECTOR OF CONSTRUCTION TO BE CARRIED ON IN ACCORDANCE WITH THESE PLANS AND THE STANDARD SPECIFICATIONS FOR CONSTRUCTION DATED 1990, AS APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION ON MARCH 15, 1990 FOR USE ON THIS PROJECT, INCLUDING ALL SUBSEQUENT REVISIONS AND SUCH REVISED SPECIFICATIONS AND STANDARD PROVISIONS AS ARE INCORPORATED IN THESE PLANS.

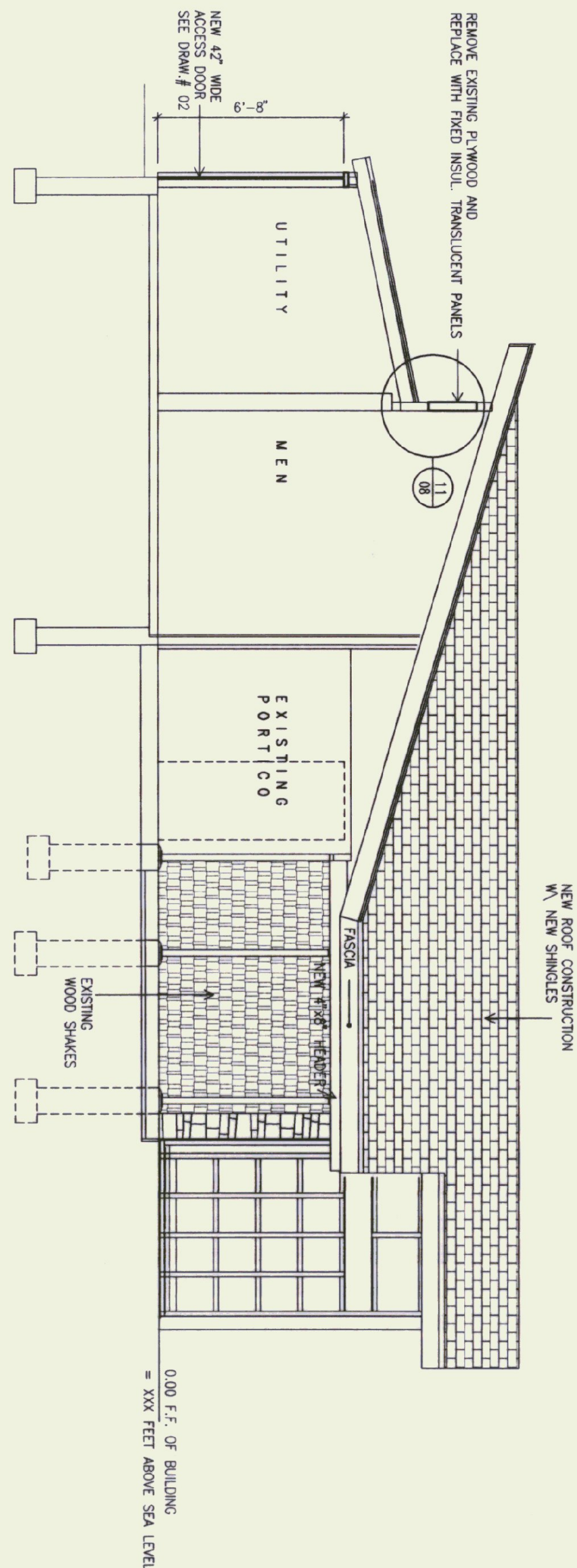
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DIRECTOR OF CONSTRUCTION & MAINTENANCE	
DEPARTMENT OF TRANSPORTATION	
FEDERAL HIGHWAY ADMINISTRATION	
APPROVED	DATE
PER DIVISION ADMINISTRATOR	3-22-96
PROJECT LYNDON I-91-81D5(2)	
SHEET 1 OF 29 SHEETS	





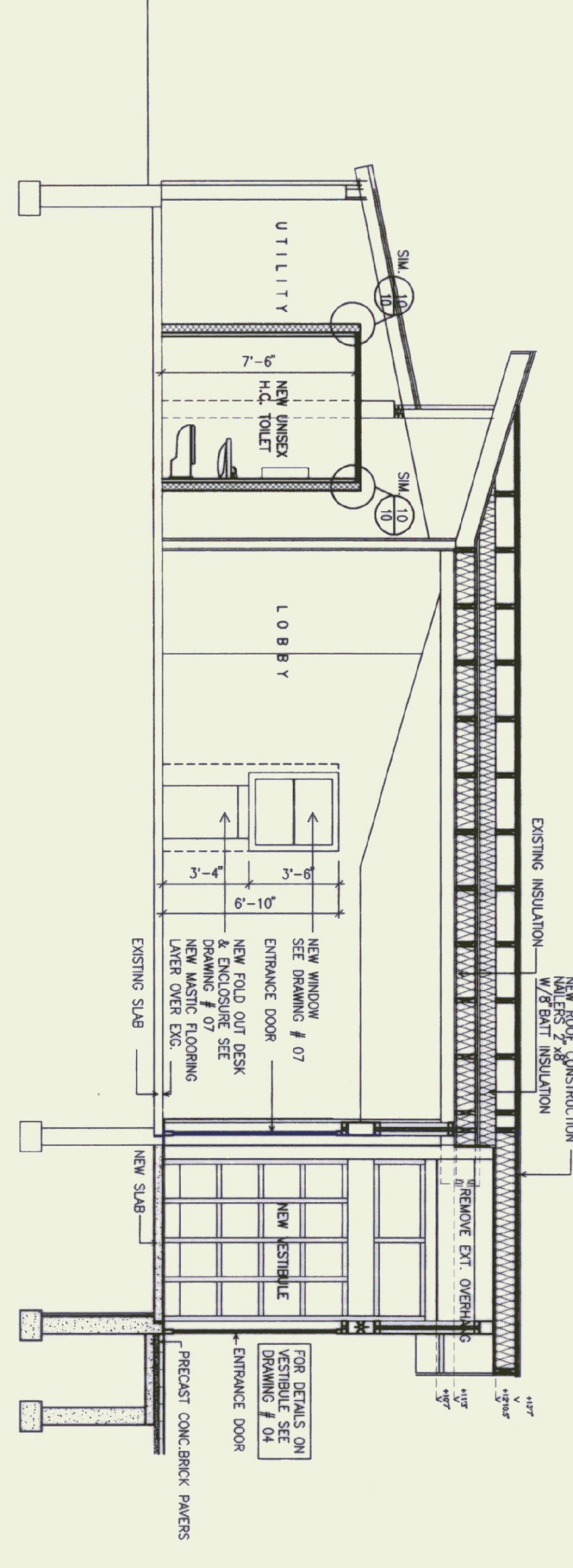






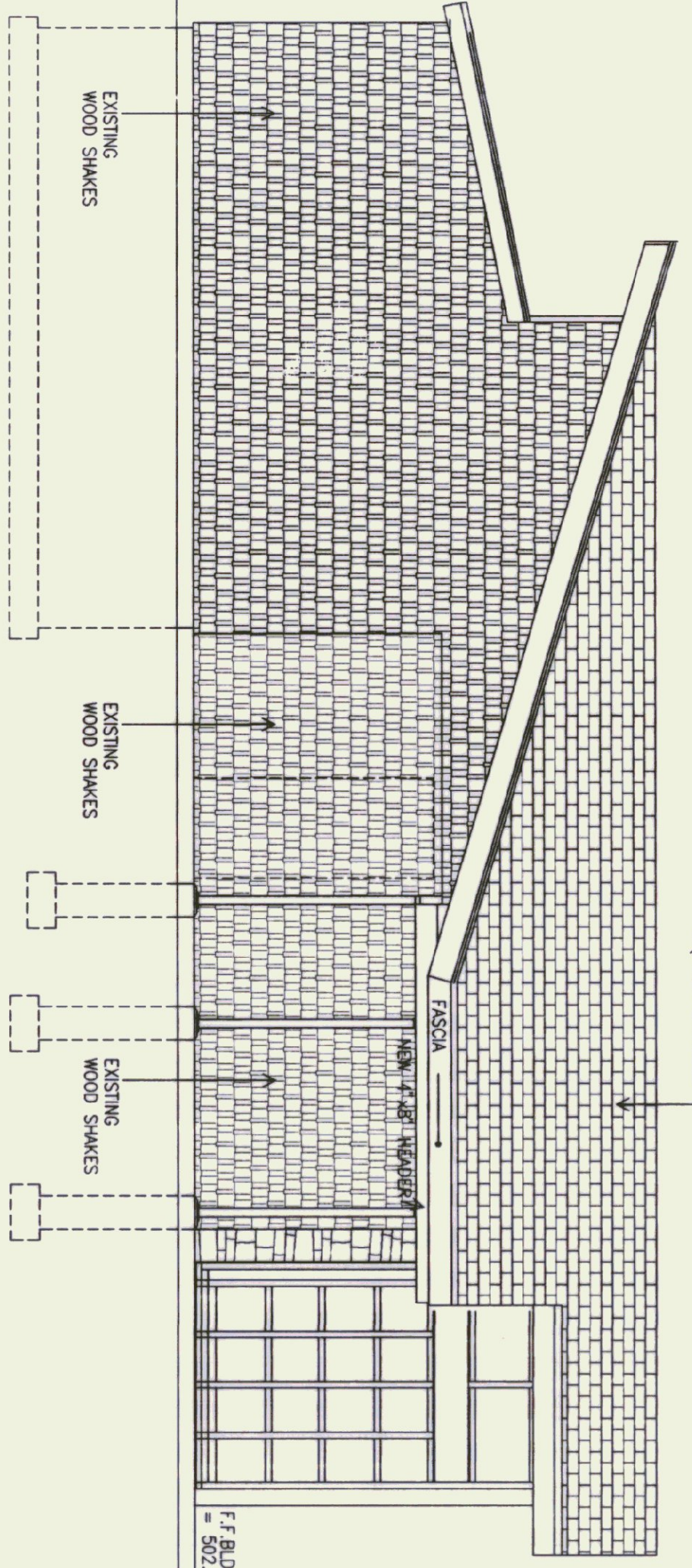
A-A SECTION A-A

1/4"=1'-0"



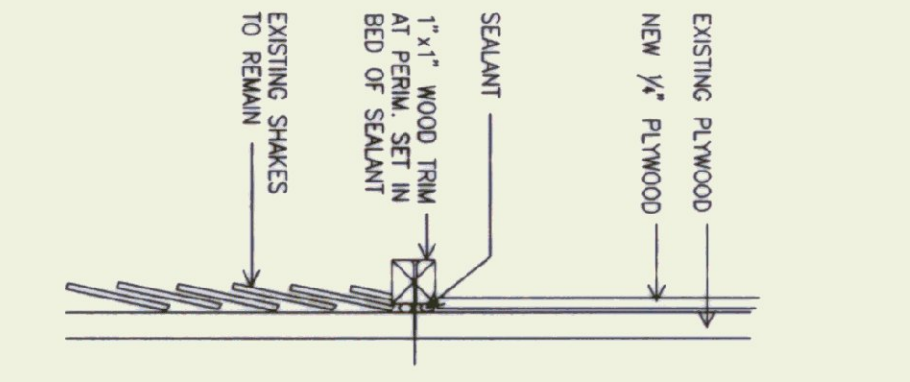
B-B SECTION B-B

1/4"=1'-0"



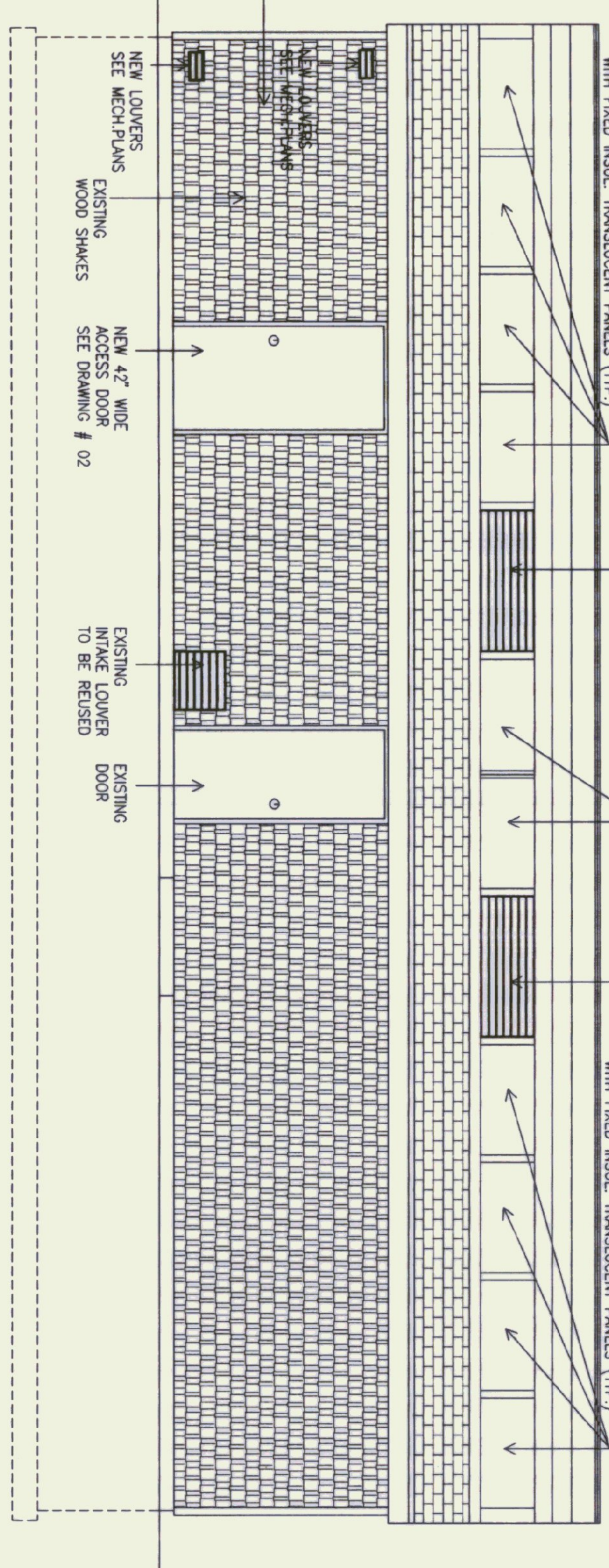
1 SOUTH ELEVATION

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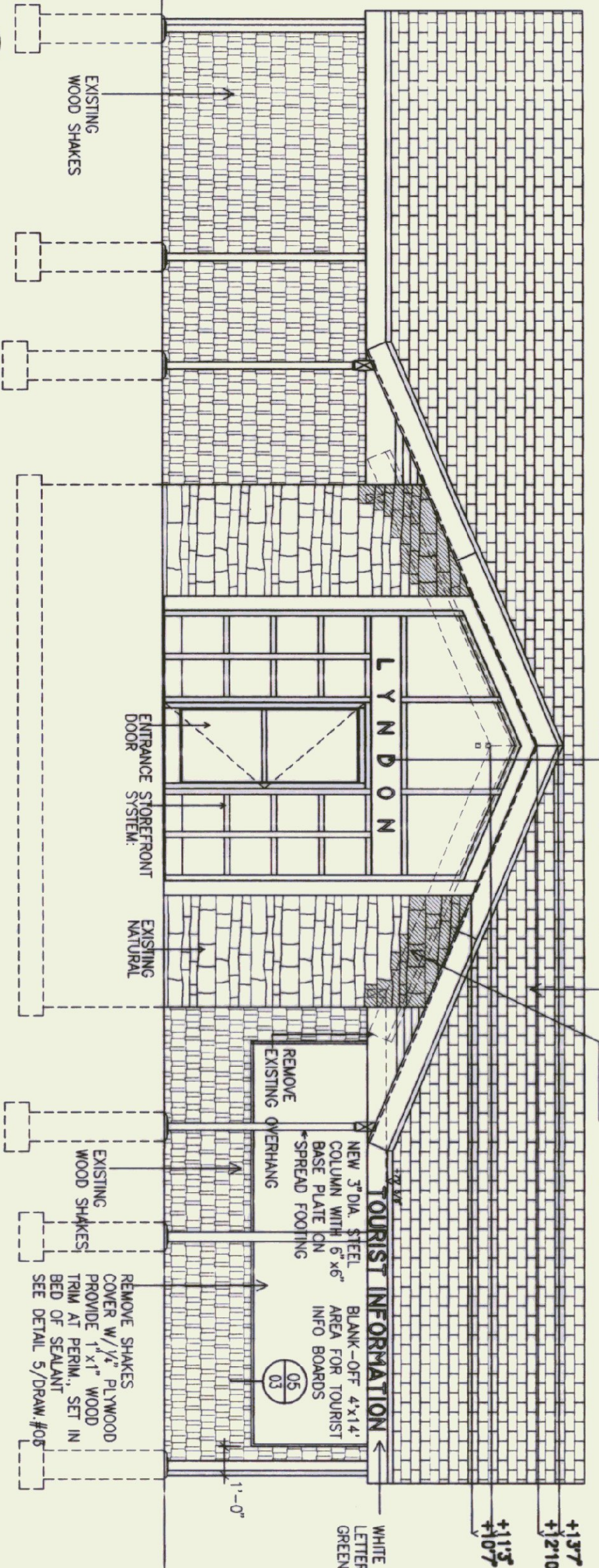
5 PANEL TRIM DETAIL

NO SCALE



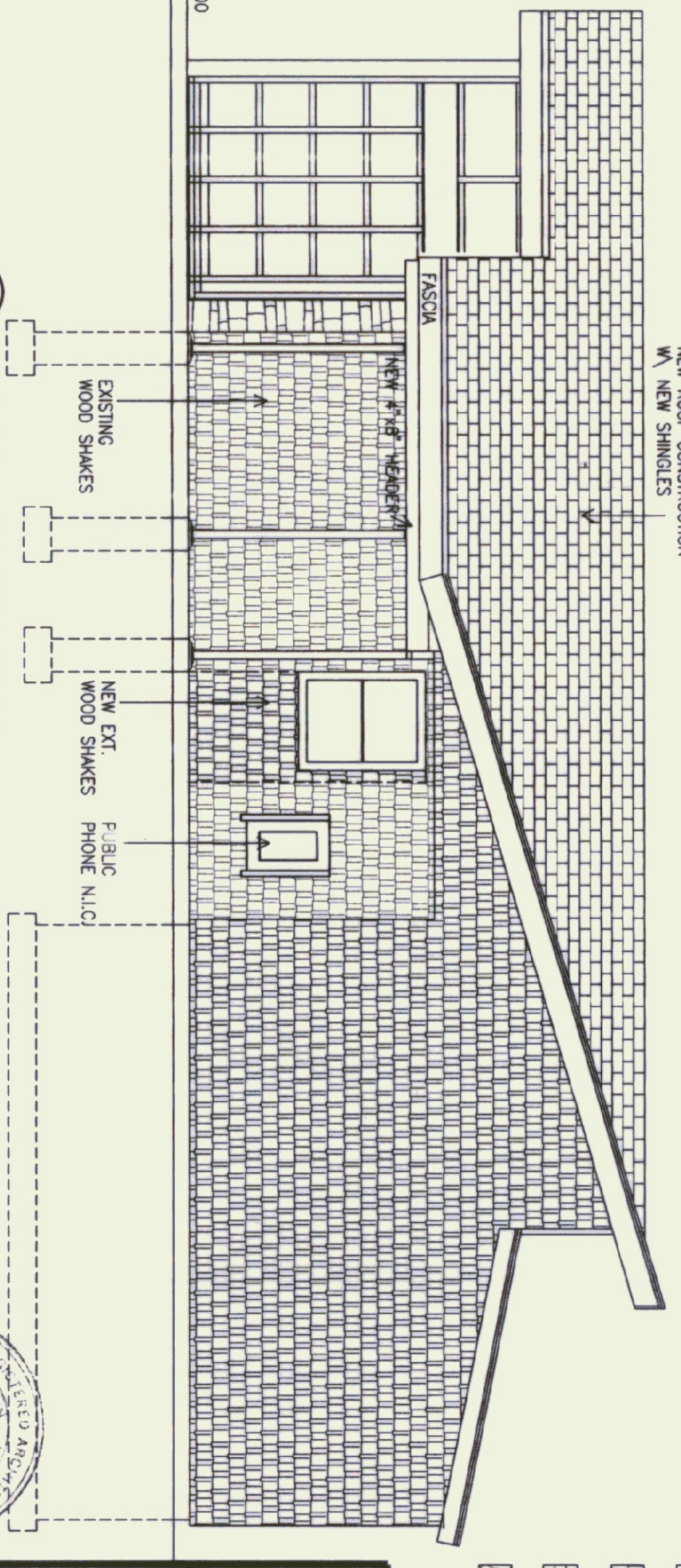
2 WEST ELEVATION

1/4"=1'-0"



3 EAST ELEVATION

1/4"=1'-0"



4 NORTH ELEVATION

1/4"=1'-0"

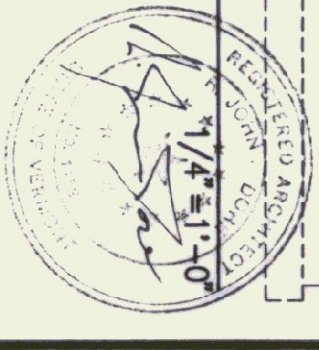
**LEGEND**

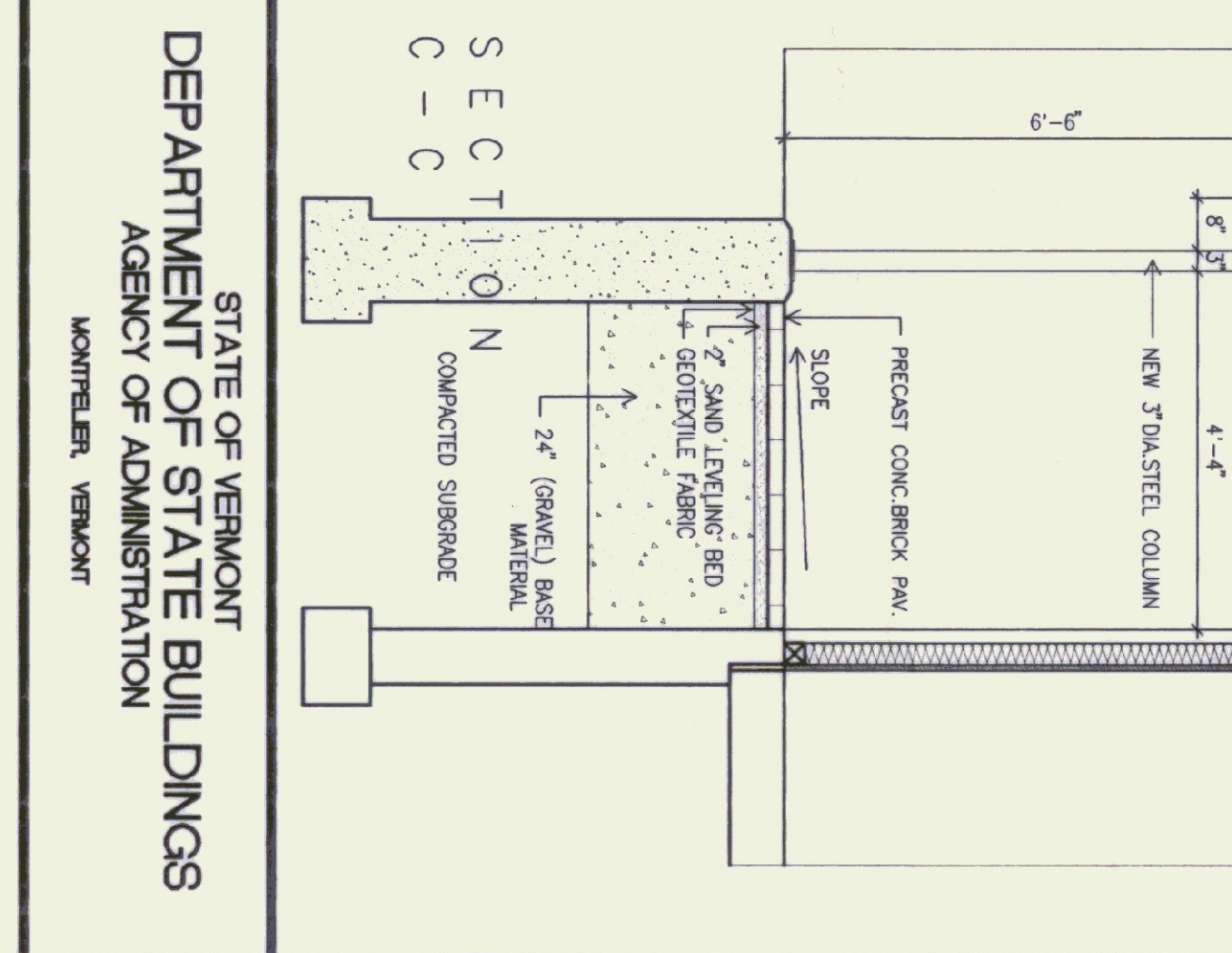
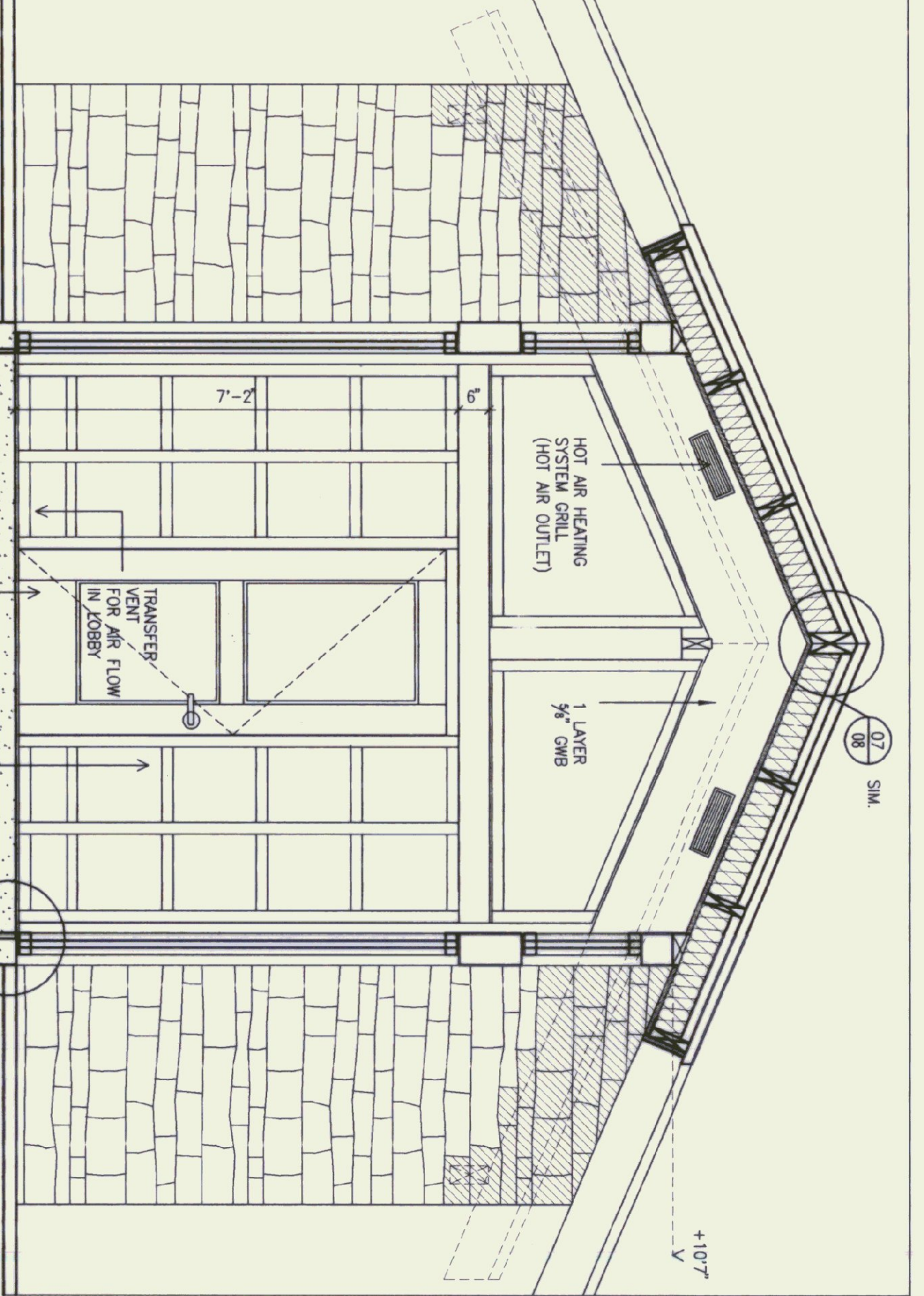
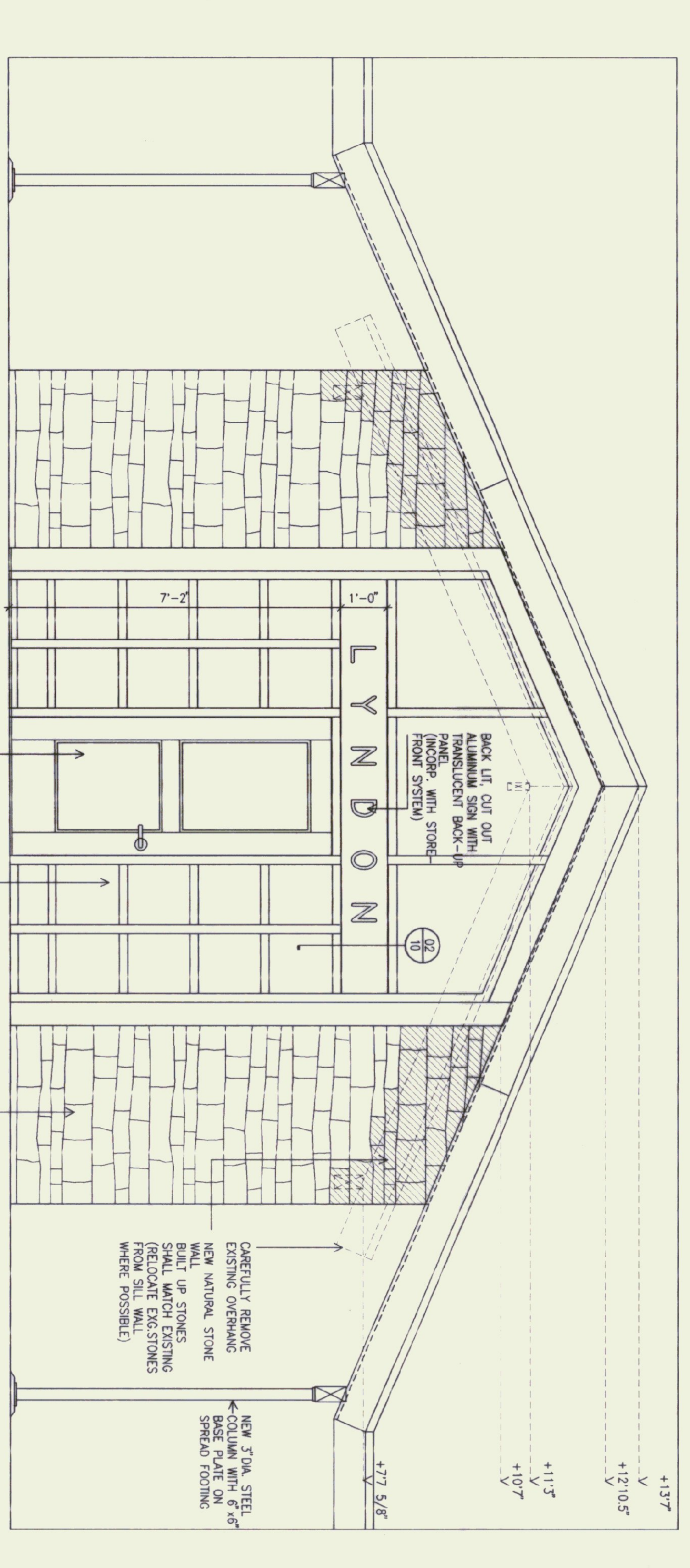
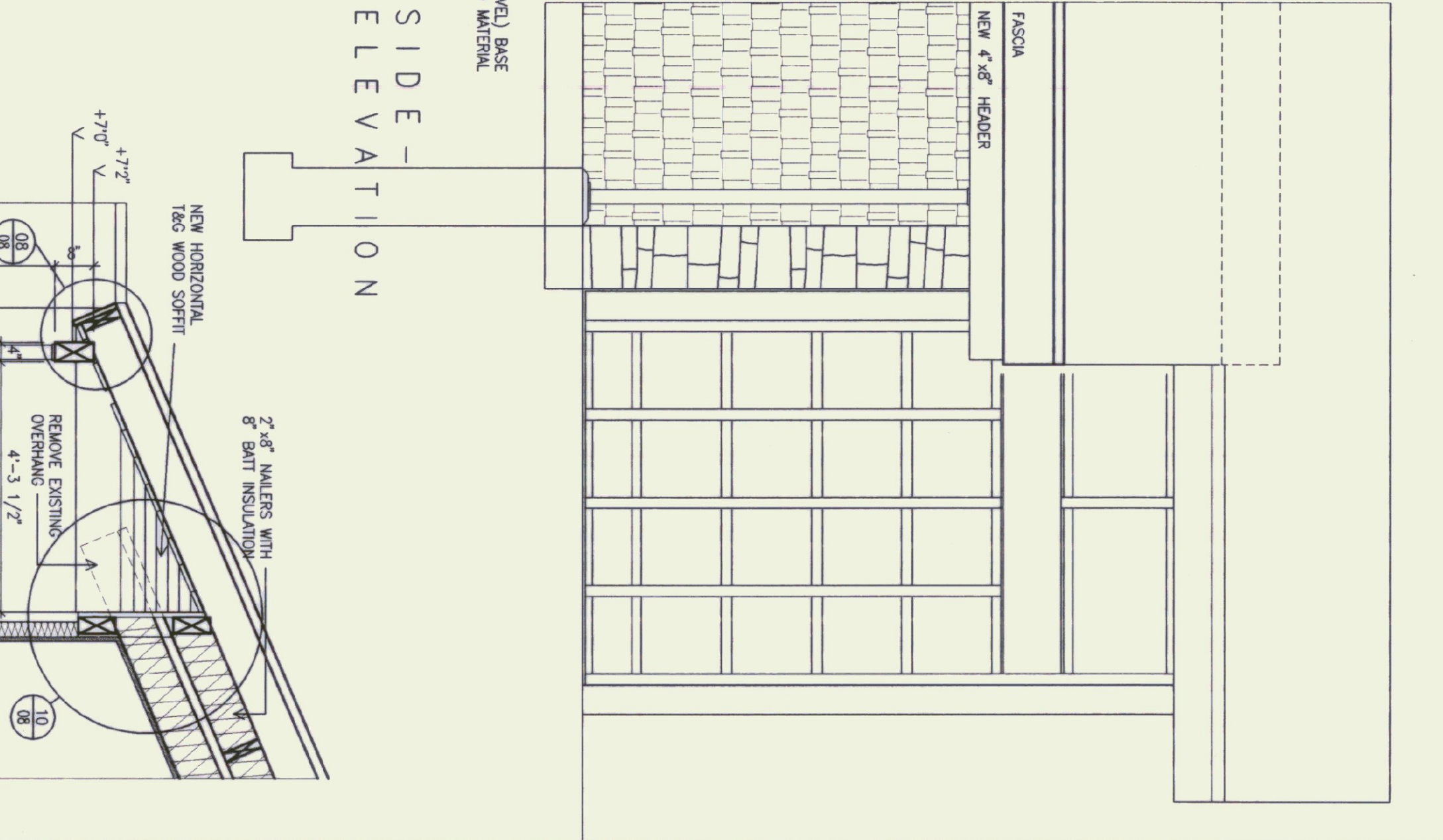
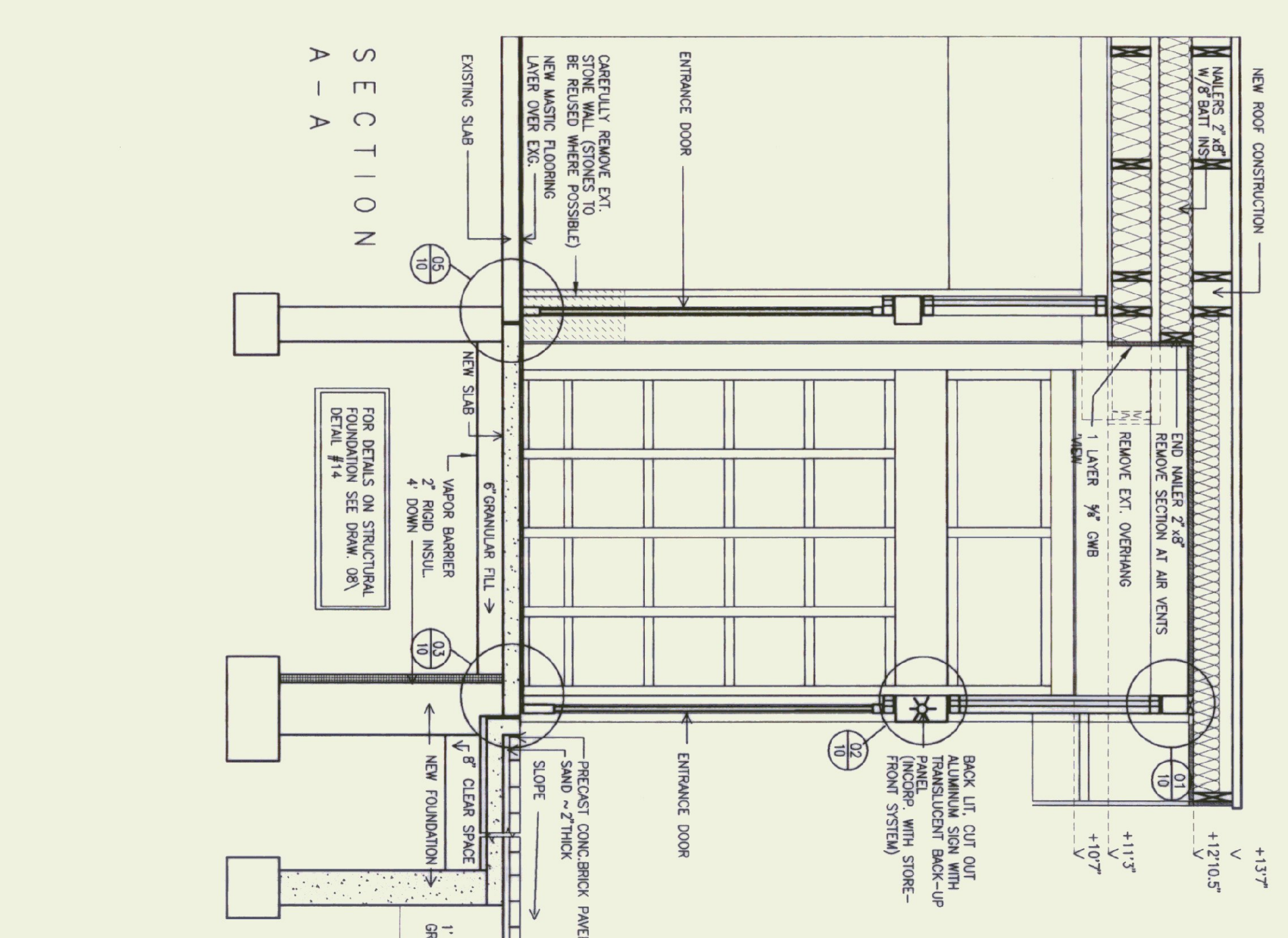
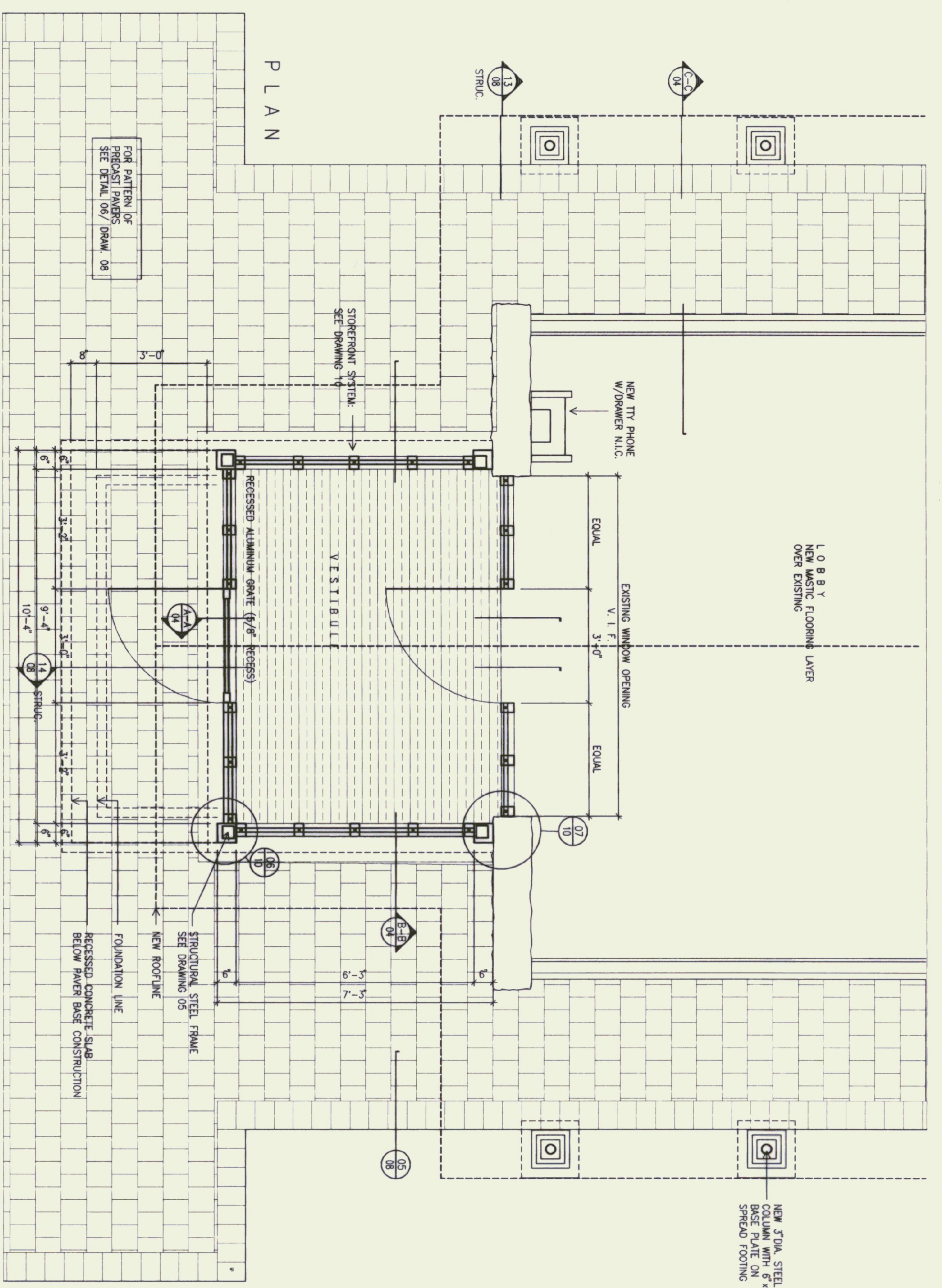
	BLOCK WALL CONSTRUCTION
	NATURAL STONE WALL
	WOOD SHAKES
	ROOF SHINGLES
	BAT INSULATION

STATE OF VERMONT  
 DEPARTMENT OF STATE BUILDINGS  
 AGENCY OF ADMINISTRATION  
 MONTPELIER, VERMONT

REST AREA REHABILITATION  
 LYNDON I-91 SOUTHBOUND  
 ELEVATIONS

DATE: JUNE 8, 1995	SCALE: 1/4"=1'-0"	PERSONS:	DRAWING NO: 03
DRAWN BY: [Signature]	PROJECT NO: 74-0106(12)		SHEET: 6 OF 29
DATE: [Signature]	PROJECT NO: 74-0106(12)		





FRONT - ELEVATION

SECTION B - B

SECTION A - A

SIDE - ELEVATION

STATE OF VERMONT  
 DEPARTMENT OF STATE BUILDINGS  
 AGENCY OF ADMINISTRATION  
 MONTPELIER, VERMONT

REST AREA REHABILITATION  
 LYNDON I-91 SOUTHBOUND  
 VESTIBULE

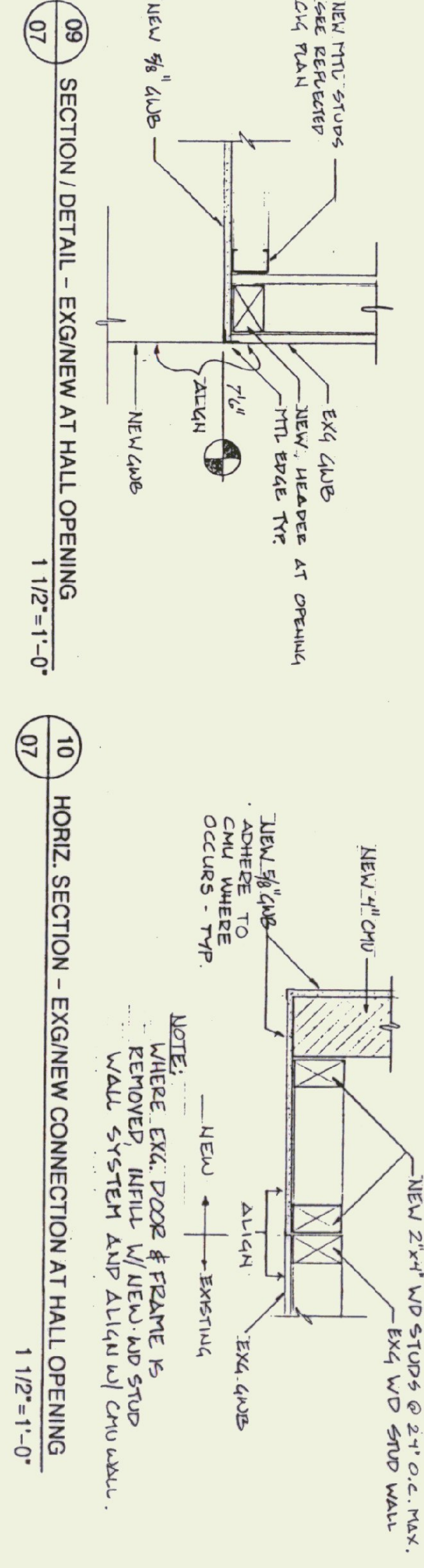
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DRAWN BY:	IM-BL/GR	PROJECT NO.:				SHEET:	7 OF 29
APPROVED BY:							



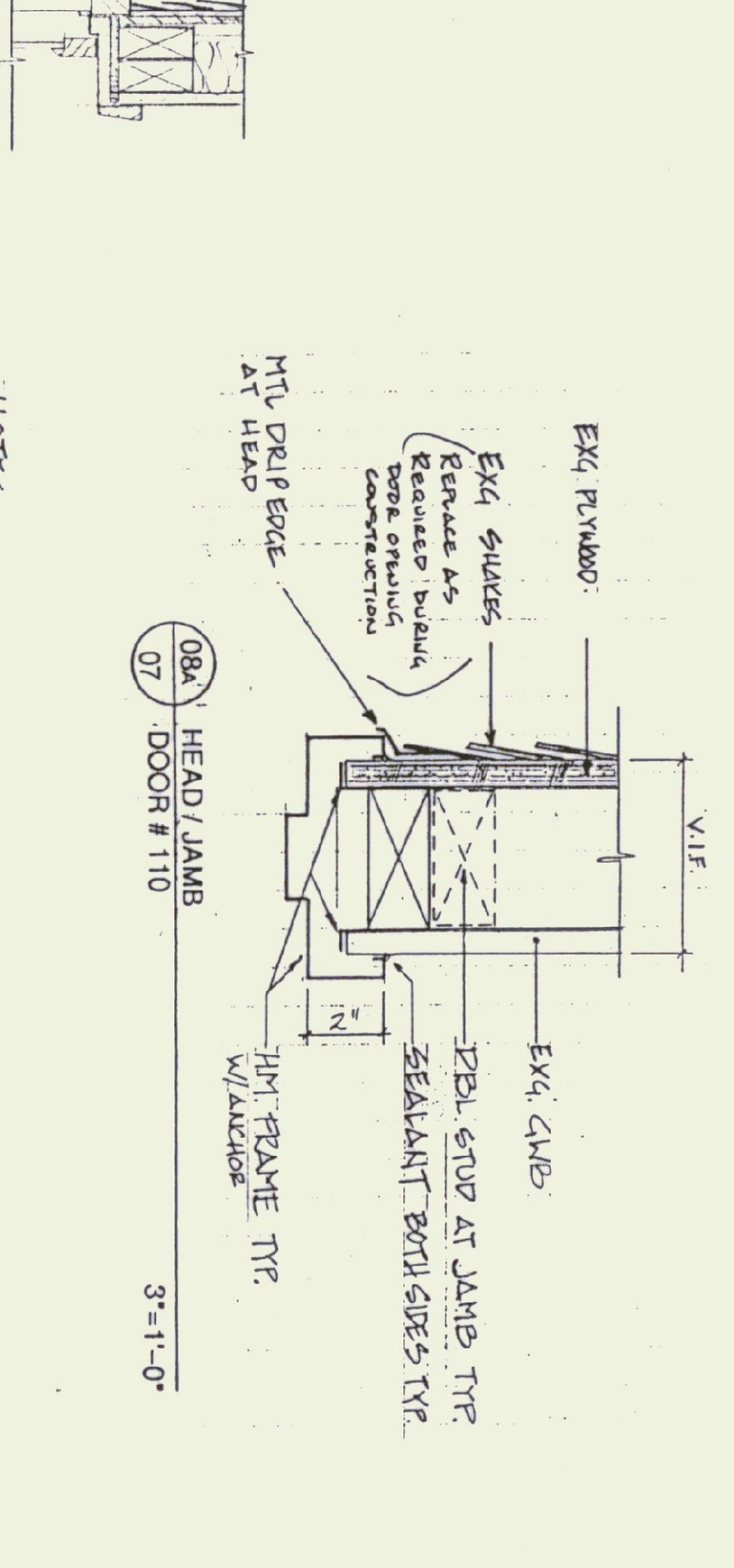




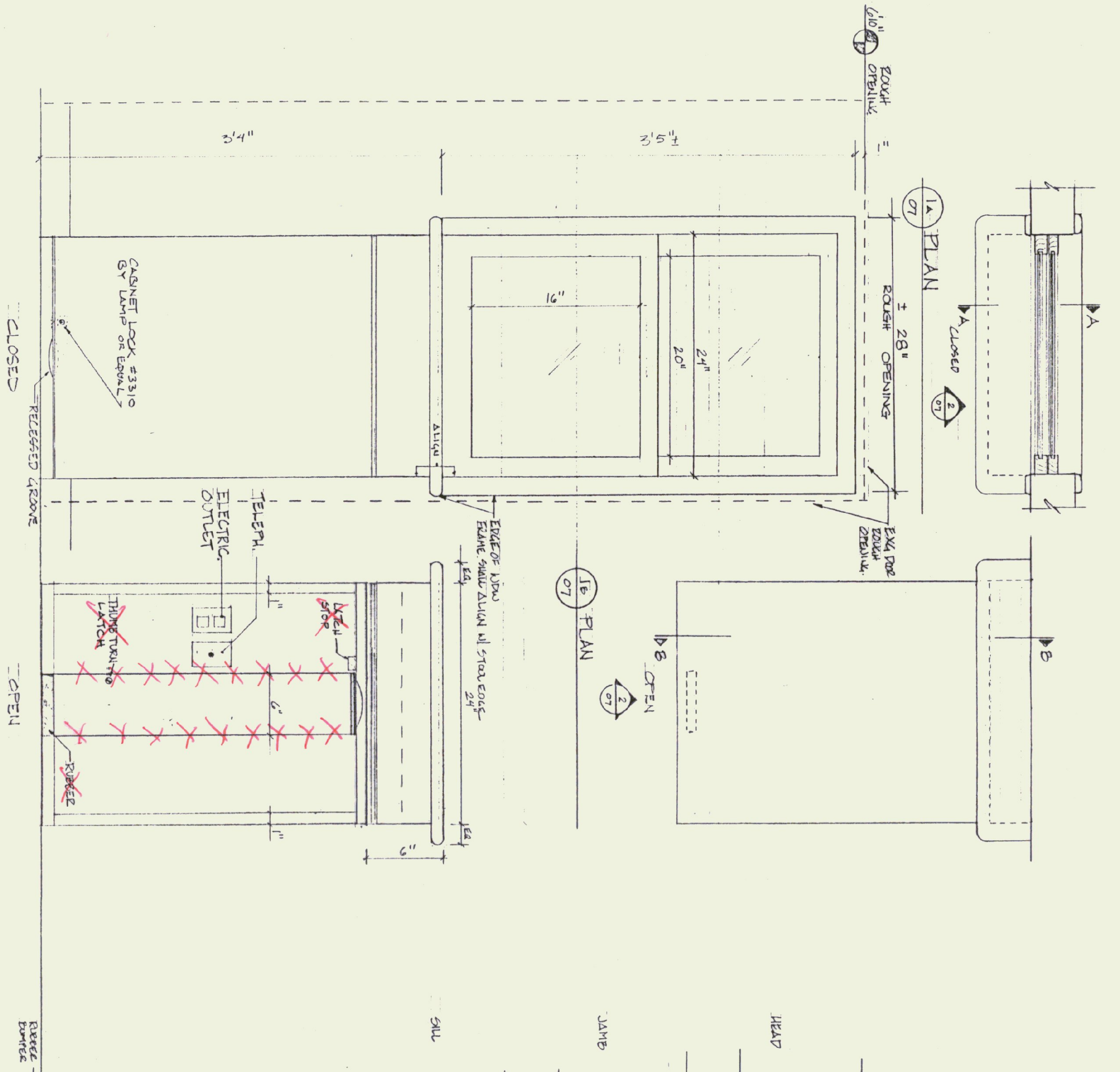
DOOR SCHEDULE										
DOOR #	TYPE	MAT.	W	H	MAT.	FRAME	UNTEL THRU	LABEL	GROUP	REMARKS
101	A	AL	3'0"	6'0"	AL	02/10	-	-	2	*see section 09/00
102	A	AL	3'0"	6'0"	AL	02/10	-	-	2	*see section 09/00
103	EXG TO REMAIN	-	-	-	-	05/10	-	-	-	-
104	EXG TO REMAIN	-	-	-	-	-	-	-	-	-
105	EXG TO BE REMOVED	-	-	-	-	06/07	-	-	2	-
106	B	HM	2'0"	6'0"	HM	06/07	-	-	1	provide 6" x 6" one way light centered @ 5' A.F.F.
107	B	HM	3'0"	6'0"	HM	06/07	-	-	1	-
108	C	HM	3'0"	6'0"	HM	06/07	-	-	2	-
109	EXG TO REMAIN	-	-	-	-	07/07	-	-	-	-
110	D	HM	2'4"	4'8"	HM	06/07	-	-	2	use same threshold as entry doors
111	D	HM	2'4"	4'8"	HM	06/07	-	-	2	mfr. provides frame and hardware
112	EXG TO BE REMOVED	-	-	-	-	-	-	-	-	-
113	EXG TO BE REMOVED	-	-	-	-	-	-	-	-	-
114	D	HM	2'4"	2'4"	HM	-	-	-	-	mfr. provides frame and hardware



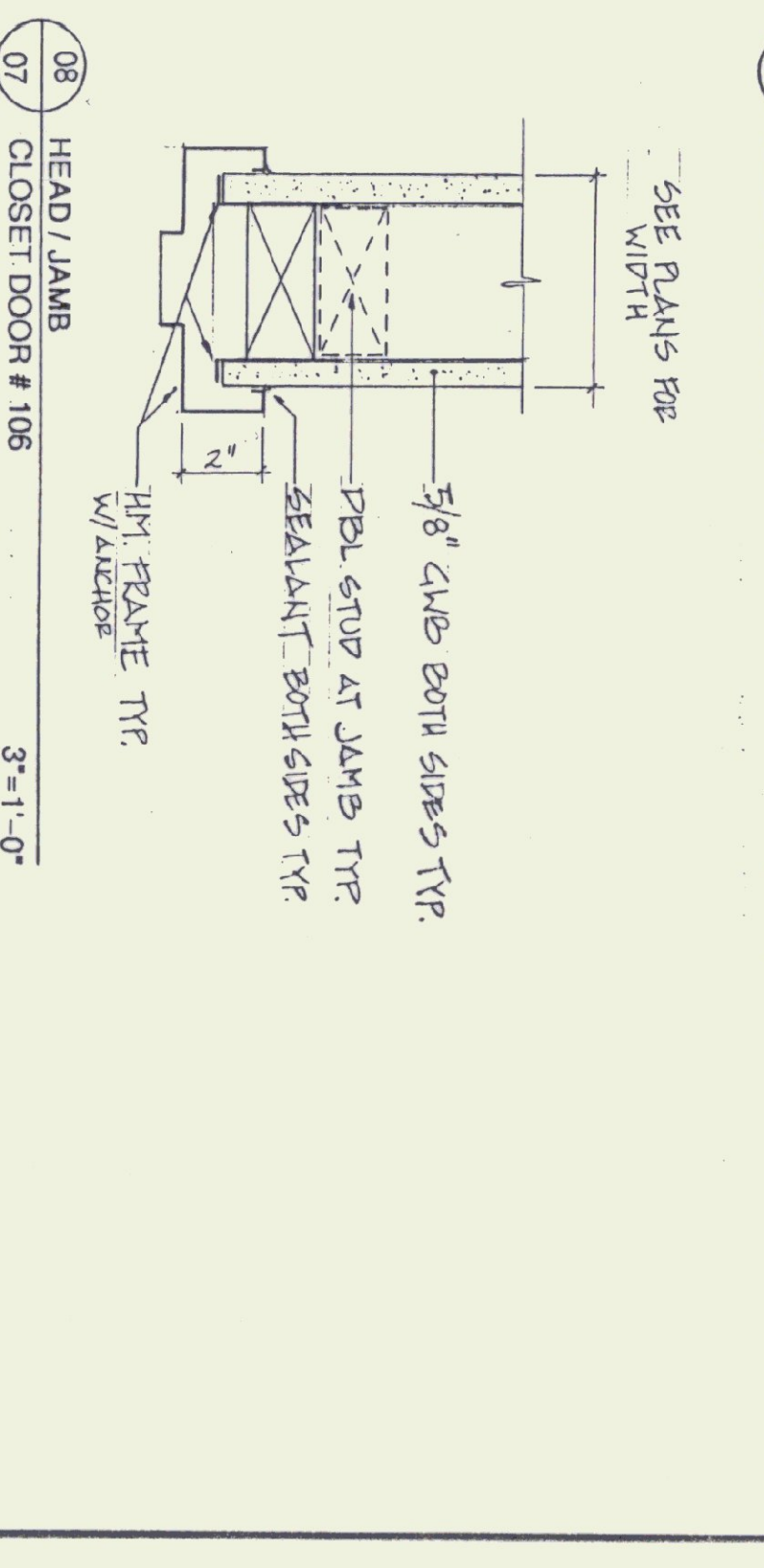
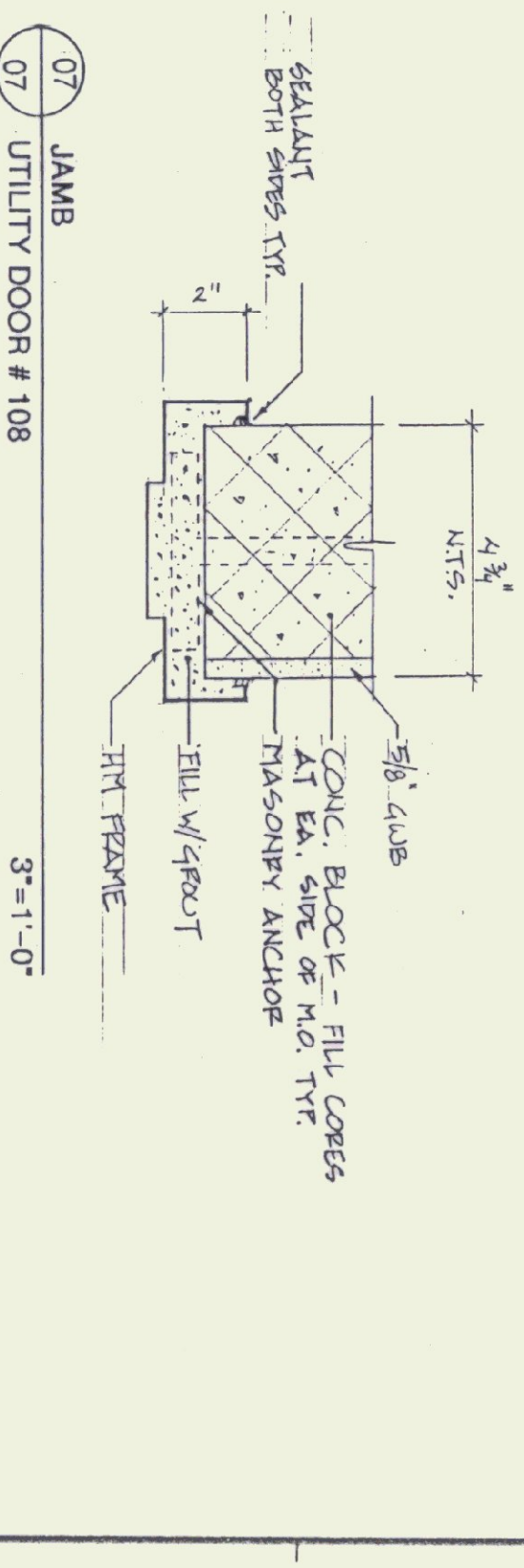
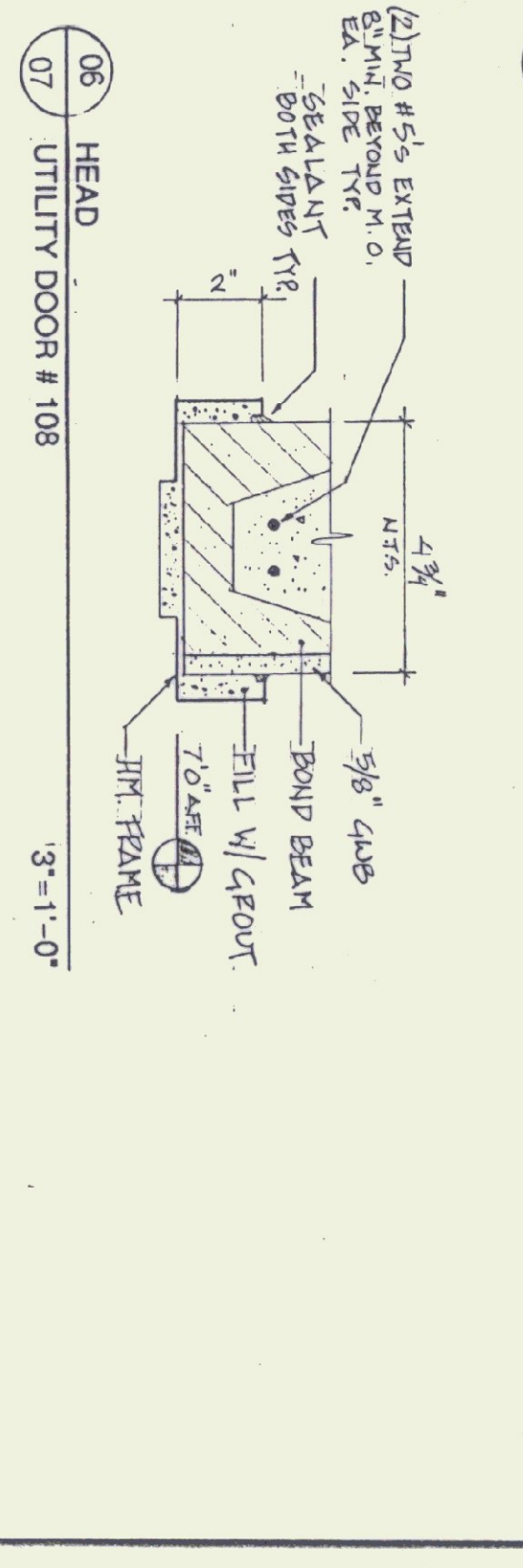
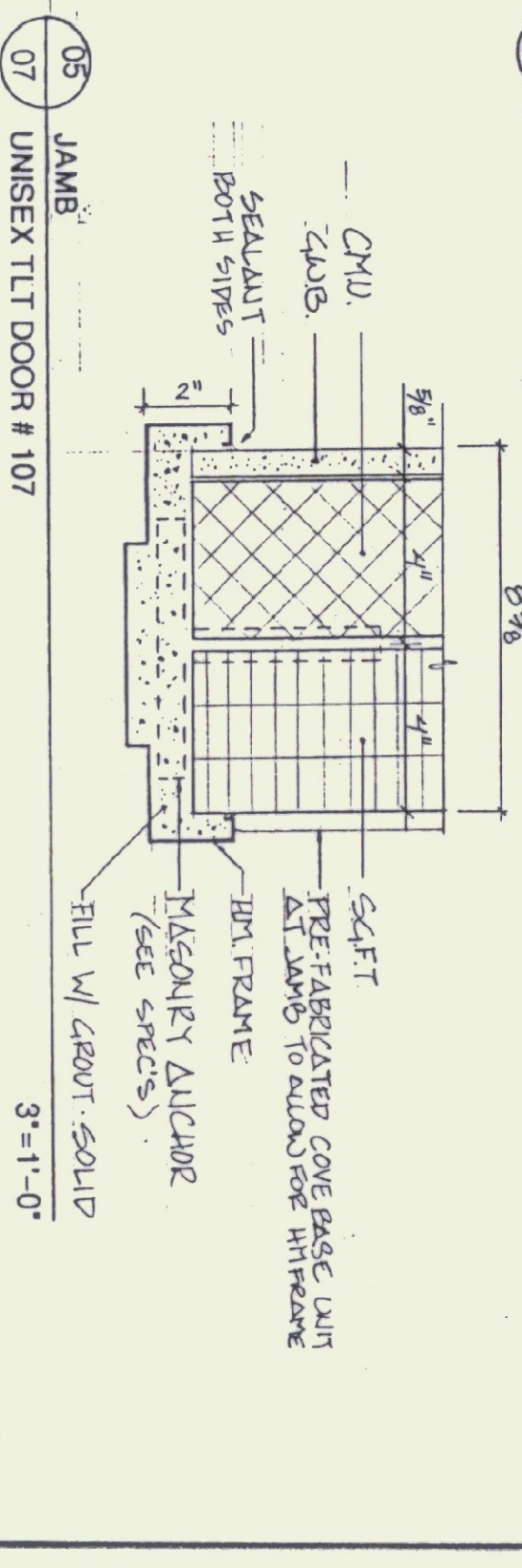
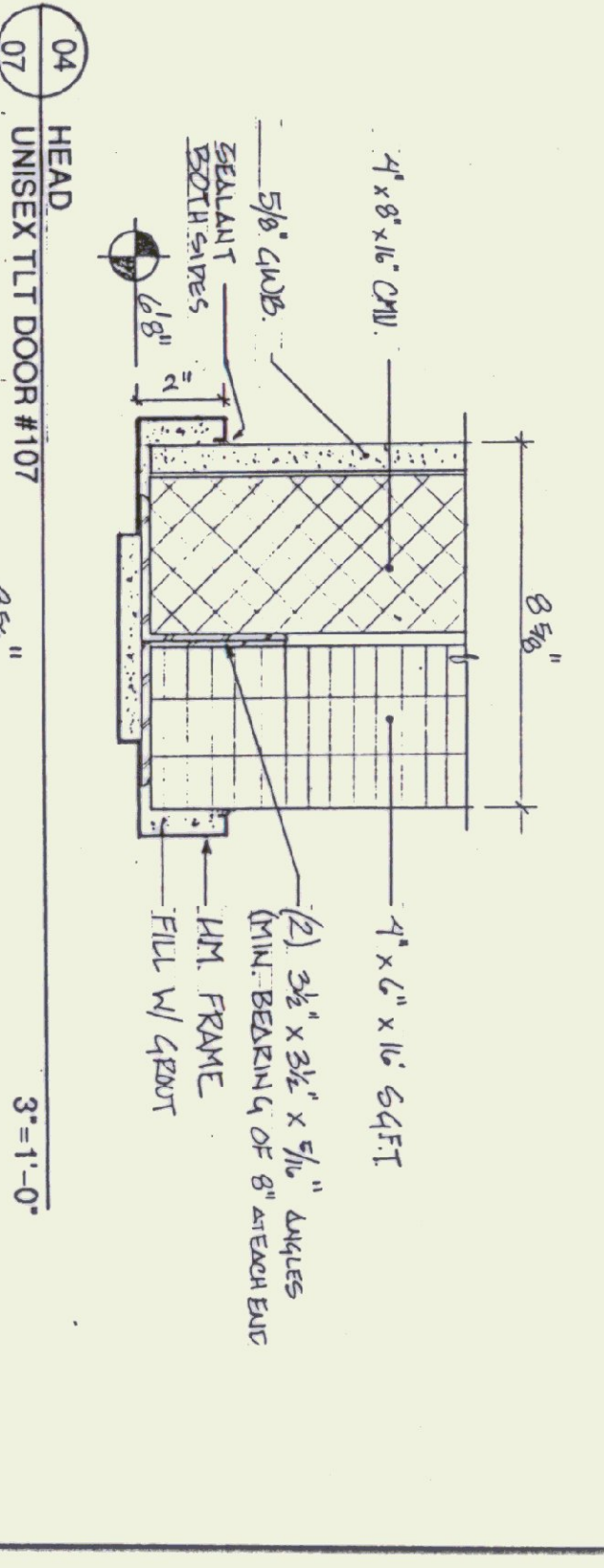
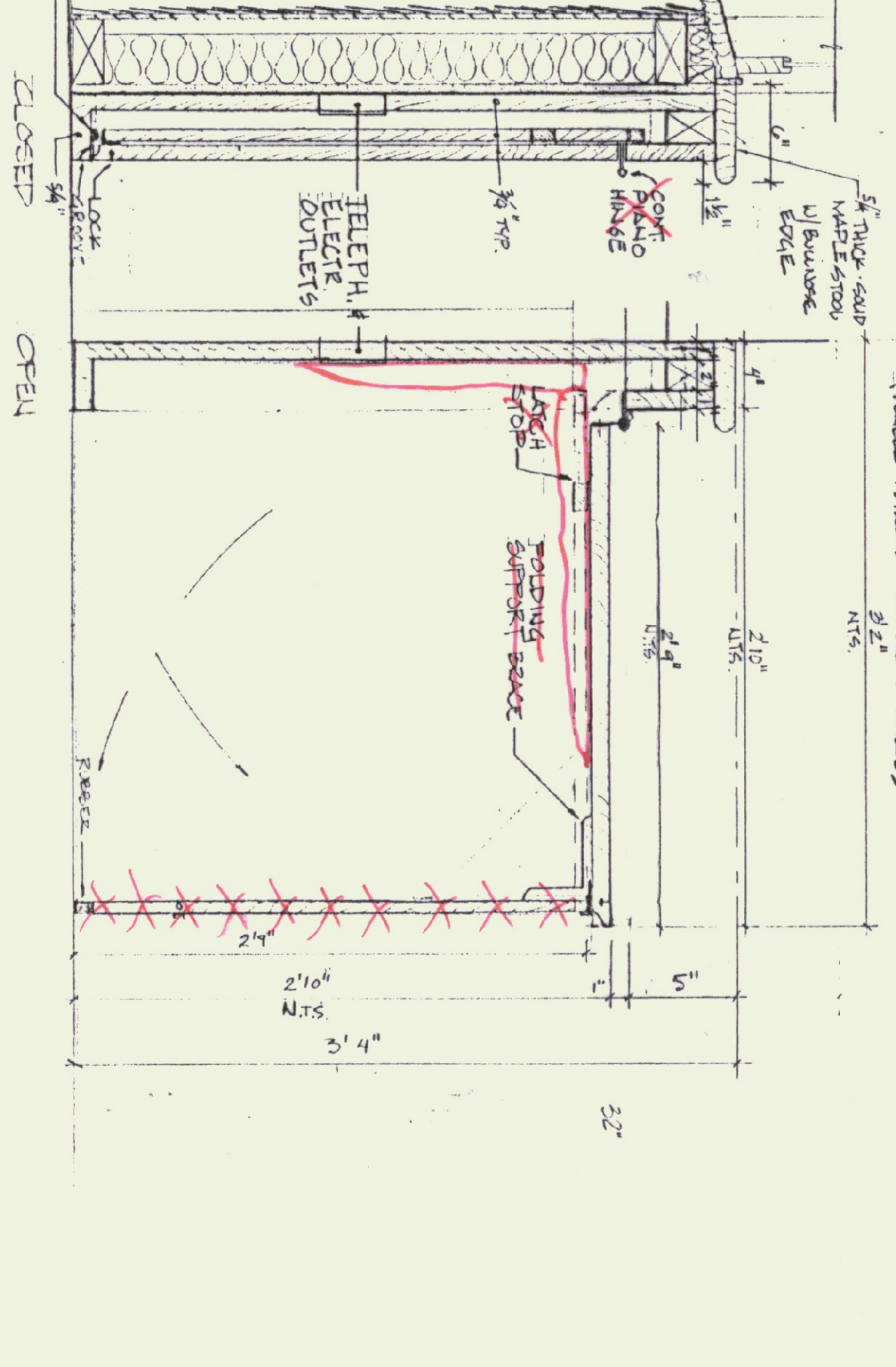
**DOOR TYPES**  
 TYPE A: SEE ELEVATIONS  
 TYPE B: FLUSH HOLLOW METAL  
 TYPE C: FLUSH HM WITH 6\"/>



**NOTES:**  
 1. AT ALL WOOD FASTENING LOCATIONS - COUNTERSINK SCREWS & NAILS.  
 2. BOUND ORNATE OF NEW JAMB SHALL FIT INTO EXG. BOUND OPENING. FROM REMOVED EXG. DOOR AT TOP AND THE SIDE CLOSEST TO ENTRY DOOR. (SEE SLIT)  
 3. IN MANUFACTURING THIS DESIGN, KEEP IN MIND THAT IT SHOULD BE AS VANDAL RESISTANT AS POSSIBLE.  
 4. WINDOWS SHALL BE DOUBLE HUNG (WOOD) WITH A GLASS SIZE OF 20\"/>



**SECTION A-A**  
**SECTION B-B**

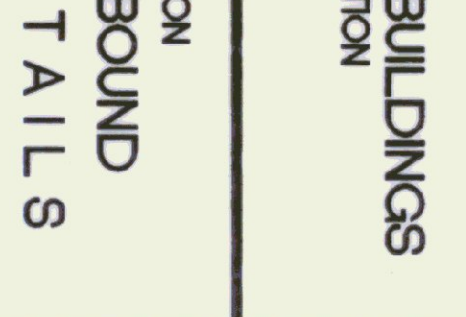
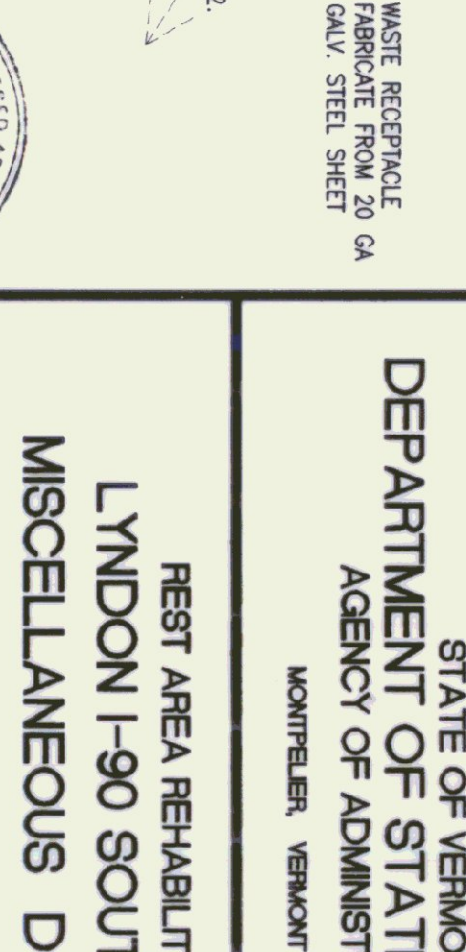
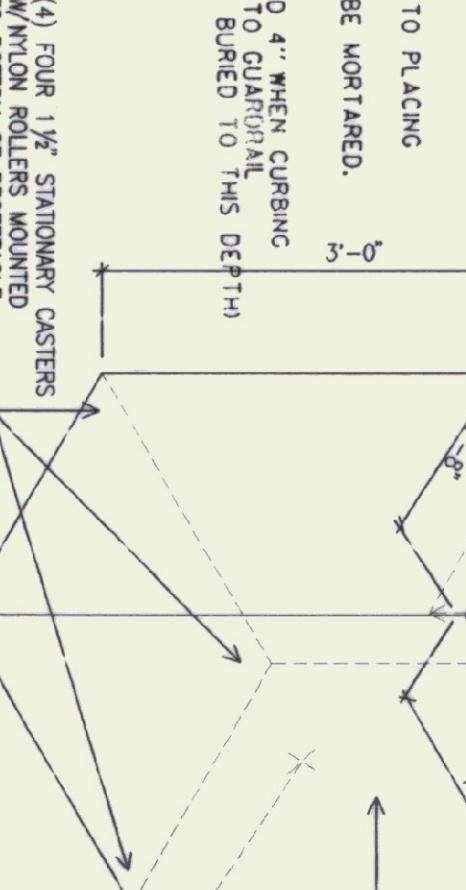
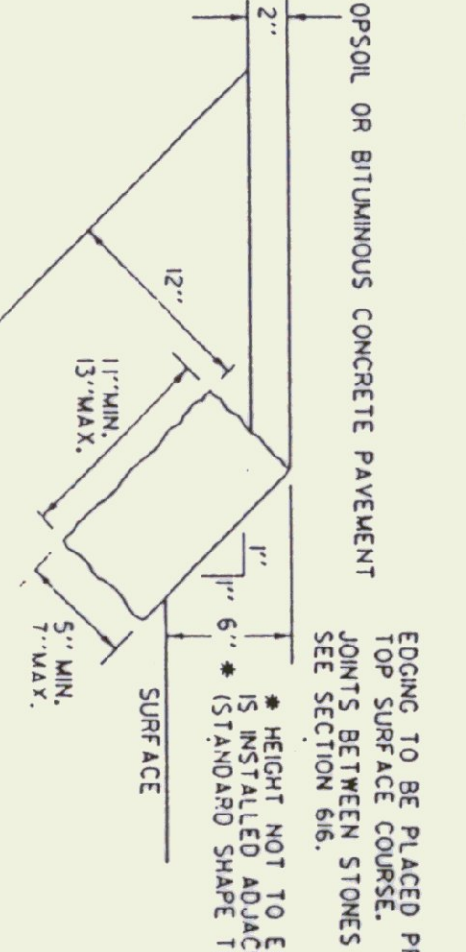
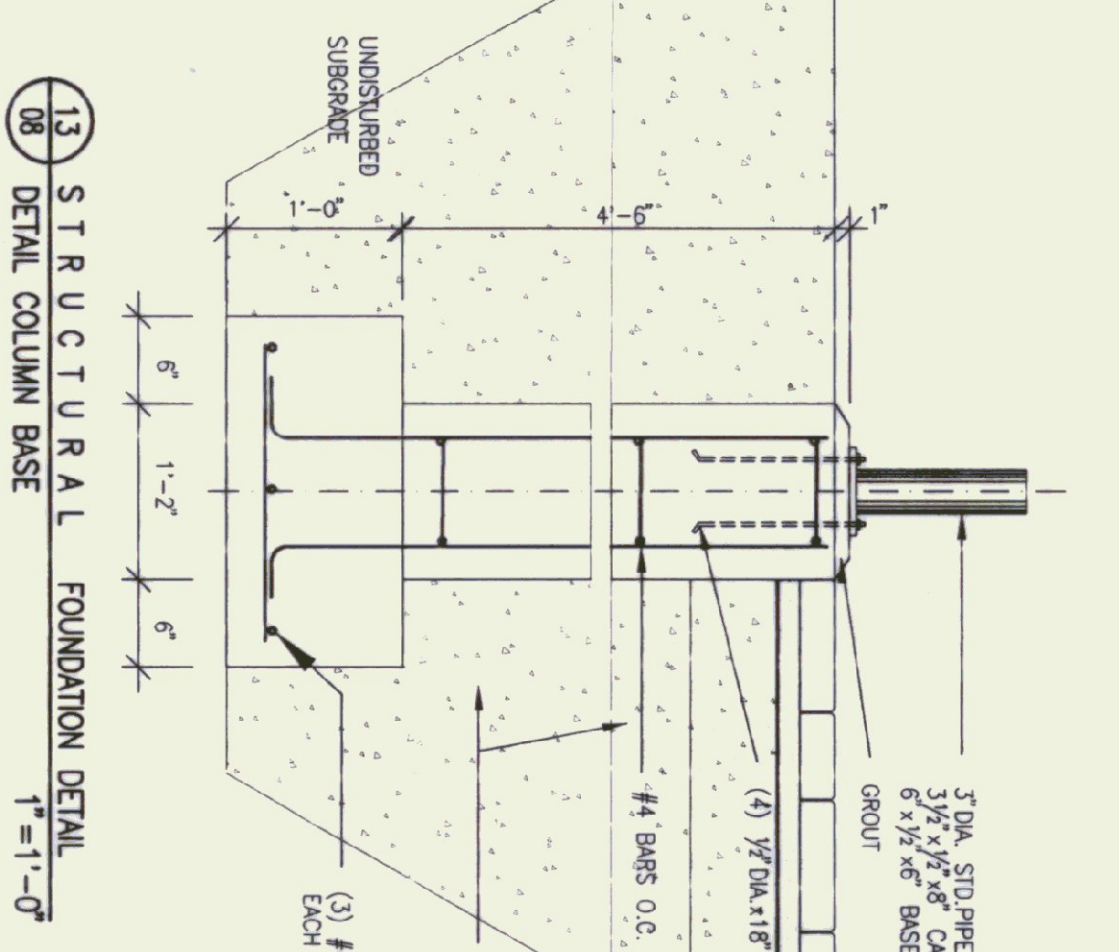
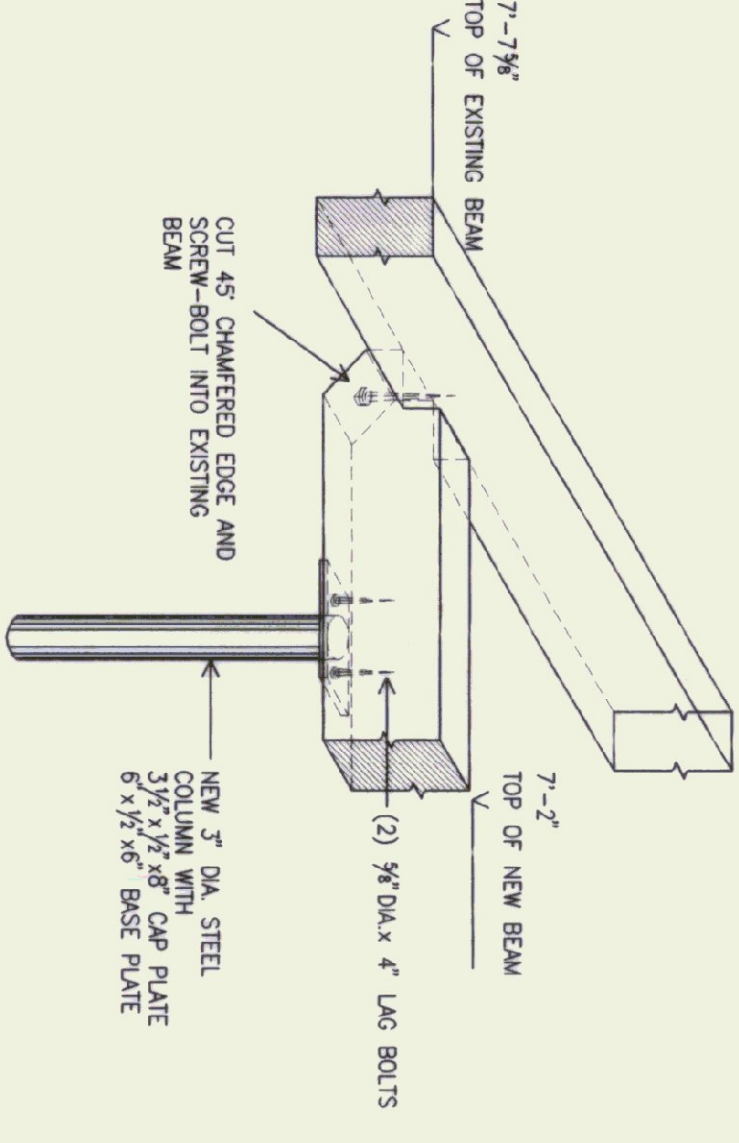
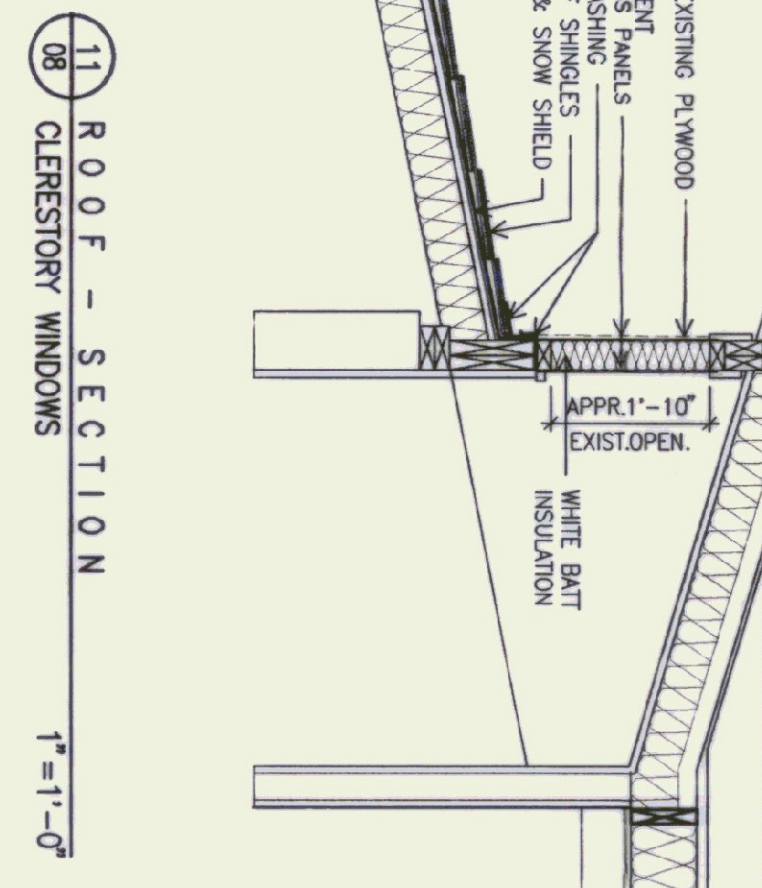
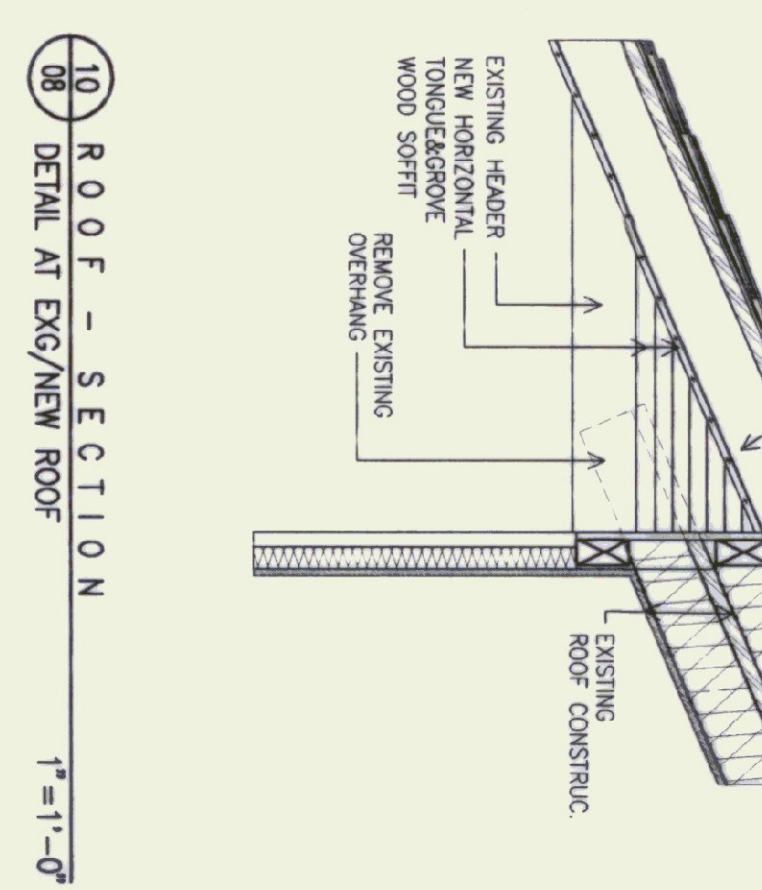
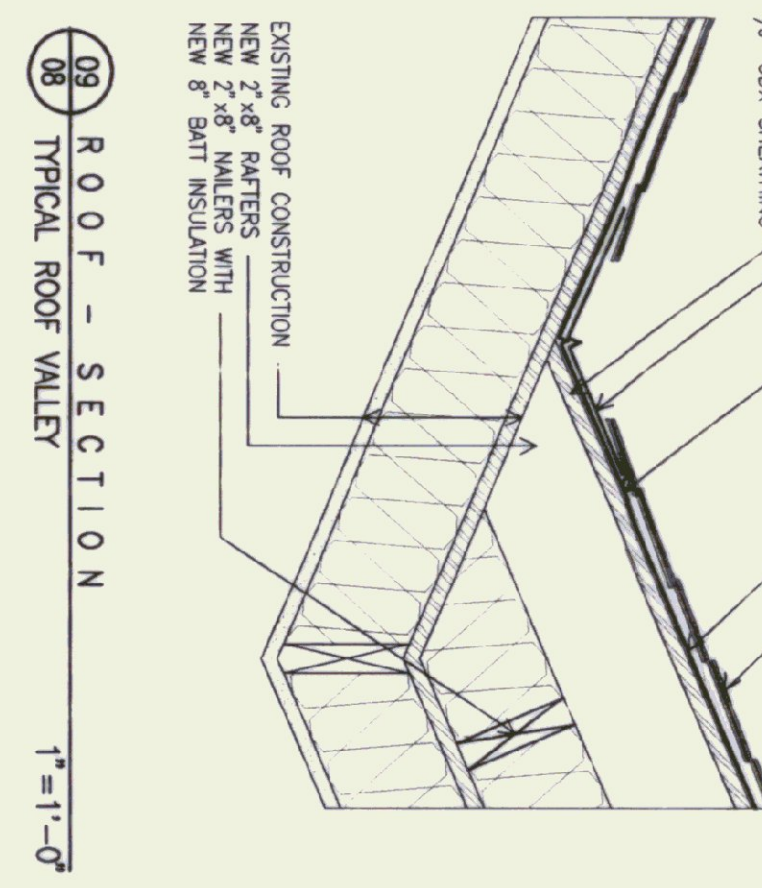
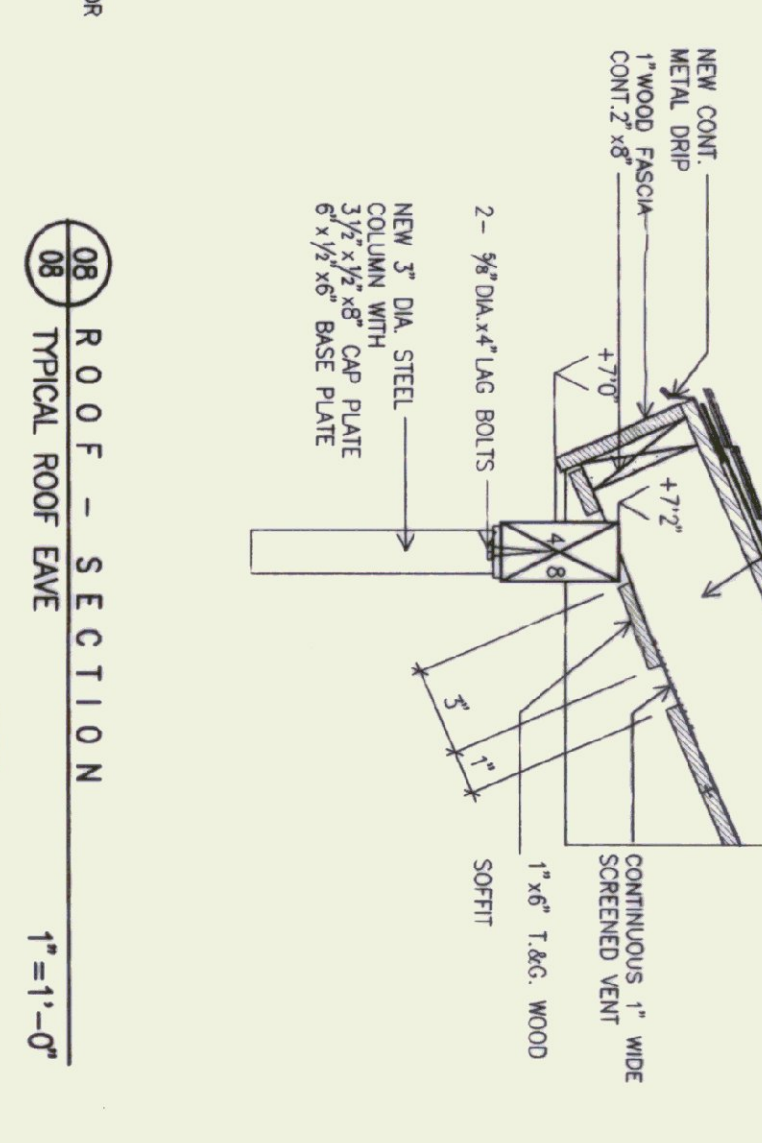
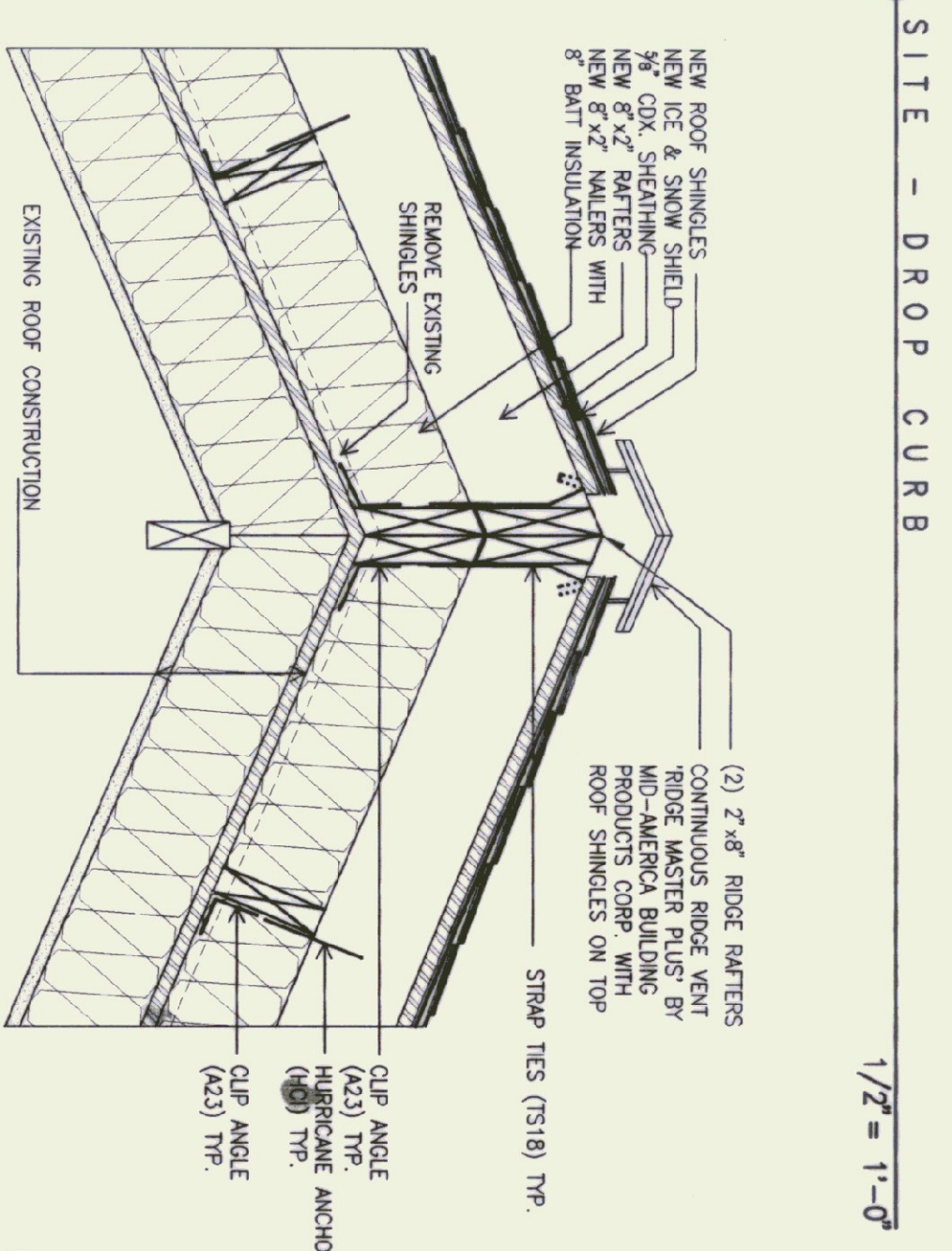
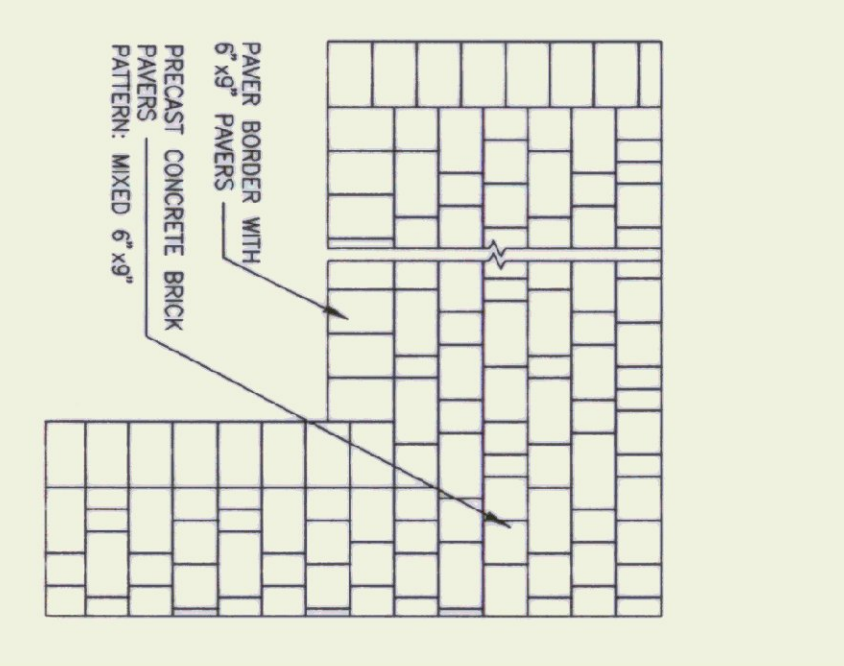
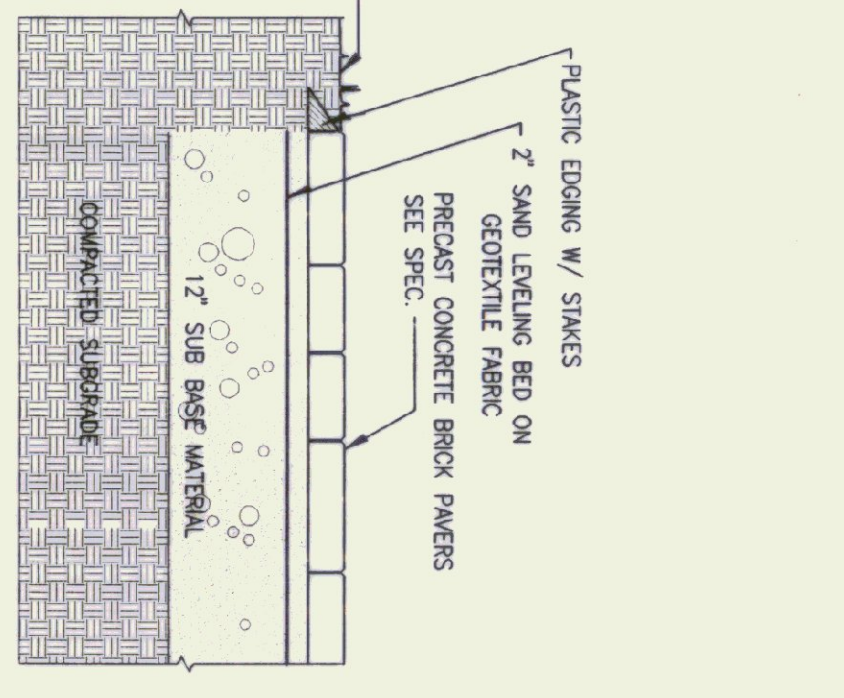
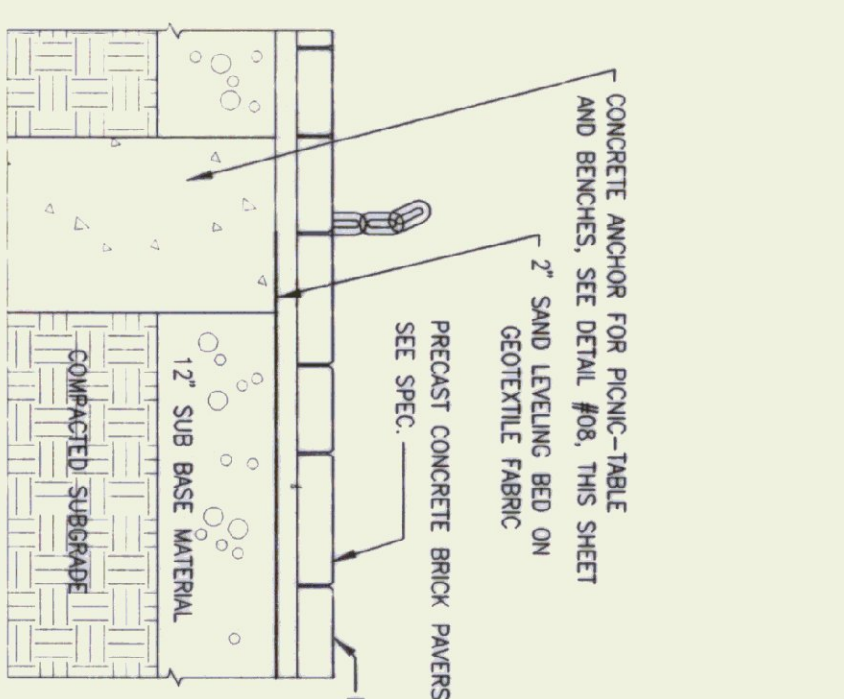
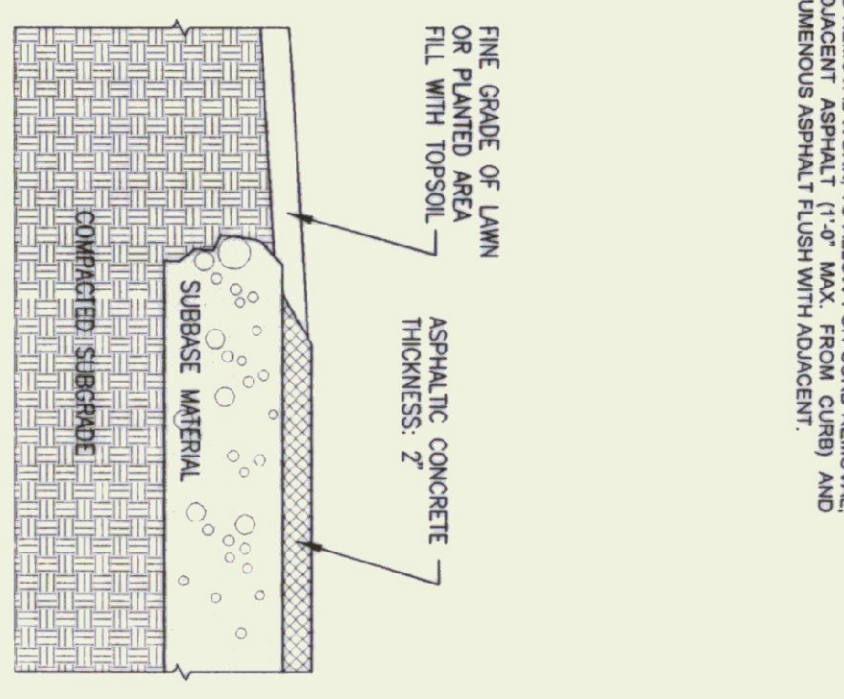
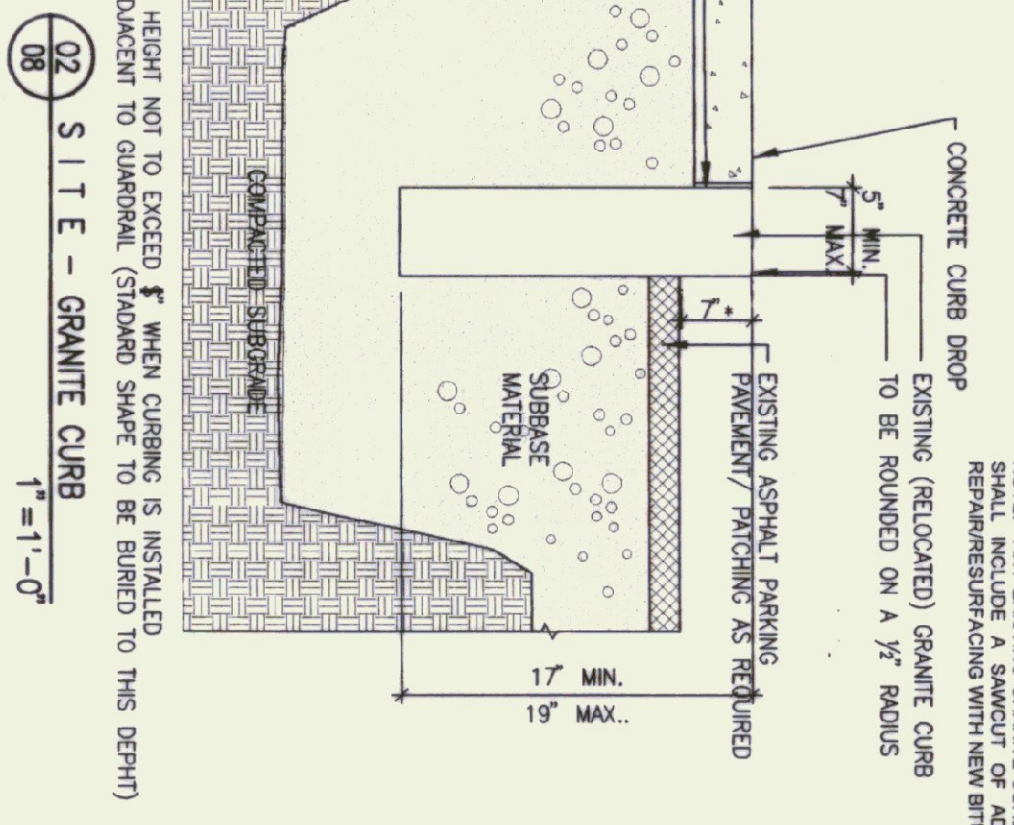
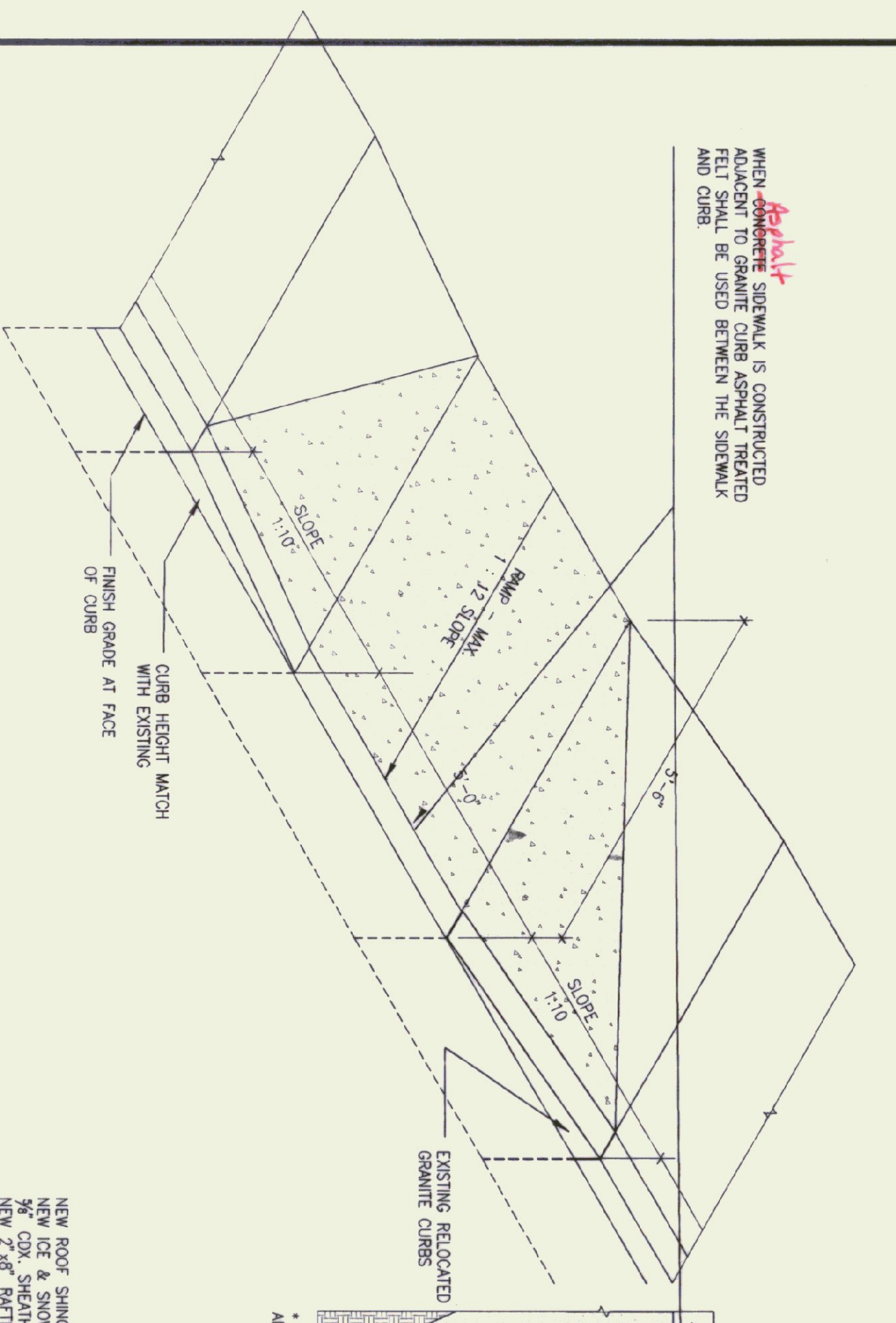


STATE OF VERMONT  
 DEPARTMENT OF STATE BUILDINGS  
 AGENCY OF ADMINISTRATION  
 MONTPELIER, VERMONT

REST AREA REHABILITATION  
 LYNDON I-91 SOUTHBOUND  
 FOLDING-TABLE/ DOOR + WDW DETLS

DATE: JUNE 9, 1995  
 SCALE: AS NOTED  
 DRAWN BY: [Signature]  
 PROJECT NO.: [Number]  
 SHEET: 10 OF 29

WHEN ASPHALT SIDEWALK IS CONSTRUCTED, ASPHALT SHALL BE CONSTRUCTED TO A MINIMUM OF 12" FROM CURB AND CURB. ASPHALT SHALL BE USED BETWEEN THE SIDEWALK AND CURB.

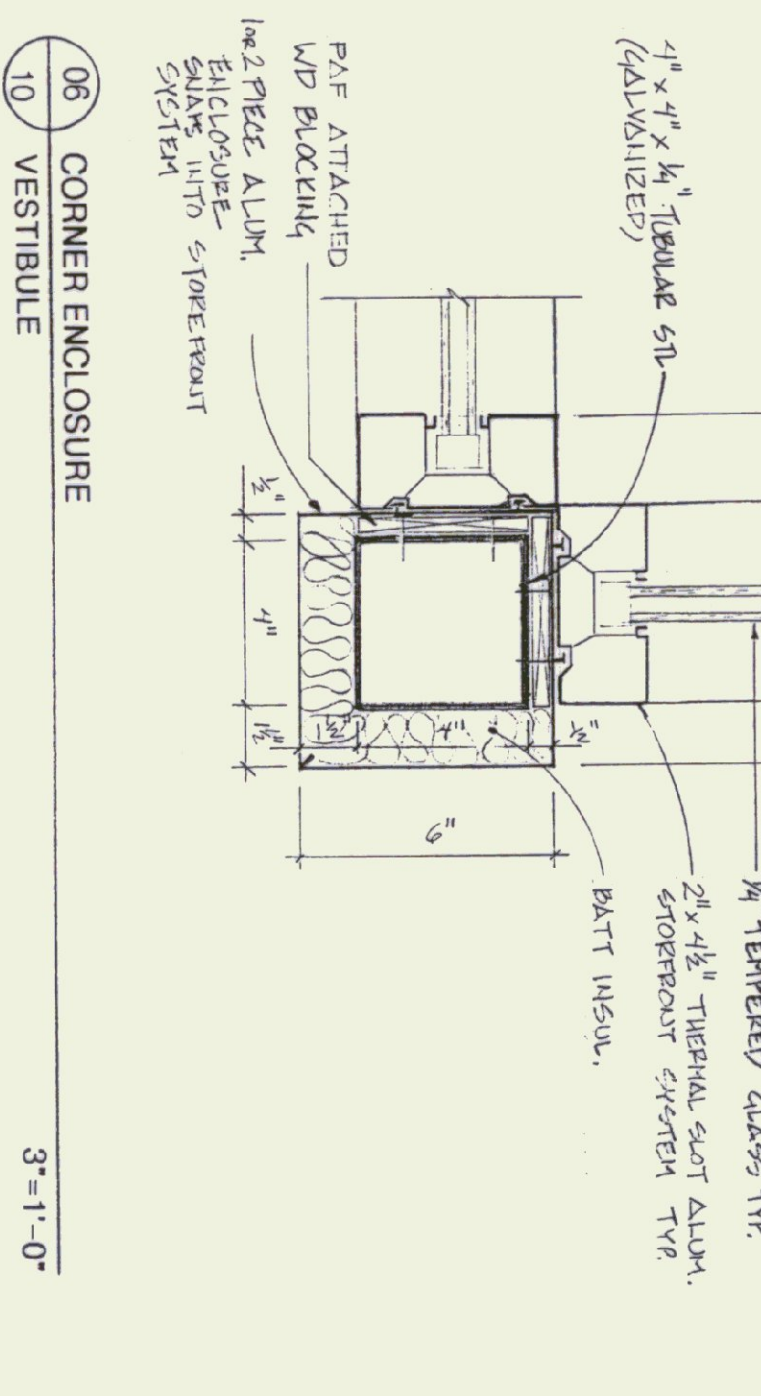
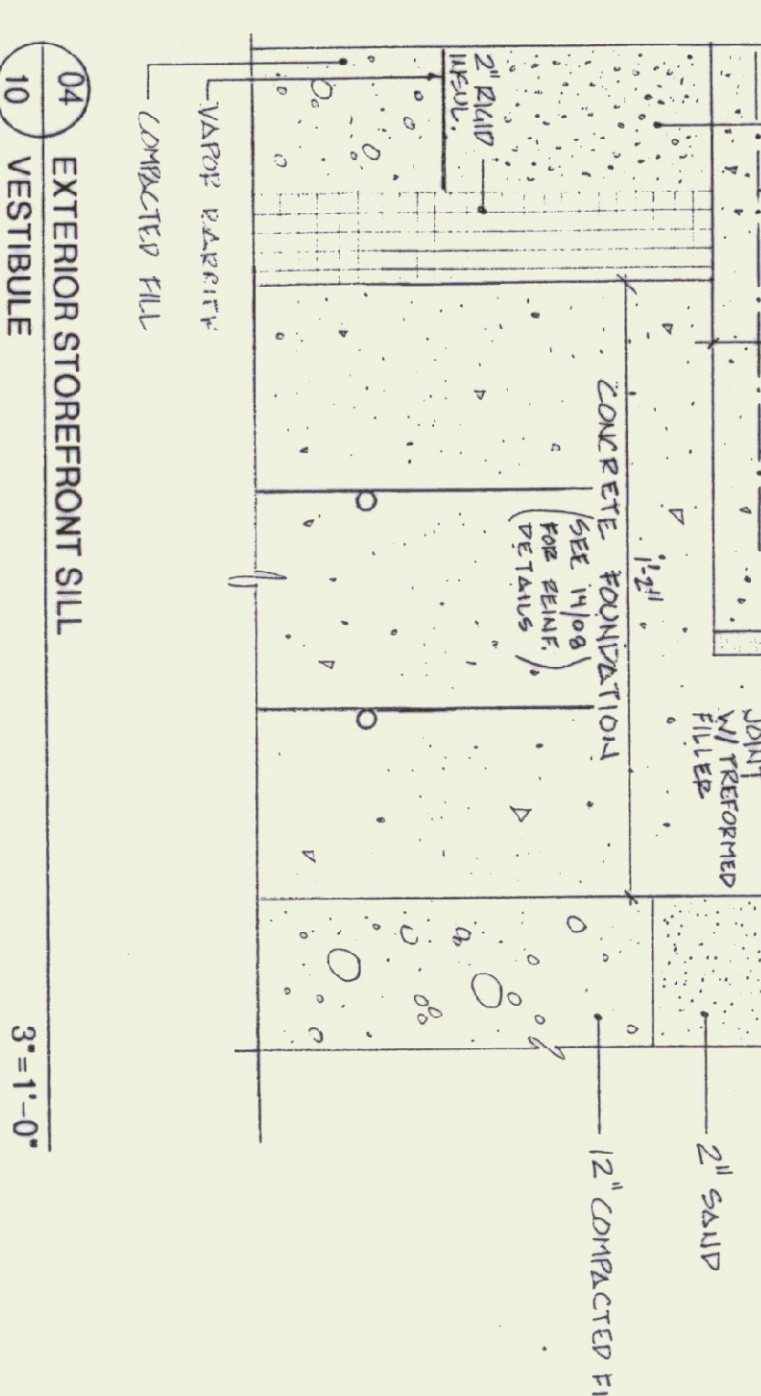
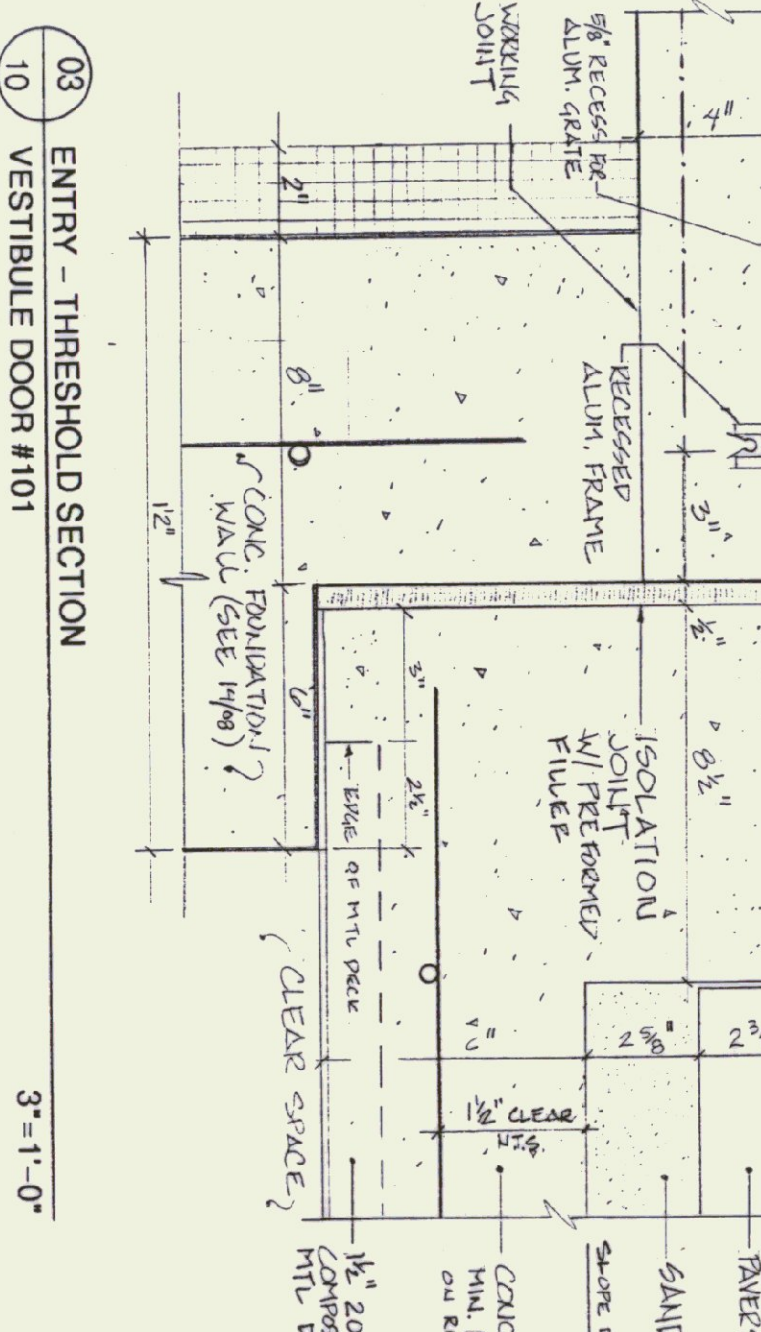
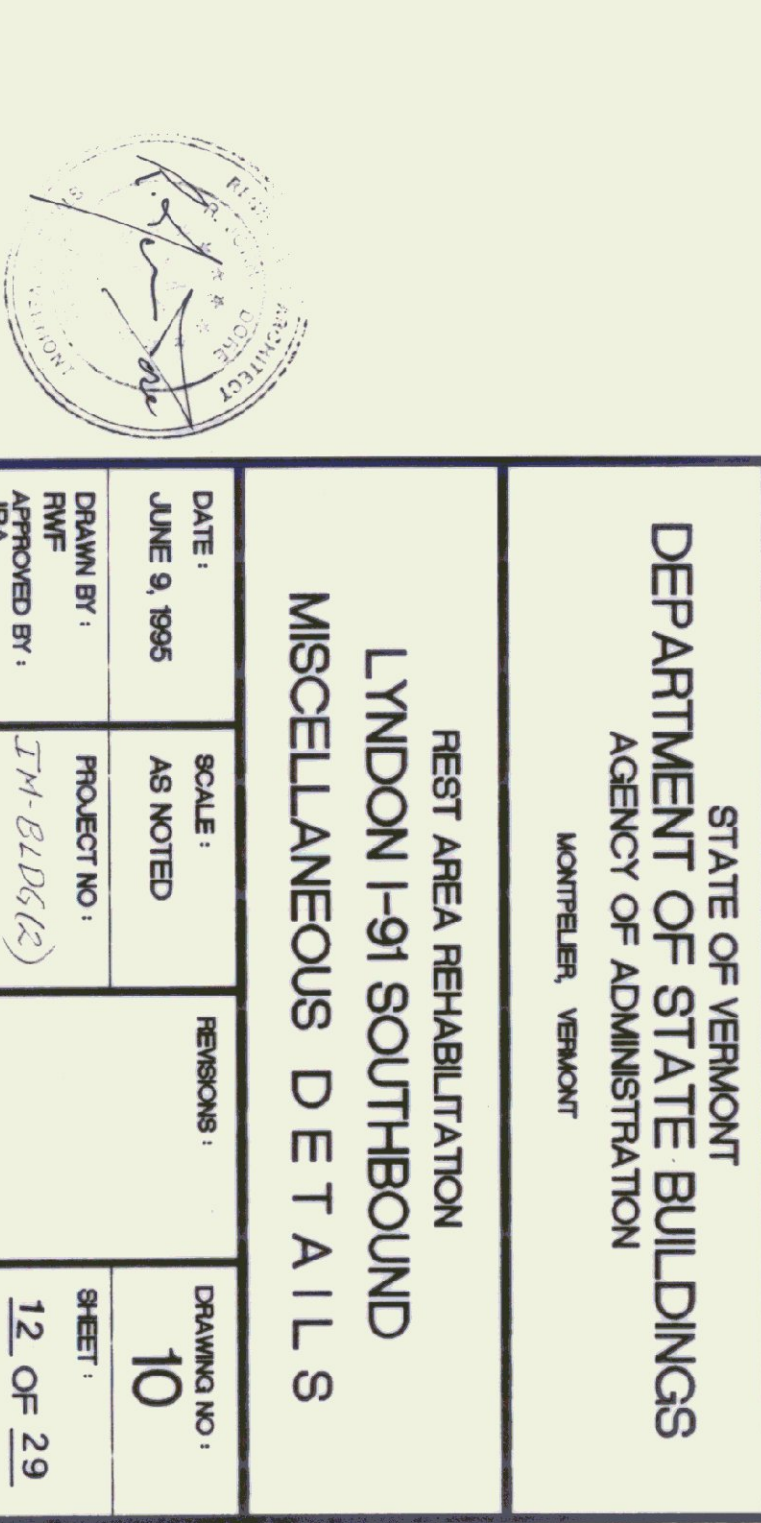
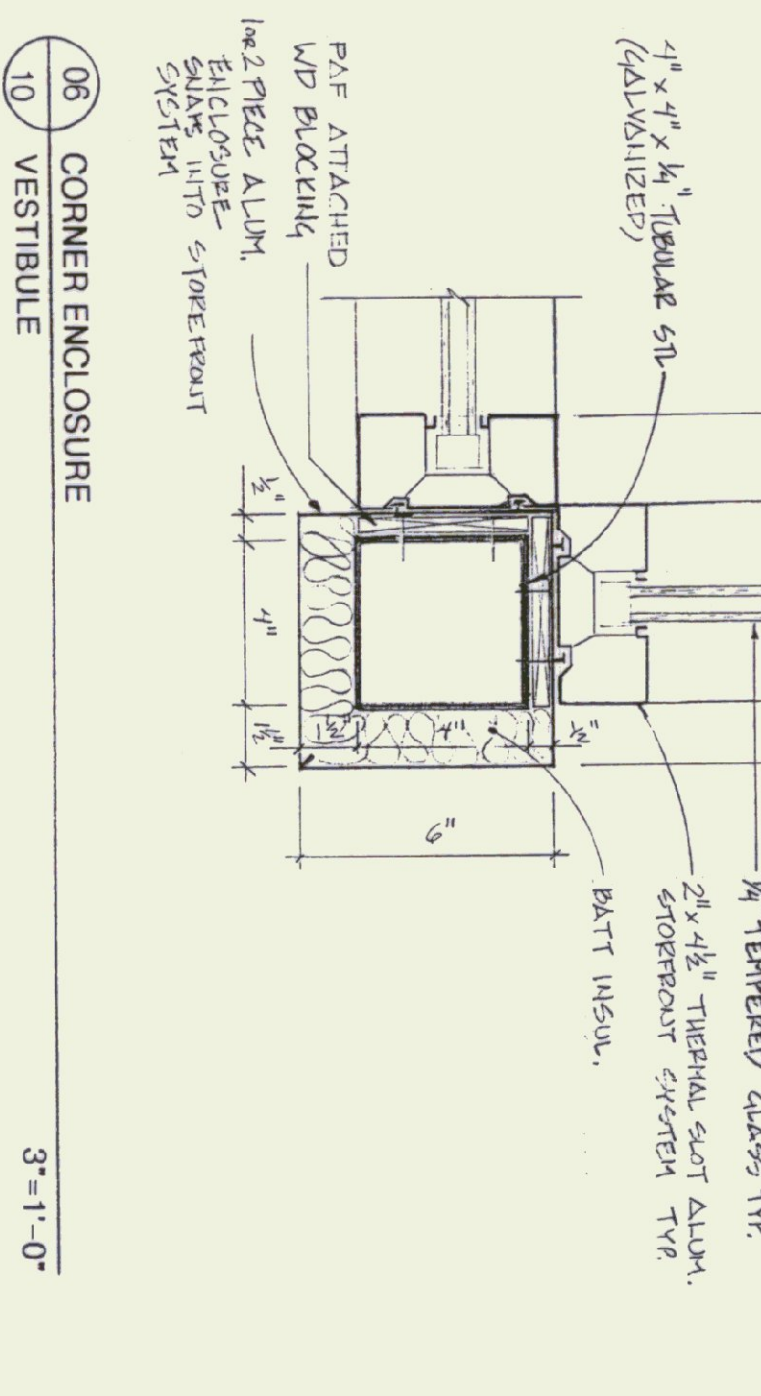
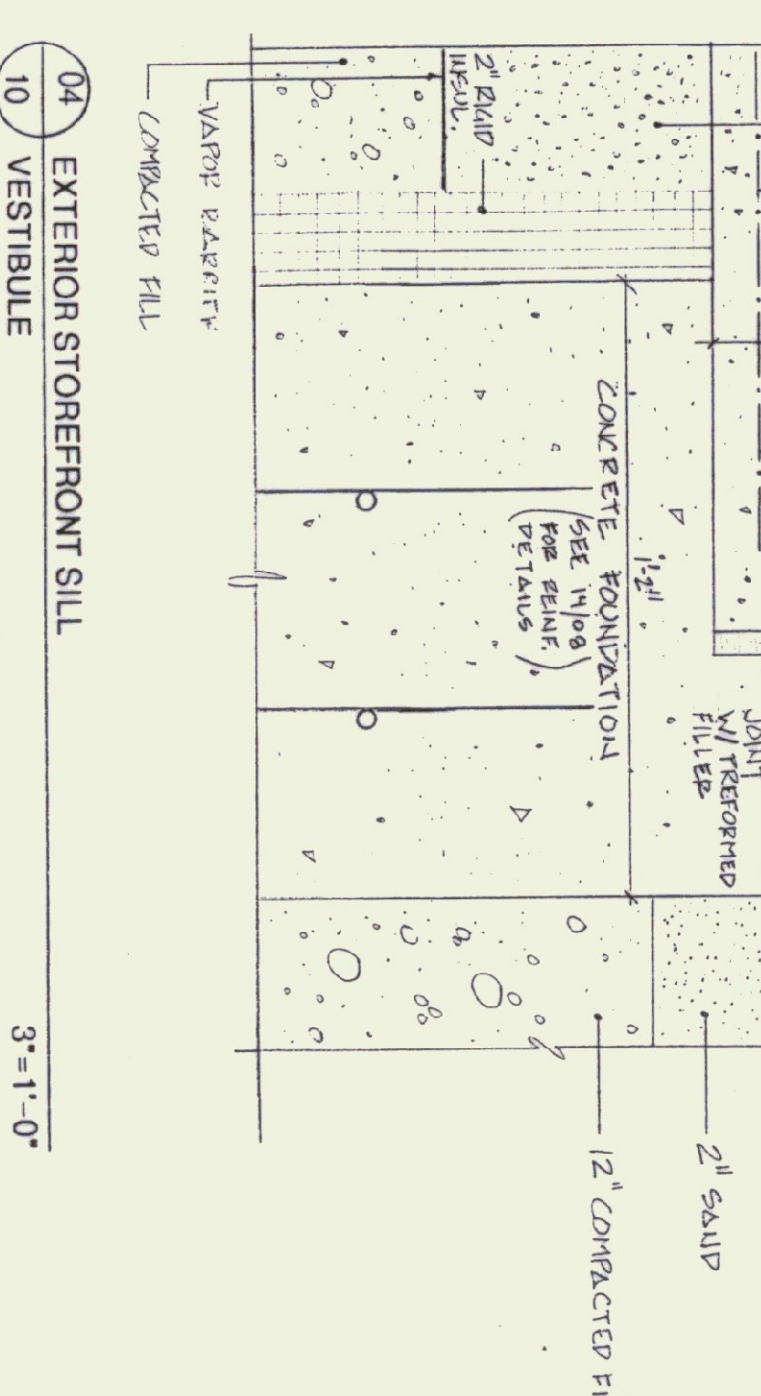
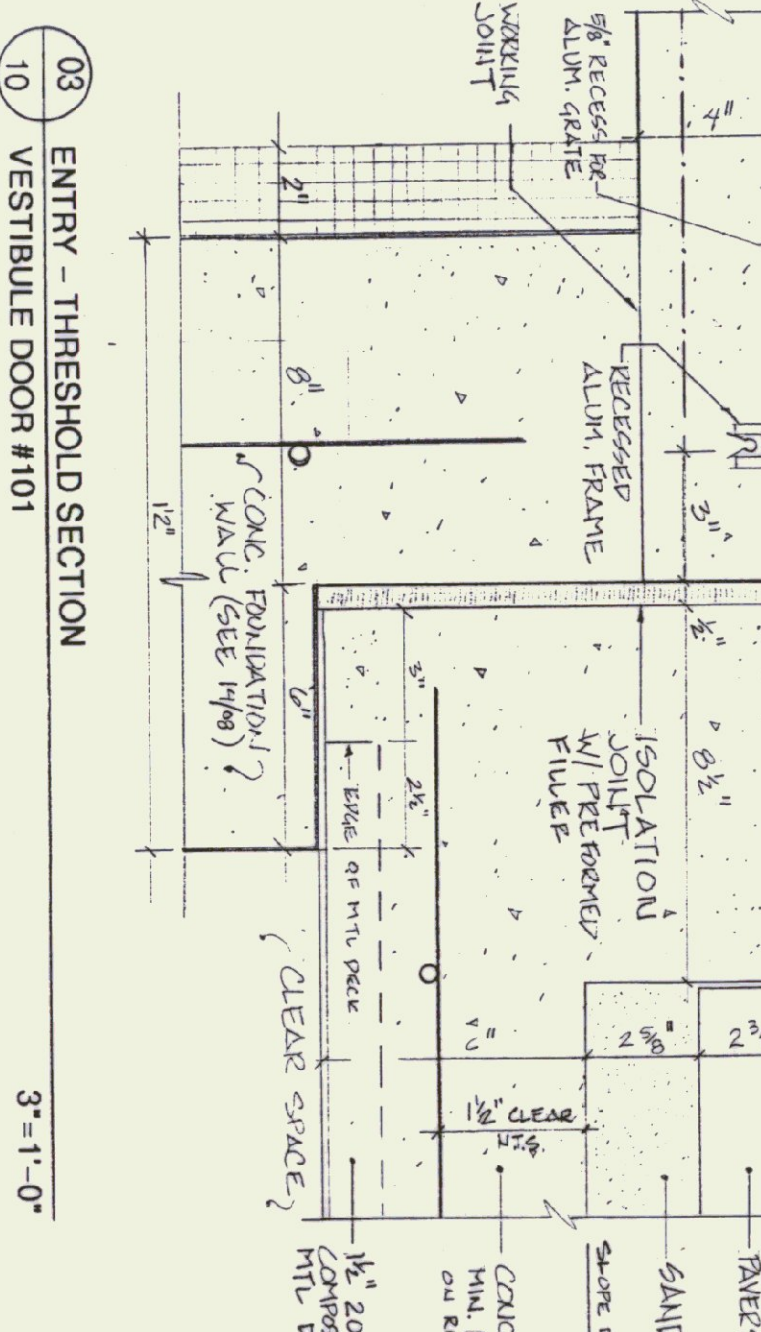
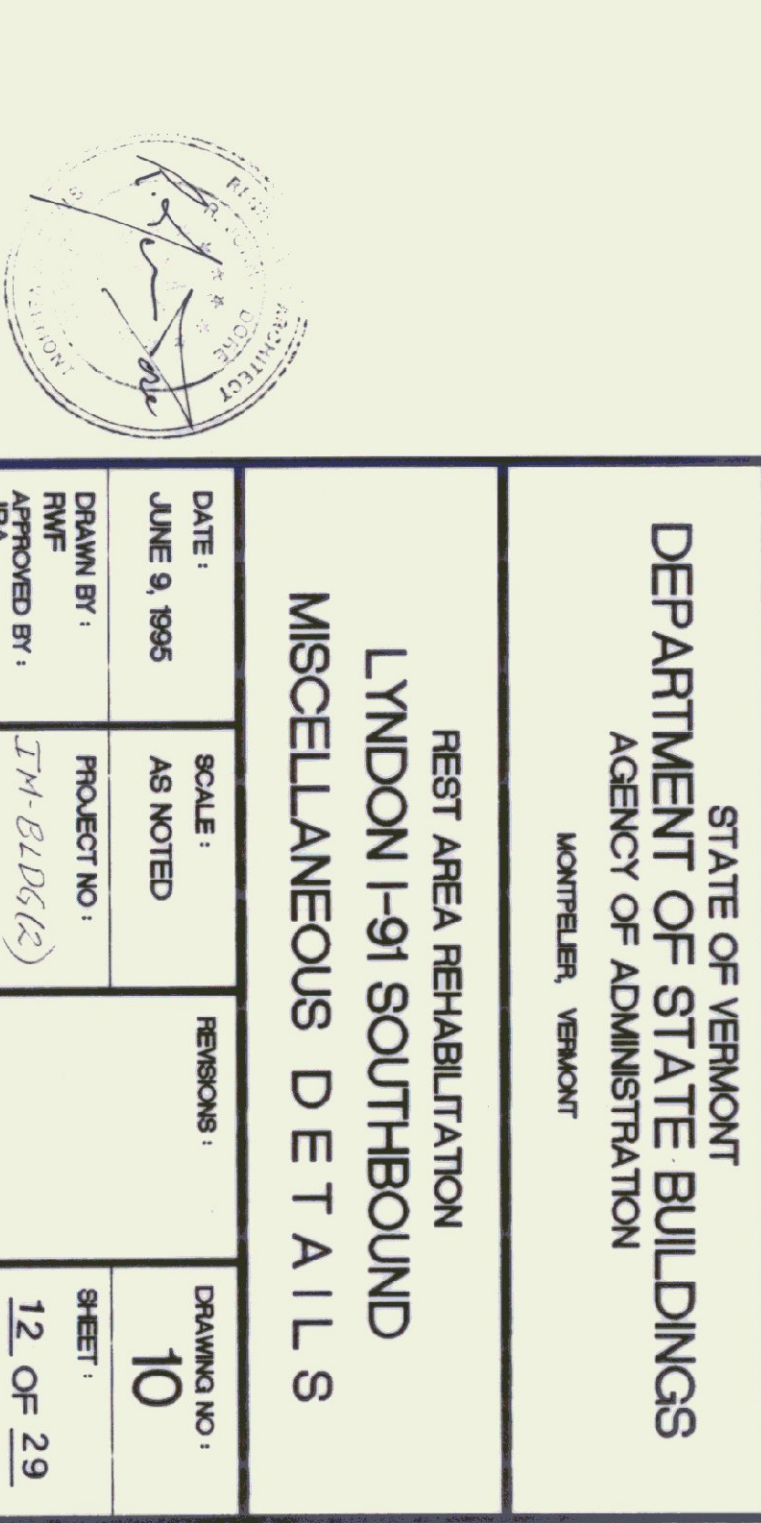
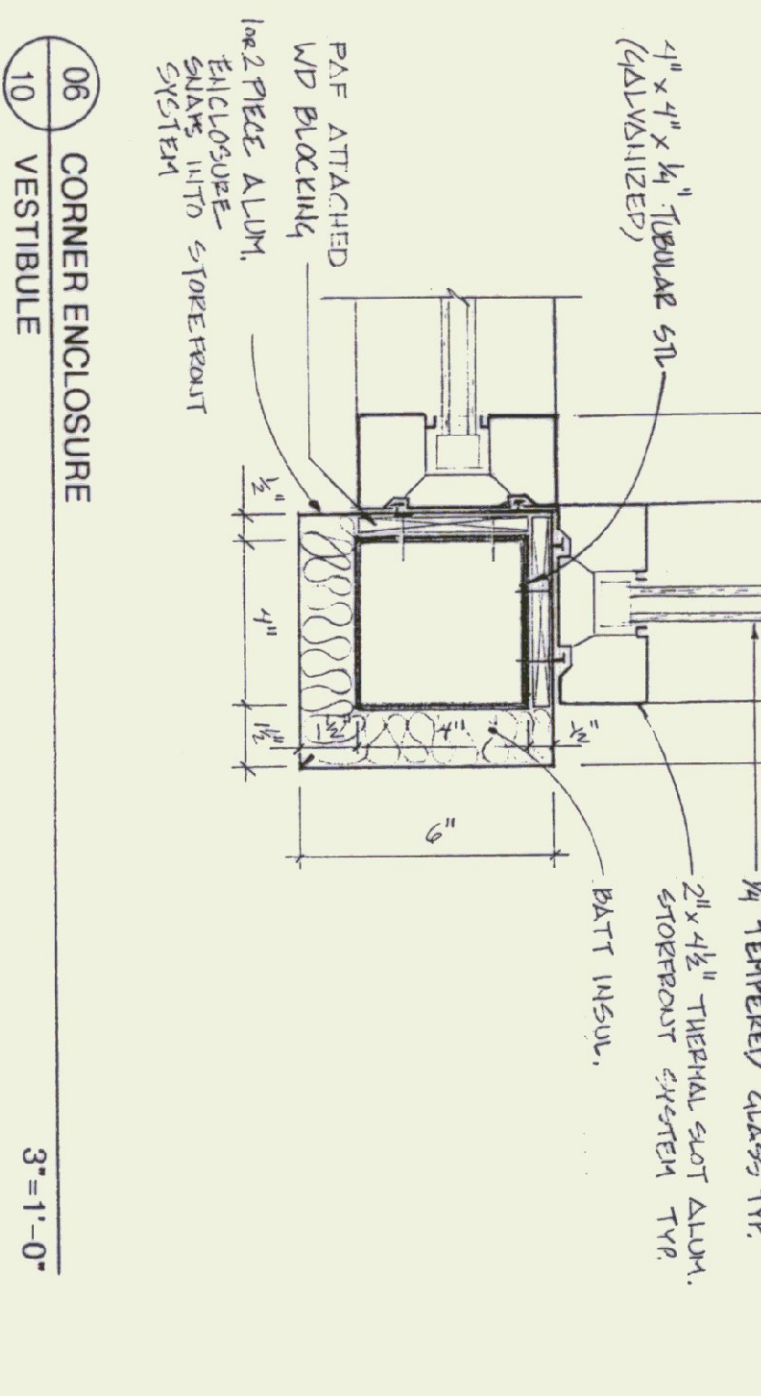
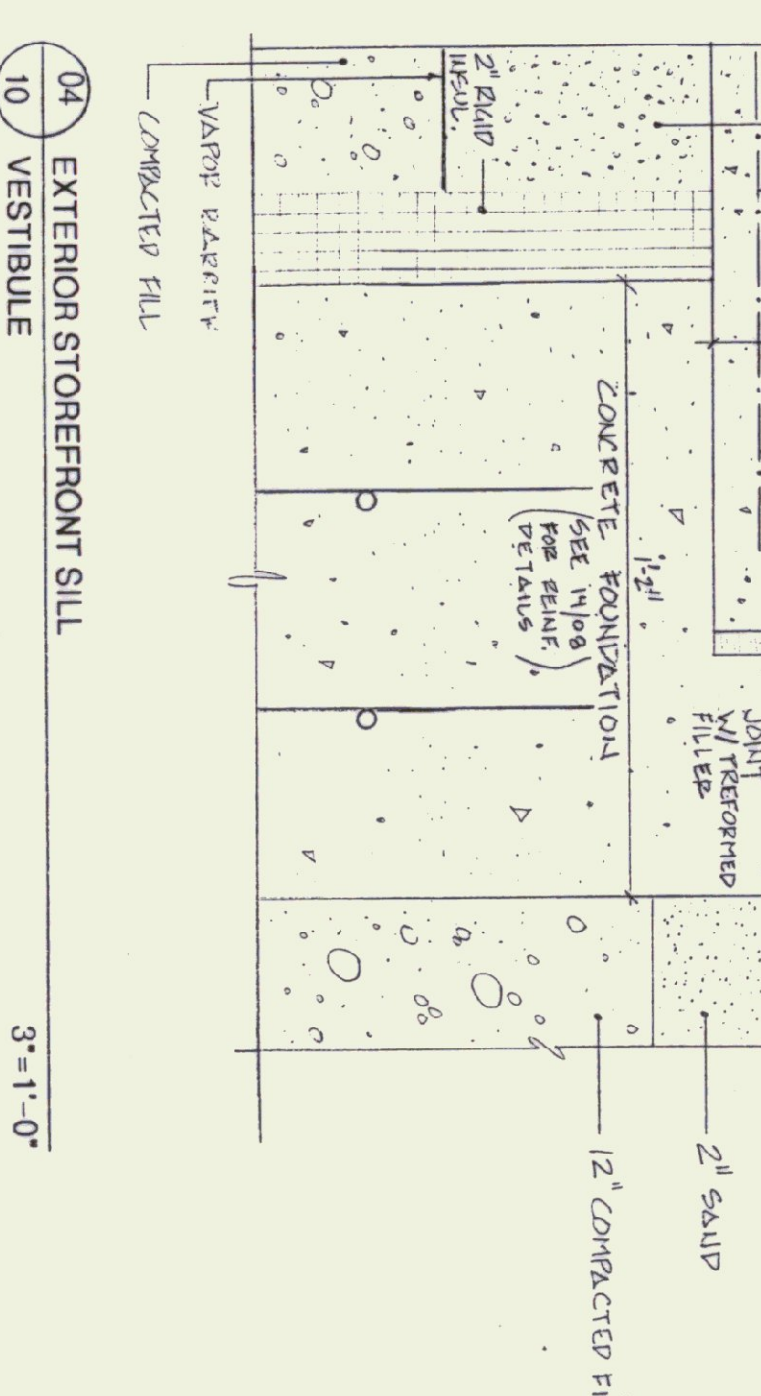
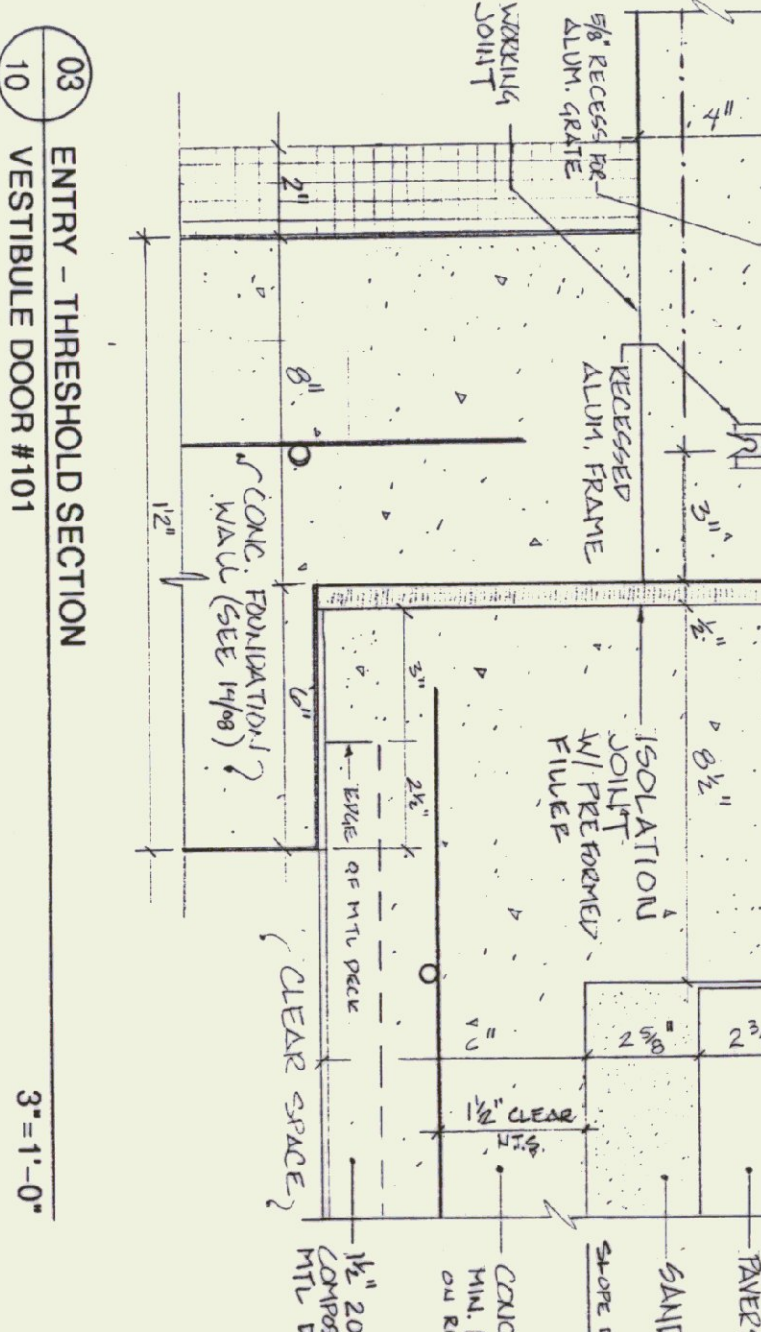
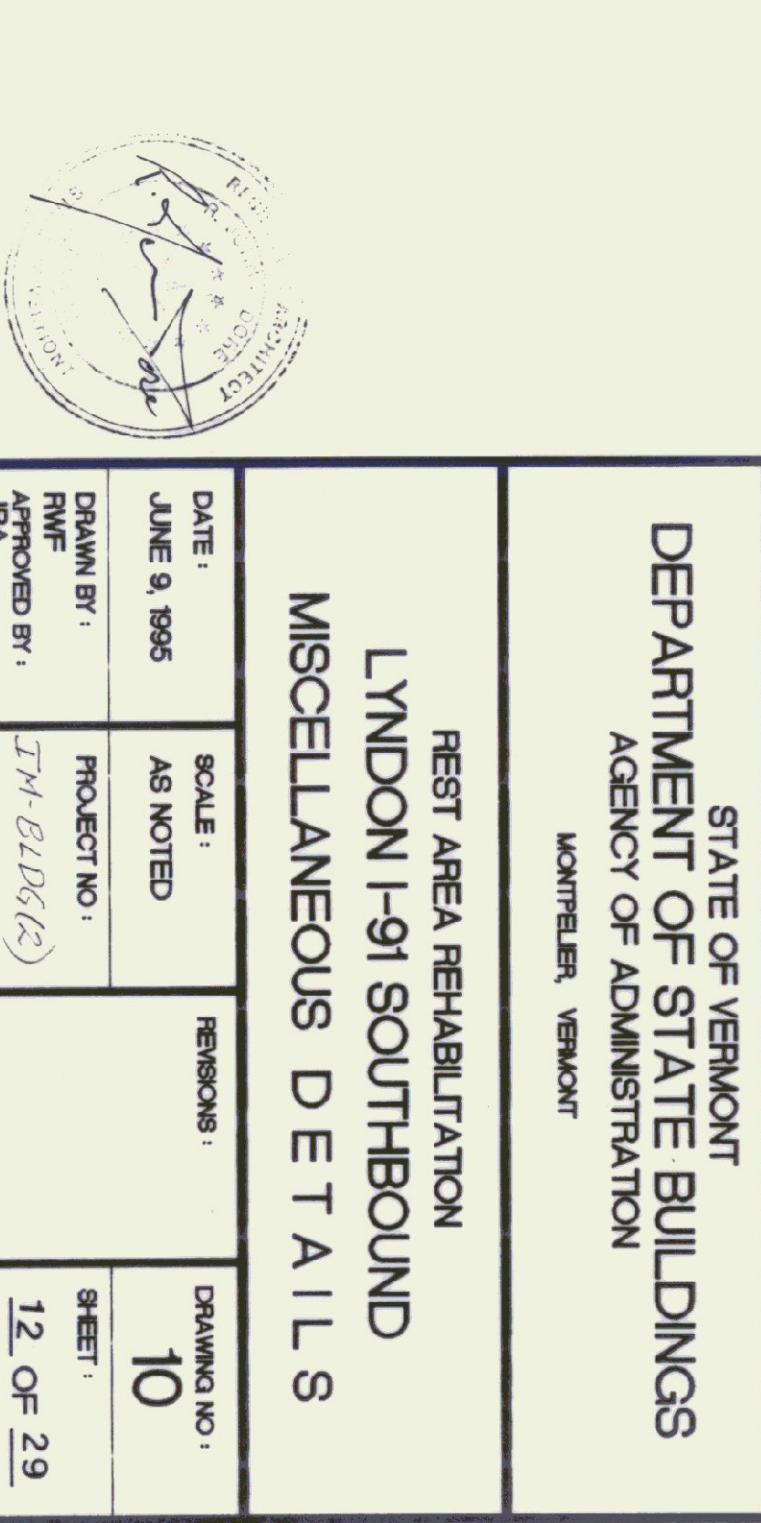
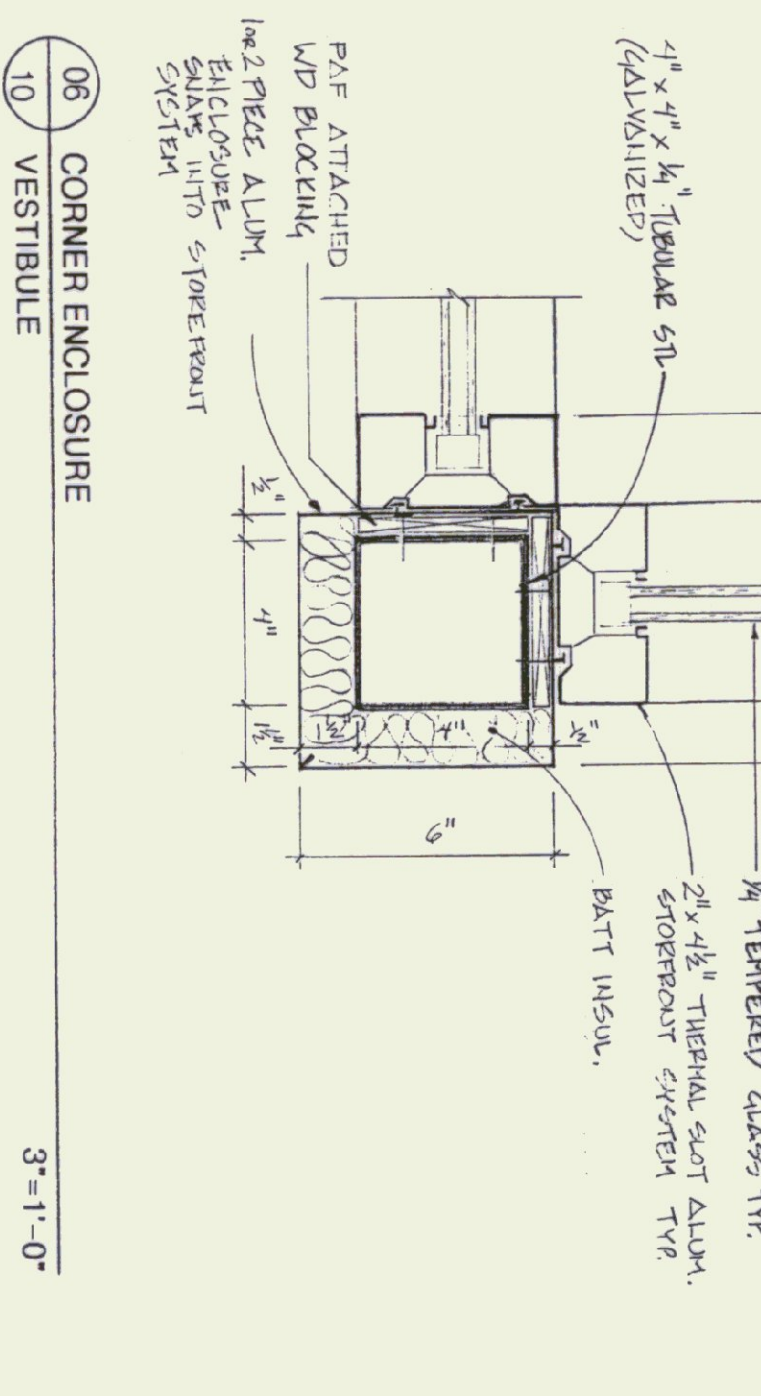
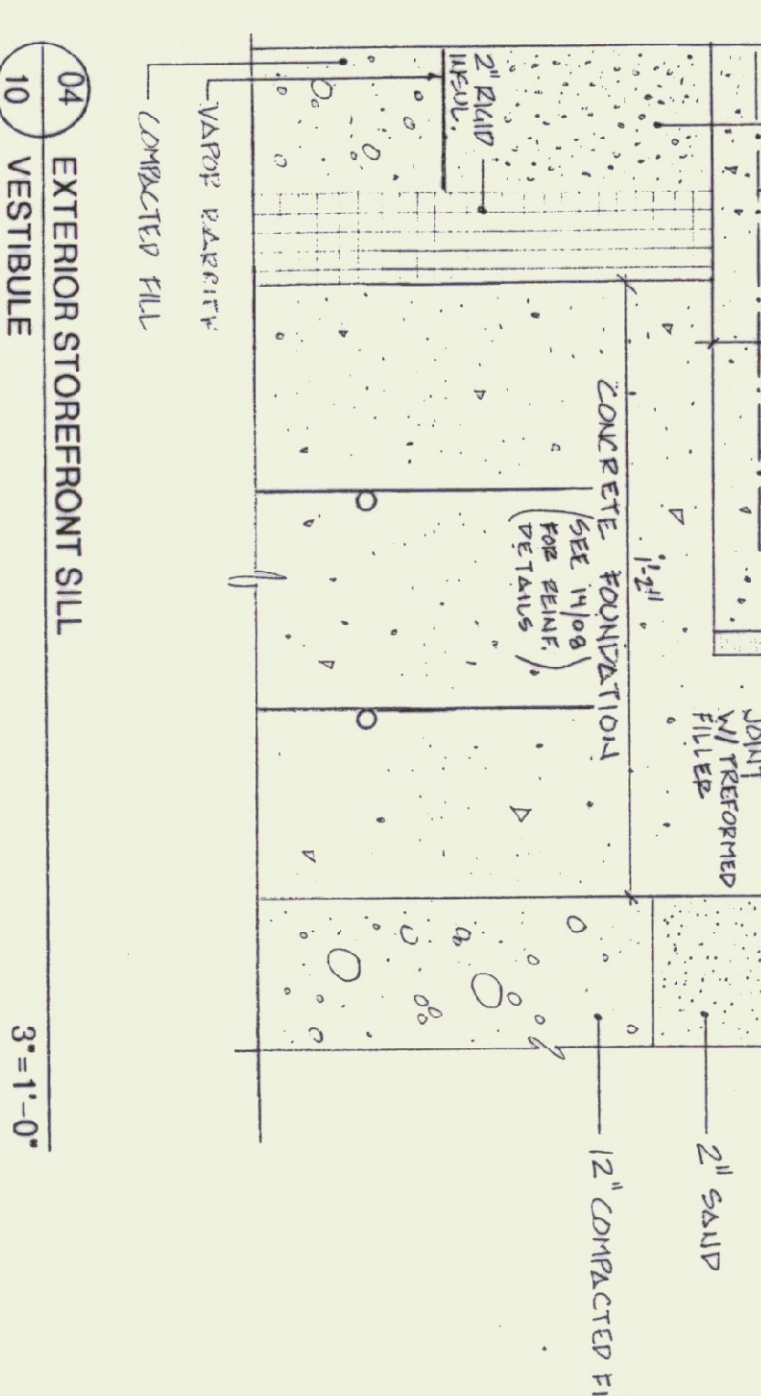
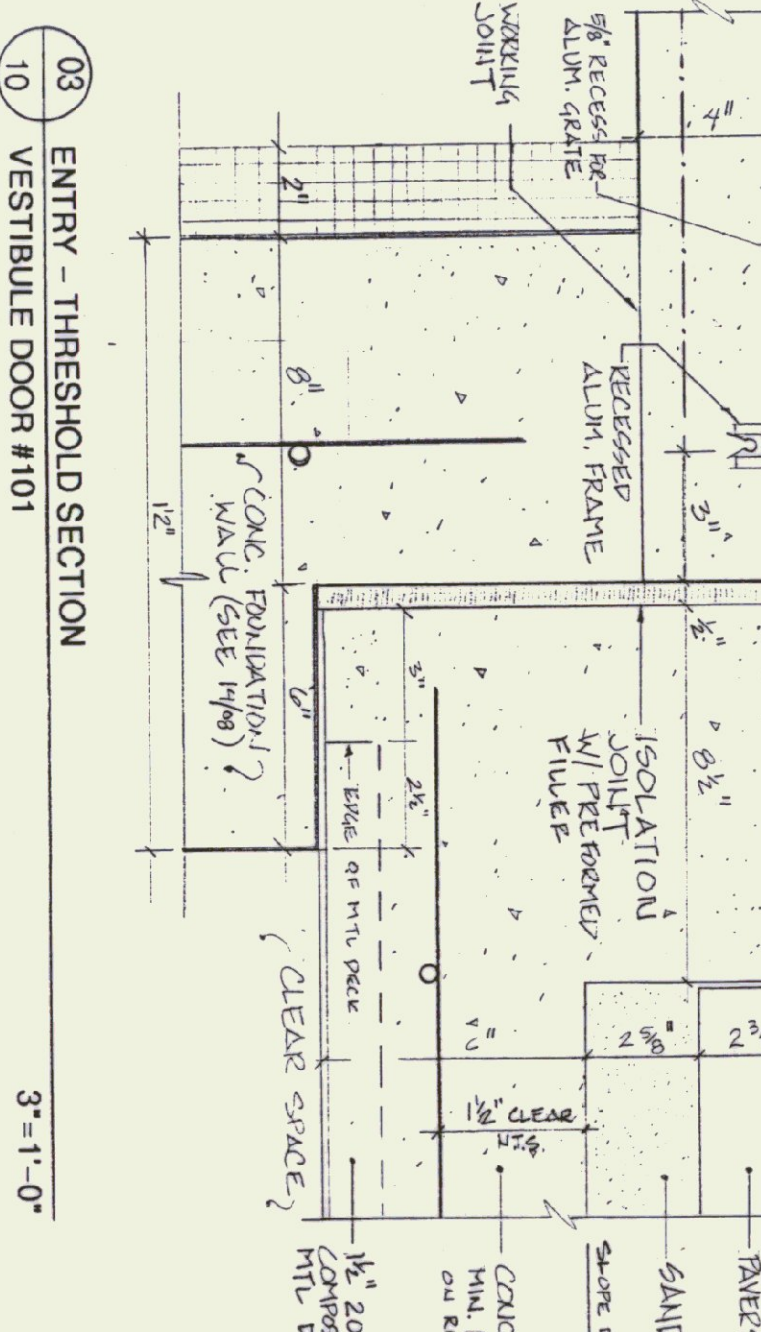
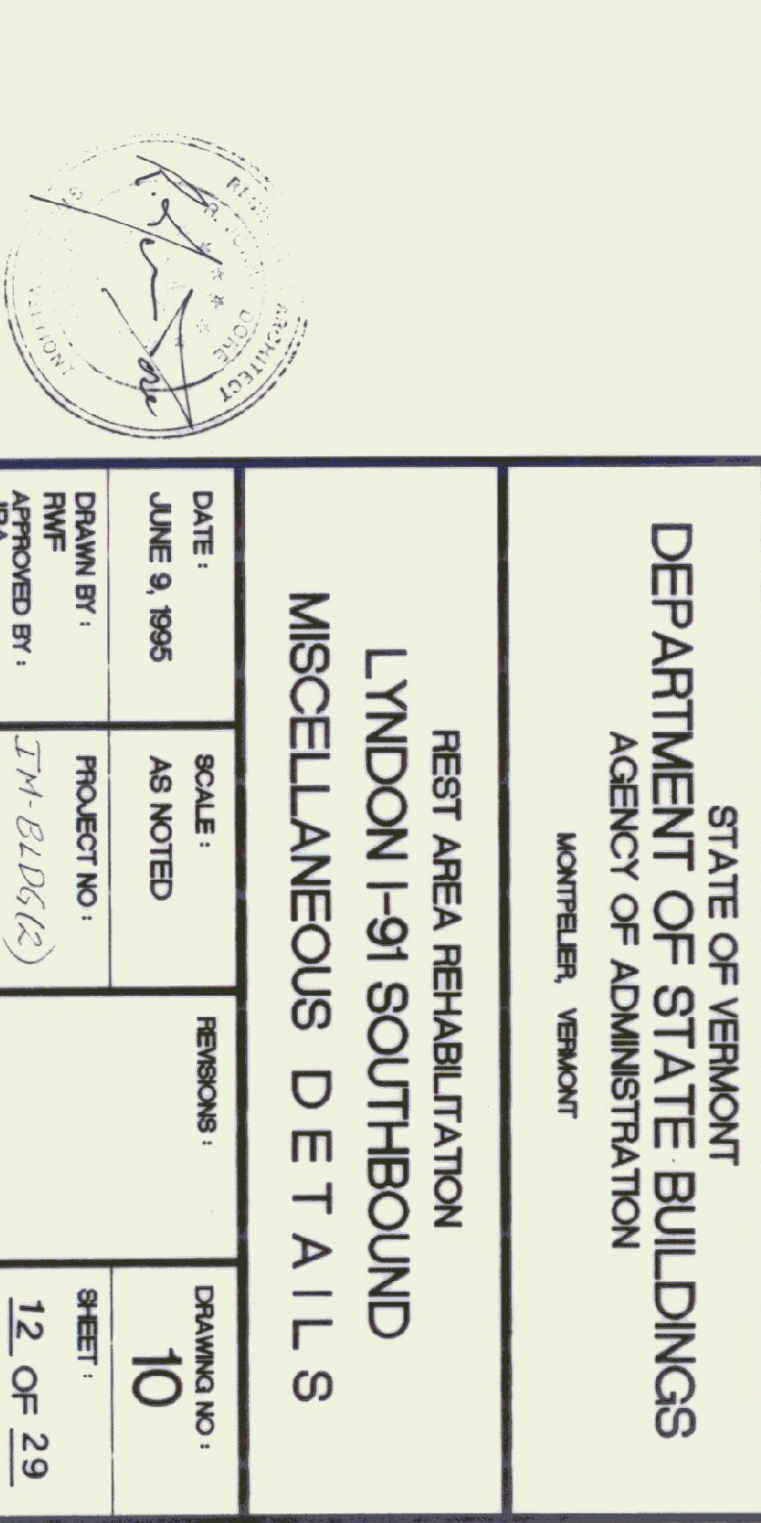
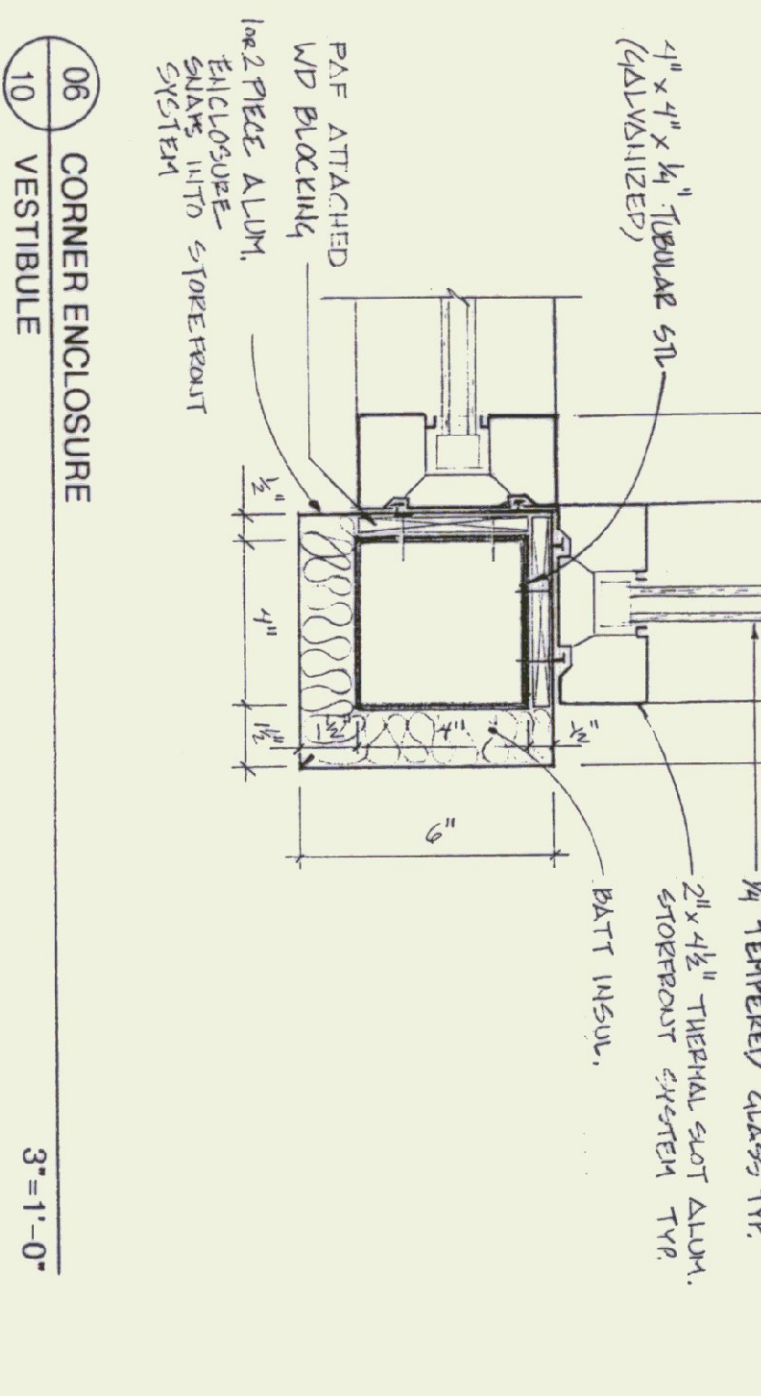
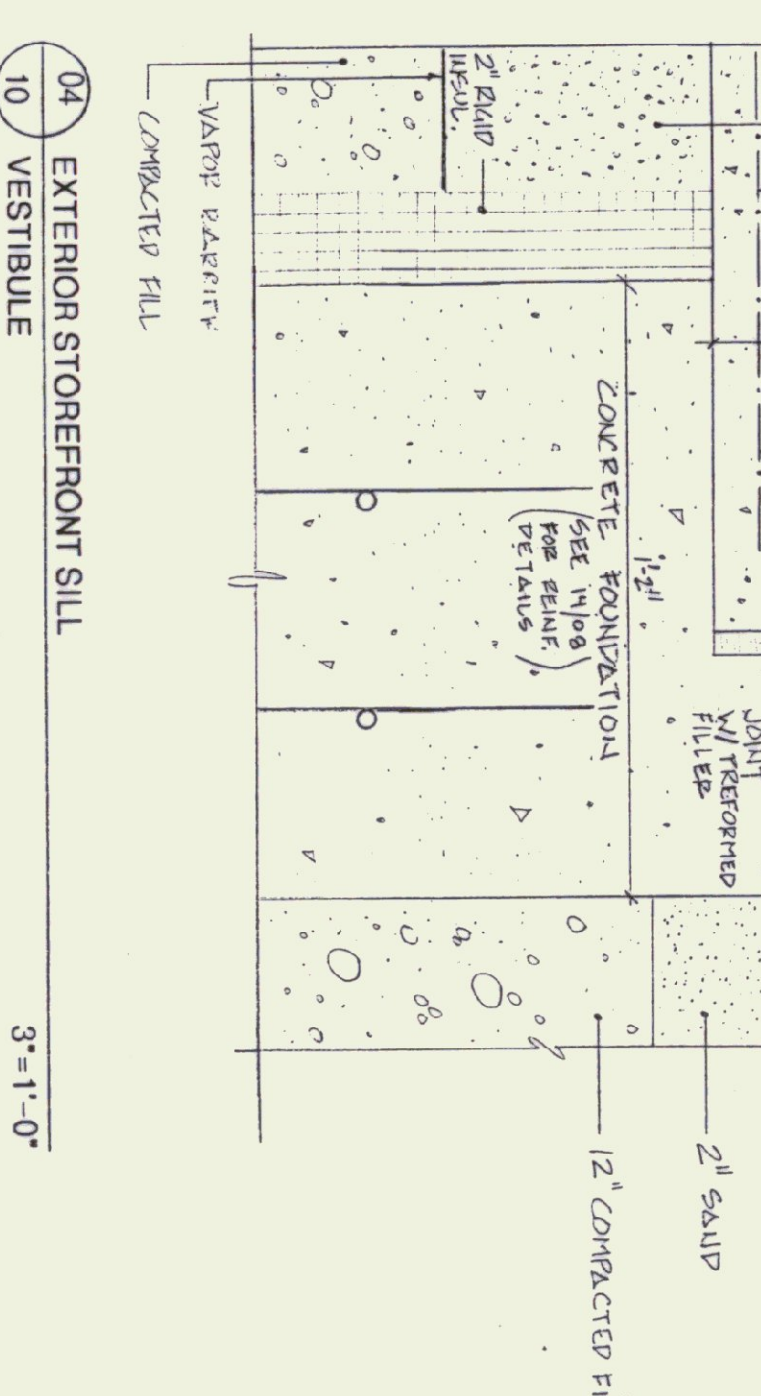
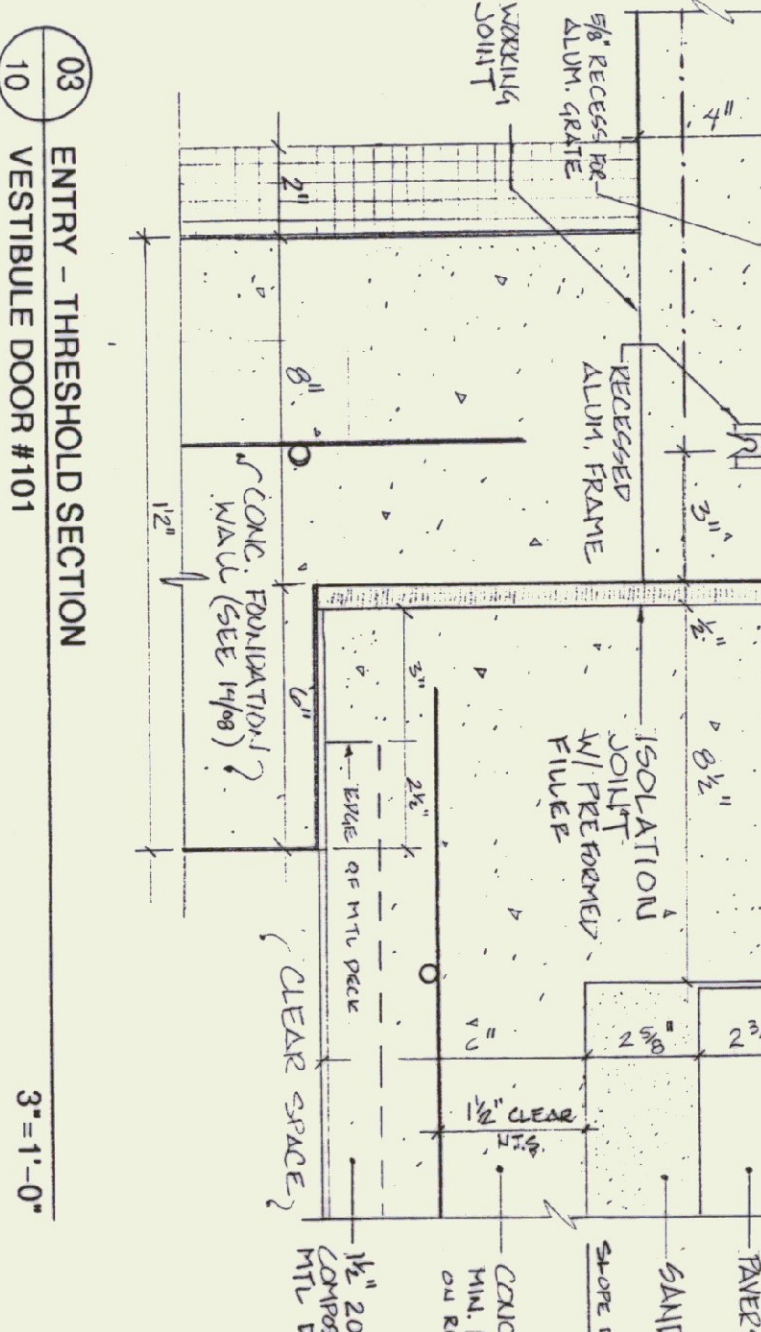
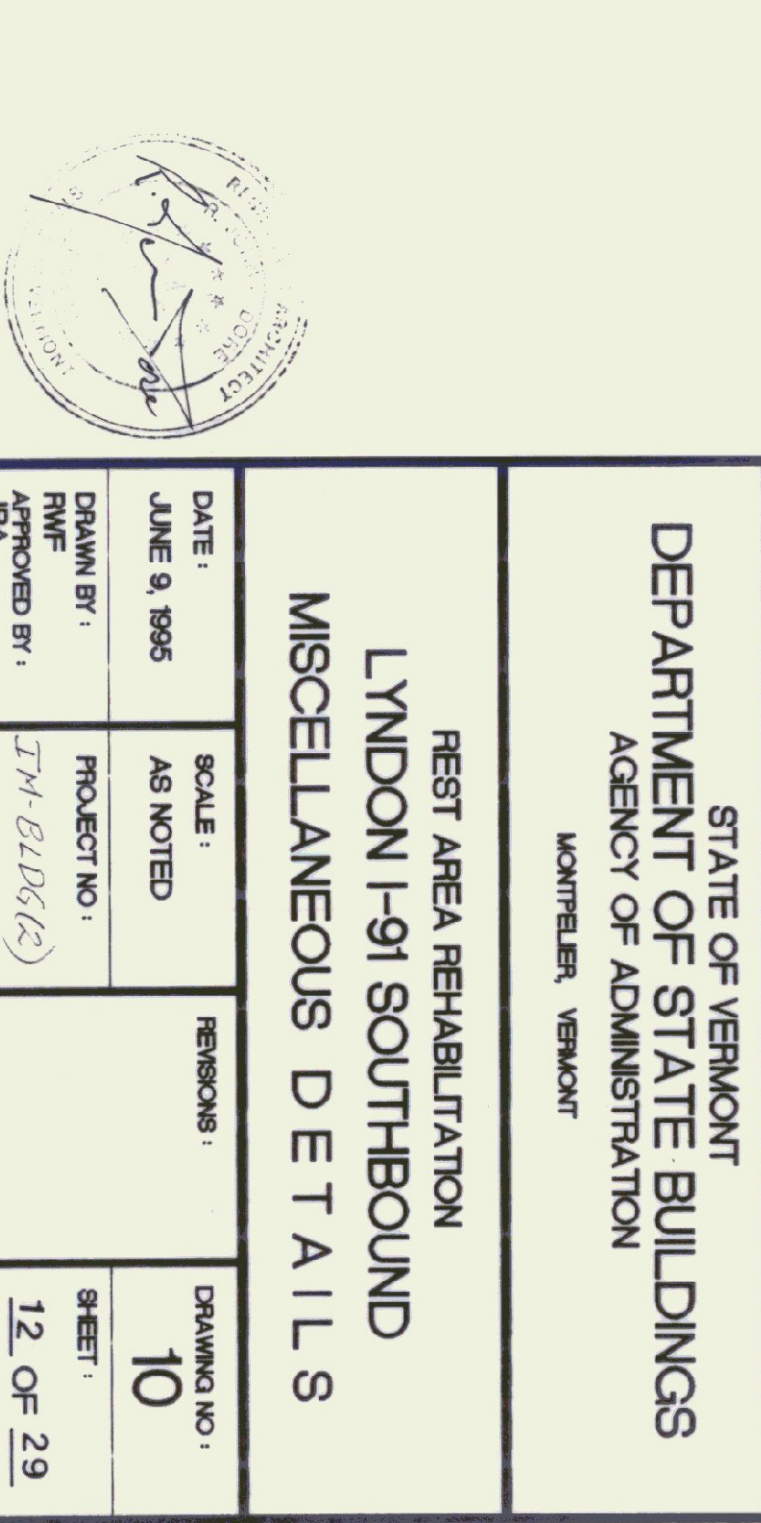
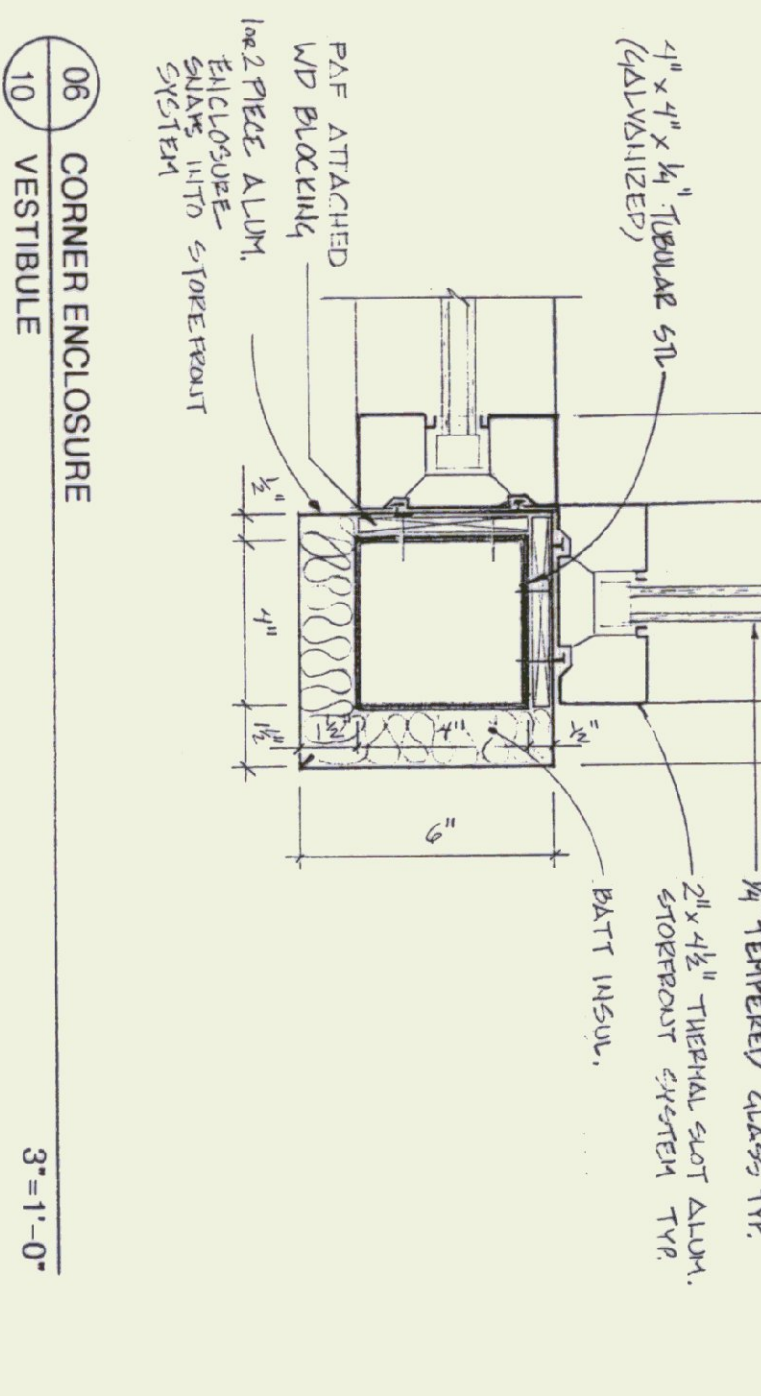
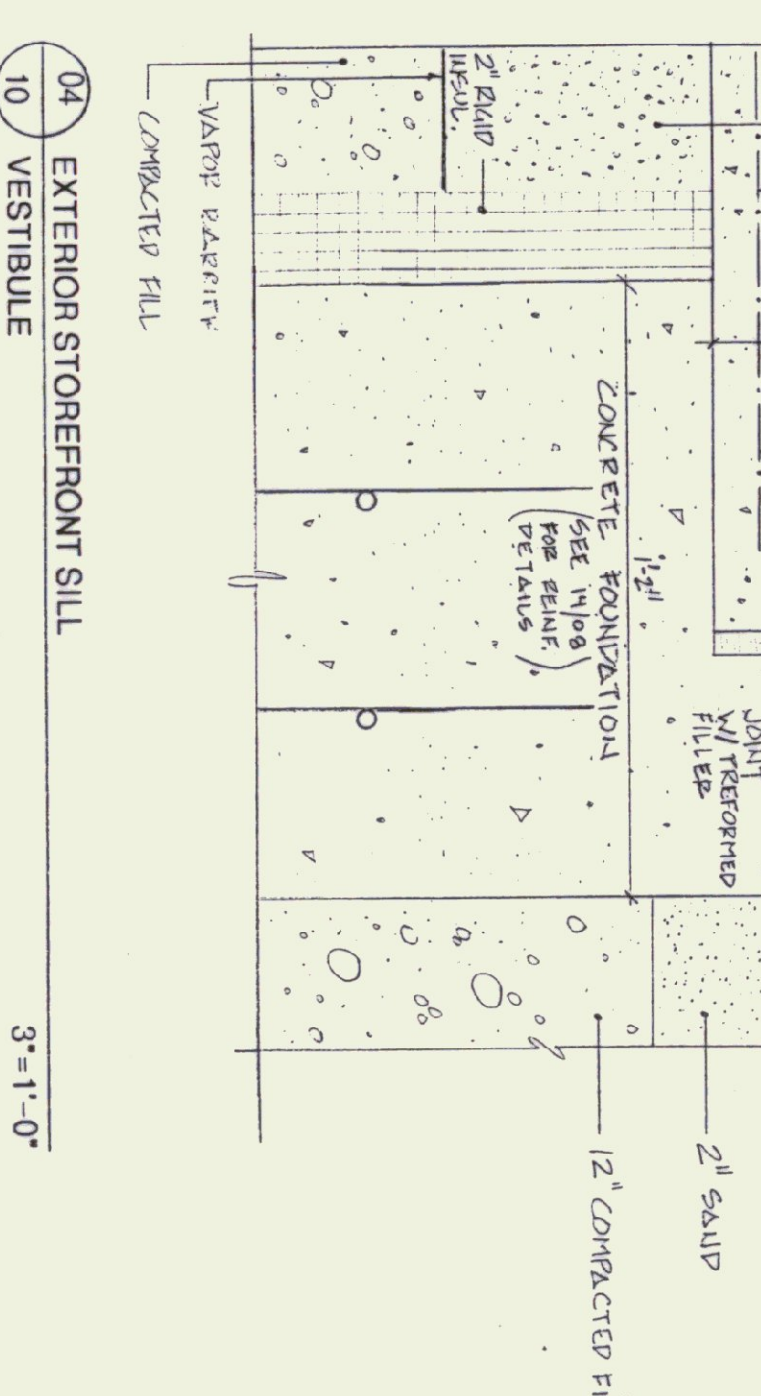
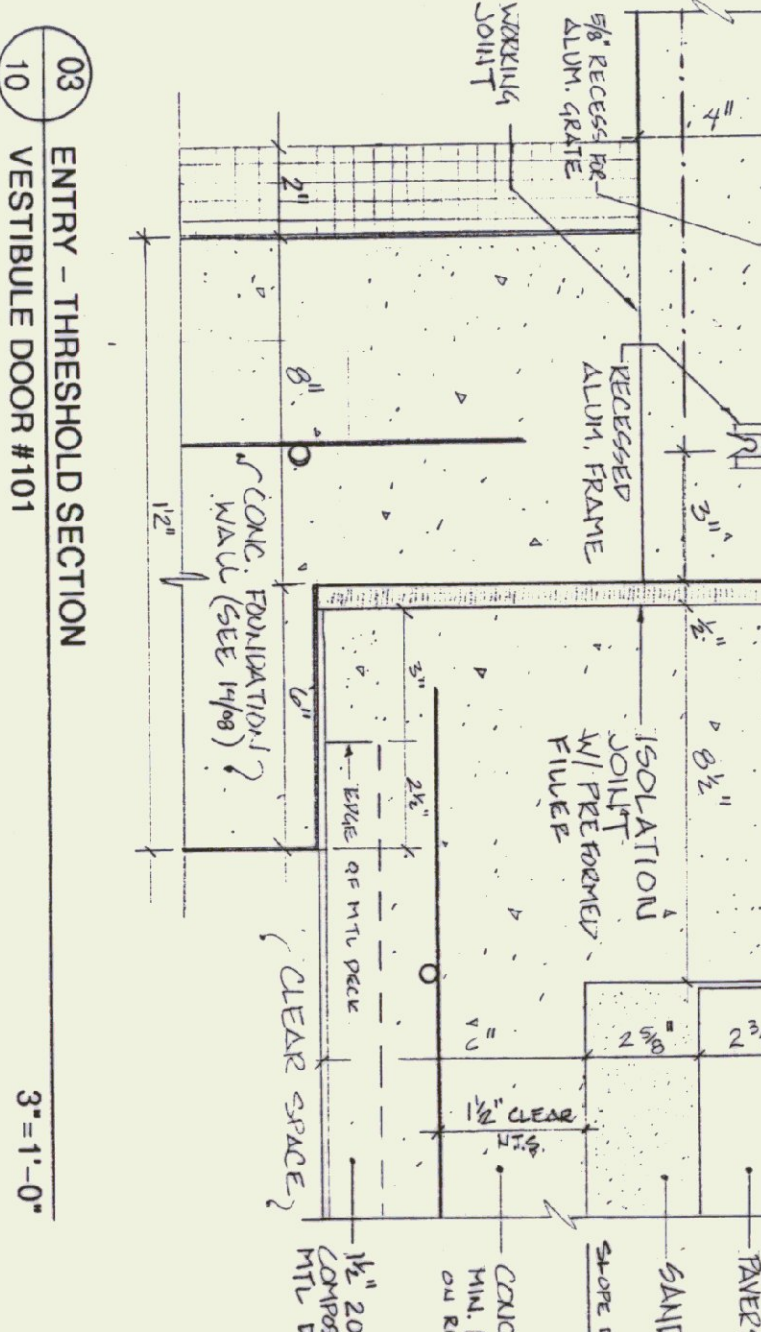
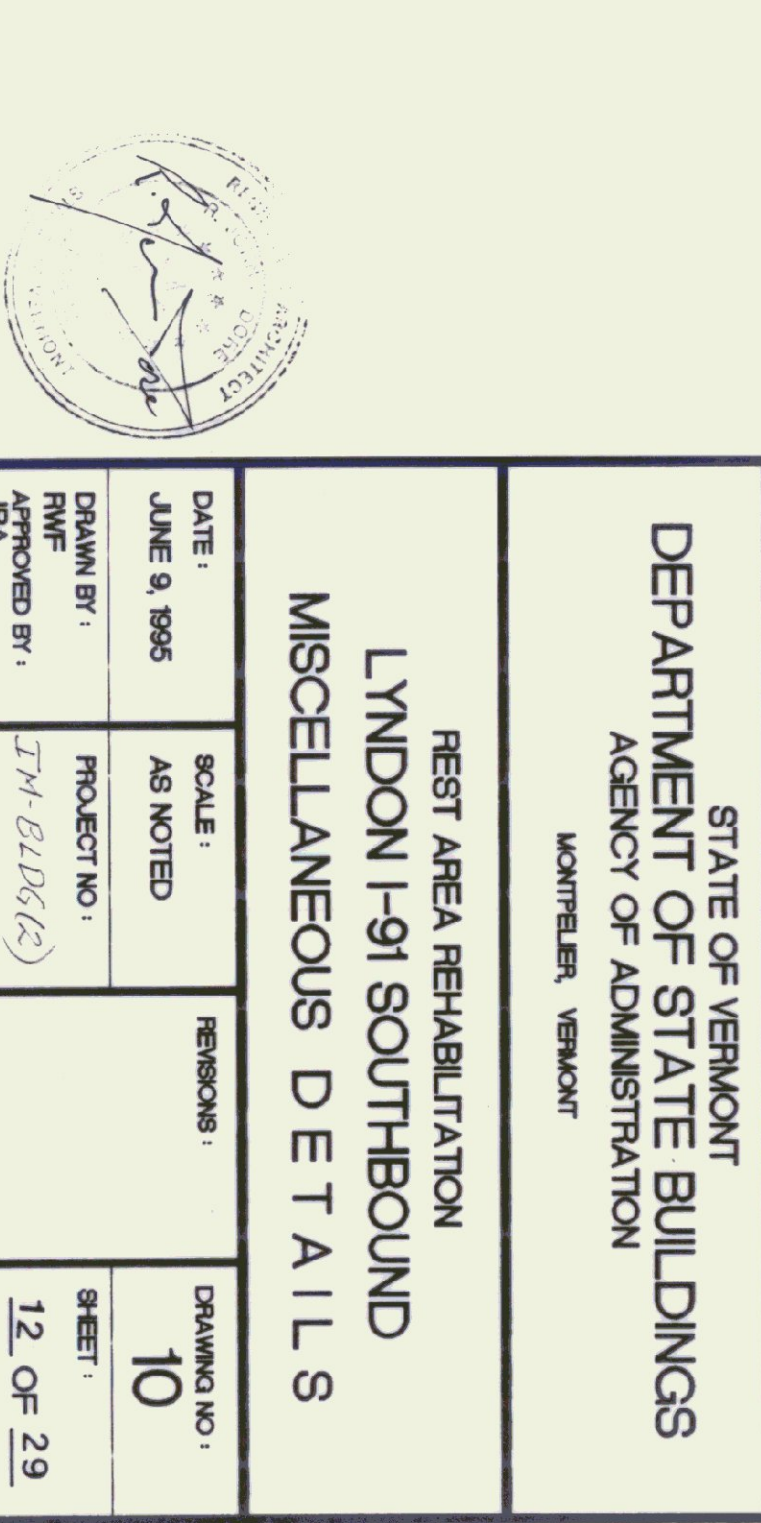
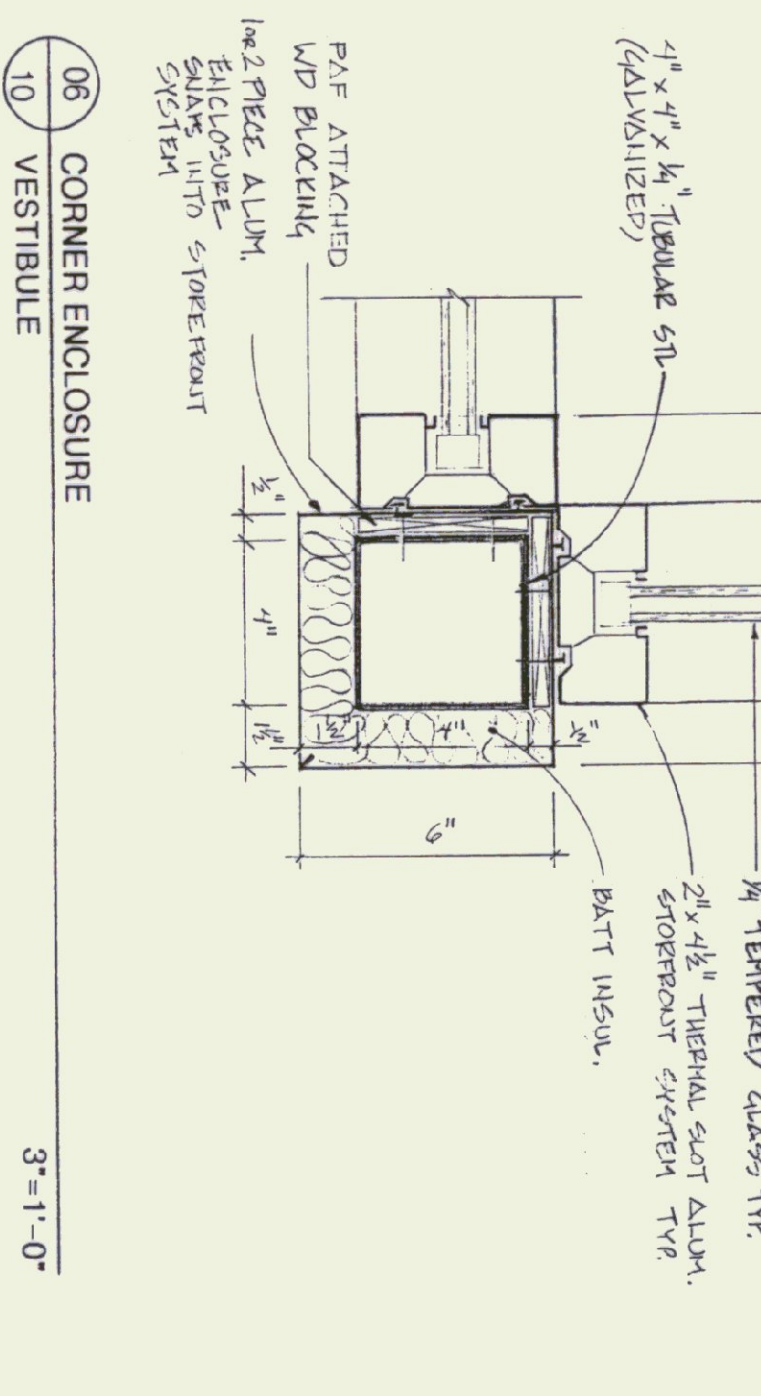
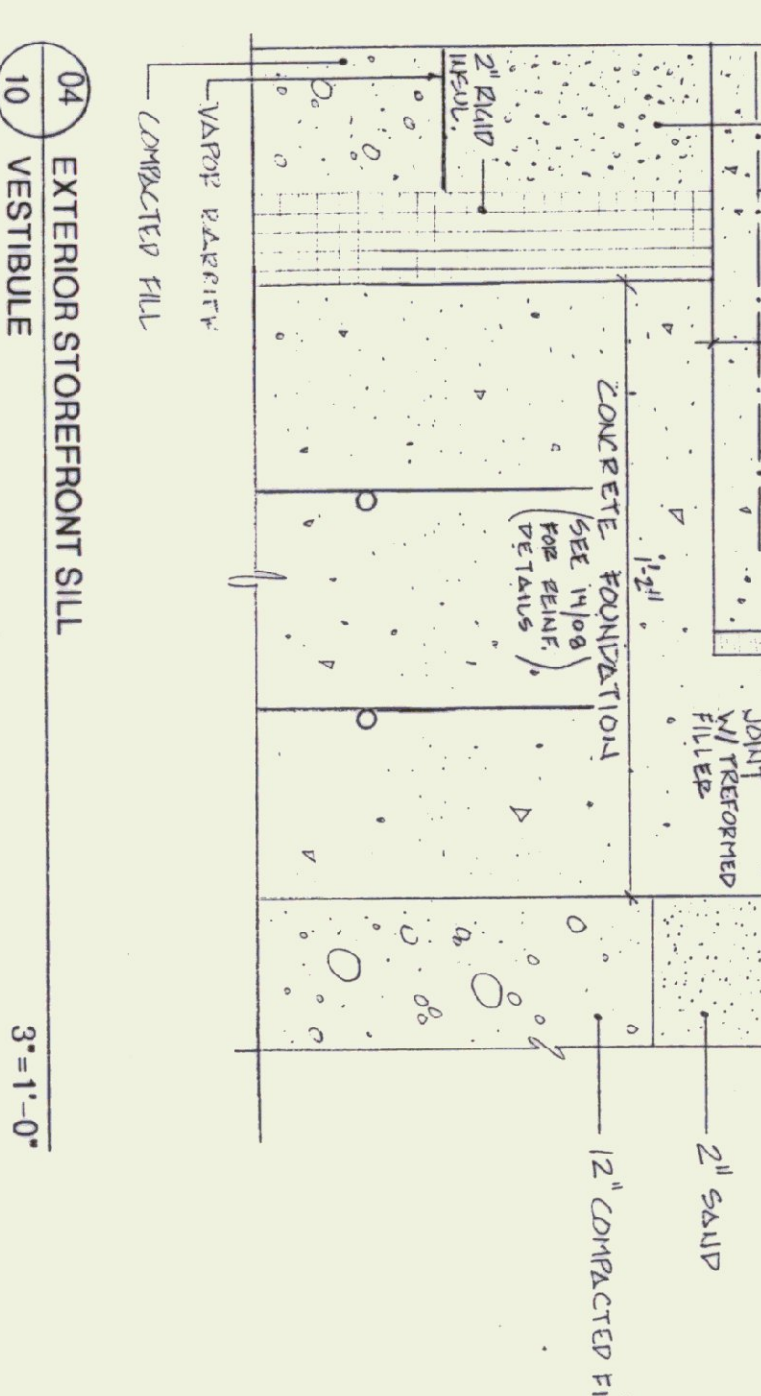
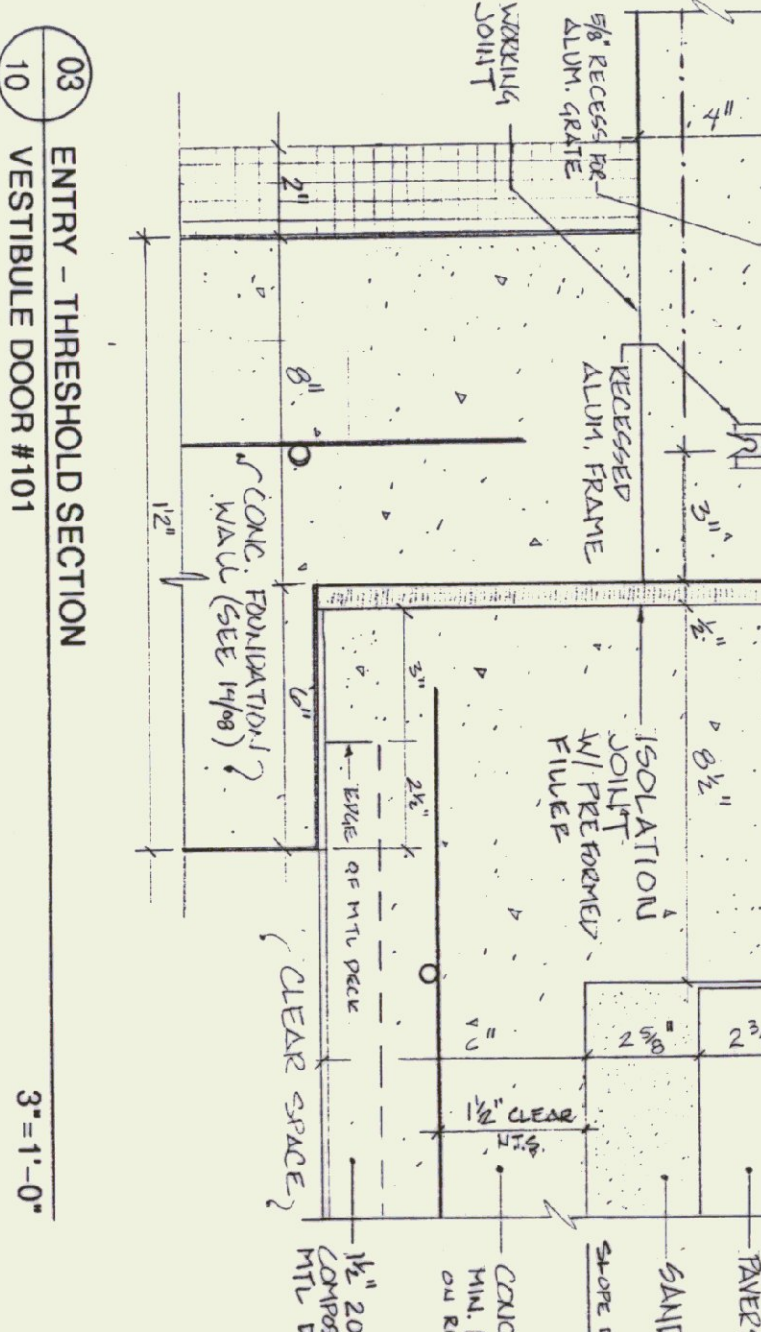
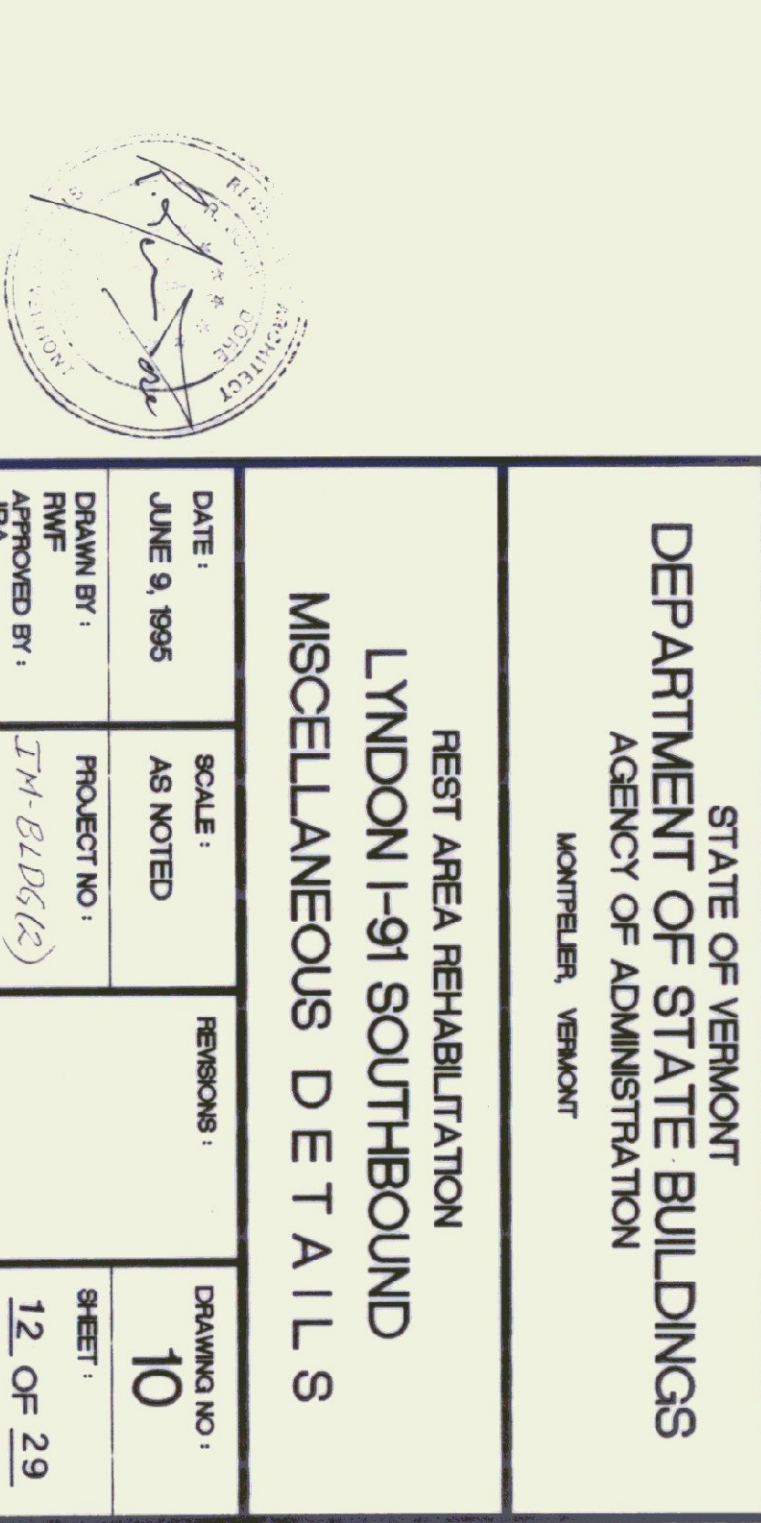
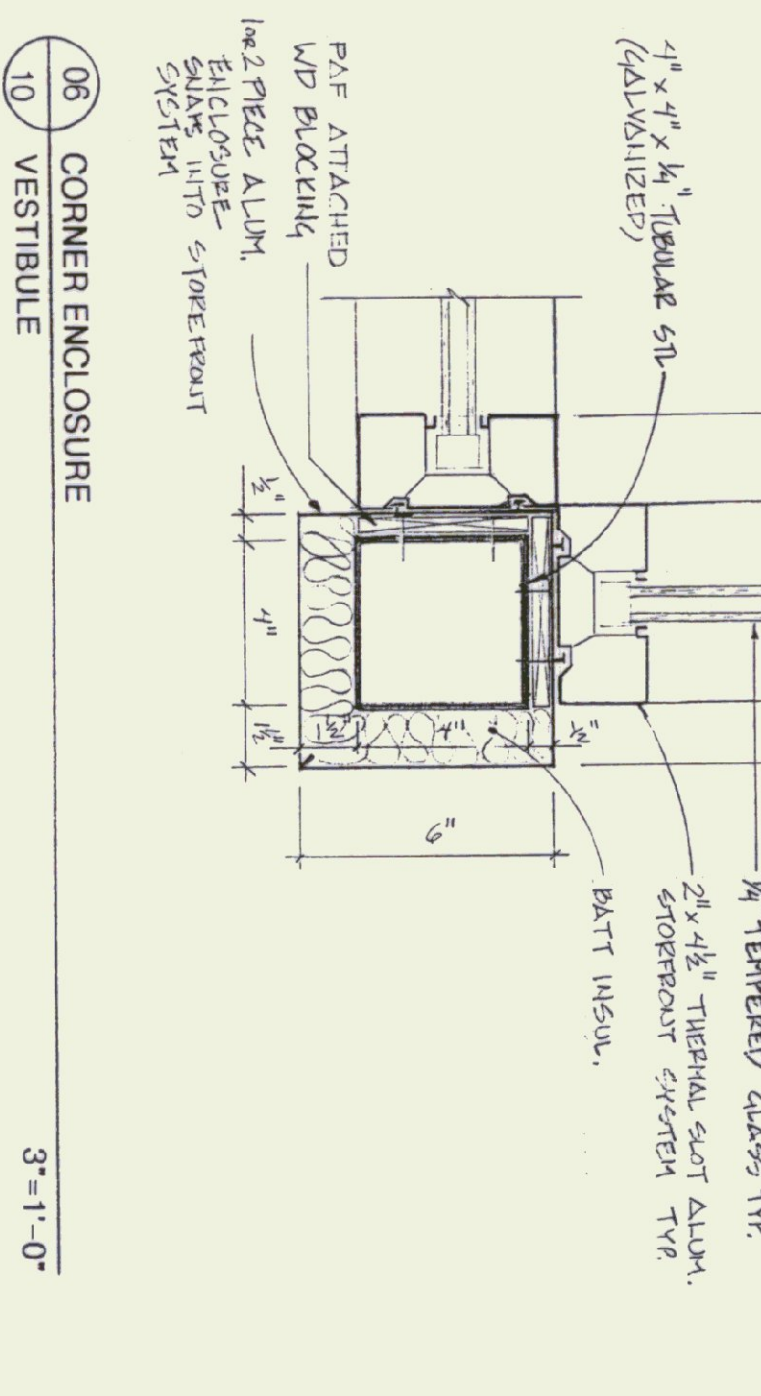
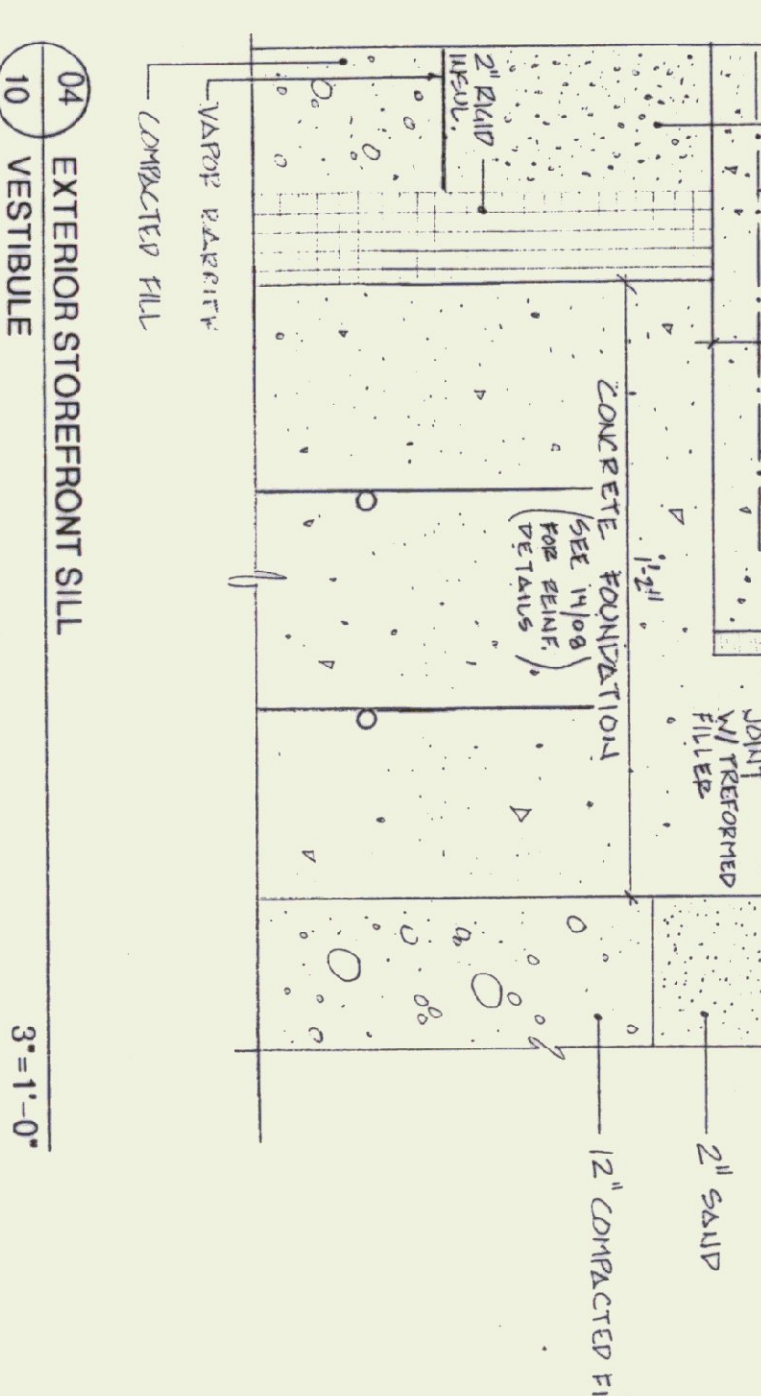
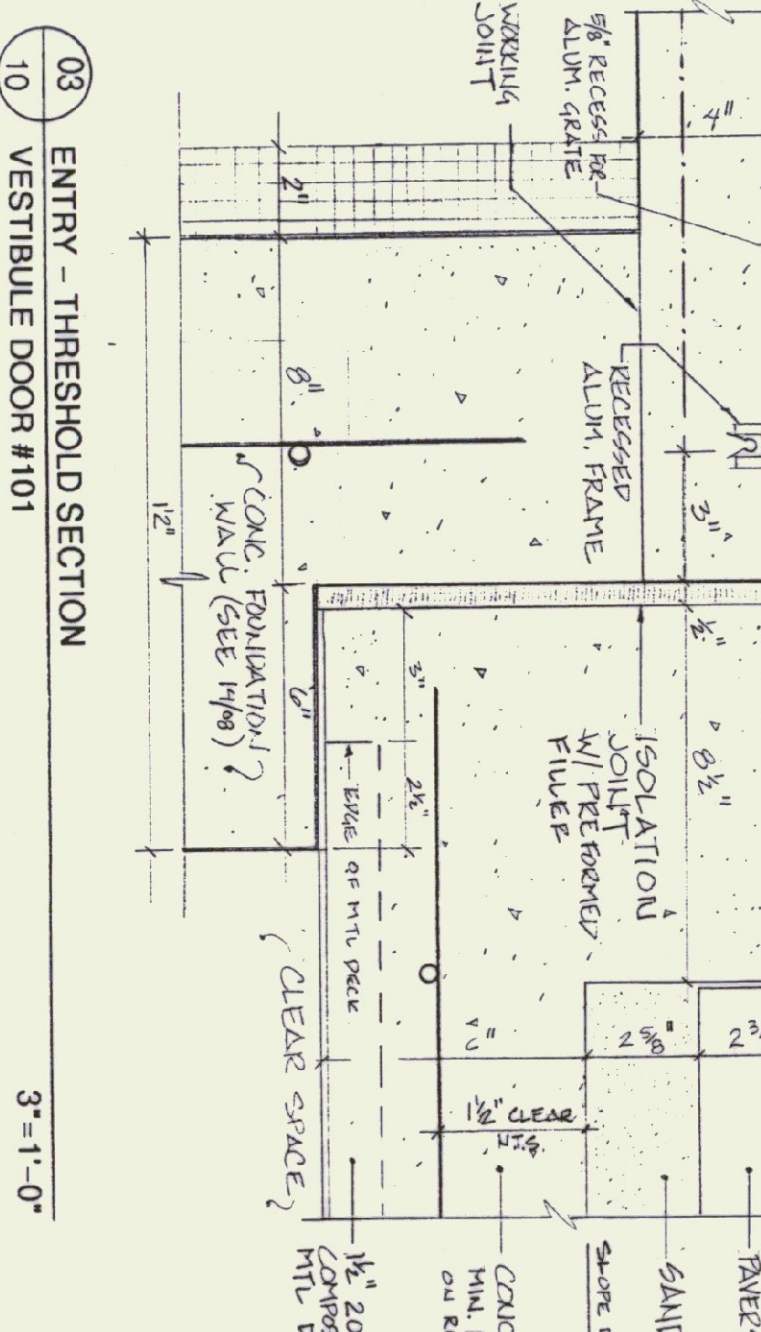
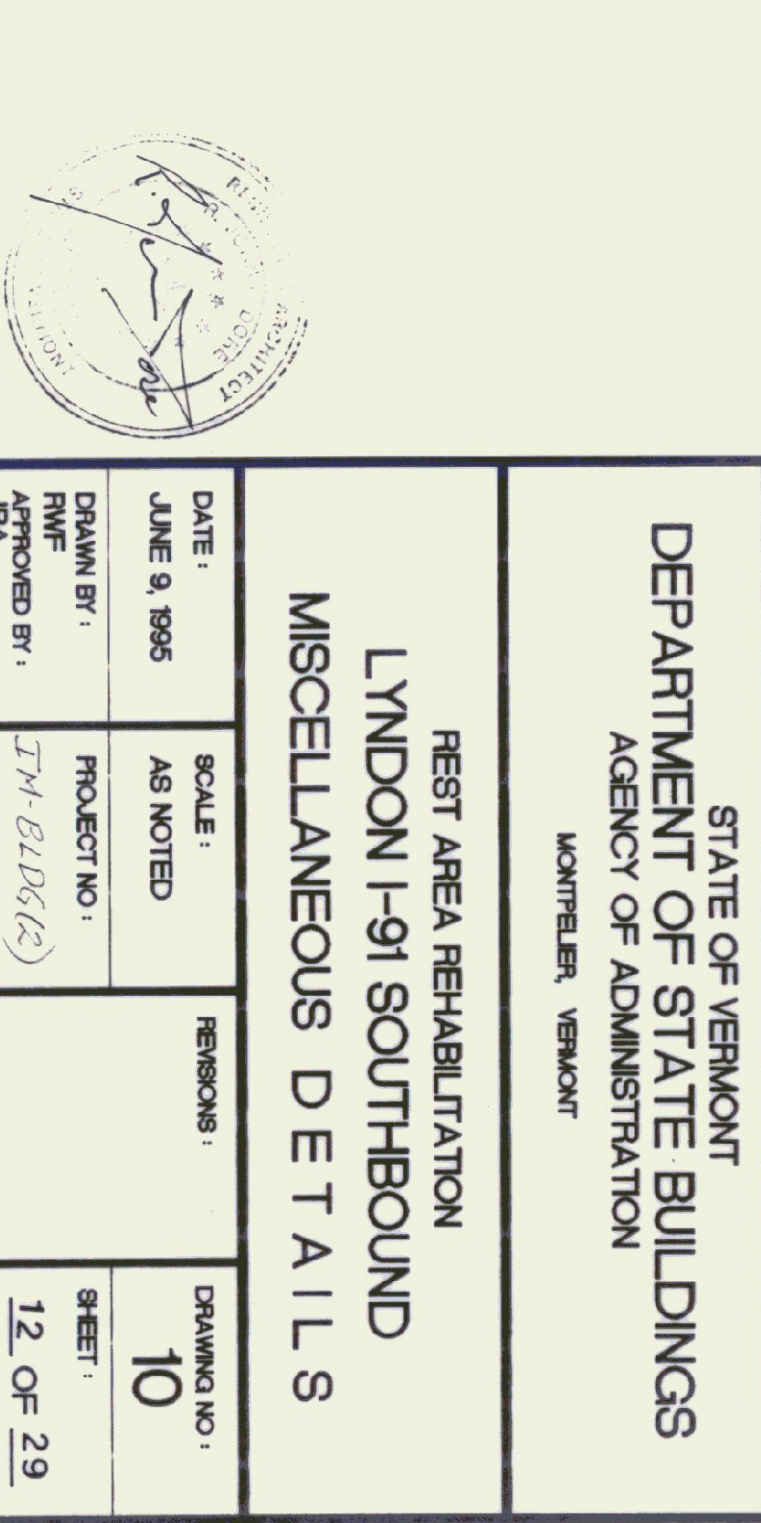
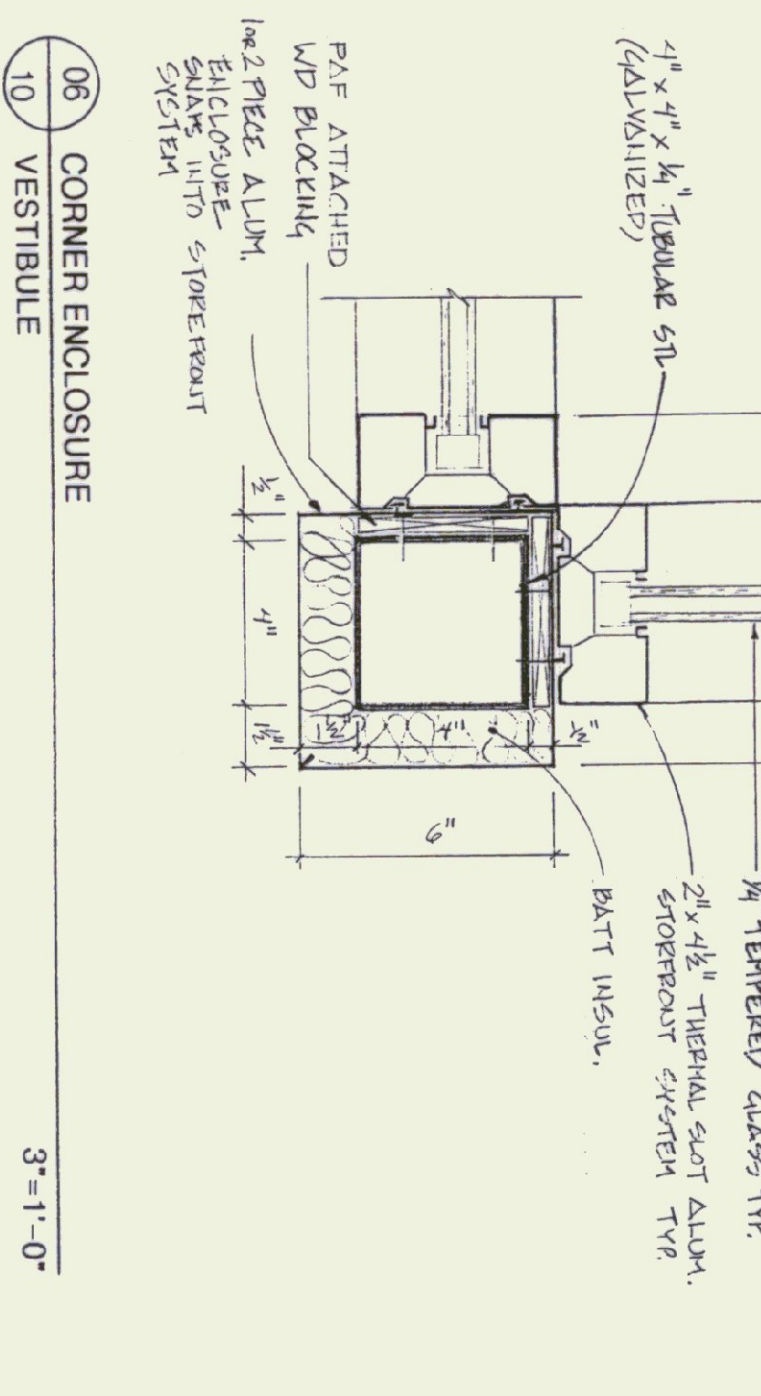
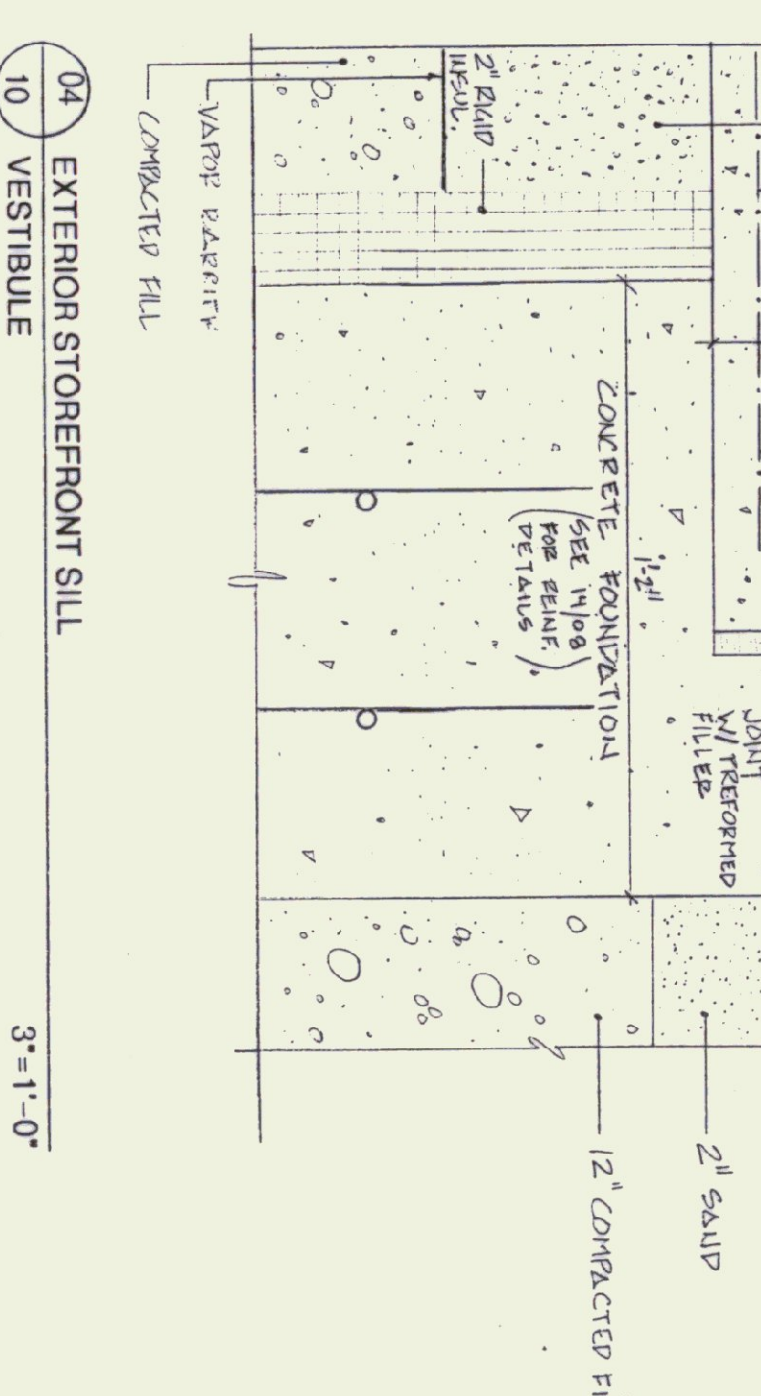
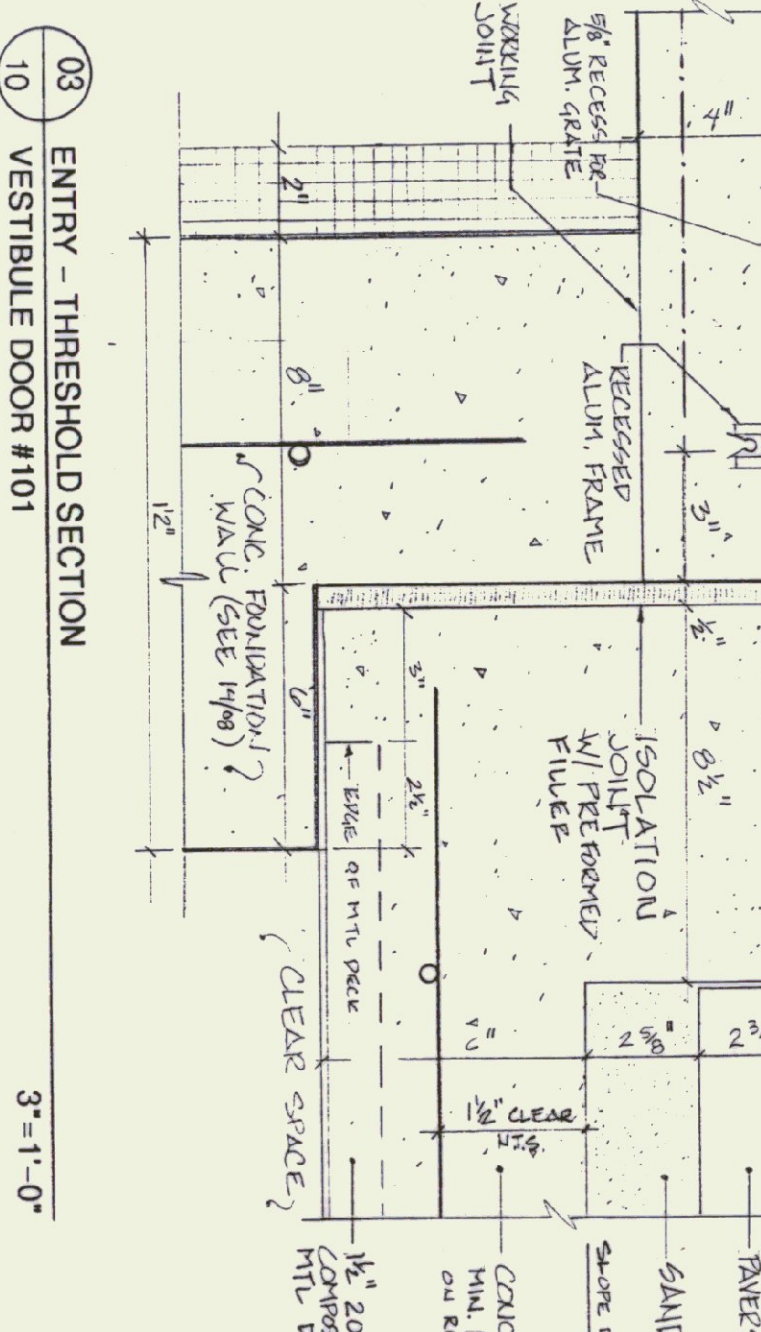
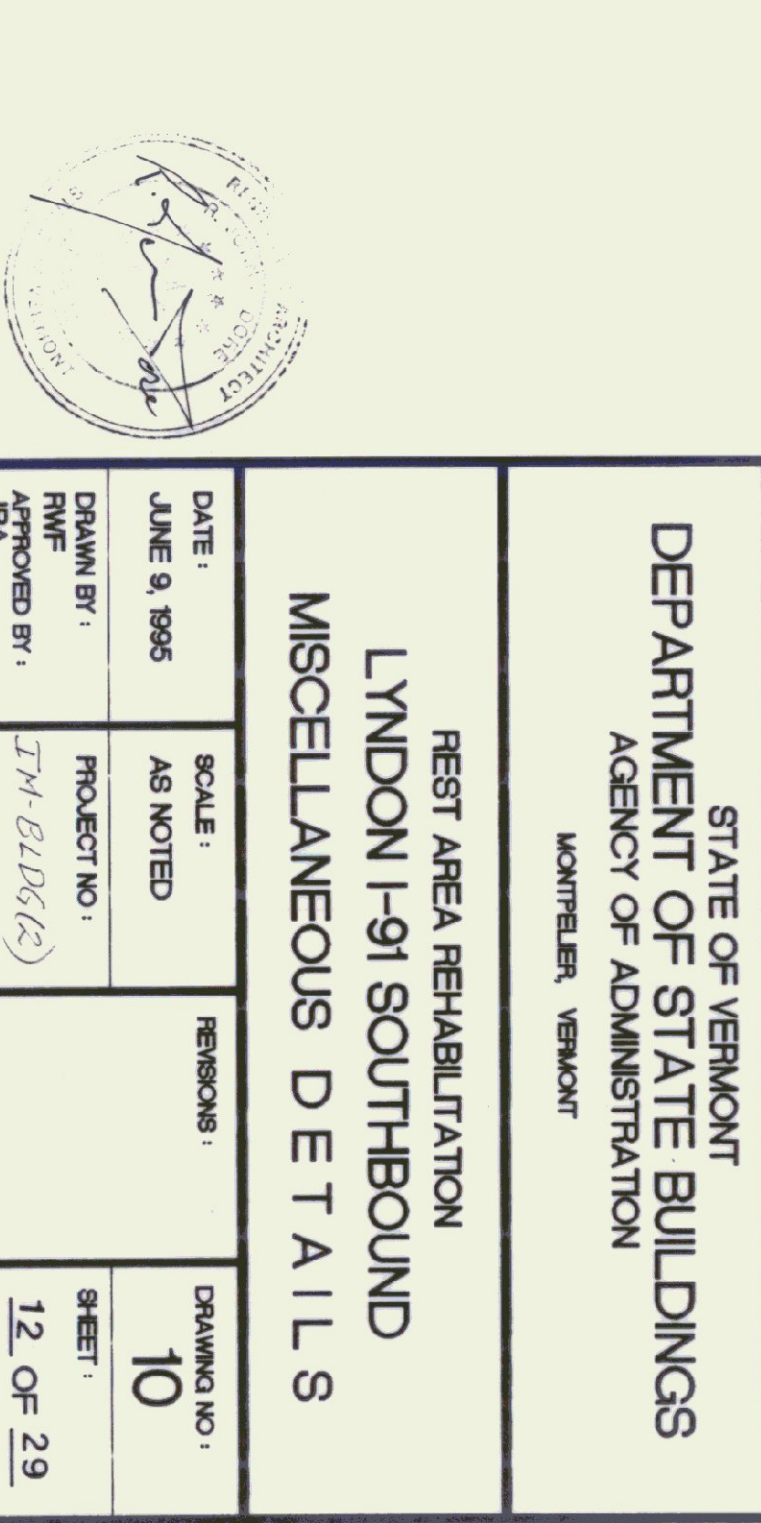
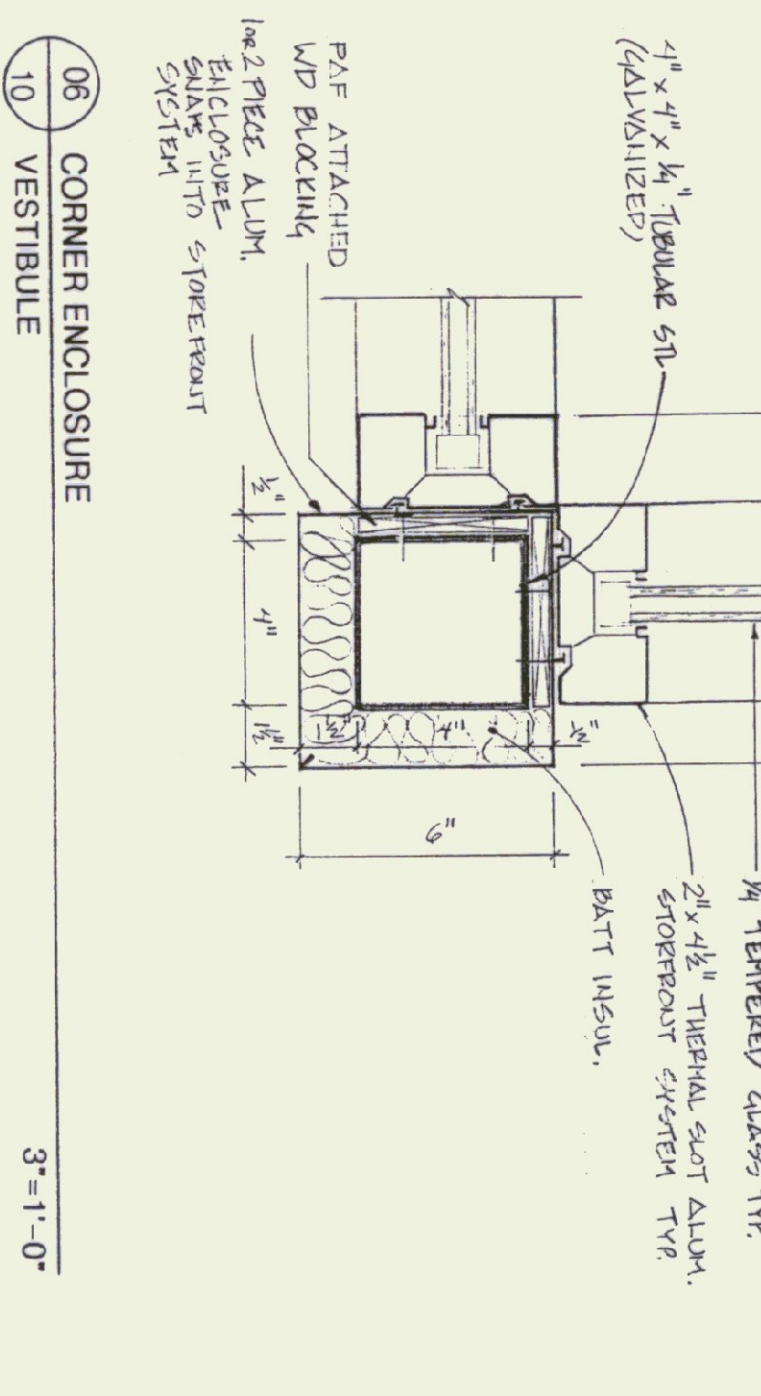
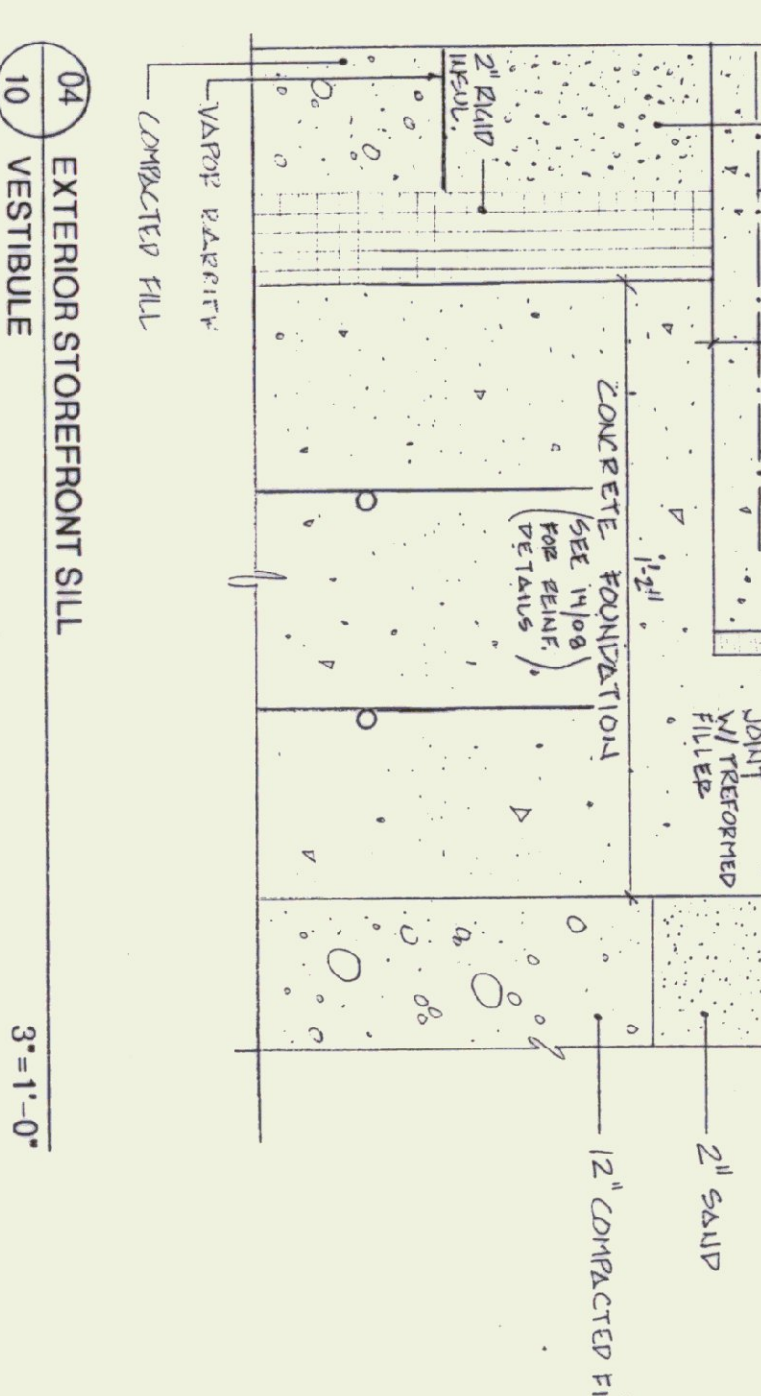
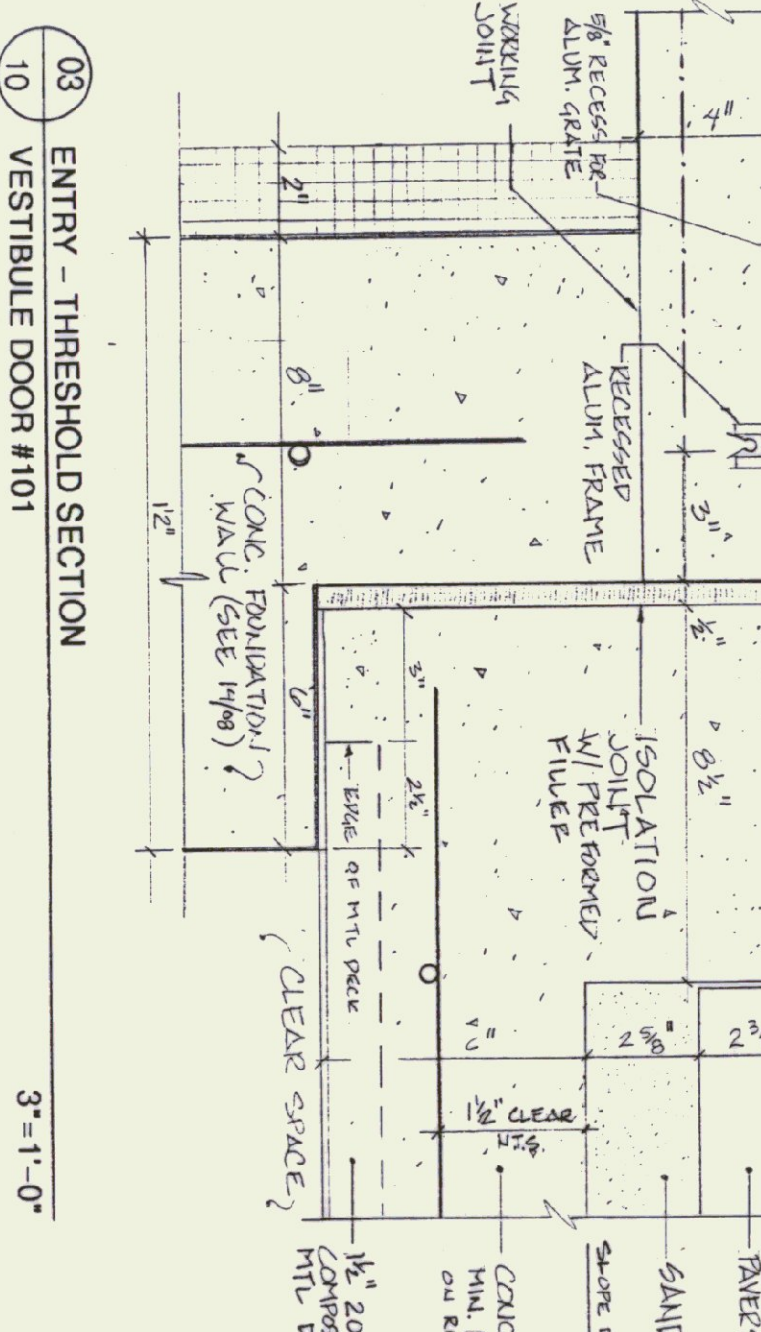
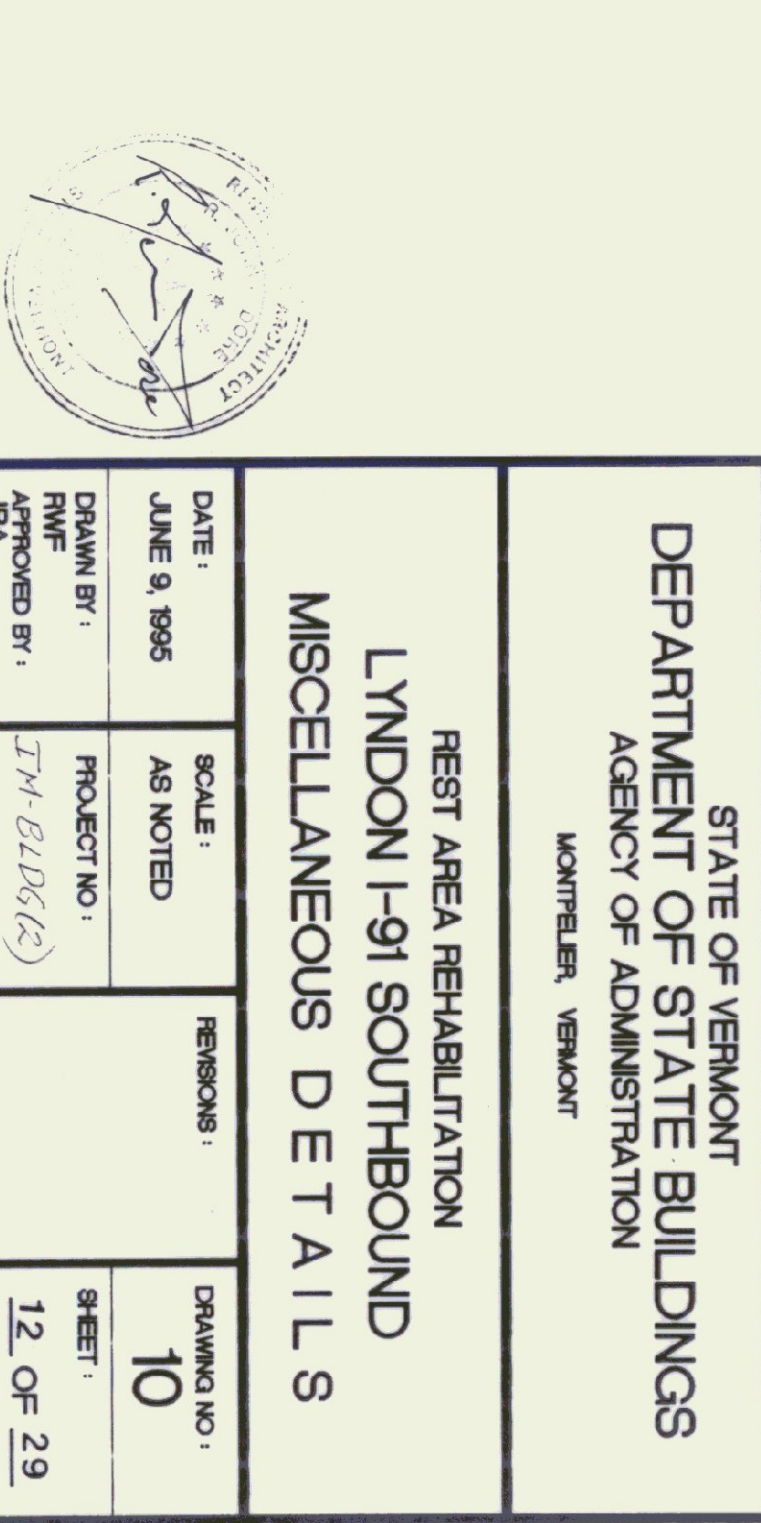
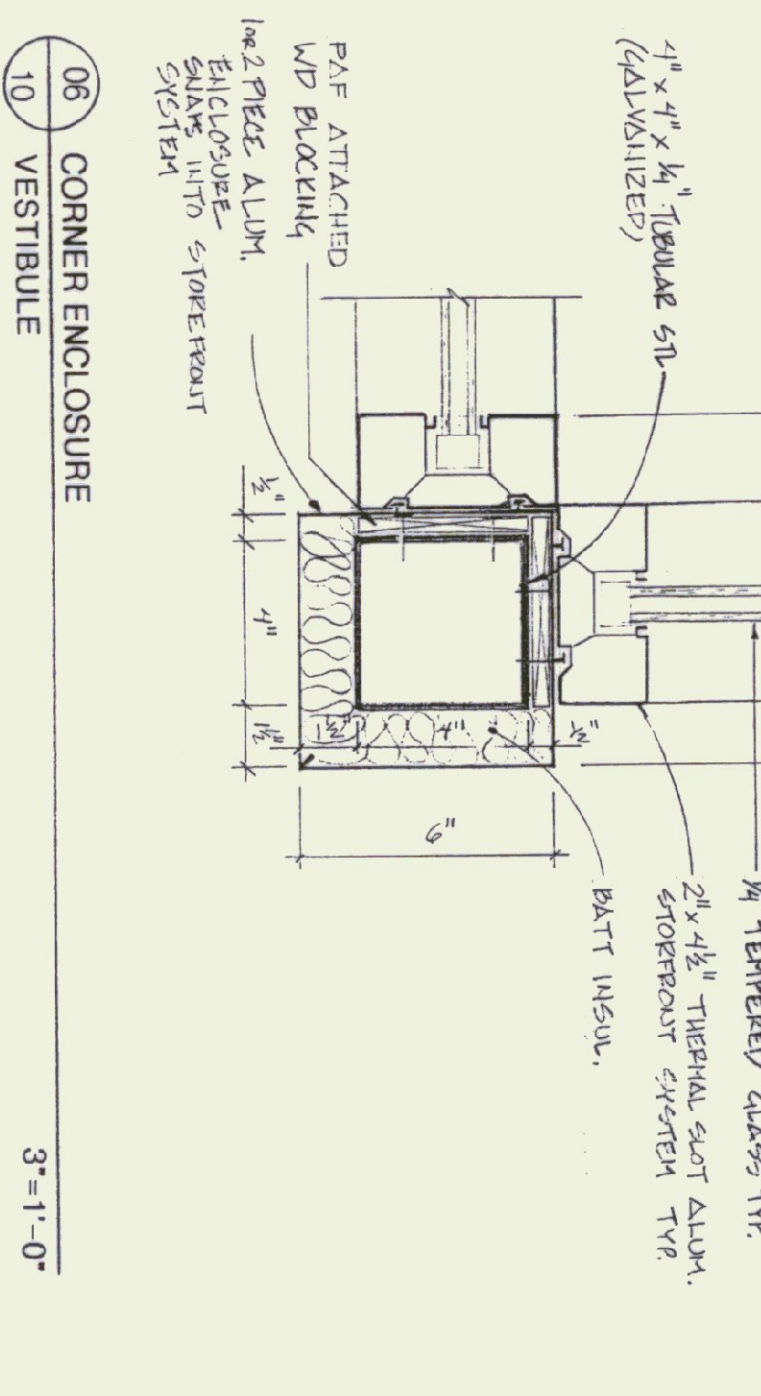
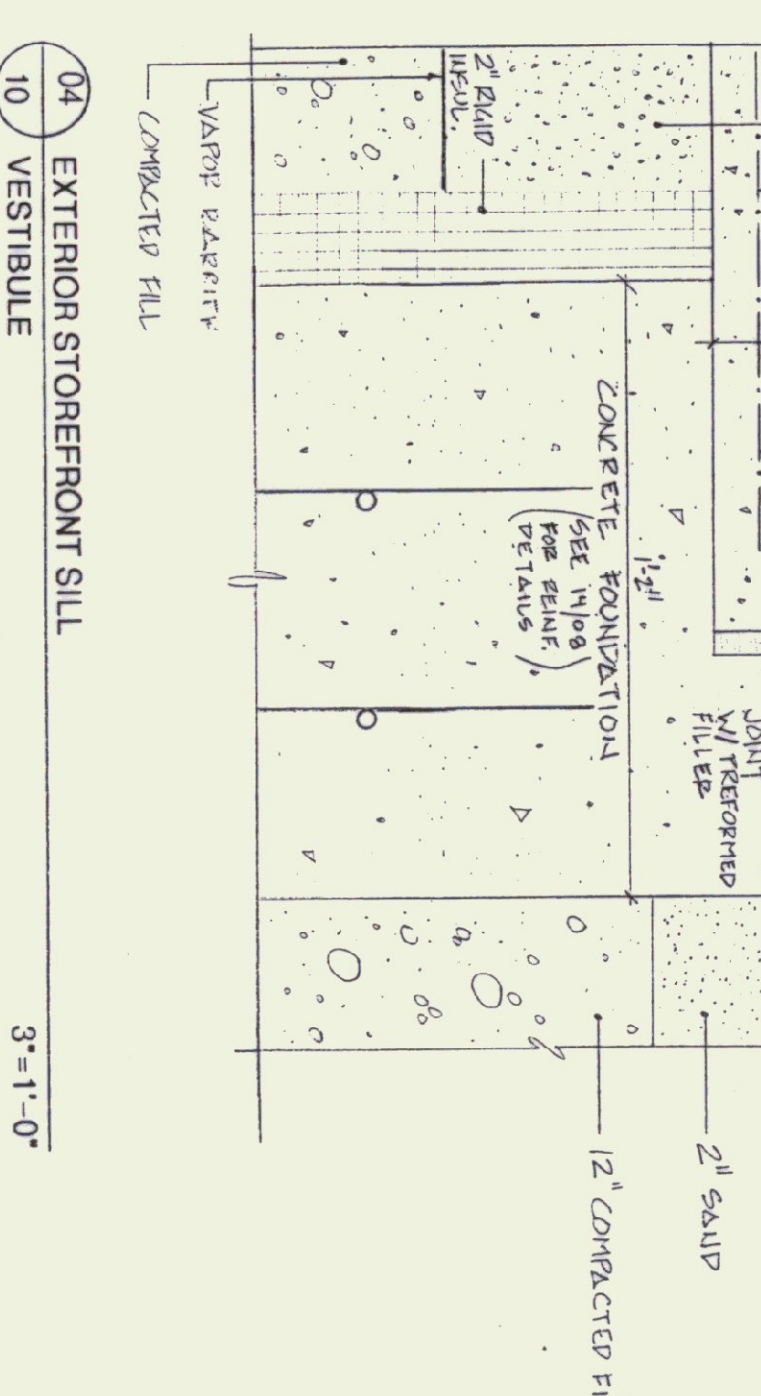
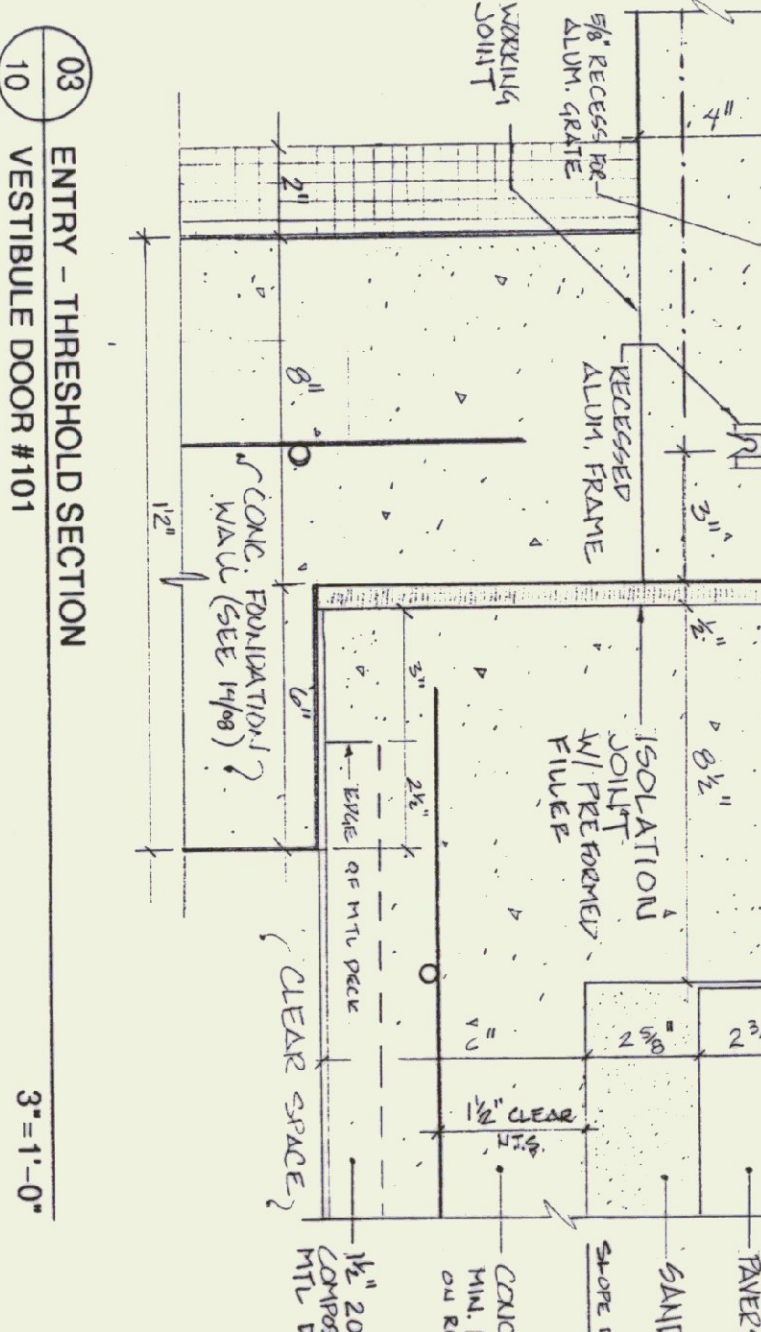
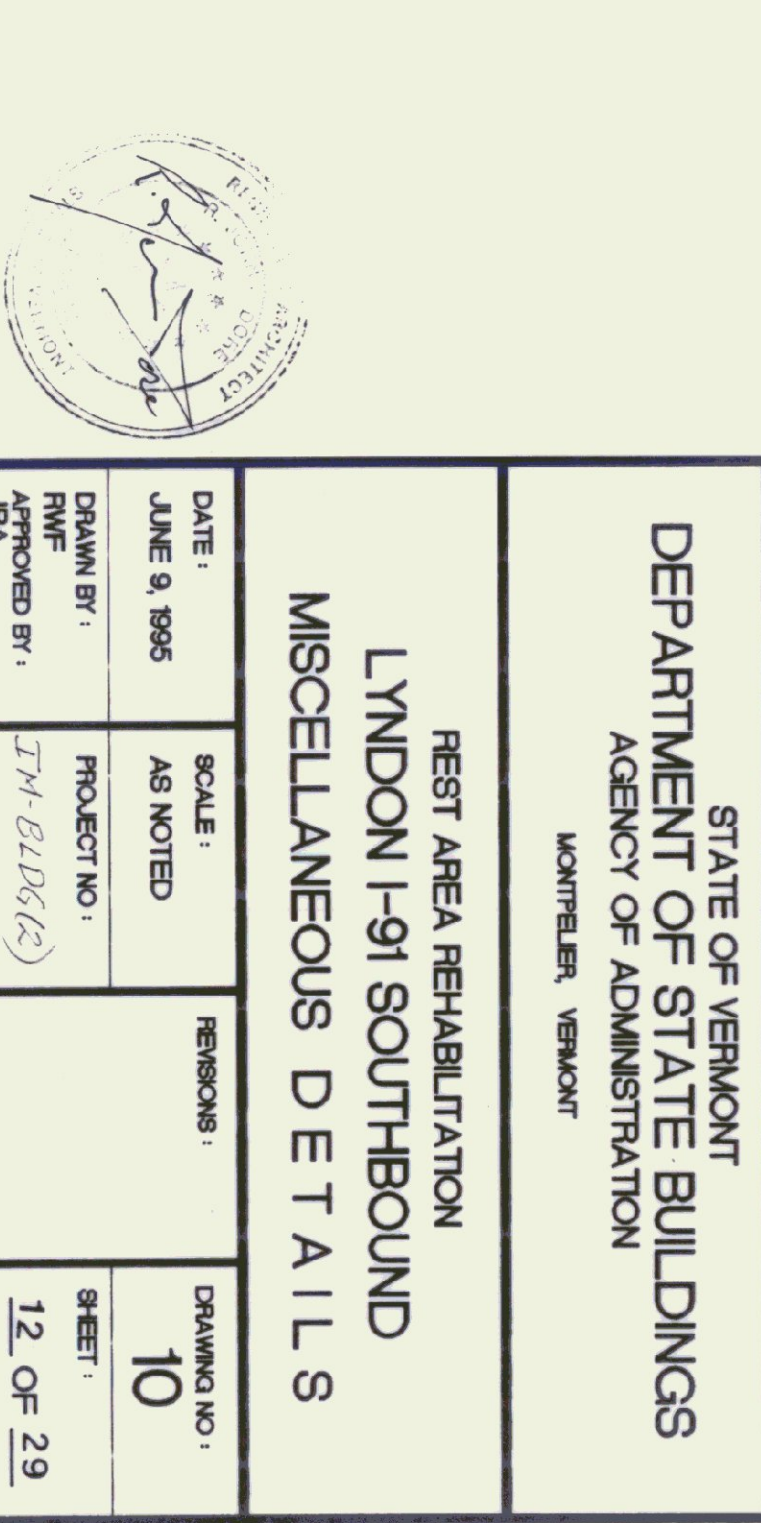
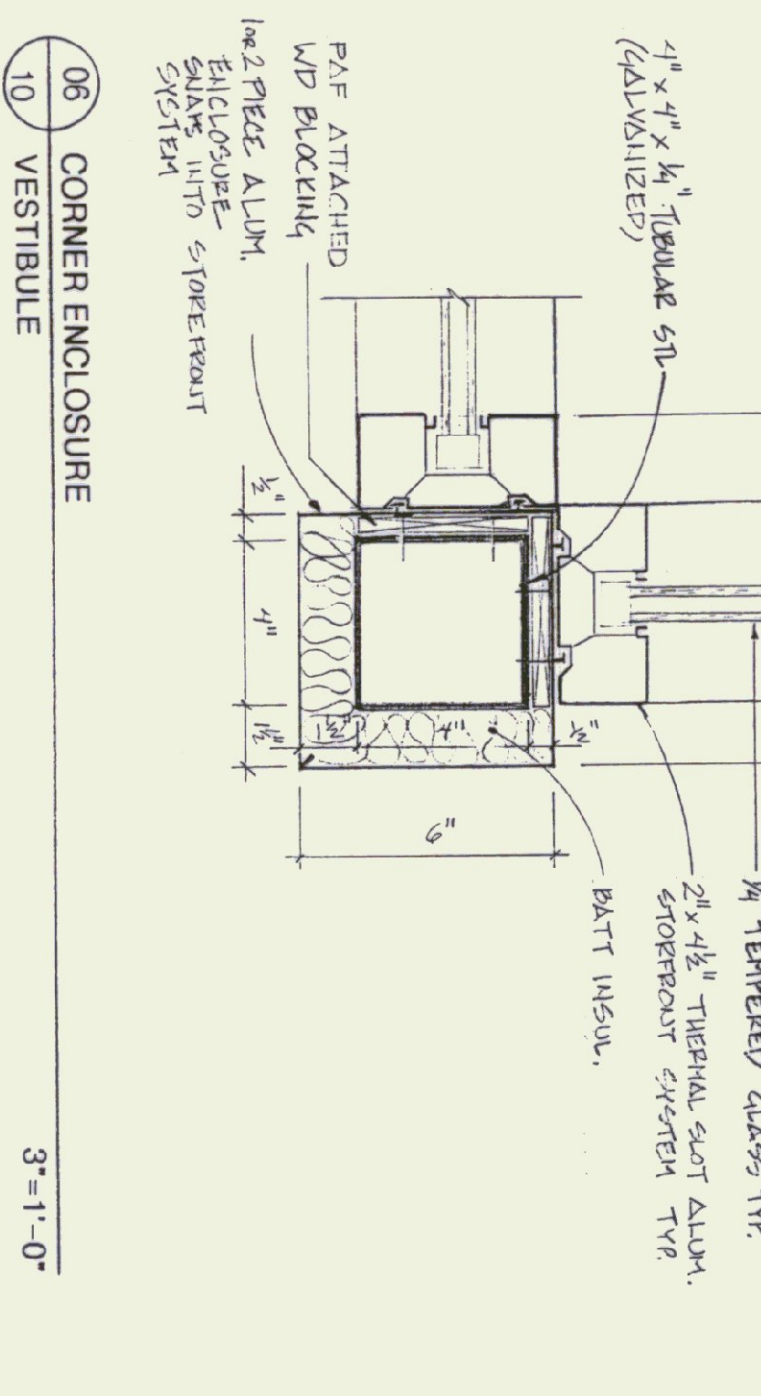
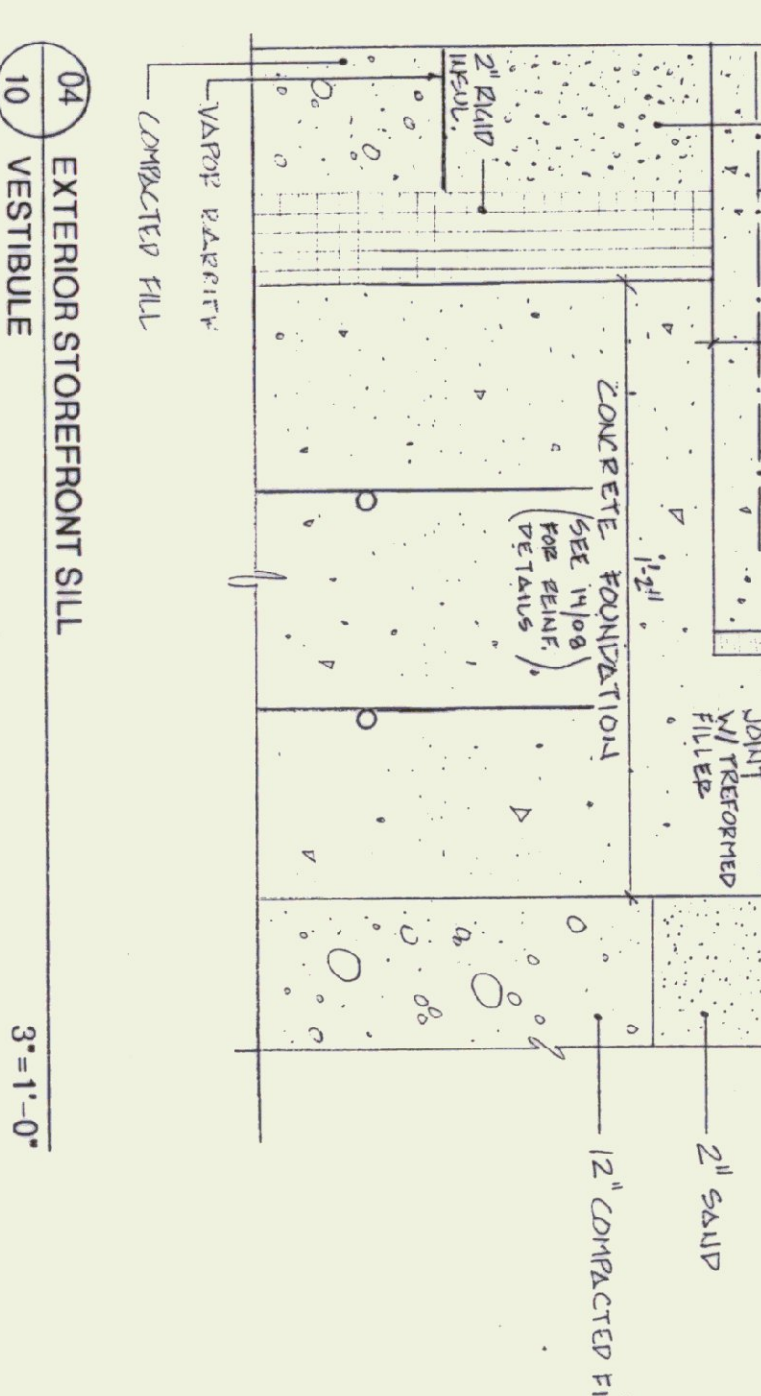
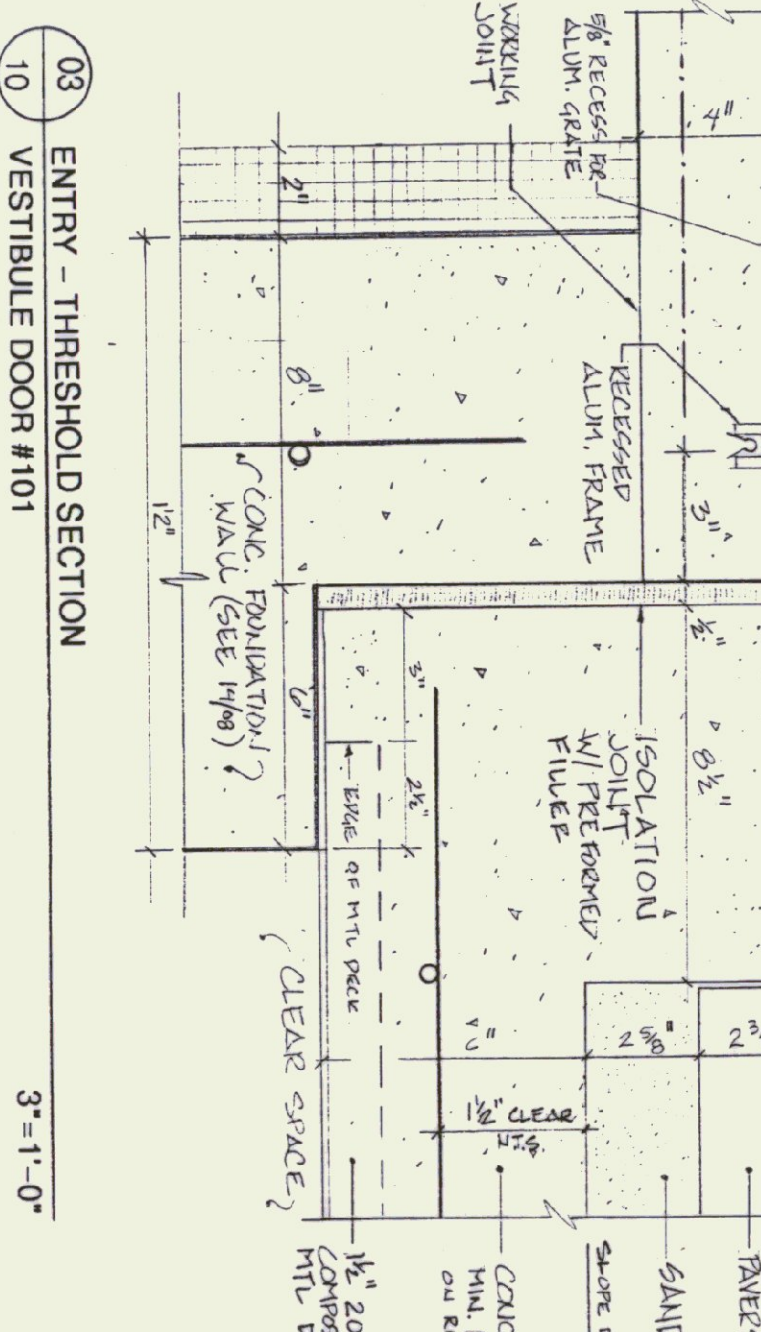
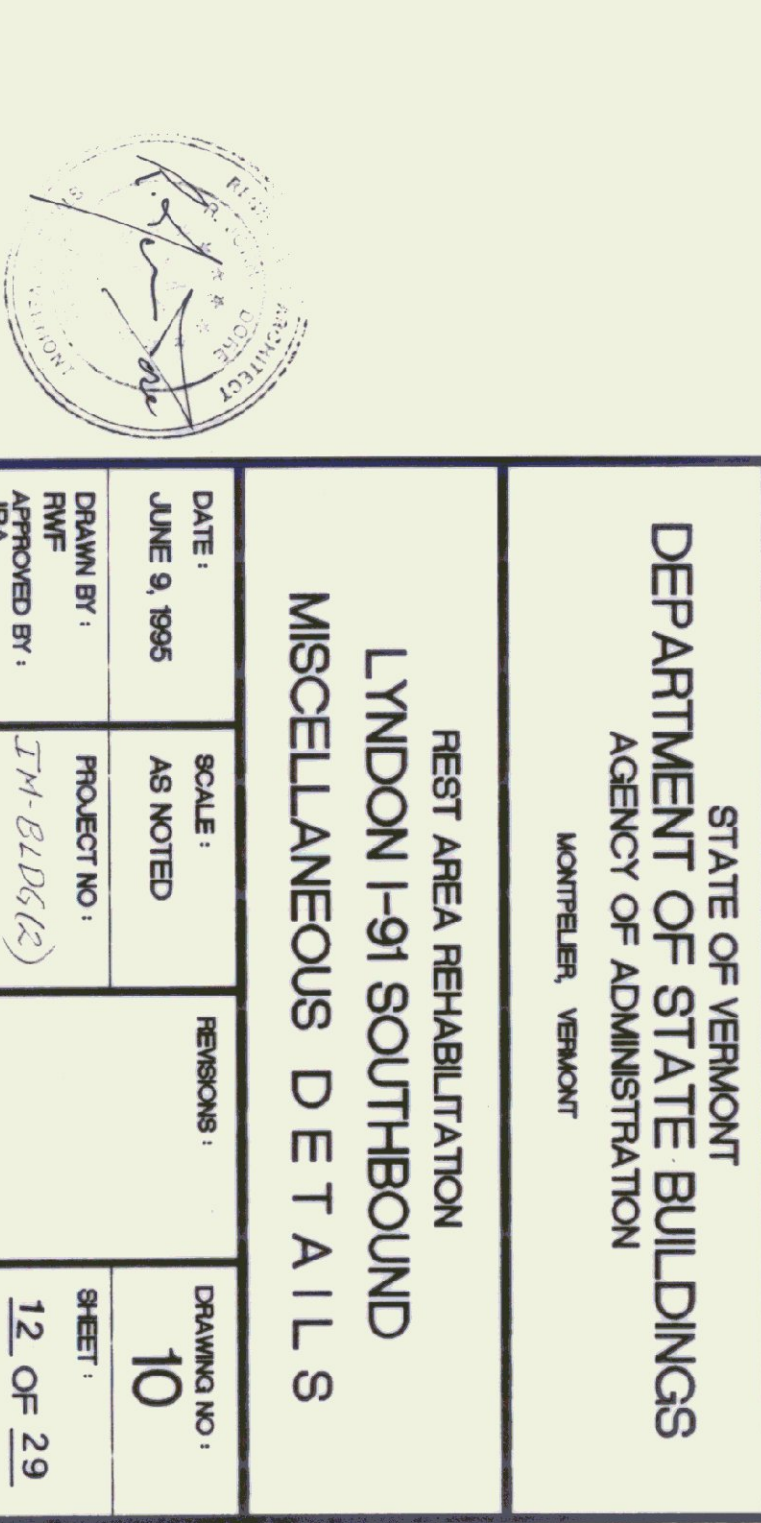
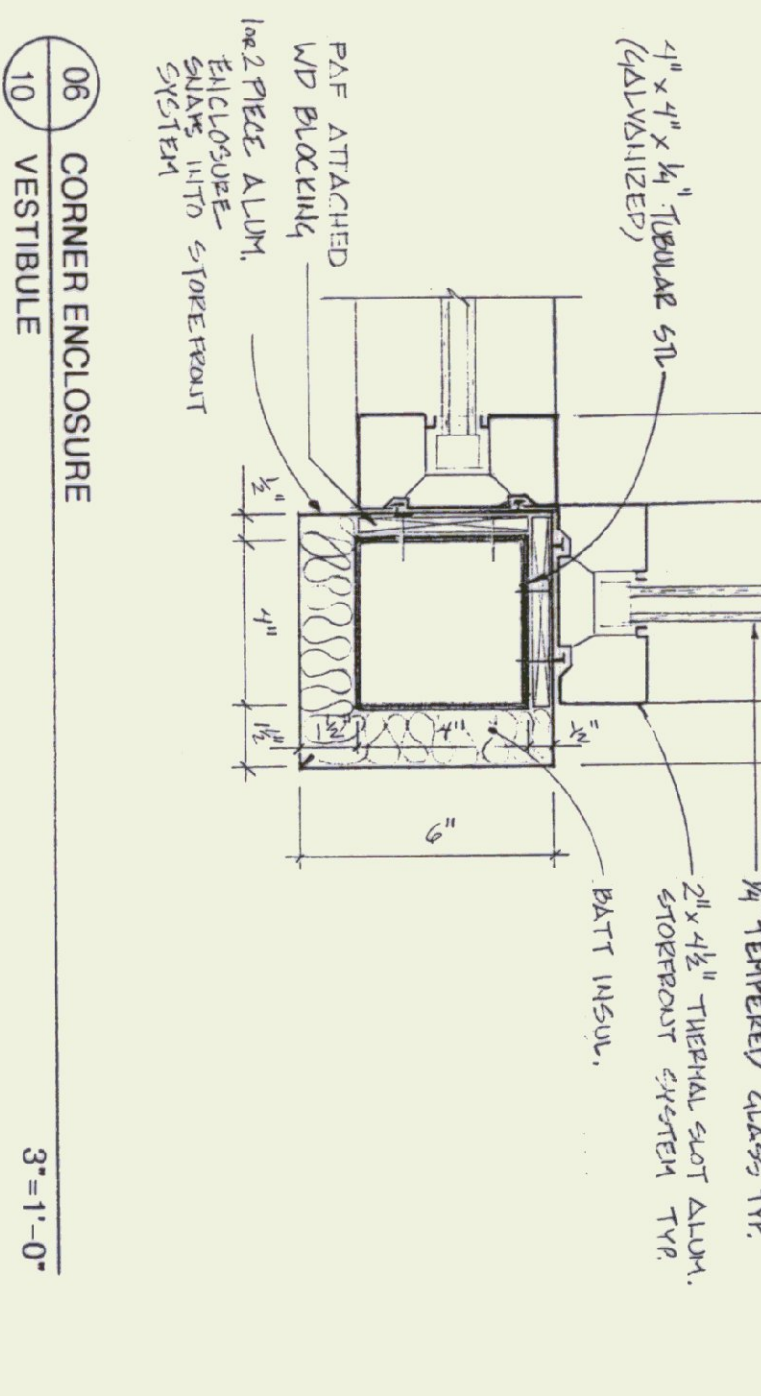
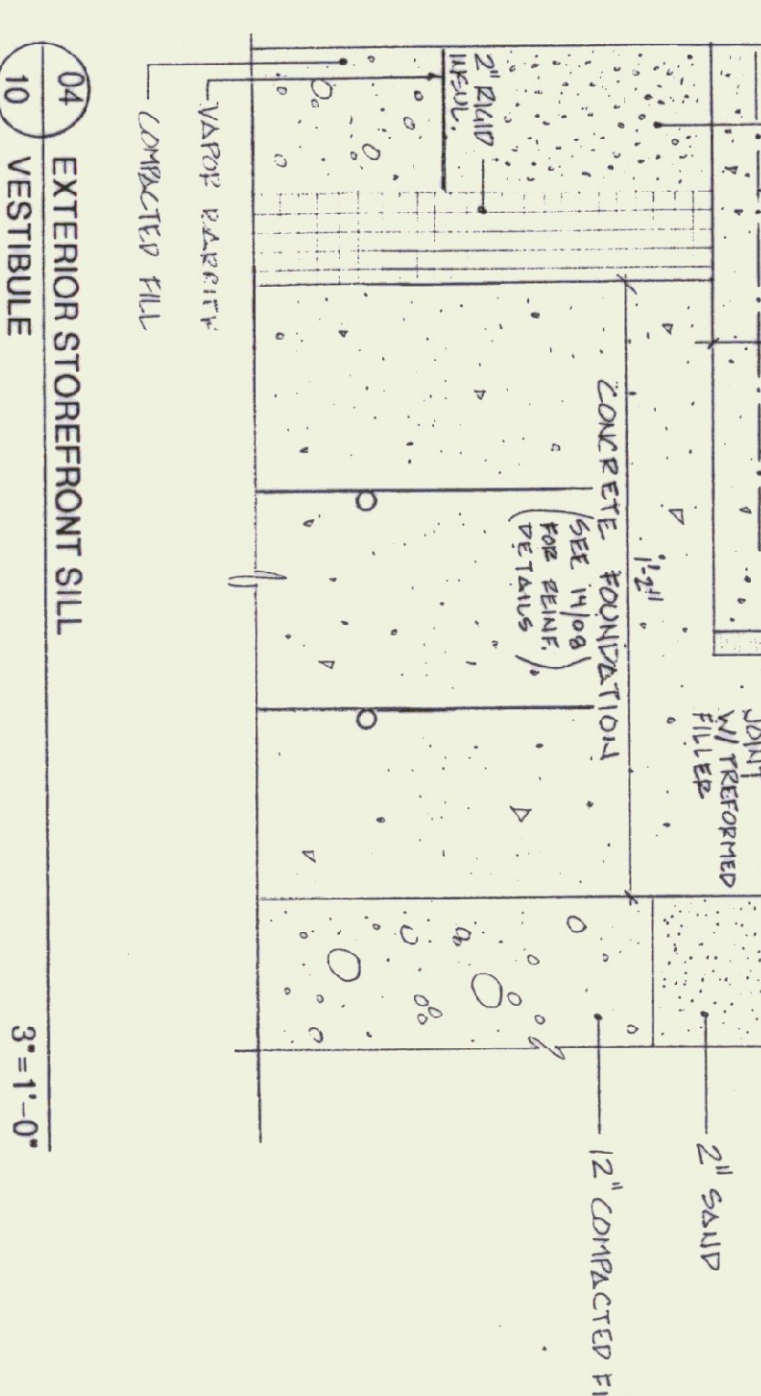
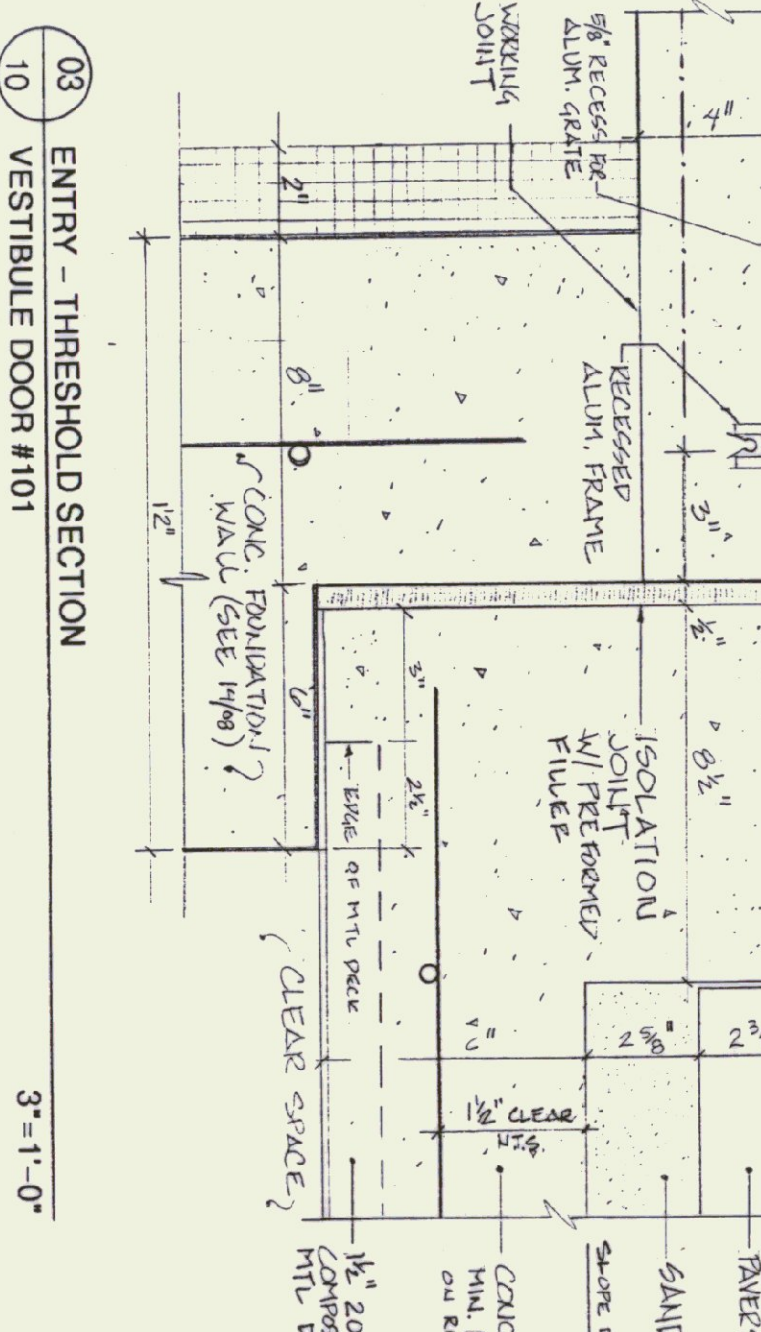
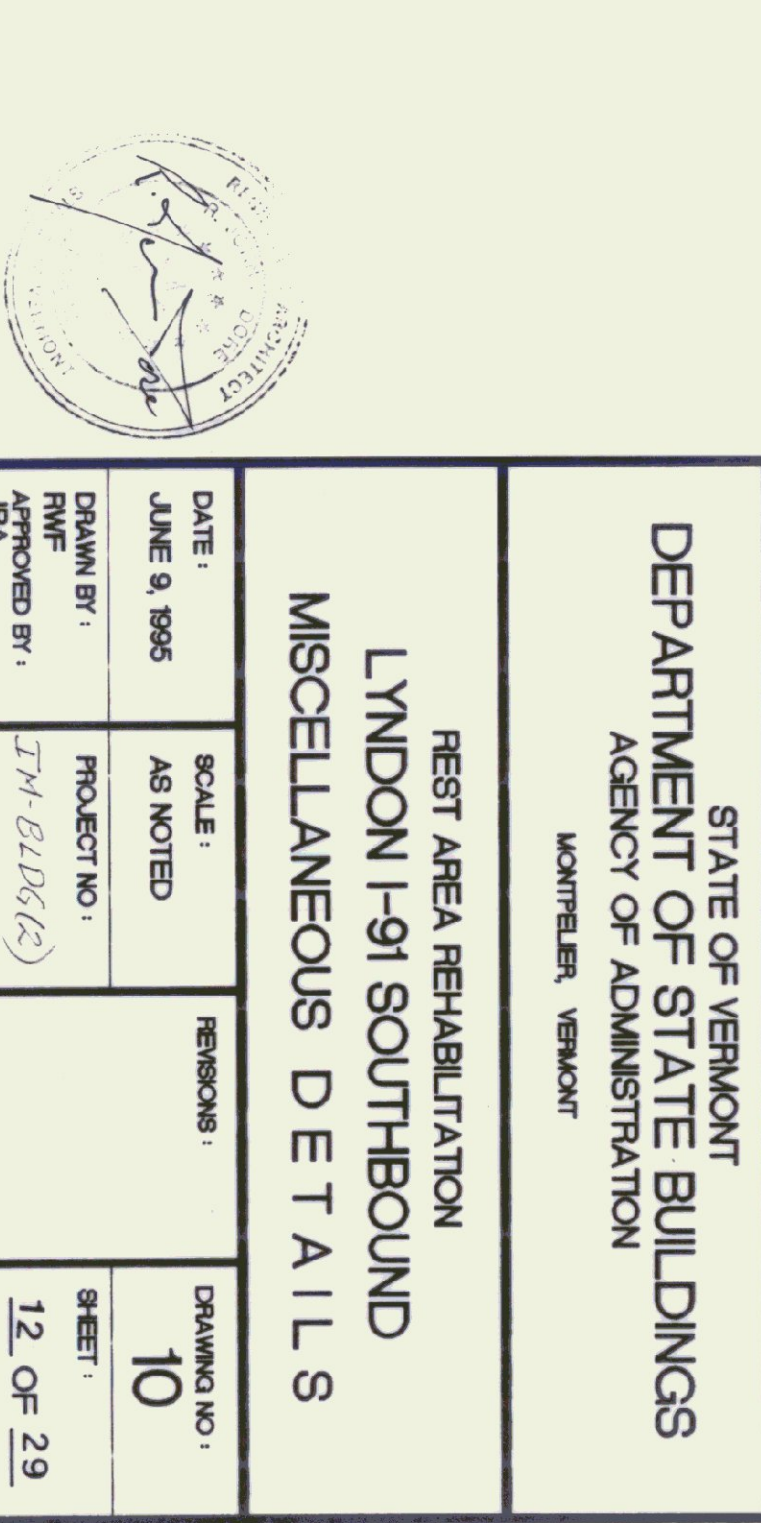
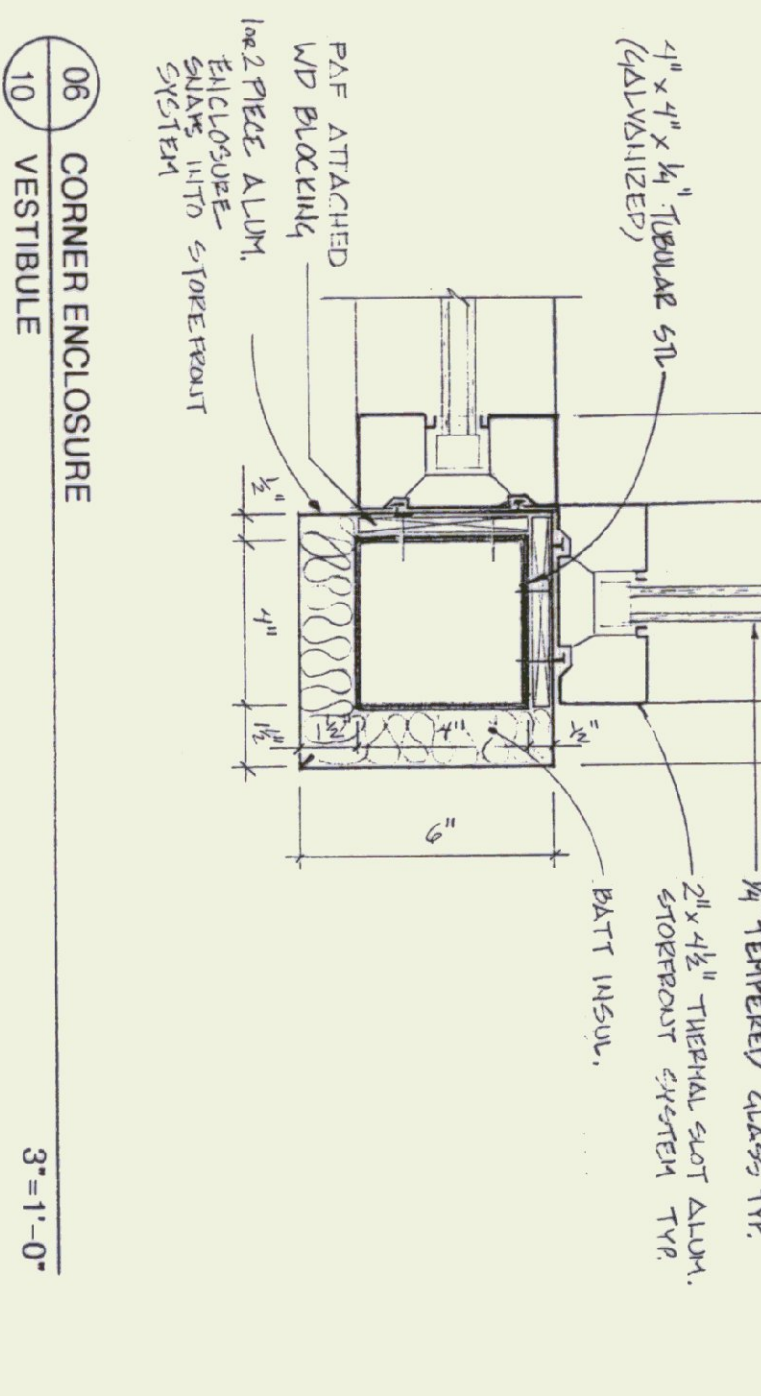
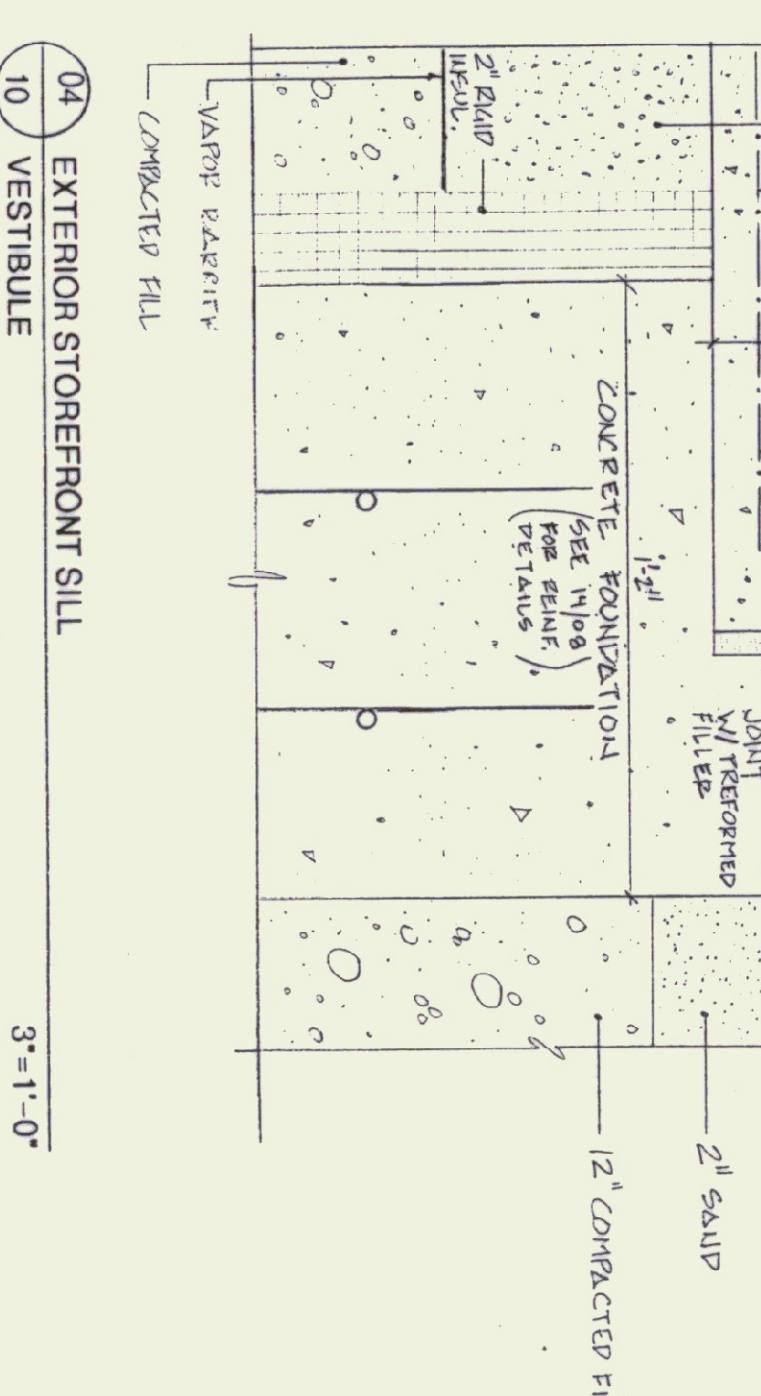
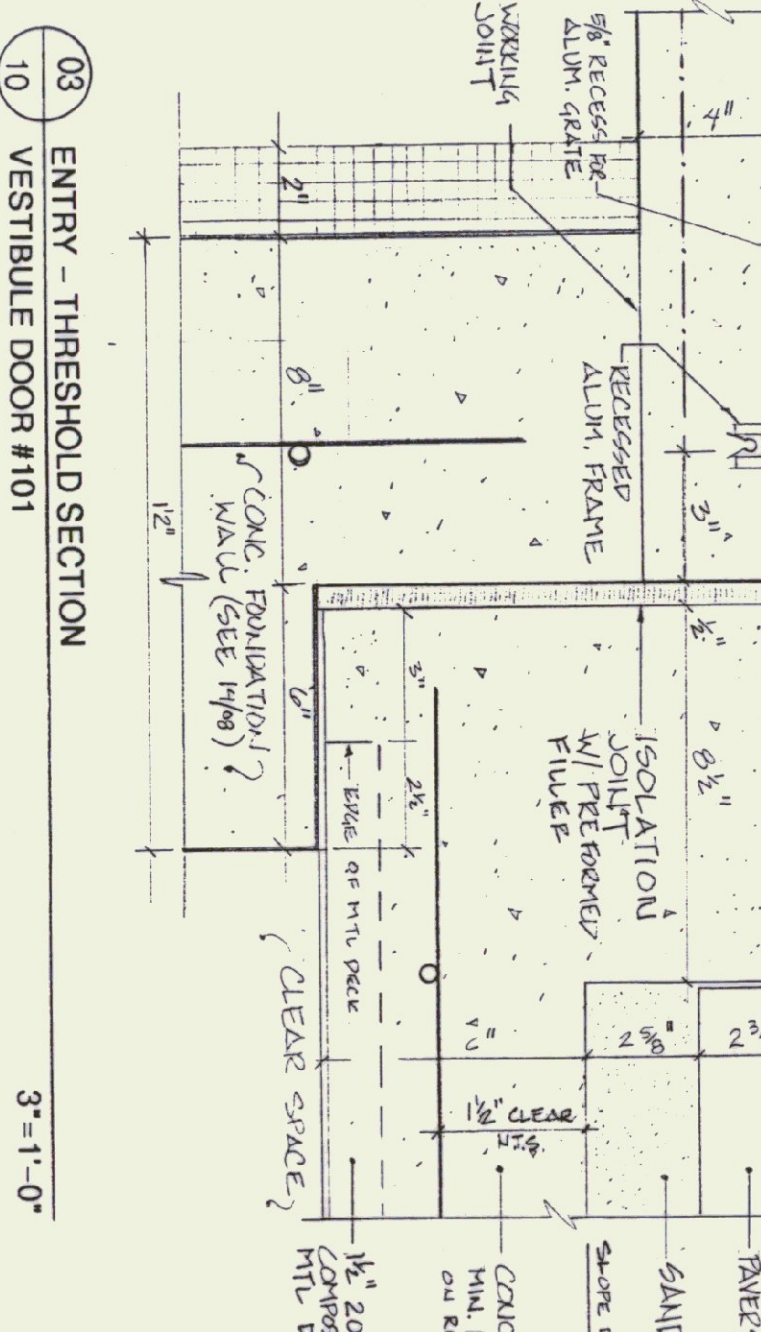
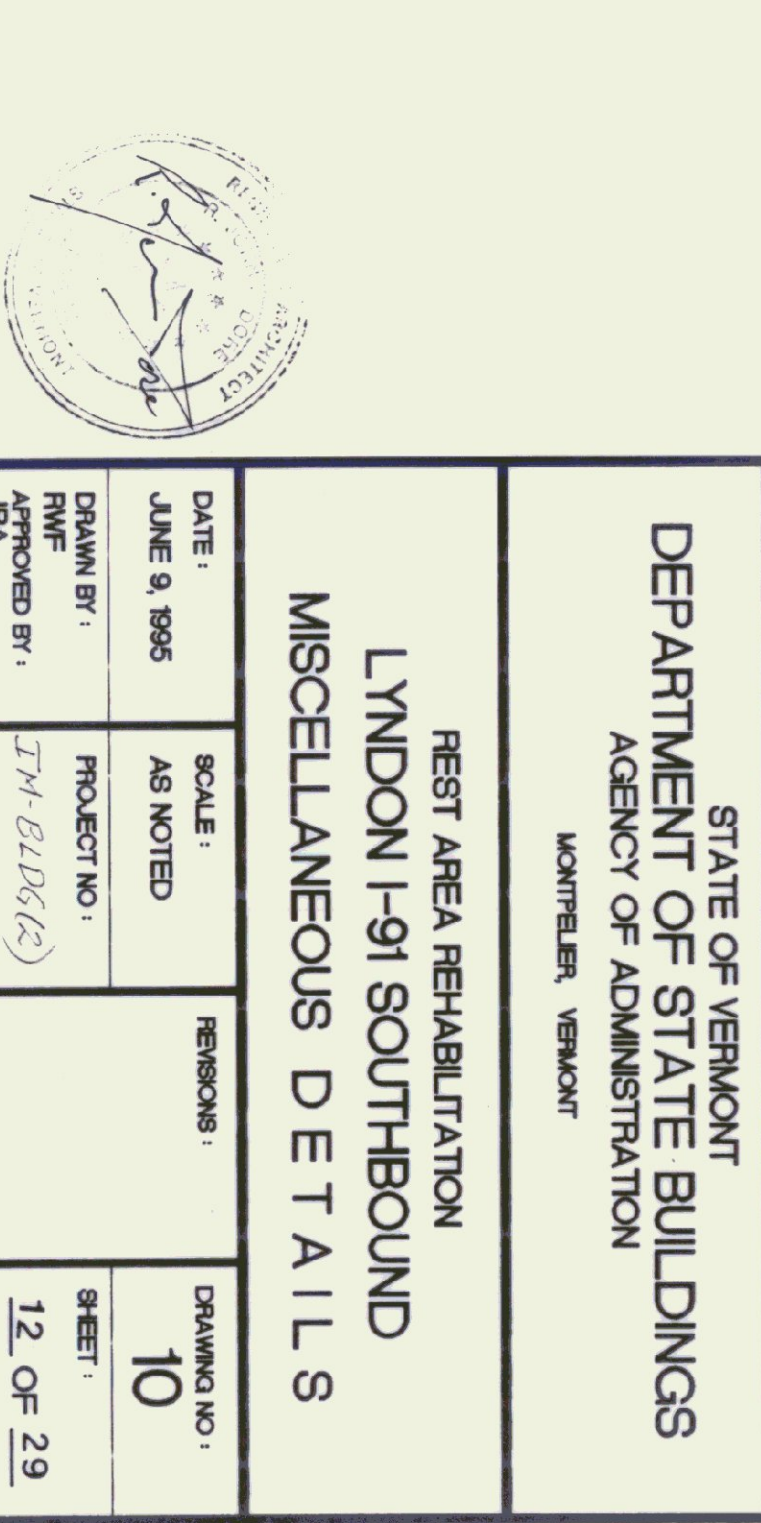
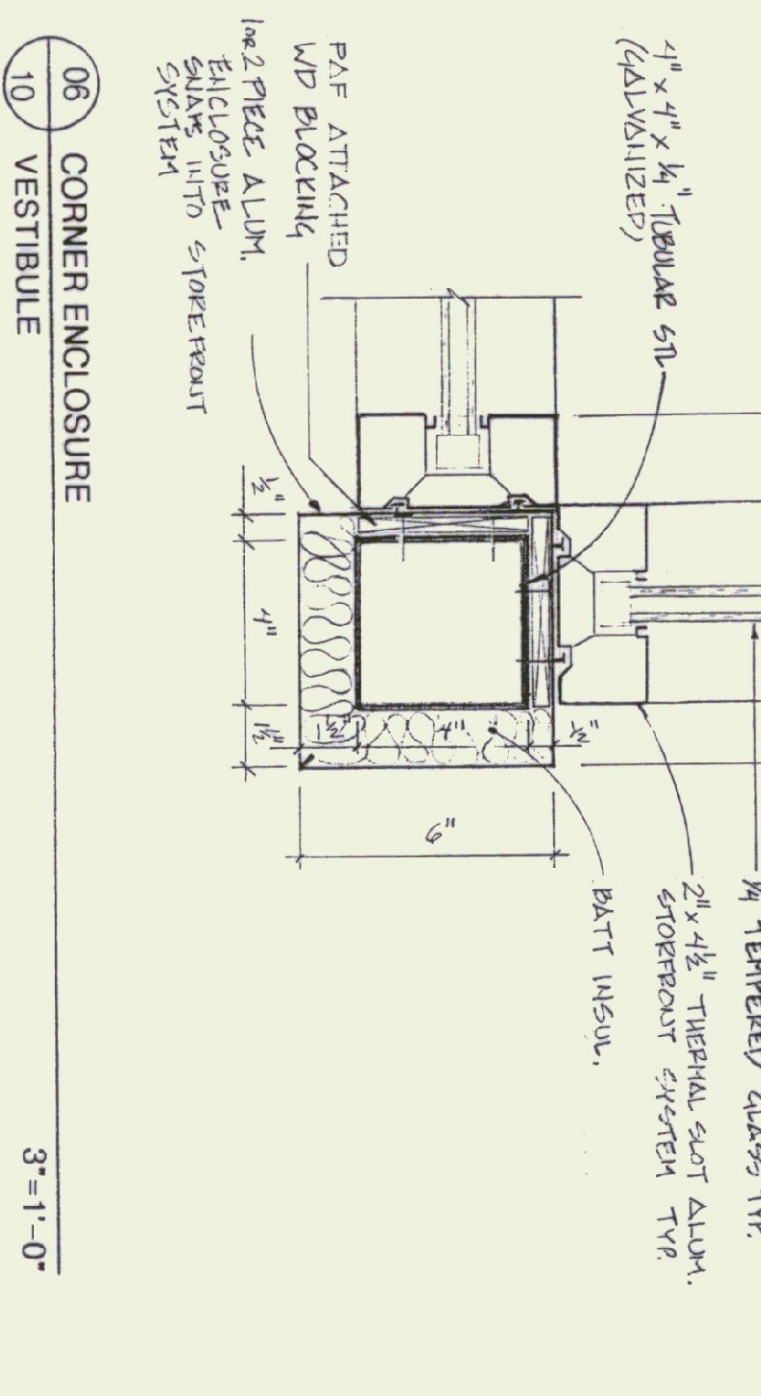
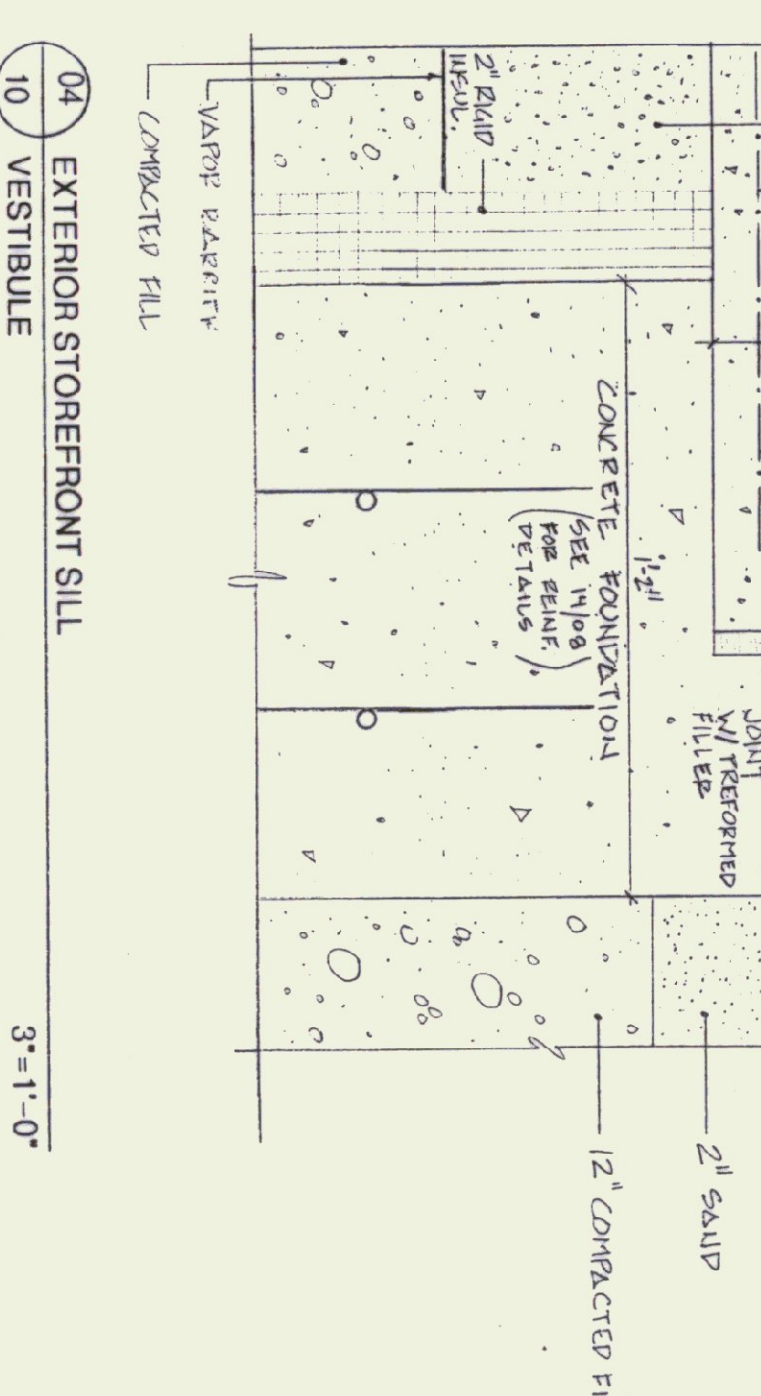
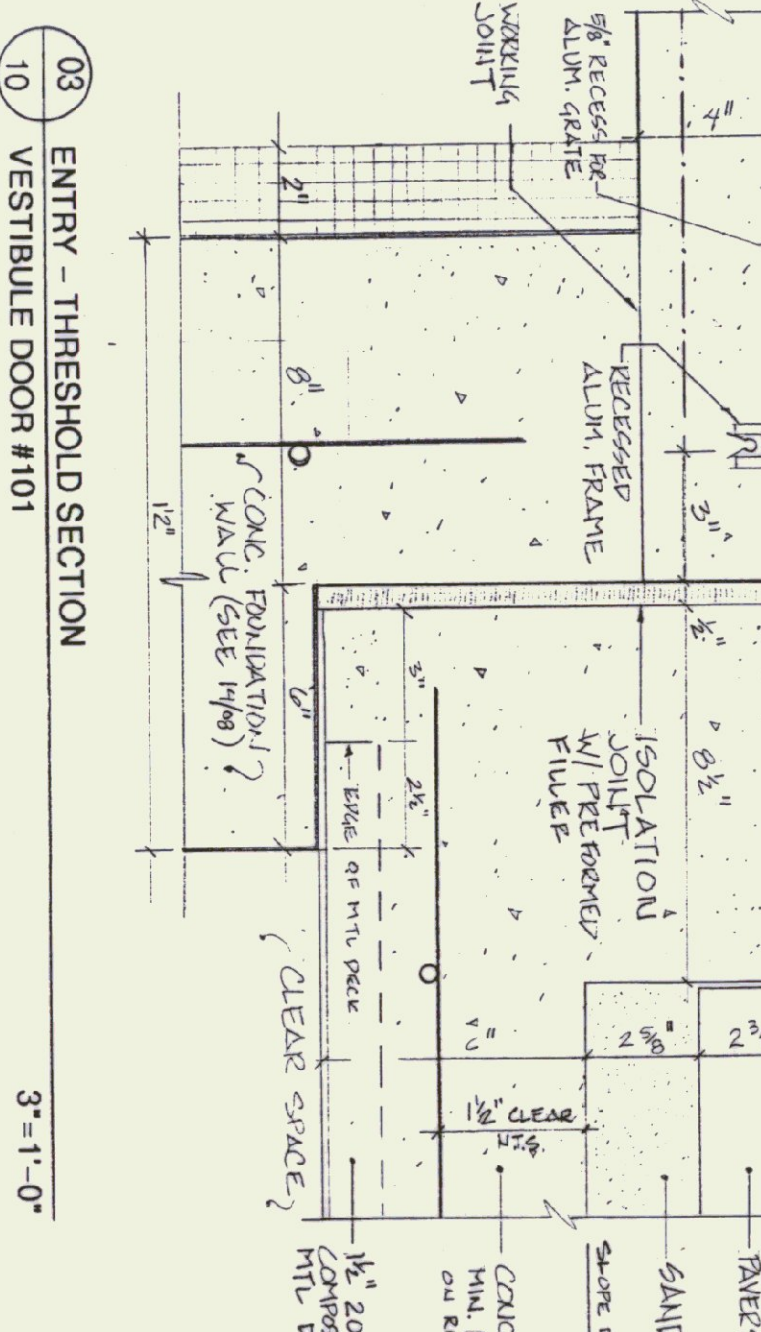
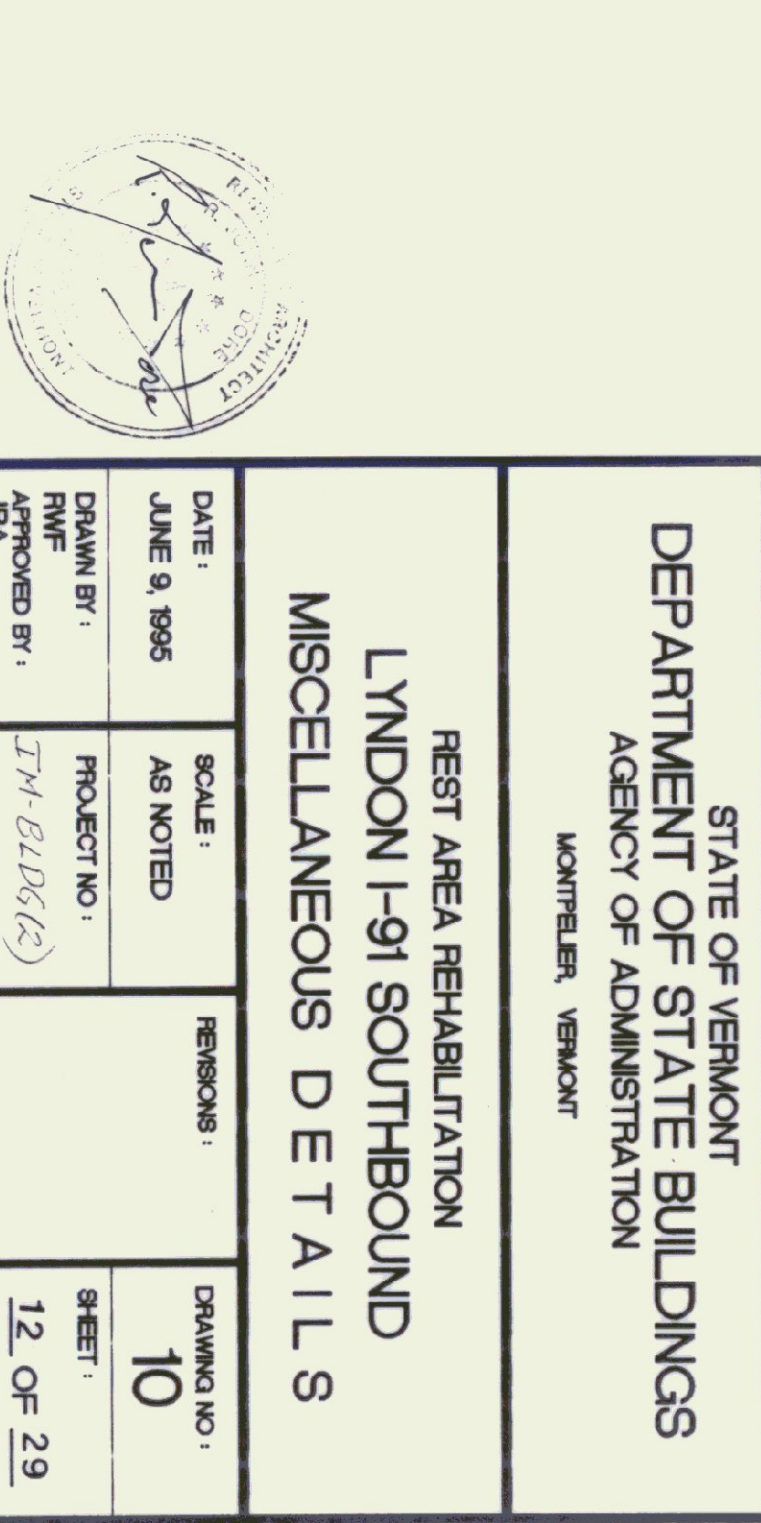
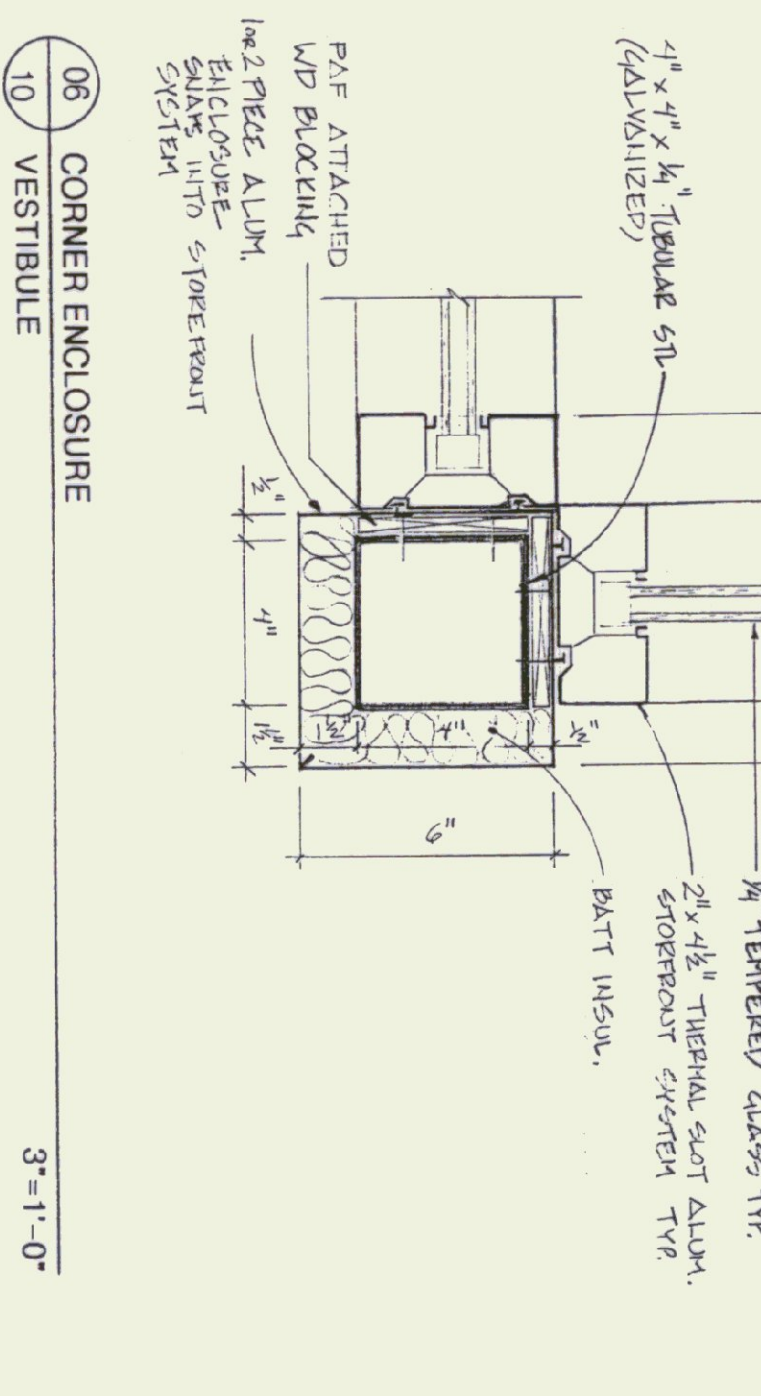
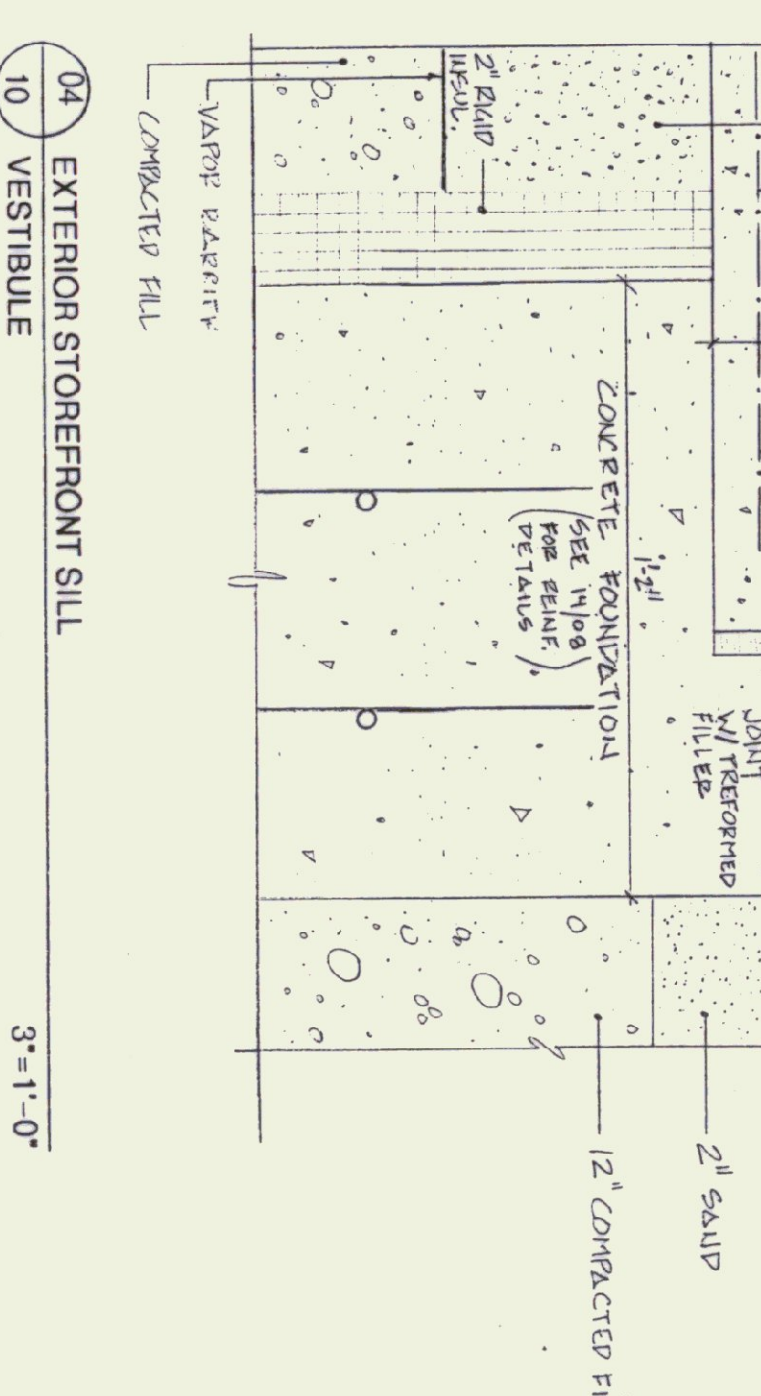
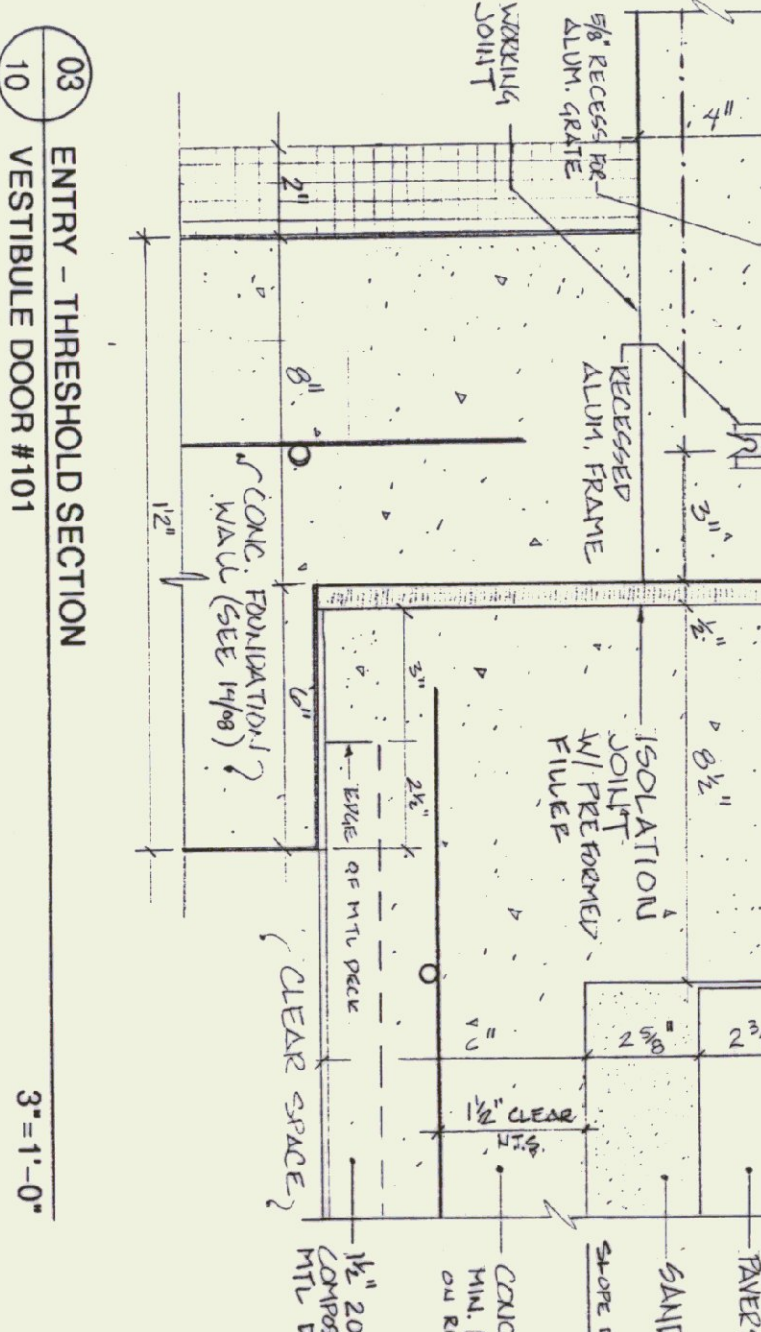
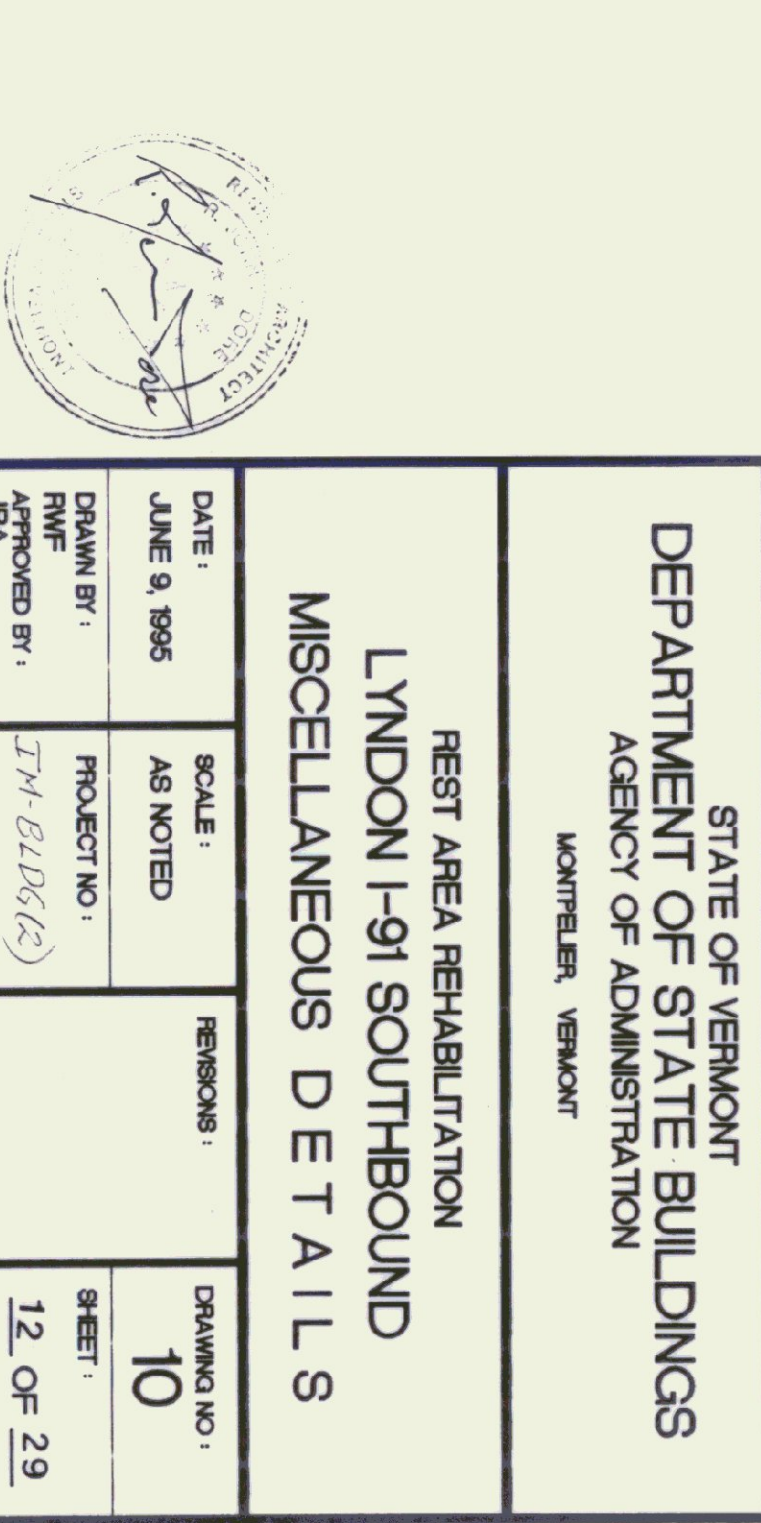
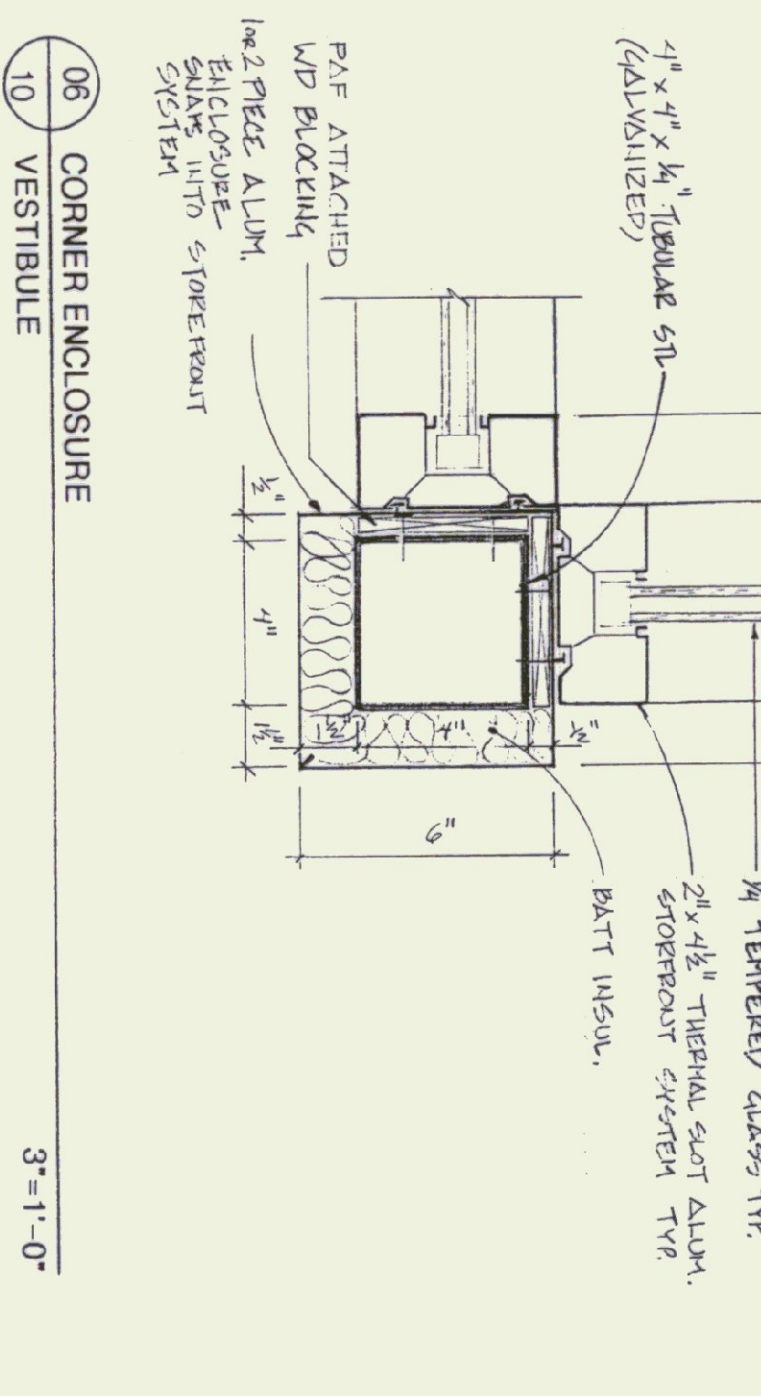
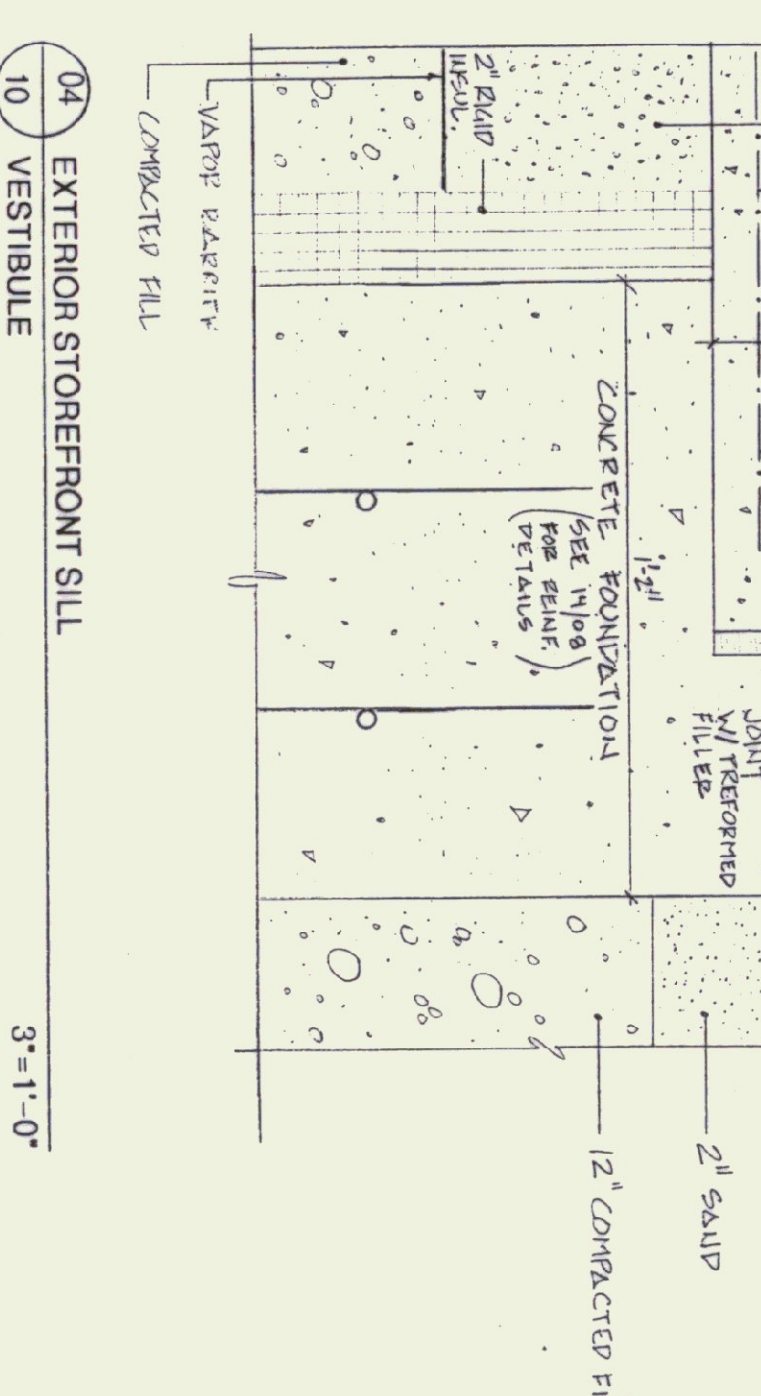
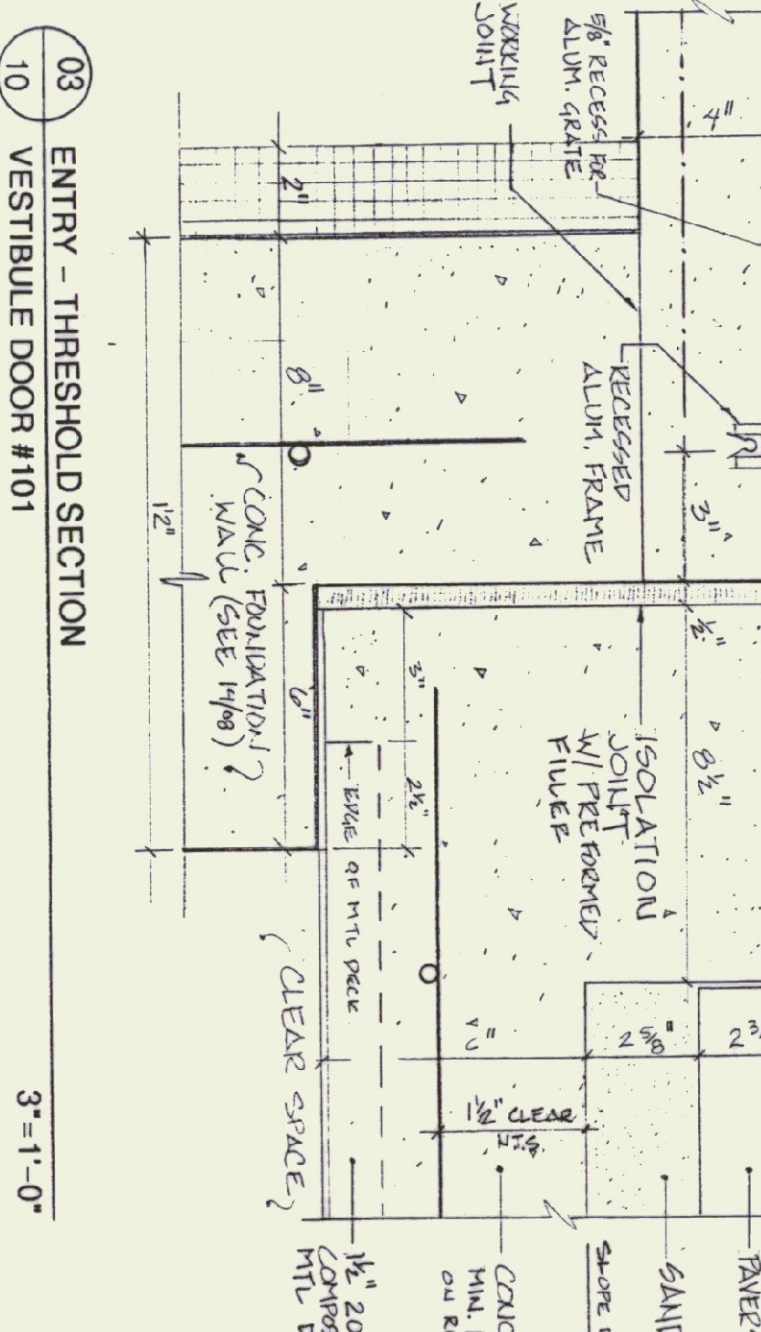
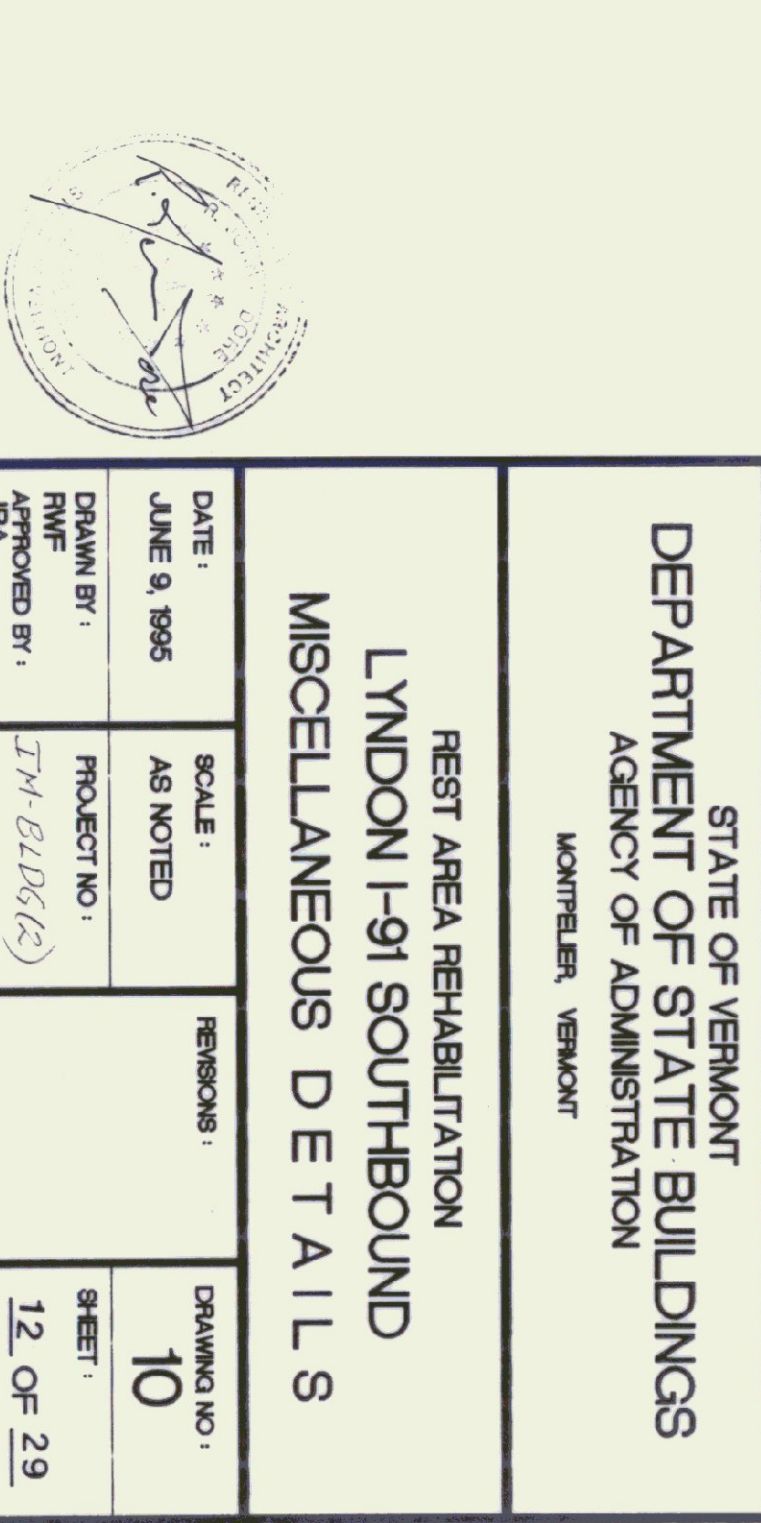
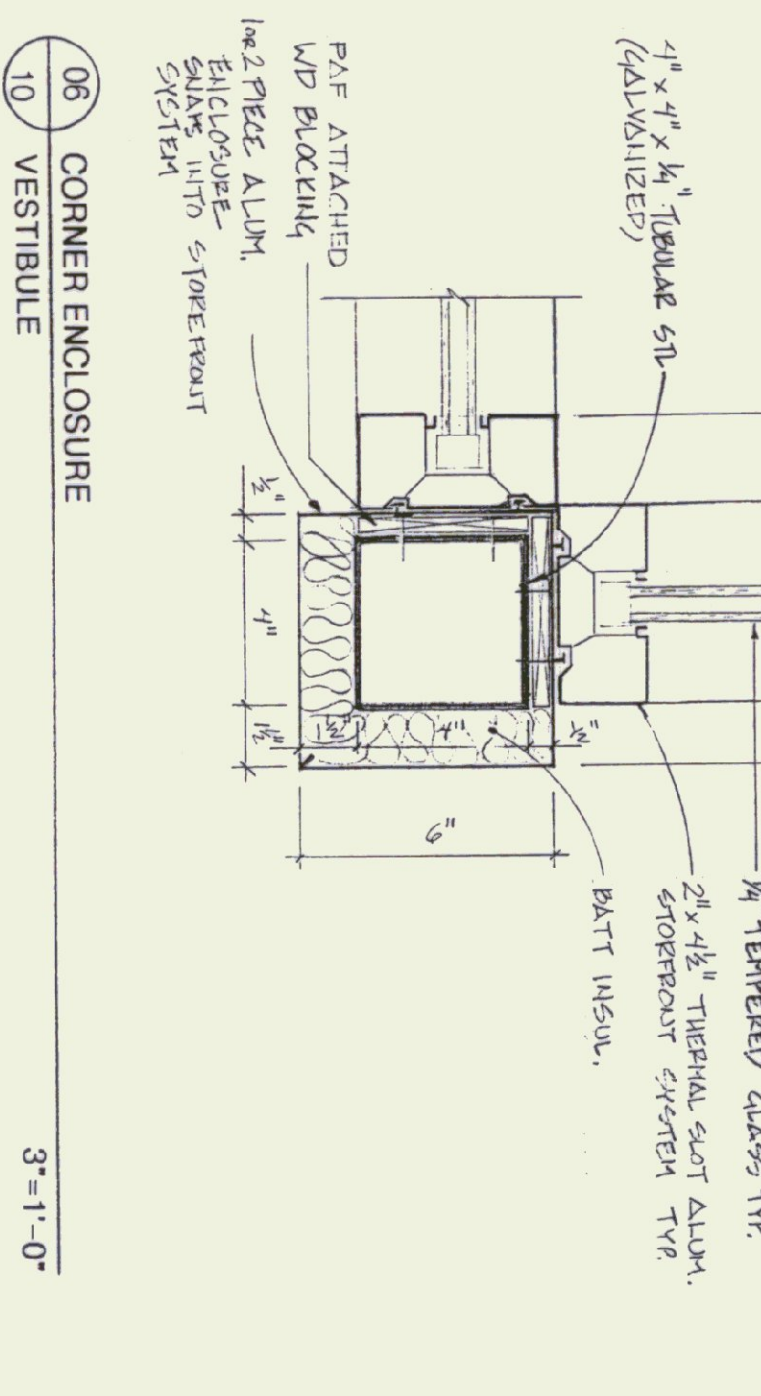
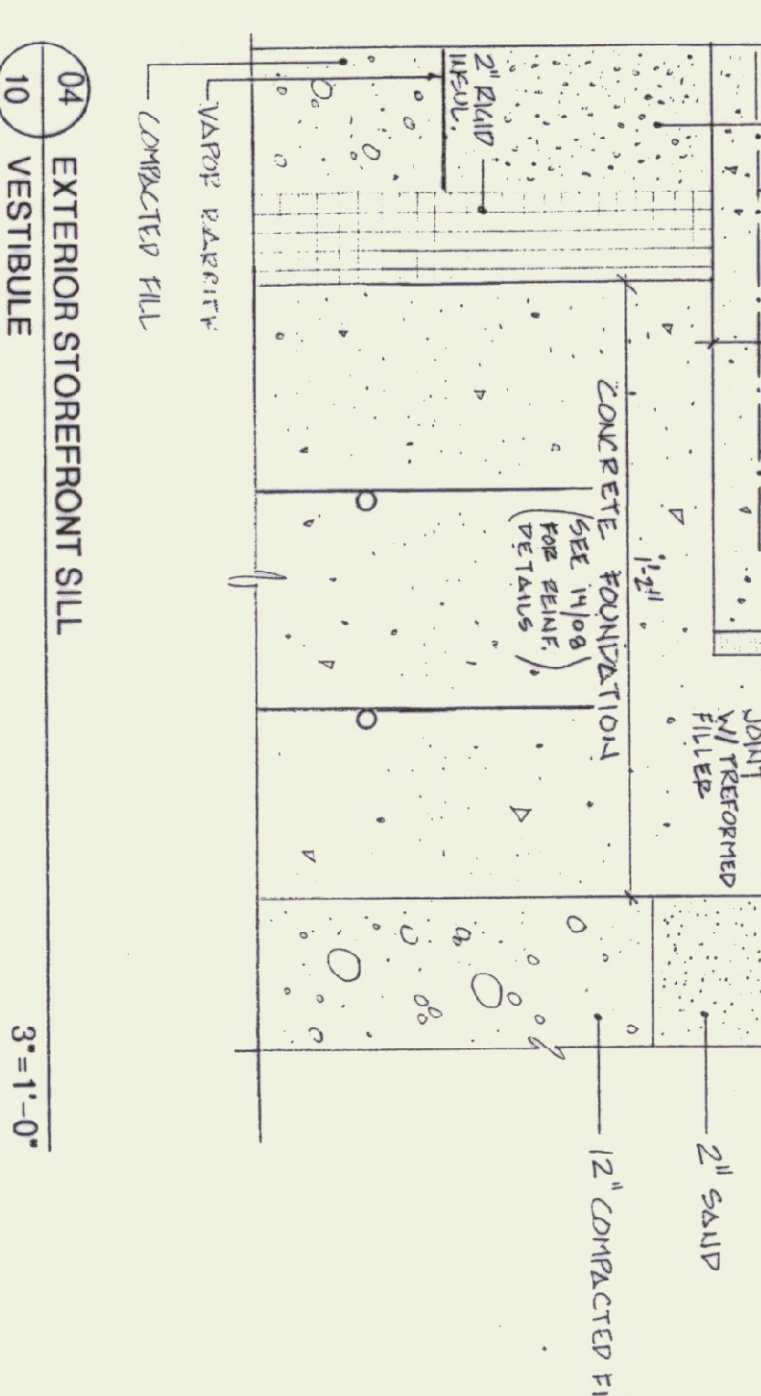
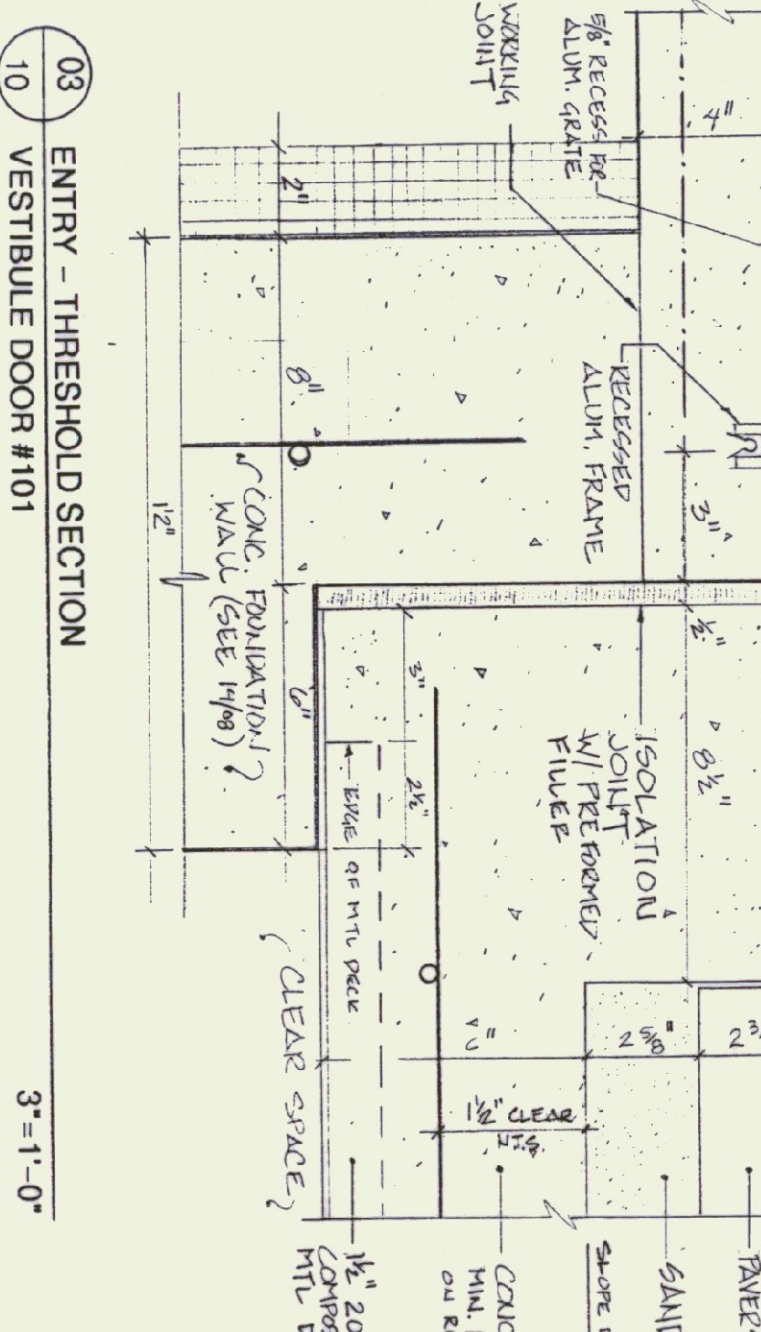
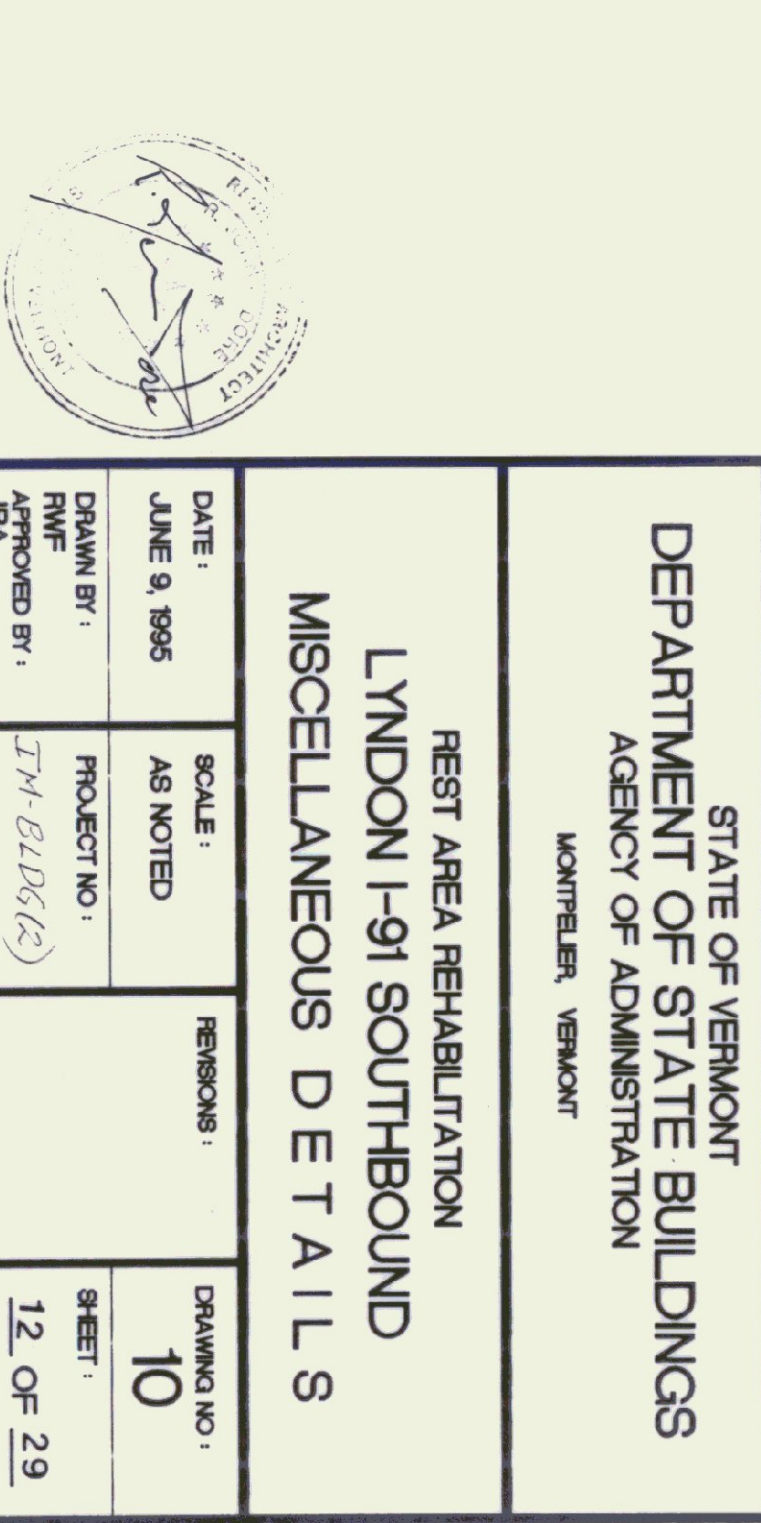
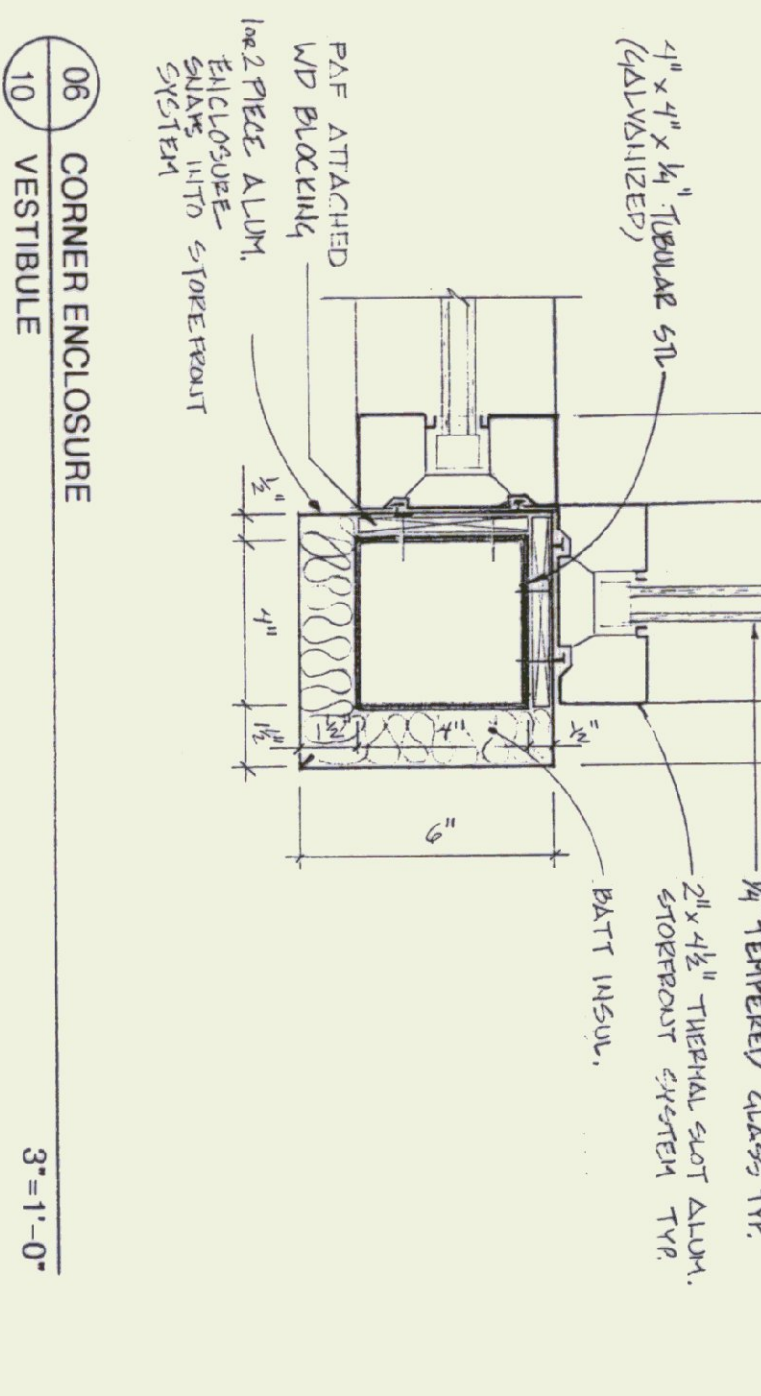
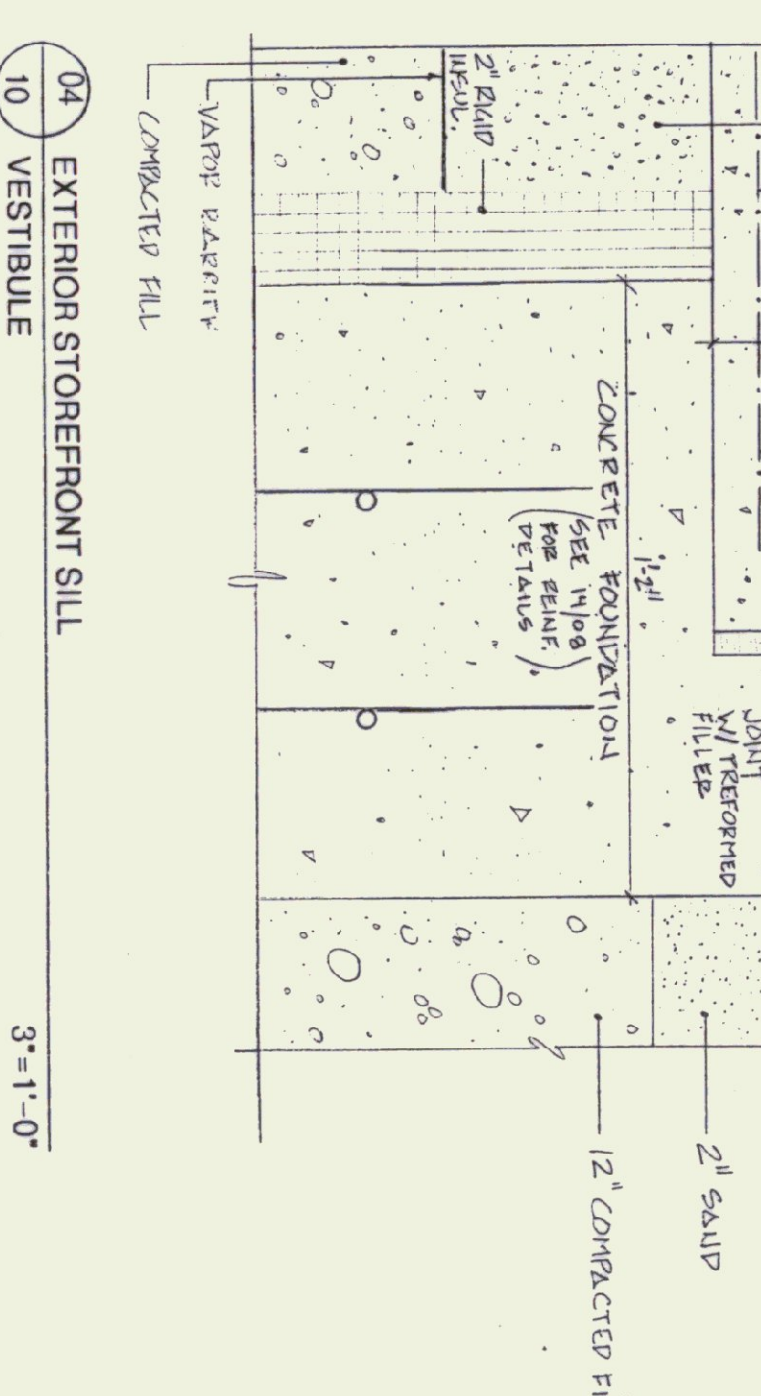
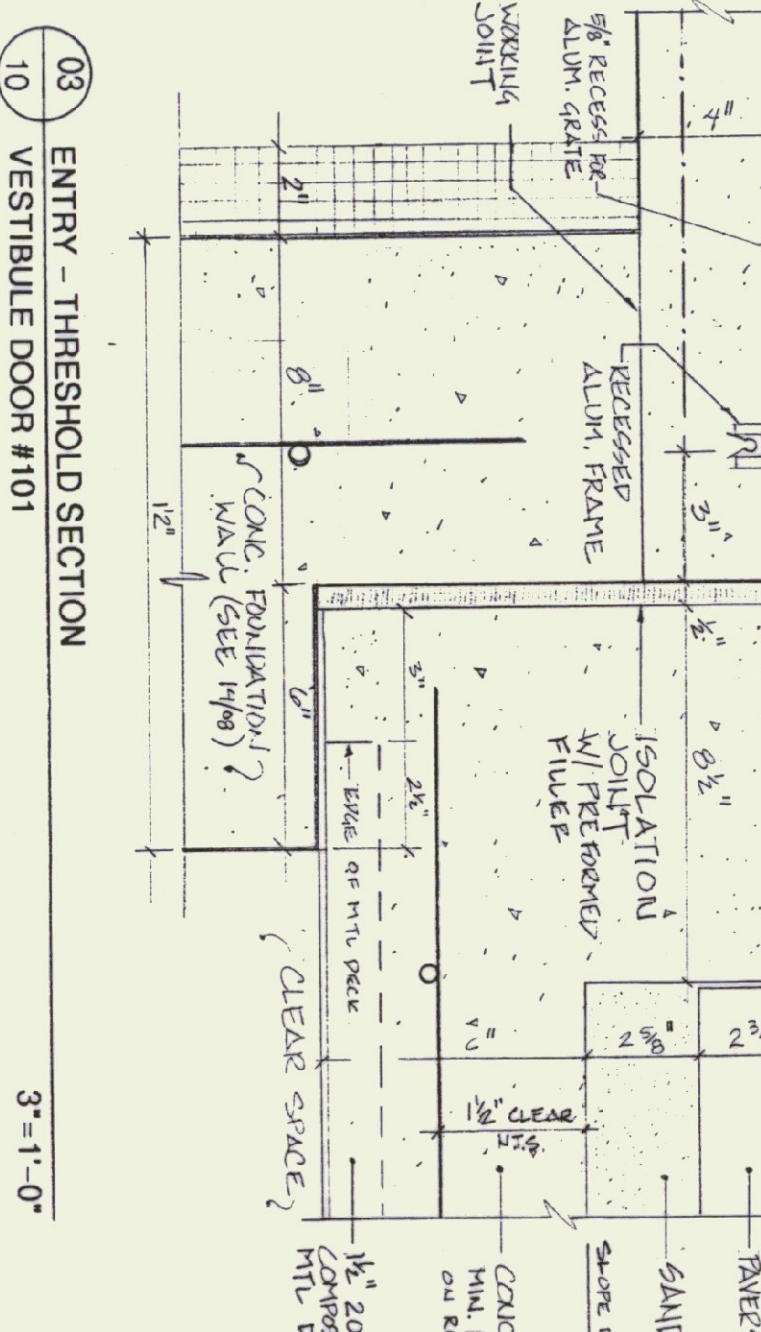
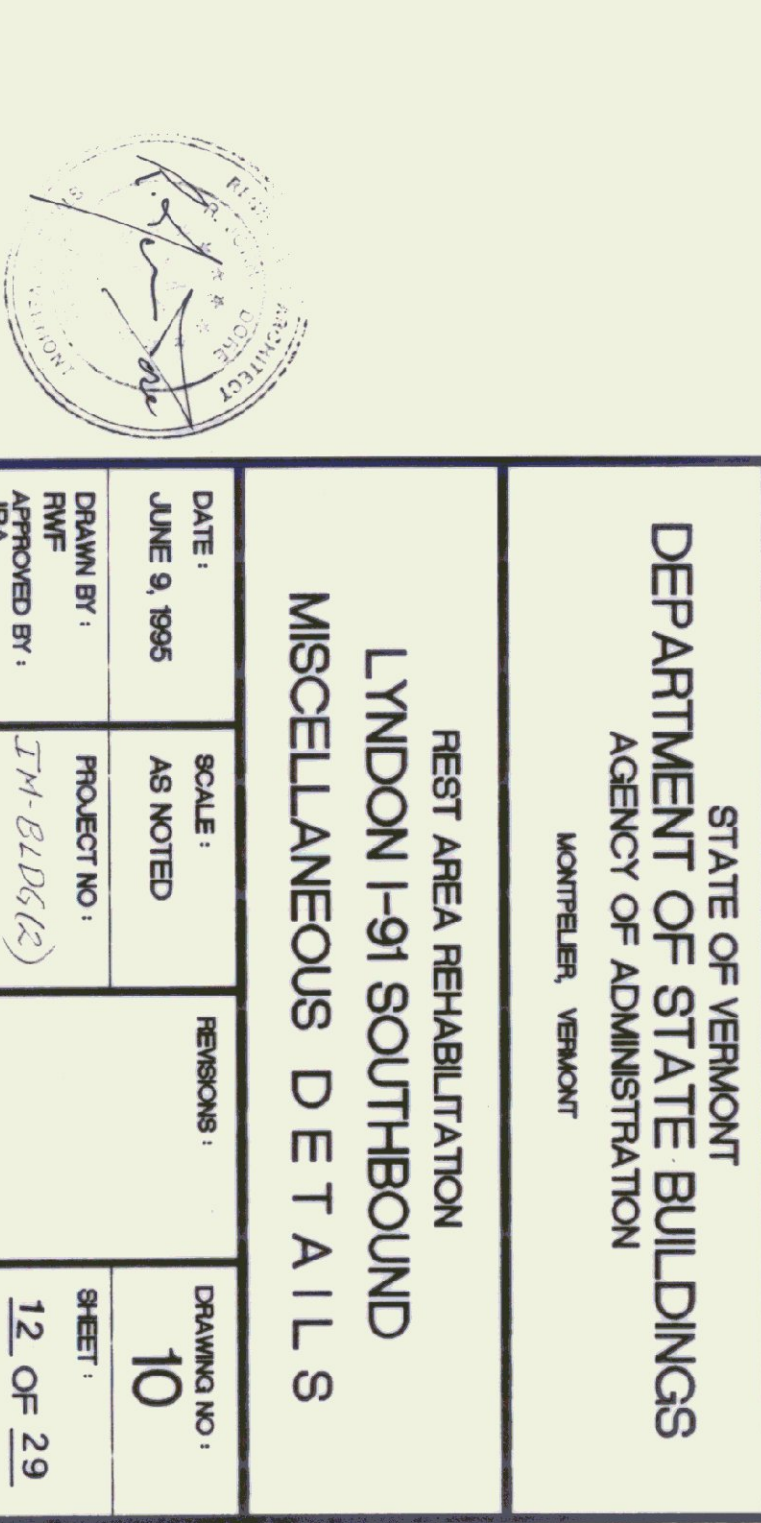
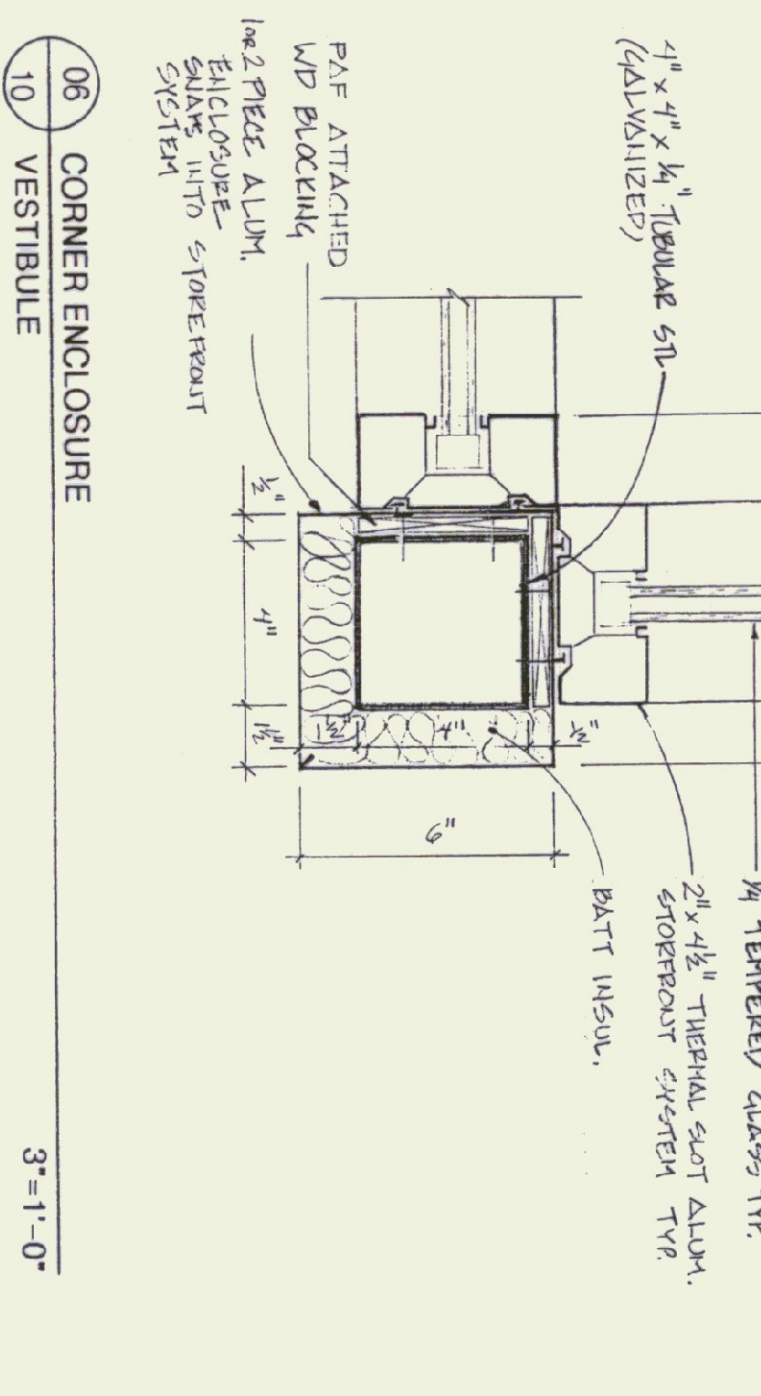
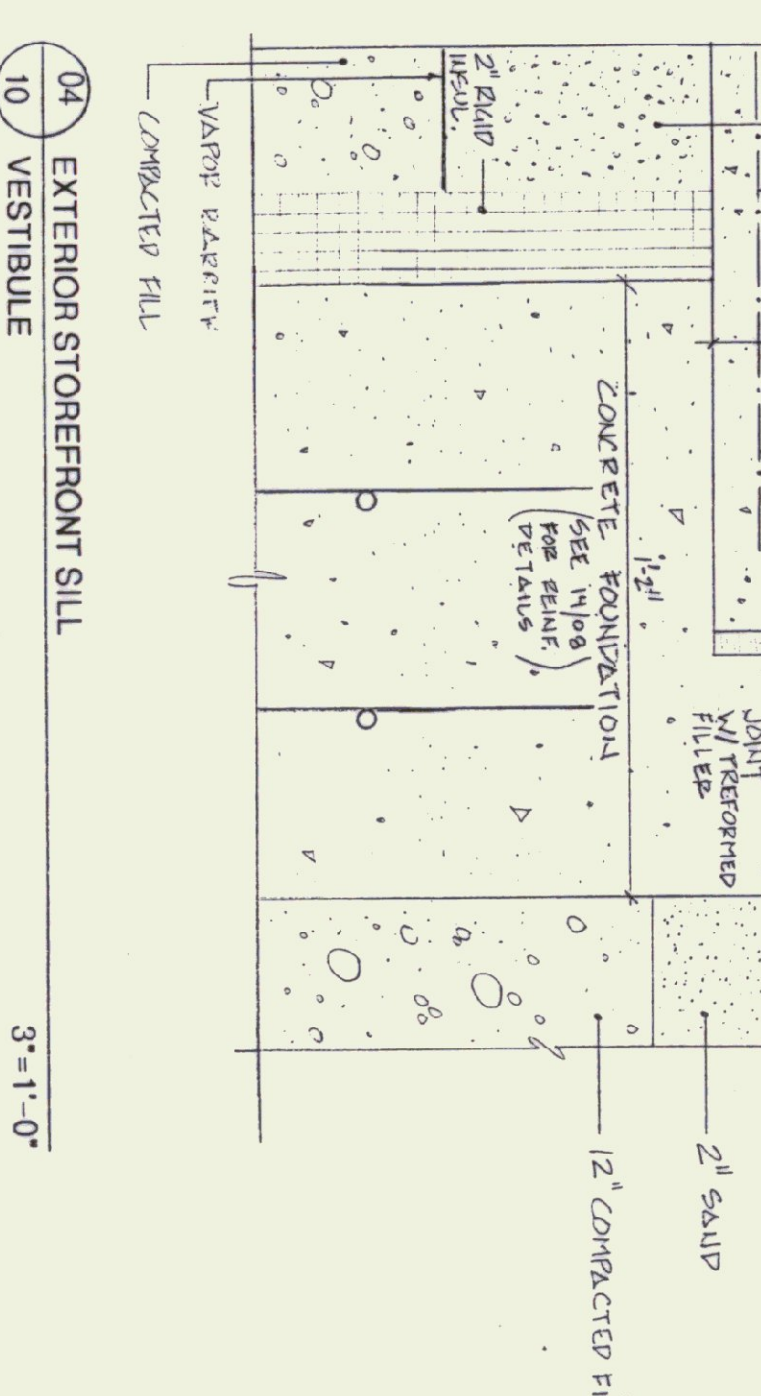
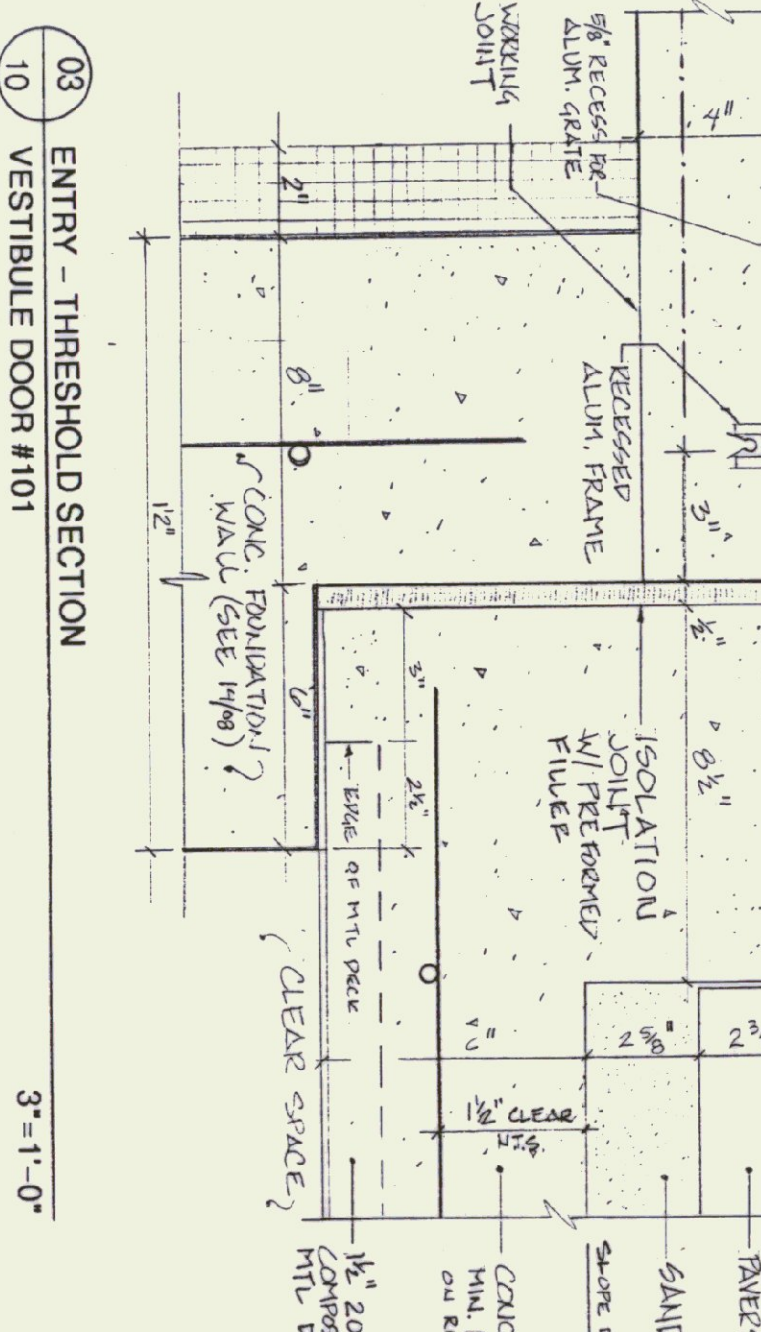
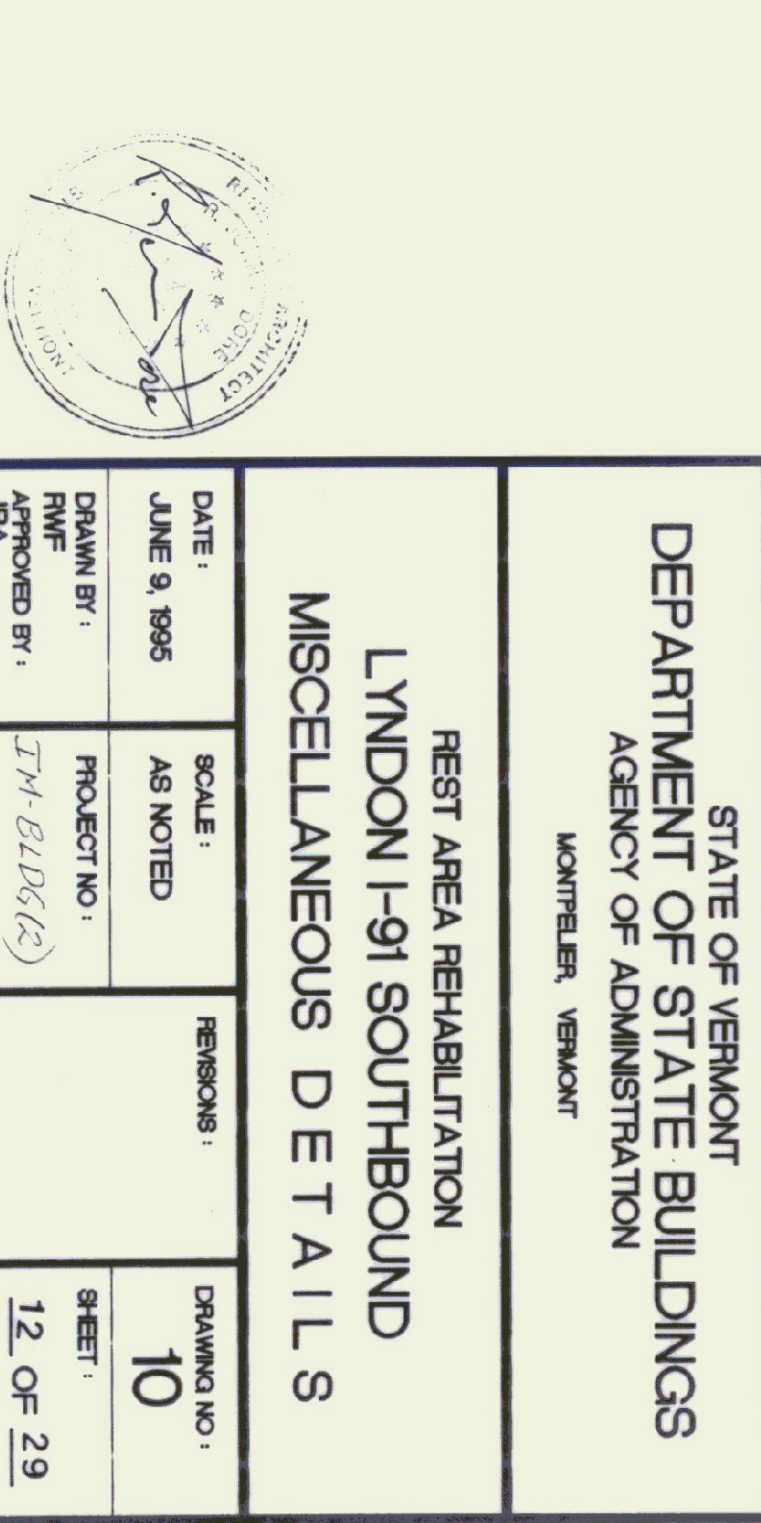
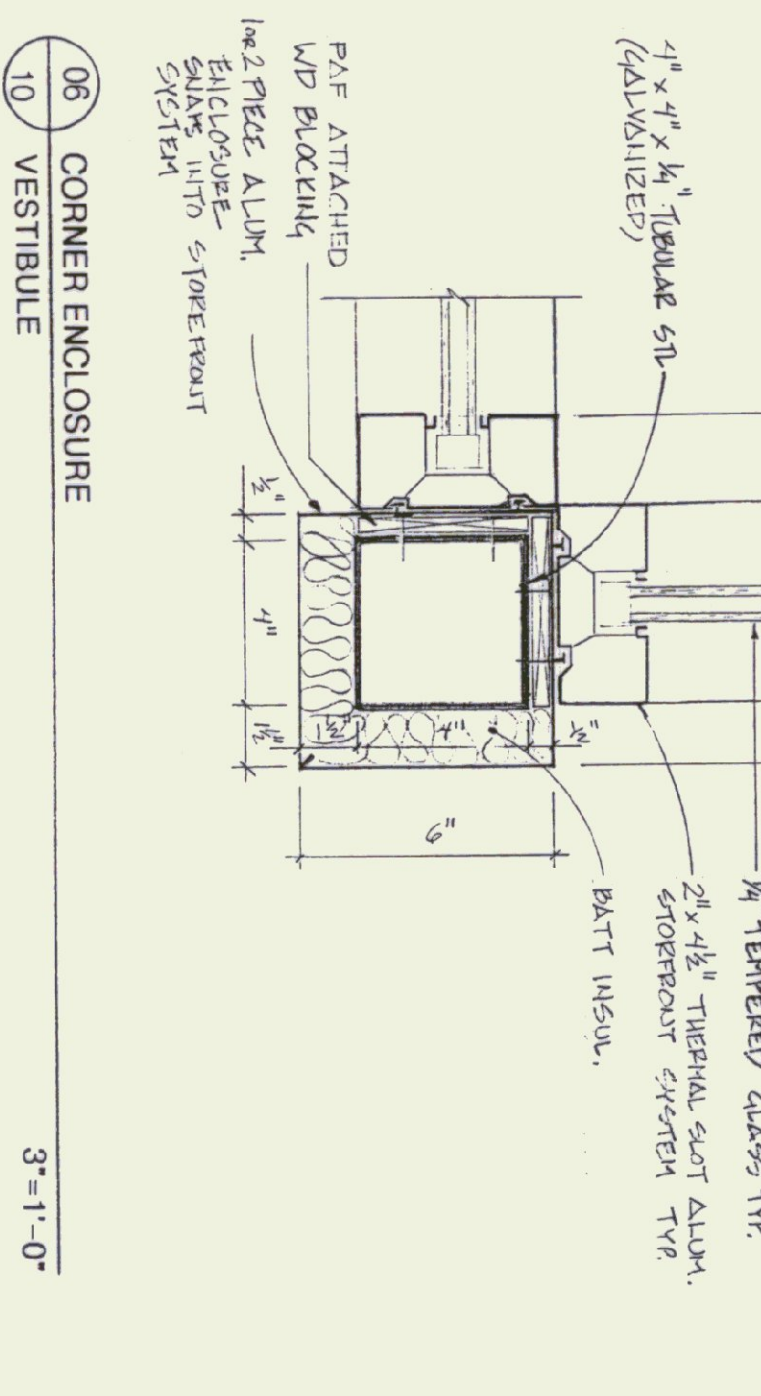
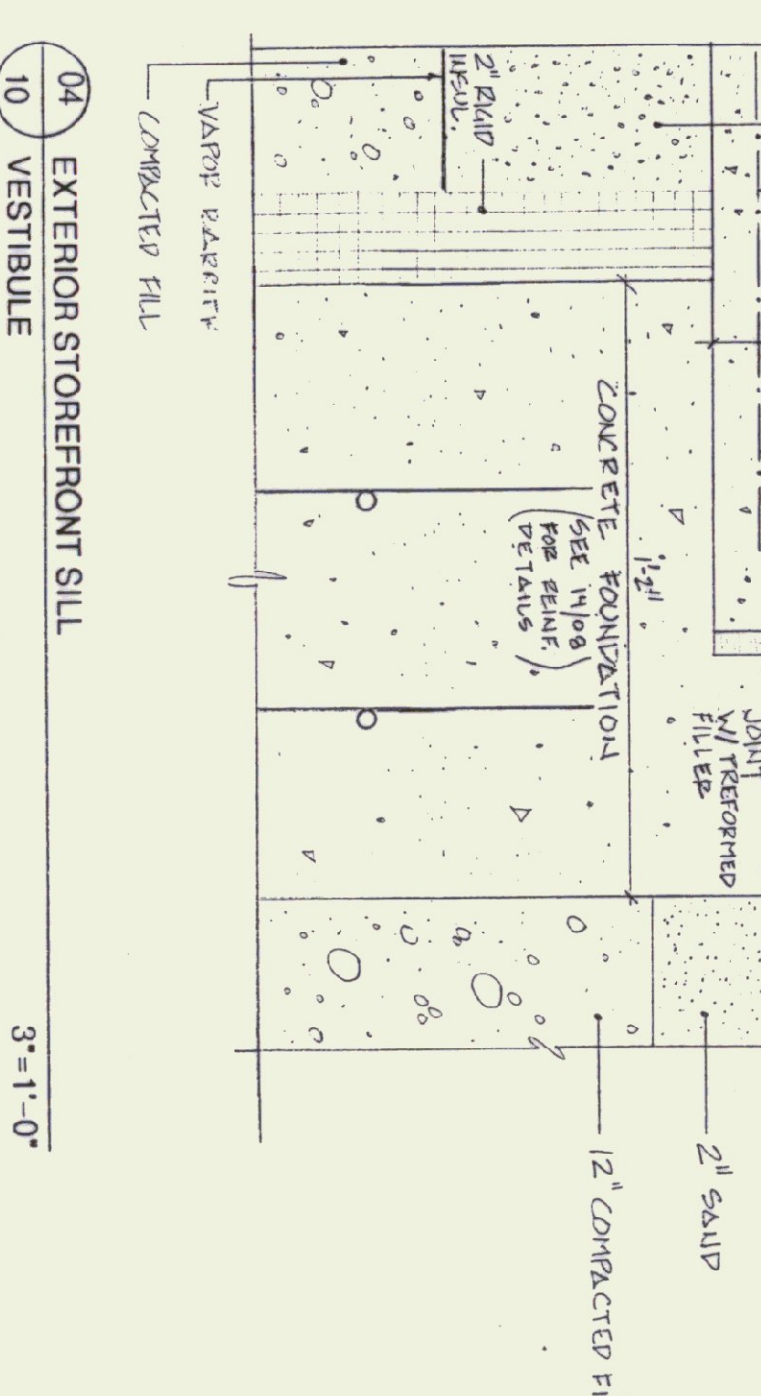
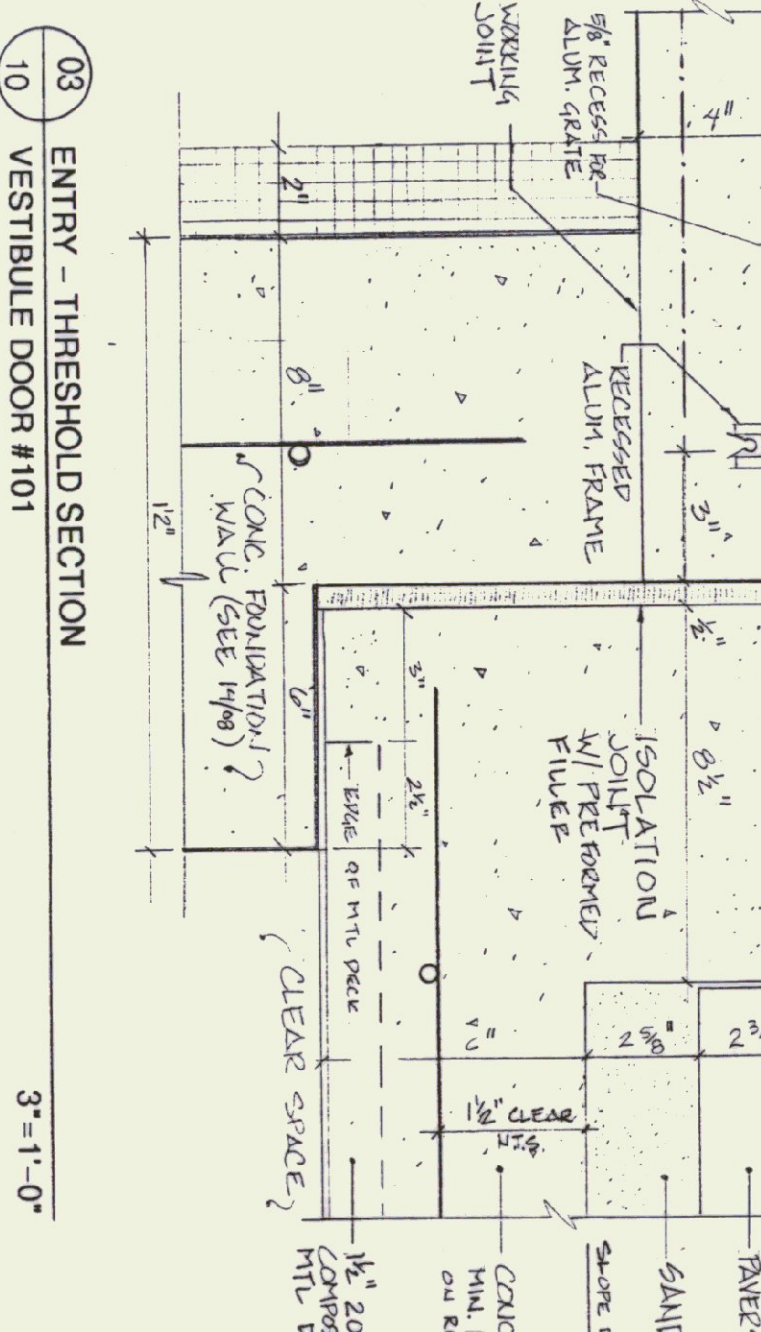
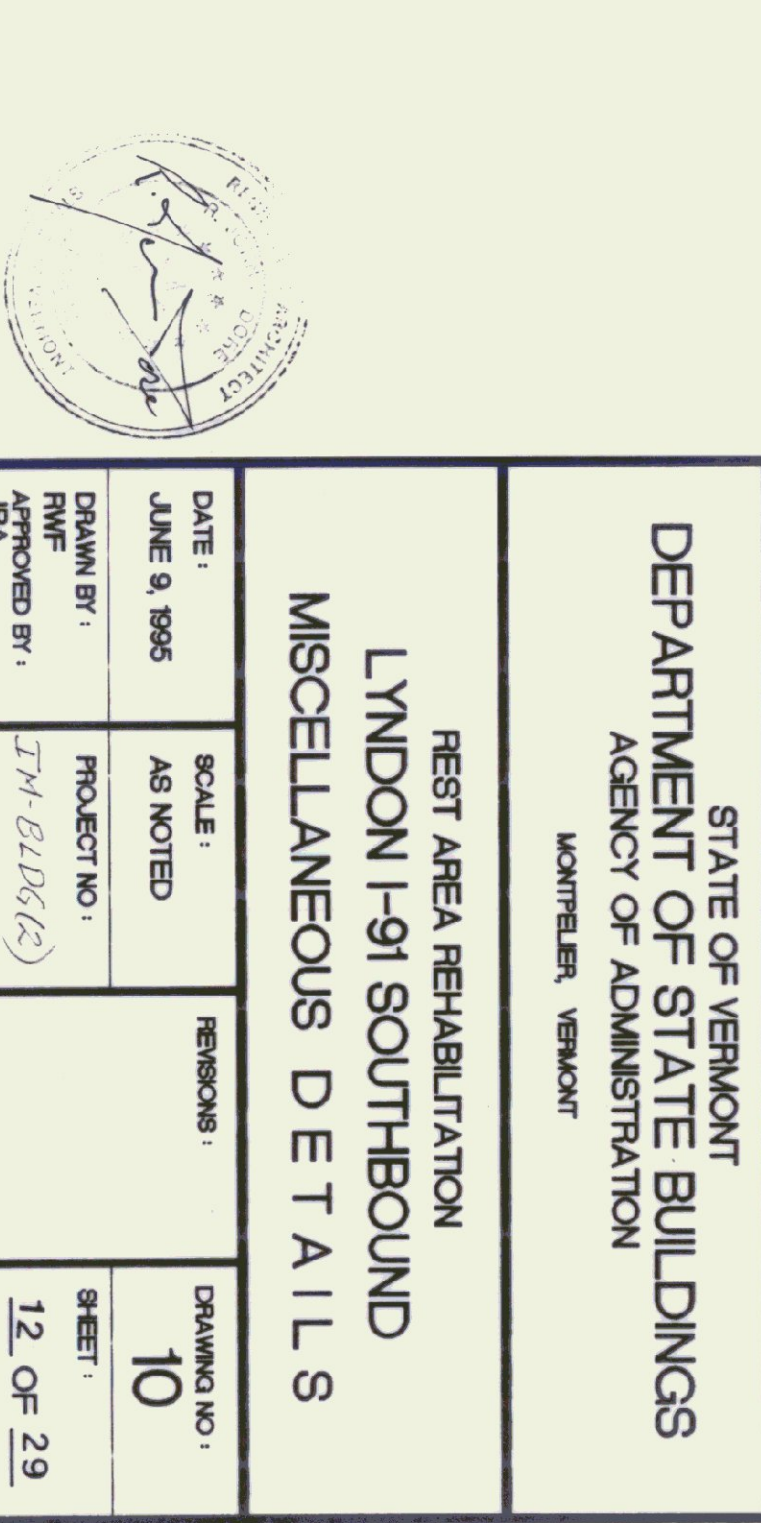
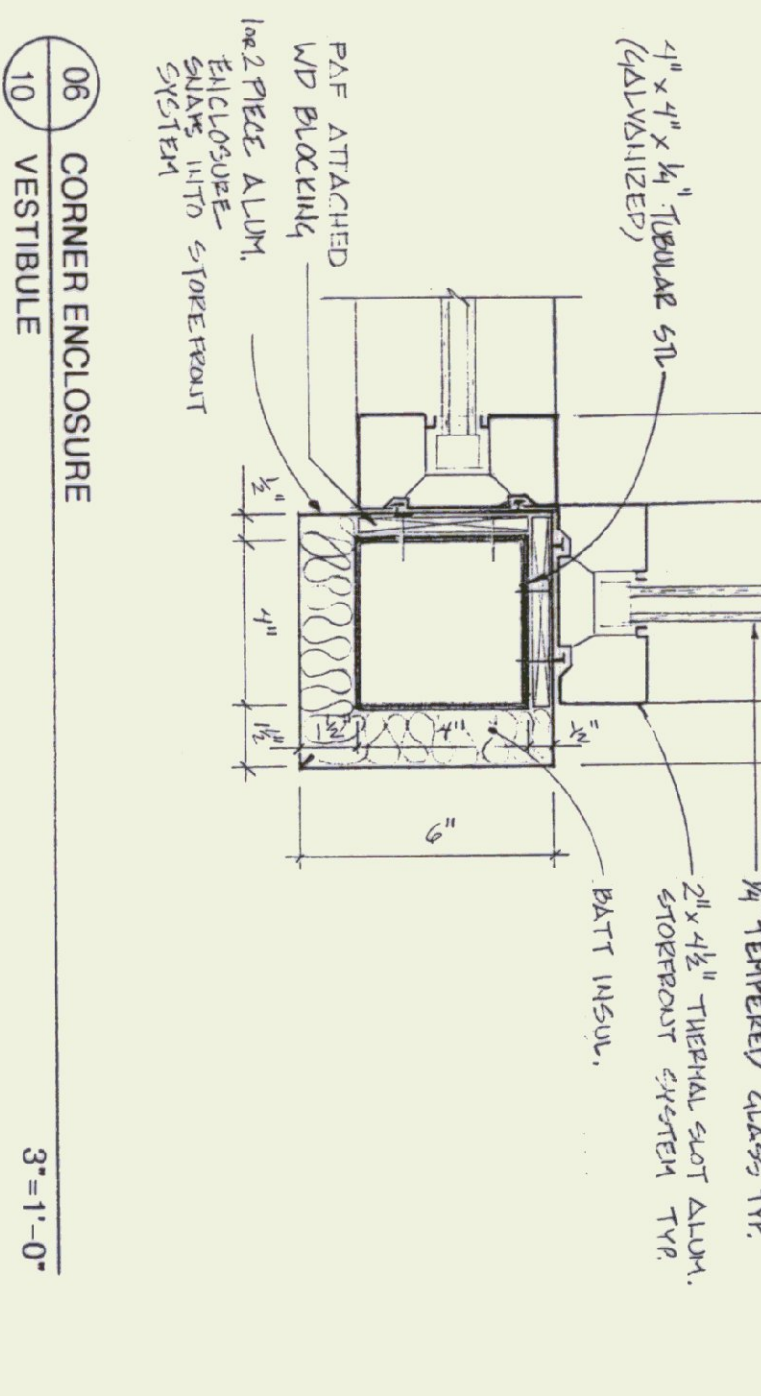
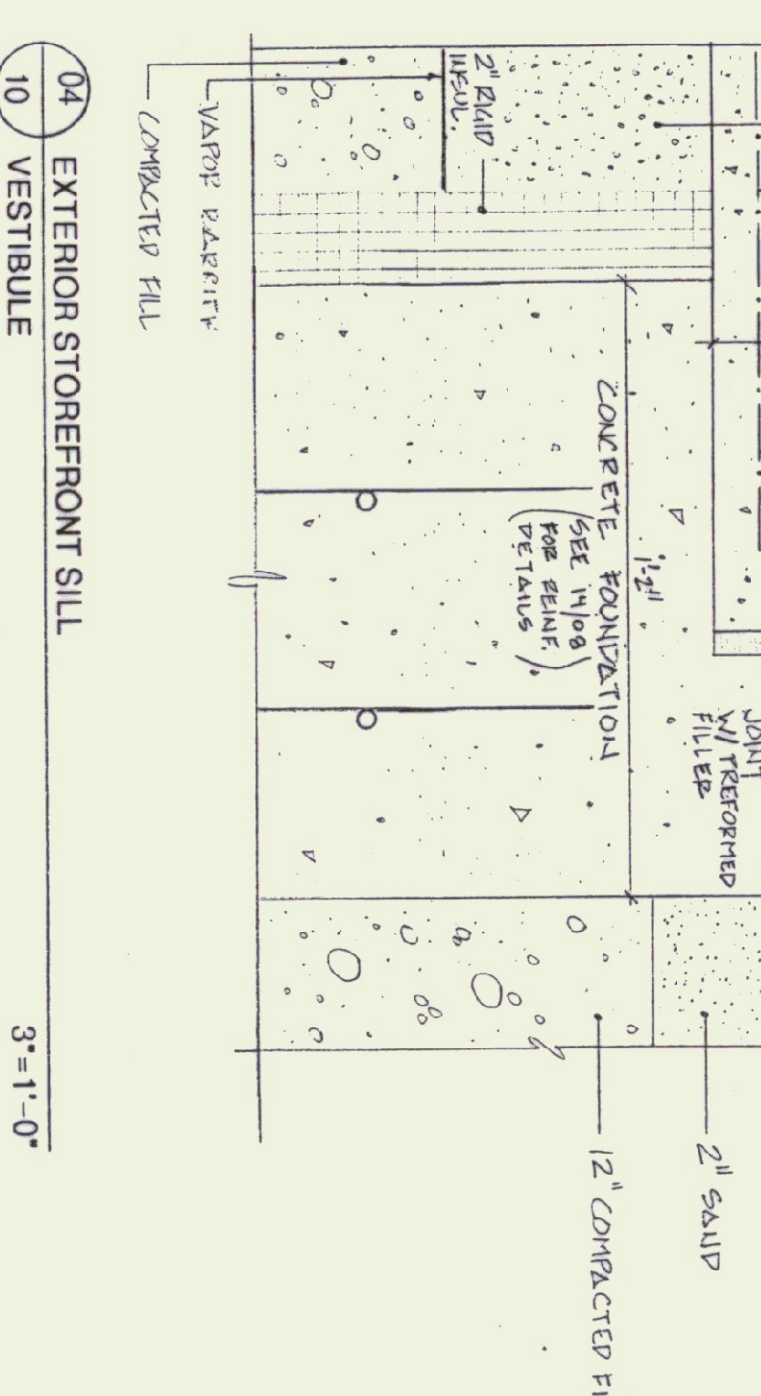
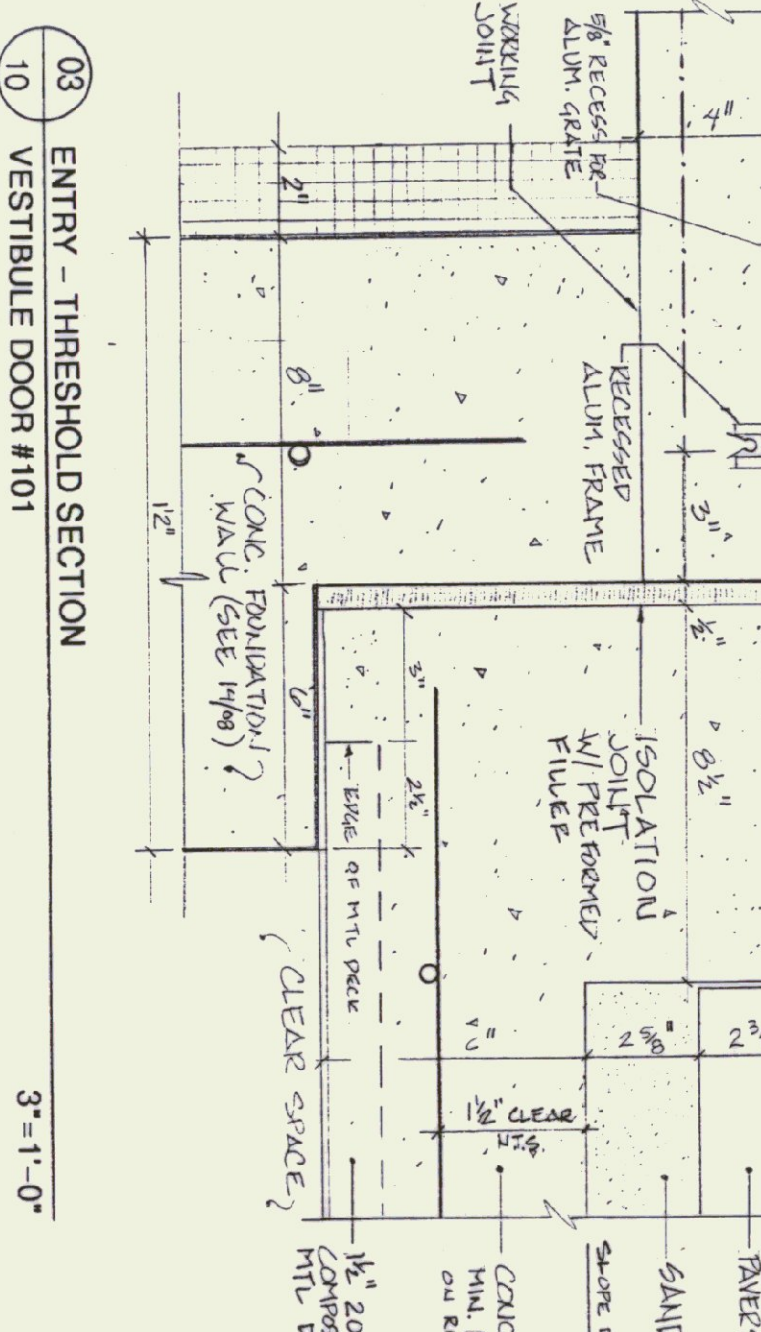
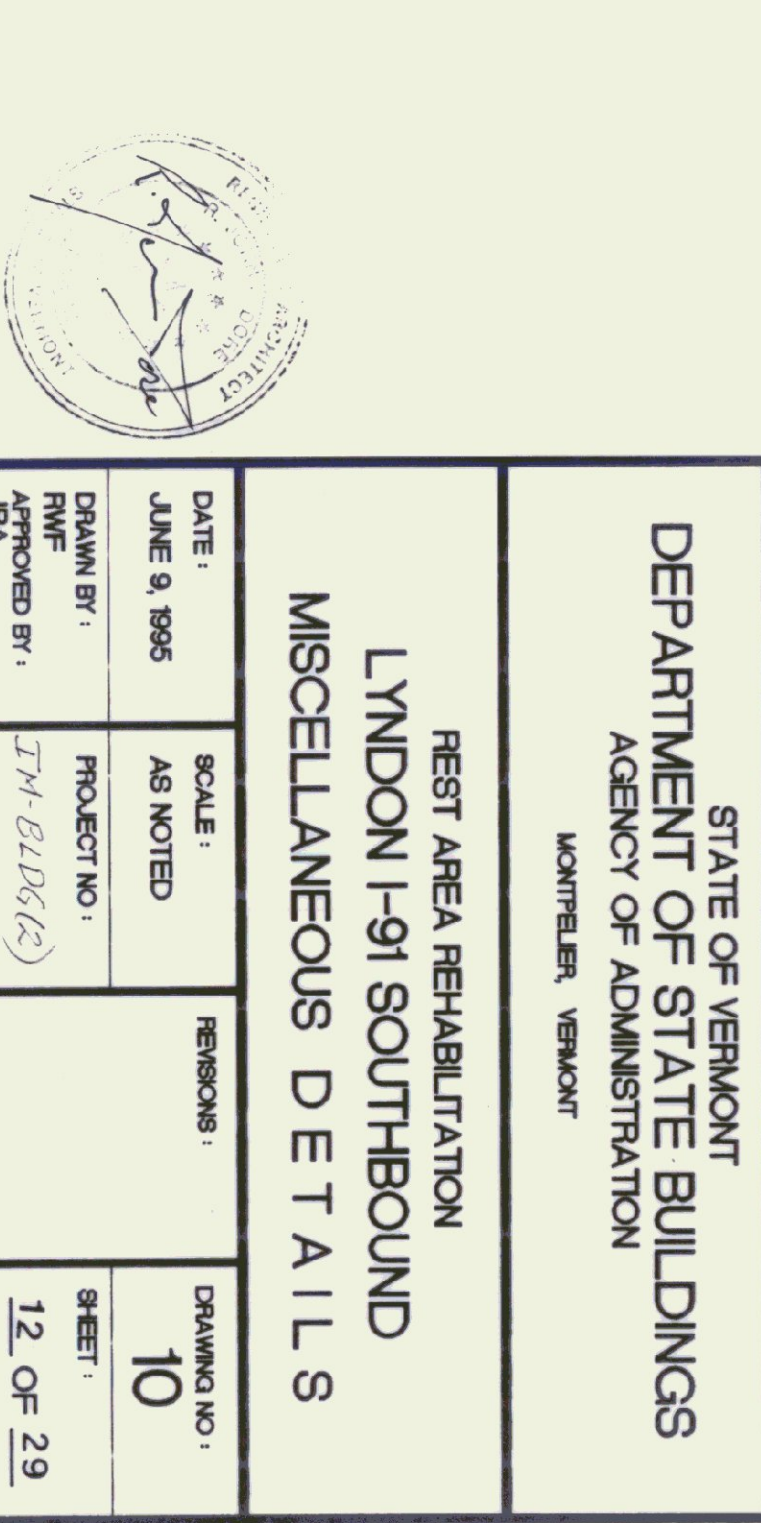
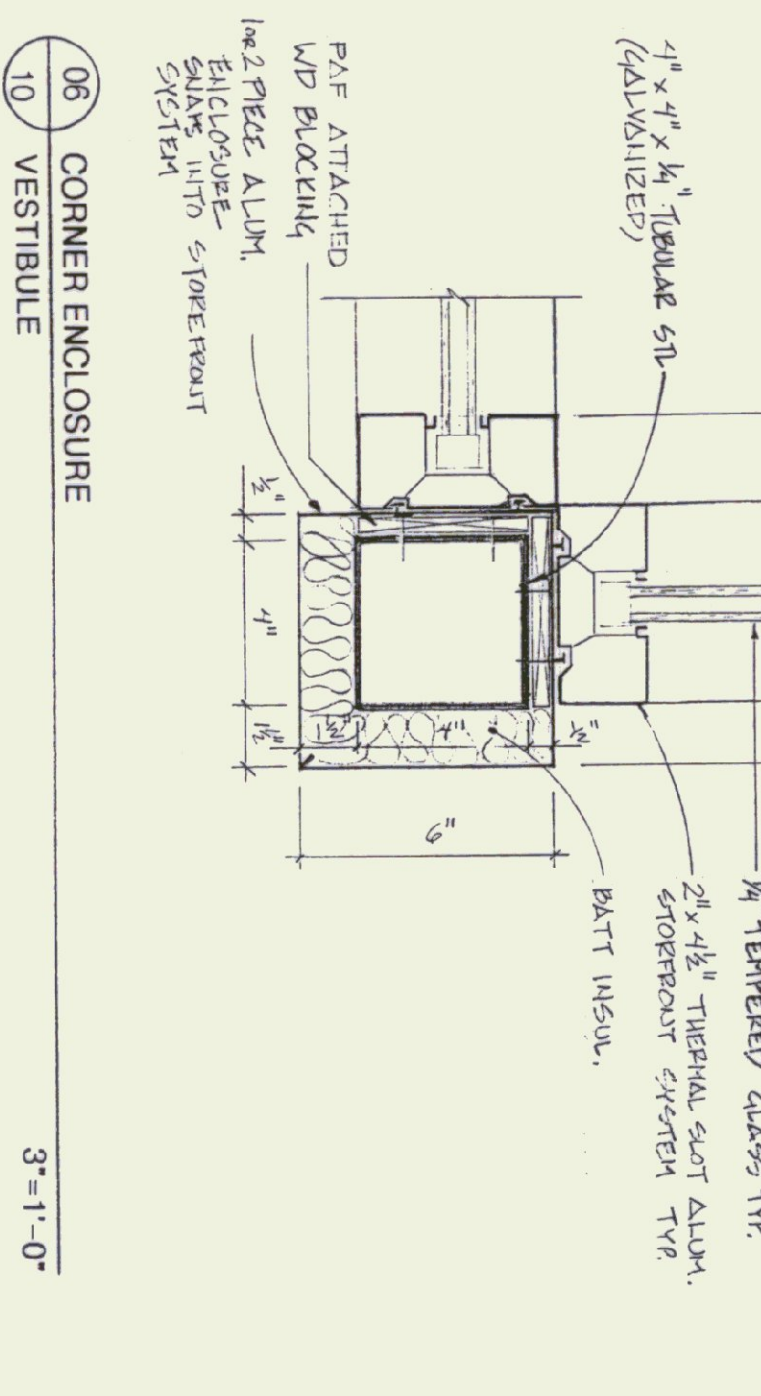
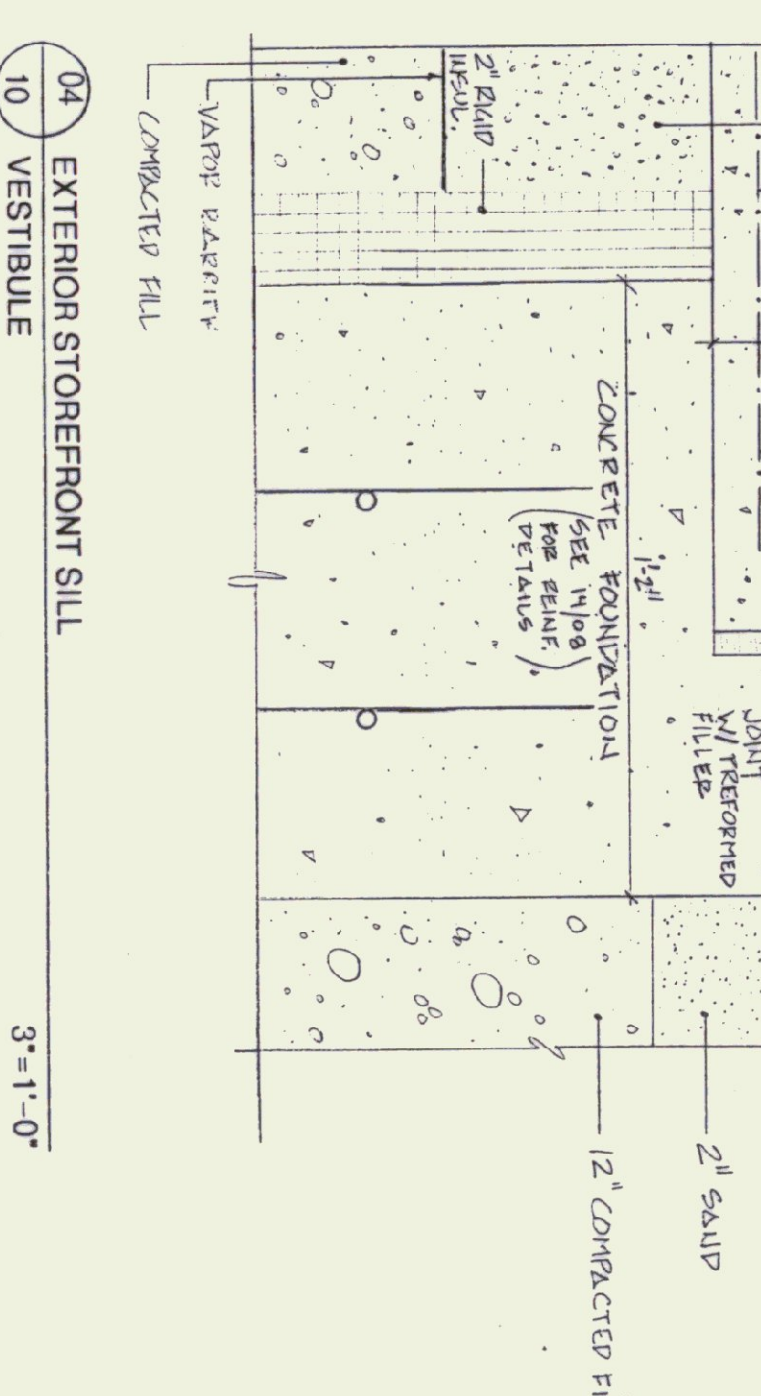
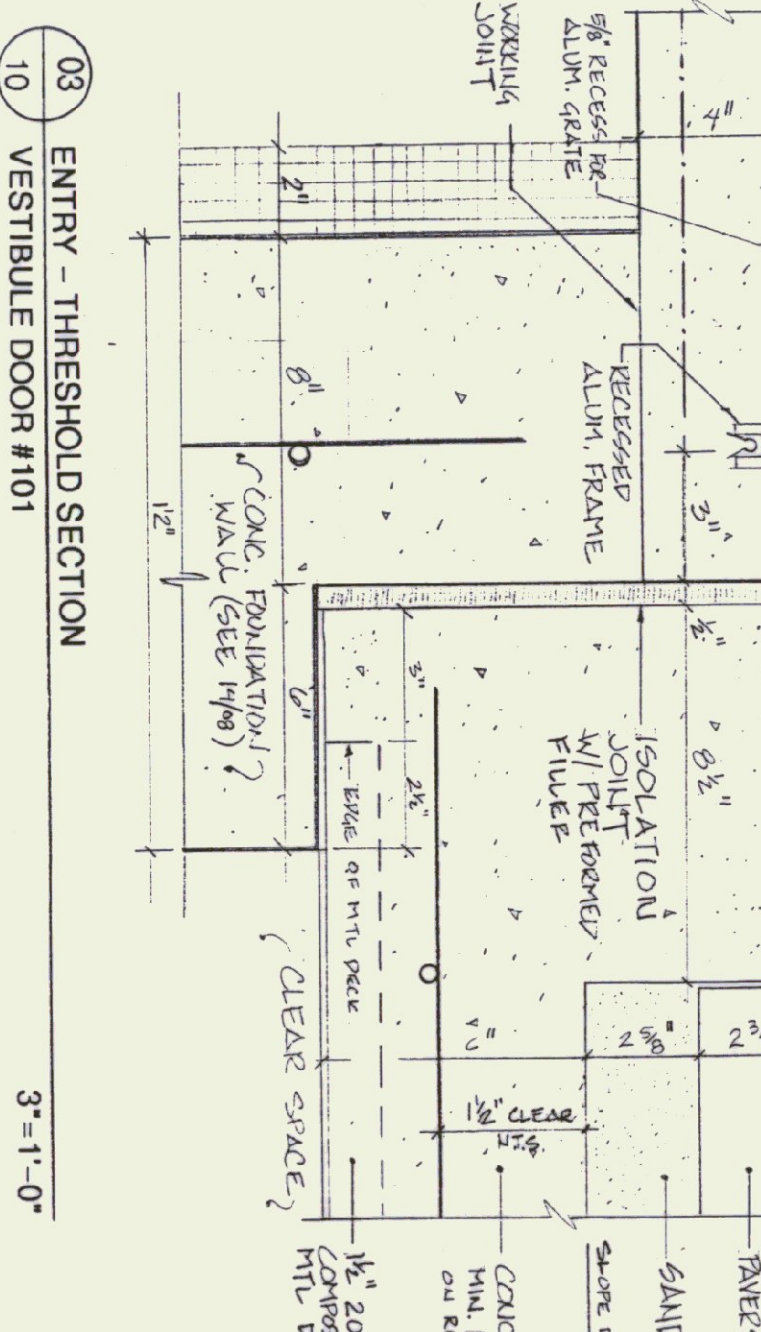
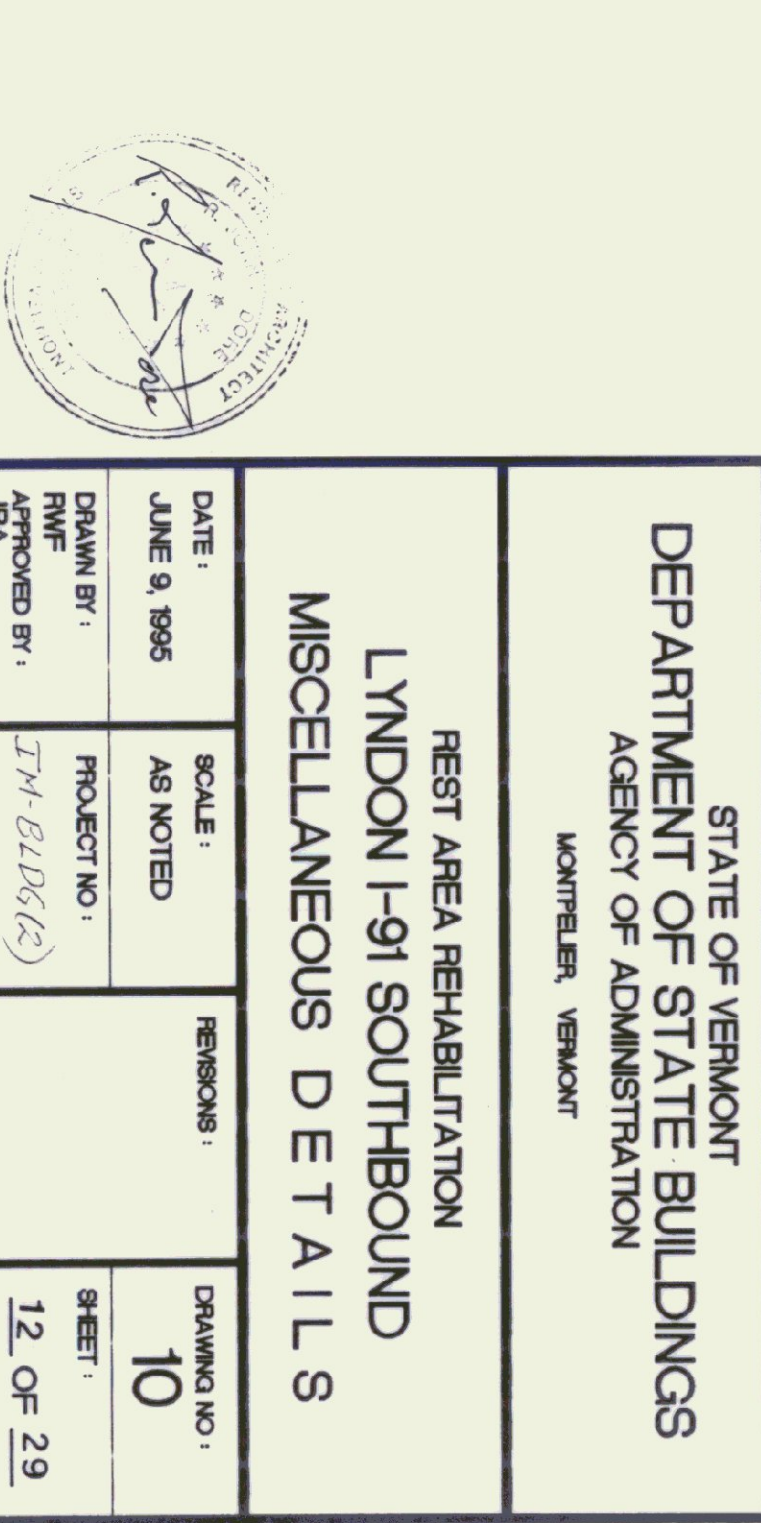
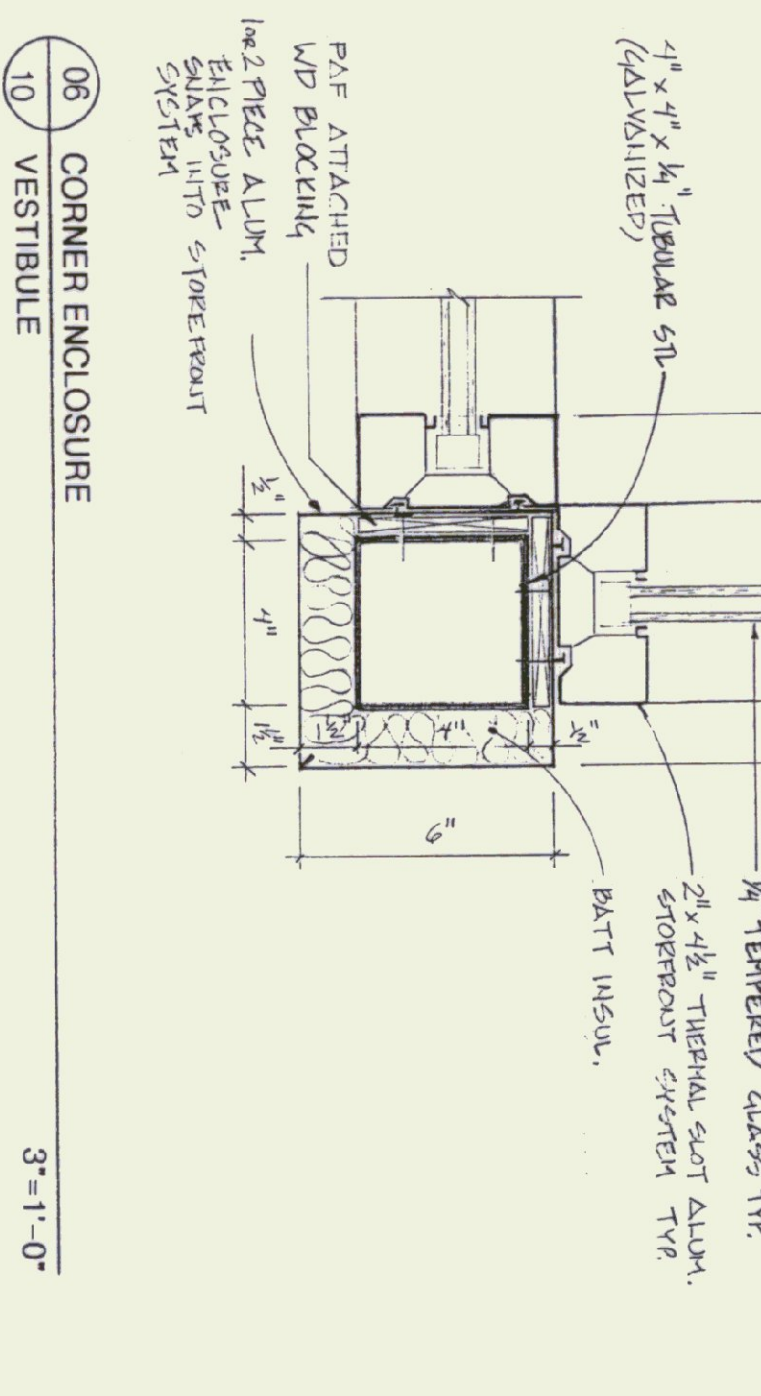
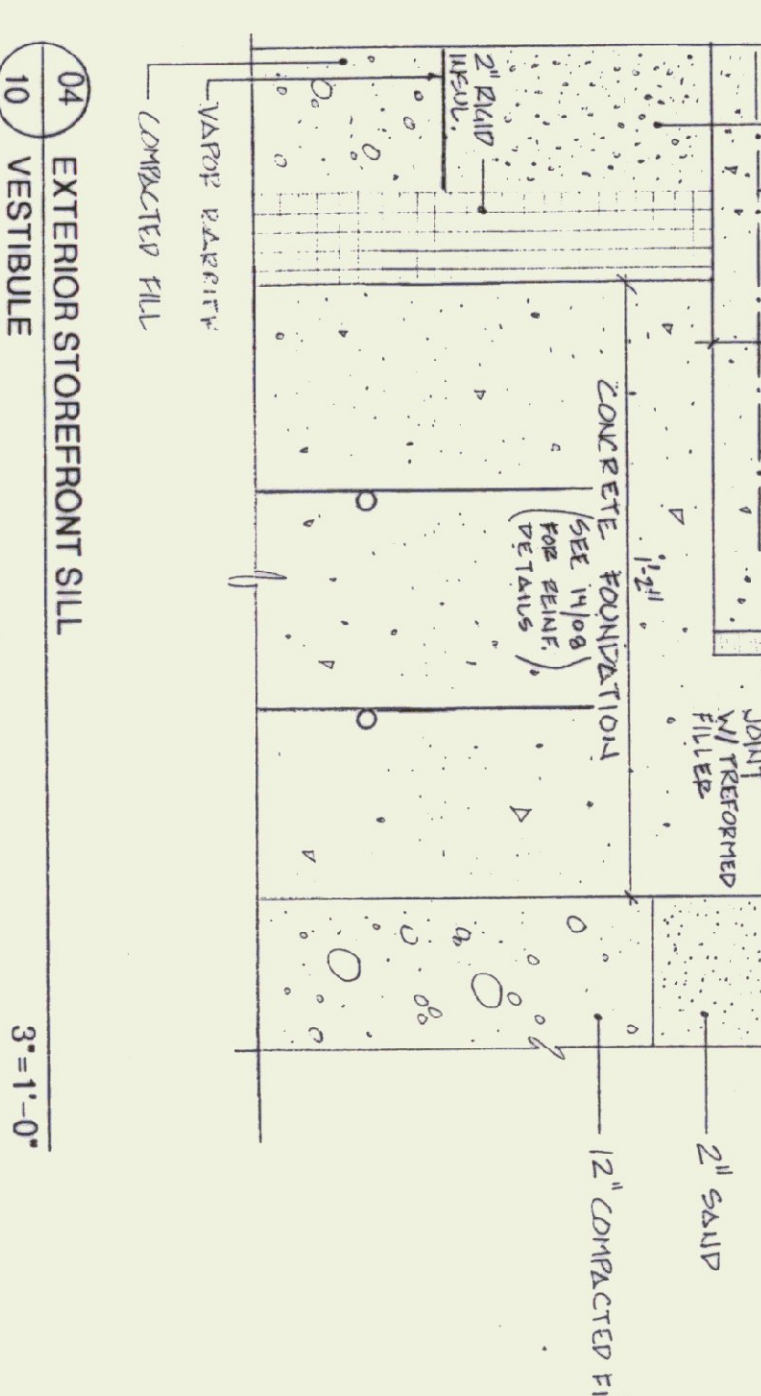
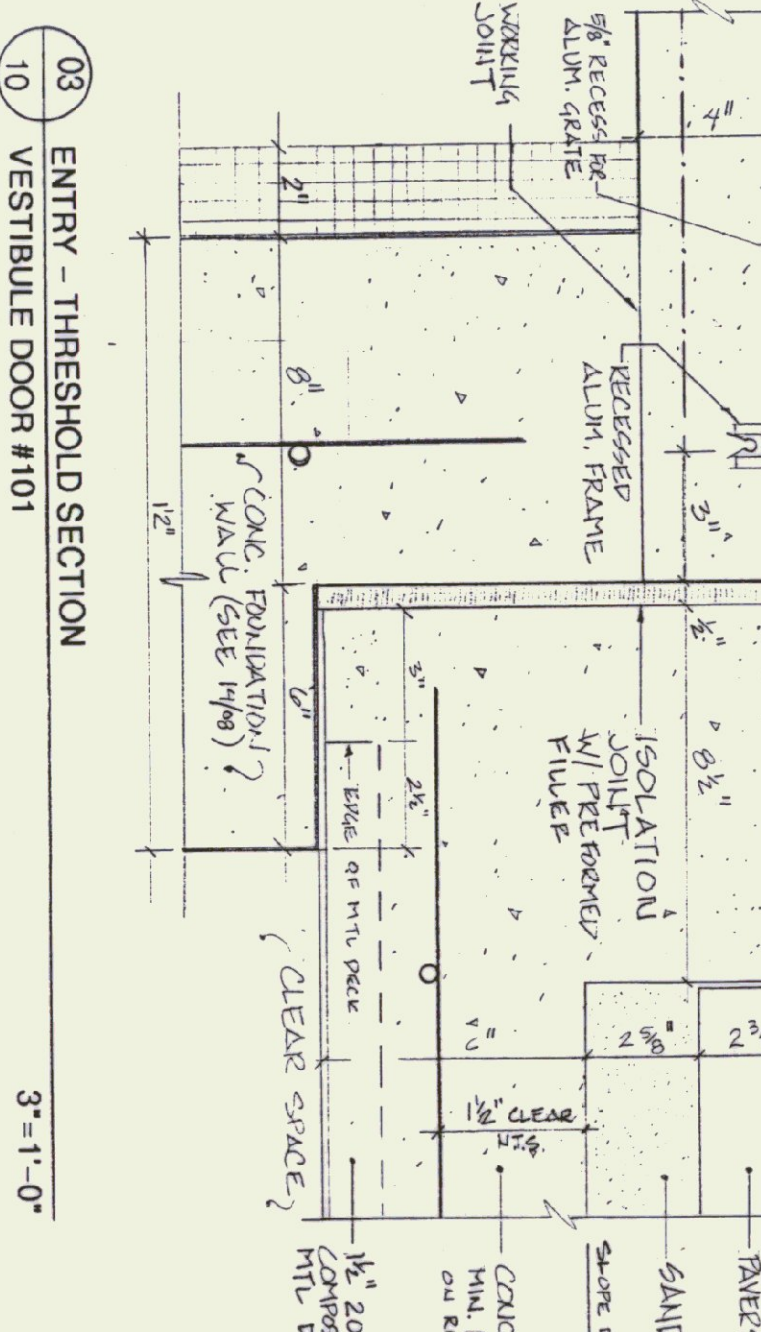
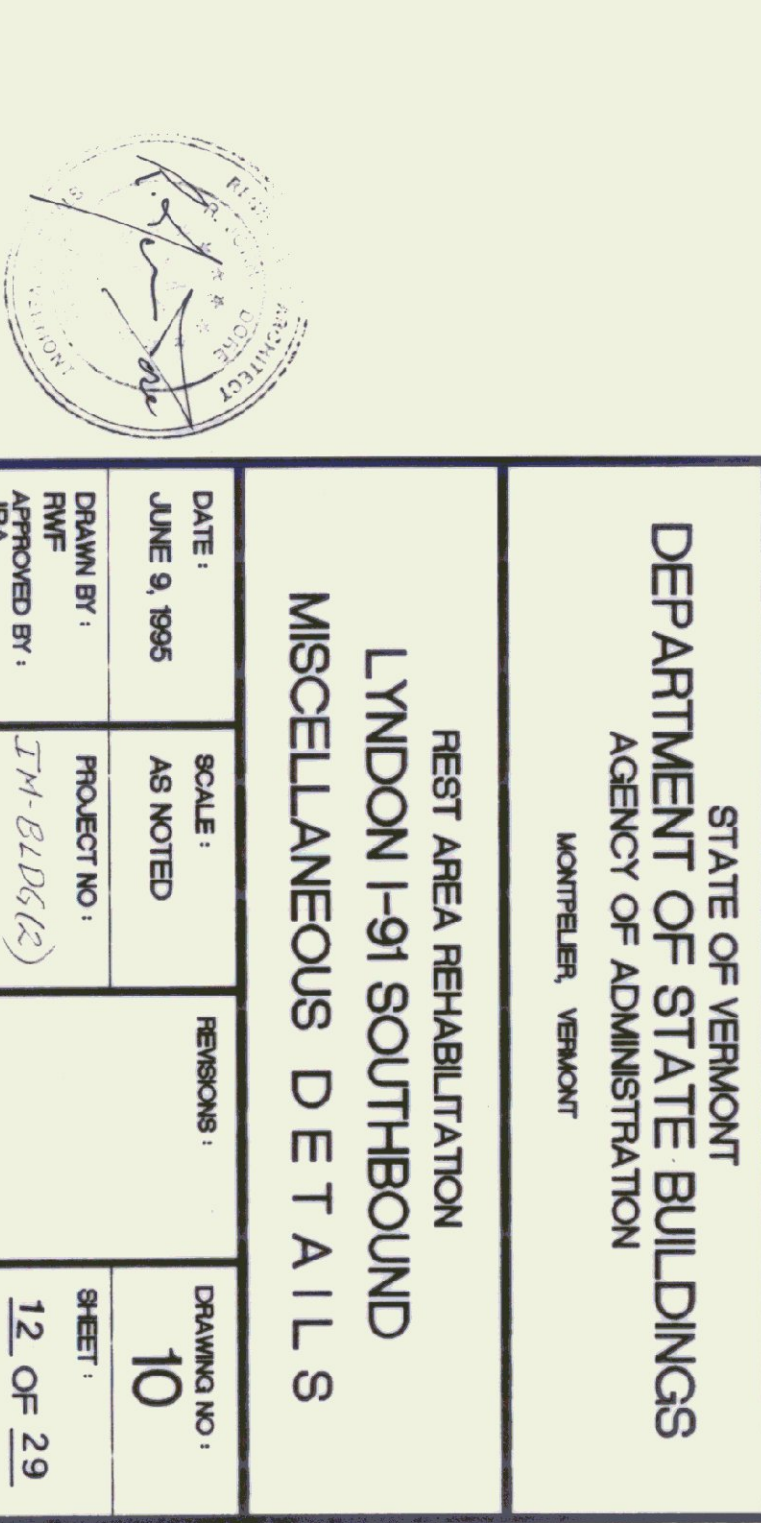
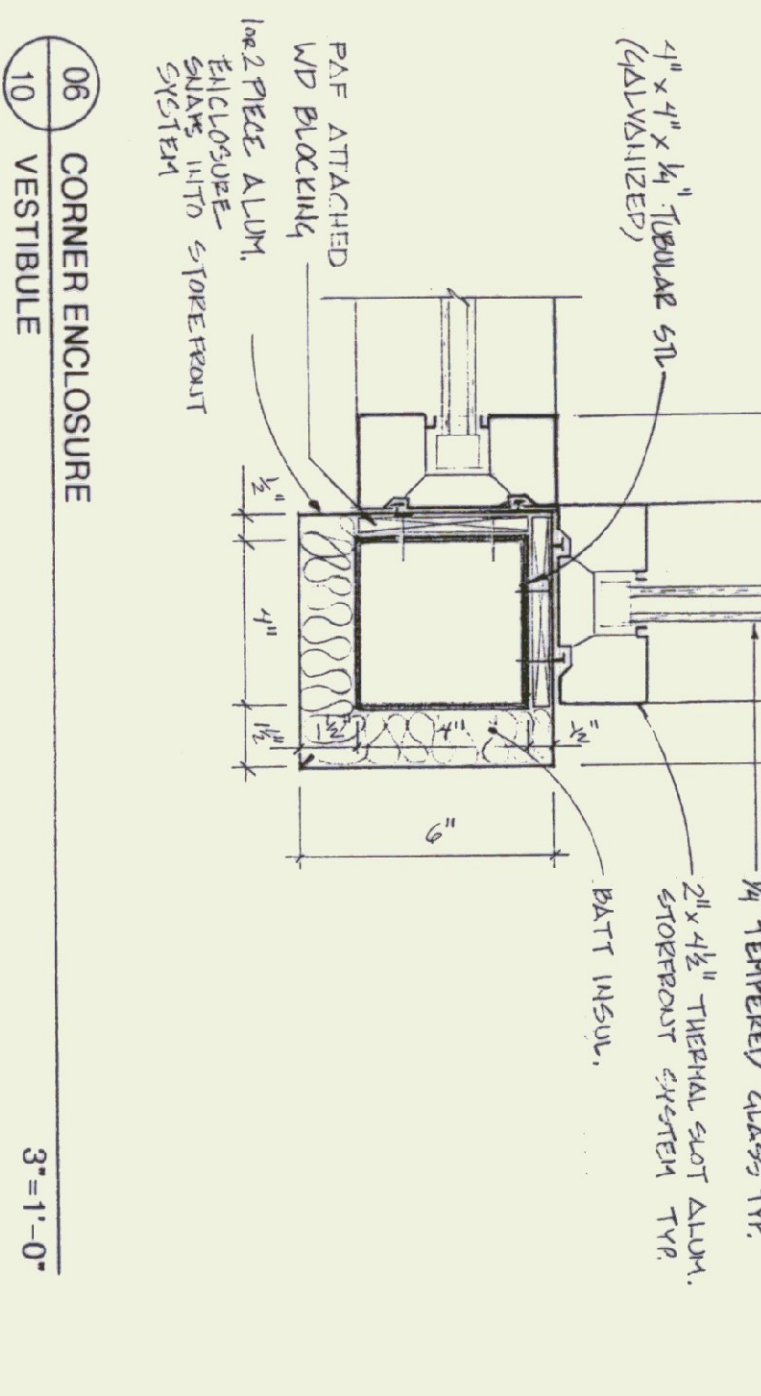
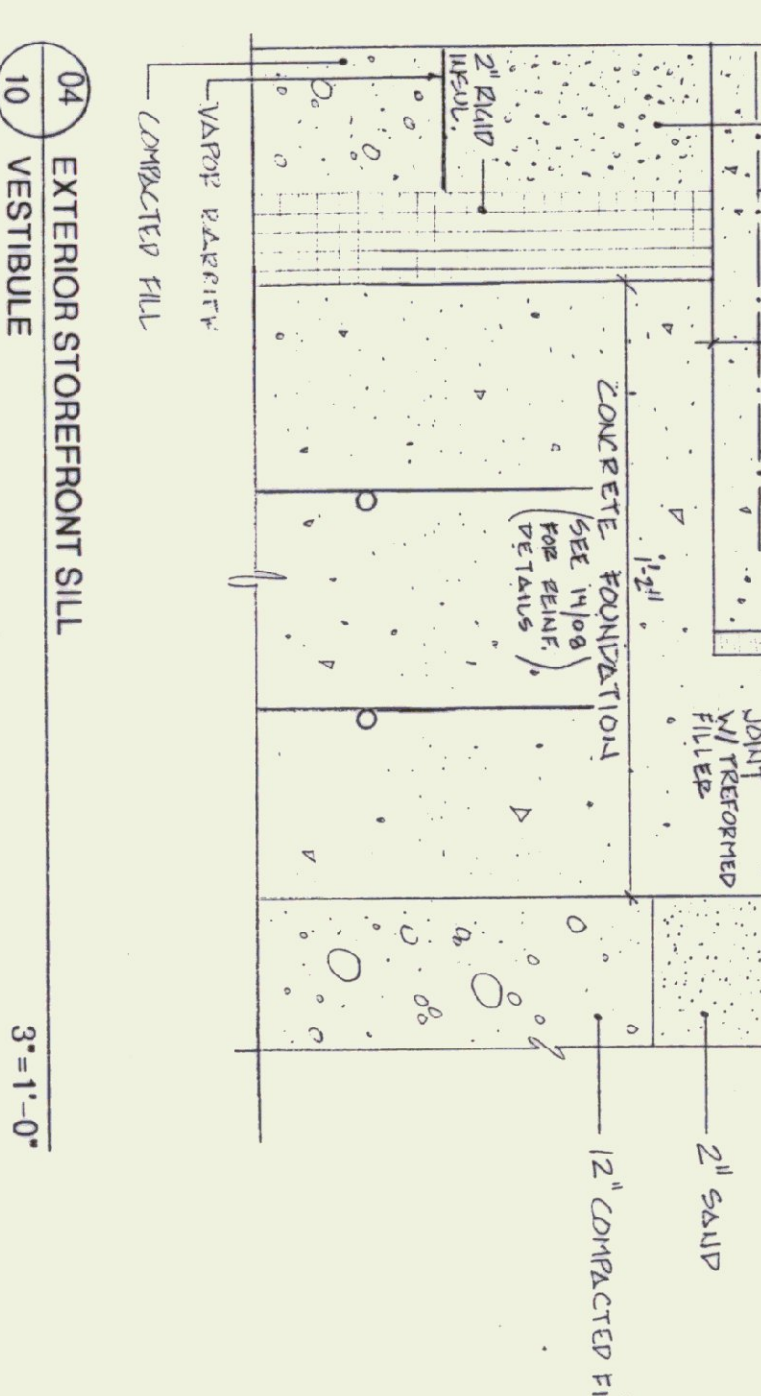
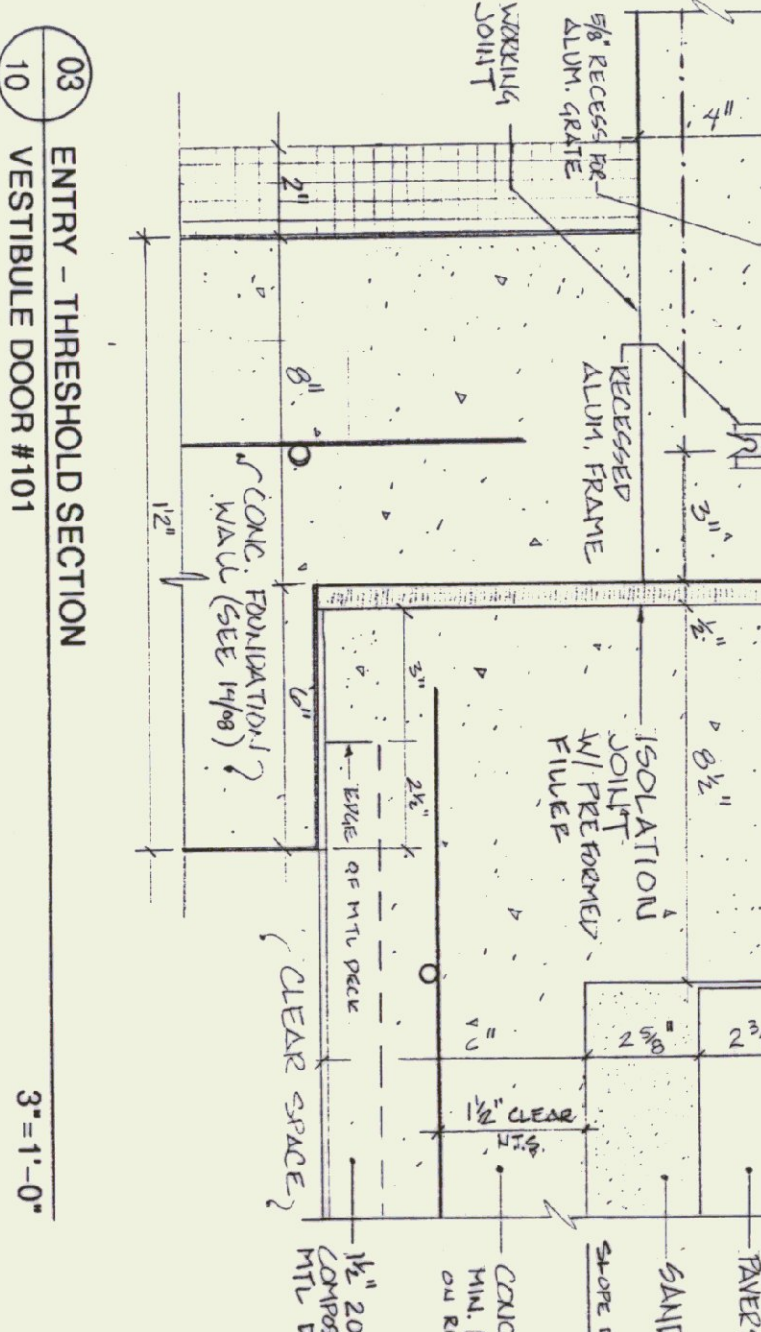
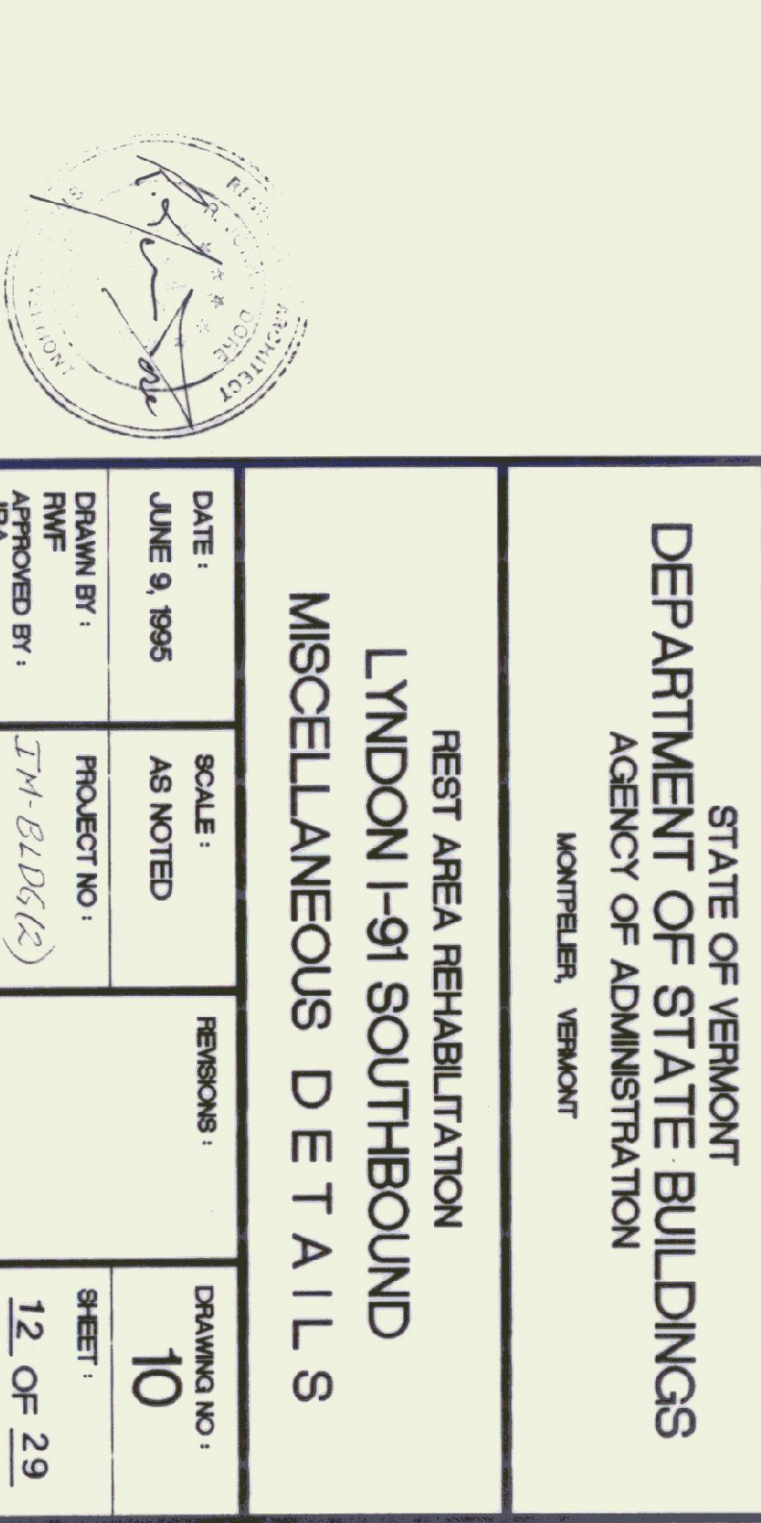
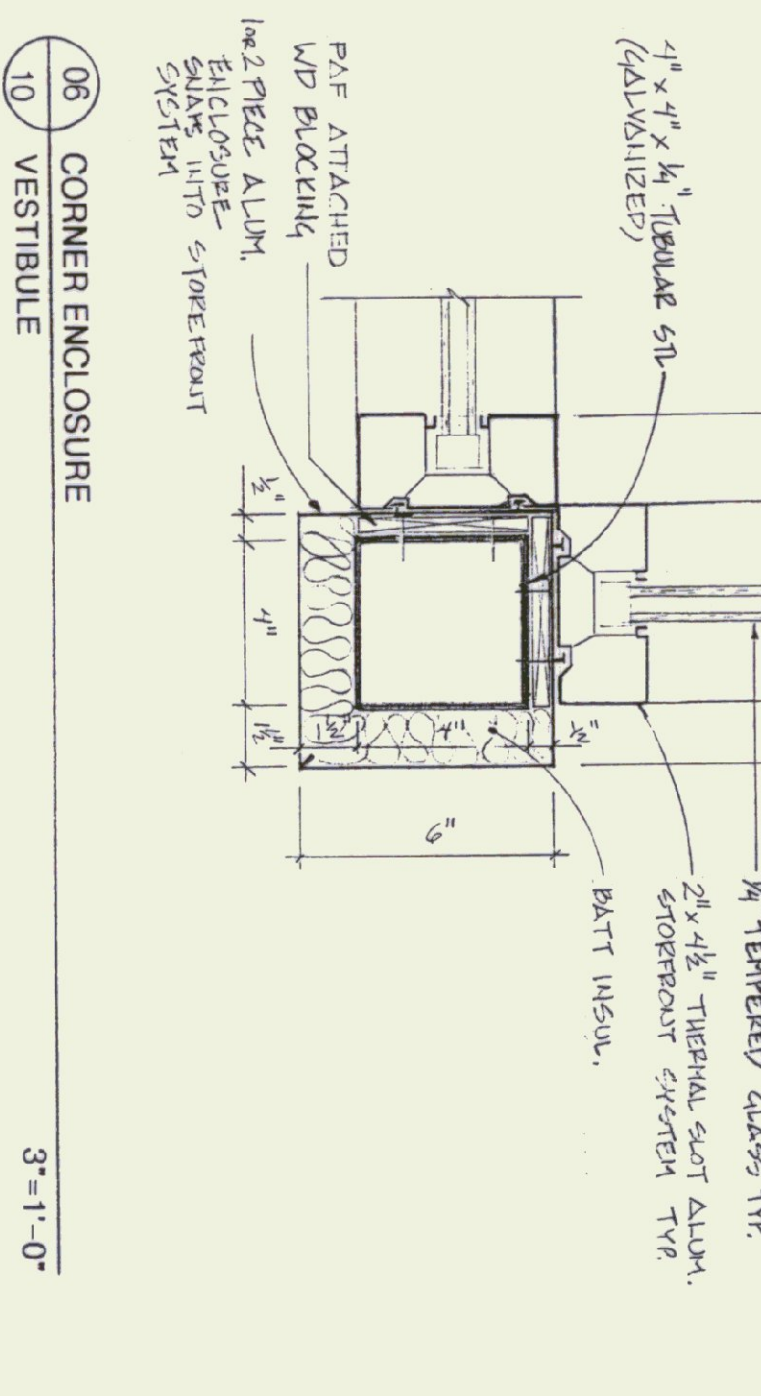
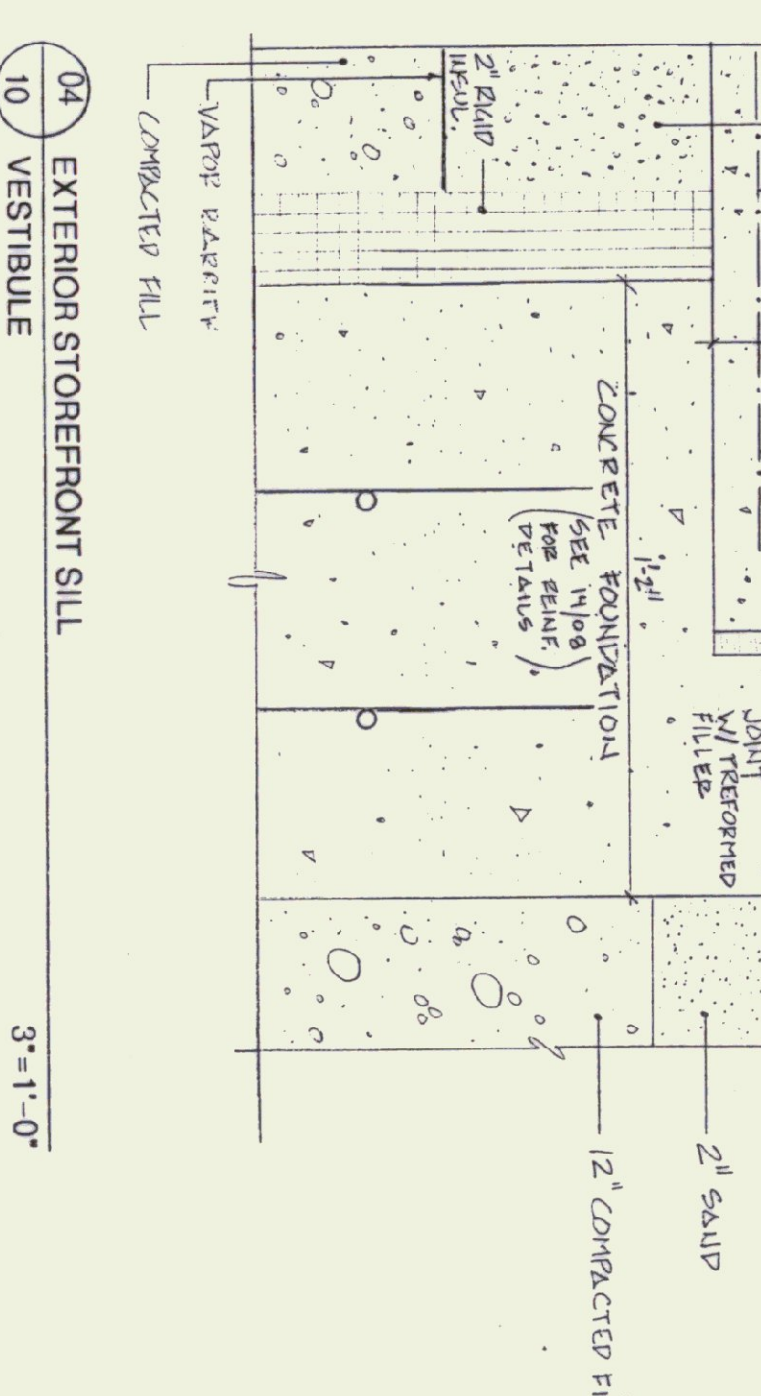
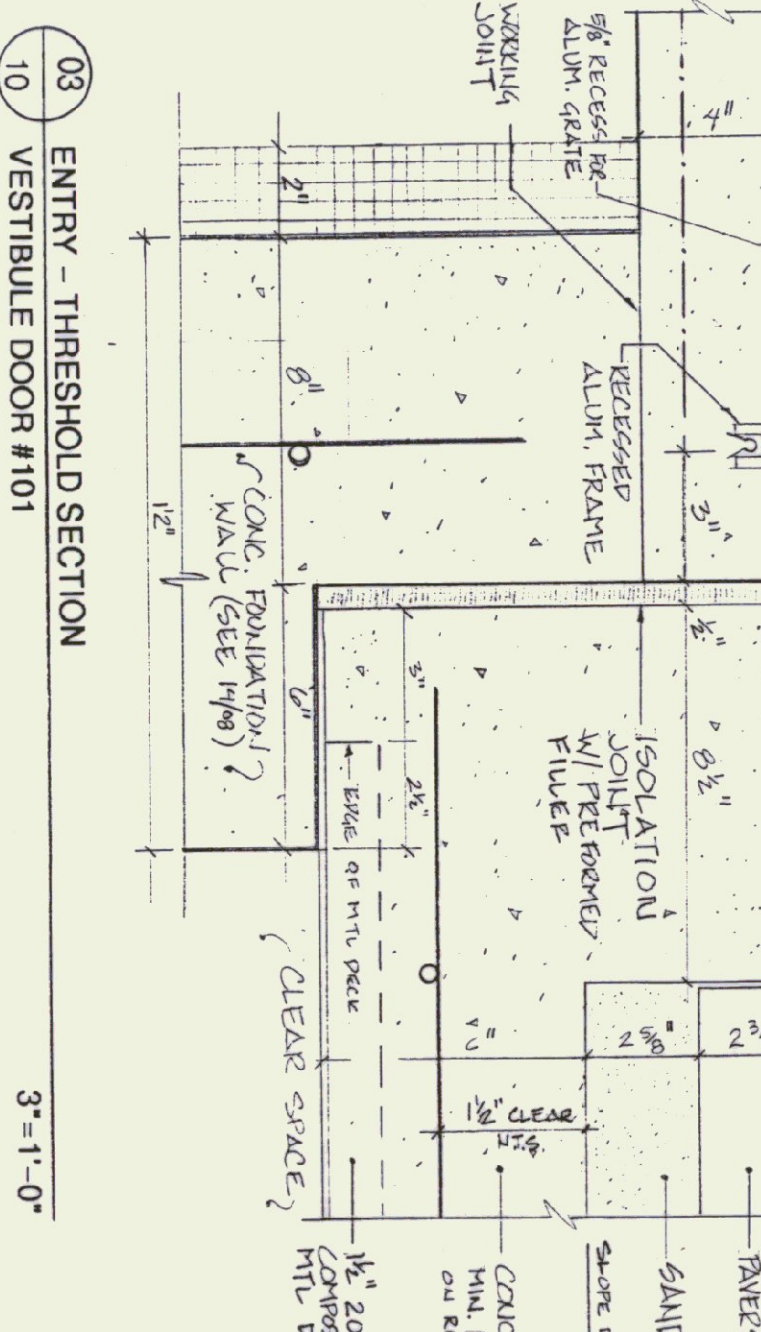
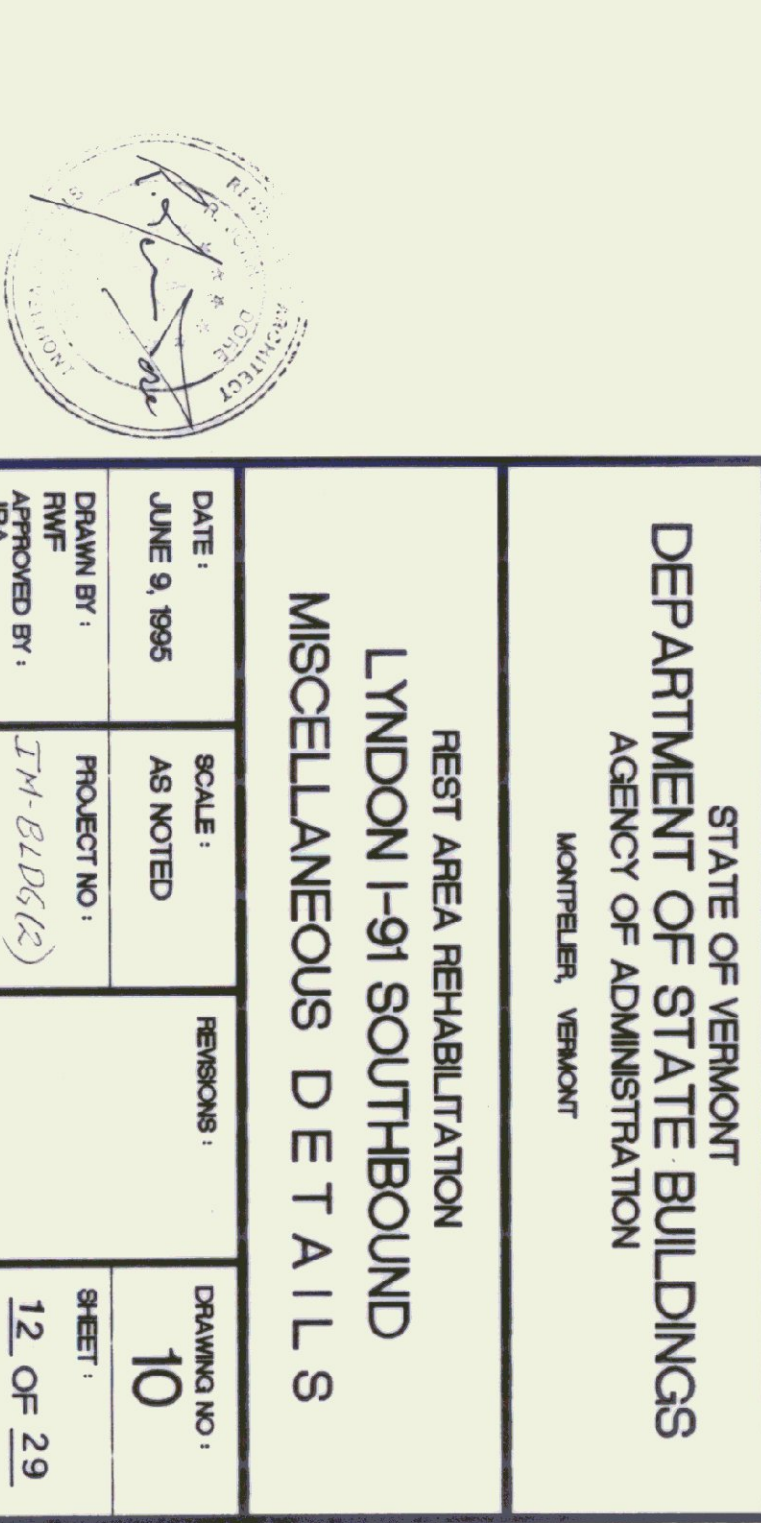
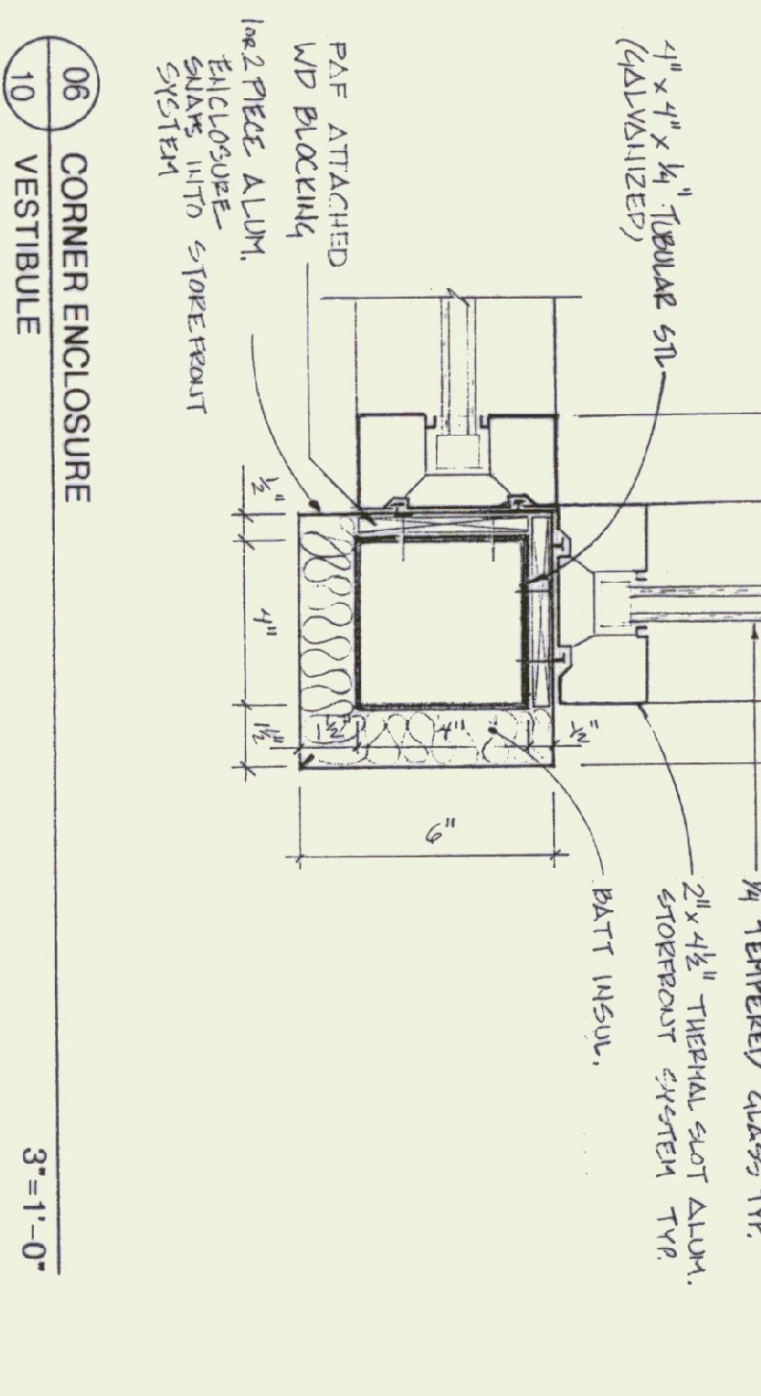
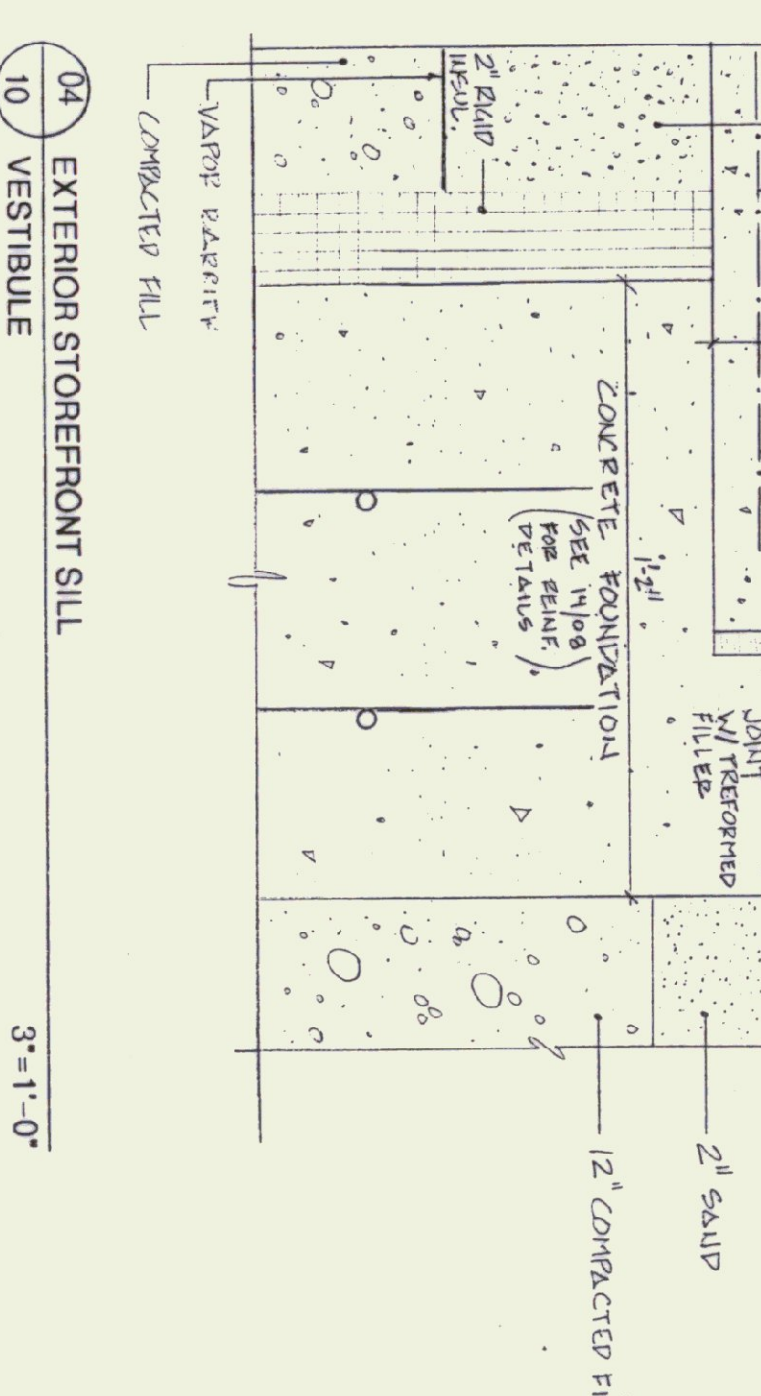
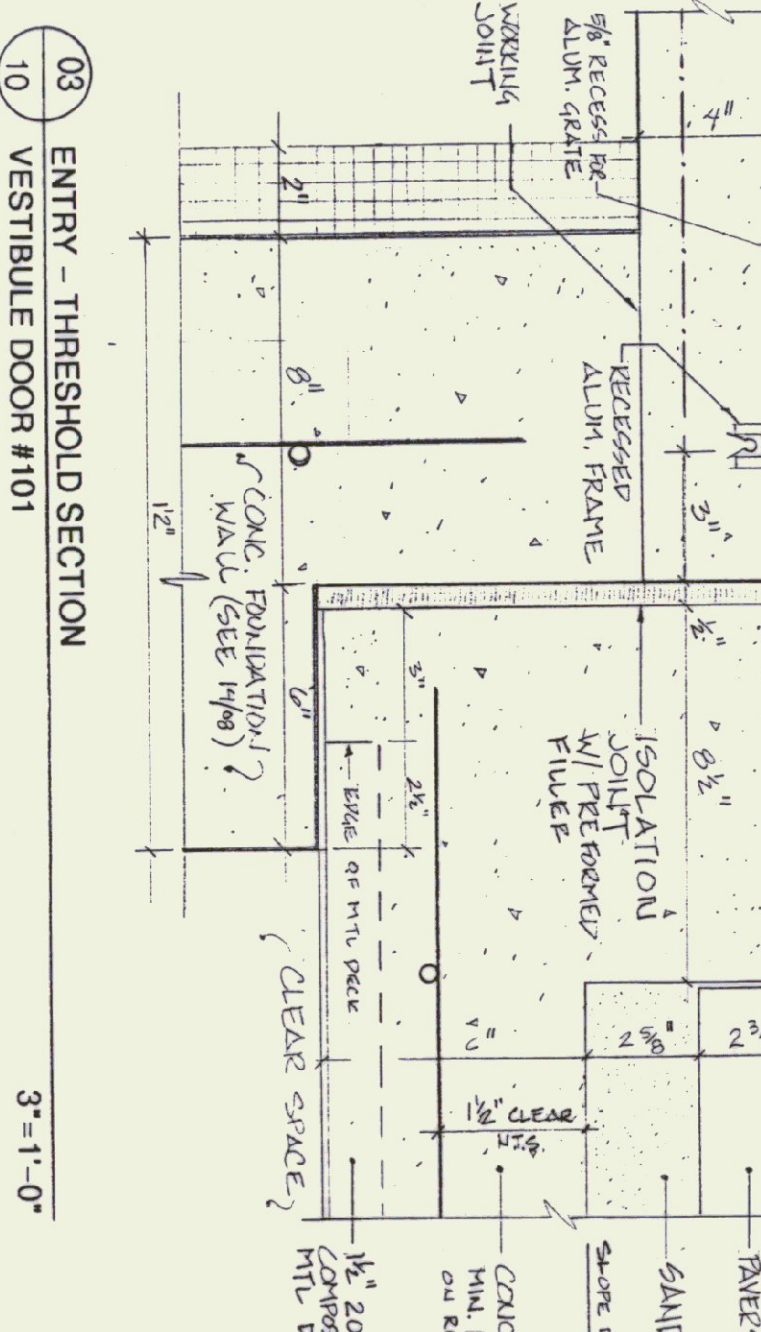
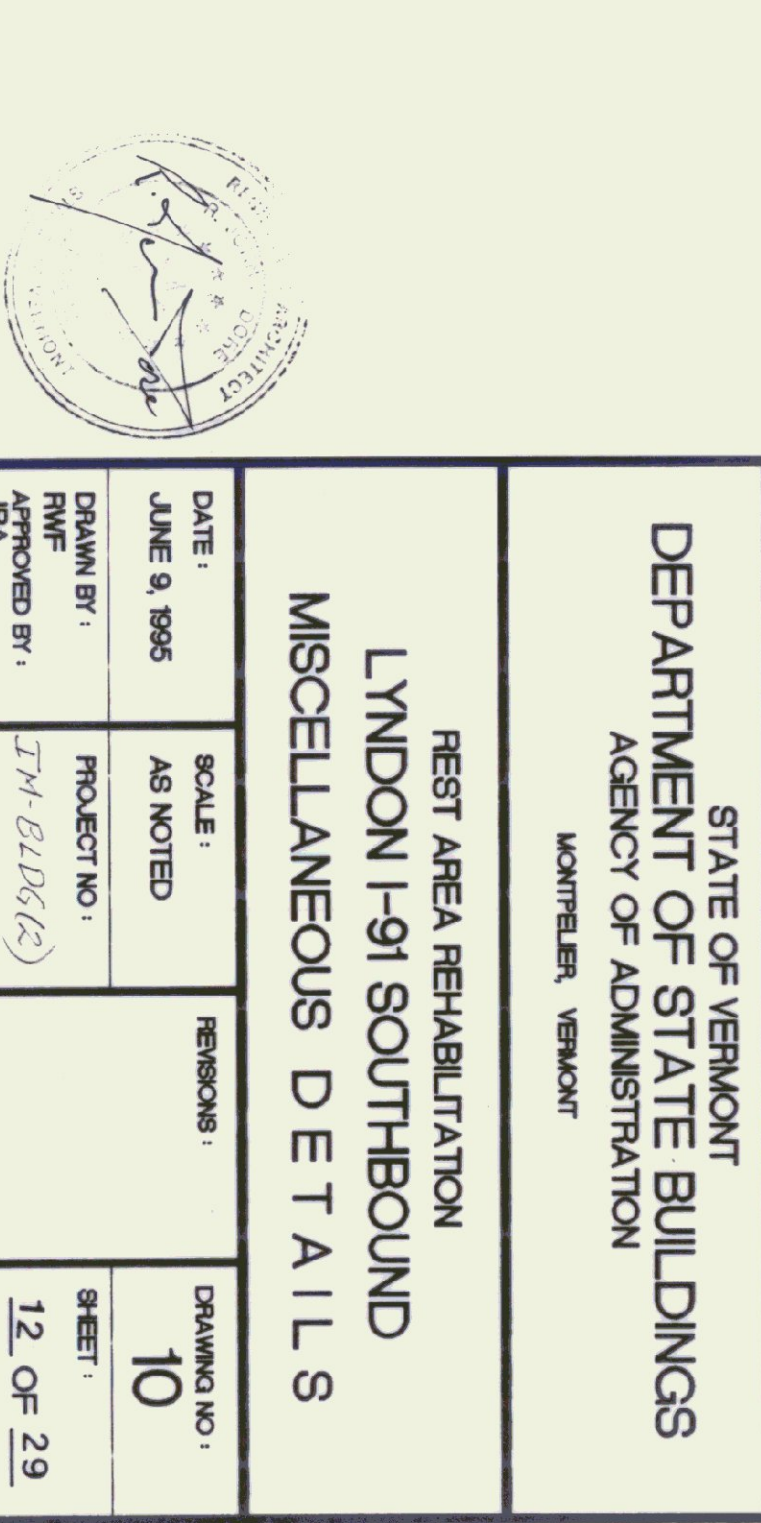
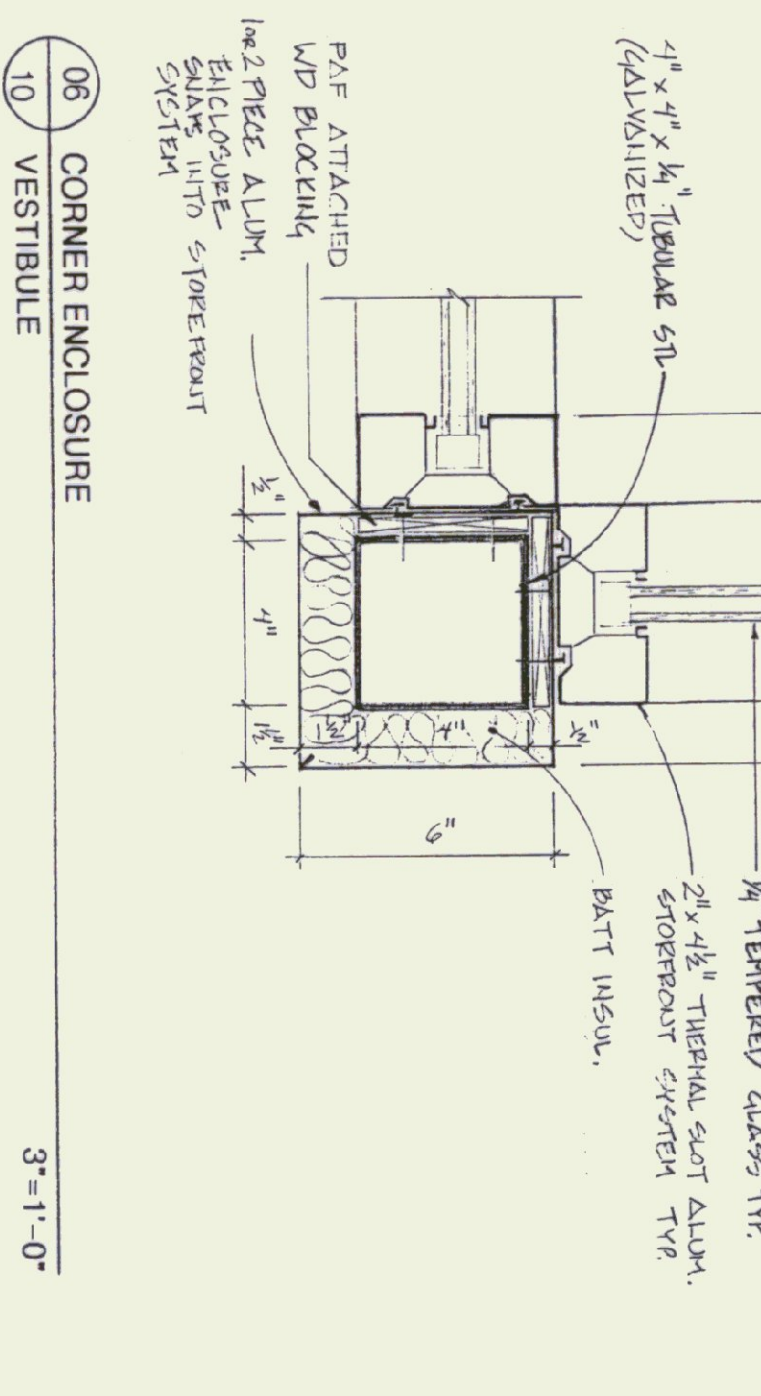
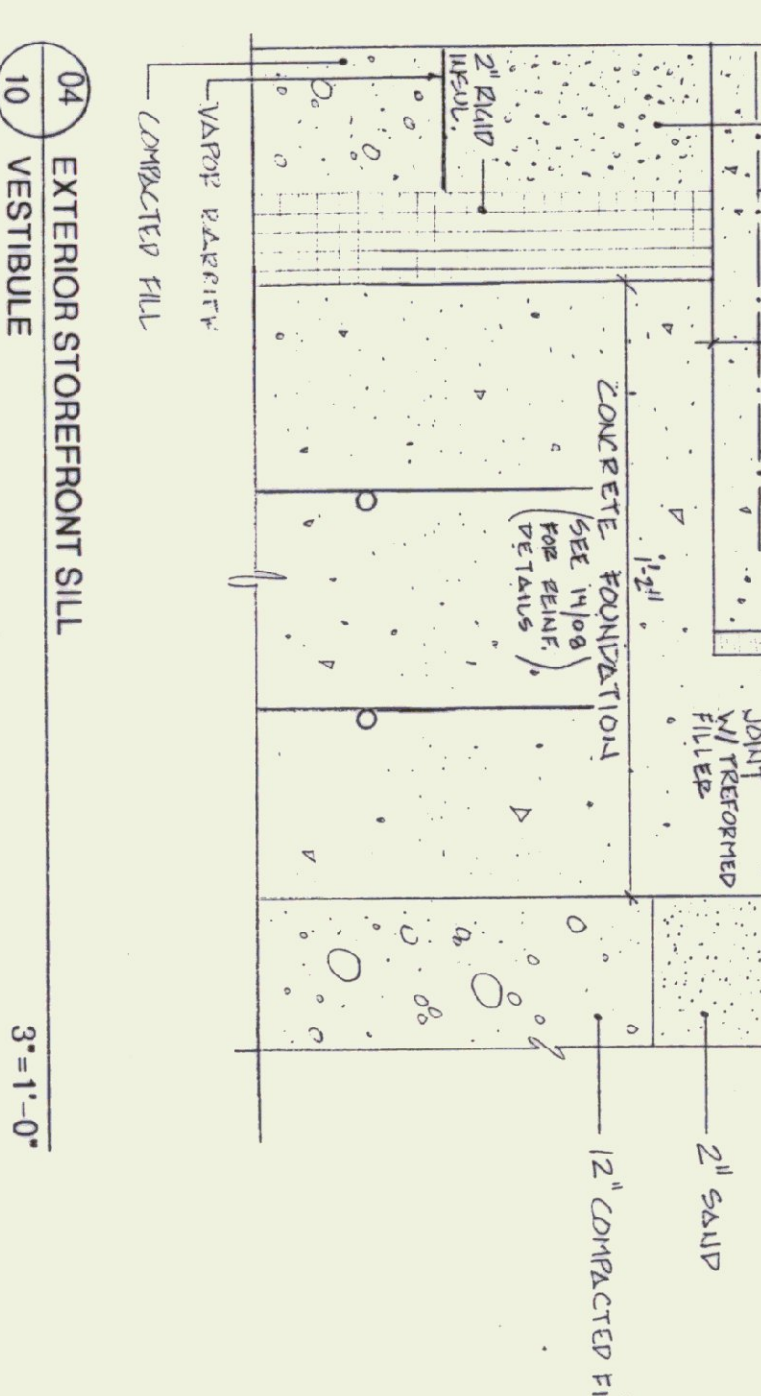
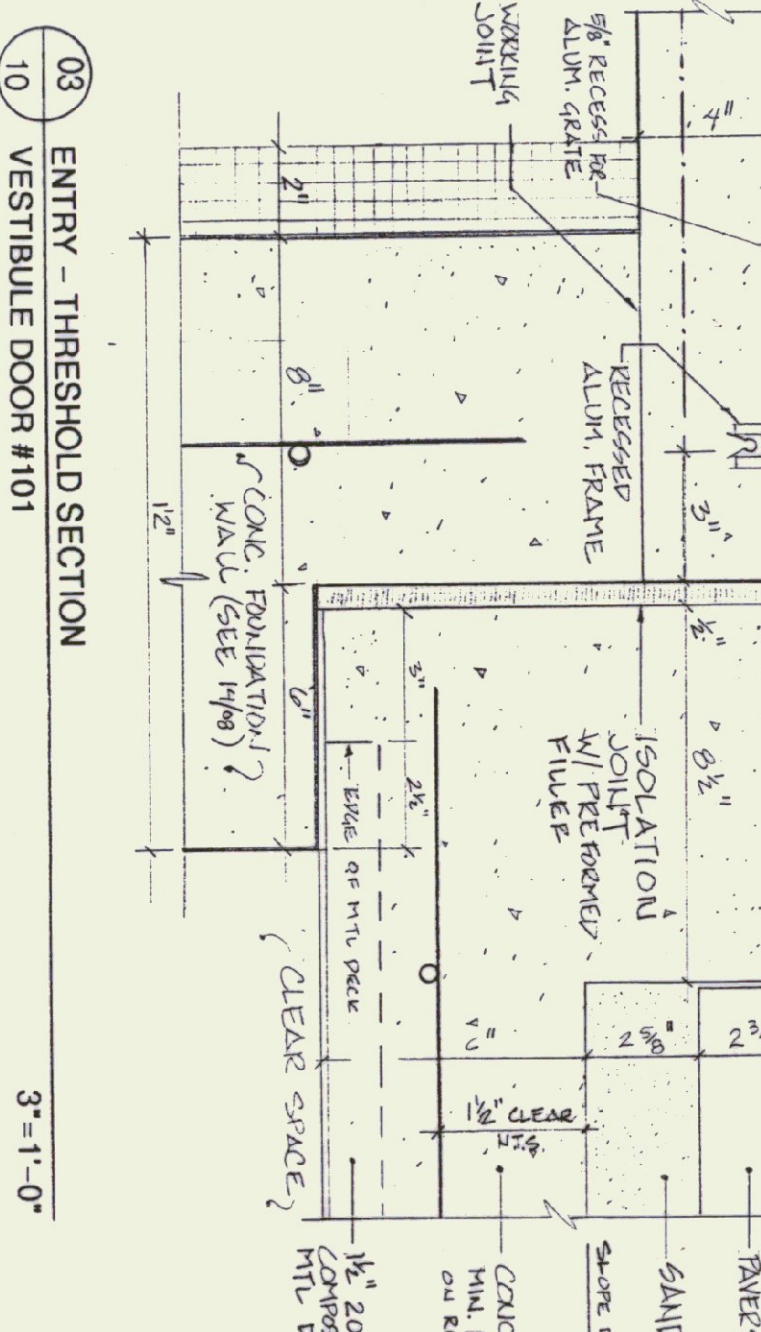
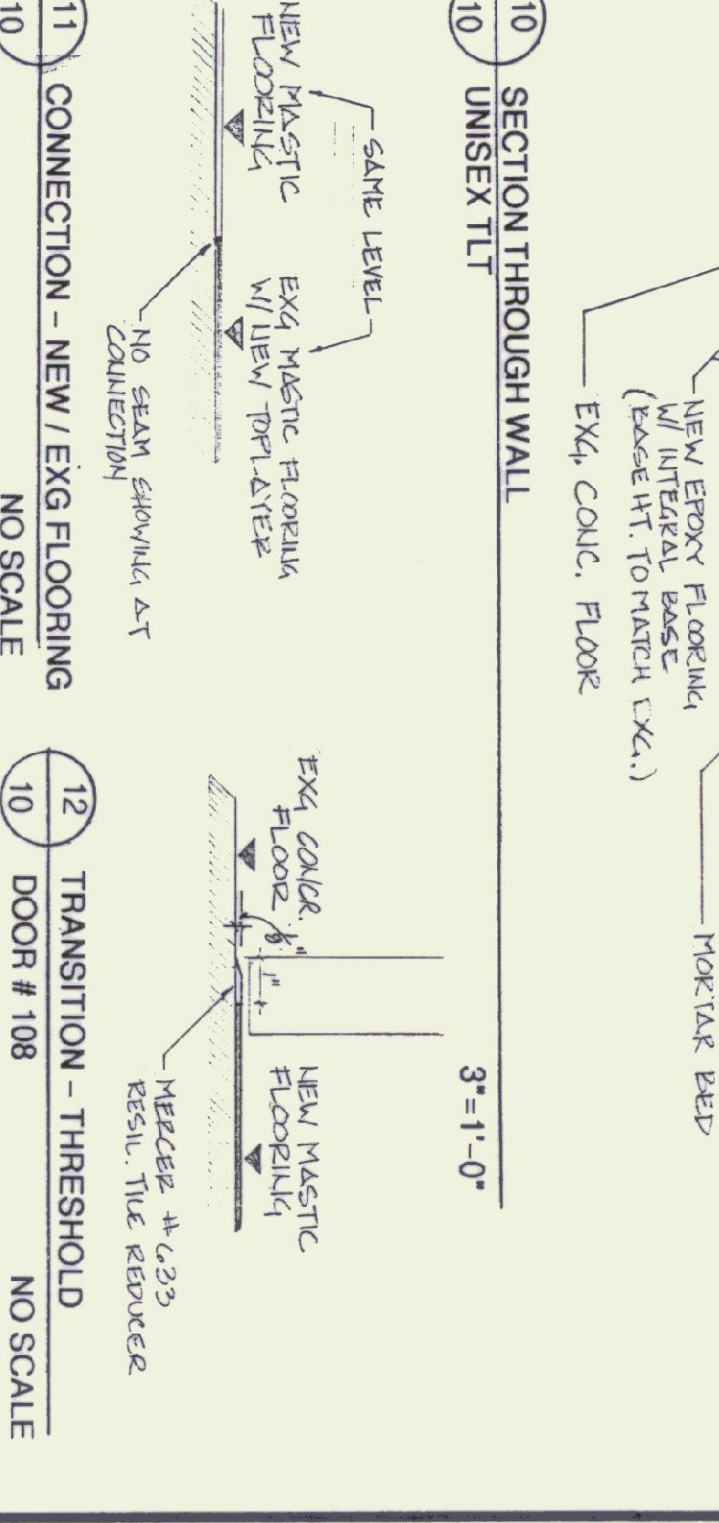
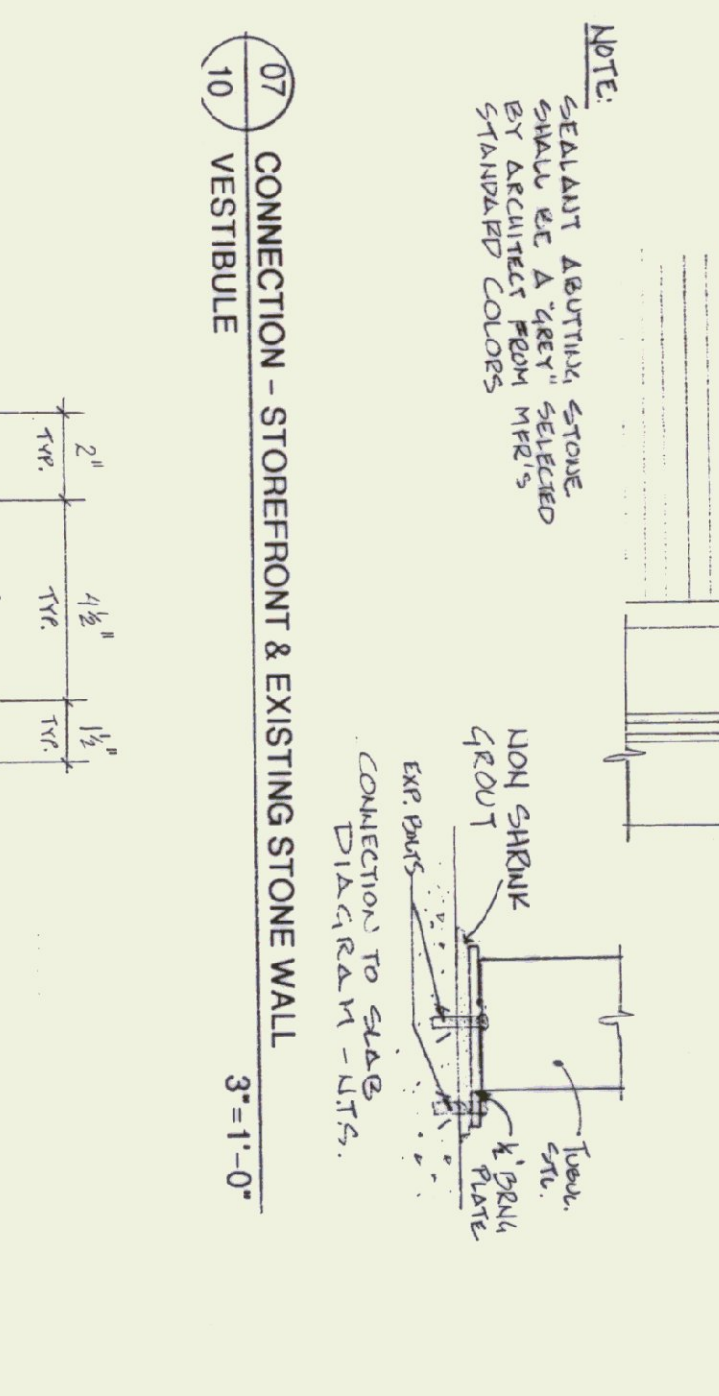
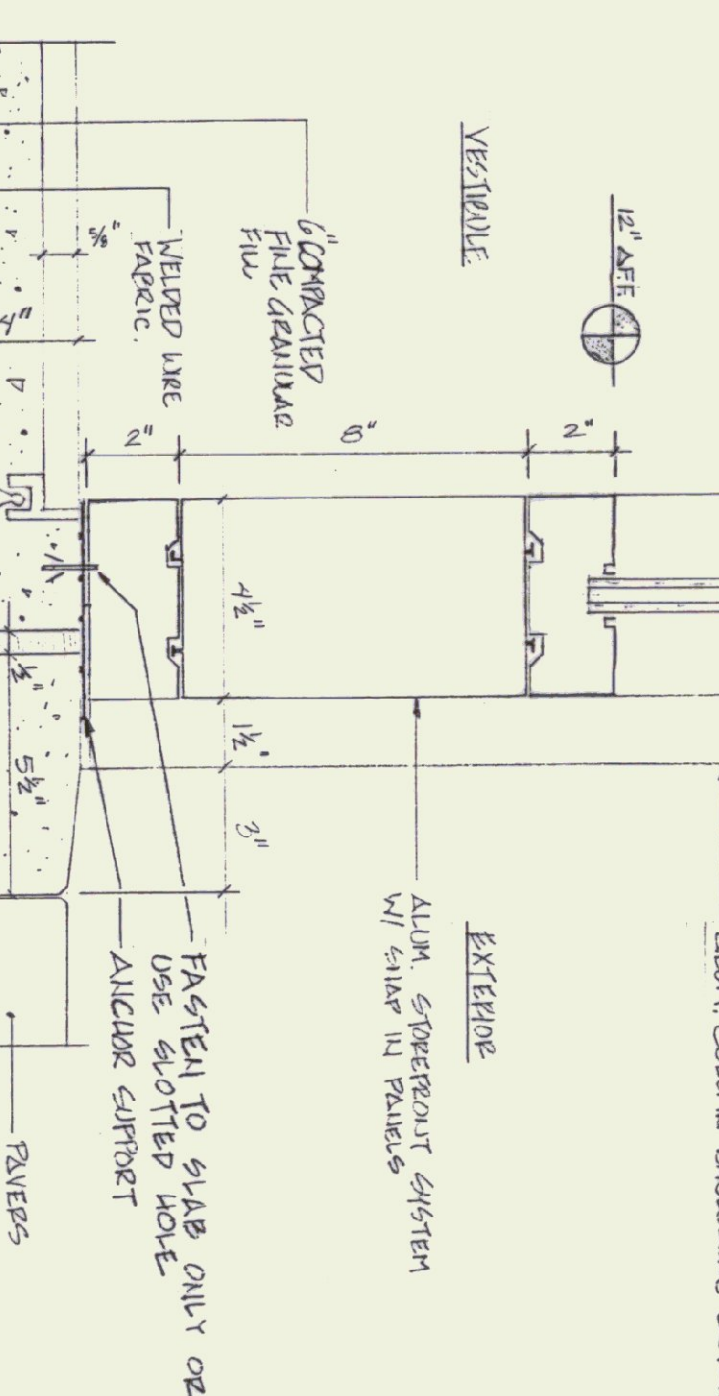
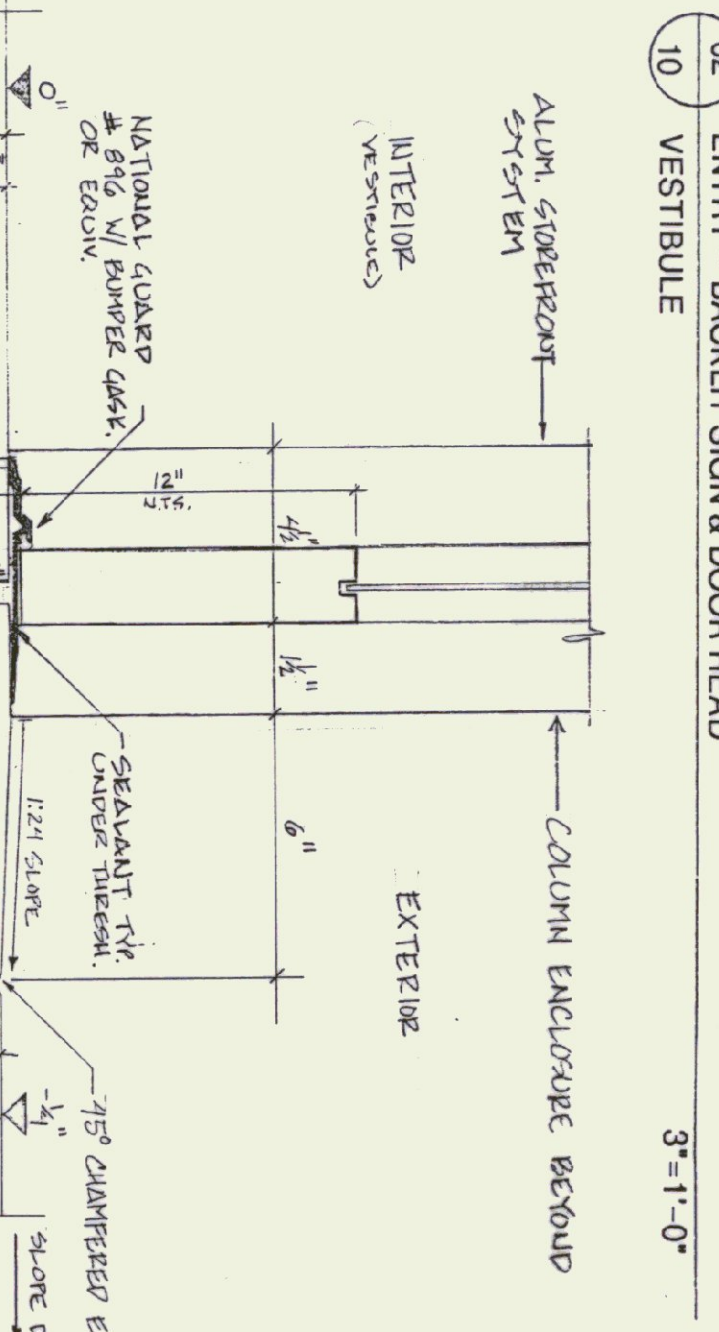
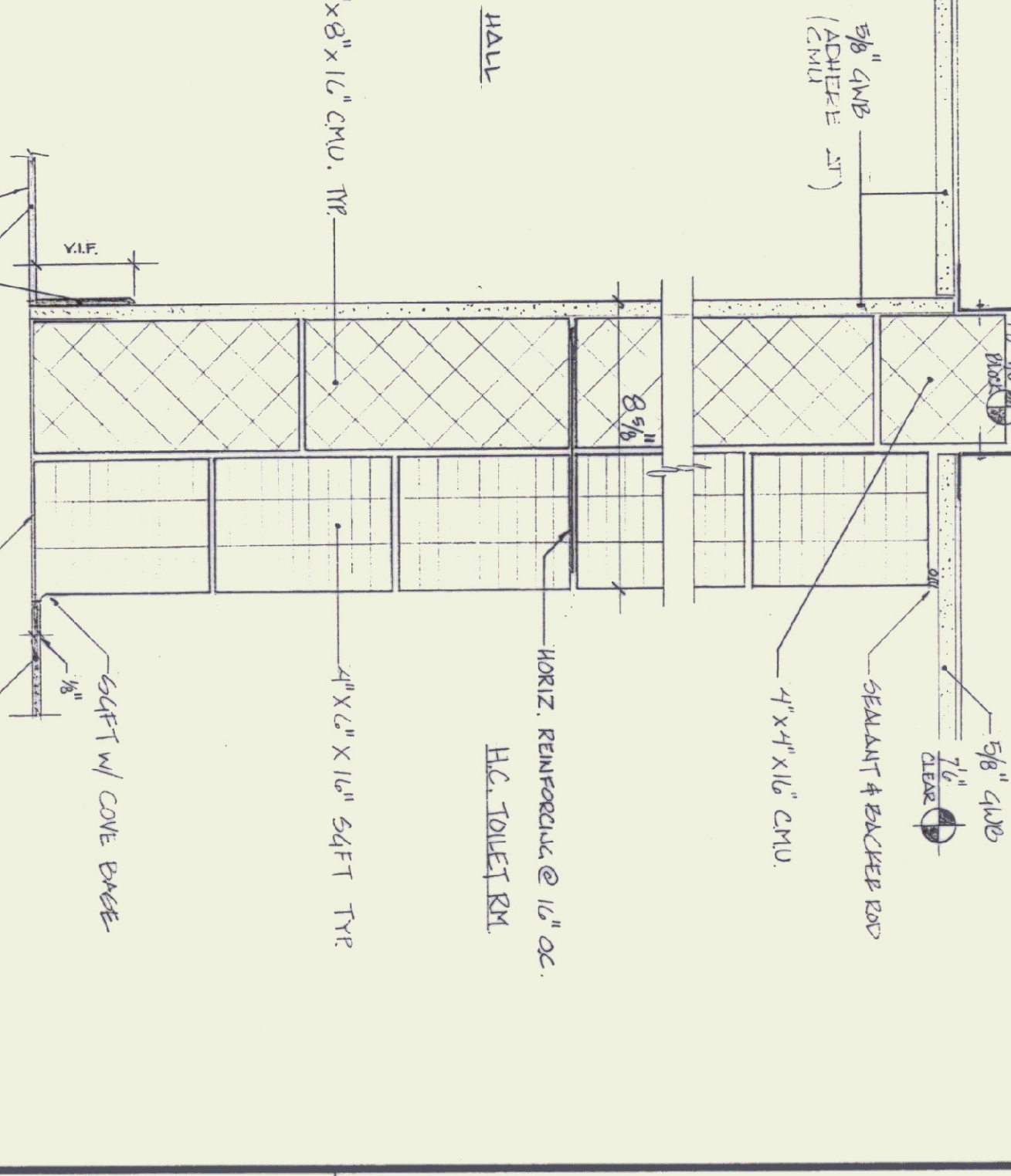
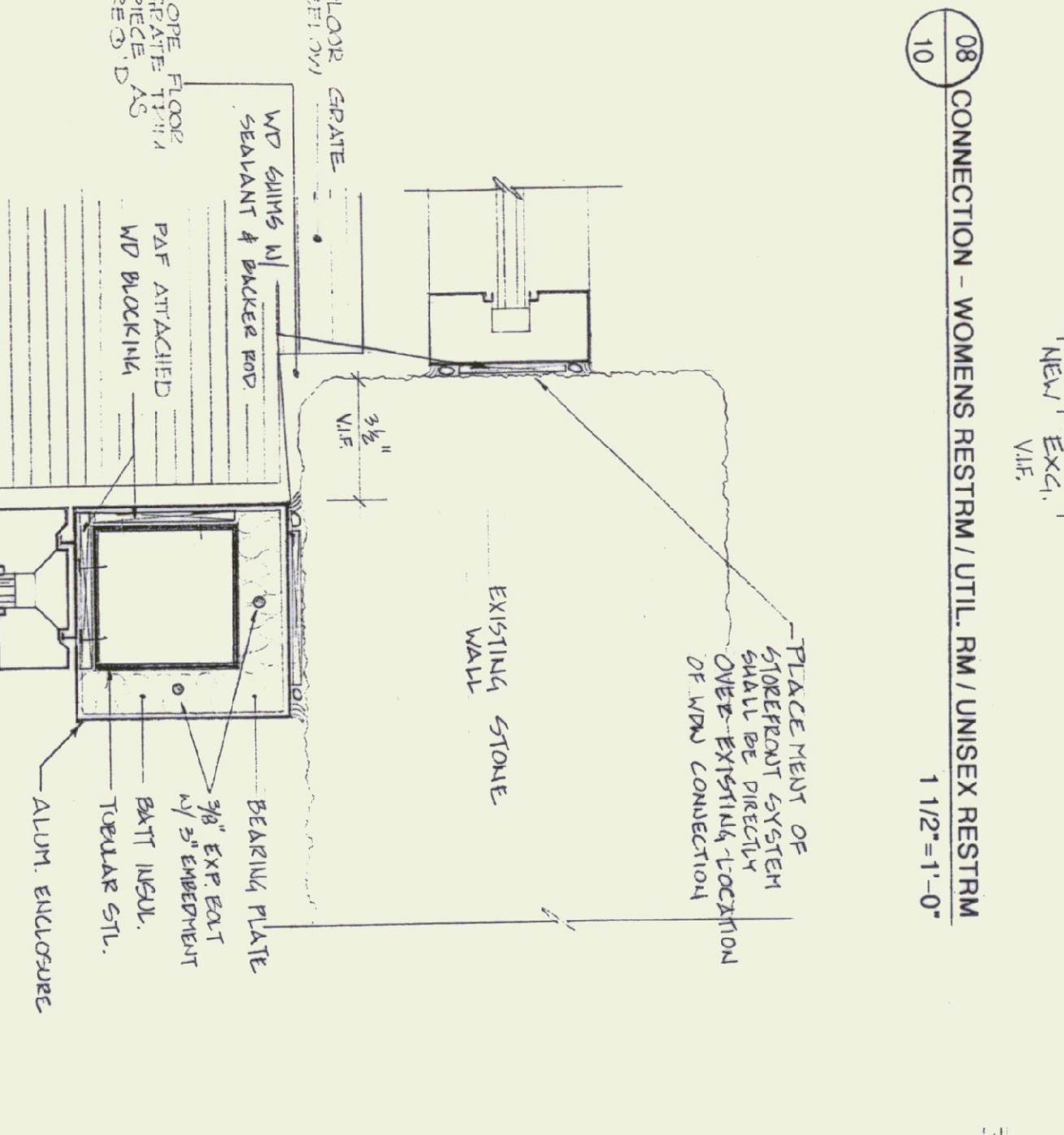
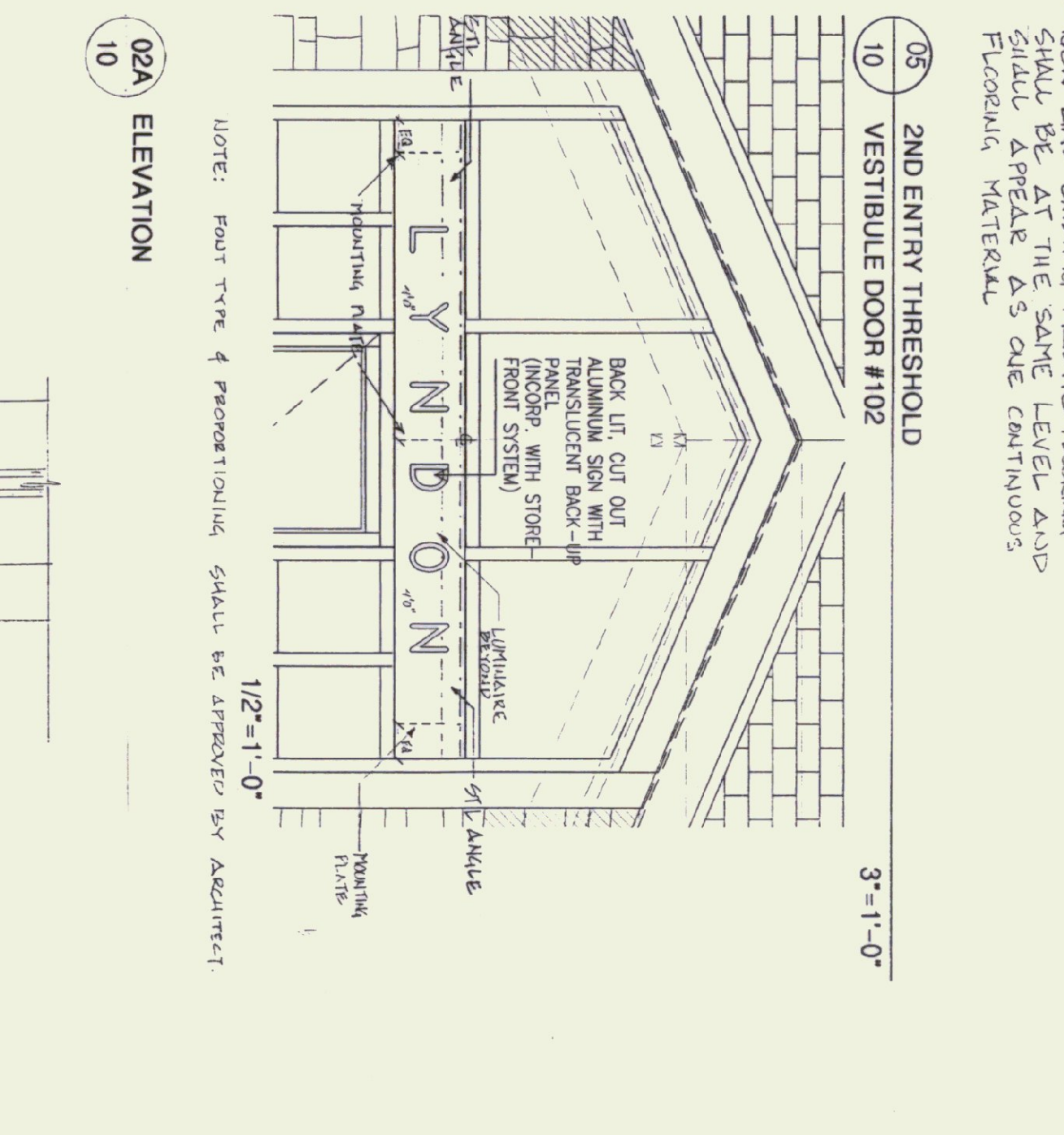
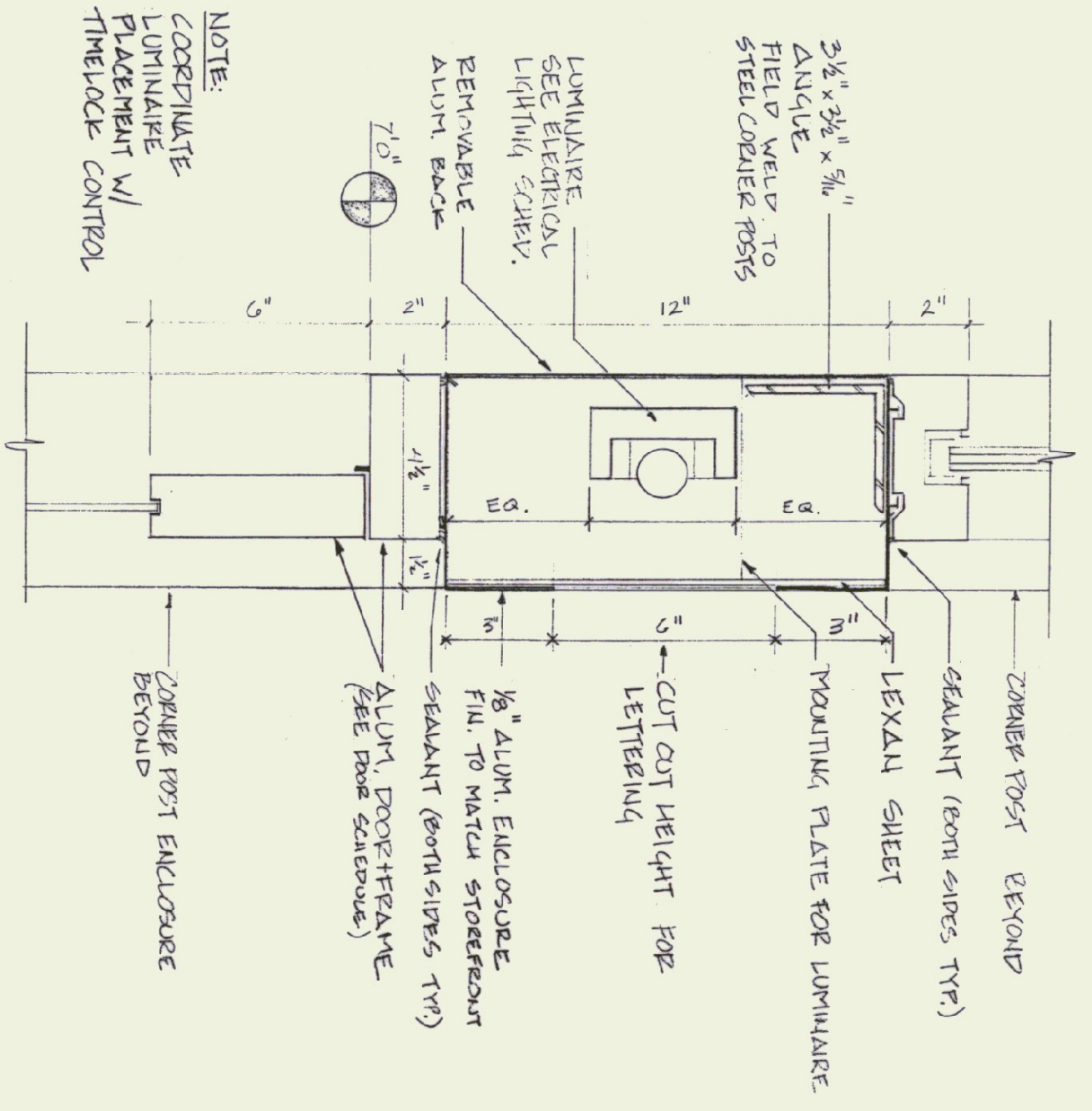
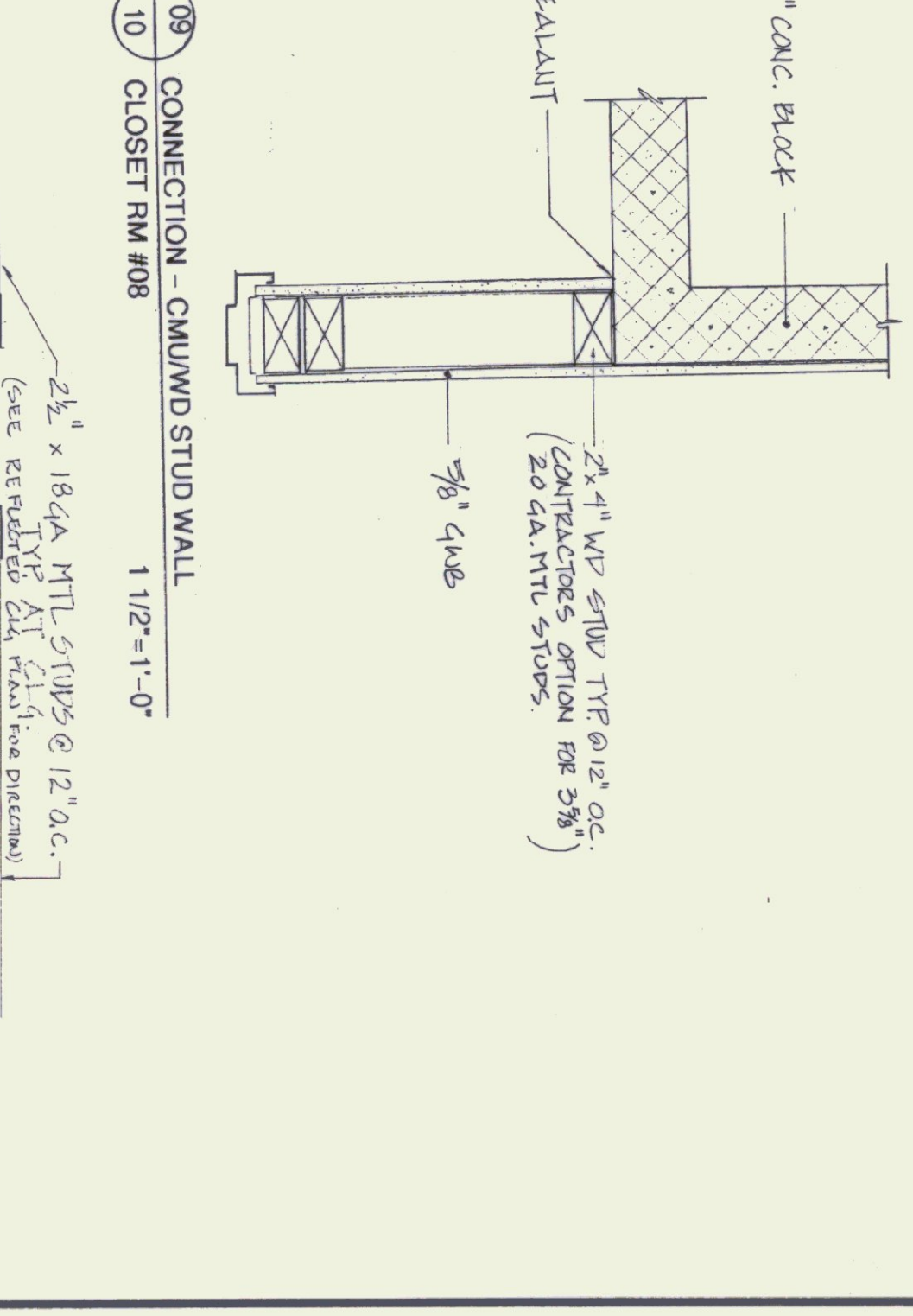
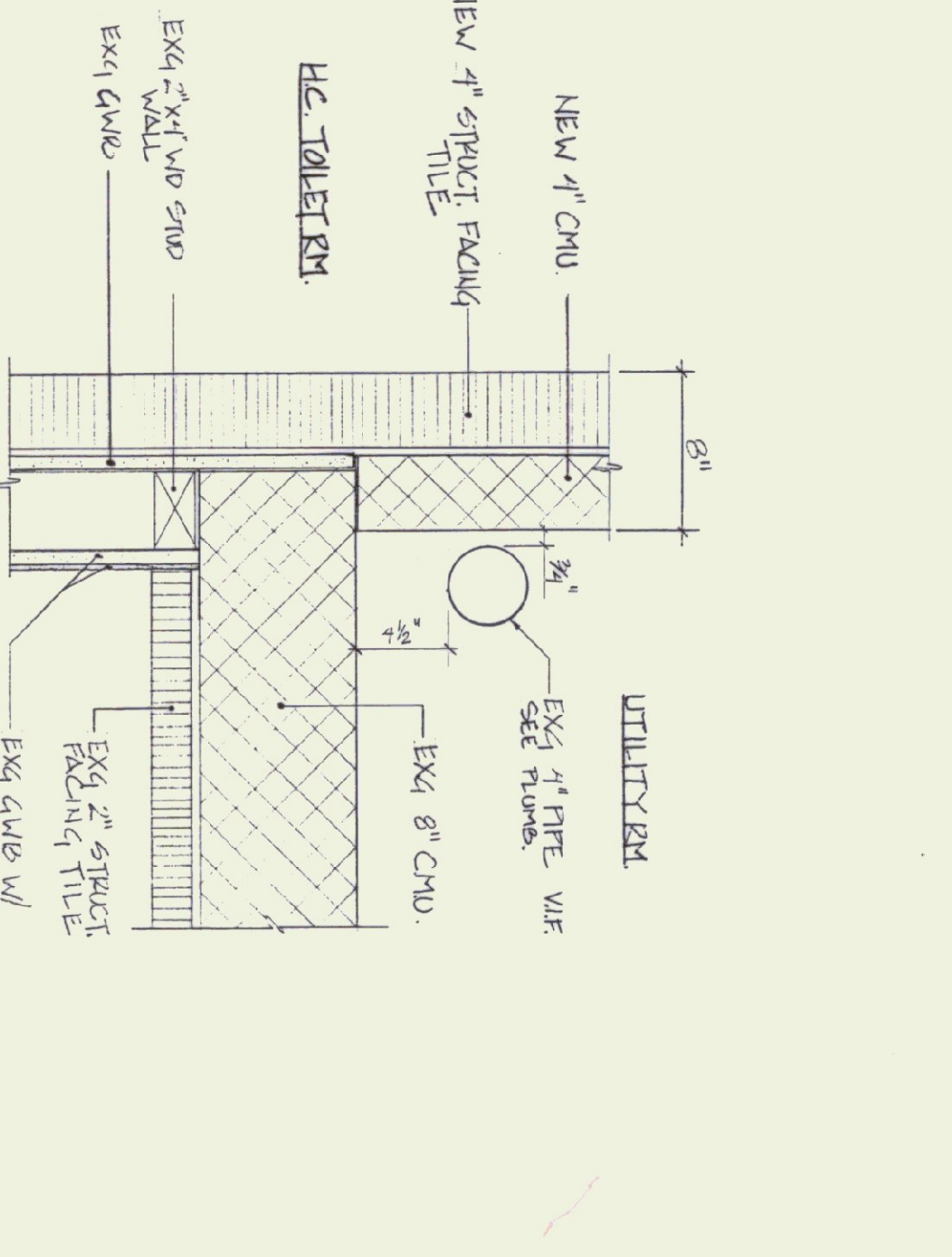
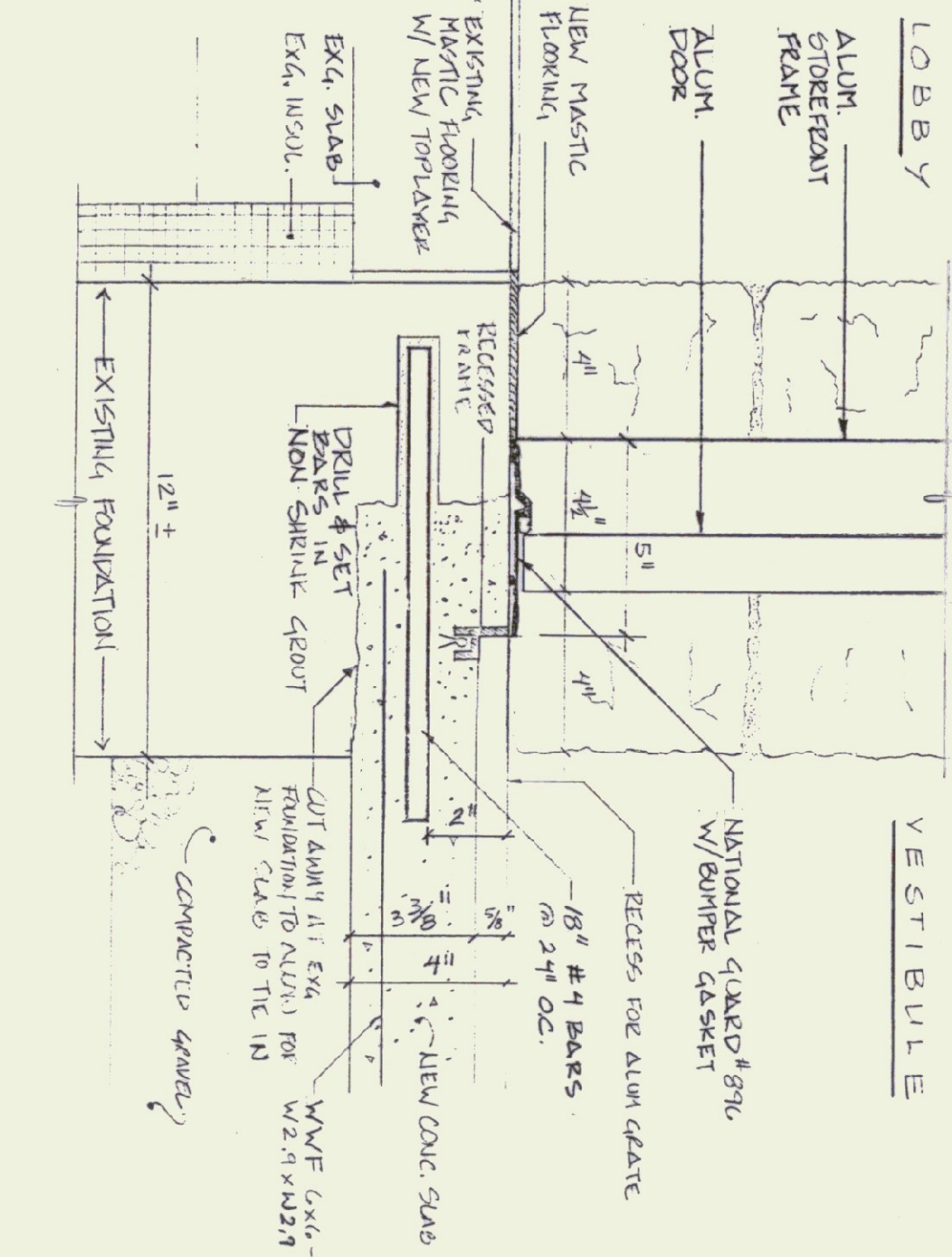
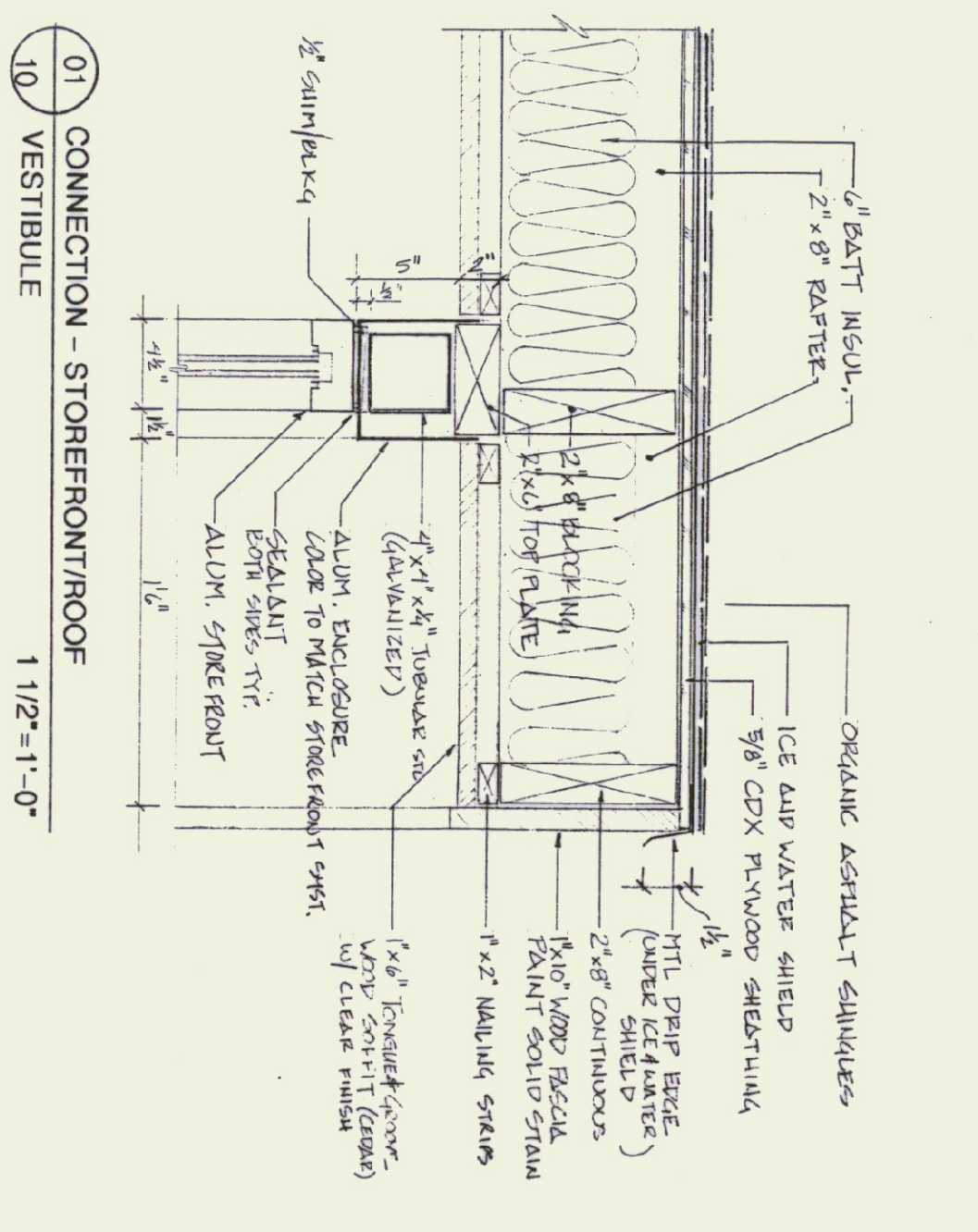


STATE OF VERMONT  
DEPARTMENT OF STATE BUILDINGS  
AGENCY OF ADMINISTRATION  
MONTPELIER, VERMONT

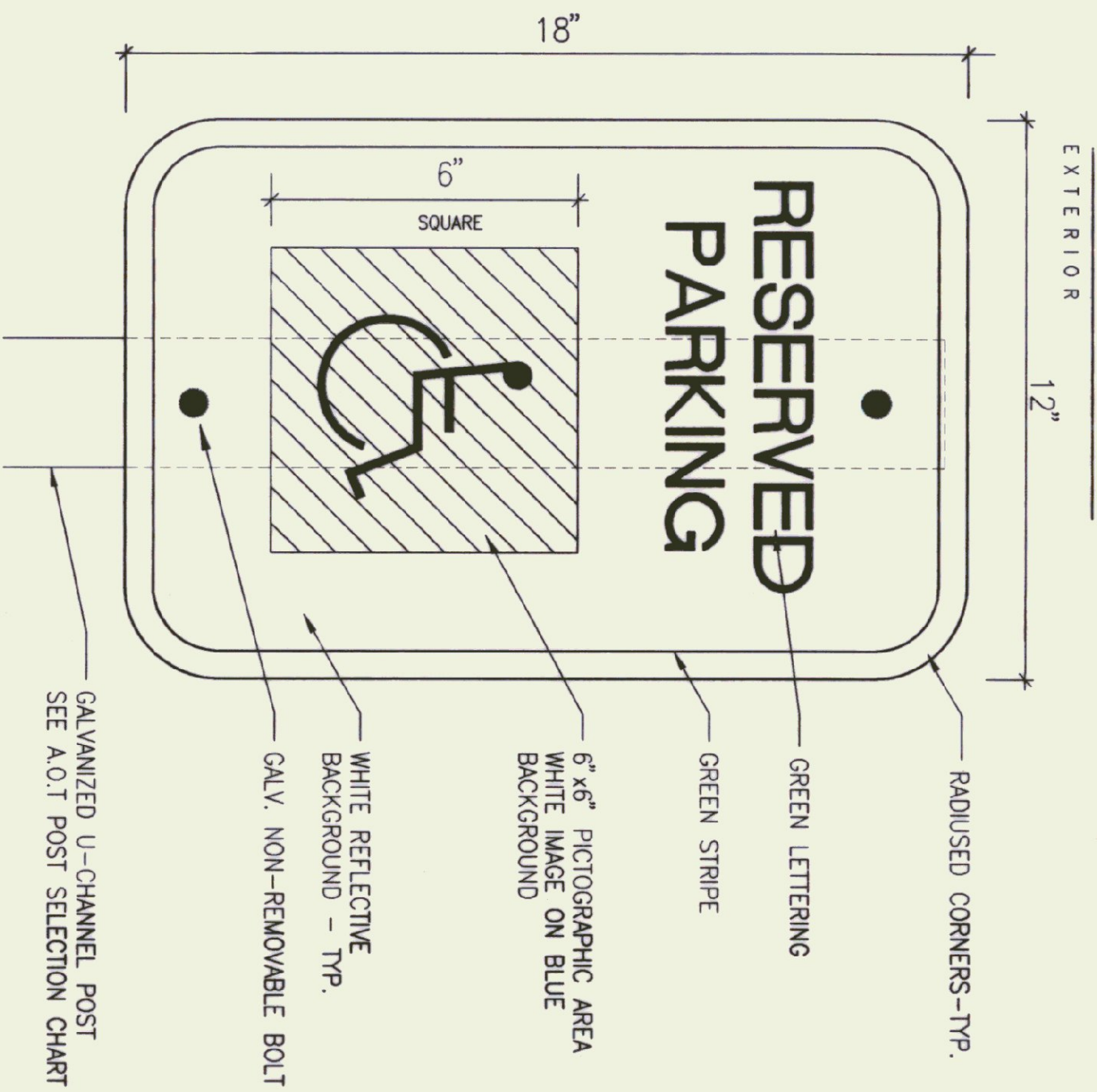
REST AREA REHABILITATION  
LYNDON I-90 SOUTHBOUND  
MISCELLANEOUS DETAILS

DATE: JUNE 9, 1995  
SCALE: AS NOTED  
PROJECT NO.: IM-8104(2)  
DRAWING NO.: 08  
SHEET: 11 OF 29

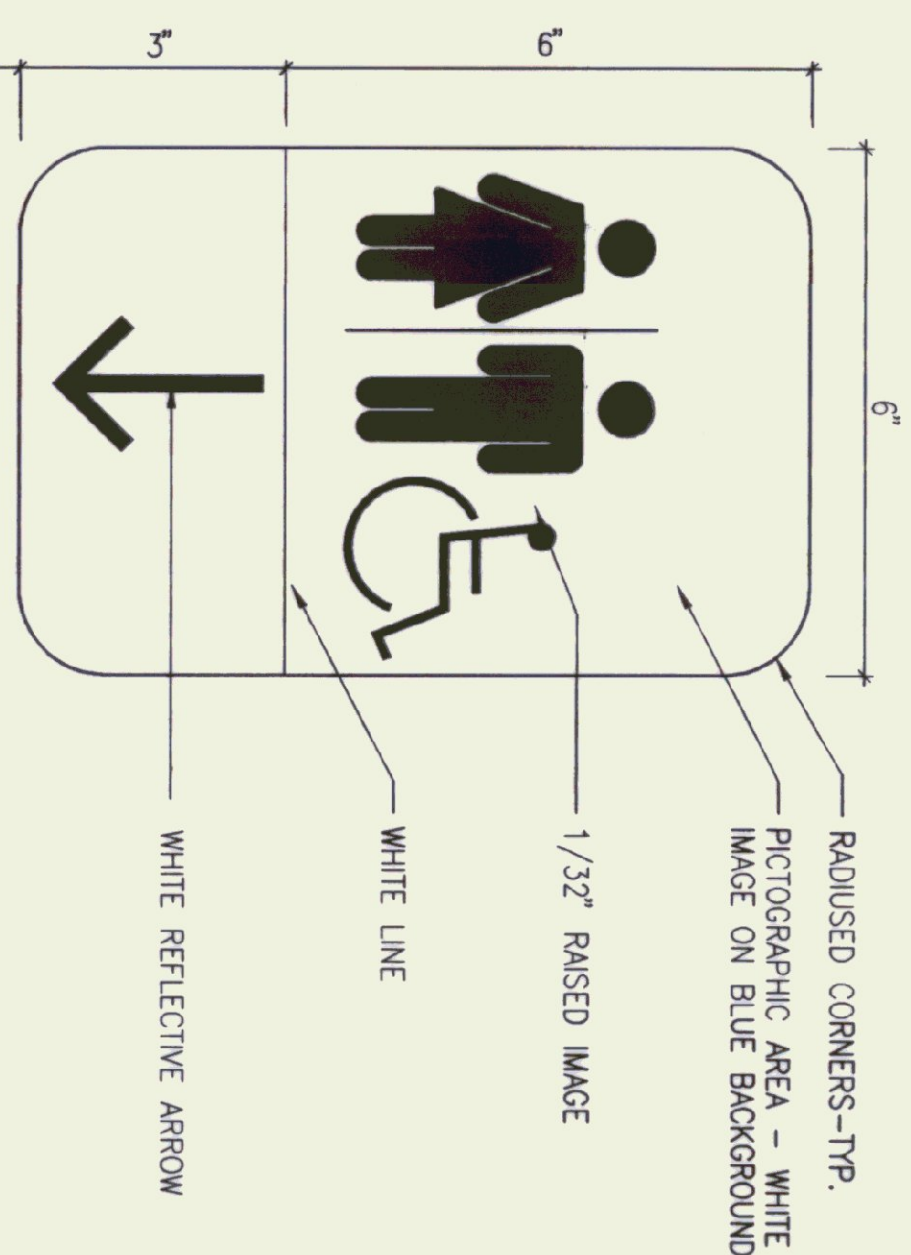
DESIGNED BY: [Signature]  
CHECKED BY: [Signature]  
DRAWN BY: [Signature]  
APPROVED BY: [Signature]



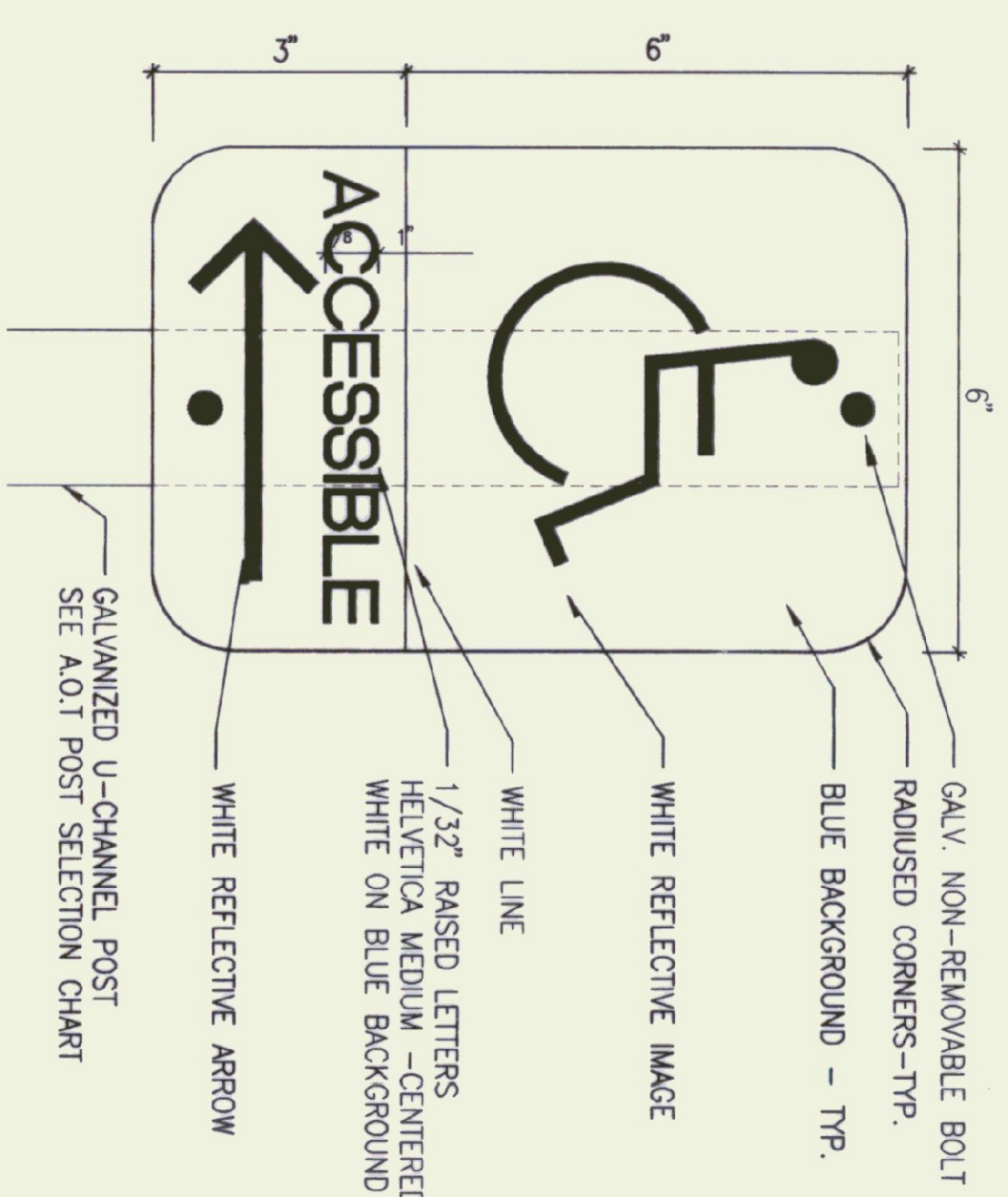
**SIGN TYPE # 1** SCALE 6"=1'-0"



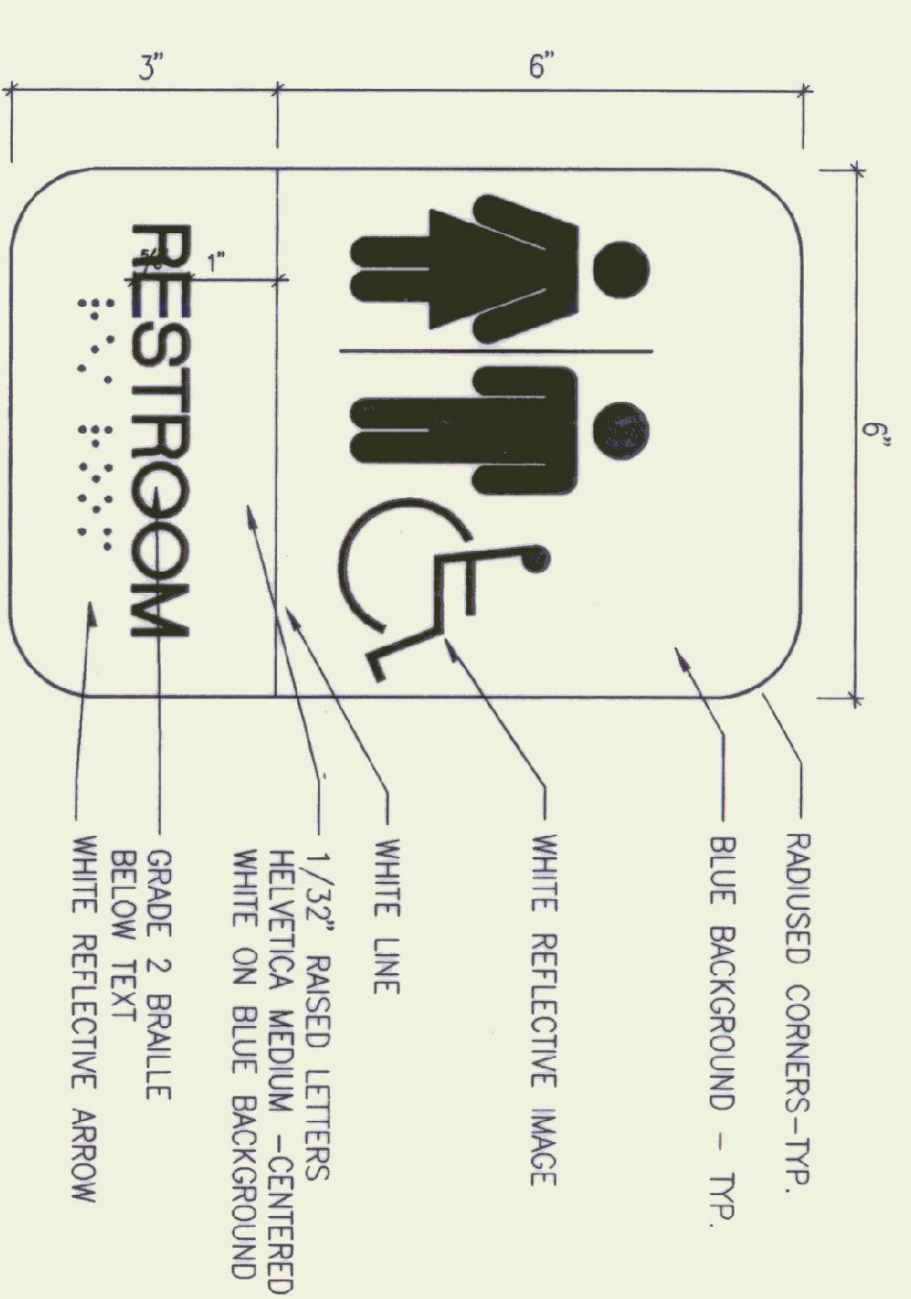
**SIGN TYPE # 2** SCALE 6"=1'-0"



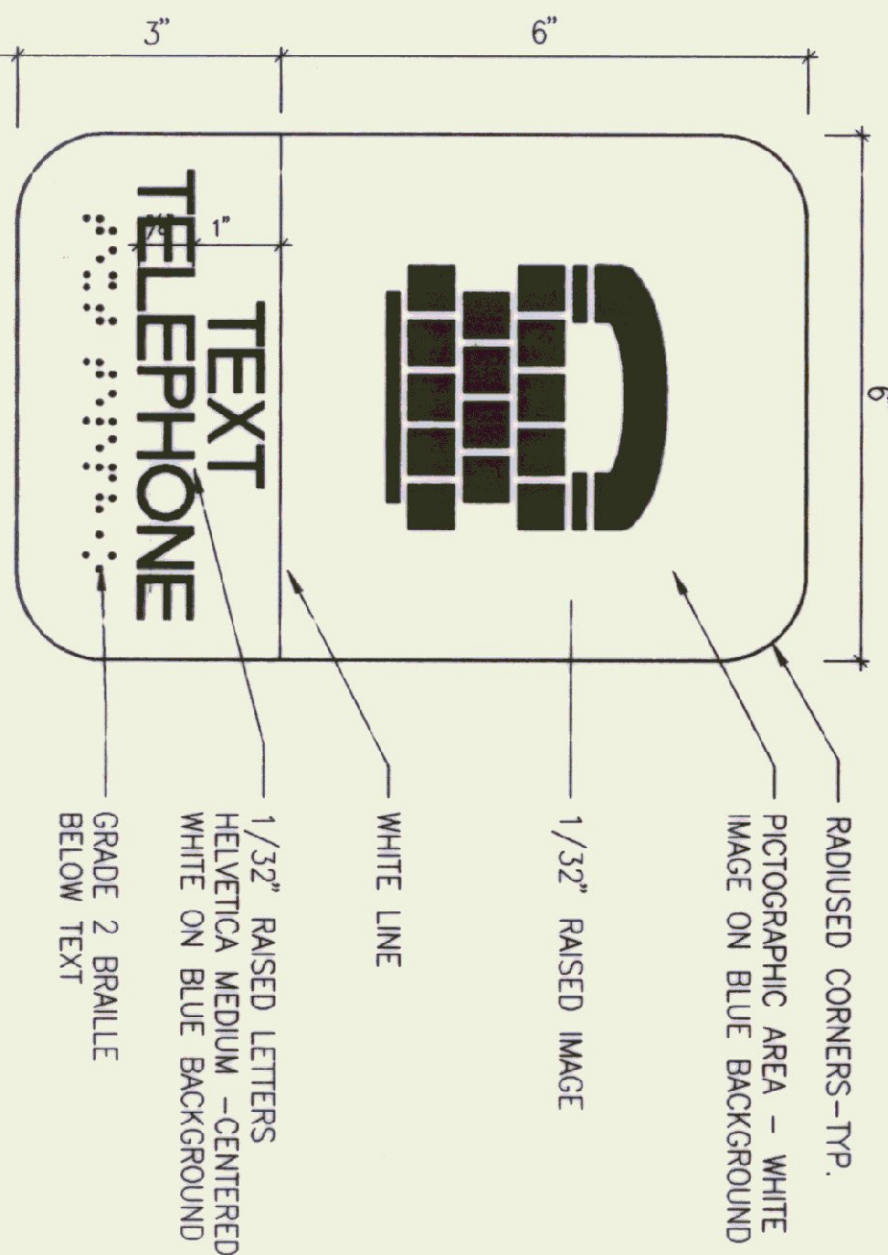
**SIGN TYPE # 3** SCALE 6"=1'-0"



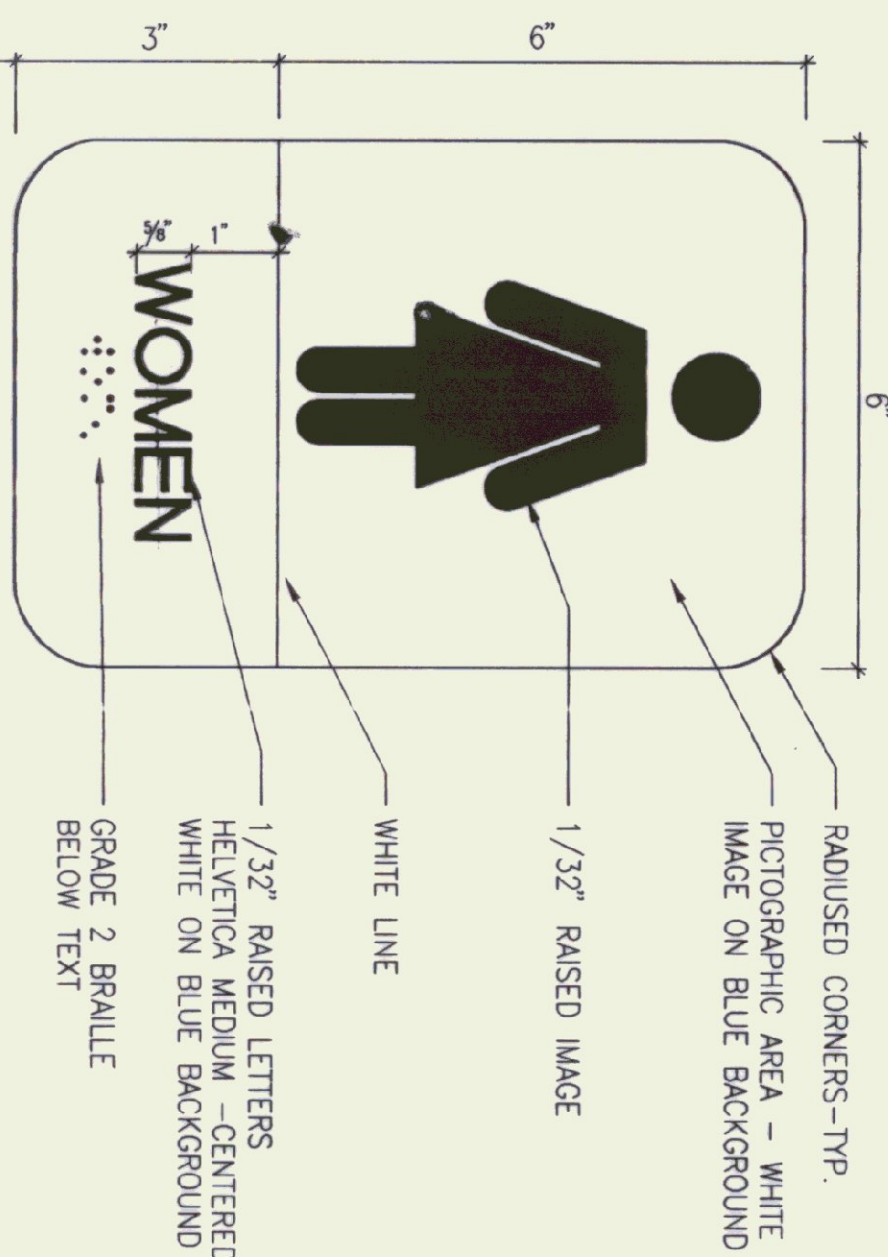
**SIGN TYPE # 4** SCALE 6"=1'-0"



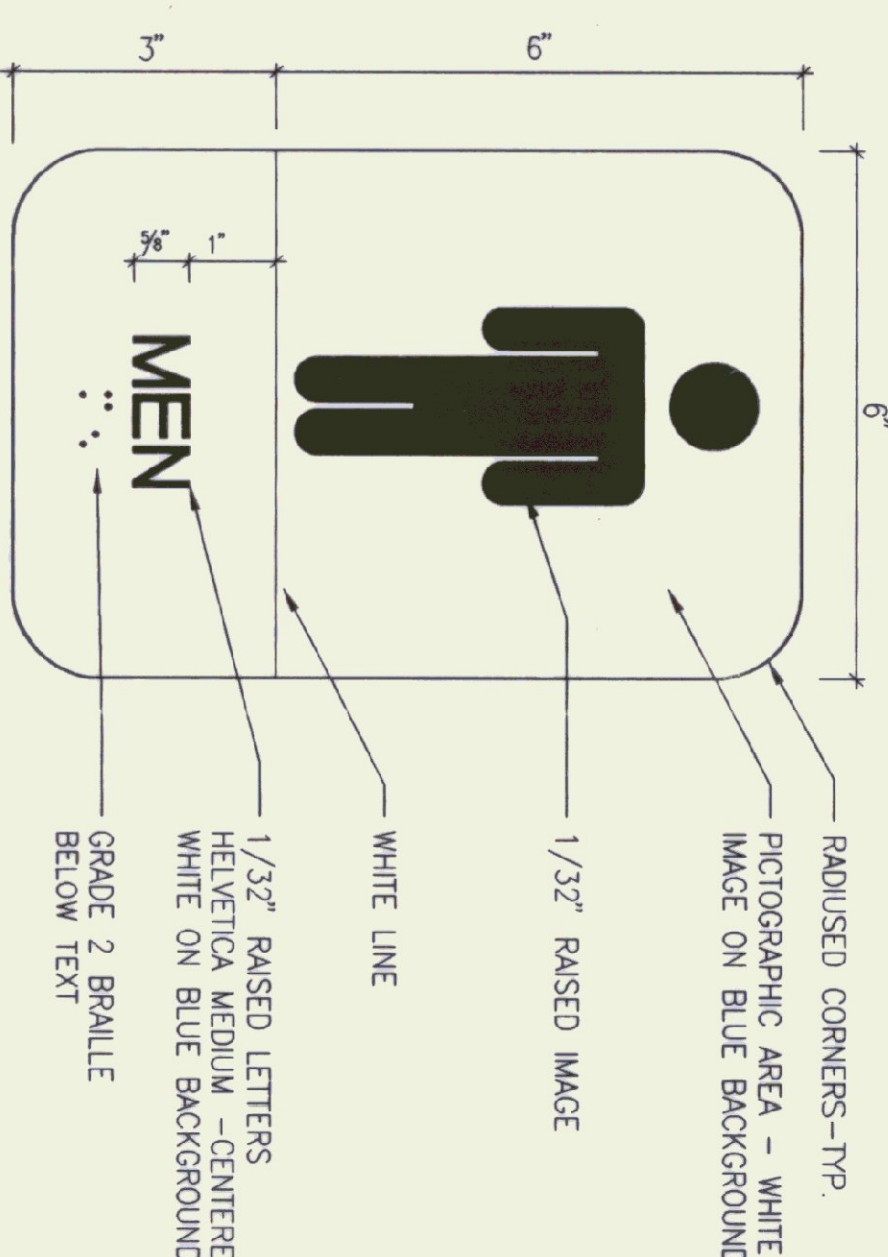
**SIGN TYPE # 5** SCALE 6"=1'-0"



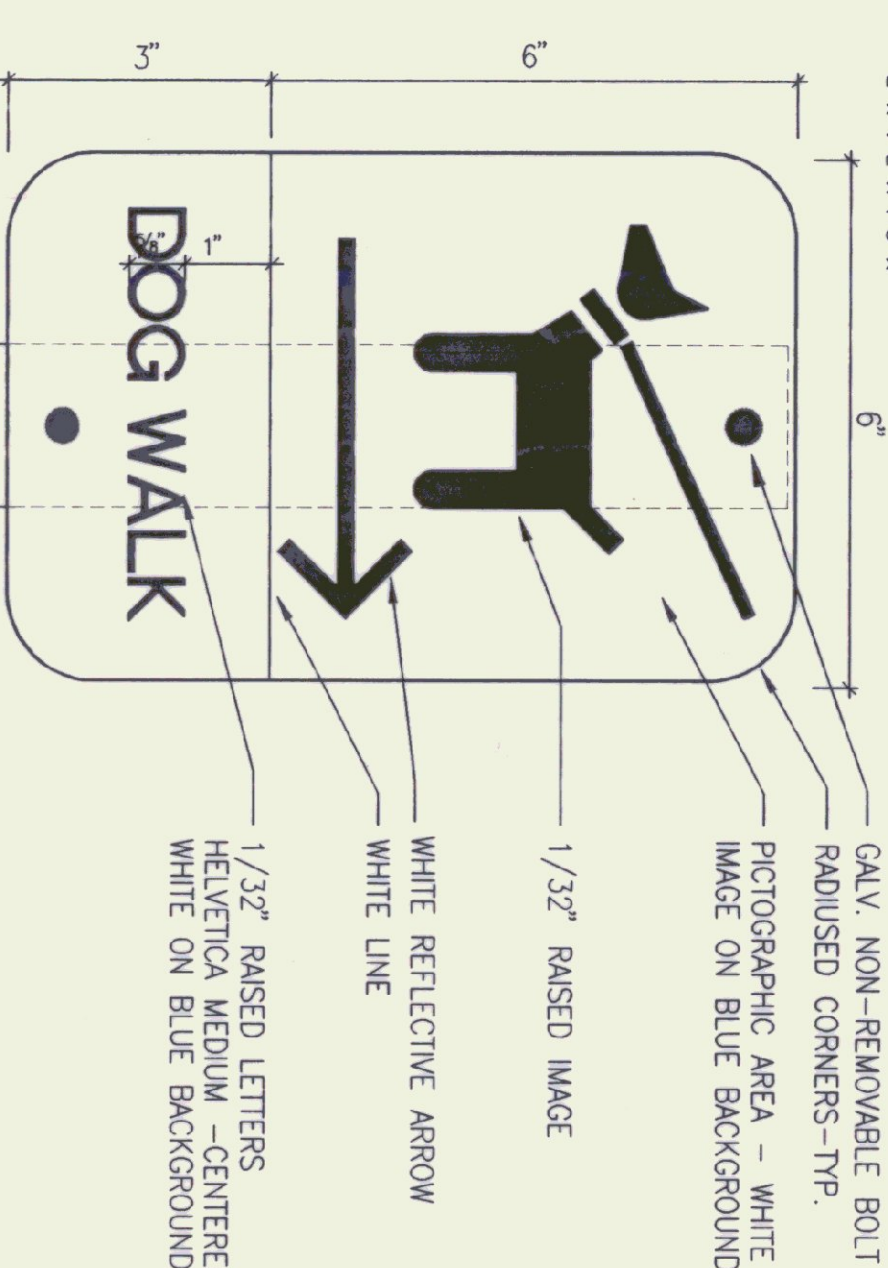
**SIGN TYPE # 6** SCALE 6"=1'-0"



**SIGN TYPE # 7** SCALE 6"=1'-0"

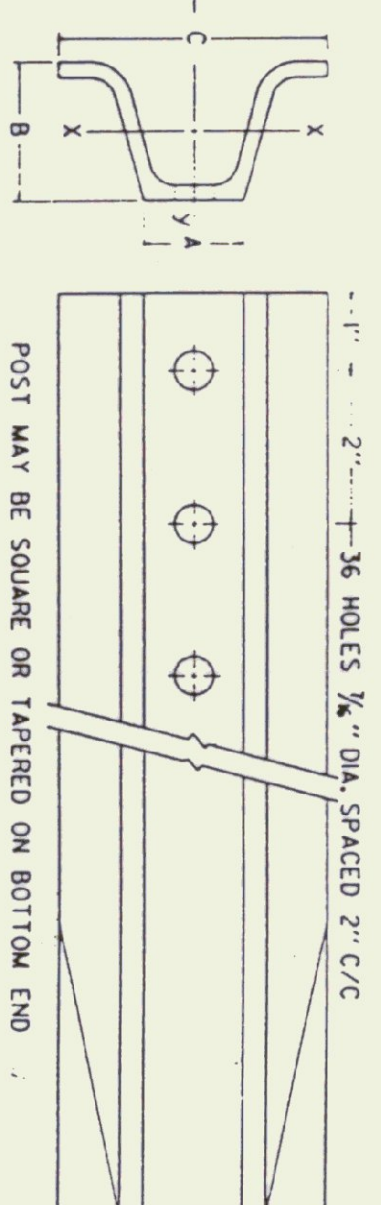
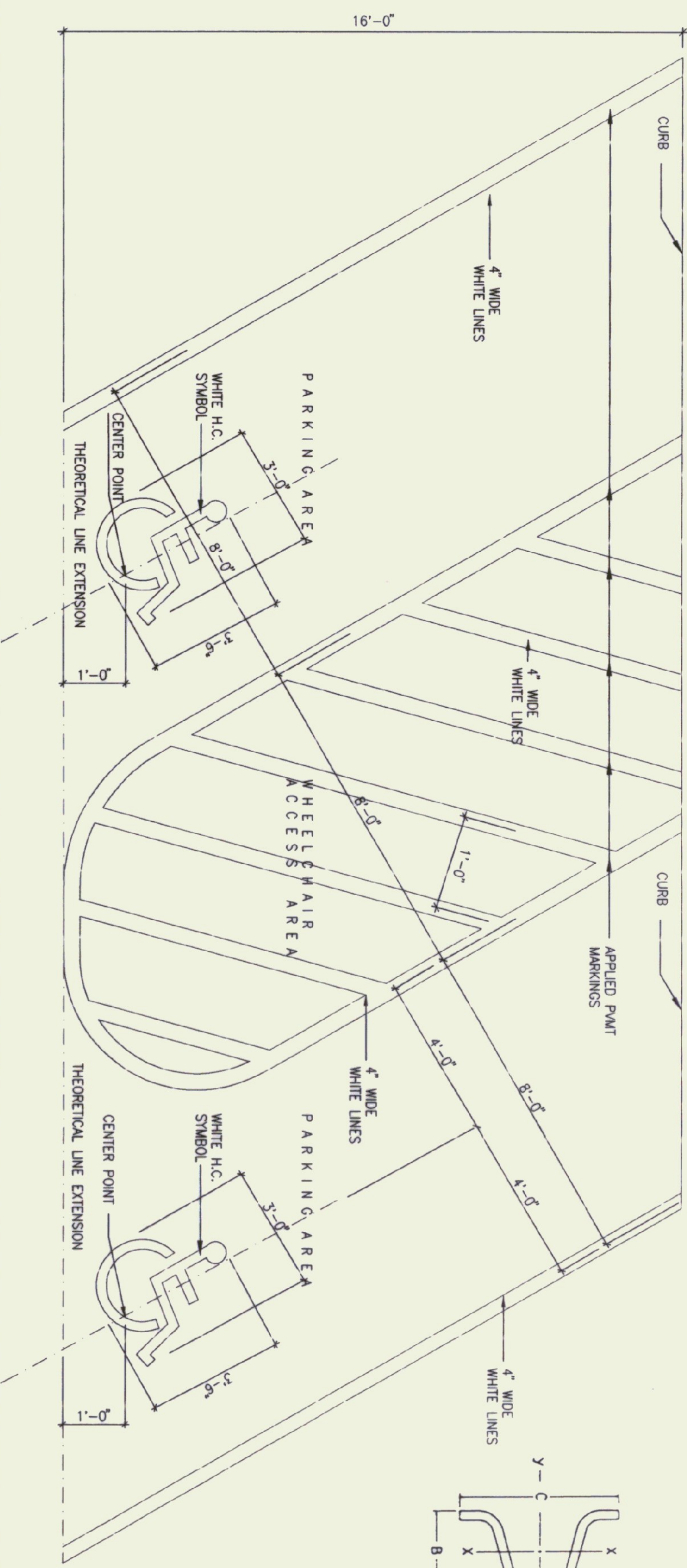


**SIGN TYPE # 8** SCALE 6"=1'-0"



**EXTERIOR PAINTED PARKING SIGNAGE**

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



POST SIZE (LB/FT.)	DIMENSIONS			SECTION MODULUS, K-X
	A	B	C	
2	1 1/2"	1 3/4"	3 1/4"	0.225 IN. <sup>3</sup>
2 1/2	1 1/2"	1 3/4"	3 1/4"	0.289 IN. <sup>3</sup>
3	1 3/4"	1 3/4"	3 1/2"	0.403 IN. <sup>3</sup>

SIMILAR DIMENSIONS ARE ACCEPTABLE, HOWEVER SECTION MODULUS VALUES SHALL NOT BE EXCEEDED.

SIGN AREA (FT <sup>2</sup> X H (FT))		DESIGN CRITERIA
POST SIZE	SV	
2 LB/FT. (TYPICAL)	32	WIND SPEED = 60 MPH (10-YEAR RETURN PERIOD) MEAN RECURRENCE INTERVAL = 10 YEARS WIND PRESSURE = 13 PSF WIND BLOWING VELOCITY = 50.000 PSF ALLOWABLE STRESS = (1.4)(0.60) Fy
2 LB/FT. (TYPICAL)	62	
2.5 LB/FT.	77	

SPECIAL 2 LB/FT. POSTS SHALL ONLY TO BE USED IN URBAN AREAS. 2.5 LB/FT. POSTS SHALL NOT BE USED FOR NEW INSTALLATIONS. INFORMATION IS PROVIDED ONLY FOR CHECKING. RETAINED POSTS.

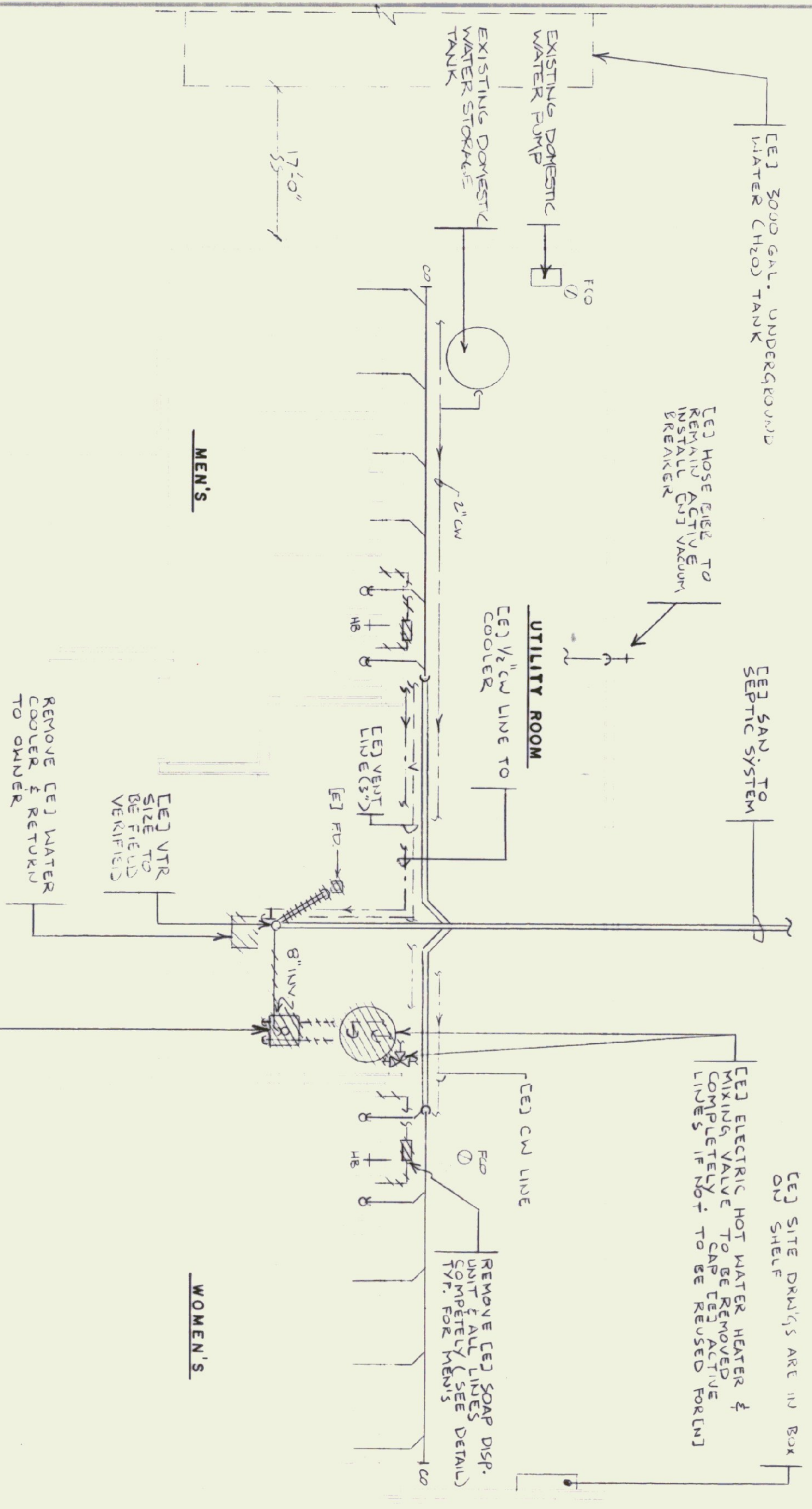
**NOTES:**

- OWNER TO FURNISH ALL SIGNS.
- CONTRACTOR TO INSTALL SIGNS WHERE INDICATED ON PLANS.
- INTERIOR SIGNS - TYPICAL INSTALLATION:  
INSTALL ON WALL AT 60" FROM FIN. FLOOR TO 6" OF SIGN WITH EDGE AT 2" (WHEN POSSIBLE) FROM DOOR FRAME AT LATCH SIDE OF DOOR.

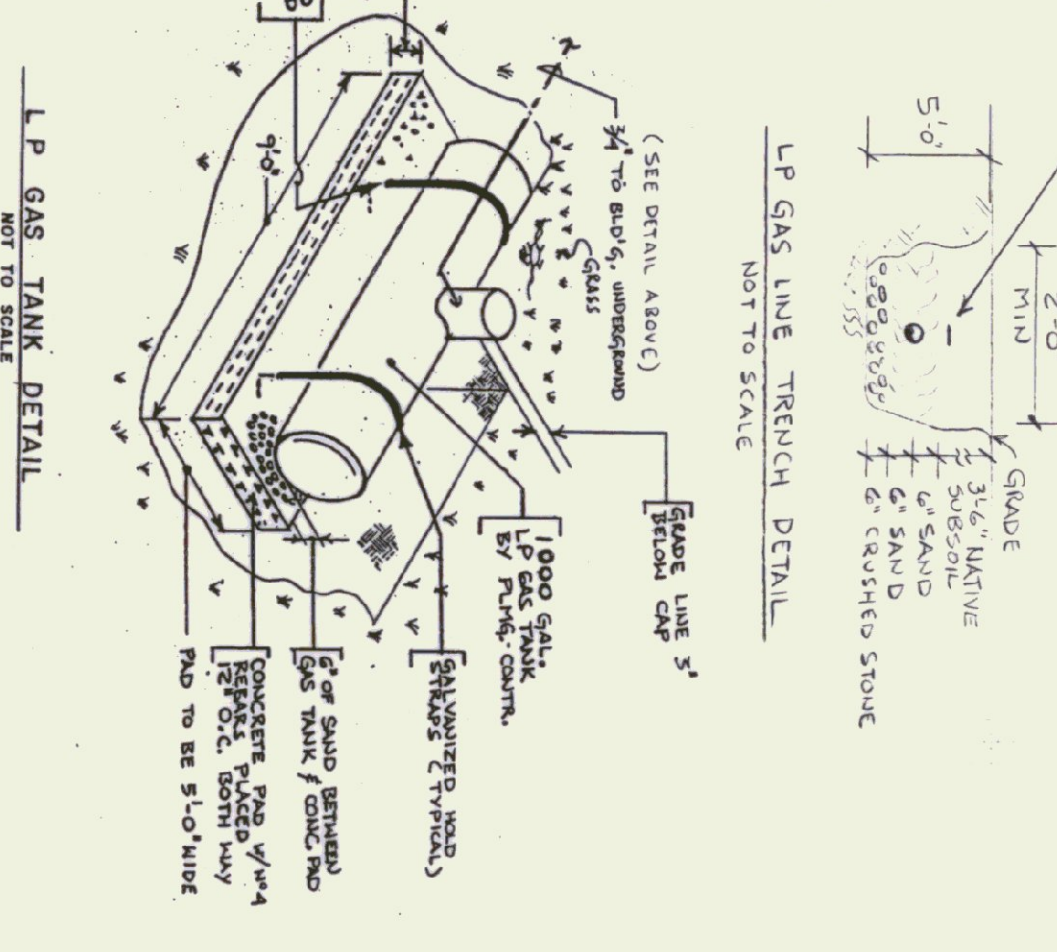
STATE OF VERMONT  
DEPARTMENT OF STATE BUILDINGS  
AGENCY OF ADMINISTRATION  
MONTELEONE VERNON

REST AREA REHABILITATION  
LYNDON I-91 SOUTHBOUND  
SIGNS

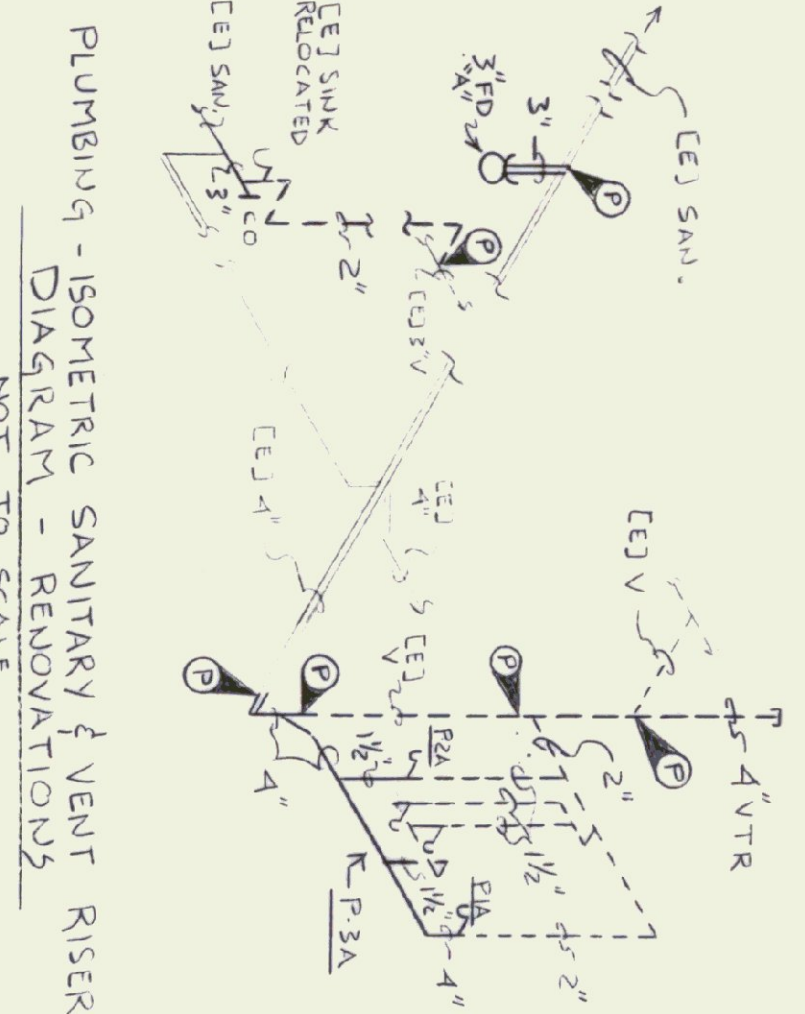
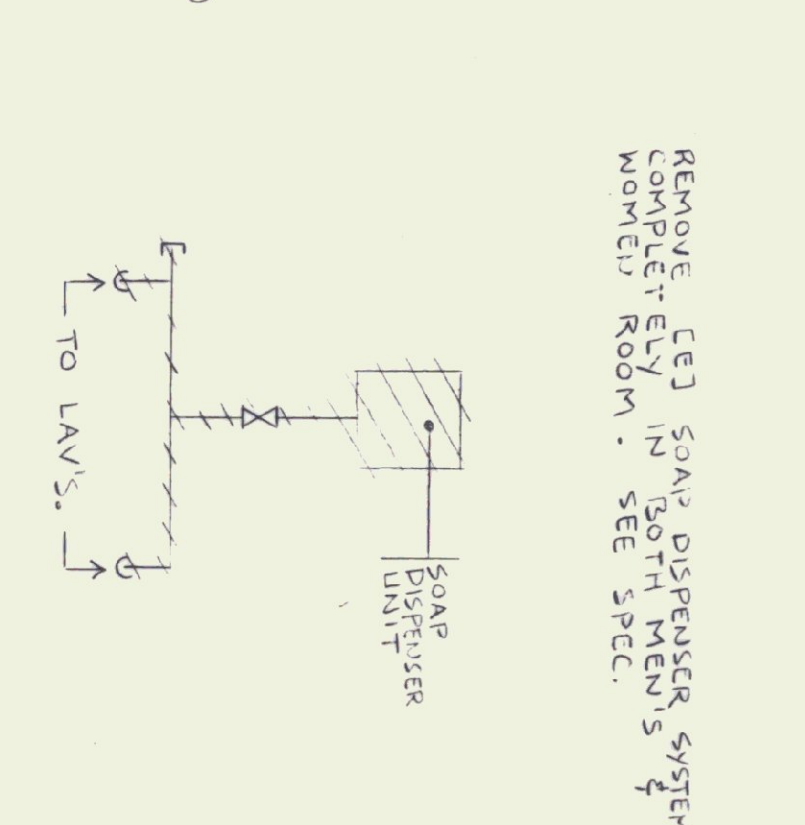
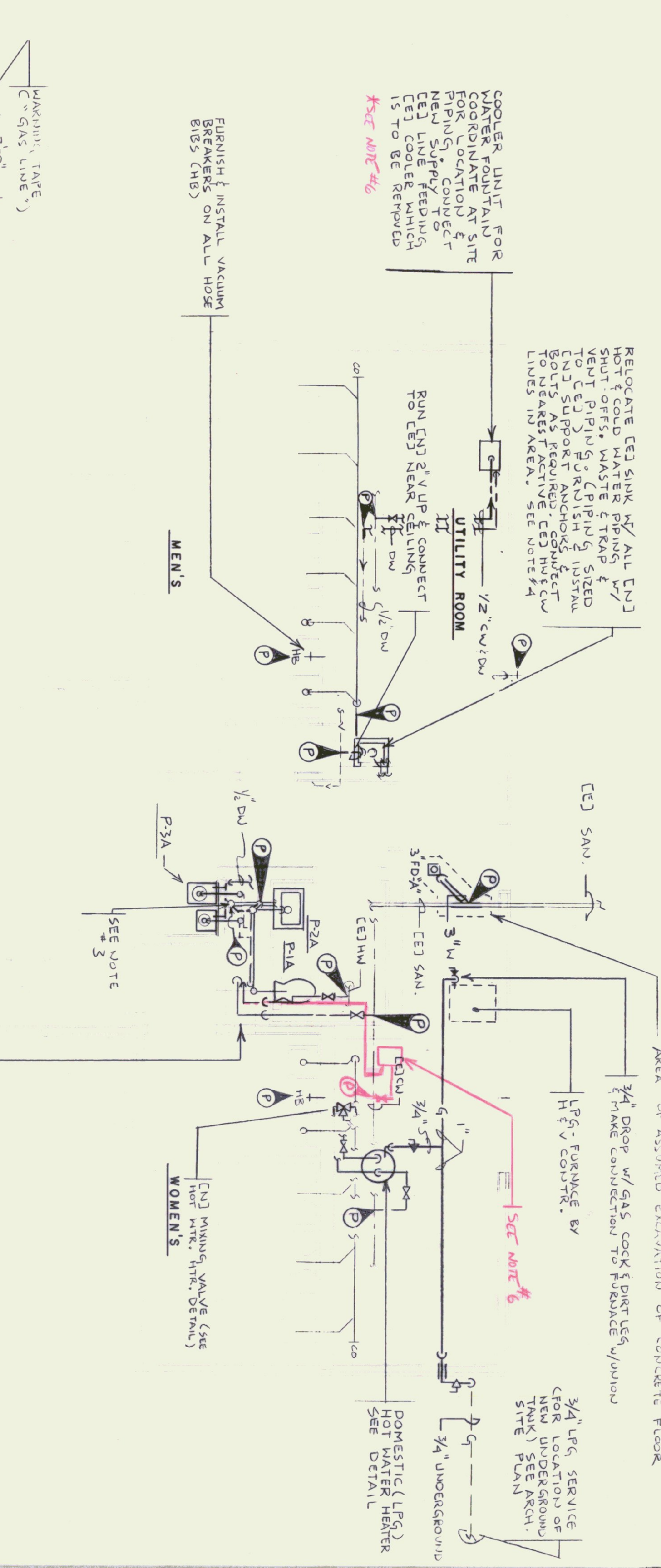
DATE:	SCALE:	REVISIONS:	DRAWING NO.:
JUNE 9, 1995	AS NOTED		09
DRAWN BY:	PROJECT NO.:		
JBA	IN-81D6 (2)		
APPROVED BY:			
			13 OF 29



**DEMOLITION - PLUMBING - EXISTING FLOOR PLAN**  
 SCALE: 1/4" = 1'-0"



**RENOVATION - PLUMBING FLOOR PLAN**  
 SCALE: 1/4" = 1'-0"



- NOTES:**
- 1) THE UNDERGROUND SANITARY SYSTEM PIPING IS ASSUMED TO BE APPROXIMATELY CORRECT. THE CONTRACTOR SHALL VERIFY ITS EXACT LOCATION PRIOR TO THE GENERAL BREAKING UP THE FLOOR.
  - 2) COORDINATE ALL WORK W/ EXISTING CONDITIONS & END WORK BY OTHER TRADES.
  - 3) EXTEND CEJ 4\"/>

**PLUMBING - ISOMETRIC SANITARY & VENT RISER DIAGRAM**  
 NOT TO SCALE

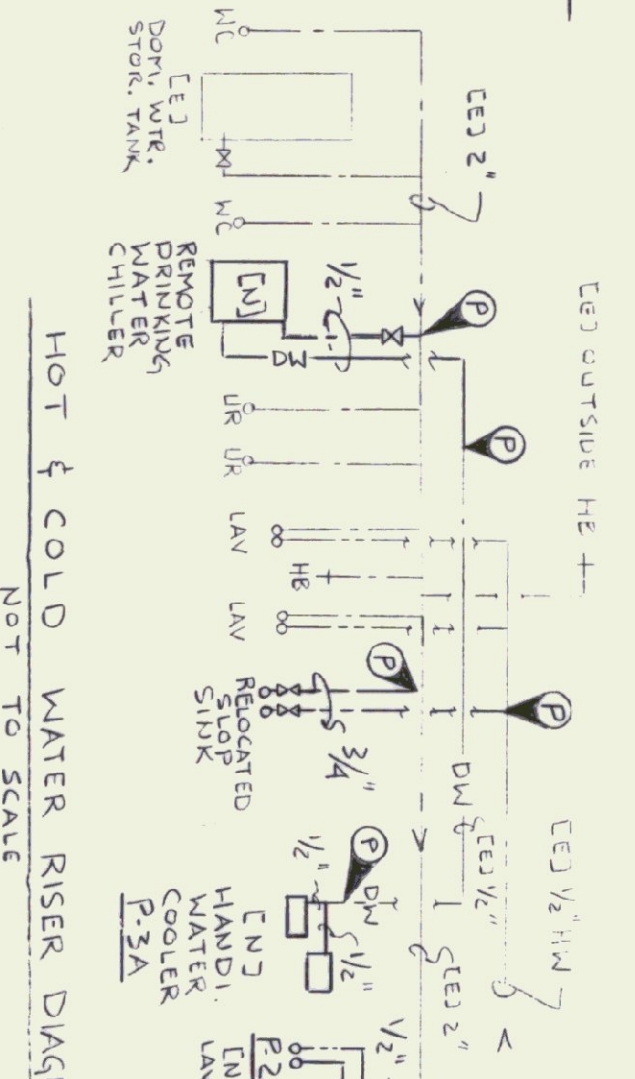
MARK	FIXTURE	DESCRIPTION
P-1A	WATER CLOSET (HANDICAP USE)	1/4" HOT WATER, 1/2" VENT
P-2A	SINK - WALL HUNG (HANDICAP USE)	1/2" HOT WATER, 1/2" VENT
P-3A	DOUBLE WATER COOLER (REG & HAND)	(2) 1/2" HOT WATER, (2) 1/2" VENT

**PLUMBING - ISOMETRIC SANITARY & VENT RISER DIAGRAM**  
 NOT TO SCALE

MARK	FIXTURE	DESCRIPTION
P-1A	WATER CLOSET (HANDICAP USE)	1/4" HOT WATER, 1/2" VENT
P-2A	SINK - WALL HUNG (HANDICAP USE)	1/2" HOT WATER, 1/2" VENT
P-3A	DOUBLE WATER COOLER (REG & HAND)	(2) 1/2" HOT WATER, (2) 1/2" VENT

**PLUMBING - ISOMETRIC SANITARY & VENT RISER DIAGRAM**  
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MARK	FIXTURE	DESCRIPTION
P-1A	WATER CLOSET (HANDICAP USE)	1/4" HOT WATER, 1/2" VENT
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STATE OF VERMONT  
 DEPARTMENT OF STATE BUILDINGS  
 AGENCY OF ADMINISTRATION  
 KATHLEEN YEMMON

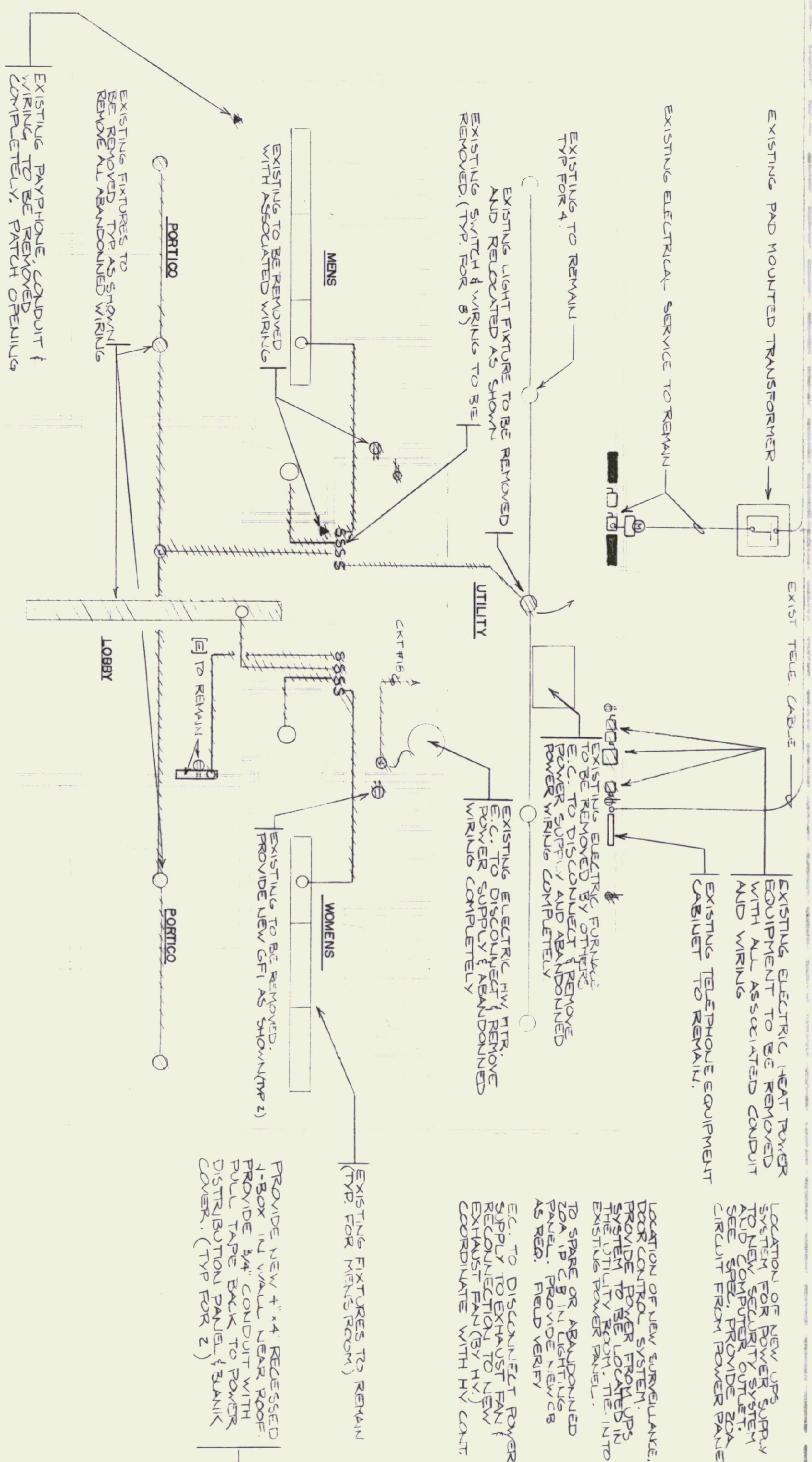
BEST AREA REHABILITATION 174 BLDG (2)  
 LYNDON I-91 SOUTHBOUND

PLUMBING - DEMOLITION & RENOVATION  
 FLOOR PLANS, SCHEDULE, DETAIL & LEGEND

DATE: 6-9-95  
 SCALE: 1/4" = 1'-0"  
 DRAWING NO: P-1  
 SHEET: 14 OF 29

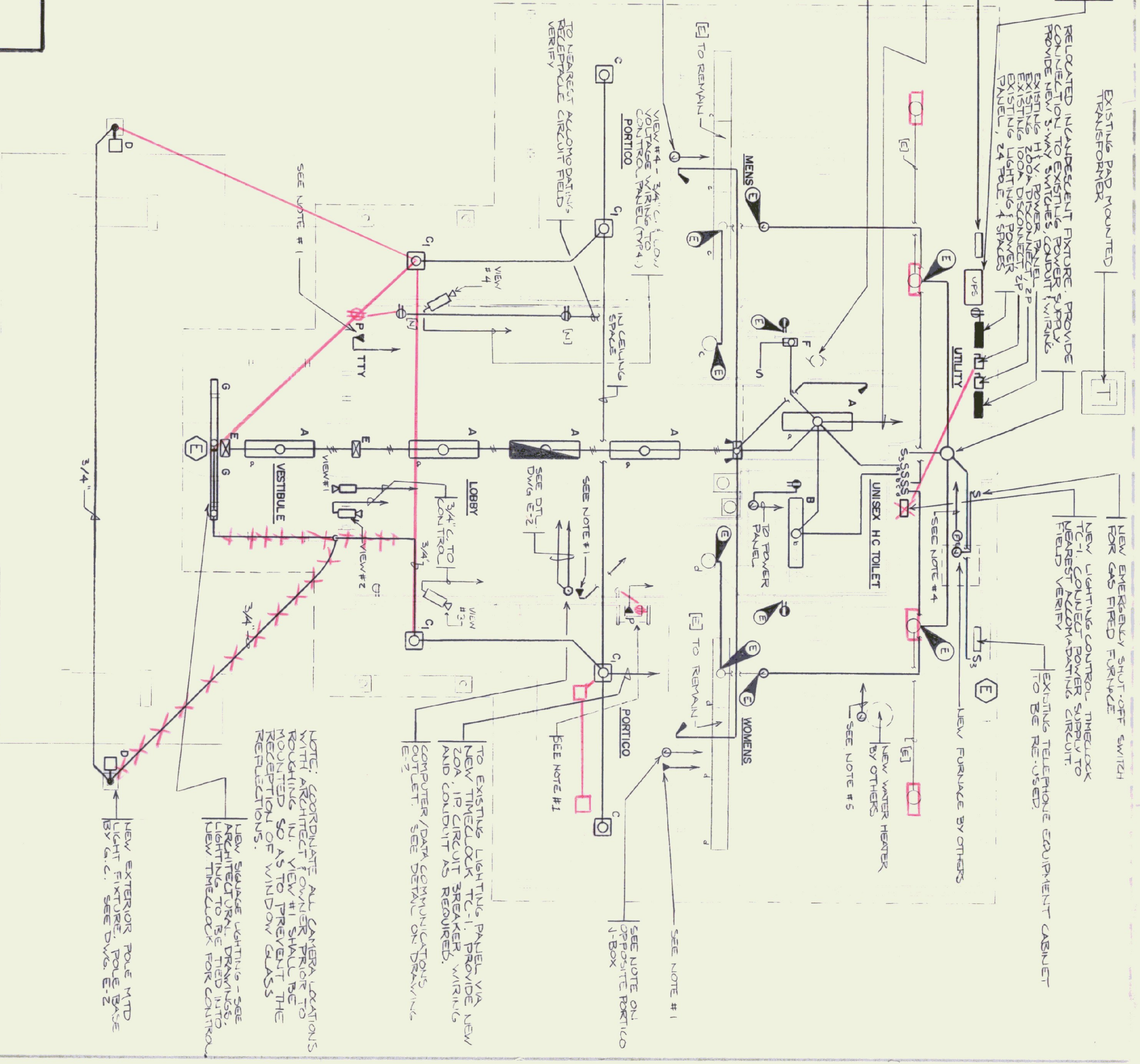
APPROVED BY: KA, GN  
 DRAWING NAME: PLUMBING





ELECTRICAL FLOOR PLAN - EXISTING CONDITIONS  
SCALE: 1/4" = 1'-0"

- NOTES:
1. THE ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE OWNER BEFORE INSTALLING TELEPHONE OUTLET BOXES AND CONDUIT TO THE TELEPHONE ROOM. THESE HEIGHTS MAY VARY DEPENDING ON THE EQUIPMENT PURCHASED BY THE OWNER AND THE INDIVIDUAL TYPE AND ADA REQUIREMENTS OF EACH PHONE LOCATION. THE OWNER SHALL INFORM THE ELECTRICAL CONTRACTOR IN A TIMELY MANNER TO AVOID ANY WORK STOPPAGES OR DELAYS AS TO THE EXACT CHARACTERISTICS OF THE EQUIPMENT TO BE USED.
  2. THE ELECTRICAL CONTRACTOR SHALL DISCONNECT ONE ELECTRIC BASE-BOARD HEATER IN THE LOBBY AREA.
  3. THE ELECTRICAL CONTRACTOR SHALL REMOVE ALL ABANDONED WIRING AND CONDUIT TO THESE UNITS WHEREVER POSSIBLE. FIELD VERIFY. SEE DRAWING HV-1 FOR ELECTRIC HEATER LOCATION. ELECTRIC HEAT IN EXISTING MEN'S AND WOMEN'S ROOMS TO REMAIN IN PLACE.
  4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE REMOVAL OF THE DISCONNECTED ELECTRIC BASEBOARD RADIATION.
  5. ALL NEW AND RELOCATED CONDUIT AND WIRING SHALL BE RUN CONCEALED, WHERE POSSIBLE, COORDINATE WITH THE ARCHITECT AND ENGINEER BEFORE INSTALLATION.
  6. PROVIDE POWER WIRING, CONDUIT AND CONNECTION TO NEW GAS FIRED FURNACE. PROVIDE NEW 20AMP SINGLE POLE BREAKER IN PANEL IN ABANDONED ELECTRIC FURNACE BREAKER POSITION. PROVIDE WIRING AND CONDUIT TO SERVICE NEW FURNACE, CONTROL POWER SUPPLY, AND NEW WALL MOUNTED TEMPERATURE CONTROL TIMECLOCK. POWER WIRING ONLY. ALL TEMPERATURE CONTROL WIRING BY HV CONTRACTOR. SEE SPEC. PROVIDE POWER WIRING, CONDUIT AND CONNECTION TO NEW GAS FIRED HOT WATER HEATER. PROVIDE NEW 20AMP SINGLE POLE BREAKER IN PANEL IN ABANDONED ELECTRIC FURNACE BREAKER POSITION. SEE SPEC. THE ELECTRICAL CONTRACTOR SHALL VERIFY THE LOCATION OF THE EXISTING ELECTRICAL CONTROL PANELS AND LIGHTING PANELS AS TO THE CIRCUIT BREAKER NUMBERS AND FILL OUT A NEW, ACCURATE PANEL SCHEDULE FOR EACH PANEL WHICH HAS BEEN AFFECTED BY THE WORK UNDER THIS CONTRACT.

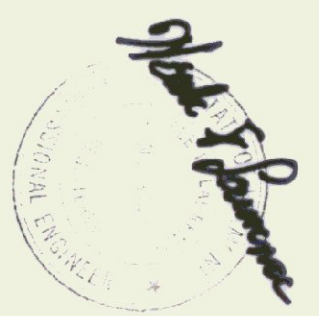


ELECTRICAL FLOOR PLAN - RENOVATIONS  
SCALE: 1/4" = 1'-0"

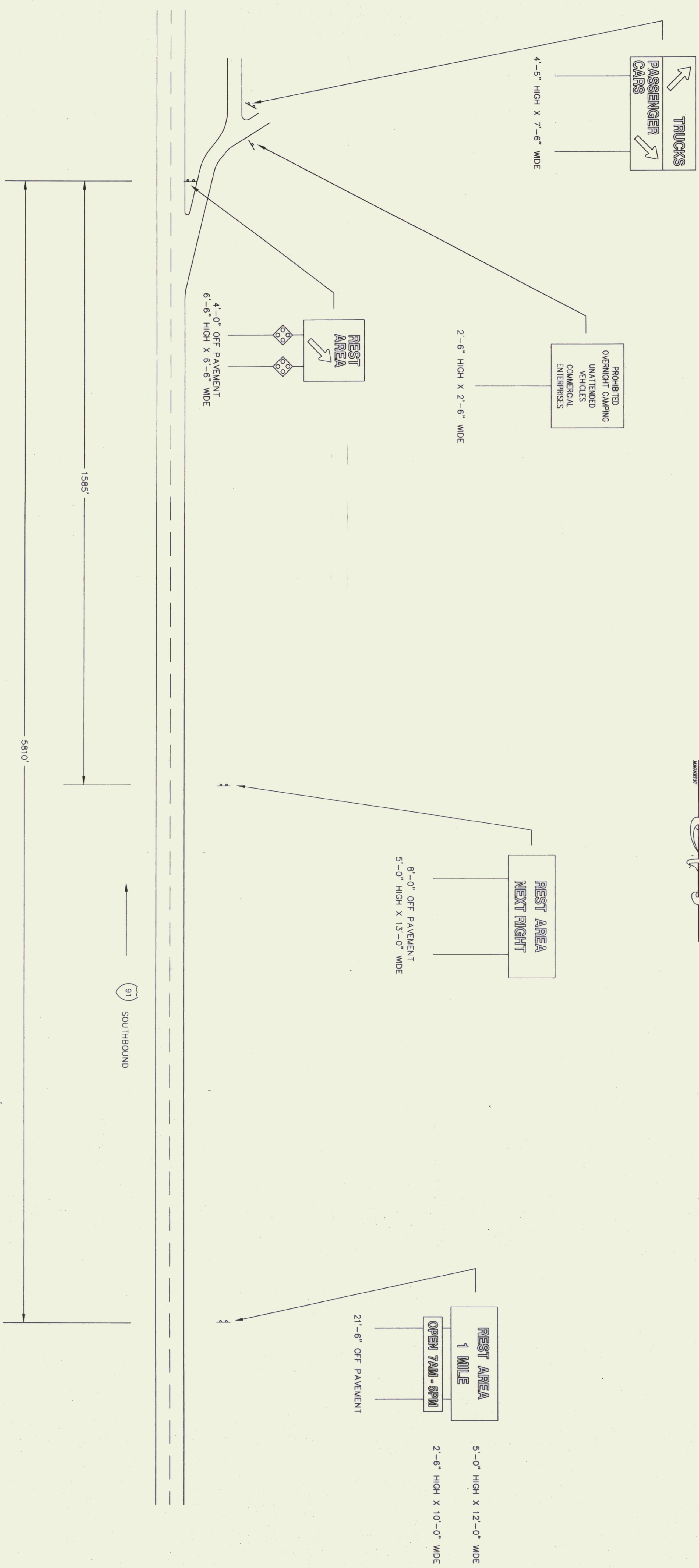
STATE OF VERMONT  
DEPARTMENT OF STATE BUILDINGS  
AGENCY OF ADMINISTRATION  
MONTPELIER, VERMONT

REST AREA REHABILITATION J-1-B10612  
LYNDON I-91 SOUTHBOUND  
ELECTRICAL - FLOOR PLAN - EXISTING  
CONDITIONS & RENOVATIONS

DATE: 6-9-95  
SCALE: 1/4" = 1'-0"  
DRAWN BY: GN  
APPROVED BY: GN  
DRAWING NO: E-1  
SHEET: 16 OF 29

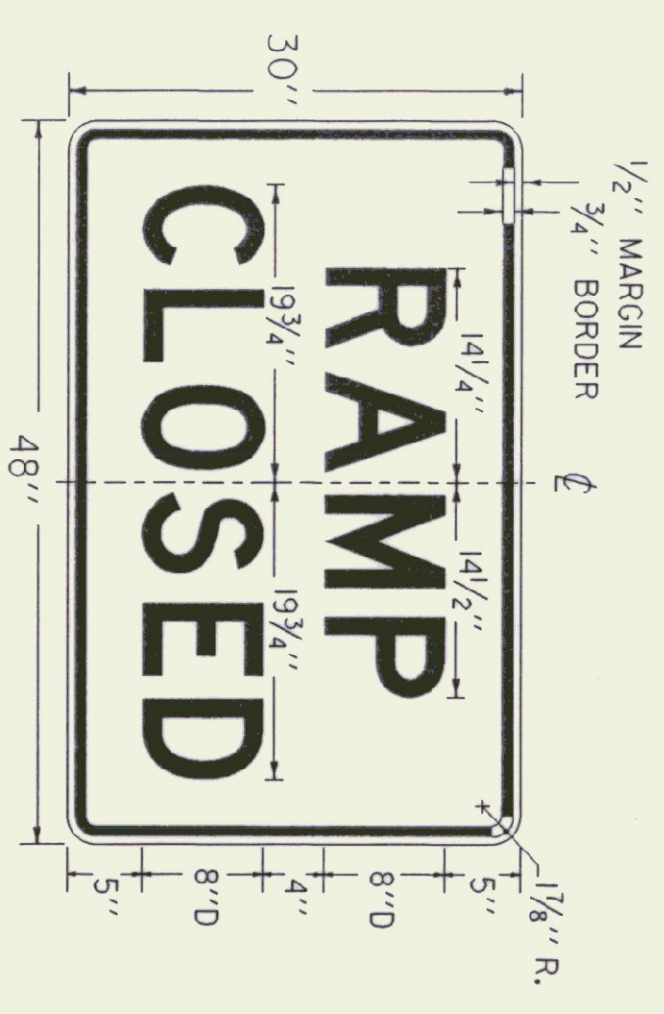
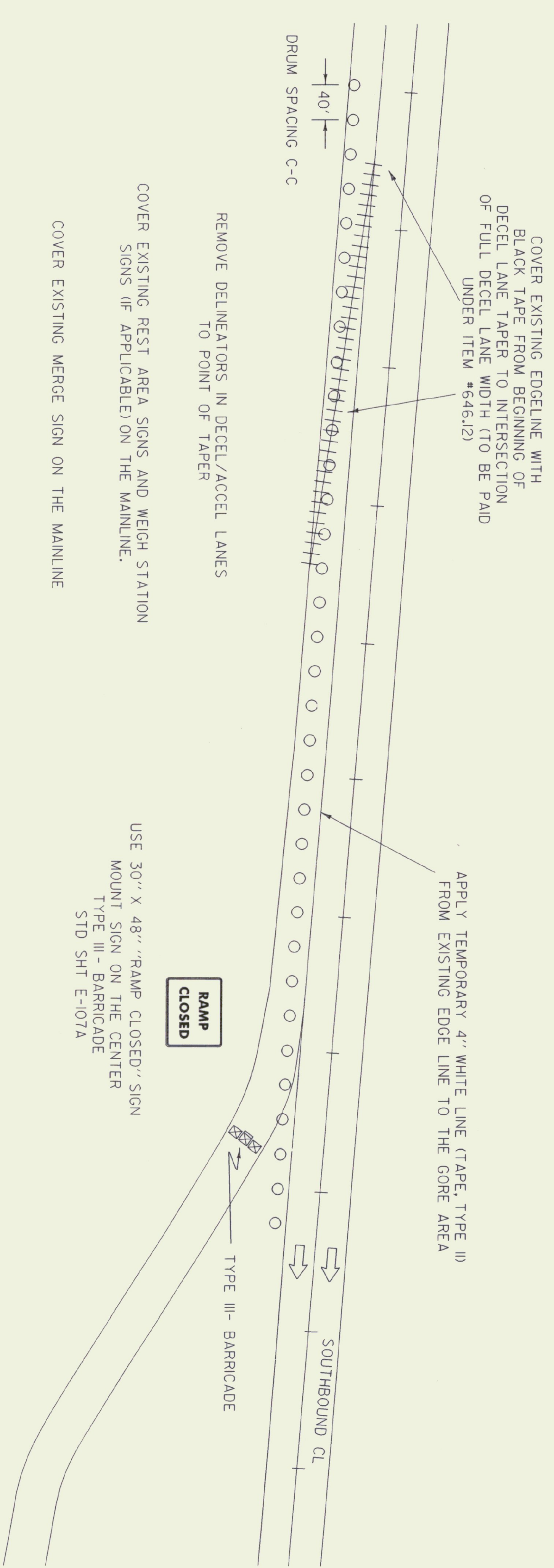






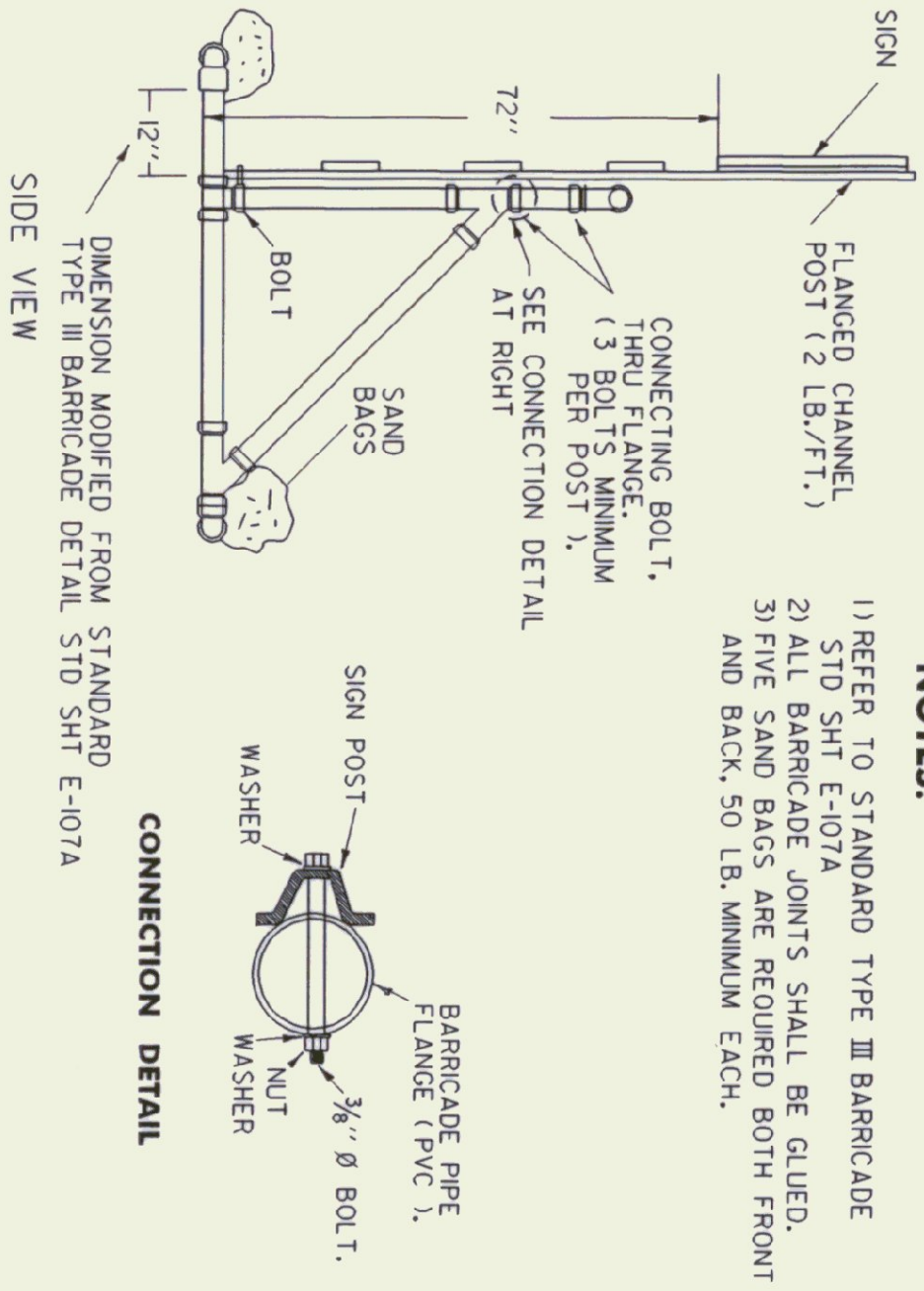
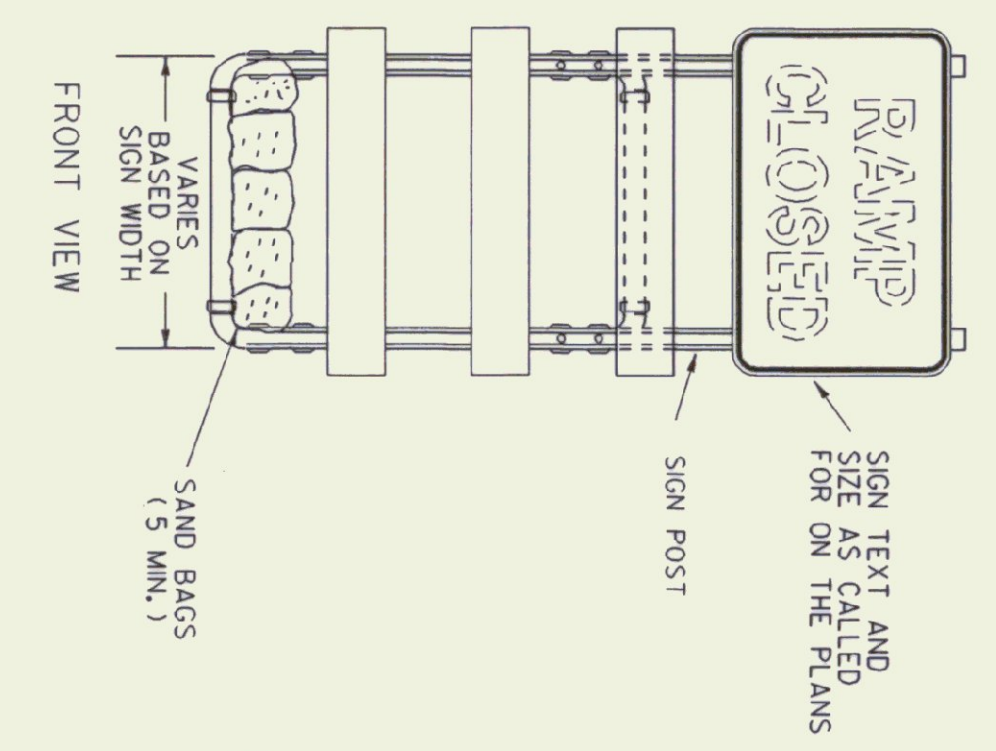
I-91 SIGNAGE SCHEMATIC  
NOT TO SCALE

NOTE:  
OFFSETS ARE FROM EDGE OF PAVED SHOULDER  
TO NEAR EDGE OF SIGN.  
THOSE SIGNS TO BE COVERED DURING CONSTRUCTION  
AT THE DISCRETION OF THE RESIDENT ENGINEER.



COLORS:  
BLACK TEXT AND BORDER  
WHITE REFLECTORIZED BACKGROUND

SEE STANDARD SHEET E-100 FOR NOTES AND TEXT DETAILS  
SIGN DETAILS INDICATE THE APPROPRIATE COLOR.



- NOTES:**
- 1) REFER TO STANDARD TYPE III BARRICADE STD SHT E-107A
  - 2) ALL BARRICADE JOINTS SHALL BE GLUED.
  - 3) FIVE SAND BAGS ARE REQUIRED BOTH FRONT AND BACK, 50 LB. MINIMUM EACH.

**LEGEND**

- - CHANNELIZING DRUM
- ☒ - TYPE III BARRICADES
- ⇨ - INDICATES TRAFFIC DIRECTION
- +++ - REMOVAL OF EXISTING PAVEMENT MARKINGS

**NTS**

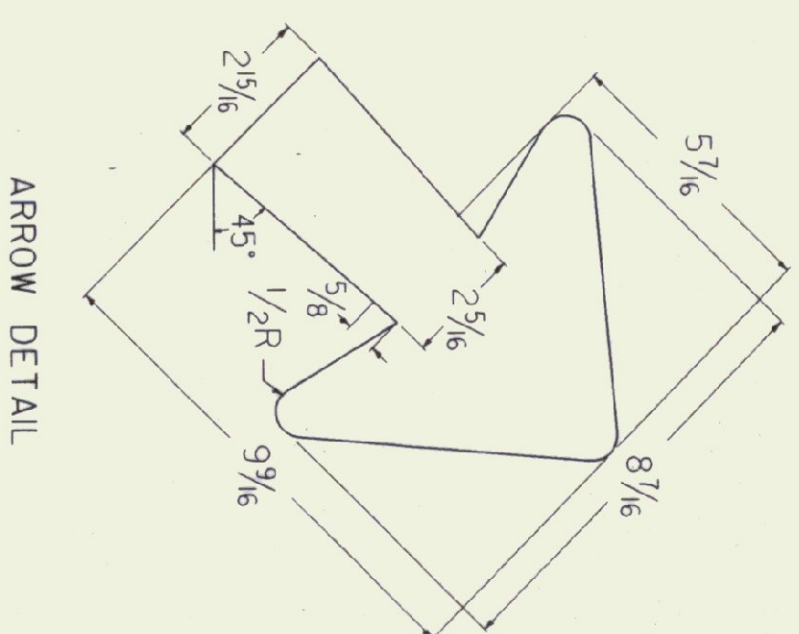
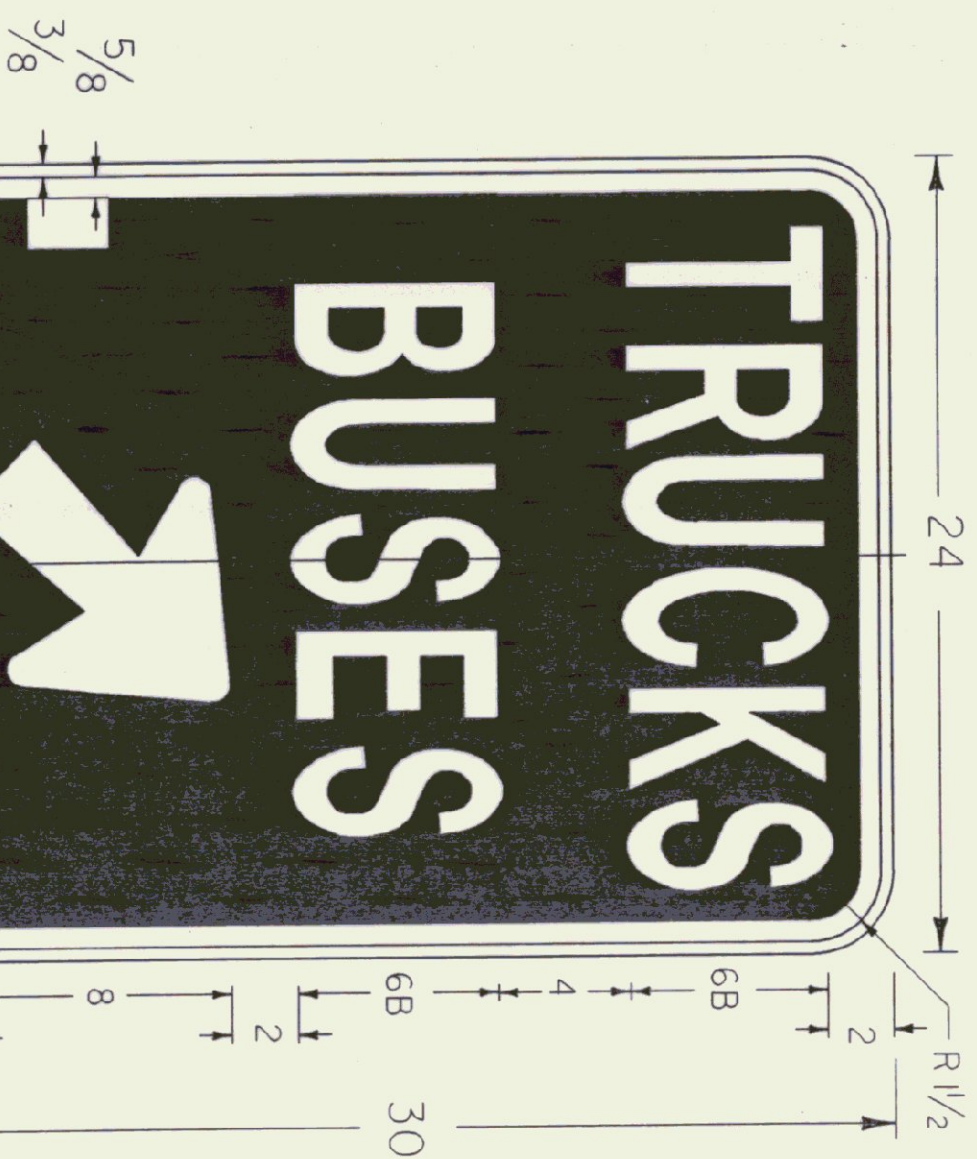
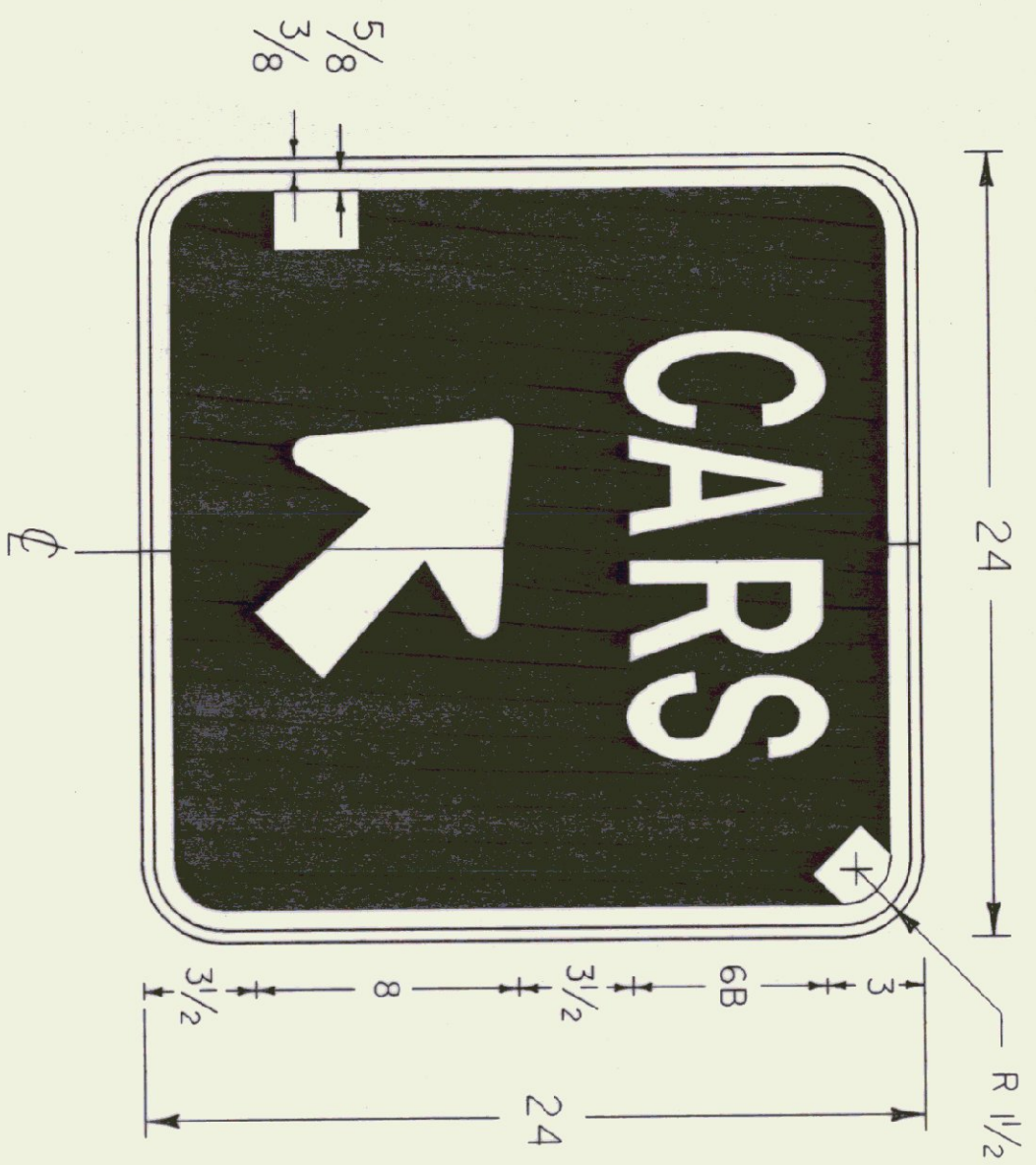
TEMPORARY  
RAMP CLOSURE PACKAGE  
FOR REST AREA

PREPARED BY: LOS DATE: 9/2/95  
CHECKED BY: DAB DATE: \_\_\_\_\_  
DESIGN SUPERVISOR: \_\_\_\_\_  
PROJ. LEADER: IM - BLDG(72)

SHEET 19 OF 20 SHEETS

enr\_g1\_1.i  
/traf/enr\_g1/enr\_g1.dgn





ARROW DETAIL

COLORS  
LEGEND & BORDER - WHITE (REFL.)  
BACKGROUND - BLUE

GENERAL:  
ALL DIMENSIONS IN INCHES.

COLORS:  
THE SIGNS SHOWN ON THIS SHEET SHALL BE AS DETAILED FOR EACH SIGN. THE COLORS SHALL CONFORM WITH THE COLORS ADOPTED BY THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION, FEDERAL HIGHWAY ADMINISTRATION.

MATERIALS:  
THE SIGN BASE MATERIALS USED FOR SIGNS SHOWN ON THIS SHEET MAY BE ANY OF THE FOLLOWING MINIMUM THICKNESSES NOTED.

FLAT SHEET ALUMINUM	24" X 24"
HIGH DENSITY OVERLAD PLYWOOD	24" X 30"
GALVANIZED FLAT SHEET STEEL	0.080"
	1/2"
	16 GAGE

ENCAPSULATED LENS REFLECTIVE SHEETING SHALL BE USED FOR THE SIGN BACKGROUND WHERE NOTED.

THE REFLECTIVE MATERIAL SHALL BE AASHTO TYPE II OR III WHITE REFLECTIVE SHEETING APPLIED TO THE ENTIRE BACKGROUND OF THE SIGN. THE TEXT OF THE SIGNS MAY BE LETTERING FILM, SILK SCREENED OR HANDPAINTED. HAND PAINTING MUST BE COMPARABLE IN QUALITY TO THE RESULTS OBTAINED BY SILK SCREENING.

TEXT DESIGN:

LETTERS, DIGITS, ARROWS, SPACINGS, AND TEXT DIMENSIONS SHALL CONFORM WITH THE STANDARD ALPHABETS AND DESIGNS PRESCRIBED IN THE "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES".

SPECIFICATIONS:

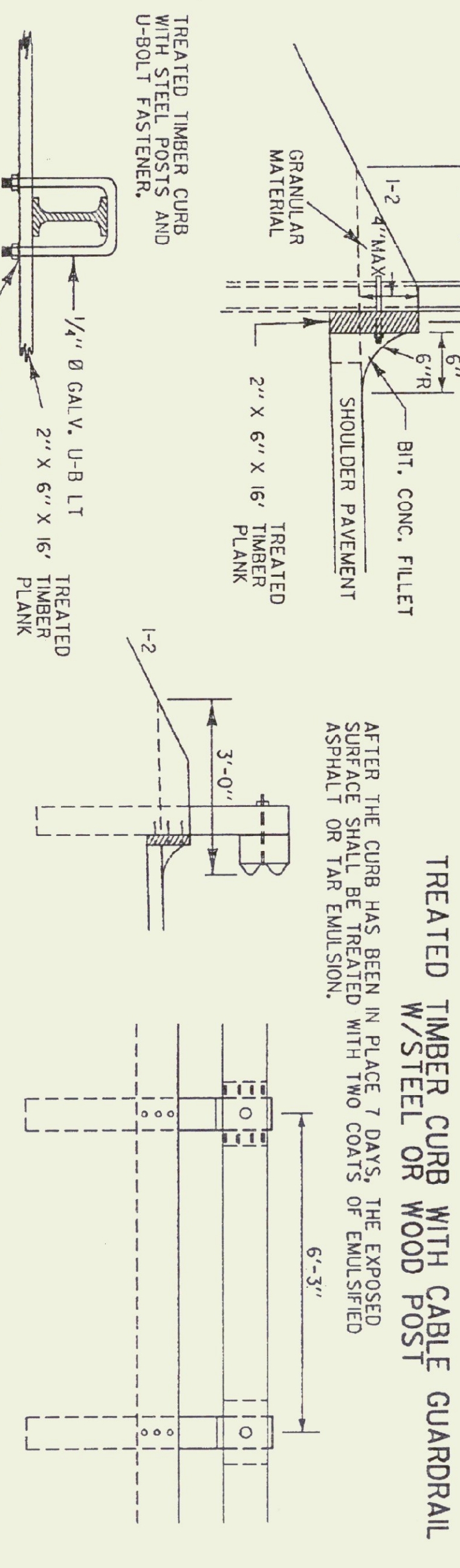
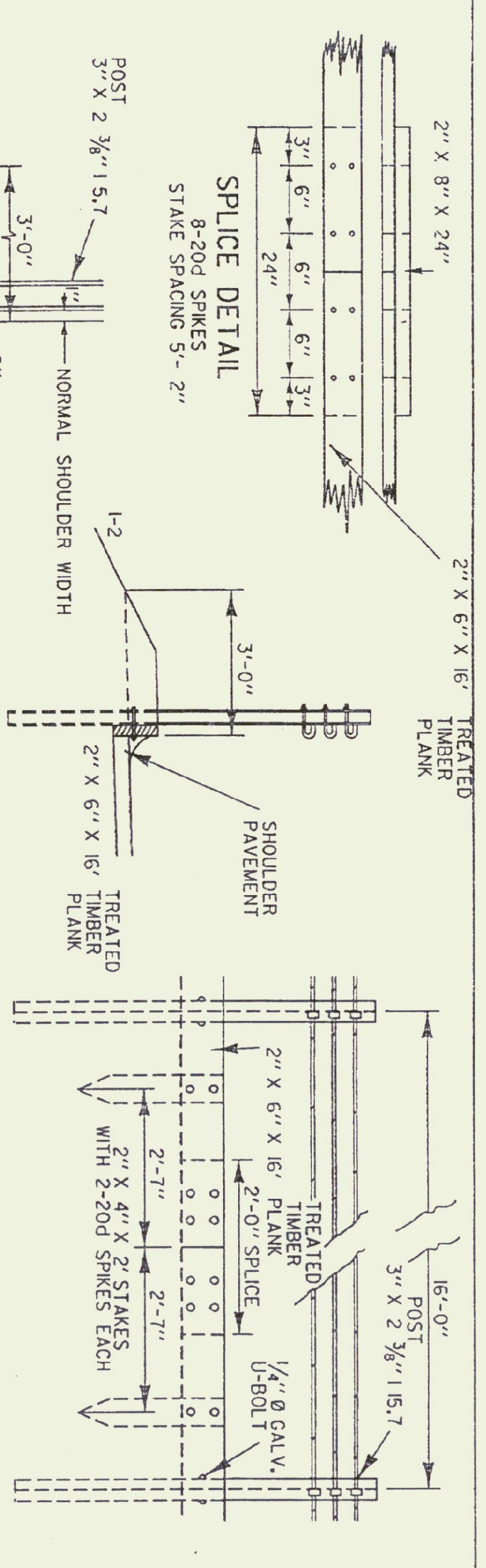
THE SIGNS SHALL MEET THE VERMONT STANDARD SPECIFICATIONS FOR "TRAFFIC SIGNS".

**SIGN DETAILS**  
**FOR LYNDON REST AREA**

PREPARED BY LOS DATE 9/95  
CHECKED BY DLP DATE       
DESIGN SUPERVISOR LYNDON  
PROJ. IM-Bldg(2)

lyndon3.1  
/traf/enrg1/lyndon.dgn

SHEET 21 OF 29 SHEETS

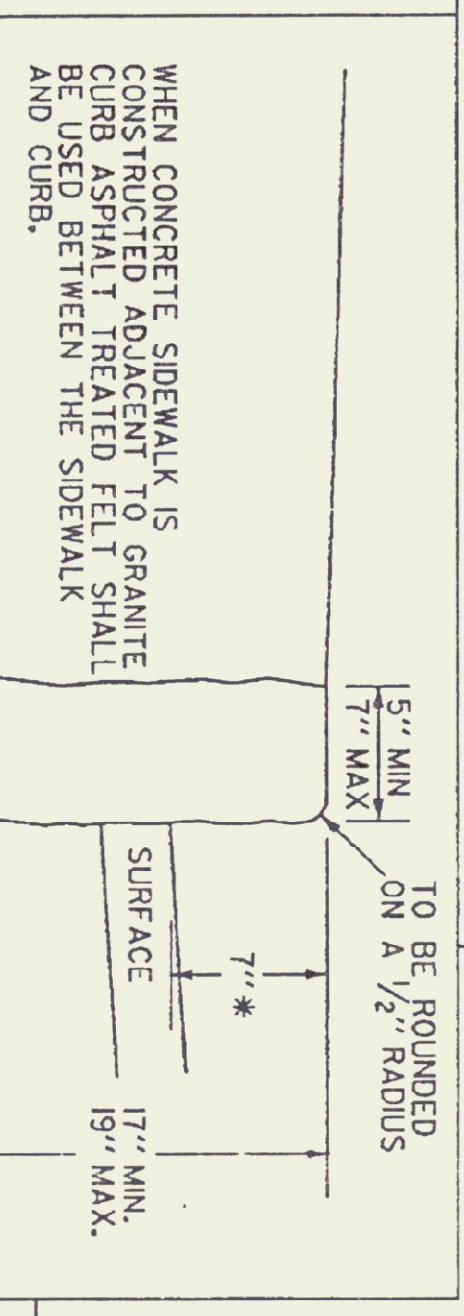
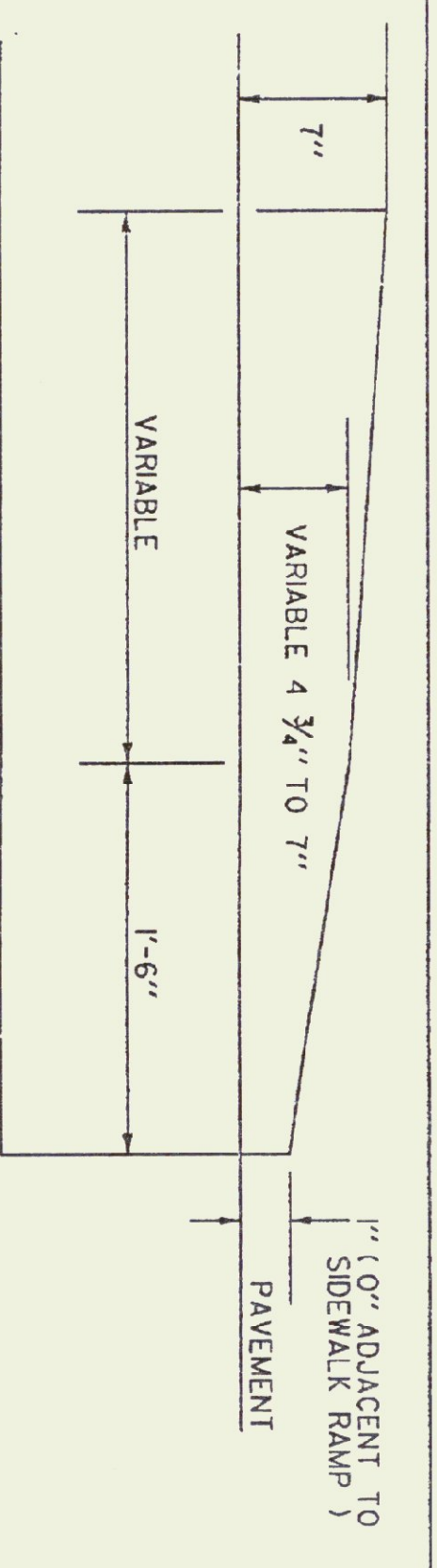


U-BOLT SHAPED TO FIT ANY DESIGNATED STEEL POST

1/4" Ø GALV. U-BOLT

2" x 6" x 16' TREATED TIMBER PLANK

STD. WASHER AND NUT

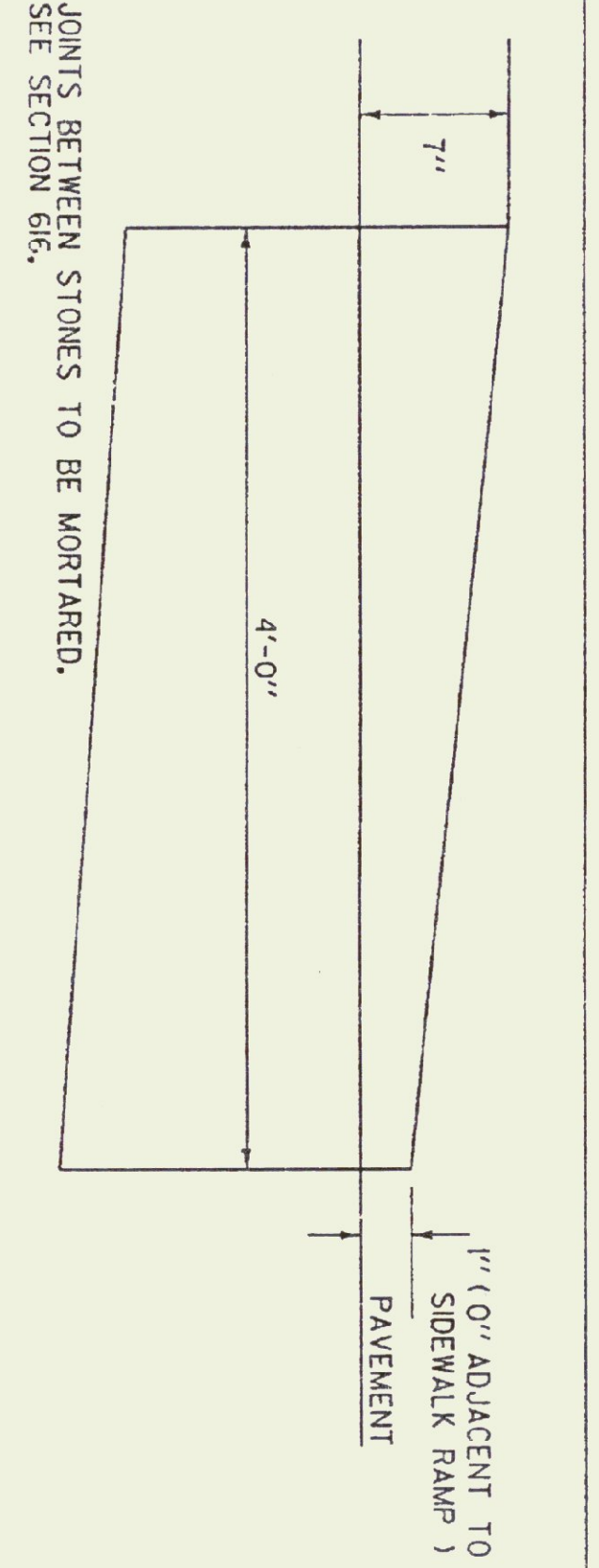


DETAIL OF GRANITE CURB END FOR VERTICAL GRANITE CURB

7"

4'-0"

1" (0' ADJACENT TO SIDEWALK RAMP) PAVEMENT



REVISIONS AND CORRECTIONS

JUNE 1992 - REISSUED, WITHOUT CHANGE, UNDER NEW SIGNATURES

NOV 16, 1992 - CHANGED 6" CURB TO 4"

APPROVED

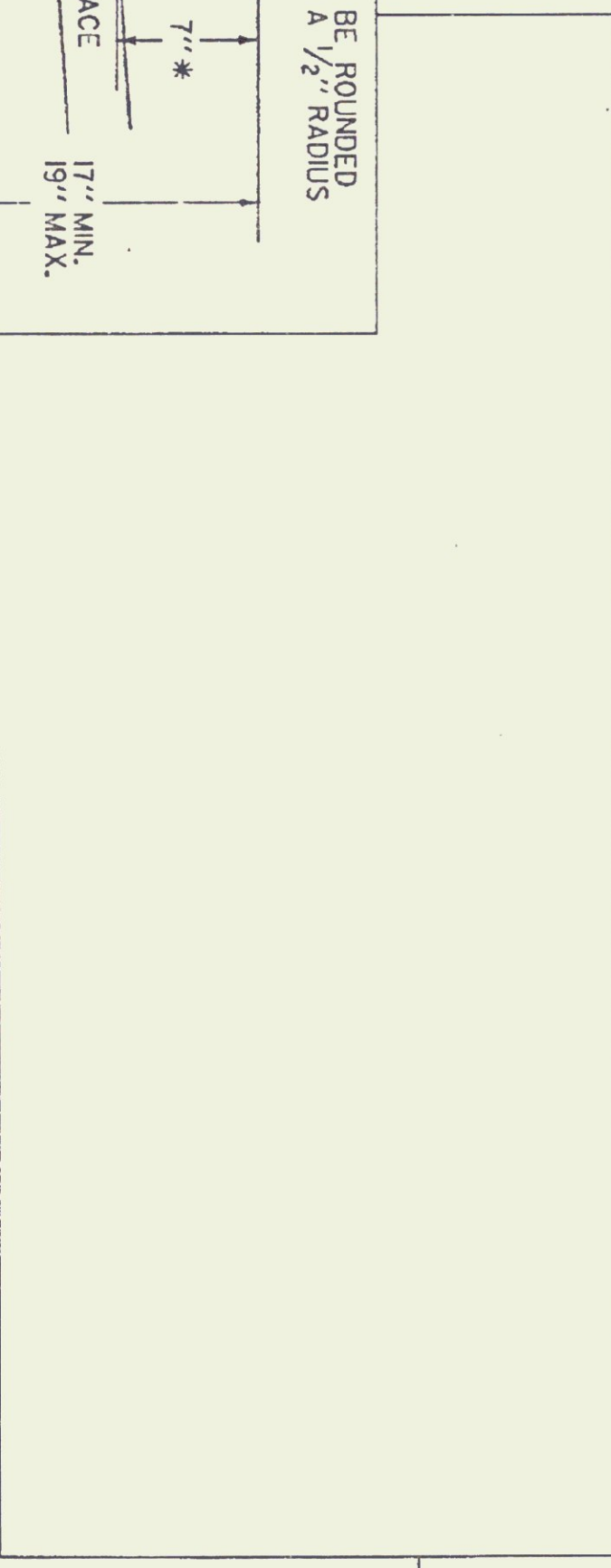
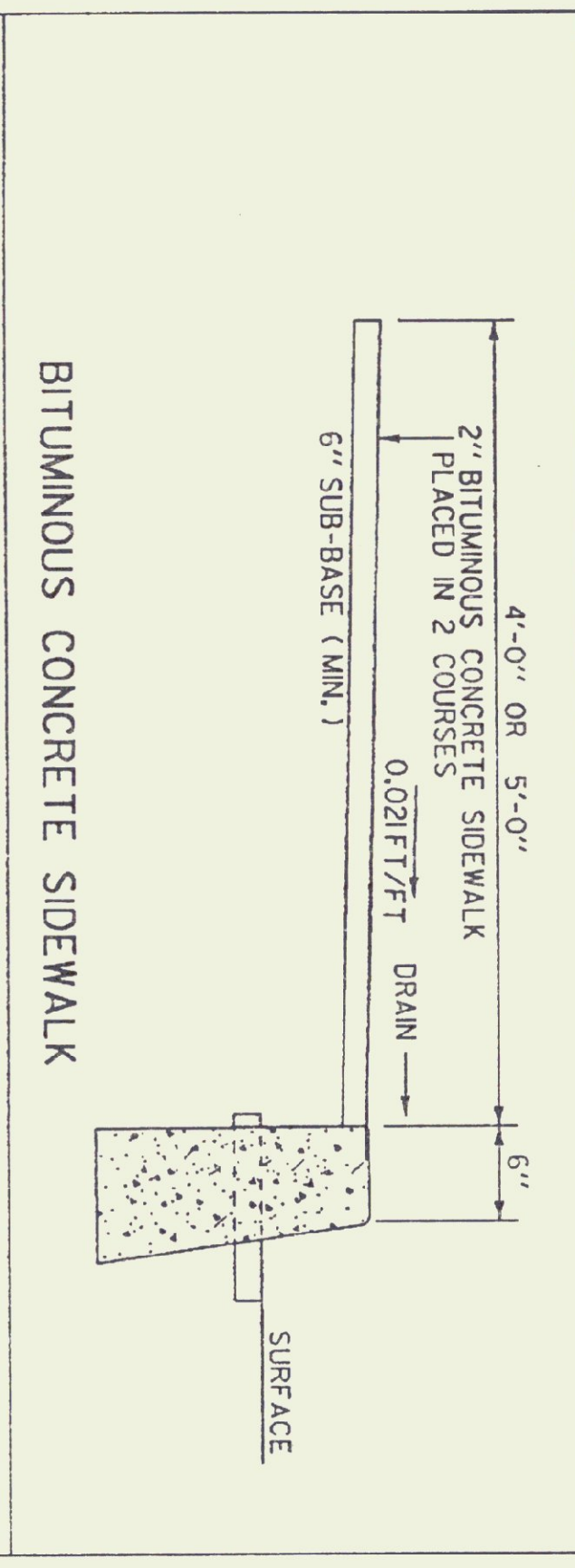
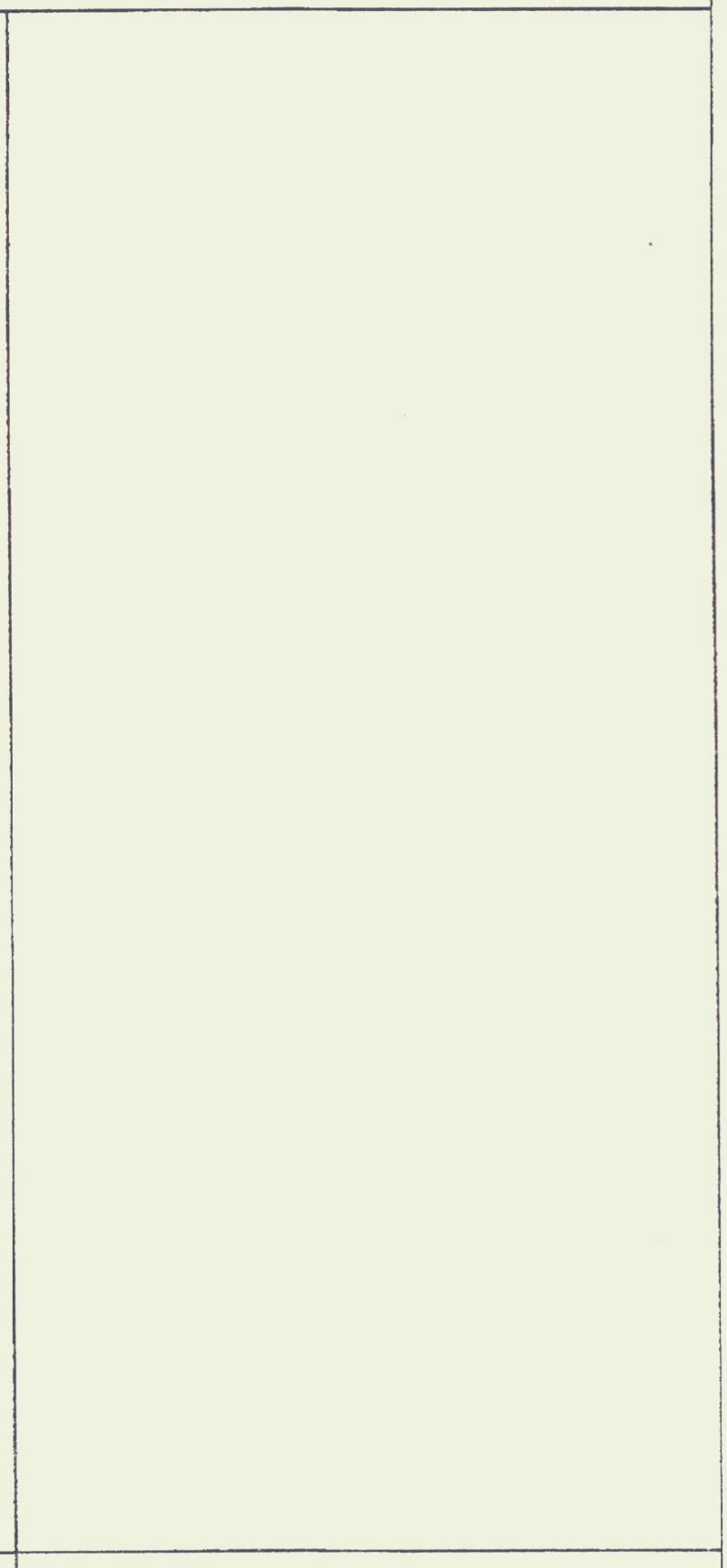
16 NOV. 1992

DATE

Director of Engineering

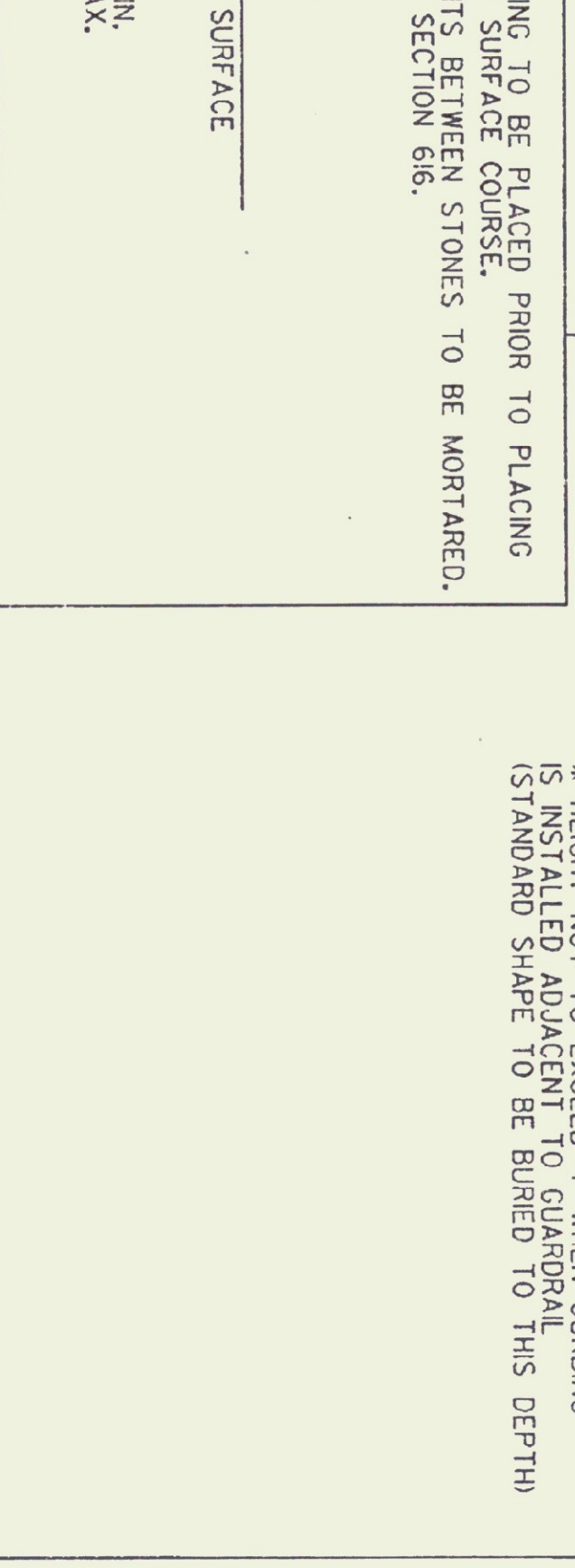
DESIGN ENGINEER

NOTES: ORIGINAL APPROVAL DATE WAS - DEC. 8 1971



NOTE

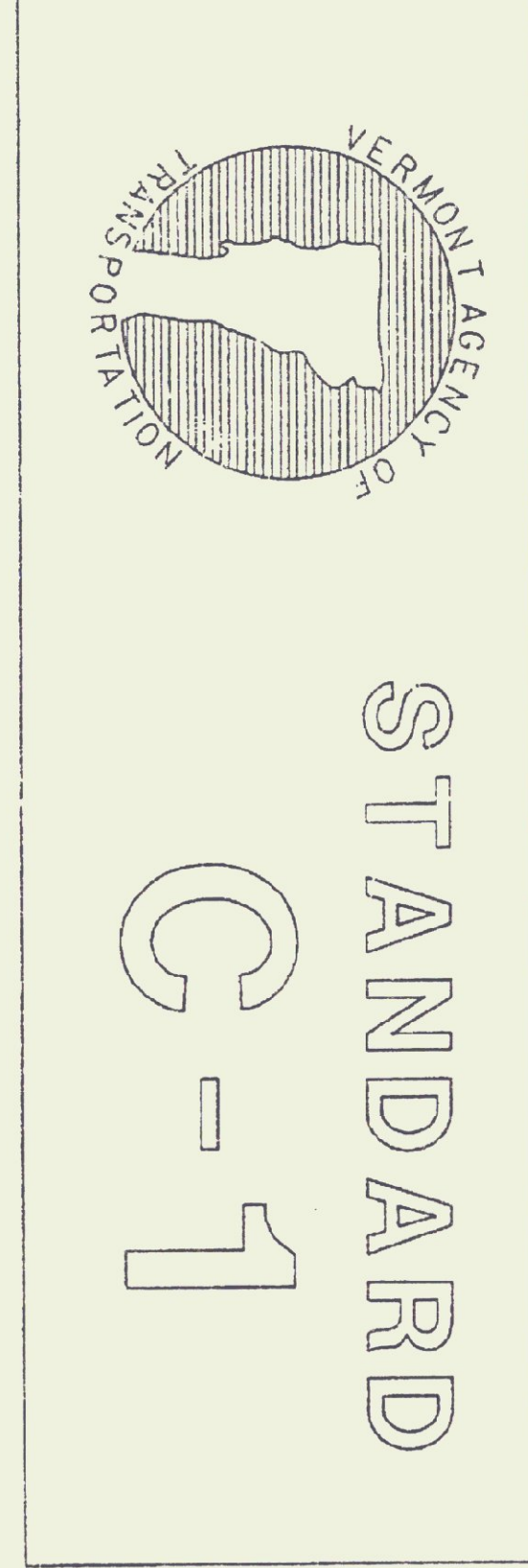
\* HEIGHT NOT TO EXCEED 4" WHEN CURBING IS INSTALLED ADJACENT TO GUARDRAIL (STANDARD SHAPE TO BE BURNED TO THIS DEPTH)

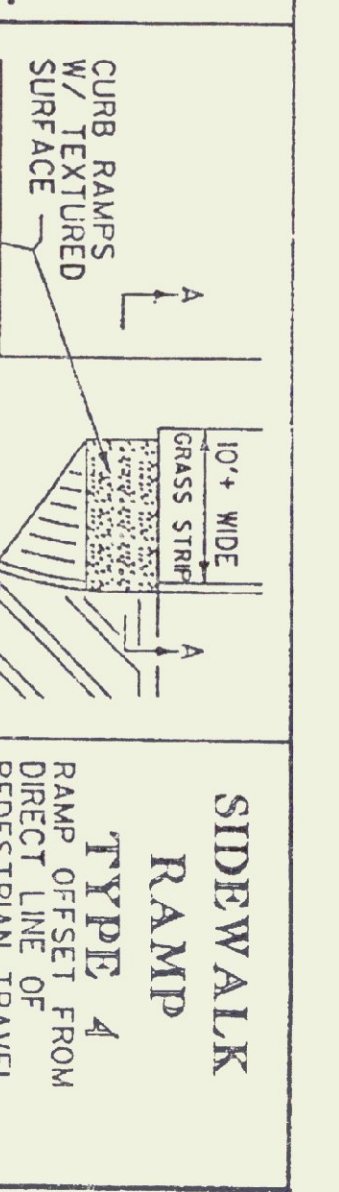
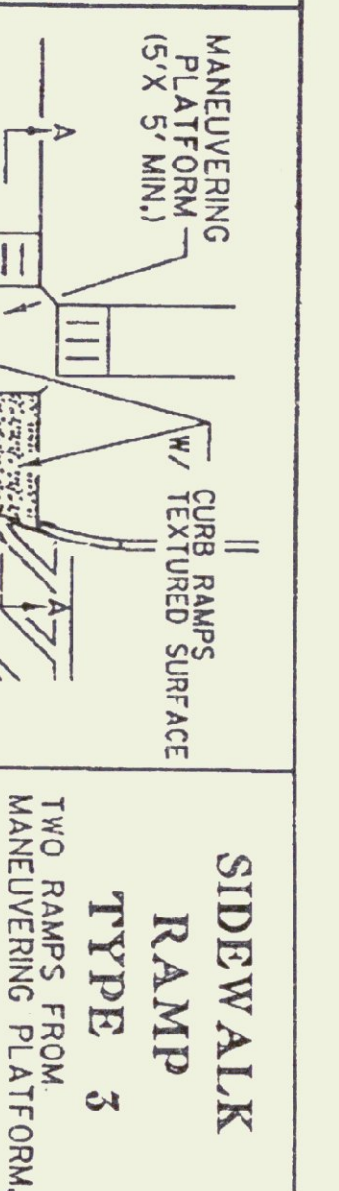
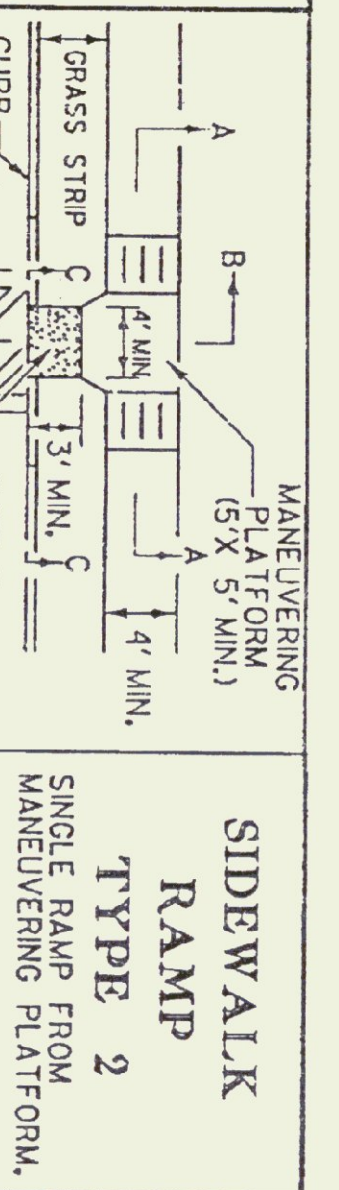
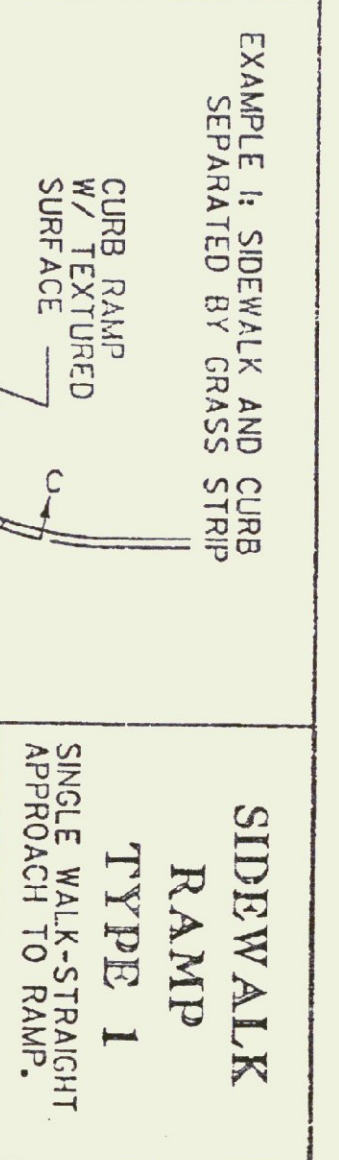


PRECAST REINFORCED CONCRETE CURB, TYPE B

STANDARD

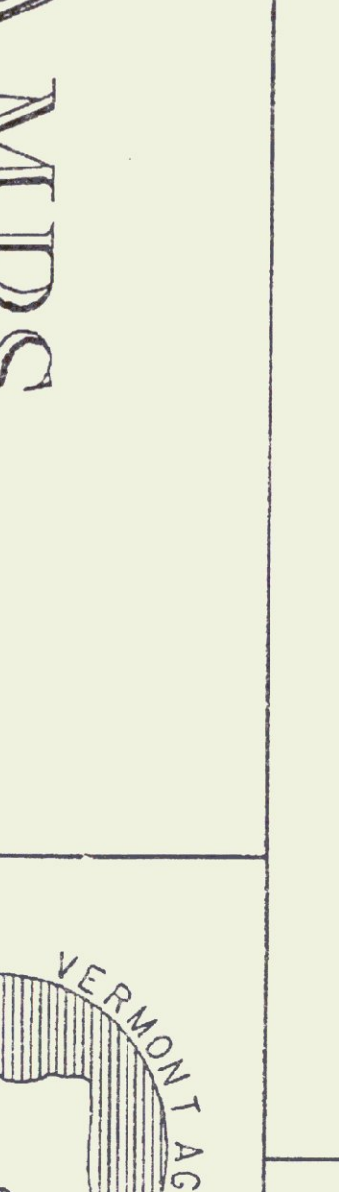
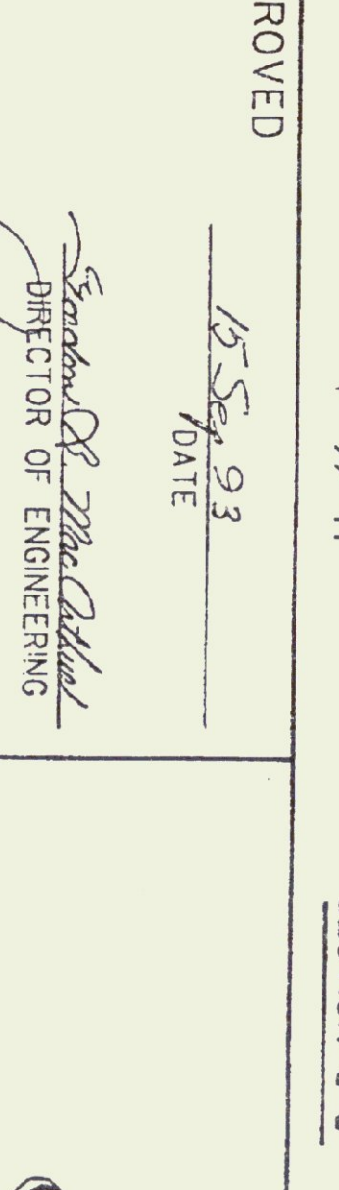
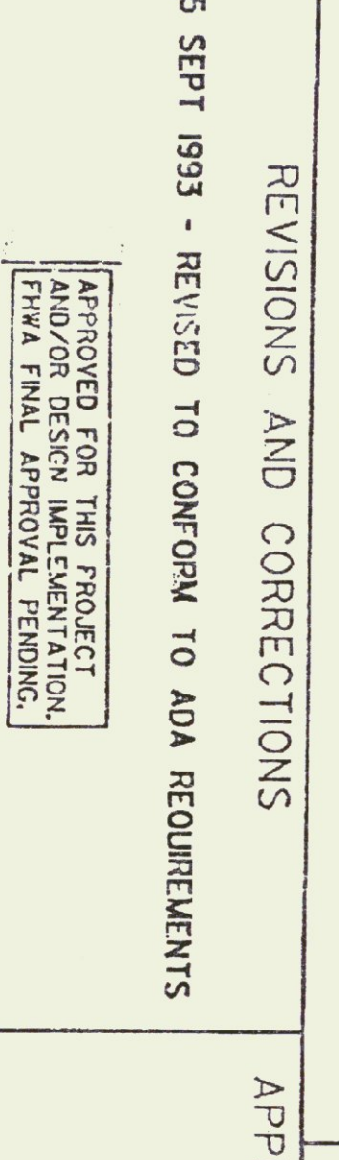
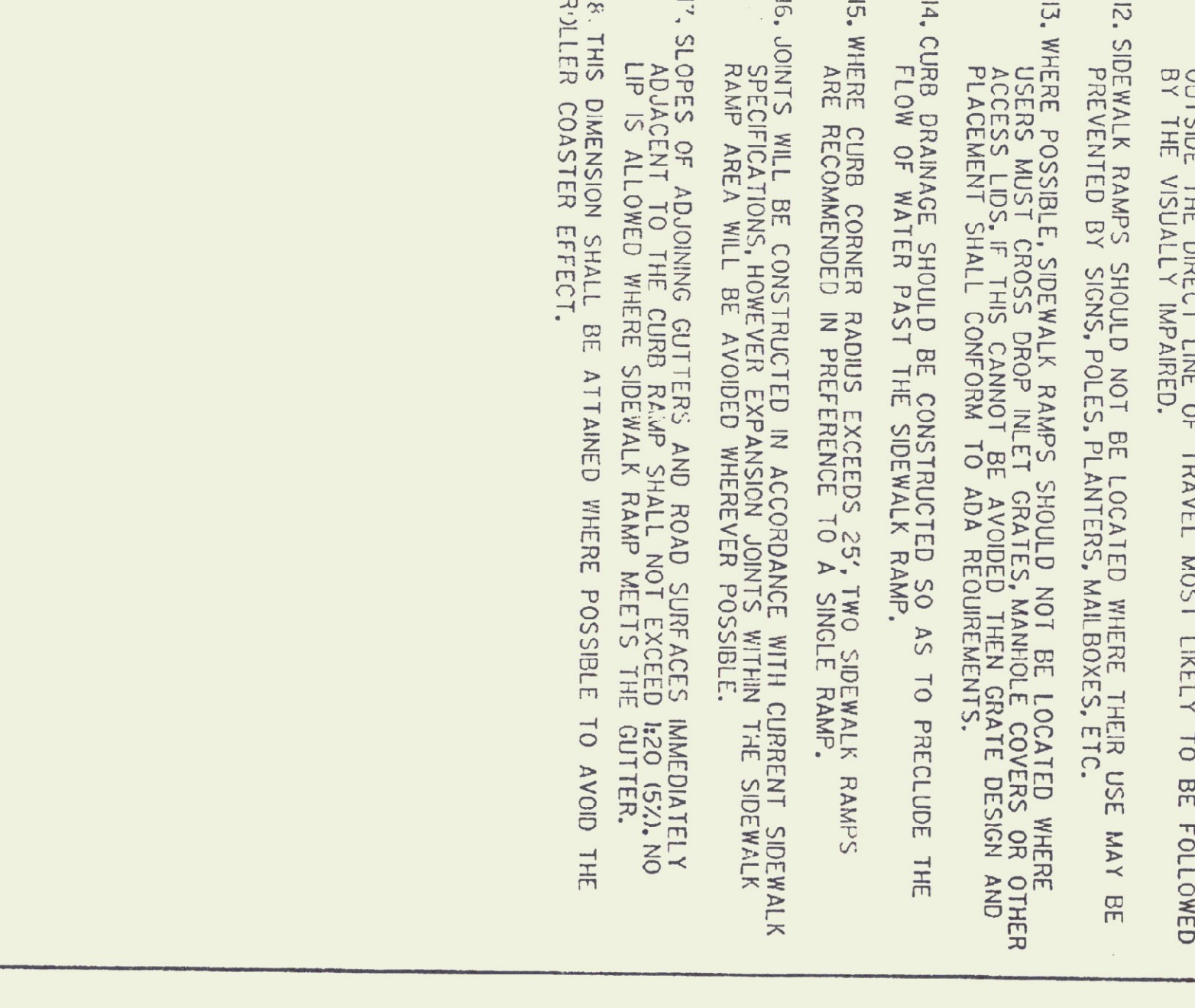
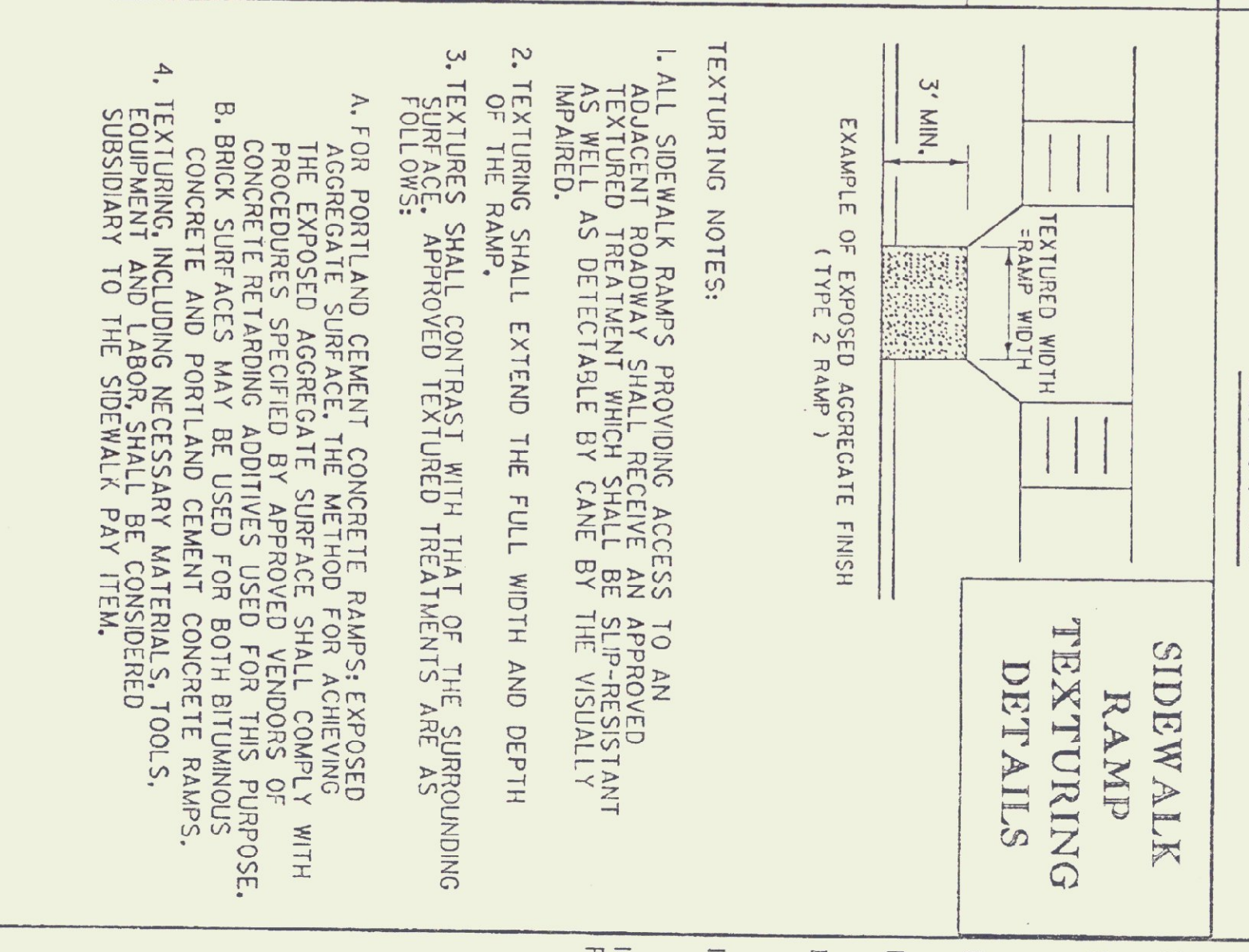
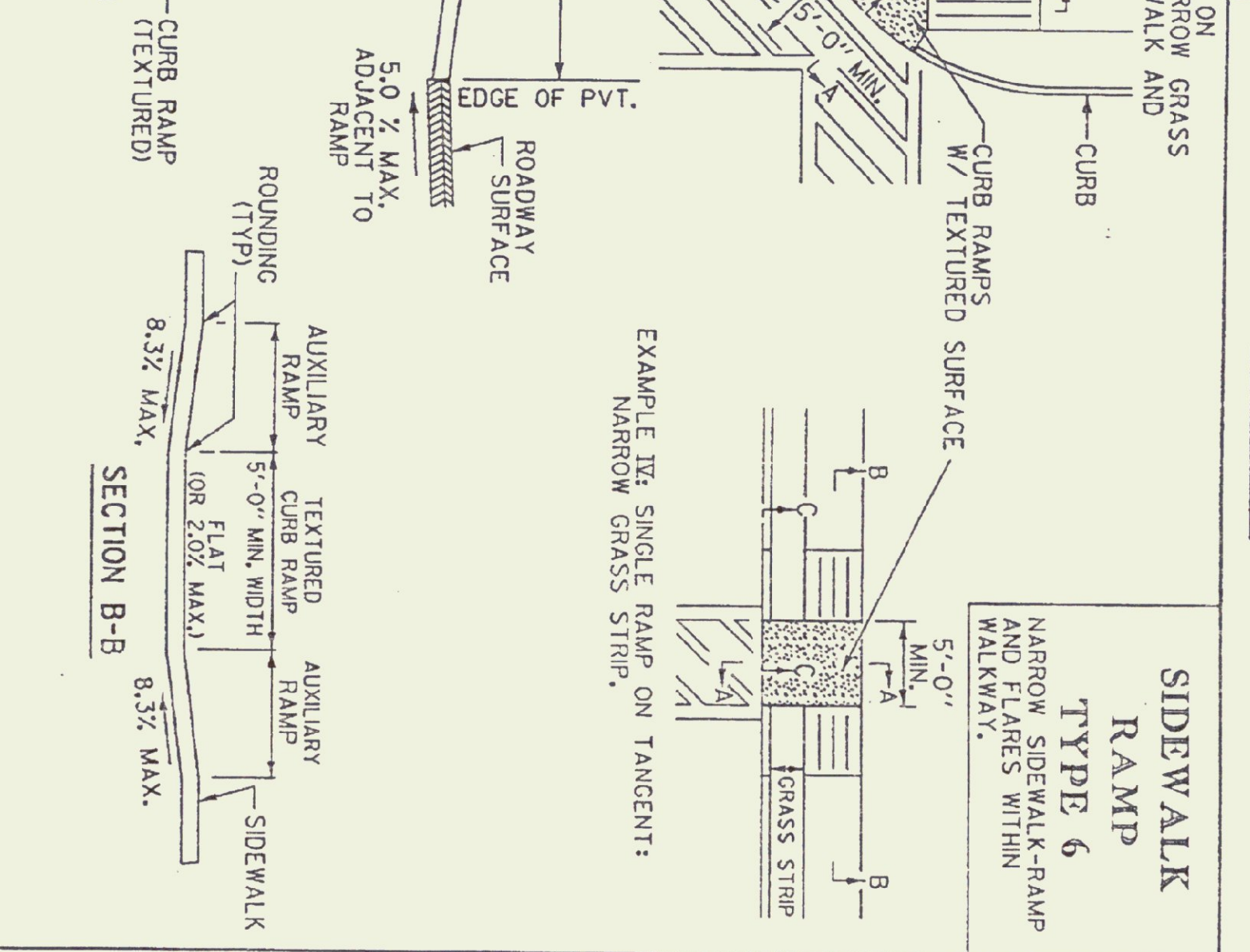
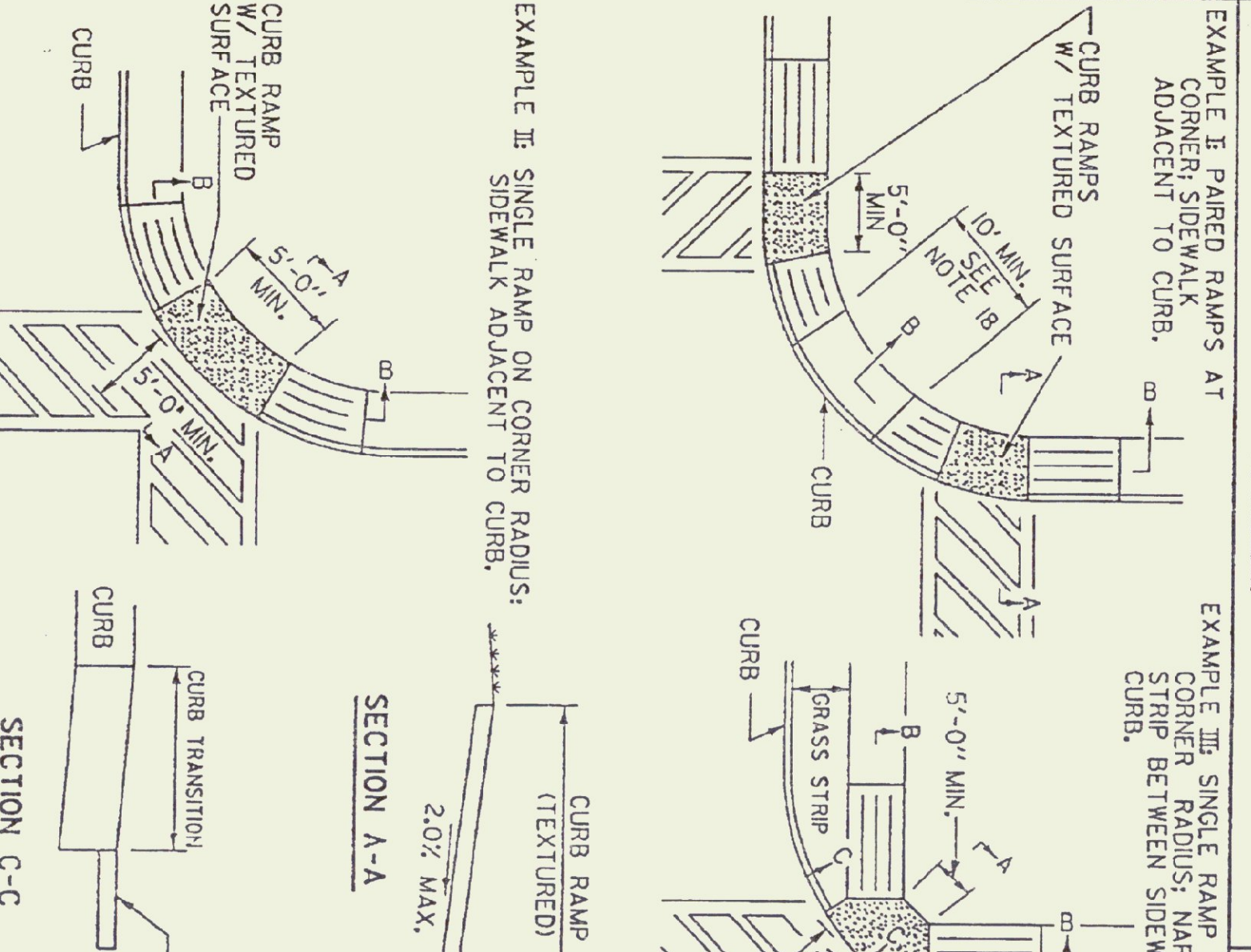
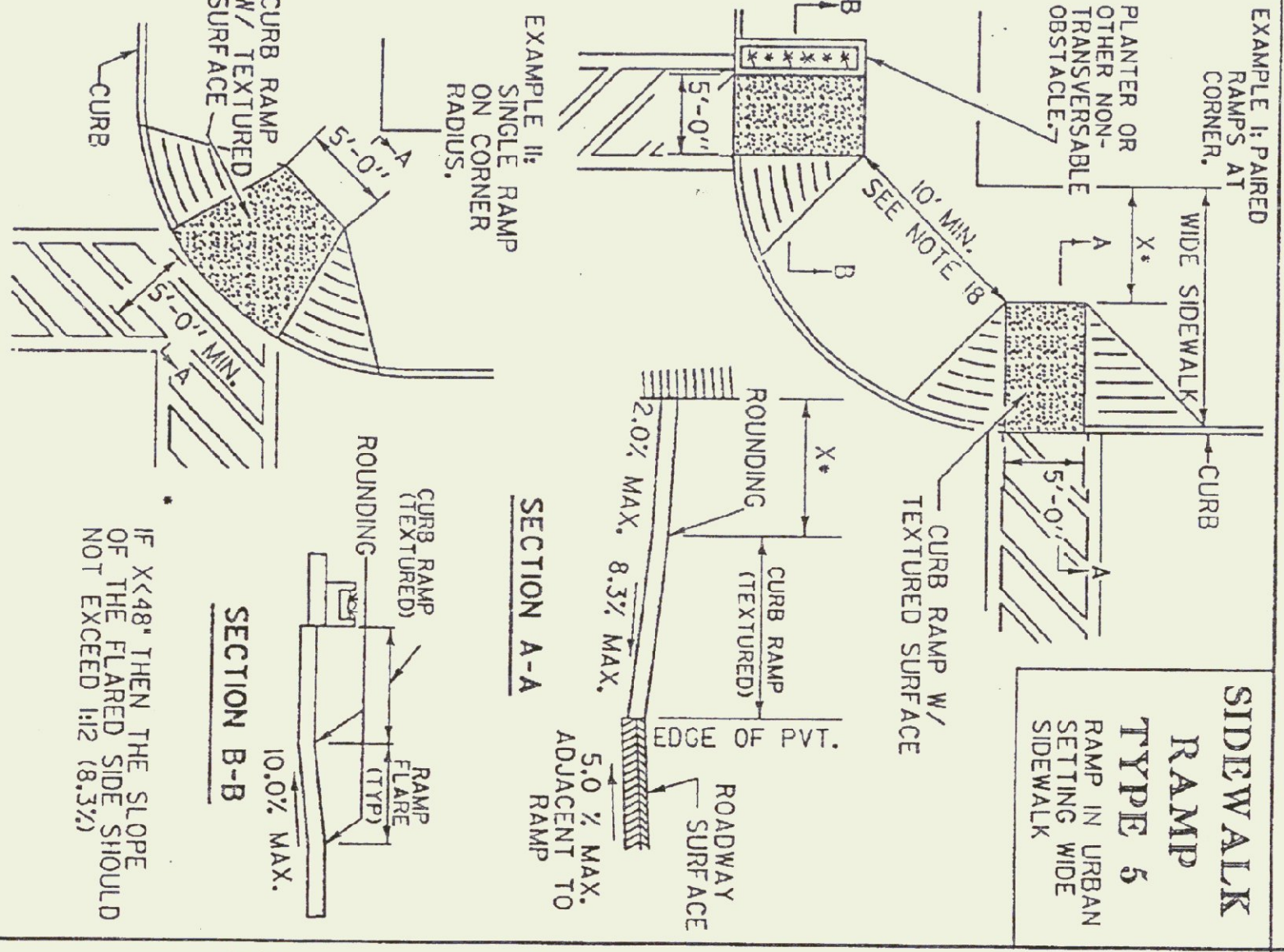
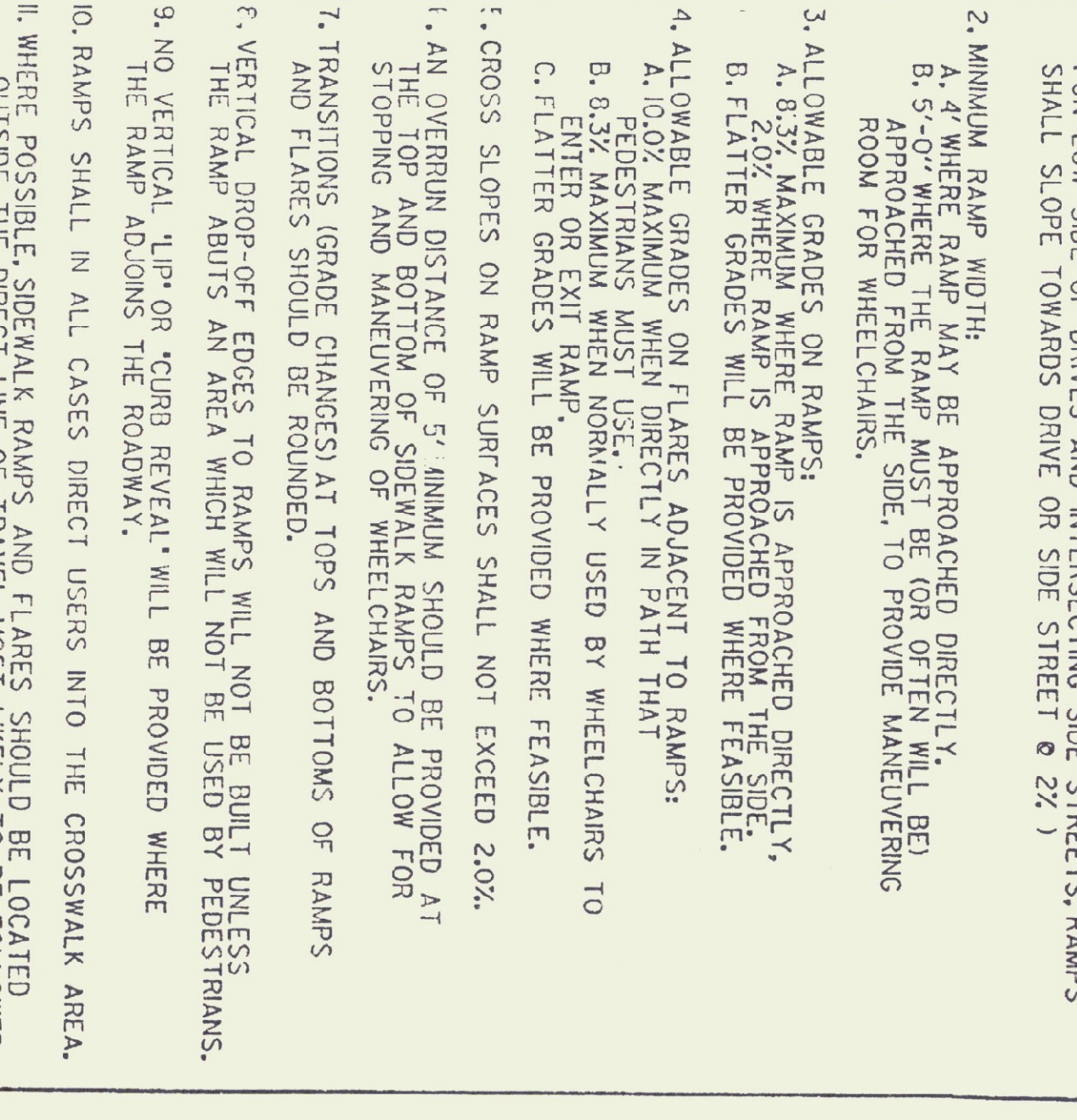
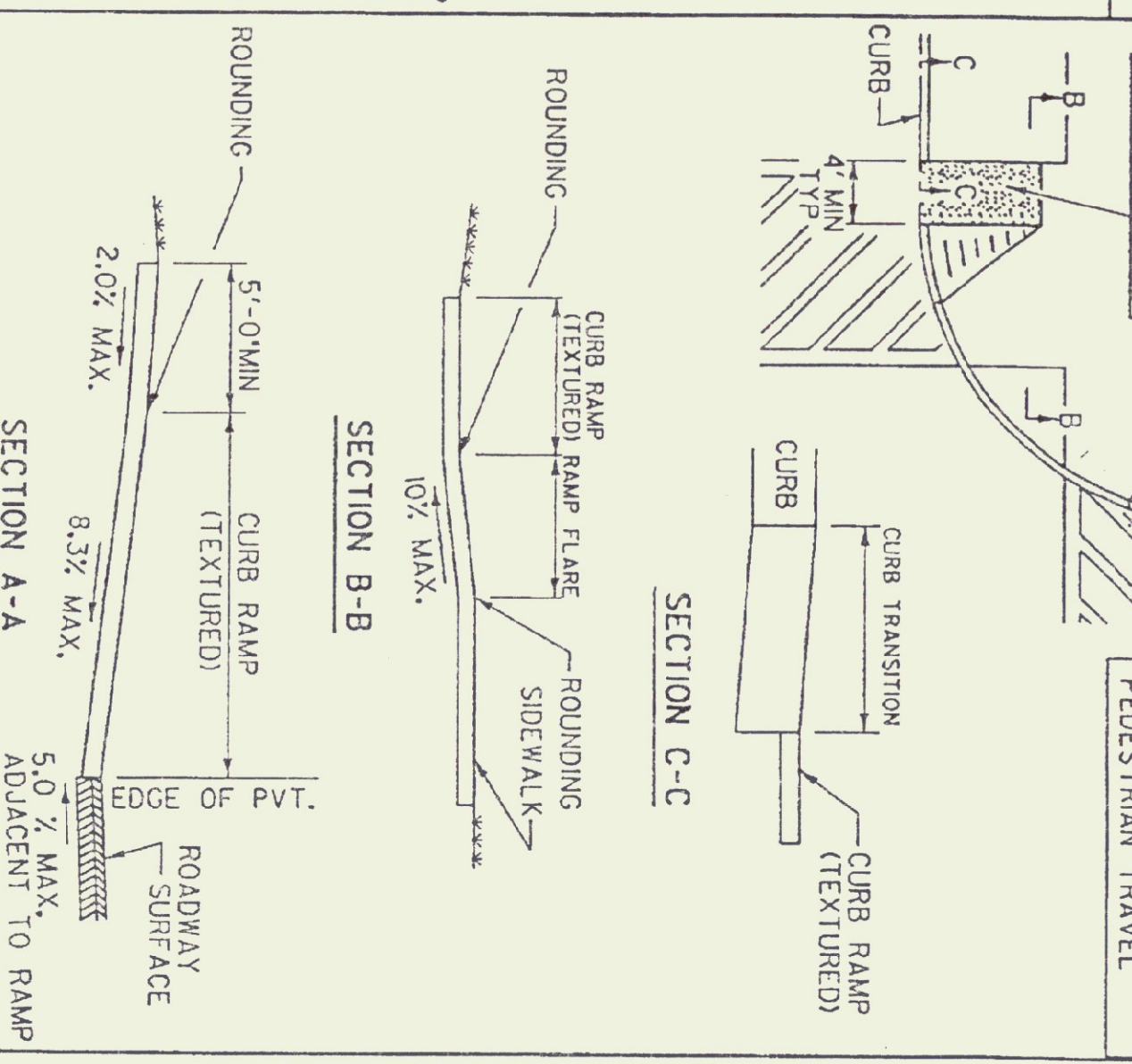
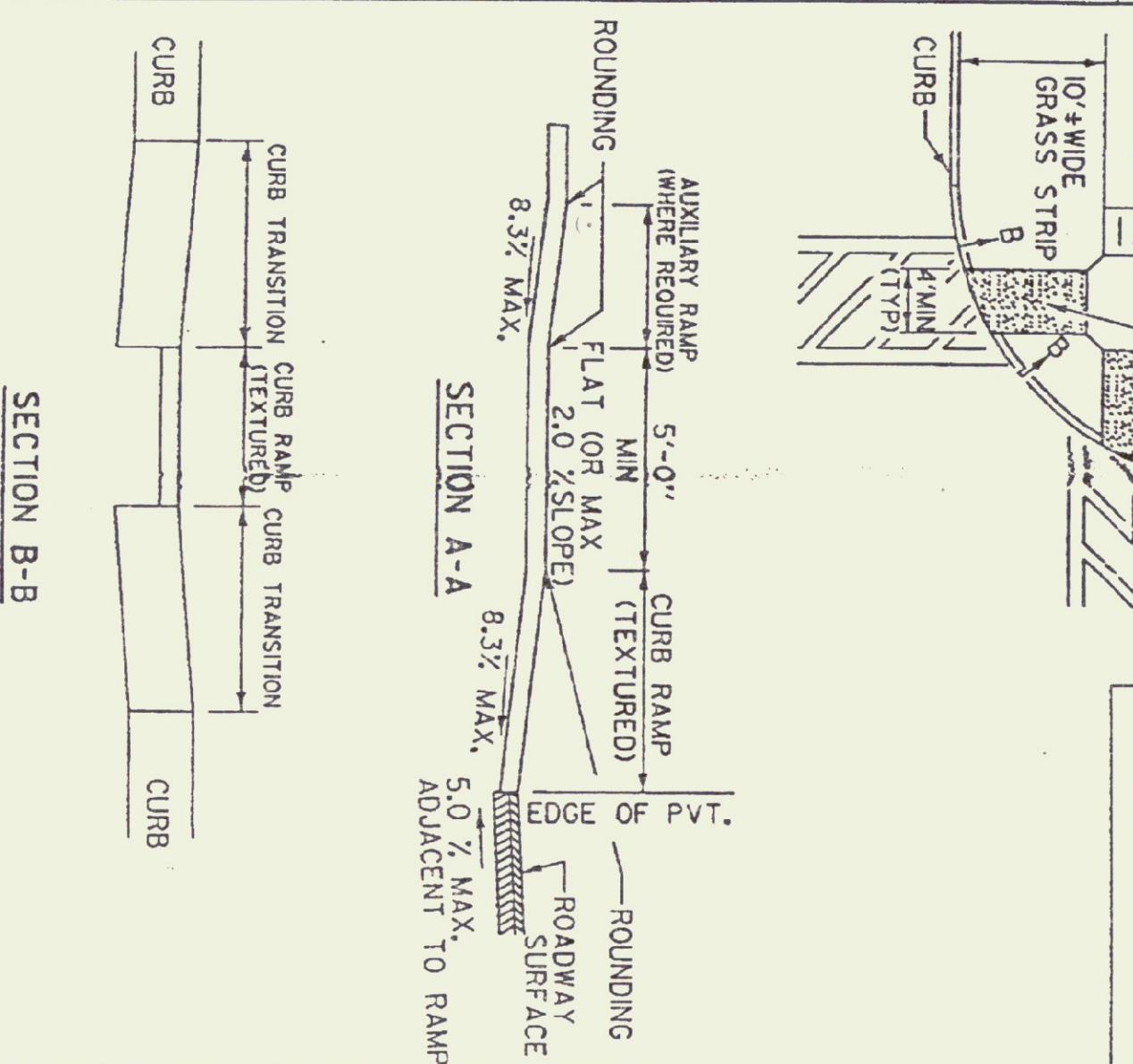
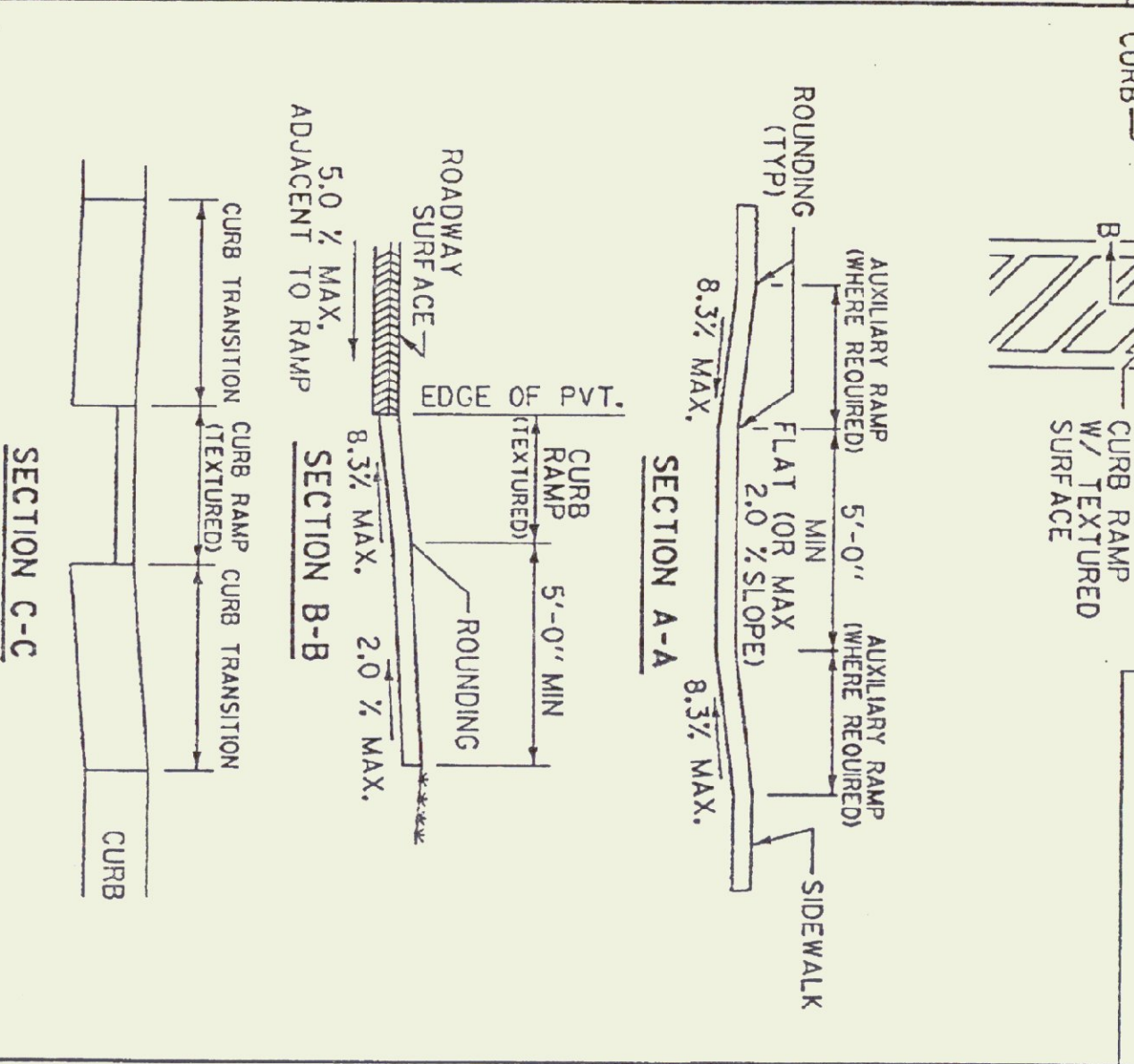
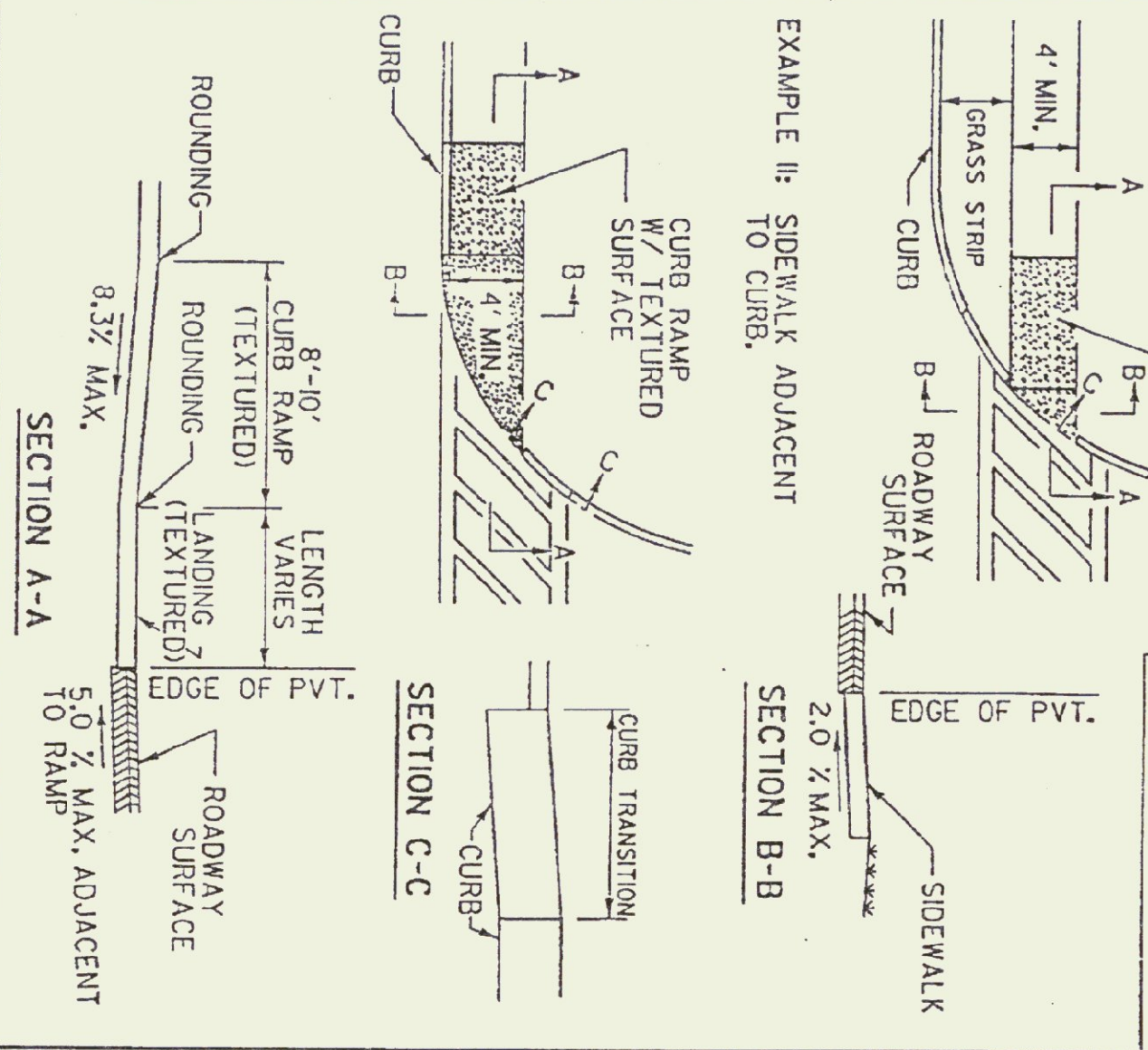
G-1





**GENERAL NOTES:**

1. THE DIMENSIONS AND GRADES SHOWN ON THIS STANDARD WILL BE ADHERED TO IN THE DESIGN AND THE CONSTRUCTION OF SIDEWALK RAMPS. WHERE SIDEWALKS RUN ADJACENT TO ROADWAYS ON STEEP (5% OR GREATER) GRADES, RAMP GRADES WILL BE AS FLAT AS POSSIBLE (ON LOW SIDE OF DRIVE AND INTERSECTING SIDE STREETS, RAMPS SHALL SLOPE TOWARDS DRIVE OR SIDE STREET @ 2%)
2. MINIMUM RAMP WIDTH:
  - A. 4'-0" WHERE RAMP MAY BE APPROACHED DIRECTLY.
  - B. 5'-0" WHERE THE RAMP MUST BE FOR OTHER WILL BE APPROACHED FROM THE SIDE TO PROVIDE MANEUVERING ROOM FOR WHEELCHAIRS.
3. ALLOWABLE GRADES ON RAMPS:
  - A. 8.3% MAXIMUM WHERE RAMP IS APPROACHED DIRECTLY.
  - B. 2.0% MAXIMUM WHERE RAMP IS APPROACHED FROM THE SIDE.
  - C. FLATTER GRADES WILL BE PROVIDED WHERE FEASIBLE.
4. ALLOWABLE GRADES ON FLARES ADJACENT TO RAMPS:
  - A. 10.0% MAXIMUM WHEN DIRECTLY IN PATH THAT PEDESTRIANS MUST USE.
  - B. 8.3% MAXIMUM WHEN NORMALLY USED BY WHEELCHAIRS TO ENTER OR EXIT RAMP.
  - C. FLATTER GRADES WILL BE PROVIDED WHERE FEASIBLE.
5. CROSS SLOPES ON RAMP SURFACES SHALL NOT EXCEED 2.0%.
6. AN OVERLAP DISTANCE OF 5' MINIMUM SHOULD BE PROVIDED AT THE TOP AND BOTTOM OF SIDEWALK RAMPS TO ALLOW FOR STOPPING AND MANEUVERING OF WHEELCHAIRS.
7. TRANSITIONS (GRADE CHANGES) AT TOPS AND BOTTOMS OF RAMPS AND FLARES SHOULD BE ROUNDED.
8. VERTICAL DROP-OFF EDGES TO RAMPS WILL NOT BE BUILT UNLESS THE RAMP ABUTS AN AREA WHICH WILL NOT BE USED BY PEDESTRIANS.
9. NO VERTICAL "UP" OR "CURB REVEAL" WILL BE PROVIDED WHERE THE RAMP ADJOINS THE ROADWAY.
10. RAMPS SHALL IN ALL CASES DIRECT USERS INTO THE CROSSWALK AREA.
11. WHERE POSSIBLE, SIDEWALK RAMPS AND FLARES SHOULD BE LOCATED OUTSIDE THE DIRECT LINE OF TRAVEL MOST LIKELY TO BE FOLLOWED BY THE VISUALLY IMPAIRED.
12. SIDEWALK RAMPS SHOULD NOT BE LOCATED WHERE THEIR USE MAY BE PREVENTED BY SIGNS, POLES, PLANTERS, MAILBOXES, ETC.
13. WHERE POSSIBLE, SIDEWALK RAMPS SHOULD NOT BE LOCATED WHERE USERS MUST CROSS DRAIN INLET GRATES, MANHOLE COVERS OR OTHER ACCESS DEVICES. THIS POINT SHOULD BE AVOIDED IN THE GRATE DESIGN AND PLACEMENT SHALL CONFORM TO ADA REQUIREMENTS.
14. CURB DRAINAGE SHOULD BE CONSTRUCTED SO AS TO PRECLUDE THE FLOW OF WATER PAST THE SIDEWALK RAMP.
15. WHERE CURB CORNER RADIUS EXCEEDS 25', TWO SIDEWALK RAMPS ARE RECOMMENDED IN PREFERENCE TO A SINGLE RAMP.
16. JOINTS WILL BE CONSTRUCTED IN ACCORDANCE WITH CURRENT SIDEWALK SPECIFICATIONS, HOWEVER EXPANSION JOINTS WITHIN THE SIDEWALK RAMP AREA WILL BE AVOIDED WHEREVER POSSIBLE.
17. SLOPES OF ADJOINING GUTTERS AND ROAD SURFACES IMMEDIATELY ADJACENT TO THE CURB RAMP SHALL NOT EXCEED H20 (5%); NO LIP IS ALLOWED WHERE SIDEWALK RAMP MEETS THE GUTTER.
18. THIS DIMENSION SHALL BE ATTAINED WHERE POSSIBLE TO AVOID THE ROLLER COASTER EFFECT.



**REVISIONS AND CORRECTIONS**

15 SEPT 1993 - REVISED TO CONFORM TO ADA REQUIREMENTS

APPROVED

15 SEP 93 DATE

Approved for this project AND/OR DESIGN IMPLEMENTATION FROM FINAL APPROVAL PENDING.

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION FROM FINAL APPROVAL PENDING.

APPROVED

15 SEP 93 DATE

Approved for this project AND/OR DESIGN IMPLEMENTATION FROM FINAL APPROVAL PENDING.

APPROVED

15 SEP 93 DATE

Approved for this project AND/OR DESIGN IMPLEMENTATION FROM FINAL APPROVAL PENDING.

APPROVED

15 SEP 93 DATE

Approved for this project AND/OR DESIGN IMPLEMENTATION FROM FINAL APPROVAL PENDING.

APPROVED

15 SEP 93 DATE

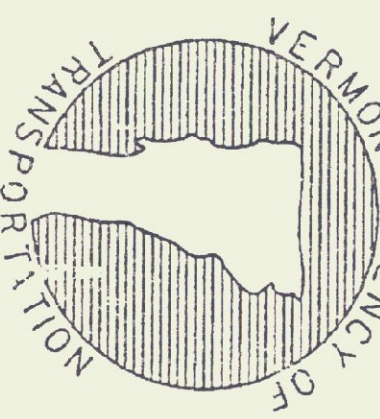
Approved for this project AND/OR DESIGN IMPLEMENTATION FROM FINAL APPROVAL PENDING.

APPROVED

15 SEP 93 DATE

Approved for this project AND/OR DESIGN IMPLEMENTATION FROM FINAL APPROVAL PENDING.

# SIDEWALK RAMPS

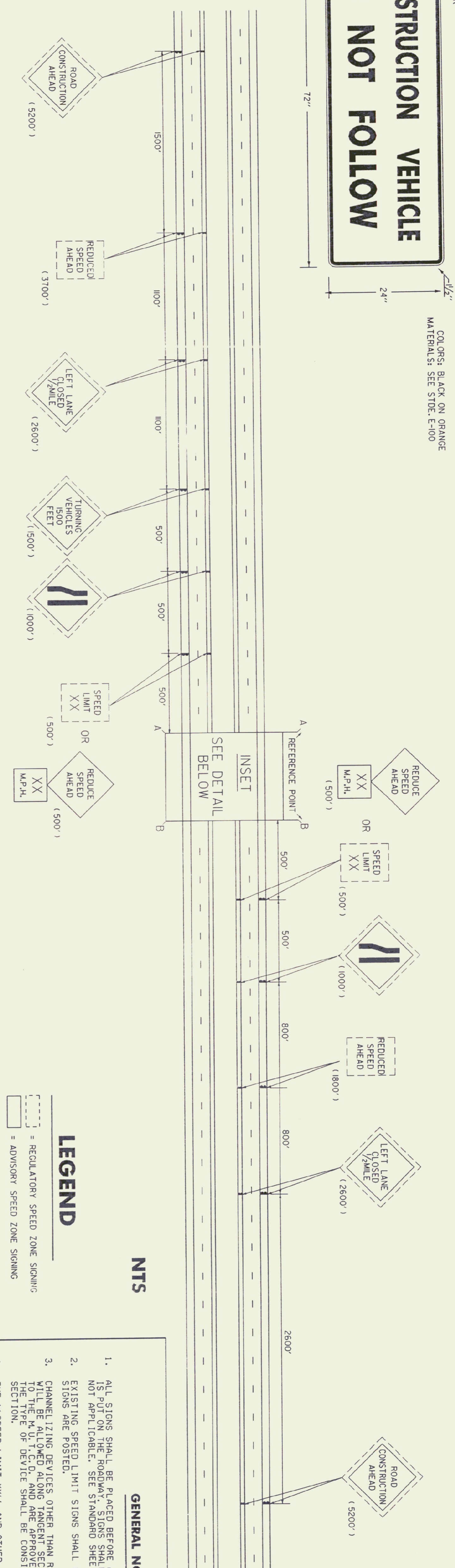


# STANDARD C-3

1/8" MARGIN  
3/16" MARGIN  
4 1/2"  
5C  
4"  
6C  
4 1/2"

**CONSTRUCTION VEHICLE  
DO NOT FOLLOW**

COLORS: BLACK ON ORANGE  
MATERIALS: SEE STD. E-100



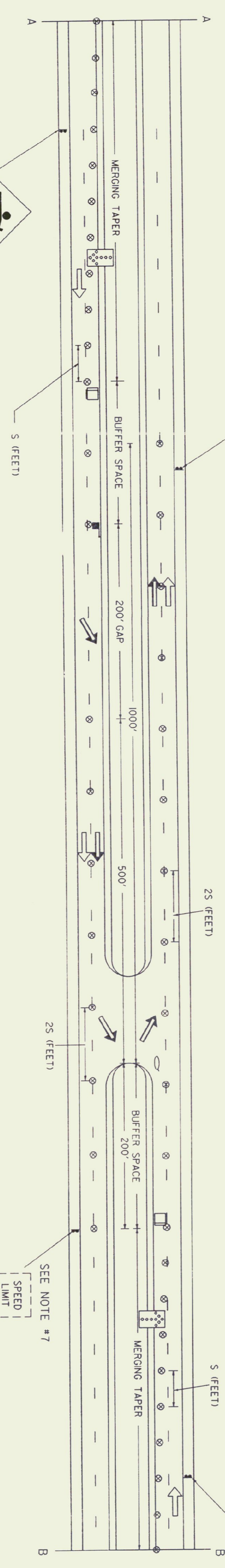
**NTS**

**GENERAL NOTES**

1. ALL SIGNS SHALL BE PLACED BEFORE ANY WORK BEGINS OR EQUIPMENT IS PUT ON THE ROADWAY. SIGNS SHALL BE COVERED OR REMOVED WHEN NOT APPLICABLE. SEE STANDARD SHEET E-100 FOR REQUIREMENTS.
2. EXISTING SPEED LIMIT SIGNS SHALL BE COVERED WHEN REDUCED SPEED SIGNS ARE POSTED.
3. CHANNELIZING DEVICES OTHER THAN REFLECTORIZED PLASTIC DRUMS SHALL BE ALLOWED AND APPROVED BY THE RESIDENT ENGINEER. THE TYPE OF DEVICE SHALL BE CONSISTENT THROUGHOUT THE TANGENT SECTION.
4. THE "SPEED LIMIT XX" AND OTHER RELATED SIGNS SHALL BE REMOVED OR COVERED WHEN WORK IS NOT IN PROGRESS AND ROADWAY IS NOT RESTRICTED.
5. "SPEED ZONE AHEAD" SIGNS MAY BE USED IN LIEU OF "REDUCED SPEED AHEAD".
6. FOR RELATIVELY SHORT TERM PROJECTS WITH NO OFFICIAL REGULATORY SPEED ZONE ENACTMENT, ADVISORY SPEED PLAQUES MOUNTED AS SUPPLEMENTAL SIGNS ON OTHER WARNING SIGNS MAY BE USED.
7. WHEN REDUCED REGULATORY SPEED LIMITS ARE USED, THEN A SIGN, WHICH IS NOT BE INSTALLED AT THE END OF THE WORK AREA.
8. ALL FIXED SIGNS SHALL BE MOUNTED ON YIELDING STEEL, ALUMINUM OR WOOD SUPPORTS AS SHOWN ON STANDARD SHEETS E-100 AND E-121.
9. PORTABLE SIGNS SHALL BE KEPT LEVEL WHEN PLACED ON THE EDGE OF ROADWAY AND ALL VEGETATION THAT INTERFERES WITH VISIBILITY OF THE SIGNS SHALL BE REMOVED. WHEN PLACED BEHIND GUARDRAIL, THE BOTTOM OF THE SIGN FACES SHALL BE PLACED ABOVE THE TOP OF THE GUARDRAIL.
10. WARNING LIGHTS SHALL NOT BE USED ON CHANNELIZING DEVICES.
11. WHEN SIGNING FOR THIS OPERATION INTERFERES WITH THAT FOR WORK ON THE MAINLINE, THE RESIDENT ENGINEER SHALL ESTABLISH THE APPROPRIATE SIGN REQUIREMENTS.
12. THE CHOICE OF USING FLAGGERS OR UNIFORMED OFFICERS IS AT THE DISCRETION OF THE ENGINEER.
13. CHANNELIZING DEVICES SHALL BE PLACED AS FOLLOWS:  
TAPERS - DEVICES SHALL BE SPACED AT A MAXIMUM OF "S" (THE TANGENT - IN FEET) APART.  
IN FEET) APART.  
IN FEET) APART.
14. THE FLASHING ARROW PANELS SHALL BE LOCATED AS NEAR TO THE FRONT OF THE TAPER AS POSSIBLE WHILE STILL REMAINING INSIDE THE CHANNELIZING DEVICES.
15. MERGING TAPERS SHOULD BE DESIGNED FOR THE SPEED LIMIT OF THE ROADWAY PRIOR TO CONSTRUCTION.
16. CONSTRUCTION VEHICLES USED FOR HAULING MATERIAL AT THE WORK SITE AND TRAVELLING ON PUBLIC HIGHWAYS SHOULD HAVE A THE REAR OF THE VEHICLE. (SEE SIGN DETAIL ON THIS SHEET)

**INSET DETAIL**

(TO BE USED WITH ADVISORY OR LEGAL SPEED LIMIT)



SEE NOTE #7

SPEED LIMIT XX



WHEN FLAGGER USED

POSTED SPEED OR 85TH PERCENTILE M.P.H.	MERGING TAPER SPACE (MINIMUM)	BUFFER SPACE (MINIMUM)
40	320'	160'
45	540'	270'
50	600'	300'
55	660'	330'
60	720'	360'
65	780'	390'

**LEGEND**

- = THROUGH TRAFFIC
- ⇄ = CONSTRUCTION VEHICLES
- ⊙ = CHANNELIZING DEVICE
- ⊙ = FLASHING ARROW PANEL
- ⊙ = FLAGGER
- ⊙ = UNIFORMED TRAFFIC OFFICER
- ⊙ = TYPE III BARRICADE

**LEGEND**

- ⊙ = REGULATORY SPEED ZONE SIGNING
- ⊙ = ADVISORY SPEED ZONE SIGNING

REVISIONS AND CORRECTIONS

APPROVED \_\_\_\_\_  
DATE Sept. 20, 1993

*Sandra Q. MacArthur*  
DIRECTOR OF ENGINEERING

*Dale S. Brown*  
TRAFFIC AND SAFETY ENGINEER

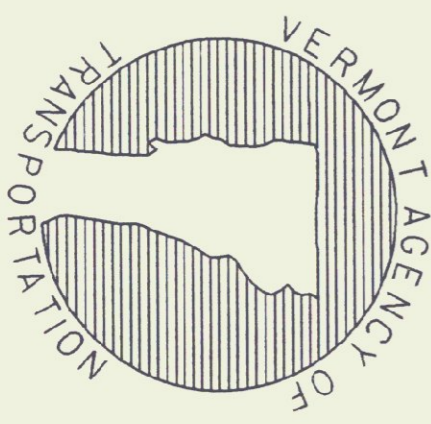
APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION, FHWA FINAL APPROVAL PENDING.

**TRAFFIC CONTROL**

**FOR CONSTRUCTION VEHICLE U-TURNS ON DIVIDED HIGHWAY**

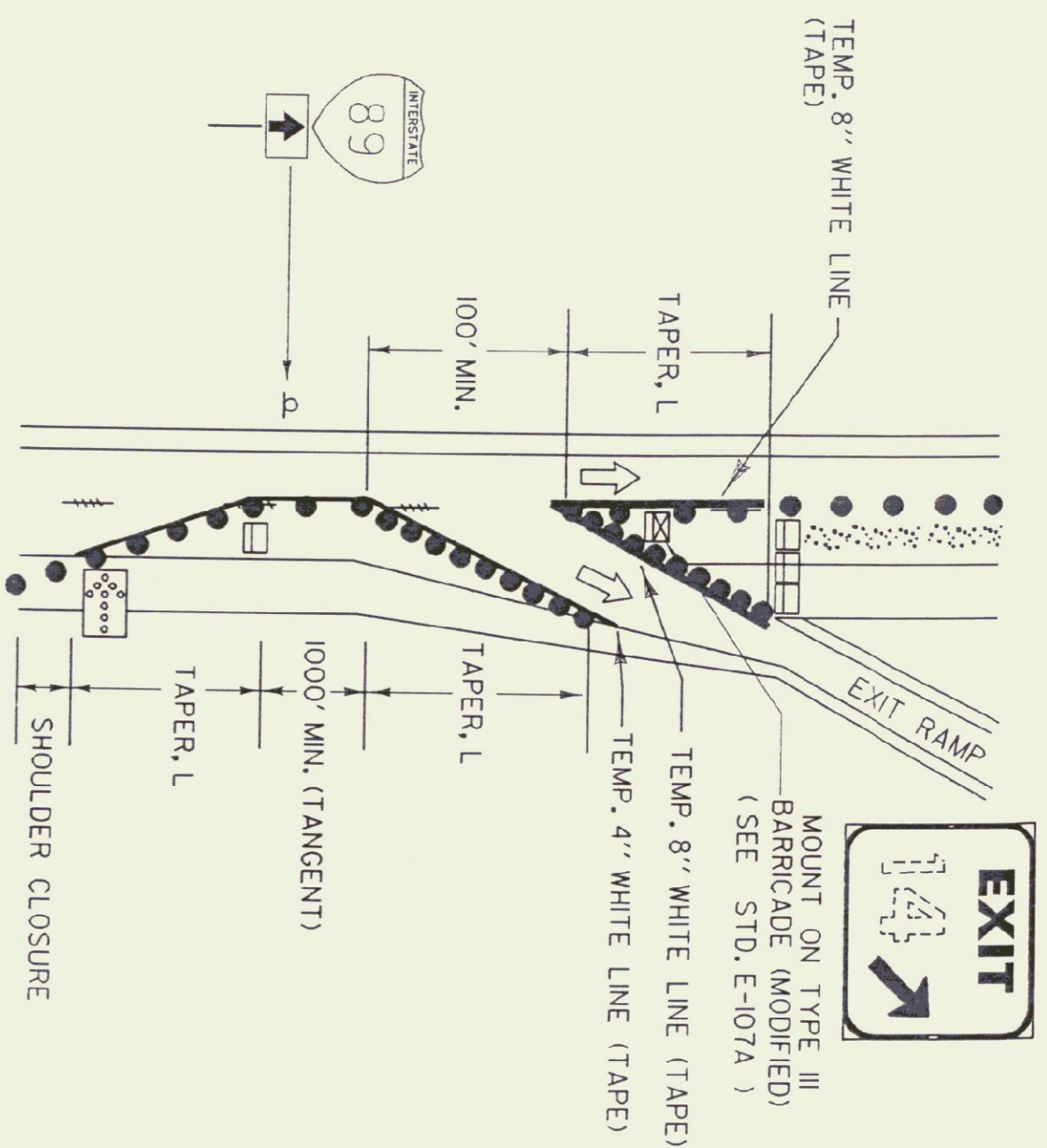
OTHER STDs. : E-100, E-101, E-102, E-142  
REQUIRED

**NTS**



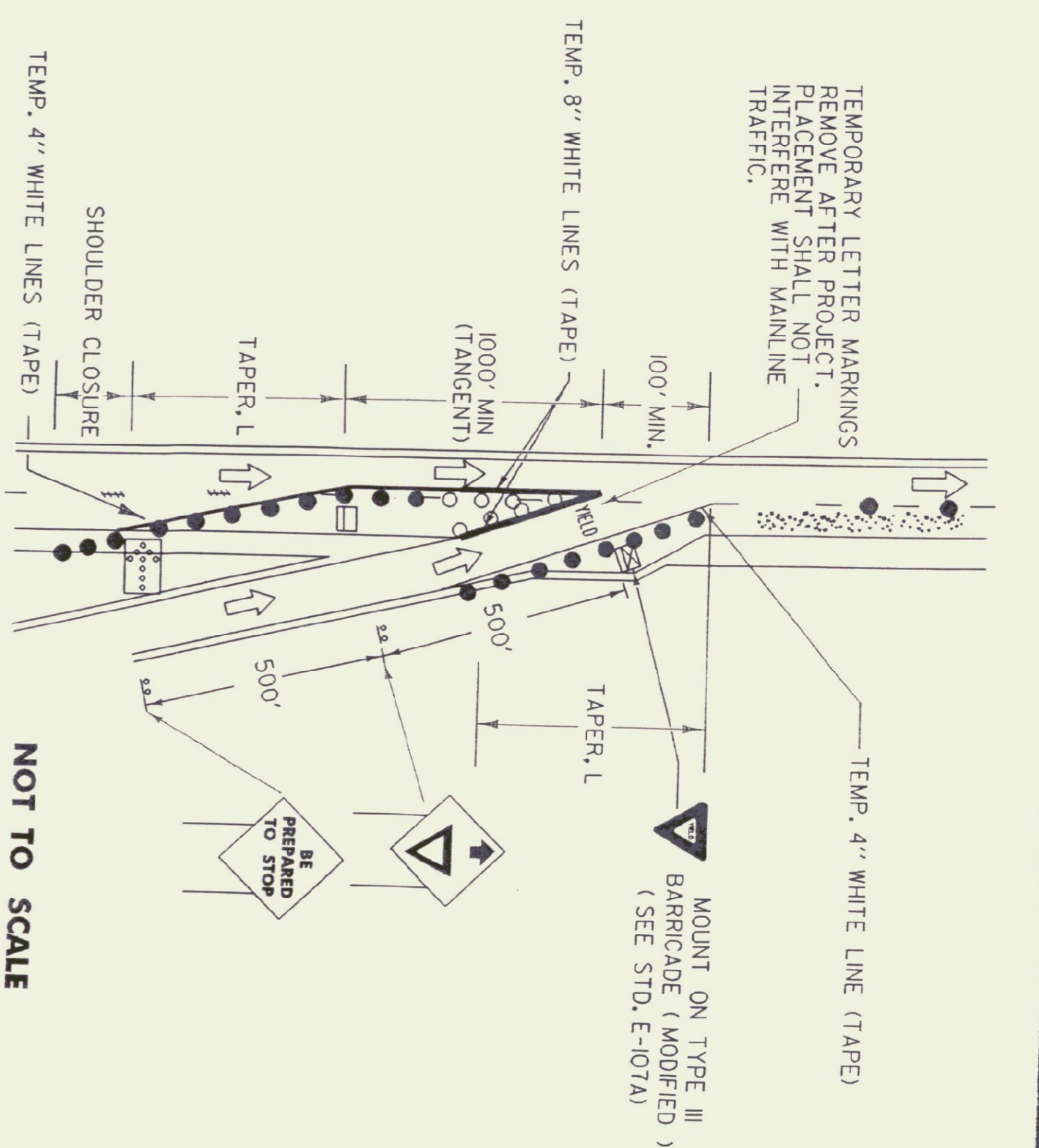
**STANDARD  
E-105**

TD05



- NOTES:**
- 1) ALL SIGNS SHALL BE MOUNTED ON FIXED POSTS (YIELDING TYPE) UNLESS OTHERWISE NOTED.
  - 2) CHANNELIZING DEVICES SHALL BE PLACED AS FOLLOWS: TAPERS - DEVICES SHALL BE SPACED A MAXIMUM OF "5" (THE SPEED LIMIT IN FEET) APART. TANGENT - DEVICES SHALL BE SPACED 2 X "S" (THE SPEED LIMIT IN FEET) APART.
  - 3) ALL DISTANCES ARE DESIRABLE MINIMUMS FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT.
  - 4) TAPER RATES ARE BASED ON THE POSTED MAINLINE AND EXIT SPEEDS.
  - 5) TEMPORARY PAVEMENT MARKINGS ARE REQUIRED WHEN THE LAYOUT IS TO BE IN EFFECT FOR THREE DAYS OR MORE.
  - 6) LANE CLOSURES AND TAPER LENGTHS, L, AS DETAILED ON STANDARD E-103.

- LEGEND**
- REFL. 28" CONES
  - REFL. PLASTIC DRUMS
  - PAVEMENT MARKING REMOVAL
  - ⇨ INDICATES TRAFFIC FLOW
  - WORK AREA
  - ⊠ FLASHING ARROW PANEL
  - TYPE III BARRICADES
  - ⊞ TYPE III BARRICADES (MOD.)



- NOTES:**
- 1) AT THE CONTRACTOR'S OPTION:
    - A. THE POWER SUPPLY MAY BE AERIAL OR UNDERGROUND (SEE DETAIL).
    - B. POWER FOR A FLASHING BEACON MAY BE COMBINED WITH POWER FOR A TRAFFIC SIGNAL OR THEY MAY HAVE SEPARATE POWER SOURCES.
    - C. THE FLASHER MAY BE INSTALLED ON A STANCHION NEAR THE SIGNAL OR A UTILITY POLE (WITH UTILITY COMPANY APPROVAL) OR AT THE SAME LOCATION AS A TRAFFIC SIGNAL CONTROLLER.
  - 2) THE FLASHER UNIT SHALL BE ONE CIRCUIT AND INCLUDE A RADIO INTERFERENCE FILTER.
  - 3) BATTERY OPERATED FLASHERS WILL NOT BE ALLOWED.
  - 4) BOTTOM OF THE BEACON SHALL BE A MIN. OF 8'-0" AND A MAX. OF 12'-0" ABOVE THE EDGE OF THE PAVEMENT.
  - 5) FOR URBAN AREA PLACEMENT SEE STD. E-121.

- NOTES:**
- 1) ADVISORY SPEED AS DETERMINED BY THE NEAREST SIGN (40 M.P.H. MINIMUM) SHALL BE INDICATED ON FIXED POSTS.
  - 2) SIGNS MOUNTED ON FIXED POSTS.
  - 3) ALL DISTANCES ARE DESIRABLE MINIMUMS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.
  - 4) THE BUMP SIGN MAY BE ELIMINATED WHEN THERE IS NO BUMP WHEN THE CONTRACTOR IS WORKING IN THE CONSTRUCTION AREA. THE ADVANCED WARNING SIGN PACKAGE SHALL BE USED. SEE STD. E-103.

**MAINLINE LANE CLOSURE AT AN EXIT RAMP**

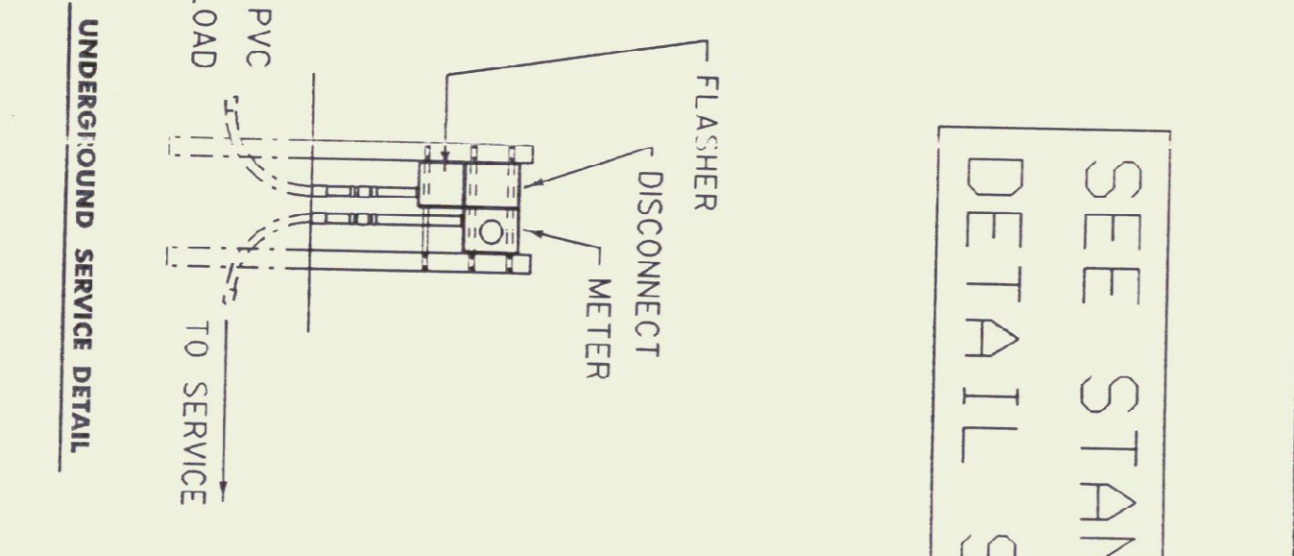
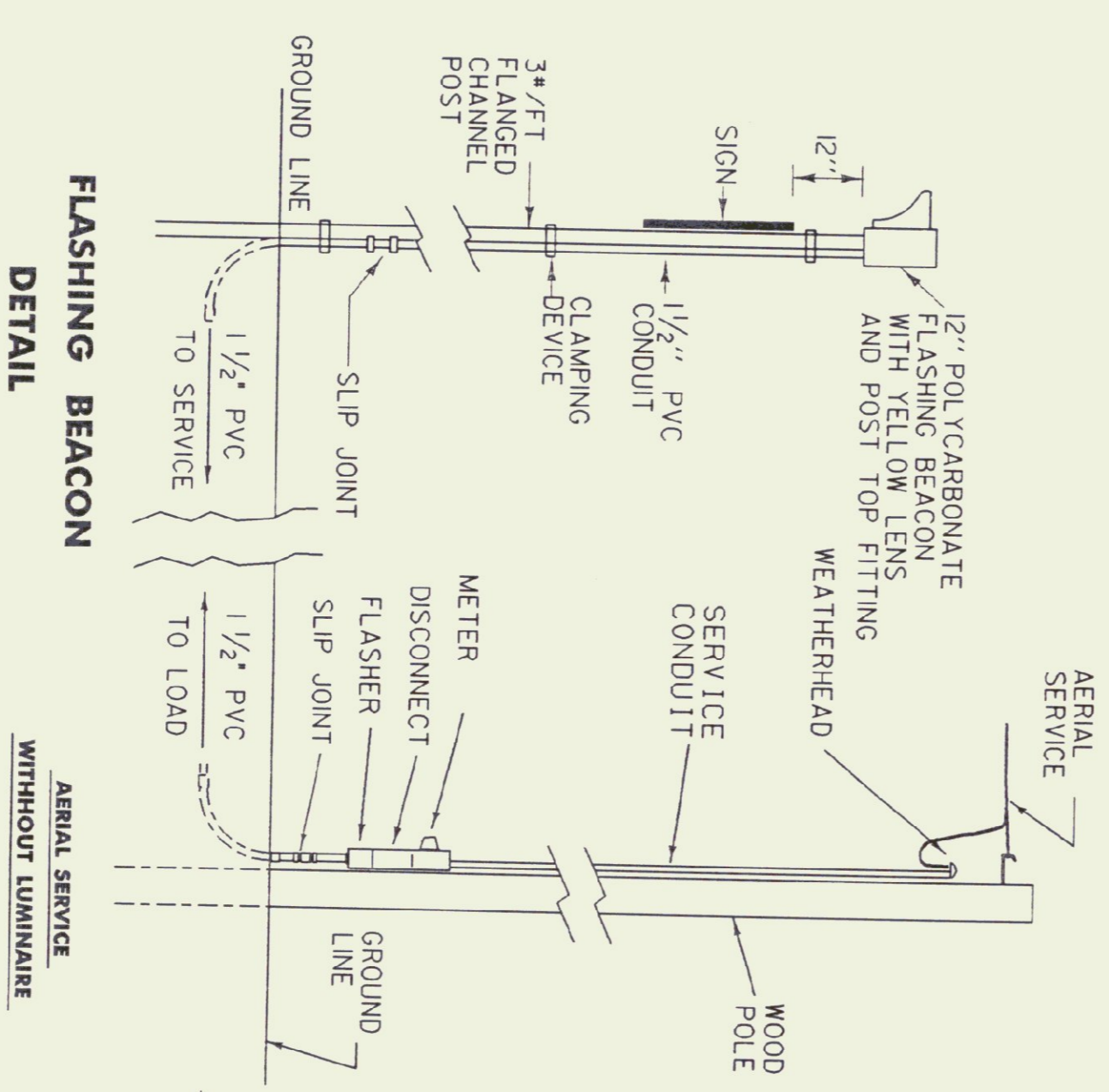
NOT TO SCALE

**MAINLINE LANE CLOSURE AT AN ENTRANCE RAMP**

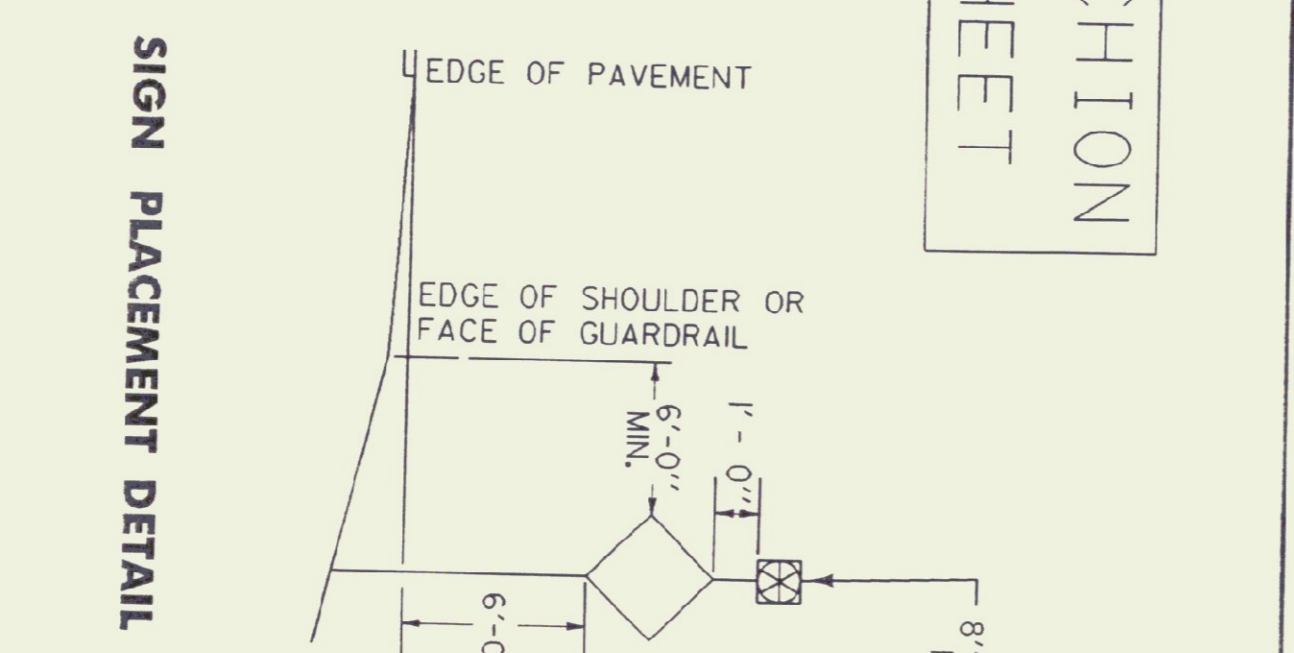
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THIS DETAIL SHALL BE USED WHEN THE WORK ZONE BEGINS AT THE CORE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE EXIT RAMP.

THIS DETAIL SHALL BE USED WHEN THE WORK ZONE BEGINS AT THE END OF THE ACCELERATION LANE OR THE MAINLINE LANE CLOSURE DRUM PLACEMENT INTERFERES WITH THE ON-RAMP TRAFFIC.



SEE STANCHION  
DETAIL SHEET



**SIGN PLACEMENT DETAIL**

**FLASHING BEACON DETAIL**

**AERIAL SERVICE WITHOUT LUMINAIRE**

**UNDERGROUND SERVICE DETAIL**

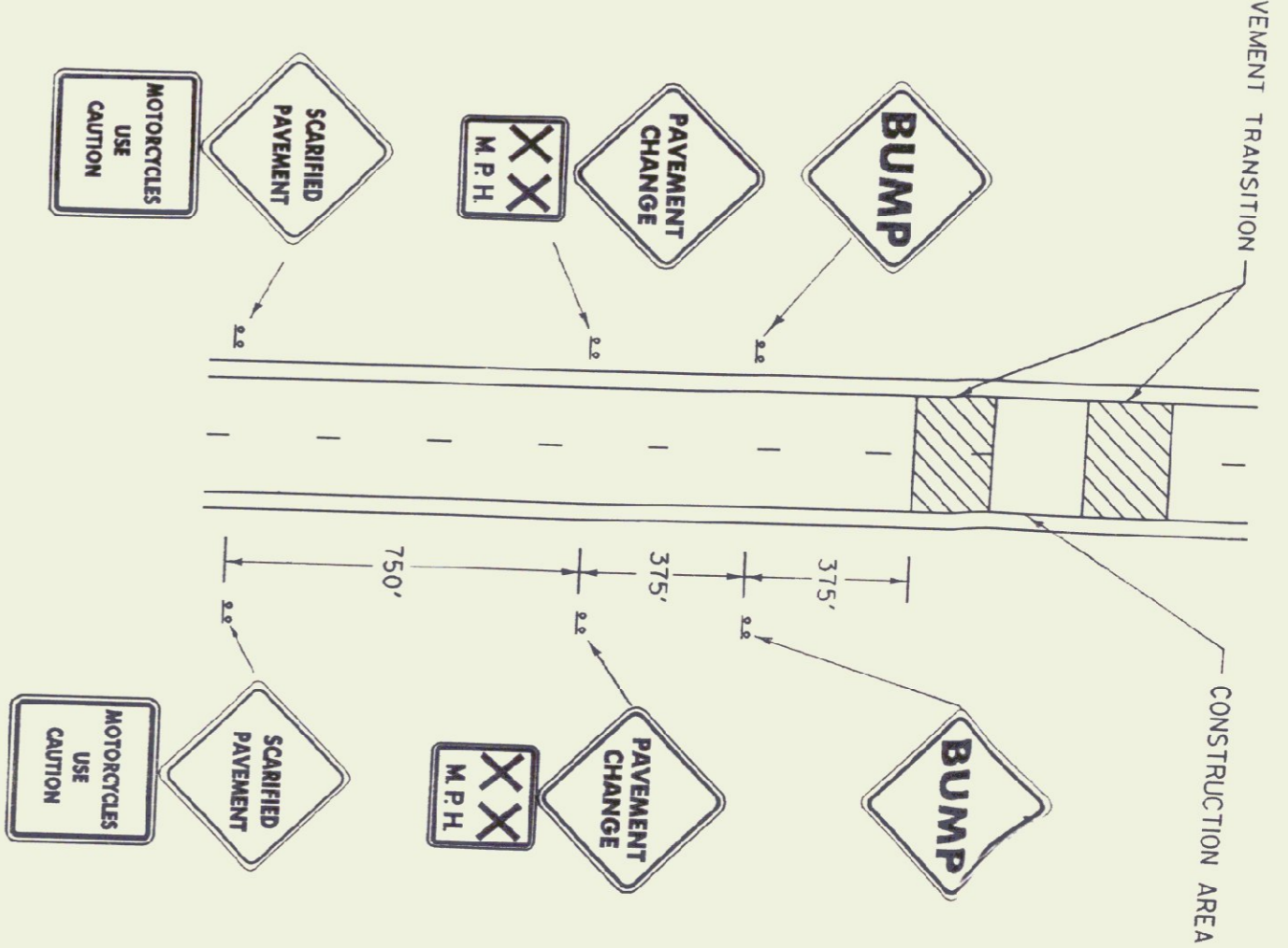
REVISIONS AND CORRECTIONS  
 JAN. 23, 1989 - REVISED EXIT SIGN - CLARIFIED EXIT TAPER  
 SEPT. 20, 1993 - REVISED RAMP CLOSURES, FLASHING BEACON DETAILS AND MOVED TYPE III BARRICADE (MOD.) TO STD. E-107A

APPROVED \_\_\_\_\_ DATE APRIL 22, 1988  
 \_\_\_\_\_  
 DIRECTOR OF ENGINEERING

APPROVED FOR THIS PROJECT \_\_\_\_\_  
 DESIGNATION: \_\_\_\_\_  
 FINAL APPROVAL PENDING.

Acting TRAFFIC AND SAFETY ENGINEER  
*Dee & Feven*

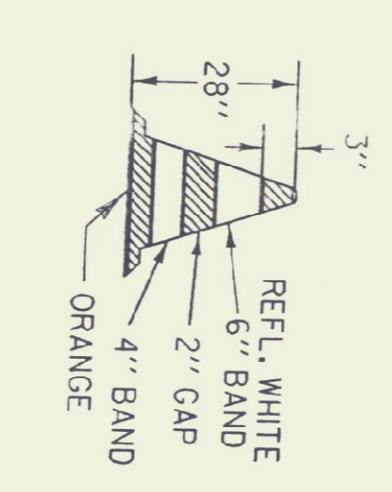
TRAFFIC CONTROL  
 MISCELLANEOUS DETAILS



- NOTES:**
- 1) ADVISORY SPEED AS DETERMINED BY THE NEAREST SIGN (40 M.P.H. MINIMUM) SHALL BE INDICATED ON FIXED POSTS.
  - 2) SIGNS MOUNTED ON FIXED POSTS.
  - 3) ALL DISTANCES ARE DESIRABLE MINIMUMS. FIELD CONDITION SHALL CONTROL THE ACTUAL PLACEMENT.
  - 4) THE BUMP SIGN MAY BE ELIMINATED WHEN THERE IS NO BUMP WHEN THE CONTRACTOR IS WORKING IN THE CONSTRUCTION AREA. THE ADVANCED WARNING SIGN PACKAGE SHALL BE USED. SEE STD. E-103.

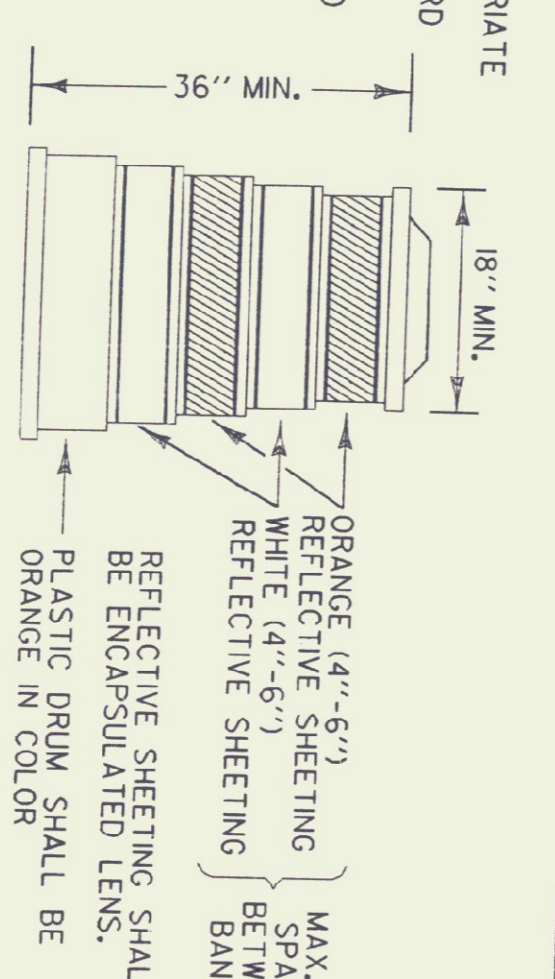
NOT TO SCALE

**ADVANCED WARNING SIGN PACKAGE FOR COLD PLANED (SCARIFIED) SURFACES.**



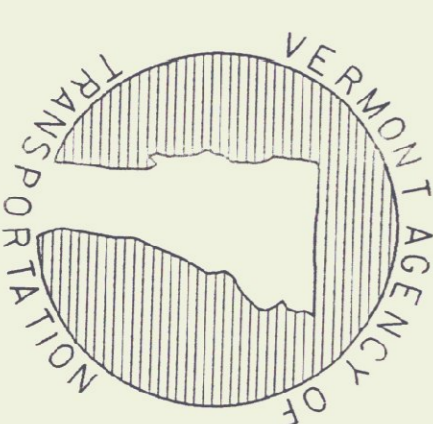
- NOTES:**
- 1) 28" CONES SHALL BE USED ON ROADWAYS WITH SPEED LIMITS OF 35 MPH OR MORE AND ON ALL ROADWAYS DURING HOURS OF DARKNESS.
  - 2) CONES MAY BE WEIGHTED TO PREVENT OVERTURNING. HOWEVER THE WEIGHTS SHALL NOT PRESENT A HAZARD IF THE CONE IS STRUCK.
  - 3) REFLECTIVE SHEETING SHALL BE ENCAPSULATED LENS.

**28" REFLECTORIZED CONE**

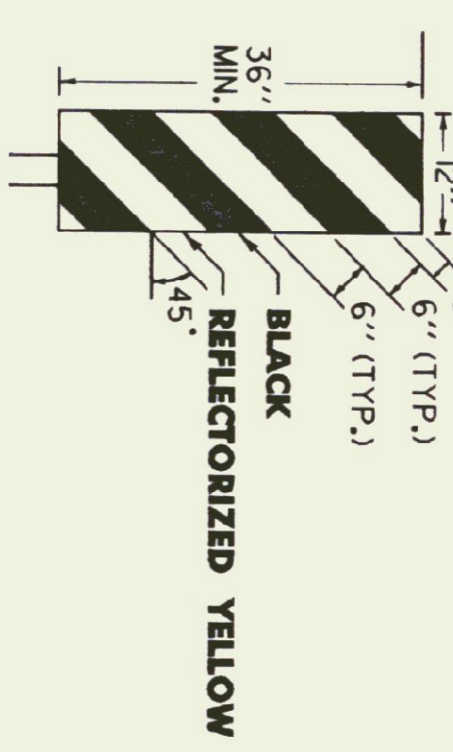
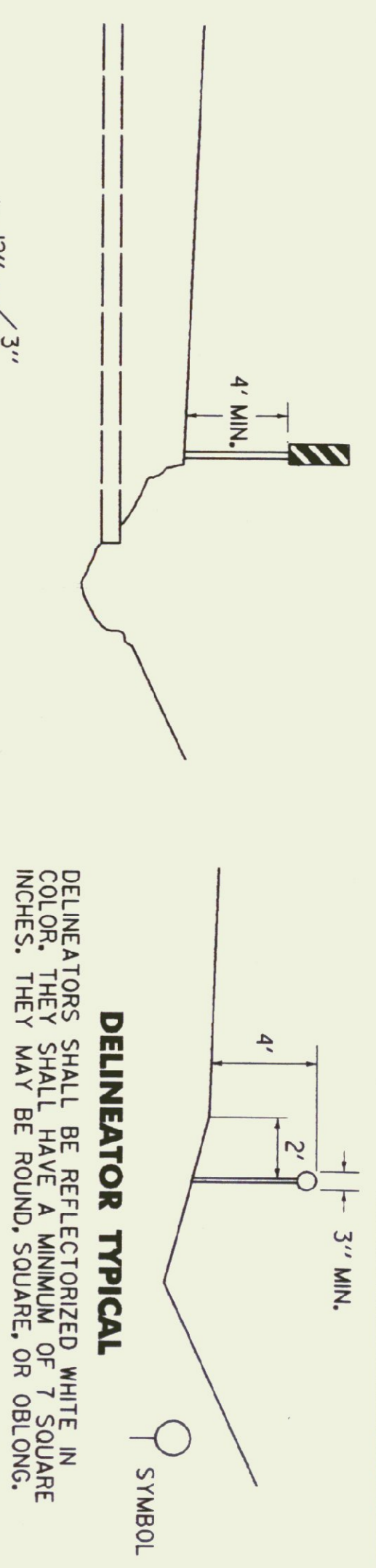


**REFLECTORIZED PLASTIC DRUM**

OTHER STDS. REQUIRED: E-101, E-102, E-103, E-107A, E-136, E-150  
 STANCHION DETAIL SHEET

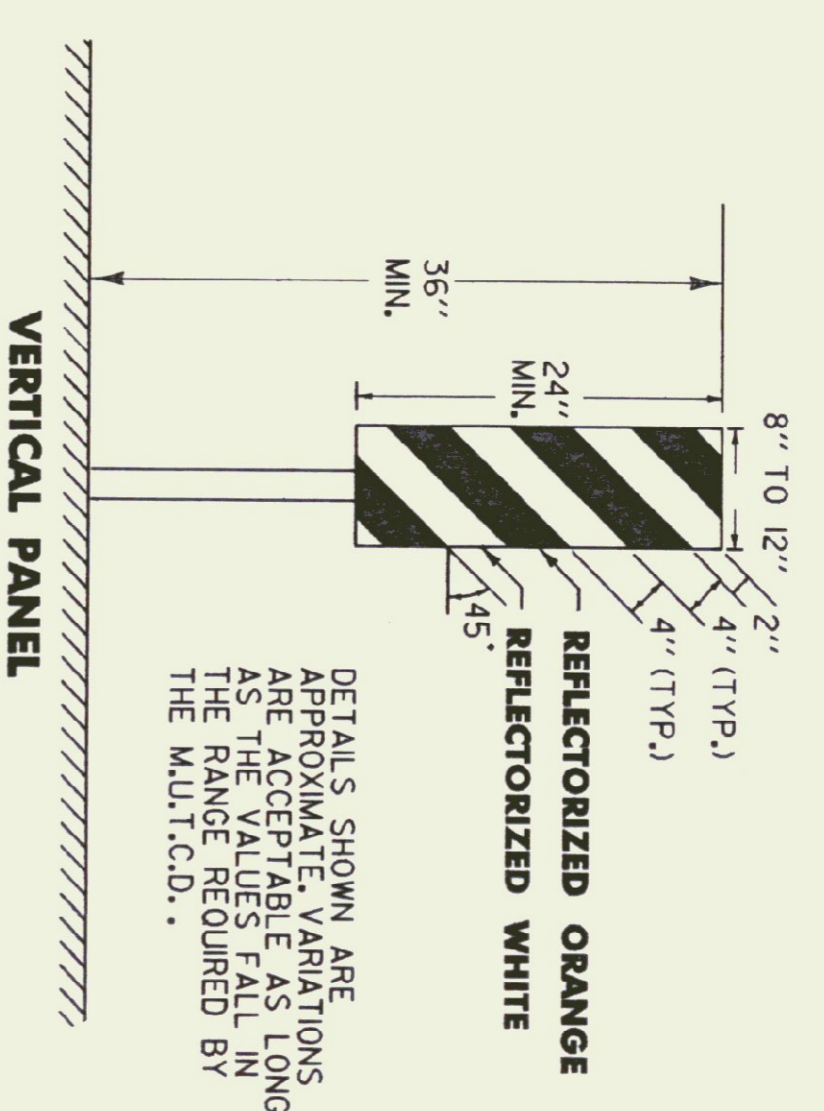


STANDARD  
 E-106



**OBJECT MARKER TYPICAL**

OBJECT'S MARKERS ARE USED TO MARK OBSTRUCTIONS WITHIN OR ADJACENT TO THE ROADWAY. IN SOME CASES THERE MAY NOT BE A PHYSICAL OBJECT INVOLVED, BUT OTHER ROADSIDE CONDITIONS, SUCH AS NARROW SHOULDER DROP-OFFS, GORES, D.I., EXCAVATIONS, AND ABRUPT CHANGES IN THE ROADWAY ALIGNMENT MAY MAKE IT UNDESIRABLE FOR A DRIVER TO LEAVE THE ROADWAY. THE INSIDE EDGE OF THE OBJECT MARKER SHALL BE IN LINE WITH THE INNER EDGE OF THE OBSTRUCTION, WHENEVER POSSIBLE. OBJECT MARKERS SHALL HAVE ALTERNATING BLACK AND REFLECTORIZED YELLOW STRIPES. (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS).

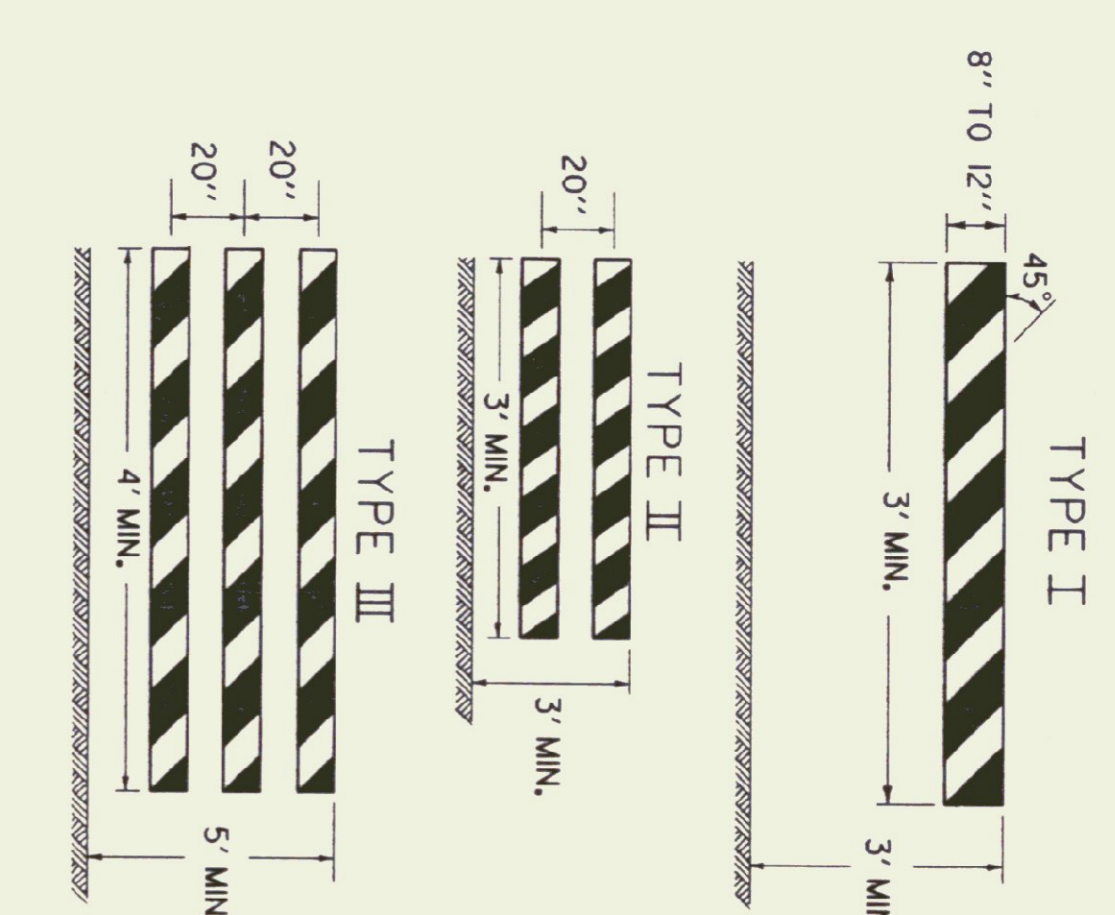


**DELINEATOR, VERTICAL PANEL AND OBJECT MARKER DETAILS FOR CONSTRUCTION AREAS WHERE TRAFFIC IS MAINTAINED**

ALL SIGN PLACEMENT DISTANCES ARE DESIRABLE SPECIFICATIONS. FIELD CONDITIONS SHALL CONTROL THE ACTUAL PLACEMENT. PROJECT CONSTRUCTION APPROACH SIGNING PLACEMENT SHALL TAKE INTO CONSIDERATION SPACING REQUIREMENTS FOR THE DETOUR SIGN LAYOUT REQUIREMENTS.

**VERTICAL PANEL**

VERTICAL PANELS SHALL HAVE ALTERNATING BLACK AND REFLECTORIZED STRIPES (SLOPING DOWNWARD IN THE DIRECTION TRAFFIC IS TO PASS). THESE DEVICES MAY BE USED FOR TRAFFIC SEPARATION, CHANNELIZING OR BARRICADING WHERE SPACE IS AT A MINIMUM.



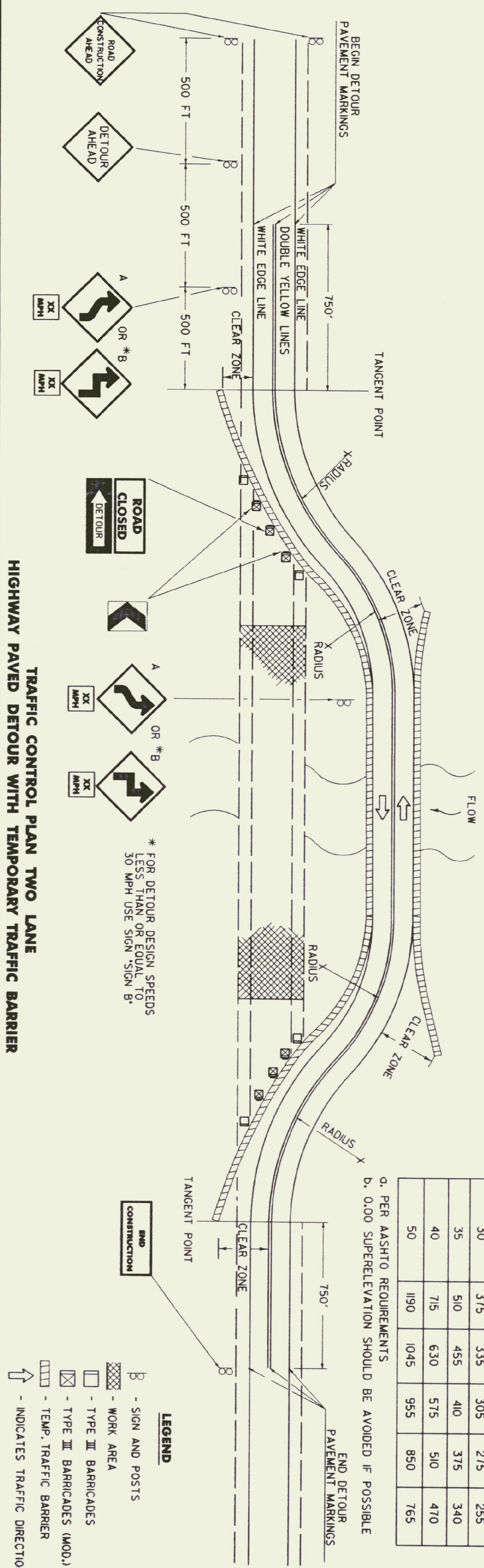
**BARRICADE CHARACTERISTICS**

BARRICADE CHARACTERISTICS	BARRICADE CHARACTERISTICS		
	I	II	III
WIDTH OF RAIL	8" MIN. - 12" MAX.	8" MIN. - 12" MAX.	8" MIN. - 12" MAX.
LENGTH OF RAIL	3' MIN.	3' MIN.	4' MIN.
WIDTH OF STRIPES	6"	6"	6"
HEIGHT	3' MIN.	3' MIN.	5' MIN.
TYPE OF FRAME	SEE E-107A	SEE E-107A	SEE E-107A
FLEXIBILITY	PORTABLE	PORTABLE	PORTABLE
ANGLE OF STRIPES	45°	45°	45°
COLOR OF STRIPES	ORANGE AND/ORANGE WHITE	ORANGE AND/ORANGE WHITE	ORANGE AND/ORANGE WHITE

A TYPE III (MODIFIED) BARRICADE SHALL CONSIST OF TYPE III RAILS MOUNTED ON A BREAKAWAY BARRICADE AS SHOWN ON STANDARD SHEET E-107A.

DETOUR DESIGN SPEED (M.P.H.)	MINIMUM SUPERELEVATION (FT./FT.)	MINIMUM RADIUS (FT.)
20	0.00 <sup>b</sup>	0.02
25	0.02	0.04
30	0.04	0.06
35	0.06	0.08
40	0.08	0.10
45	0.10	0.12
50	0.12	0.15

a. PER AASHTO REQUIREMENTS  
b. 0.00 SUPERELEVATION SHOULD BE AVOIDED IF POSSIBLE



- DETOUR NOTES**
- 1.) SIGNS AND DELINEATION SHOWN FOR ONE DIRECTION OF TRAFFIC ONLY.
  - 2.) THE CONTRACTOR IS RESPONSIBLE FOR PAVEMENT MARKING AND SHALL REMOVE ANY CONFLICTING OR CONFUSING EXISTING MARKINGS.
  - 3.) ADDITIONAL SIGNING MAY BE REQUIRED AT THE DISCRETION OF THE RESIDENT ENGINEER.
  - 4.) UNPAVED DETOURS REQUIRE PAVEMENT MARKINGS FOR TRANSITIONS FROM EXISTING PAVEMENT.
  - 5.) THE NUMBER OF CHANNELIZING DEVICES, BARRICADES AND OTHER TRAFFIC CONTROL DEVICES SHOWN ON THIS SHEET ARE FOR ILLUSTRATIVE PURPOSES ONLY. THE ACTUAL NUMBER REQUIRED SHALL BE DETERMINED BASED ON INDIVIDUAL DETOUR CONDITIONS (TAPERS, SPEED LIMITS, LENGTH OF DETOUR CURVE, ETC.).
  - 6.) AASHTO CLEAR ZONE REQUIREMENTS SHOULD BE MET. IF NOT THEN AN APPROVED ENERGY ABSORPTION ATTENUATOR SUITABLE FOR THE TEMPORARY TRAFFIC BARRIER USED AND FOR THE DESIGN SPEED SHALL BE INSTALLED PER THE CURRENT AASHTO ROADSIDE DESIGN GUIDE.
  - 7.) THE DETOUR DESIGN SPEED SHOULD BE NO LESS THAN 10 M.P.H. BELOW THE POSTED SPEED LIMIT, UNLESS PHYSICAL RESTRICTIONS PREVENT THIS.
  - 8.) SEE STANDARD SHEETS E-100, E-101 AND E-102 FOR SIGN DETAIL AND MATERIAL REQUIREMENTS.
  - 9.) IF THE USE OF TEMPORARY TRAFFIC BARRIER IS NOT REQUIRED, THEN REFLECTORIZED PLASTIC DRUMS SHALL BE USED.

OTHER STDS. : E-100, E-101, E-102, E-107A  
REQUIRED

**DELINEATION, BARRICADES AND DETOURS FOR CONSTRUCTION AREAS**

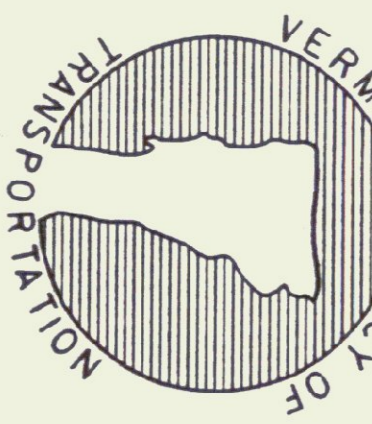
REVISIONS AND CORRECTIONS

APRIL 29, 1988 - FHWA REVIEW COMMENTS  
SEPT. 20, 1993 - NEW RADIUS CHART, BARRICADE ALIGNMENT AND USE OF TEMPORARY TRAFFIC BARRIER

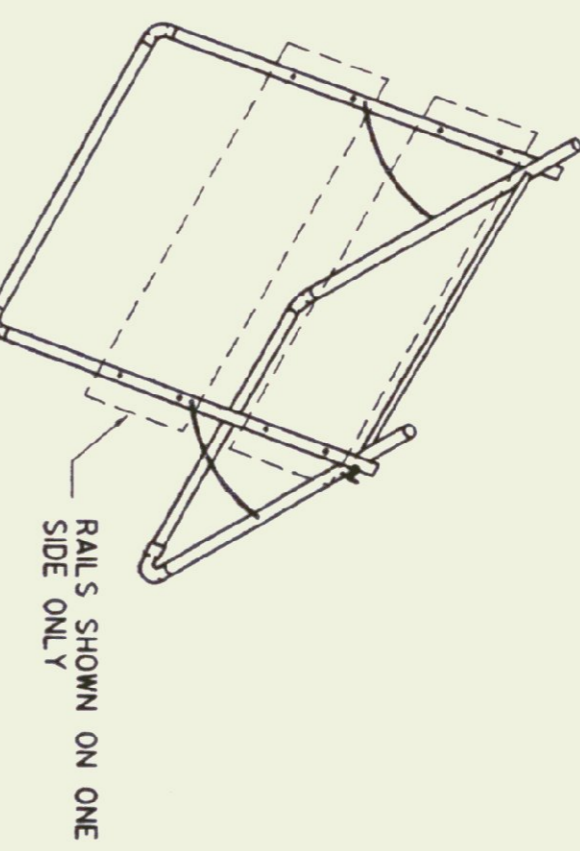
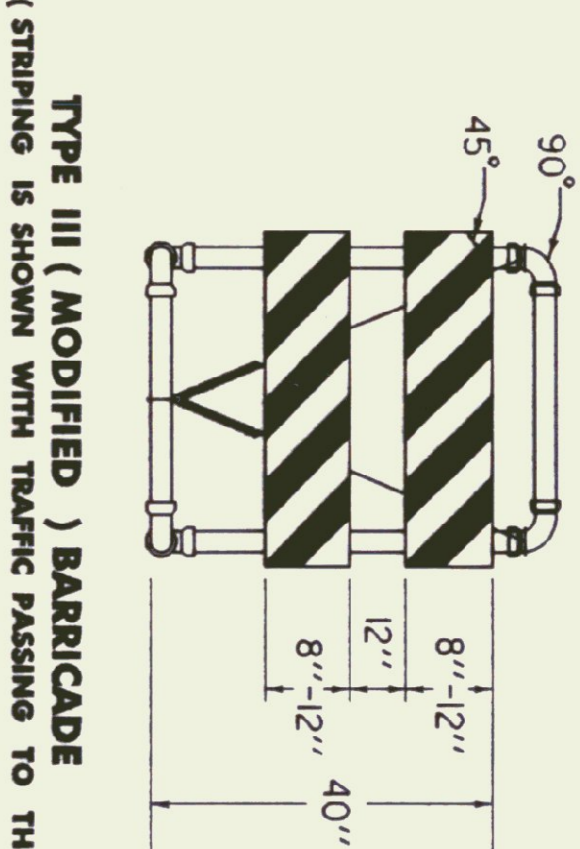
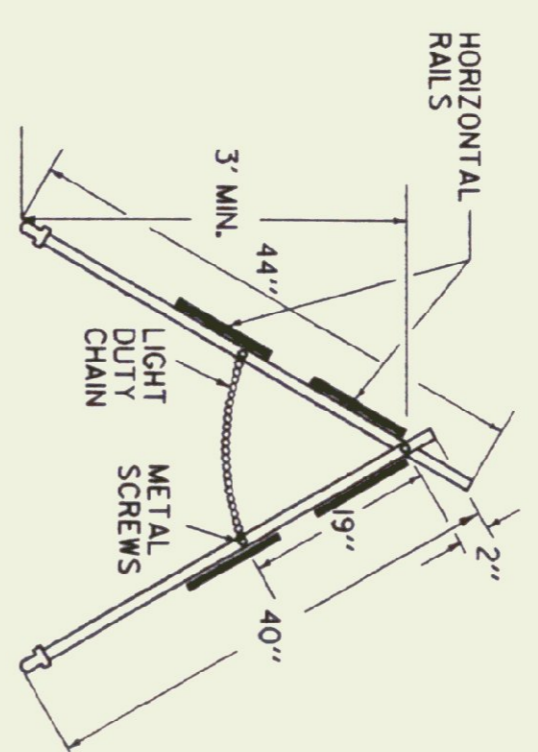
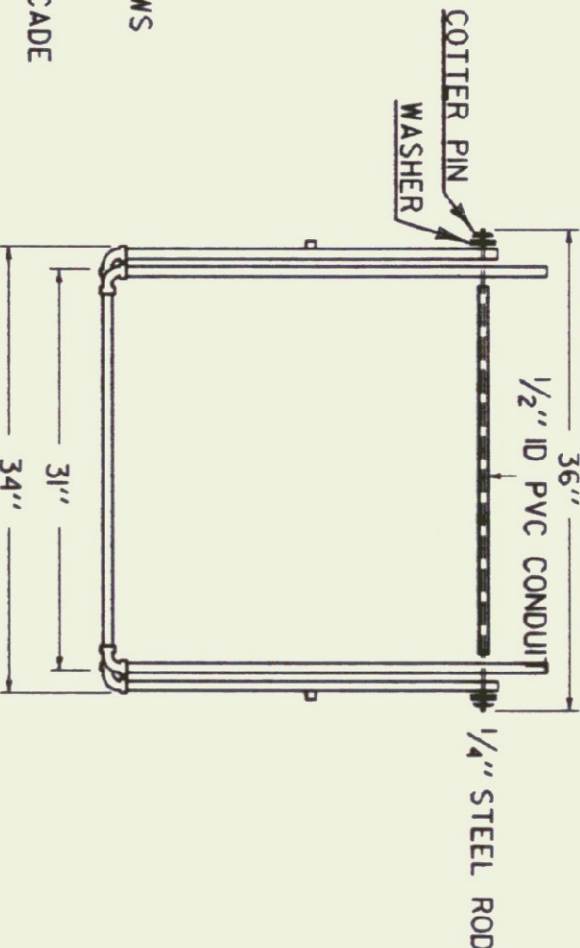
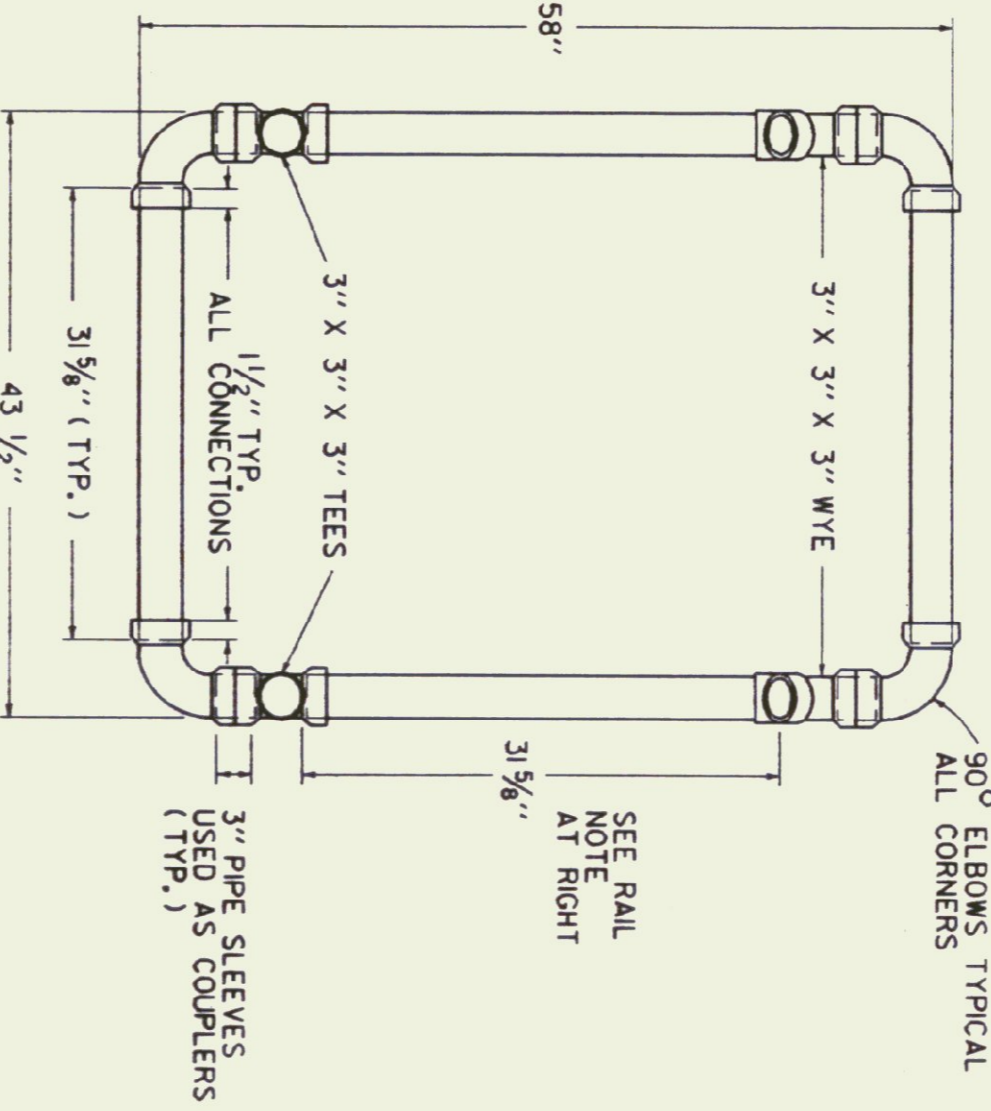
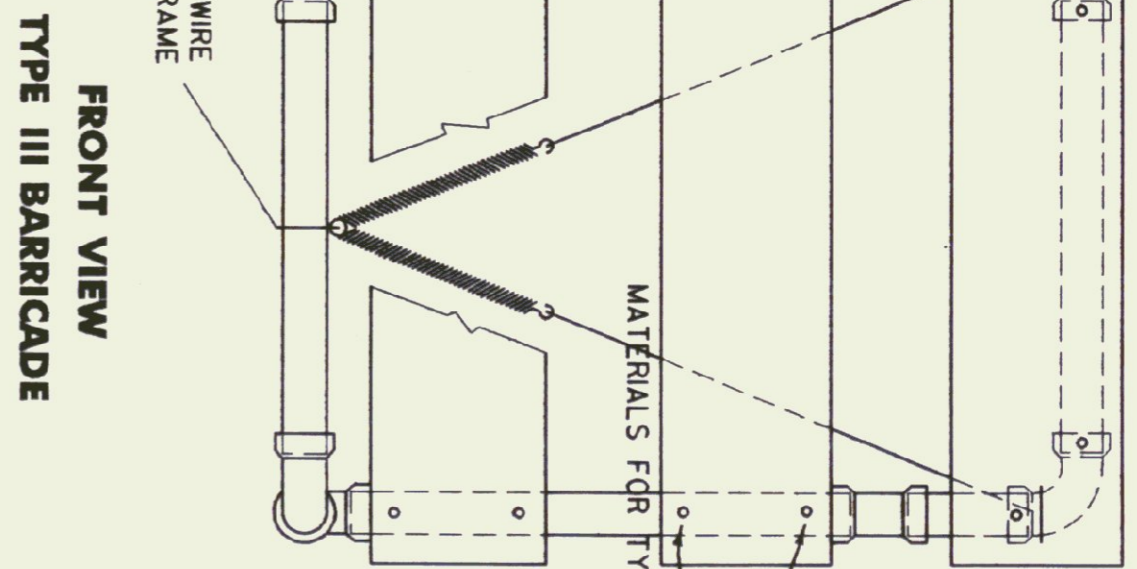
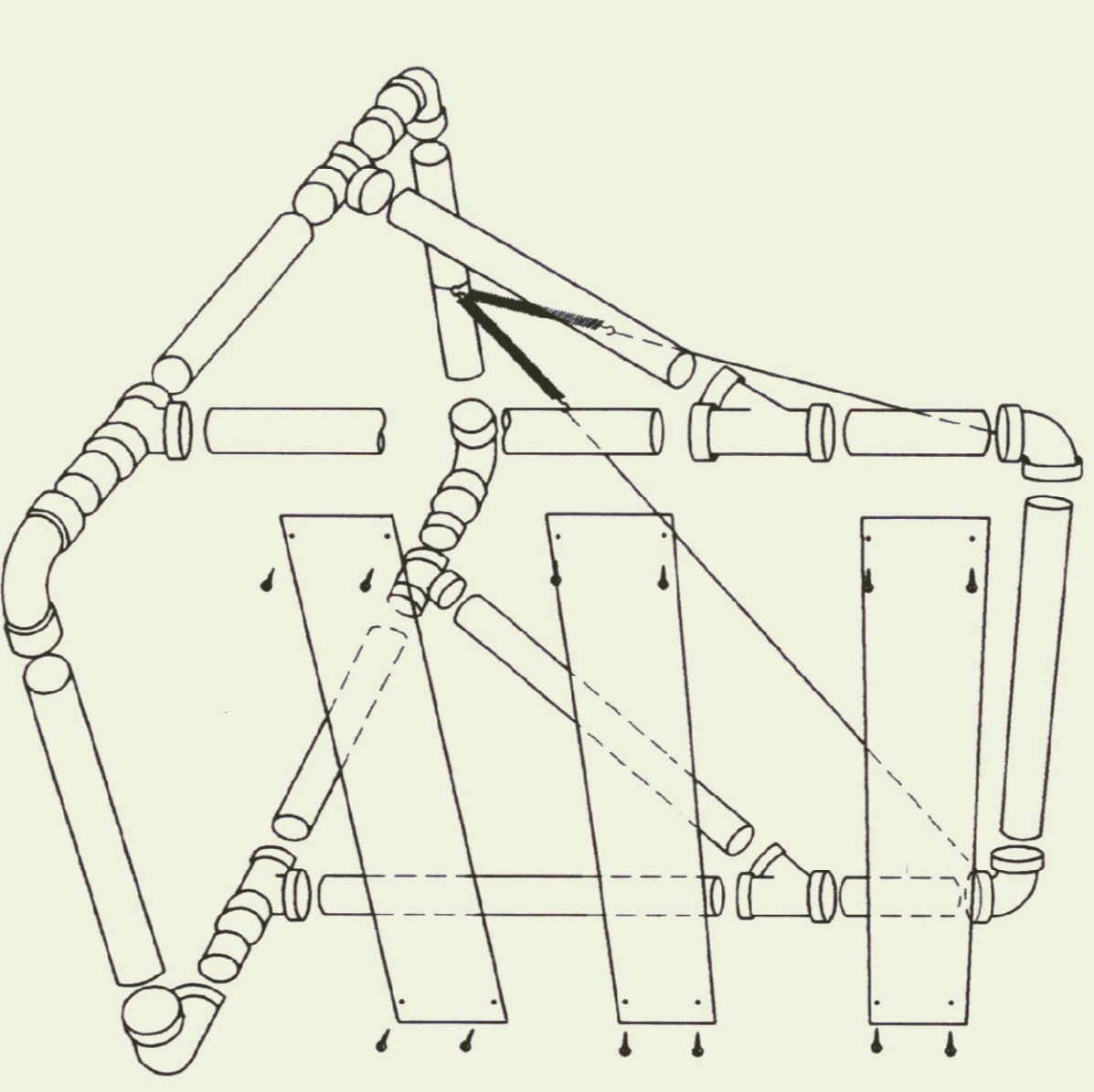
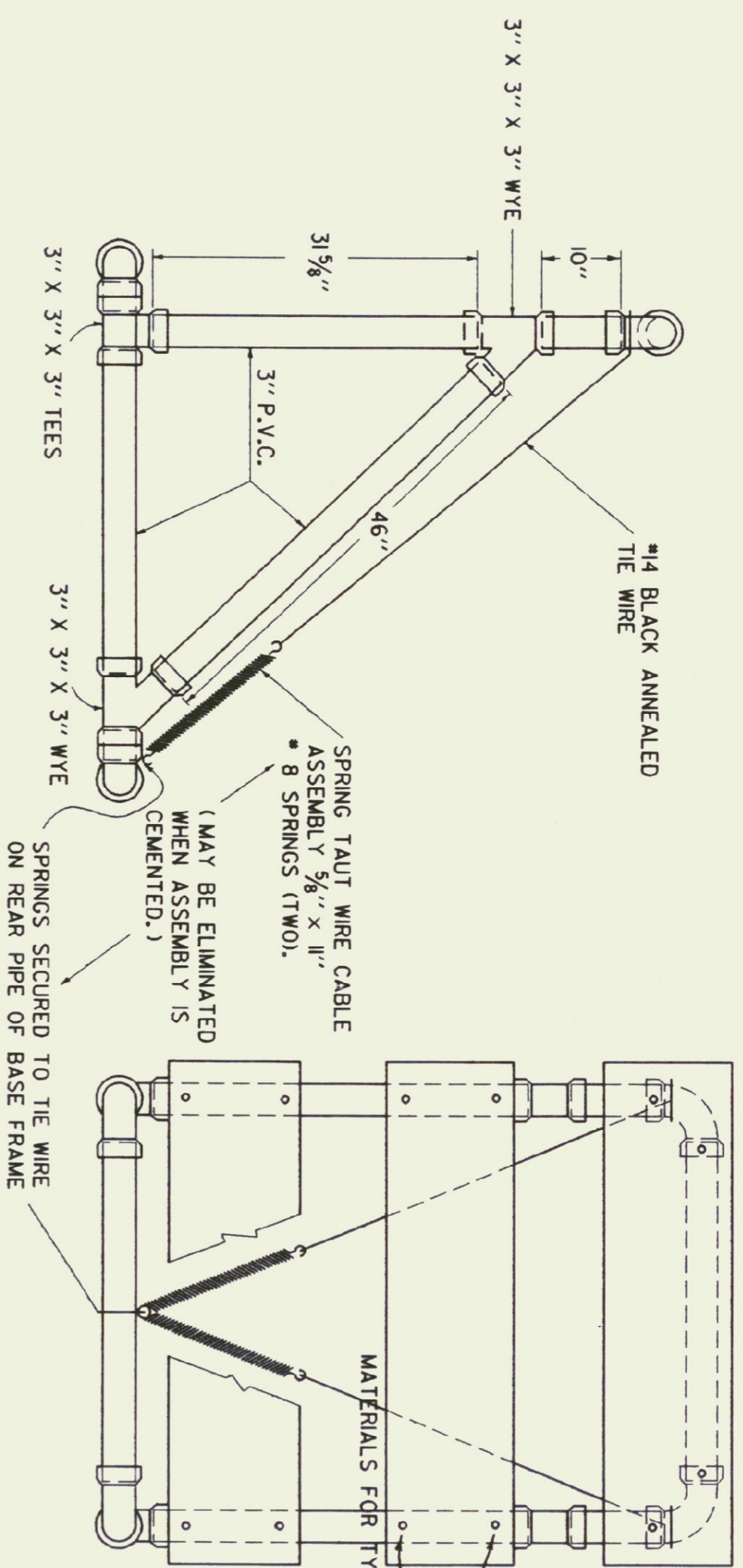
APPROVED \_\_\_\_\_ DATE \_\_\_\_\_  
SEPT. 10, 1987

*Stanley D. Miller*  
DIRECTOR OF ENGINEERING

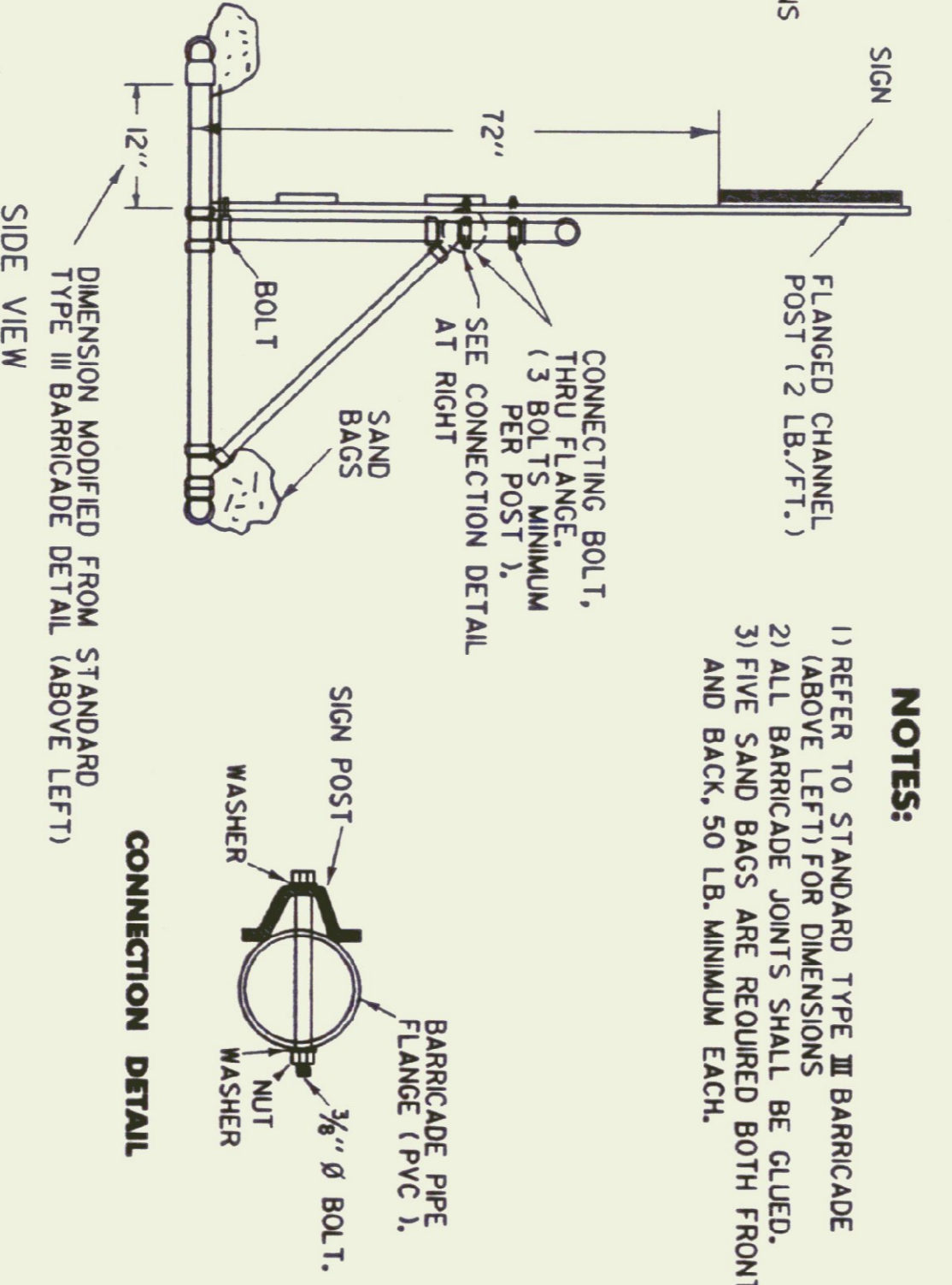
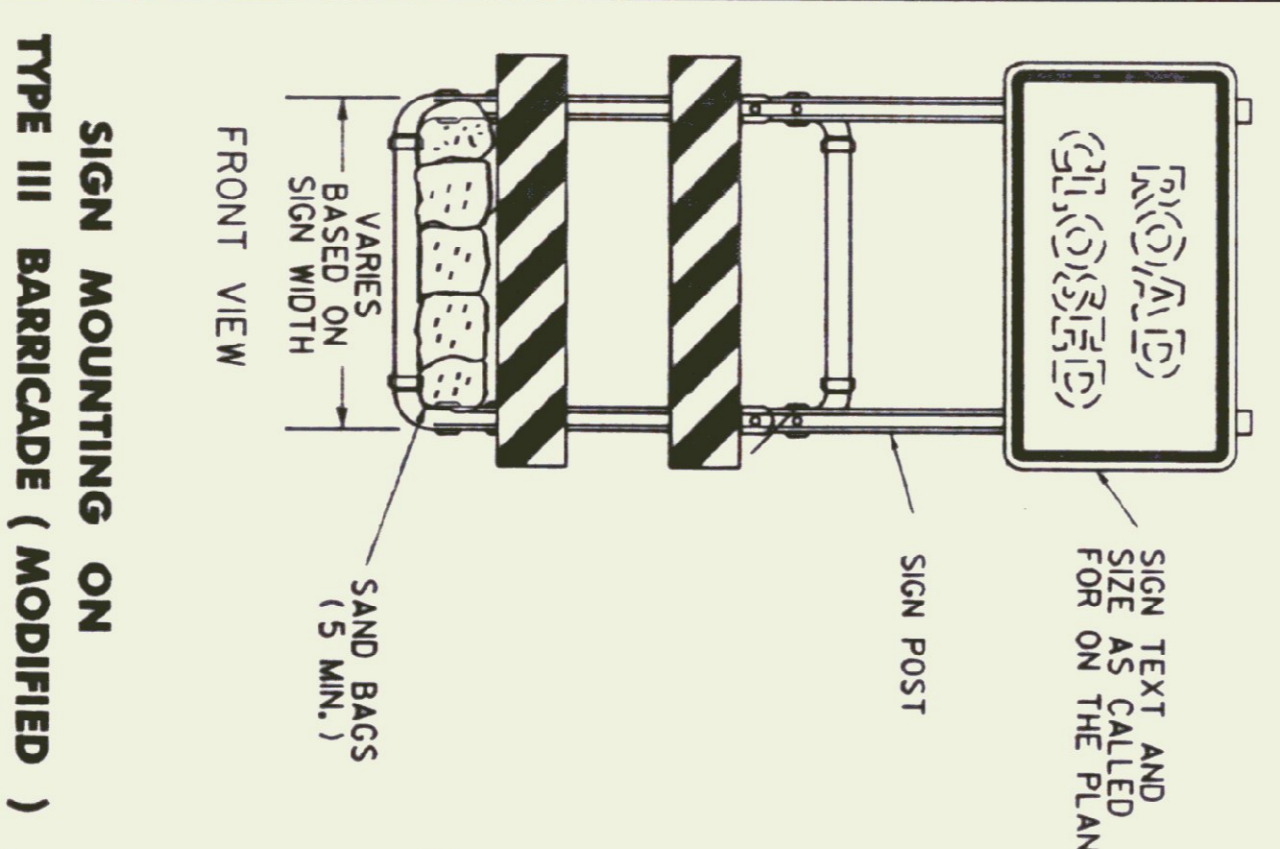
*Bob & Susan*  
Acting TRAFFIC AND SAFETY ENGINEER



**STANDARD E-107**



- MATERIALS FOR TYPE I AND II BARRICADES**
- 20' - 1" PVC
  - 4 - 1" PVC 90° ELBOWS
  - 30' - 1/2" ID THINWALL PVC CONDUIT
  - 36' - 1/2" STEEL ROD
  - 4 - 1" WASHERS
  - 24' - LIGHT DUTY CHAIN
  - 1/2" - #14 PAN HEAD METAL SCREWS (AS REQUIRED)
  - 2 - 3/4" COTTER PINS
  - 2 OR 4 - 8" OR 12" X 36" X 0.025" BARRICADE RAILS (AS REQUIRED)
- MATERIALS FOR TYPE III BARRICADES**
- 30' - 3" ID PVC PIPE
  - 6 - 3" 90° ELBOWS
  - 2 - 3" TEES
  - 4 - 3" WYES
  - 4 - 8" X 48" X 0.025" BARRICADE RAILS
  - 2 - 3/8" X 11" #8 SPRING (IF ASSEMBLY IS NOT CEMENTED)
  - 12 - 1" #14 PAN HEAD METAL SCREWS (IF ASSEMBLY IS NOT CEMENTED)
  - 15 LF - #14 BLACK ANNEALED TIE WIRE (IF ASSEMBLY IS NOT CEMENTED)



- NOTES:**
- 1) REFER TO STANDARD TYPE III BARRICADE (ABOVE LEFT) FOR DIMENSIONS
  - 2) ALL BARRICADE JOINTS SHALL BE GLUED.
  - 3) FIVE SAND BAGS ARE REQUIRED BOTH FRONT AND BACK, 50 LB. MINIMUM EACH.

**MATERIALS**

THE PIPE, WYES, TEES AND ELBOWS USED TO CONSTRUCT BARRICADES SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION D 2241 FOR P.V.C. 120 OR 1220 SDR-21. PRESSURE RATING 200 PSI. THE WYES, TEES AND ELBOWS SHALL CONFORM TO THE REQUIREMENTS OF ASTM DESIGNATION D 2466, TYPE II, GRADE 1. ALL JOINTS SHALL BE SLIP-FIT AND MAY BE LIGHTLY CEMENTED. THE BARRICADE RAILS SHALL BE FABRICATED FROM 0.025" ALUMINUM AND SHALL HAVE REFLECTORIZED ALTERNATING ORANGE AND WHITE STRIPES (SLOPING DOWNWARD AT AN ANGLE OF 45 DEGREES IN THE DIRECTION TRAFFIC IS TO PASS).

**MAINTENANCE**

BARRICADES SHALL BE MAINTAINED IN CLEAN AND LEGIBLE CONDITIONS SATISFACTORY TO THE ENGINEER. THEY SHALL BE COMPLETELY VISIBLE TO APPROXIMATE TRAFFIC. ALL CRACKS, DAMAGED, DEFACED OR DIRTY BARRICADES SHALL BE REPAIRED, CLEANED OR REPLACED AS ORDERED BY THE ENGINEER. THE P.V.C. PIPE AND FITTINGS SHALL BE WHITE IN COLOR. A LEAST TWO HOLES SHALL BE DRILLED (3/8" DIA.) IN EACH SECTION OF PIPE AND FITTINGS IF THE ASSEMBLY IS NOT CEMENTED.

BARRICADES SHALL BE STABILIZED WITH SAND BAGS OF MINIMUM WEIGHT WHICH WILL NOT CONSTITUTE A HAZARD IF THE BARRICADE IS HIT. THESE SHALL BE PLACED ONLY ON THE FRONT AND REAR PIPES OF THE BASE FRAME OF THE BARRICADE. SAND BAG STABILIZERS SHALL BE SO PLACED AS NOT TO BE A HAZARD TO VEHICLES PASSING ON EITHER SIDE.

BARRICADE JOINTS MAY PROVIDE ADDITIONAL STABILITY TO THE INSTALLATION.

TYPE I BARRICADES SHALL UTILIZE ONE HORIZONTAL RAIL IN EACH DIRECTION.

TYPE II BARRICADES SHALL BE A TYPE I BARRICADE WITH AN ADDITIONAL HORIZONTAL RAIL MOUNTED BELOW THE OTHER IN EACH DIRECTION.

TYPE III BARRICADES (MODIFIED) SHALL CONSIST OF THE BREAKAWAY TYPE I BARRICADE DESIGN SHOWN ON THIS SHEET WITH THE TWO RAIL LAYOUT DETAILED ABOVE LEFT.

SEE STD E-107 FOR ADDITIONAL INFORMATION.

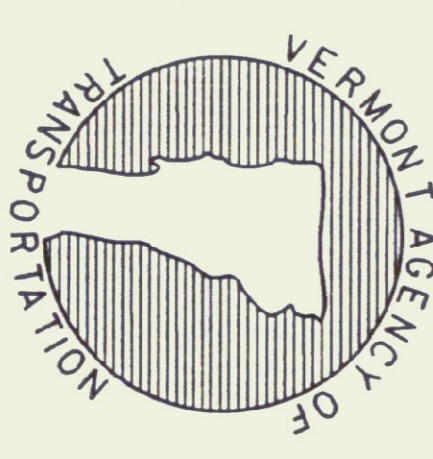
REVISIONS AND CORRECTIONS  
SEPT. 20, 1993 - REVISED NOTES AND TYPE III (MOD.) BARRICADE DETAIL

APPROVED \_\_\_\_\_ DATE \_\_\_\_\_  
SEPT. 10, 1987

APPROVED FOR THIS PROJECT AND/OR DESIGN IMPLEMENTATION, FINA FINAL APPROVAL PENDING.

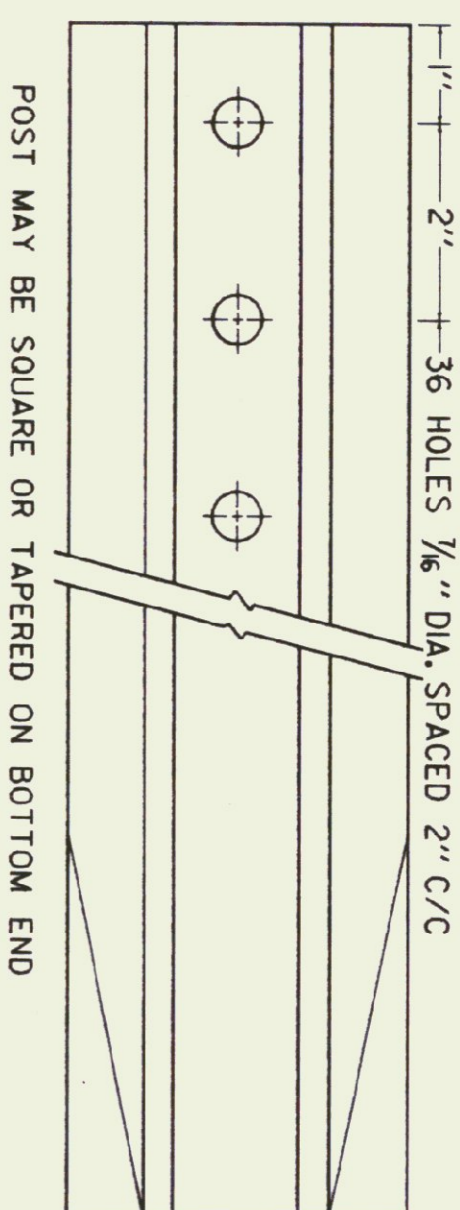
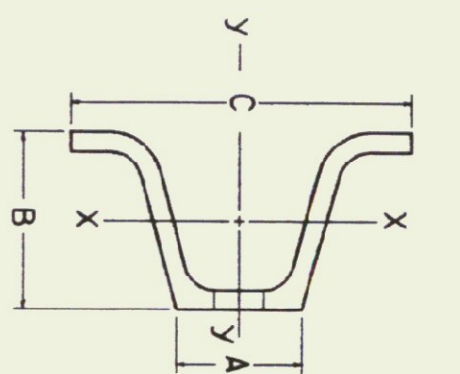
*Stanley D. Miller*  
DIRECTOR OF ENGINEERING  
*Dee S. Fourn*  
TRAFFIC AND SAFETY ENGINEER

# BREAKAWAY BARRICADE DETAILS



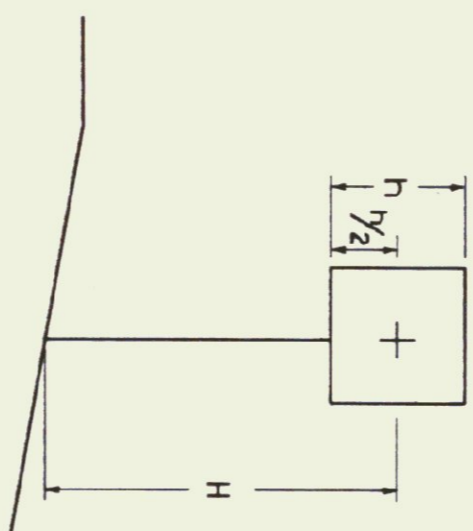
**STANDARD  
E-107a**

OTHER STDS. : E-107  
REQUIRED



POST SIZE (LB/FT.)	DIMENSIONS			SECTION MODULUS, X-X
	A	B	C	
2	1 1/2"	1 3/4"	3 1/8"	0.225 IN. <sup>3</sup>
2 1/2	1 3/2"	1 3/4"	3 1/8"	0.289 IN. <sup>3</sup>
3	1 3/4"	1 7/8"	3 1/2"	0.403 IN. <sup>3</sup>

SIMILAR DIMENSIONS ARE ACCEPTABLE, HOWEVER SECTION MODULUS VALUES SHALL NOT BE EXCEEDED.



**POST SELECTION CHART**

POST SIZE	SV	DESIGN CRITERIA
2 LB./FT. (ONE POST INSTALLATION)	32	WIND SPEED = 60 MPH (10-YEAR MEAN RECURRENCE INTERVAL)
2 LB./FT. (TWO POST INSTALLATION)	62	WIND PRESSURE = 15 PSF
2.5 LB./FT. *	77	STEEL MIN. YIELD F <sub>y</sub> = 50,000 PSI
3 LB./FT.	107	ALLOWABLE STRESS = (1.4) 0.60 F <sub>y</sub>

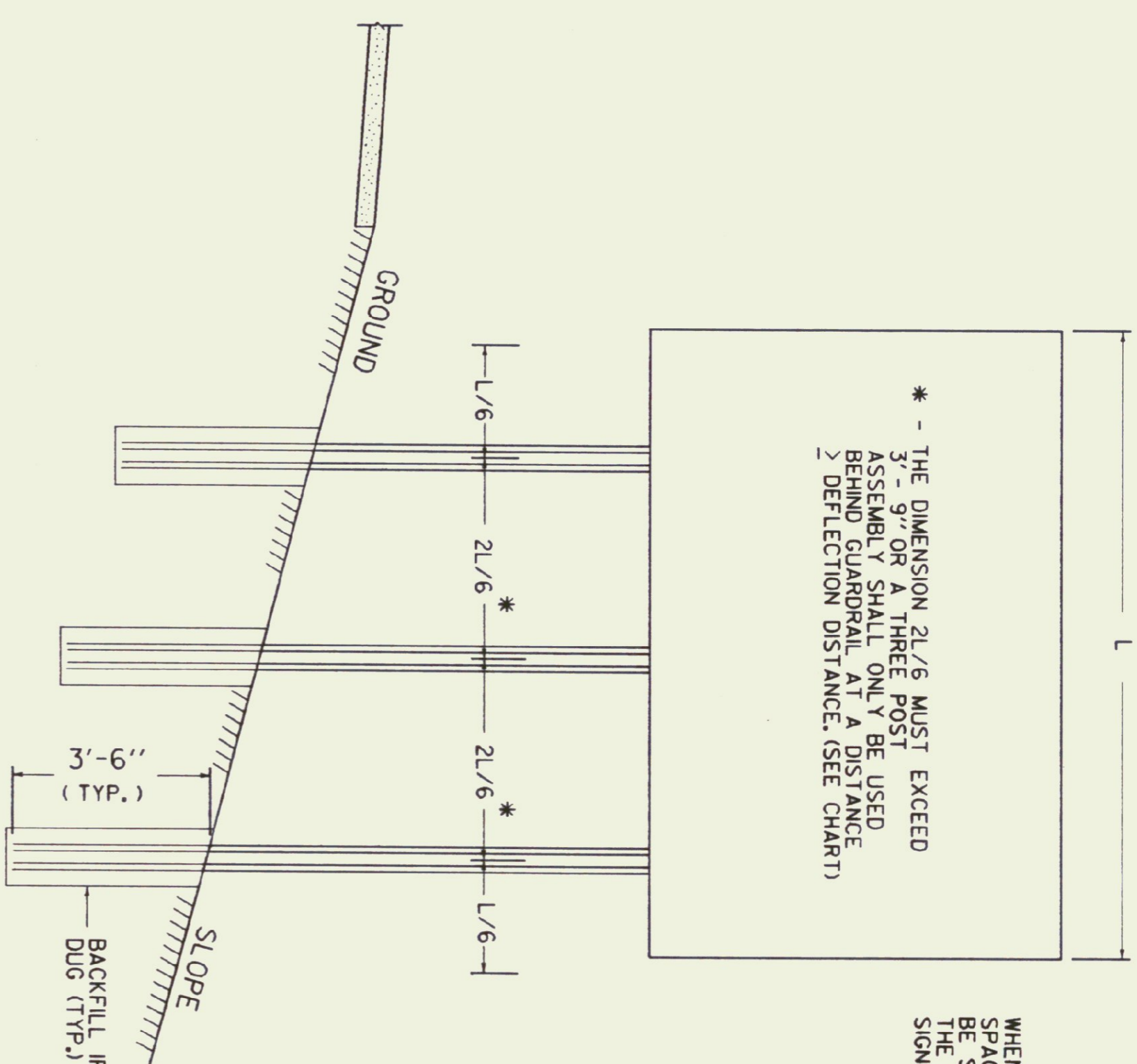
SINGULAR 2 LB./FT. POSTS SHALL ONLY TO BE USED IN URBAN AREAS. 2.5 LB./FT. POSTS SHALL NOT BE USED FOR NEW INSTALLATIONS. INFORMATION IS PROVIDED ONLY FOR CHECKING RETAINED POSTS.

REVISIONS AND CORRECTIONS  
 MARCH 1, 1988 - FHWA REVIEW COMMENTS  
 OCT 21, 1992 - ADDED DETAILS, REVISED NOTES  
 & REVISED TITLE BLOCK

APPROVED \_\_\_\_\_ DATE SEPT. 10, 1987

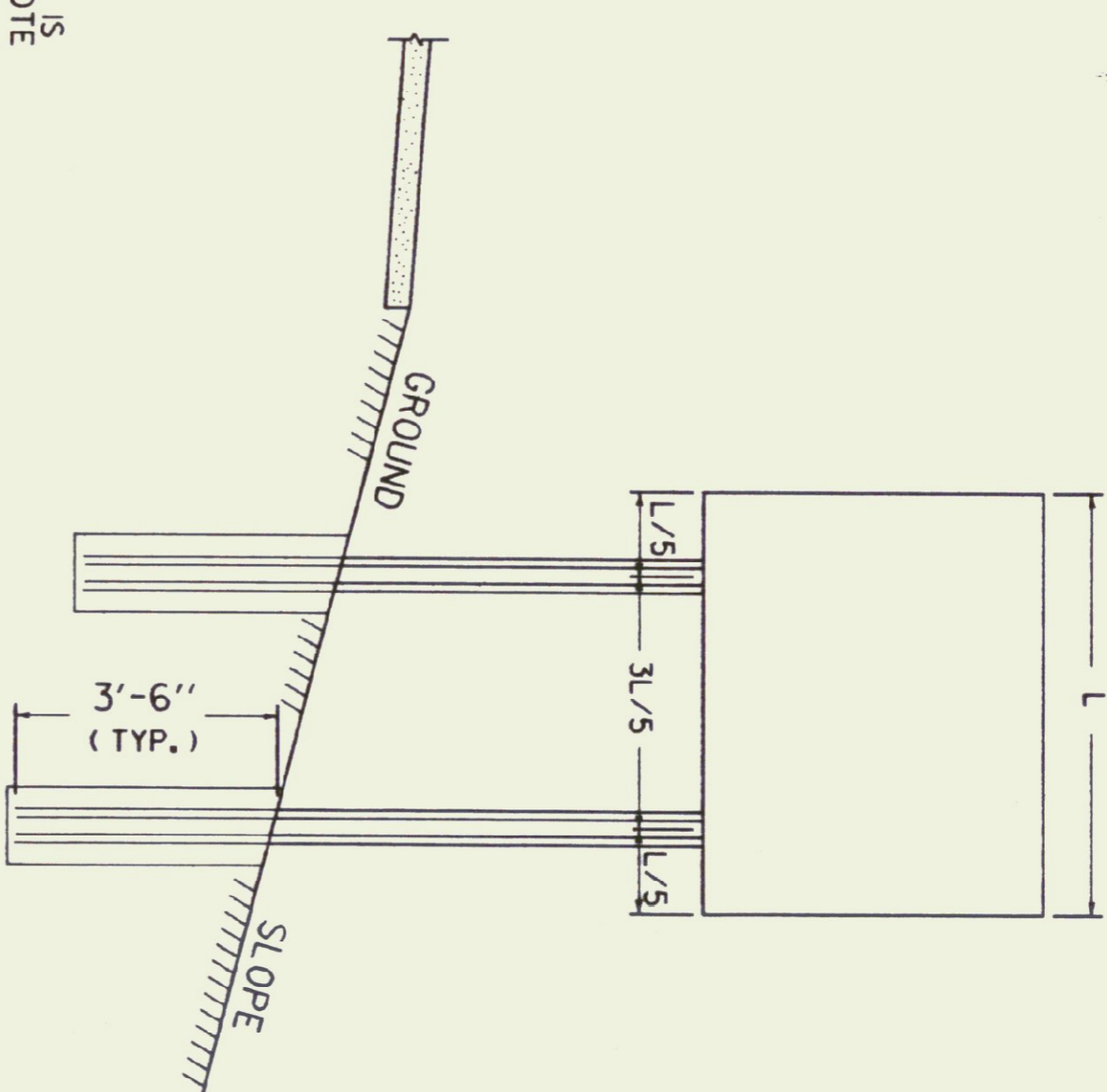
*Stephen D. Theobald*  
 DIRECTOR OF ENGINEERING  
*David A. Remy*  
 TRAFFIC AND SAFETY ENGINEER

\* - THE DIMENSION 2L/6 MUST EXCEED 3' - 9" OR A THREE POST ASSEMBLY SHALL ONLY BE USED BEHIND GUARDRAIL AT A DISTANCE 2 DEFLECTION DISTANCE. (SEE CHART)



**MULTI-POST INSTALLATIONS**

WHEN SIGN POSTS ARE INSTALLED WITH A POST SPACING OF LESS THAN 8 FEET, POST SIZES MUST BE SELECTED TO INSURE THAT WHEN ACTING TOGETHER THE POSTS DO NOT CREATE A HAZARD. REFER TO V.A.O.T. SIGN POST DESIGN GUIDELINE FOR ADDITIONAL DETAILS.



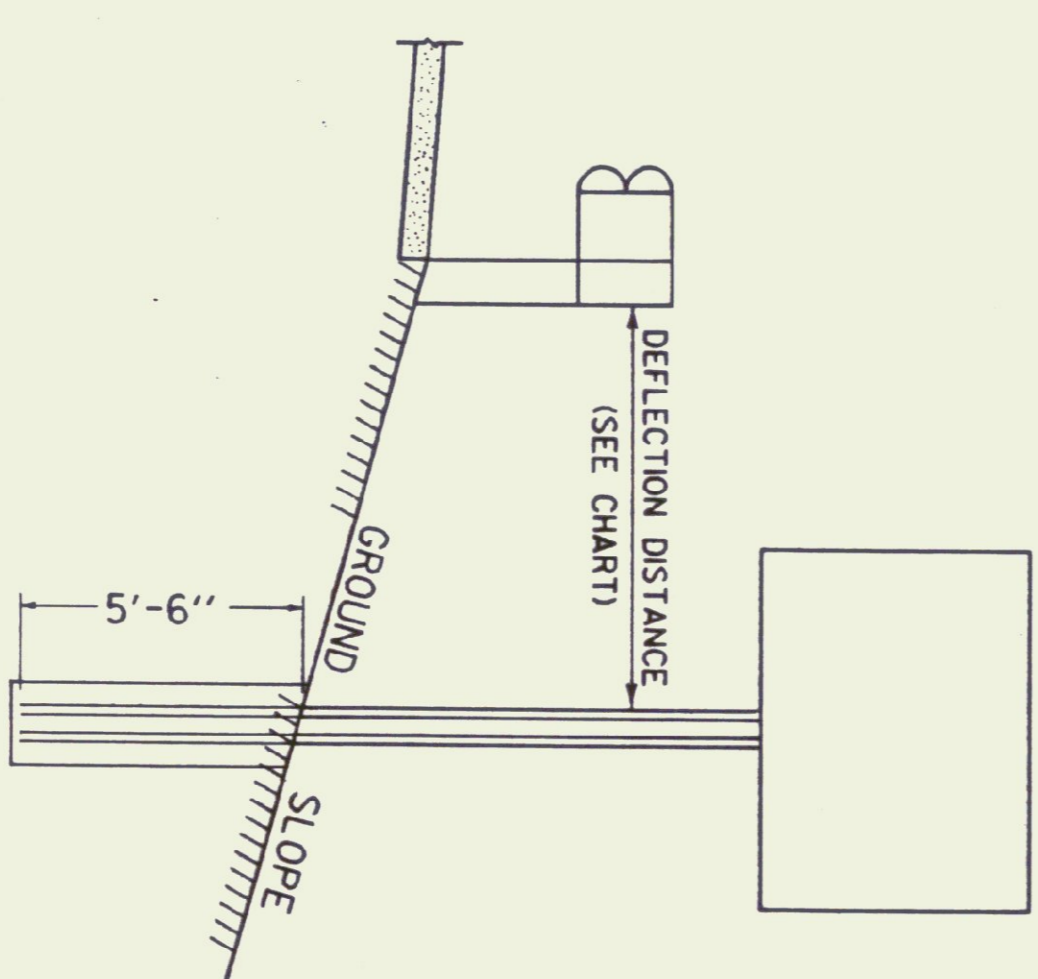
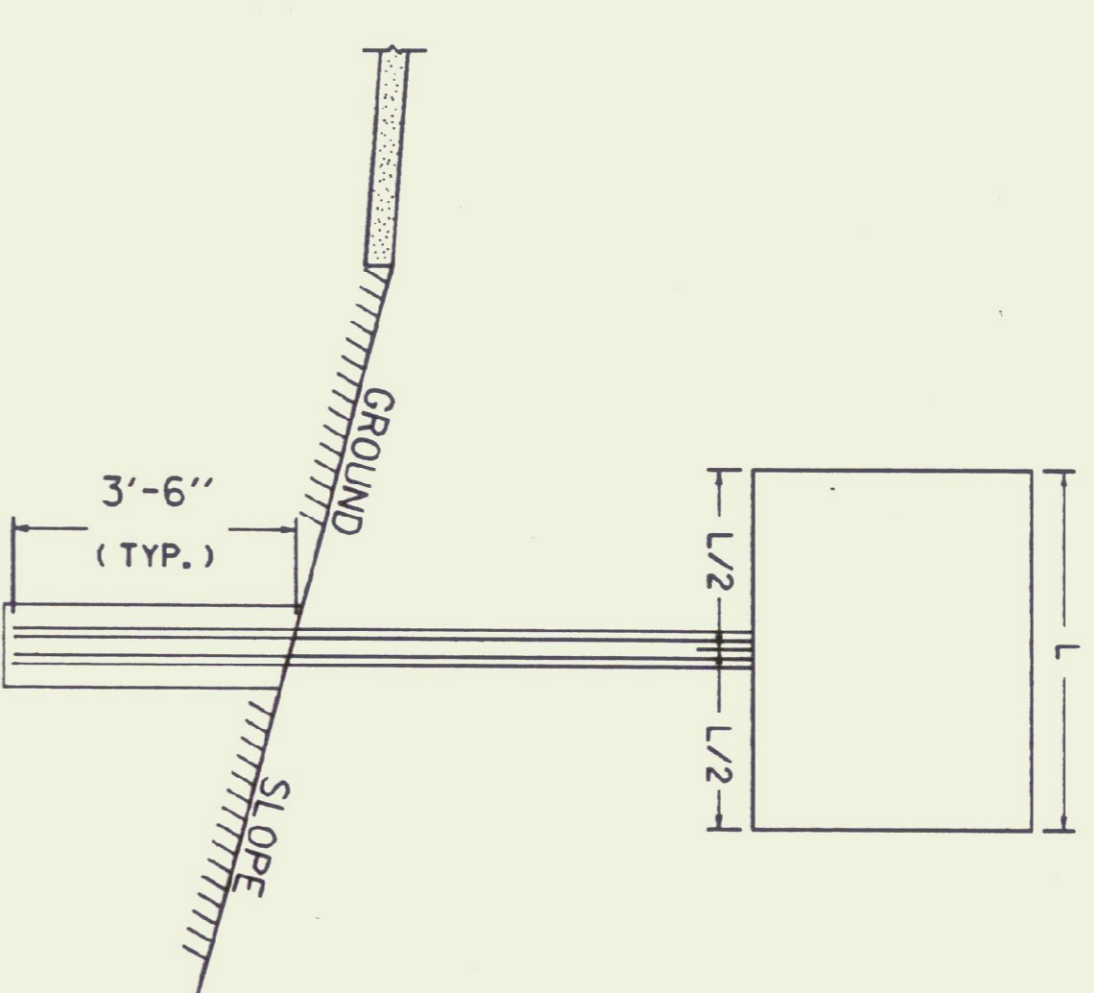
**POST SPACING DETAILS**

**GUARDRAIL DEFLECTION CHART**  
 (PER AASHTO - ROADSIDE DESIGN GUIDE - 1988)

TYPE	GR POST SPACING	DEFLECTION
THREE CABLE W/STEEL POSTS	16' - 0"	12'
W/WOODEN POSTS	12' - 6"	12'
W-BEAM W/WEAK POST	12' - 6"	7'
W/STRONG POST	6' - 3"	3'
BOX BEAM	6' - 0"	5'
THREE BEAM W/WEAK POST	12' - 6"	4'
W/STRONG POST	6' - 3"	2'
TWO-RAIL ELLIPTICAL ALUMINUM		2'

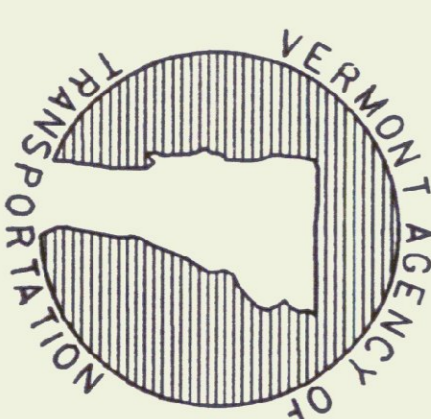
THIS CHART LISTS THE THEORETICAL DEFLECTION DISTANCE UPON IMPACT OF VARIOUS GUARDRAIL WITH DIFFERENT TYPES AND SPACING OF POSTS.

**GENERAL NOTES**  
 CONSTRUCTION METHODS - POSTS MAY BE DRIVEN OR SET IN A DUG HOLE AND BACKFILLED. IF DRIVEN, A DRIVING CAP SHALL BE USED. THE DUG HOLE INSTALLATION SHALL BE USED IN AREAS OF POOR SOIL CONDITIONS OR AS DIRECTED BY THE RESIDENT ENGINEER. BACKFILL SHALL BE COMPACTED AS DIRECTED BY THE RESIDENT ENGINEER.  
 SIGN CLEARANCES - HORIZONTAL AND VERTICAL SIGN CLEARANCES SHALL BE SHOWN ON THE PLANS OR THE APPROPRIATE STD. SHEETS. SINGLE POST INSTALLATIONS SHALL BE LIMITED TO A SIGN AREA OF 1/2 SQ. FT. OR LESS



WHEN USING FLANGED CHANNEL POSTS ON STEEP SLOPES (ION 2 OR STEEPER FILL SLOPES BEHIND GUARDRAIL, ADD 2' EMBEDMENT TO THE POST LENGTH. HOWEVER, THE ASSEMBLY MORE STABILITY. HOWEVER, SIGN POSTS LOCATED INSIDE THE DEFLECTION DISTANCE, THE SIGN POST SHALL BE SET AT A DEPTH OF 3 - 8'.

**FLANGED CHANNEL STEEL SIGN POST**



**STANDARD E-160**

