



State of West Virginia
 Department of Administration
 Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

Request for Quotation

RFO NUMBER
 DPS0841

PAGE
 1

ADDRESS CORRESPONDENCE TO ATTENTION OF
 JOHN ABBOTT
 304-558-2544

RFO COPY

VENDOR

TIM SCOTT
 SCOTT LAB SOLUTIONS
 7216 BALL CAMP PIKE
 KNOXVILLE TN 37931

SHIP TO

WEST VIRGINIA STATE POLICE
 725 JEFFERSON ROAD
 SOUTH CHARLESTON, WV
 25309-1698

DATE PRINTED	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
06/02/2008				
BID OPENING DATE: 07/01/2008		BID OPENING TIME 01:30PM		

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	LS		165-94	95,461.00	\$95,461.00
CASEWORK & FUME HOOD DELIVERY AND INSTALLATION OF CASEWORK AND FUME HOODS AT THE FORENSIC LAB, FOR THE WEST VIRGINIA STATE POLICE, PER THE ATTACHED SPECIFICATIONS. MANDATORY PRE-BID: JUNE 17, 2008; 1:30 PM WV STATE POLICE HEADQUARTERS 725 JEFFERSON ROAD SOUTH CHARLESTON, WV 25309 CONTACT: SGT. RICK PURSLEY 304-746-2141 EXHIBIT 10 REQUISITION NO.: ADDENDUM ACKNOWLEDGEMENT I HEREBY ACKNOWLEDGE RECEIPT OF THE FOLLOWING CHECKED ADDENDUM(S) AND HAVE MADE THE NECESSARY REVISIONS TO MY PROPOSAL, PLANS AND/OR SPECIFICATION, ETC. ADDENDUM NO.'S: NO. 1 NO. 2						

RECEIVED
 2008 JUN -9 A 11:12
 PURCHASING DIVISION
 STATE OF WV

SEE REVERSE SIDE FOR TERMS AND CONDITIONS			
SIGNATURE	TELEPHONE	DATE	
	865-539-9112	6/5/08	
TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE	
President	20-1413282		

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

**GENERAL TERMS & CONDITIONS
REQUEST FOR QUOTATION (RFQ) AND REQUEST FOR PROPOSAL (RFP)**

1. Awards will be made in the best interest of the State of West Virginia.
2. The State may accept or reject in part, or in whole, any bid.
3. All quotations are governed by the *West Virginia Code* and the *Legislative Rules* of the Purchasing Division.
4. Prior to any award, the apparent successful vendor must be properly registered with the Purchasing Division and have paid the required \$125.00 registration fee.
5. All services performed or goods delivered under State Purchase Orders/Contracts are to be continued for the term of the Purchase Order/Contract, contingent upon funds being appropriated by the Legislature or otherwise being made available. In the event funds are not appropriated or otherwise available for these services or goods, this Purchase Order/Contract becomes void and of no effect after June 30.
6. Payment may only be made after the delivery and acceptance of goods or services.
7. Interest may be paid for late payment in accordance with the *West Virginia Code*.
8. Vendor preference will be granted upon written request in accordance with the *West Virginia Code*.
9. The State of West Virginia is exempt from federal and state taxes and will not pay or reimburse such taxes.
10. The Director of Purchasing may cancel any Purchase Order/Contract upon 30 days written notice to the seller.
11. The laws of the State of West Virginia and the *Legislative Rules* of the Purchasing Division shall govern all rights and duties under the Contract, including without limitation the validity of this Purchase Order/Contract.
12. Any reference to automatic renewal is hereby deleted. The Contract may be renewed only upon mutual written agreement of the parties.
13. **BANKRUPTCY:** In the event the vendor/contractor files for bankruptcy protection, this Contract may be deemed null and void, and terminated without further order.
14. **HIPAA Business Associate Addendum** - The West Virginia State Government HIPAA Business Associate Addendum (BAA), approved by the Attorney General, and available online at the Purchasing Division's web site (<http://www.state.wv.us/admin/purchase/vrc/hipaa.htm>) is hereby made part of the agreement. Provided that, the Agency meets the definition of a Covered Entity (45 CFR §160.103) and will be disclosing Protected Health Information (45 CFR §160.103) to the vendor.

INSTRUCTIONS TO BIDDERS

1. Use the quotation forms provided by the Purchasing Division.
2. **SPECIFICATIONS:** Items offered must be in compliance with the specifications. Any deviation from the specifications must be clearly indicated by the bidder. Alternates offered by the bidder as **EQUAL** to the specifications must be clearly defined. A bidder offering an alternate should attach complete specifications and literature to the bid. The Purchasing Division may waive minor deviations to specifications.
3. Complete all sections of the quotation form.
4. Unit prices shall prevail in cases of discrepancy.
5. All quotations are considered F.O.B. destination unless alternate shipping terms are clearly identified in the quotation.
6. **BID SUBMISSION:** All quotations must be delivered by the bidder to the office listed below prior to the date and time of the bid opening. Failure of the bidder to deliver the quotations on time will result in bid disqualifications.

SIGNED BID TO:

Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130



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WEST VIRGINIA STATE POLICE

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725 JEFFERSON ROAD
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BID OPENING DATE: 07/01/2008		BID OPENING TIME 01:30PM		

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NO. 3
 NO. 4
 NO. 5

I UNDERSTAND THAT FAILURE TO CONFIRM THE RECEIPT OF THE ADDENDUM(S) MAY BE CAUSE FOR REJECTION OF BIDS.

VENDOR MUST CLEARLY UNDERSTAND THAT ANY VERBAL REPRESENTATION MADE OR ASSUMED TO BE MADE DURING ANY ORAL DISCUSSION HELD BETWEEN VENDOR'S REPRESENTATIVES AND ANY STATE PERSONNEL IS NOT BINDING. ONLY THE INFORMATION ISSUED IN WRITING AND ADDED TO THE SPECIFICATIONS BY AN OFFICIAL ADDENDUM IS BINDING.

.....
SIGNATURE

.....
COMPANY

.....
DATE

THE MODEL/BRAND/SPECIFICATIONS NAMED HEREIN ESTABLISH THE ACCEPTABLE LEVEL OF QUALITY ONLY AND ARE NOT INTENDED TO REFLECT A PREFERENCE OR FAVOR ANY PARTICULAR BRAND OR VENDOR. VENDORS WHO ARE BIDDING ALTERNATES SHOULD SO STATE AND INCLUDE PERTINENT LITERATURE AND SPECIFICATIONS. FAILURE TO PROVIDE INFORMATION FOR ANY ALTERNATES MAY BE GROUNDS FOR

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

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<p>REJECTION OF THE BID. THE STATE RESERVES THE RIGHT TO WAIVE MINOR IRREGULARITIES IN BIDS OR SPECIFICATIONS IN ACCORDANCE WITH SECTION 148-1-4(F) OF THE WEST VIRGINIA LEGISLATIVE RULES AND REGULATIONS.</p> <p>VENDOR PREFERENCE CERTIFICATE</p> <p>CERTIFICATION AND APPLICATION* IS HEREBY MADE FOR PREFERENCE IN ACCORDANCE WITH WEST VIRGINIA CODE, 5A-3-37 (DOES NOT APPLY TO CONSTRUCTION CONTRACTS).</p> <p>A. APPLICATION IS MADE FOR 2.5% PREFERENCE FOR THE REASON CHECKED:</p> <p>() BIDDER IS AN INDIVIDUAL RESIDENT VENDOR AND HAS RESIDED CONTINUOUSLY IN WEST VIRGINIA FOR FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION; OR</p> <p>() BIDDER IS A PARTNERSHIP, ASSOCIATION OR CORPORATION RESIDENT VENDOR AND HAS MAINTAINED ITS HEAD-QUARTERS OR PRINCIPAL PLACE OF BUSINESS CONTINUOUSLY IN WEST VIRGINIA FOR FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION; OR 80% OF THE OWNERSHIP INTEREST OF BIDDER IS HELD BY ANOTHER INDIVIDUAL, PARTNERSHIP, ASSOCIATION OR CORPORATION RESIDENT VENDOR WHO HAS MAINTAINED ITS HEADQUARTERS OR PRINCIPAL PLACE OF BUSINESS CONTINUOUSLY IN WEST VIRGINIA FOR FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION; OR</p> <p>() BIDDER IS A CORPORATION NONRESIDENT VENDOR WHICH HAS AN AFFILIATE OR SUBSIDIARY WHICH EMPLOYS A MINIMUM OF ONE HUNDRED STATE RESIDENTS AND WHICH HAS MAINTAINED ITS HEADQUARTERS OR PRINCIPAL PLACE OF BUSINESS WITHIN WEST VIRGINIA CONTINUOUSLY FOR THE</p>						

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LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>FOUR (4) YEARS IMMEDIATELY PRECEDING THE DATE OF THIS CERTIFICATION.</p> <p>B. APPLICATION IS MADE FOR 2.5% PREFERENCE FOR THE REASON CHECKED:</p> <p>() BIDDER IS A RESIDENT VENDOR WHO CERTIFIES THAT, DURING THE LIFE OF THE CONTRACT, ON AVERAGE AT LEAST 75% OF THE EMPLOYEES WORKING ON THE PROJECT BEING BID ARE RESIDENTS OF WEST VIRGINIA WHO HAVE RESIDED IN THE STATE CONTINUOUSLY FOR THE TWO YEARS IMMEDIATELY PRECEDING SUBMISSION OF THIS BID;</p> <p>OR</p> <p>() BIDDER IS A NONRESIDENT VENDOR EMPLOYING A MINIMUM OF ONE HUNDRED STATE RESIDENTS OR IS A NONRESIDENT VENDOR WITH AN AFFILIATE OR SUBSIDIARY WHICH MAINTAINS ITS HEADQUARTERS OR PRINCIPAL PLACE OF BUSINESS WITHIN WEST VIRGINIA EMPLOYING A MINIMUM OF ONE HUNDRED STATE RESIDENTS WHO CERTIFIES THAT, DURING THE LIFE OF THE CONTRACT, ON AVERAGE AT LEAST 75% OF THE EMPLOYEES OR BIDDERS' AFFILIATE'S OR SUBSIDIARY'S EMPLOYEES ARE RESIDENTS OF WEST VIRGINIA WHO HAVE RESIDED IN THE STATE CONTINUOUSLY FOR THE TWO YEARS IMMEDIATELY PRECEDING SUBMISSION OF THIS BID.</p> <p>BIDDER UNDERSTANDS IF THE SECRETARY OF TAX & REVENUE DETERMINES THAT A BIDDER RECEIVING PREFERENCE HAS FAILED TO CONTINUE TO MEET THE REQUIREMENTS FOR SUCH PREFERENCE, THE SECRETARY MAY ORDER THE DIRECTOR OF PURCHASING TO: (A) RESCIND THE CONTRACT OR PURCHASE ORDER ISSUED; OR (B) ASSESS A PENALTY AGAINST SUCH BIDDER IN AN AMOUNT NOT TO EXCEED 5% OF THE BID AMOUNT AND THAT SUCH PENALTY WILL BE PAID TO THE CONTRACTING AGENCY OR DEDUCTED FROM ANY UNPAID BALANCE ON THE CONTRACT OR PURCHASE ORDER.</p>						

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<p>BY SUBMISSION OF THIS CERTIFICATE, BIDDER AGREES TO DISCLOSE ANY REASONABLY REQUESTED INFORMATION TO THE PURCHASING DIVISION AND AUTHORIZES THE DEPARTMENT OF TAX AND REVENUE TO DISCLOSE TO THE DIRECTOR OF PURCHASING APPROPRIATE INFORMATION VERIFYING THAT BIDDER HAS PAID THE REQUIRED BUSINESS TAXES, PROVIDED THAT SUCH INFORMATION DOES NOT CONTAIN THE AMOUNTS OF TAXES PAID NOR ANY OTHER INFORMATION DEEMED BY THE TAX COMMISSIONER TO BE CONFIDENTIAL.</p> <p>UNDER PENALTY OF LAW FOR FALSE SWEARING (WEST VIRGINIA CODE 61-5-3), BIDDER HEREBY CERTIFIES THAT THIS CERTIFICATE IS TRUE AND ACCURATE IN ALL RESPECTS; AND THAT IF A CONTRACT IS ISSUED TO BIDDER AND IF ANYTHING CONTAINED WITHIN THIS CERTIFICATE CHANGES DURING THE TERM OF THE CONTRACT, BIDDER WILL NOTIFY THE PURCHASING DIVISION IN WRITING IMMEDIATELY.</p> <p>BIDDER: -----</p> <p>DATE: -----</p> <p>SIGNED: -----</p> <p>TITLE: -----</p> <p>* CHECK ANY COMBINATION OF PREFERENCE CONSIDERATION(S) IN EITHER "A" OR "B", OR BOTH "A" AND "B" WHICH YOU ARE ENTITLED TO RECEIVE. YOU MAY REQUEST UP TO THE MAXIMUM 5% PREFERENCE FOR BOTH "A" AND "B". (REV. 12/00)</p>						

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NOTICE A SIGNED BID MUST BE SUBMITTED TO: DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION BUILDING 15 2019 WASHINGTON STREET, EAST CHARLESTON, WV 25305-0130 THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED: SEALED BID BUYER: JOHN ABBOTT----- RFQ. NO.: DPS0841----- BID OPENING DATE: 07/01/2008----- BID OPENING TIME: 1:30 PM----- PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID: ----- CONTACT PERSON (PLEASE PRINT CLEARLY):						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

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***** THIS IS THE END OF RFQ DPS0841 ***** TOTAL:						

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FUME HOOD RELOCATION/ ADDITIONAL LAB STATIONS

All vendors must provide Fisher Hamilton "Inset Steel" casework and fume hoods to the following specifications or equivalent.

To be provided:
(General Description)

Furnish, deliver and install Fisher Hamilton "Inset Steel" casework and fume hoods, per the attached drawings and specifications.

Fisher Hamilton "Inset Steel" casework – see drawings
 1" Thick black epoxy resin countertops with loose 1" x 4" curbs
 Epoxy resin under counter mounted sinks – with epoxy resin peg board above
 Watersaver H/CW faucet – at sink area
 Elevation # 4 – Changed cabinet configuration; this cabinet to include locks
 Relocation of (1) existing fume hood with base cabinets below
 (2) Fisher Hamilton bypass fume hoods – 6-ft wide; with cold water & gas service
 (1) Acid & (3) Flammable storage cabinets below fume hoods
 Removal of existing casework
 Installation and relocation of existing fume hood
 Furnish and install all spiral duct and transitions for each fume hood
 Furnish and install new roof mounted industrial exhaust fan for each fume hood
 Furnish and install all required roof flashings (per roof warranty requirements)
 Furnish and install all electrical connections for each exhaust fan
 Installation of casework/fume hoods
 Freight

To be provided:
(Specific Description)

Elevation 1/L2; Instrumentation Room

Qty.	Product No.	Description
5	04L02400	Mldg black rubber per ft
1	141S2320	18x35x22 base cabt
1	501S4840	42x4x28 table frame
1	502S4850	66x4x28 table frame
2	522S3020	End leg asm 28x29
1	522S3620	End leg asm 28x35
1	611S7320	End filler 7-3/8x35
1	90L04000	Corner st st
1	C-TOP-A	1" thick black epoxy resin top with loose 4" high curb

Elevation 2/L2; Instrumentation Room

Qty.	Product No.	Description
17	04L02400	Mldg black rubber per ft
2	141S2320	18x35x22 base cabt
4	146S6320	36x35x22 base cabt
2	607S0320	Filler, corner 12x31
4	MS685763	Filler vertical angle asm
1	C-TOP-A	1" thick black epoxy resin top with loose 4" high curb

Elevation 3/L2; Instrumentation Room

Qty.	Product No.	Description
7	04L02400	Mldg black rubber per ft
1	141S2320	18x35x22 base cabt
1	502S4850	66x4x28 table frame
1	522S3620	End leg asm 28x35
1	611S7320	End filler 7-3/8x35
1	90L04000	Corner st st
1	C-TOP-A	1" thick black epoxy resin top with loose 4" high curb

Elevation 4/L3; Extraction Room

Qty.	Product No.	Description
35	04L02400	Mldg black rubber per ft
1	141S2320	18x35x22 base cabt
2	146S6320	36x35x22 base cabt
1	146S7320	42x35x22 base cabt
1	148S8320	48x35x22 base cabt
1	196S8320	48x35x22 base cabt
1	501S2220	30x4x22 table frame
1	525S3620	Flush end support 22x35
1	601M4330	Filler, end 4x31x13
1	607S0320	Filler, corner 12x31
1	616S5320	Knee space panel 30x26
2	618S0340	Filler, rear 1-38x35
1	618S0360	Filler, rear wall case
2	718S633M	36x31x13 wall case
3	718S833M	48x31x13 wall case
3	MS685763	Filler vertical angle asm
3	90L04000	Corner st st
1	C-TOP-A	1" thick black epoxy resin top with loose 4" high curb

Elevations 5/L3; Extraction Room

Qty.	Product No.	Description
6	04L02400	Mldg black rubber per ft
1	115S6320	36x25x22 base cabt
1	L412-8VB	Watersaver's deck mounted mixing faucet, chrome finish
1	EPL-50C	Black epoxy resin drop-in sink 24x16x8 with outlet
1	34L22400	Trap p 1-1/2
1	PEGBD-A	1x48x78 black epoxy resin pegboard with white removable pegs
1	52L84600	Drip trough 48
1	52L54400	Drip trough 30
1	52L88400	Screen insert for 48 drip trough
1	52L8800	Screen insert for 30 drip trough
3	90L04000	Corner st st
1	C-TOP-A	1" thick black epoxy resin top with loose 4" high curb

Elevations 6/L3; Extraction Room

Qty.	Product No.	Description
26	04L02400	Mldg black rubber per ft
1	136S1320	15x35x22 base cabt
2	146S5320	30x35x22 base cabt
2	30L81500	Prepiping 3/8 copper-air
2	30L81600	Prepiping 3/8 copper-vacuum
2	54L2597P0B	6 ft constnt vol super rem
10	54L79900	Hood prewire/line est.
2	54LAF1000S6	Air flow monitor
1	607S0320	Filler, corner 12x31
1	611S7320	End filler 7-3/8x35
1	90L07800	Base unit vent
3	90L09000	Base unit vent
1	950S2430	36x35x22 acid stor unit – poly
3	950S7531	36x35x22 solvent stor unit
2	MS685763	Filler vertical angle asm
2	FH-TOP	1-1/4" thick black epoxy resin fh top 72x26-1/8
1	C-TOP-A	1" thick black epoxy resin top with loose 4" high curb
1	LOT	HVAC Mechanical Contractor to provide ductwork/blower and all connections.

Elevations 7-8/L4

Qty.	Product No.	Description
32	04L02400	Mldg black rubber per ft
1	141S432L	24x35x22 base cabt

1	422S632L	36x35x22 base corner cabt
2	148S732L	42x35x22 base cabt
1	503S2210	60x4x22 table frame
2	600S2323	Filler end 3x31 rh
2	611S7320	End filler 7-3/8x35
1	616S9320	Knee space panel 60x26
2	MS685763	Filler vertical angle asm
6	90L04000	Corner st st
1	C-TOP-A	1" thick black epoxy resin top with loose 4" high curb
1	C-TOP-B	1" thick black epoxy resin cap

Elevations 9-11/L4

Qty.	Product No.	Description
19	04L02400	Mldg black rubber per ft
1	141S332L	21x35x22 base cabt
1	348S632L	36x35x22 base cabt
1	531M1470	Back, finished 42x35
2	611S7320	End filler 7-3/8x35
4	90L04000	Corner st st
1	C-TOP-A	1" thick black epoxy resin top with loose 4" high curb

INSET STEEL LABORATORY CASEWORK

PART 1 GENERAL

1.00 SUMMARY

A. Section Includes:

1. Steel casework.
2. Fume Hoods
3. Fume Hood transitions, exhaust ductwork & blowers – Installation
4. Table frames.
5. Work surfaces.
6. Sinks and outlets.
7. Service fittings.
8. Accessory equipment.

1.01 ALTERNATE PROPOSALS

Proposals are invited from alternate manufacturers only if they comply with the minimum design requirements and the minimum performance requirements. A notarized letter stating full compliance must be included in alternate proposals signed by an officer of the manufacturer to ensure compliance.

1.02 CASEWORK DESIGN REQUIREMENTS

A. Flush construction: Surfaces of doors, drawers and panel faces shall align with cabinet fronts without overlap of case ends, top or bottom rails. Horizontal and vertical case shell members (panels, top rails and bottoms) shall meet in the same plane without overlap, cracks or crevices.

B. Slimline styling: Front width of end panels 3/4" and front height of top and bottom members 1".

C. Self-supporting units: Completely welded shell assembly without applied panels at ends, backs or bottoms, so that cases can be used interchangeably or as a single, stand-alone unit.

D. Interior of case units: Easily cleanable, flush interior. Base cabinets, 30" and wider, with double swinging doors shall provide full access to complete interior without center vertical post.

E. Drawers: Sized on a modular basis for interchange to meet varying storage needs, and designed to be easily removable in field without the use of special tools.

F. Case openings: Rabbeted-like joints all four sides of case opening for hinged doors and two sides for sliding doors in order to provide dust resistant case.

G. Framed glazed doors: Identical in construction, hardware and installation to solid panel doors. Design frame glazed doors to be removable for glass replacement.

1.03 CASEWORK PERFORMANCE REQUIREMENTS

A. Structural performance requirements: Casework components shall withstand the following minimum loads without damage to the component or to the casework operation:

1. Steel base unit load capacity: 500 lbs. per lineal foot.
2. Suspended units: 300 lbs.
3. Drawers in a cabinet: 150 lbs.
4. Utility tables (4 legged): 300 lbs.
5. Hanging wall cases: 300 lbs.
6. Load capacity for shelves of base units, wall cases and tall cases: 100 lbs.

B. Metal Finish Performance Requirements:

1. Abrasion resistance: Maximum weight loss of 5.5 mg. per 100 cycle when tested on a Taber Abrasion Tester #E40101 with 1000 gm wheel pressure and Calibrase #CS10 wheel.
2. Hardness: Surface hardness equivalent to 4H or 5H pencil.
3. Humidity resistance: Withstand 1000 hour exposure in saturated humidity at 100 degrees F.
4. Moisture resistance:
 - a. No visible effect to surface finish after boiling water trickled over test panel inclined at 45 degrees for five minutes.
 - b. No visible effect to surface finish following 100 hour continuous application of a water soaked cellulose sponge, maintained in a wet condition throughout the test period.
5. Adhesion: Score finish surface of test panel with razor blade into 100 squares, 1/16" x 1/16", cutting completely through the finish but with minimum penetration of the substrate, and brush away particles with soft brush. Minimum 95 squares shall maintain their finish.
6. Salt spray: Withstand minimum 200 hour salt spray test.

1.04 SUBMITTALS

A. Shop Drawings: Provide 3/4" = 1'-0" scale elevations of individual and battery of casework units, cross sections, rough-in and anchor

placements, tolerances and clearances. Indicate relation of units to surrounding walls, windows, doors and other building components. Provide 1/4" = 1'-0" rough-in plan drawings for coordination with trades. Rough-in shall show free area.

B. Product Data: Submit manufacturer's data for each component and item of laboratory equipment specified. Include component dimensions, configurations, construction details, joint details, and attachments, utility and service requirements and locations.

C. Product Samples Upon Request: Submit for approval:

1. Top Sample.
2. Finish Sample (3" X 5" Painted Steel).

D. Finish Samples: Submit 3 x 5 inch samples of each color of finish for casework, work surfaces and for other prefinished equipment and accessories for selection by Owner.

E. Test Reports: When requested by Owner, submit independent laboratory certified test reports verifying conformance to test performance specified.

1.05 QUALITY ASSURANCE

A. Single source responsibility: Casework, work surfaces, laboratory fume hood and equipment and accessories shall be manufactured or furnished by a single laboratory furniture company.

B. Manufacturer's qualifications: Modern plant with proper tools, dies, fixtures and skilled workmen to produce high quality laboratory casework and equipment, and shall meet the following minimum requirements:

1. Ten years or more experience in manufacture of laboratory casework and equipment of type specified.
2. Ten installations of equal or larger size and requirements.

C. Installer's qualifications: Factory trained and/or certified by the manufacturer.

D. Cabinet identification: Cabinets are identified on drawings by manufacturer's catalog numbers. Unless otherwise modified on drawings or in specifications, catalog description constitutes specific requirements for each type of cabinet.

1.06 DELIVERY, STORAGE AND HANDLING

A. Schedule delivery of casework and equipment so that spaces are sufficiently complete that material can be installed immediately following

delivery.

B. Protect finished surfaces from soiling or damage during handling and installation. Keep covered with polyethylene film or other protective coating.

C. Protect all work surfaces throughout construction period with 1/4" corrugated cardboard completely covering the top and securely taped to edges. Mark cardboard in large lettering "No Standing".

1.07 PROJECT CONDITIONS

A. Do not deliver or install equipment until the following conditions have been met:

1. Windows and doors are installed and the building is secure and weathertight.
2. Ceiling, overhead ductwork and lighting are installed.
3. All painting is completed and floor tile is installed.

PART 2 PRODUCTS

2.01 MANUFACTURER

A. Design, materials, construction and finish of casework specified is the minimum acceptable standard of quality for flush front steel laboratory casework. The basis of this specification is Fisher Hamilton L.L.C., 1316 - 18th Street, Two Rivers, WI 54241 product.

2.02 CASEWORK MATERIALS

A. Sheet steel: Mild, cold rolled and leveled unfinished steel.

B. Minimum gauges:

1. 20 gauge: Solid door interior panels, drawer fronts, scribing strips, filler panels, enclosures, drawer bodies, shelves, security panels and sloping tops.
2. 18 gauge: Case tops, ends, bottoms, bases, backs, vertical posts, uprights, glazed door members, door exterior panels and access panels.
3. 16 gauge: Top front rails, top rear gussets, intermediate horizontal rails, table legs and frames, leg rails and stretchers.
4. 14 gauge: Drawer suspensions, door and case hinge reinforcements and front corner reinforcements.
5. 11 gauge: Table leg corner brackets and gussets for leveling screws.

C. Glass for glazed swinging and sliding doors and/or unframed doors:
to be 6mm Clear Float Glass (framed)

2.03 CASEWORK FABRICATION

A. Base Units and Cases:

1. Base units and 25", 31" and 37" high wall cases: End panels and back reinforced with internal reinforcing front and rear posts.
2. 49" and 84" high cases: Formed end panels with front and rear reinforcing post channels; back shall be formed steel panel, recessed 3/4" for mounting purposes.
3. Posts: Front post fully closed with full height reinforcing upright. Shelf adjustment holes in front and rear posts shall be perfectly aligned for level setting, adjustable to 1/2" o.c.
4. Secure intersection of case members with spot and arc welds. Provide gusset reinforcement at front corners.
5. Base unit backs: Provide drawer units without backs and cupboard units with removable backs for access to services behind units.
6. Base unit backs: Provide fixed backs at all drawer and cupboard units. No access to services behind.
7. Bottoms: Base units and 25", 31", 37" and 49" high wall cases shall have one piece bottom with front edge formed into front rail, rabbeted as required for swinging doors and drawers and flush design for sliding doors.
8. Top rail for base units: Interlock with end panels, flush with front of unit.
9. Horizontal intermediate rails: Recessed behind doors and drawer fronts.
10. Base for base units: 4" high x 3" deep with formed steel base and 11 ga. die formed steel gussets at corners. Provide 3/8" diameter leveling screw with integral bottom flange of minimum 0.56 sq. in. area at each corner, accessible through openings in toe space.
11. Tops of wall cases: One piece, with front edge formed into front rail.

B. Drawers:

1. Drawer fronts: 3/4" thick, double wall construction, prepainted prior to assembly and sound deadened.
2. Drawer bodies: Bottom and sides formed into one-piece center section with bottom and sides coved and formed top edges. Front and back panels spot welded to center section.
3. Drawer suspension: Heavy duty coved raceways for both case and drawer with nylon tired, ball bearing rollers; self-centering and self-closing when open to within 3" of the closed position.
4. Provide drawer with rubber bumpers. Friction centering devices

are not acceptable.

5. Provide security panels for drawers with keyed different locks.
6. File drawers: Provide with 150# full extension slides for full access and operation.

C. Doors:

1. Solid panel doors: 3/4" thick, double wall, telescoping box steel construction with interior prepainted and sound deadened, top corners welded and ground smooth. Reinforce interior of front panel with welded steel hat channels. Hinges with screws to internal 14 gauge reinforcing in case and door. Hinges shall be removable; welding of hinges not acceptable. Doors shall close against rubber bumpers.
2. Frame glazed doors: Outer head to be one piece construction. Inner head to consist of top, bottom and side framing members which are removable for installation or replacement of glass. Provide continuous vinyl glazing retainer to receive glass. In all other respects, framed glazed door construction and quality shall match solid panel doors.
3. Sliding doors - solid or framed glazed: Design for tilt-out removal after removal of bottom guide. Doors shall be hung with nylon tired sleeve bearing rollers in formed steel top hung track and shall close against rubber bumpers.
4. Unframed sliding glass doors: Glass with edges ground set in extruded aluminum shoe with integral pulls, wheel assemblies and top and bottom extruded aluminum track. Provide rubber bumpers at fully opened and closed door position.

D. Shelves:

1. Form front and back edges down and back 3/4". Form ends down 3/4".
2. Reinforce shelves over 36" long with welded hat channel reinforcement the full width of shelf.
3. Pull out shelves: Same suspension as specified for drawers.

E. Base molding: 4" high, to be furnished and installed by flooring contractor.

F. Corner base guards: 4" high #304 stainless steel corner guards.

G. Hardware:

1. Drawer and hinged door pulls: Semi Recessed Polypropylene pulls.
2. Sliding door pulls: Recessed stainless steel, styled and sized to harmonize with drawer pulls.
3. Hinges: Institutional type, five knuckle projecting barrel hinges,

- minimum 2-1/2" long, type 302 or 304 stainless steel. Provide two hinges for doors up to 36" high; three hinges for doors over 36" high. Drill each leaf for three screw attachment to door and frame.
4. Door catches: Adjustable type, spring actuated nylon roller catches.
 5. Elbow catches: Spring type of cadmium plated steel, with strike of suitable design.
 6. Locks: National Lock Remove-A-Core 5-disc tumbler, heavy duty cylinder type. Exposed lock noses shall be dull nickel (satin) plated and stamped with identifying numbers.
 7. Keying: Locks [location shown on drawings] shall have capacity for 225 primary key changes. Master key one level with the potential of 40 different, non-interchangeable master key groups.
 8. Keys: Stamped brass available from manufacturer or local locksmith, and supplied in the following quantities unless otherwise specified:
 - 2 - for each keyed different lock.
 - 3 - for each group keyed alike locks.
 - 2 - for master keys for each system.
 9. Label holders: [Locations shown on drawings] Formed steel with satin chrome finish, 1" x 1-1/2", screw installed.
 10. Shelf clips: Die formed steel, zinc plated, designed to engage in shelf adjustment holes.

2.04 EPOXY RESIN WORK SURFACES

A. Material: Chemical and abrasion resistant, durable top of one inch thick cast material of epoxy resins and inert products, cast flat, with a uniform nonglare matte finish. Colors to be Black.

B. Backsplash curb: Same material as top but jointed and cemented to top. Provide where indicated on drawings. Tops abut wall surfaces and at reagent ledges. Include end curb where top abuts wall.

2.05 SINKS, DRAINS AND TRAPS

A. Epoxy resin sinks: Integrally molded from modified thermosetting epoxy resin, specially compounded and oven cured. Cove inside corners and pitch bottom to threaded drain outlet. Color to match tops. Closet stock size Acceptable.

B. Sink supports:

1. Cabinet sinks: Support sinks on 11 gauge, adjustable, 1" x 2" x 1" channel with reagent resistant finish. Provide two channels across width of cabinet, attached to 3/8" diameter threaded hanger rods.

2. Table sinks: Support sinks on 2" wide, U-shaped steel straps screwed to cross rails. Straps shall be ¼" thick; ½" thick for sinks over 250 sq. in. in area. Straps shall have baked enamel finish.
3. Caulk joint between top and sink with non-hardening mastic.

C. Traps:

1-1/2" size, type in thermoplastic polyethylene.

2.06 LABORATORY FITTINGS

A. Water Service Fittings:

1. Water Service fittings to be Watersaver – Chrome Finish.
2. Goosenecks shall have separate 3/8" IPS coupling securely for attachment of anti-splash outlet fittings, serrated tips and filter pumps.

B. Handles for faucets: Four-arm type except ground key cocks. Provide removable screw-on type colored plastic discs with letter stamped on disc in contrasting color as scheduled below:

<u>Service</u>	<u>Disc / Letter Colors</u>	<u>Letters</u>
Cold Water	Green/White	C.W.
Hot Water	Red/White	H.W.

C. Fixture Finish: Chrome fixtures.

<u>Plating</u>	<u>Minimum Plating Thickness</u>
Copper (Initial)	0.000050 IN.
Nickel	0.000350 IN.
Chromium (Final)	0.000015 IN.

D. Electrical Fixtures and fittings: Vertical Service Pedestal System provided in strict accordance with the current edition of the National Electric Code of the National Fire Protection Association, and with requirements of all local regulatory authorities. System is a 2 ¼ " deep x 12" high x 5 ¼" wide, dual channel, all aluminum service pedestal, dual covers allow wiring and mechanical changes in one channel without exposing the adjacent channel. The service pedestal is to have a removable top plate. The end fitting plate, with entrance holes, sized for standard conduit and copper couplers. These vertical chases must be UL approved. Vertical pedestal to be provided in locations as shown in the drawings.

2.07 Laboratory Fume Hoods

FUME HOOD GENERAL DESIGN REQUIREMENTS

A. Fume hoods shall function as ventilated, enclosed workspaces, designed to capture, confine and exhaust fumes, vapors and particulate matter

produced or generated within the enclosure.

B. Design fume hoods for consistent and safe air flow through the hood face. Negative variations of face velocity shall not exceed 20% of the average face velocity at any designated measuring point as defined in this section.

C. Average illumination of work area: Minimum 80 footcandles. Work area shall be defined as the area inside the superstructure from side to side and from face of baffle to the inside face of the sash, and from the working surface to a height of 28 inches.

D. Fume hood shall be designed to minimize static pressure loss with adequate slot area and bell shaped exhaust collar configuration. Maximum average static pressure loss readings taken three diameters above the hood outlet from four points, 90 degrees apart, shall not exceed the following maximums with sash in full open position:

Face Velocity	Measured S.P.L. (W.G.)
75 F.P.M.	.18 inches
100 F.P.M.	.30 inches
125 F.P.M.	.45 inches
150 F.P.M.	.60 inches

E. Fume hood shall maintain essentially constant exhaust volume at any baffle position for safety. Maximum variation in exhaust CFM, static pressure and average face velocity as a result of baffle adjustment shall not exceed 5% for any baffle position at the specified face velocity.

F. Fume hoods shall be field convertible, from bypass type to auxiliary air by simple component replacement or addition. Change-over shall be accomplished without construction modifications and without special tools.

G. Noise Criteria: Test data of octave band analysis verifying hood is capable of a 50 NC value when connected to a 50 NC HVAC source. Reading taken 3' in front of open sash at 110 fpm face velocity.

LINER SURFACE FINISH PERFORMANCE REQUIREMENTS

H. Relocation of existing 72" wide fume hood with existing base cabinet below

SUBMITTALS

A. Shop Drawings: Indicate equipment locations, large scale plans, elevations, cross sections, rough-in and anchor placement dimensions and tolerances and all required clearances.

B. Product Data: Submit manufacturer's data for each component and item of laboratory equipment specified. Include component dimensions, configurations, construction details, joint details, and attachments, utility and service requirements and locations.

C. Samples: Submit [3 x 6] [x] inch samples of finish for fume hood, work surfaces and for other pre-finished equipment and accessories for selection by [Architect] [Owner].

Polyresin - Liner.

D. Test Reports: Submit test reports on **each** size and type of hood verifying conformance to test performances specified. Test report must accompany **each** hood as part of installation and usage package. Submit independent test reports as required by specification.

E. Instructions: Submit for review and approval

1. Instructions to be inscribed on instruction plate to be attached to hood, as specified in Part 2 of this Section.
2. Written instructions in booklet form providing additional details on safe and proper operation and maintenance.
3. Professional quality video - minimum 15 minutes in length on proper hood usage.

QUALITY ASSURANCE

A. Single source responsibility: Fume hood casework, work surfaces, and other laboratory equipment and accessories shall be manufactured or furnished by a single laboratory furniture company.

B. Manufacturer's qualifications: Modern plant with proper tools, dies, fixtures and skilled workmen to produce high quality laboratory casework and equipment, and shall meet the following minimum requirements:

1. Five years or more experience in manufacture of laboratory casework and equipment of type specified.
2. Ten installations of equal or larger size and requirements.
3. UL 1805 Specification:
Fume Hood must be Underwriters Laboratories subject 1805 classified. The 1805 standard covers electrical and mechanical hazards, investigates the flammability of materials and measures the effectiveness of airflow characteristics. Proper labeling must be affixed to the face of each fume hood indicating classification to the UL 1805 standard for Laboratory Fume Hoods. UL listing covering electrical components only or other listings that do not encompass all issues covered in UL 1805 is insufficient. All factory testing shall be performed in a U.L. certified test facility.

C. Installer's qualifications: Factory certified by the manufacturer.

DELIVERY, STORAGE AND HANDLING

- A. Schedule delivery of equipment so that spaces are sufficiently complete that equipment can be installed immediately following delivery.
- B. Protect finished surfaces from soiling or damage during handling and installation. Keep covered with polyethylene film or other protective coating.
- C. Protect all work surfaces throughout construction period with 1/4" corrugated cardboard completely covering the top and securely taped to edges. Mark cardboard in large lettering "No Standing".

PROJECT CONDITIONS

- A. Do not deliver or install equipment until the following conditions have been met:
 1. Windows and doors are installed and the building is secure and weather tight.
 2. Ceiling, overhead ductwork and lighting are installed.
 3. All painting is completed and floor tile located below casework is installed.

PART 2 PRODUCTS MANUFACTURER

A. Casework and equipment manufacturer: Fisher Hamilton L.L.C., 1316-18th Street, Two Rivers, Wisconsin 54241.

FUME HOOD MATERIALS

- A. Steel: High quality, cold rolled, mild steel meeting requirements of ASTM A366; gauges U.S. Standard and galvanized.
- B. Stainless steel: Type 304; gauges U.S. Standard.
- C. Ceiling closure panels: Minimum 18 gauge; finish to match hood exterior.
- D. Bypass grilles: Low resistant type, 18 gauge steel, upward directional louvers.
- E. Safety glass: 7/32" thick laminated safety glass.
- F. Sash cables: Stainless steel, uncoated, 1/8" diameter military spec.

quality. (MIL-W-83420D-3)

G. Sash guides: Corrosion resistant poly-vinyl chloride.

H. Pulley assembly for sash cable: 2" diameter, zinc dichromate finish, ball bearing type, with cable retaining device. (Nylon tired-not acceptable.)

I. Sash pull: Full width corrosion resistant plastic, stainless steel or steel with chemical resistant powder coating.

J. Gaskets: 70 durometer PVC for interior access panels. Gasket interior access panels to eliminate air leakage and to retain liquids inside hood.

K. Fastenings:

1. Exterior structural members attachments: Sheet metal screws, zinc plated.
2. Interior fastening devices concealed. Exposed screws not acceptable. (Screw head "caps" not acceptable.)
3. Exterior panel member fastening devices to be corrosion resistant, non-metallic material. Exposed screws not acceptable.

L. Instruction plate: Corrosion resistant or plastic plate attached to the fume hood exterior with condensed information covering recommended locations for apparatus and accessories, baffle settings and use of sash.

FUME HOOD CONSTRUCTION

A. Superstructure: Rigid, self supporting assembly of double wall construction, maximum 4-7/8" thick.

1. Wall consists of a sheet steel outer shell and a corrosion resistant inner liner, and houses and conceals steel framing members, attaching brackets and remote operating service fixture mechanisms and services. Panels must be attached to a full frame construction, minimum 14 gauge galvanized members. Panels and brackets attached to eliminate screw heads and metallic bracketry from hood interior.
2. Access to fixture valves concealed in wall provided by exterior removable access panels, gasketed access panels on the inside liner walls, or through removable front posts.

B. Exhaust outlet: Rectangular with ends radiused, shaped and flanged, 18 gauge [steel finished with Chameleon powder coating] [stainless steel exhaust collars welded in place].

C. Access opening perimeter: Air foil or streamlined shape with all right angle corners radiused or angled. Bottom horizontal foil shall provide

nominal one inch bypass when sash is in the closed position. Bottom foil shall be removable without use of special tools. Bottom foil shall provide access areas for electrical cords. Bottom foil: Steel with black powder coating or stainless steel to increase acid and abrasion resistance. Air foil and sill to extend no more than 1.5" in front of work surface on nonauxiliary air hoods to provide maximum aisle space and allow deeper usage.

- D. Fume hood sash: Full view type with clear, unobstructed, side-to-side view of fume hood interior and service fixture connections.
1. Bottom sash rail: 2" maximum, 18 gauge steel with powder coating finish. Provide integral formed, flush pull the full width of bottom rail.
 2. Set safety glass into rails in deep form, extruded poly-vinyl chloride glazing channels.
 3. Counter balance system: Single weight, pulley, cable, counter balance system which prevents sash tilting and permits one finger operation at any point along full width pull. Maximum 7 pounds pull required to raise or lower sash throughout its full length of travel. Design system to hold sash at any position without creep and to prevent sash drop in the event of cable failure. Life cycle test 100 pound sash and weight to 100,000 cycles without sign of failure. Provide independent test data.
 4. Postless sash design: Per drawing details.
 5. Open and close sash against rubber bumper stops.
- E. Fume hood liner: Poly-resin (product number denoted by the suffix "P"): Reinforced polyester panel; smooth finish and white color in final appearance. Flexural strength: 14,000 psi. Flame spread: 15 or less per U.L. 723 and ASTM E84-80.
- F. Baffles: Baffles providing controlled air vectors into and through the fume hood shall be fabricated of the same material as the liner. Provide exhaust slots full height on vertical sides of the baffle with upper and lower slots adjustable. Provide fixed, permanently open horizontal slot 17" above the work surface. Minimum depth of 19" for interior work space is required at the extreme upper portion of the fume hood to provide maximum interior work area. All baffle supports/brackets to be nonmetallic.
- G. Remote baffle adjustment: Toggle style, one handed, single point control, accomplished while hood is in use, without disturbing apparatus, from outside right hand corner post of fume hood with sash in either the open or closed position, and permitting setting for (1) high thermal loading, (2) heavier than air gases or fumes generated near work surface, and (3) normal or average operation.
1. Remote adjuster: Toggle style control handle and an acid resistant

- label indicating proper control handle location for baffle function.
 2. Rigidly correlate control handles to baffle positioner; cable-type adjustments are not acceptable
 3. Design baffle adjuster to engage and disengage from the adjustable baffle without the use of tools.
 4. Must comply with OSHA Lab Standard Guidelines. (Easily reached/adjusted with only arm in hood.)
 5. Baffles providing no adjustment or requiring internal manipulations are not acceptable.
 6. Non-metallic supports and fasteners required inside of hood.
- H. Service fixtures and fittings: Color coded washers at hose nozzle outlets and valves mounted inside the fume hood and controlled from the exterior with color coded index handles.
1. Valves: Needle point type with self-centering cone tip and seat of hardened stainless steel. Tip and seat shall be removable and replaceable.
 2. Provide piping for all service fixtures from valve to outlet: Galvanized iron or copper for water, air and vacuum and black iron for gas services.
 3. Fixtures exposed to hood interior: Brass with chemically resistant black powder coating.
 4. Remote control handles: Black nylon four-arm handle with nylon color-coded index buttons.
 5. Services: As shown or specified.
- I. Hood light fixture: Two lamp, rapid start, UL listed fluorescent light fixture with sound rated ballast installed on exterior of roof. Provide safety glass panel cemented and sealed to the hood roof.
1. Interior of fixture: White, high reflecting plastic enamel.
 2. Size of fixture: Largest possible up to 48" for hoods with superstructures up to six feet. Provide two 36" fixtures for hoods with eight foot superstructures.
 3. Include lamps with fixtures.
 4. Illumination: Per performance values, Part 1 of this Section.
- J. Electrical services: Three wire grounding type receptacles rated at 120 V.A.C. at 20 amperes. Provide 250 V.A.C. receptacles where specified. Flush plates: Black acid resistant thermoplastic.
- K. Work surfaces: 1-1/4" thick surface, dished a nominal one-half inch to contain spills.
1. Molded resin work surfaces for hoods with Resisto-Roc or Poly-resin liners.
- L. Safety Monitor/Alarm System:

Where shown or specified provide Safety Monitor/Alarm System which monitors face velocity and provides audible and visual alarm if face velocity drops below safe levels. The technology used in the 54L0405 will be based on thermally compensated thermistor based in the alarm module. As the internal fume hood pressure changes as the sash opening is closed and opened, the flow passing over the thermistor is calibrated to a face velocity which is displayed on the front of the monitor.

RESTRICTED BYPASS FUME HOODS

- A. Bypass shall be sufficient in size to allow 25% flow with sash closed. Bypass must be achieved through grill or louver on face of front lintel panel.
- B. Sash: [Standard vertical-rising] [With VAV applications)
12345.4 - 18
- C. Width: [72"] Quantity of 2.

METAL FINISH

- A. Preparation: Spray clean metal with a heated cleaner/phosphate solution, pretreat with iron phosphate spray, water rinse, and neutral final seal. Immediately dry in heated ovens, gradually cooled, prior to application of finish.
- B. Application: Electrostatically apply urethane powder coat of selected color and bake in controlled high temperature oven to assure a smooth, hard satin finish. Surfaces shall have a chemical resistant, high grade laboratory furniture quality finish of the following thicknesses:
 1. Exterior and interior surfaces exposed to view: 1.5 mil average and 1.2 mil minimum.
 2. Backs of cabinets and other surfaces not exposed to view: 1.0 mil average.

INSTALLATION

- A. Installation:
 1. Install fume hoods and equipment in accordance with manufacturer's instructions.
 2. Install equipment plumb, square, and straight with no distortion and securely anchored as required.
 3. Secure work surfaces to casework and equipment components with material and procedures recommended by the manufacturer.
- B. Accessory installation: Install accessories and fittings in accordance with

manufacturer's recommendations.

ADJUSTING

- A. Repair or remove and replace defective work, as directed by [Architect] [Owner] upon completion of installation.
- B. Adjust sash, fixtures, accessories and other moving or operating parts to function smoothly.

CLEANING

- A. Clean equipment, touch up as required.

EXHAUST TRANSITIONS/DUCTWORK & BLOWERS

- A. Provide and install all appropriate fume hood transitions and necessary ductwork to exhaust fume hoods.
- B. Provide and install all appropriate fume hood blowers (sized on site).
- C. Provide an approved roof penetration for appropriate exhaust ductwork.

PROTECTION OF FINISHED WORK

- A. Provide all necessary protective measures to prevent exposure of equipment from exposure to other construction activity.
- B. Advise contractor of procedures and precautions for protection of material and installed fume hoods from damage by work of other trades.

2.08 Casework Finish

2.09 METAL FINISH

- A. Metal finish:
 1. Preparation: Spray clean metal with a heated cleaner/phosphate solution, pretreat with iron phosphate spray, water rinse, and neutral final seal. Immediately dry in heated ovens, gradually cooled, prior to application of finish.
 2. Application: Electrostatically apply urethane powder coat of selected color and bake in controlled high temperature oven to assure a smooth, hard satin finish. Surfaces shall have a chemical resistant, ømgh grade laboratory furniture quality finish of the

following thickness:

- a. Exterior and interior exposed surfaces: 1.5 mil average and 1.2 mil min.
- b. Backs of cabinets and other surfaces not exposed to view: 1.0 mil average.

B. Cabinet Surface Finish Tests:

The Scientific Equipment and Furniture Association (SEFA) is a voluntary international trade association representing members of the laboratory furniture, casework, fume hood and related equipment industry. The association was founded to promote this rapidly expanding industry and to improve the quality, safety and timely completion of laboratory facilities in accordance with customer requirements. **All steel laboratory furniture and equipment must be in full compliance with the SEFA 8-1998 Standard.**

8.0 Cabinet Surface Finish Tests

8.1 Chemical Spot Test

8.1.1 Purpose of Test

The purpose of the chemical spot test is to evaluate the resistance a finish has to chemical spills.

Note: Many organic solvents are suspected carcinogens, toxic and/or flammable. Great care should be exercised to protect personnel and the environment from exposure to harmful levels of these materials.

8.1.2 Test Procedure

Obtain one sample panel measuring 14" x 24" (355.6mm x 609.6mm). The received sample to be tested for chemical resistance as described herein.

Place panel on a flat surface, clean with soap and water and blot dry. Condition the panel for 48-hours at 73+ 3F (23(+ 2(C) and 50+ 5% relative humidity. Test the panel for chemical resistance using forty-nine different chemical reagents by one of the following methods:

Method A – Test volatile chemicals by placing a cotton ball saturated with reagent in the mouth of a one-ounce (29.574cc) bottle and inverting the bottle on the surface of the panel.

Method B – Test volatile chemicals by placing five drops of the reagent on the surface of the panel and covering with a 24mm watch glass, convex side down.

For both of the above methods, leave the reagents on the panel for a period of **one hour**. Wash off the panel with water, clean with detergent and naphtha, and rinse with deionized water. Dry with a towel and

evaluate after 24-hours at $73\pm 3^{\circ}\text{F}$ ($23^{\circ}\pm 2^{\circ}\text{C}$) and $50\pm 5\%$ relative humidity using the following rating system:

Level 0 – No detectable change.

Level 1 – Slight change in color or gloss.

Level 2 – Slight surface etching or severe staining.

Level 3 – Pitting, cratering, swelling, or erosion of coating. Obvious and significant deterioration..

Test No.	Chemical Reagent	Test Method
1.	Acetate, Amyl	A
2.	Acetate, Ethyl	A
3.	Acetic Acid, 98%	B
4.	Acetone	A
5.	Acid Dichromate, 5%	B
6.	Alcohol, Butyl	A
7.	Alcohol, Ethyl	A
8.	Alcohol, Methyl	A
9.	Ammonium Hydroxide, 28%	B
10.	Benzene	A
11.	Carbon Tetrachloride	A
12.	Chloroform	A
13.	Chromic Acid, 60%	B
14.	Cresol	A
15.	Dichlor Acetic Acid	A
16.	Dimethylformamide	A
17.	Dioxane	A
18.	Ethyl Ether	A
19.	Formaldehyde, 37%	A
20.	Formic Acid, 90%	B
21.	Furfural	A
22.	Gasoline	A
23.	Hydrochloric Acid, 37%	B
24.	Hydrochloric Acid, 48%	B
25.	Hydrogen Peroxide, 3%	B
26.	Iodine, Tincture of	B
27.	Methyl Ethyl Ketone	A
28.	Methylene Chloride	A
29.	Mono Chlorobenzene	A
30.	Naphthalene	A
31.	Nitric Acid, 20%	B
32.	Nitric Acid, 30%	B
33.	Nitric Acid, 70%	B
34.	Phenol, 90%	A
35.	Phosphoric Acid, 85%	B
36.	Silver Nitrate, Saturated	B

37.	Sodium Hydroxide, 10%	B
38.	Sodium Hydroxide, 20%	B
39.	Sodium Hydroxide, 40%	B
40.	Sodium Hydroxide, Flake	B
41.	Sodium Hydroxide, Saturated	B
42.	Sulfuric Acid, 33%	B
43.	Sulfuric Acid, 77%	B
44.	Sulfuric Acid, 96%	B
45.	Sulfuric Acid, 77% and Nitric Acid, 70%, equal parts	B
46.	Toluene	A
47.	Trichloroethylene	A
48.	Xylene	A
49.	Zinc Chloride, Saturated	B

8.1.3 Acceptance Level

Results will vary from manufacturer to manufacturer. **Laboratory grade finishes should result in no more than four Level 3 conditions.** Suitability for a given application is dependent upon the chemicals used in a given laboratory.

8.2 Hot Water Test

8.2.1 Purpose of Test

The purpose of this test is to insure the coating is resistant to hot water.

8.2.2 Test Procedure

Hot water, 190°F to 205°F (88°C to 96°C), shall be allowed to trickle (with a steady stream and at a rate of not less than 6 ounces (177.44cc) per minute on the surface, which shall be set at an angle of 45-degrees, for a period of five minutes.

8.2.3 Acceptance Level

After cooling and wiping dry, the finish shall show no visible effect from the hot water.

8.3 Impact Test

8.3.1 Purpose of Test

The purpose of this test is to evaluate the ductility of the coating.

8.3.2 Test Procedure

A one-pound ball approximately 2" (50.8mm) in diameter shall be dropped from a distance of 12" (304.8mm) onto a flat horizontal surface, coated to manufacturer's standard manufacturing method.

8.3.3 Acceptance Level

There shall be no visible evidence to the naked eye of cracks or checks in the finish due to impact.

8.4 Paint Adhesion on Steel Test

8.4.1 Purpose of Test

The paint adhesion test is used to determine the bond of the coating to steel. This does not apply to non-steel products.

8.4.2 Test Procedure

This test is based on ASTM D2197-86 "Standard Method of Test for Adhesion of Organic Coating". Two sets of eleven parallel lines 1/16" (1.587mm) apart shall be cut with a razor blade to intersect at right angles thus forming a grid of 100 squares. The cuts shall be made just deep enough to go through the coating, but not into the substrate. They shall then be brushed lightly with a soft brush for one minute. Examine under 100-foot candles of illumination.

8.4.3 Acceptance Level

Ninety or more of the squares shall show finish intact.

8.5 Paint Hardness on Steel Test

8.5.1 Purpose of Test

The paint hardness test is used to determine the resistance of the coatings to scratches.

8.5.2 Test Procedure

Pencils, regardless of their brand, are valued in this way: 8-H is the hardest, and next 11 order of diminishing hardness are 7-H, 6-H, 5-H, 4-H, 3-H, 2-H, H, F, HB, B (soft), 2-B, 3-B, 4-B, 5-B (which are softest). The pencils shall be sharpened on emery paper to a wide sharp edge. Pencils of increasing hardness shall be pushed across the paint film in a chisel-like manner until one is found that will cut or scratch the film. The pencil used before that one, that is the hardest pencil that will not rupture the film, is then used to express or designate the hardness.

8.5.3 Acceptance Level

The paint shall have a hardness of 4-H minimum.

PART 3 EXECUTION

3.01 INSTALLATION

A. Casework installation:

1. Set casework components plumb, square, and straight with no distortion and securely anchored to building structure. Shim as required using concealed shims.
 2. Bolt continuous cabinets together with joints flush, tight and uniform, and with alignment of adjacent units within 1/16" tolerance.
 3. Secure wall cabinets to solid supporting material, not to plaster, lath or gypsum board.
 4. Abut top edge surfaces in one true plane. Provide flush joints not to exceed 1/8" between top units.
- B. Work surface installation:
1. Where required due to field conditions, scribe to abutting surfaces.
 2. Only factory prepared field joints, located per approved shop drawings, shall be permitted. Secure joints in field, where practicable, in the same manner as in factory, with dowels, splines, adhesive or fasteners recommended by manufacturer.
 3. Secure work surfaces to casework and equipment components with material and procedures recommended by the manufacturer.
- C. Sink installation: Sinks which were not factory installed shall be set in chemical resistant sealing compound and secured and supported per manufacturer's recommendations.
- D. Accessory installation: Install accessories and fittings in accordance with manufacturer's recommendations. Turn screws to seat flat; do not drive.

3.02 ADJUSTING

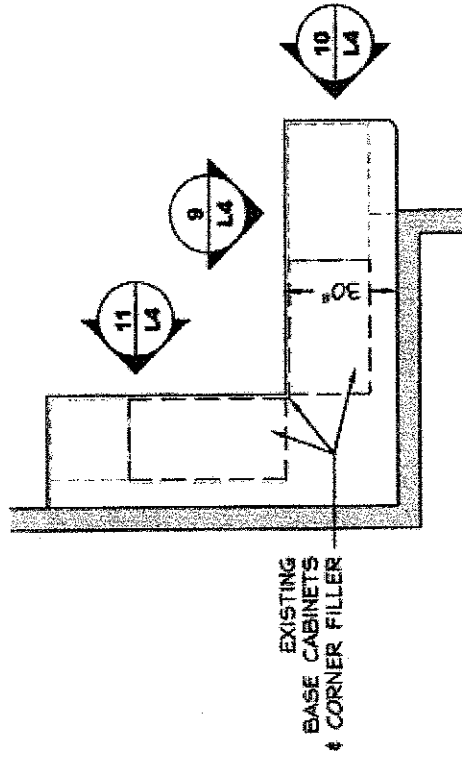
- A. Repair or remove and replace defective work, as directed by [Architect] [Owner] upon completion of installation.
- B. Adjust doors, drawers, hardware, fixtures and other moving or operating parts to function smoothly.

3.03 CLEANING

- A. Clean shop finished casework, touch up as required.
- B. Clean countertops with diluted dishwashing liquid and water leaving tops free of all grease and streaks. Use no wax or oils.

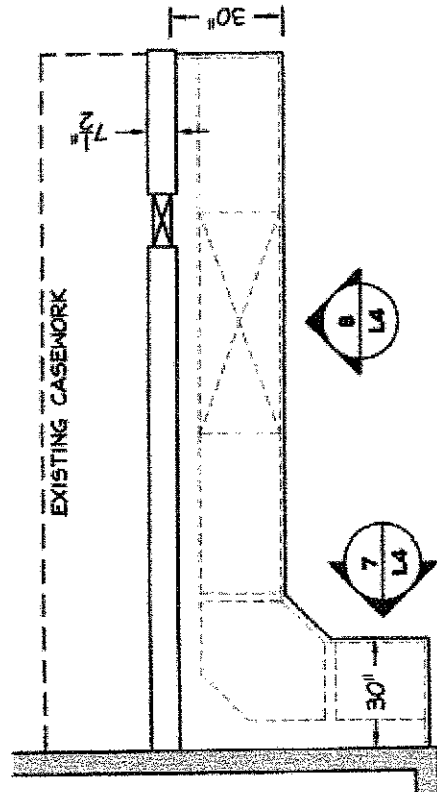
3.04 PROTECTION OF FINISHED WORK

- A. Provide all necessary protective measures to prevent exposure of casework and equipment from exposure to other construction activity.
- B. Advise contractor of procedures and precautions for protection of material, installed laboratory casework and fixtures from damage by work of other trades.



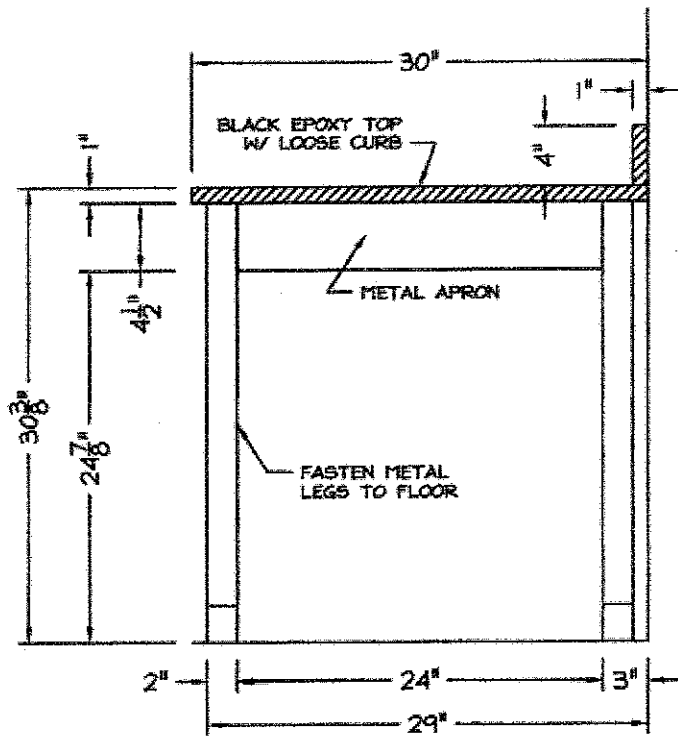
C
L1

Partial Plan View
Scale: 1/4"=1'-0"

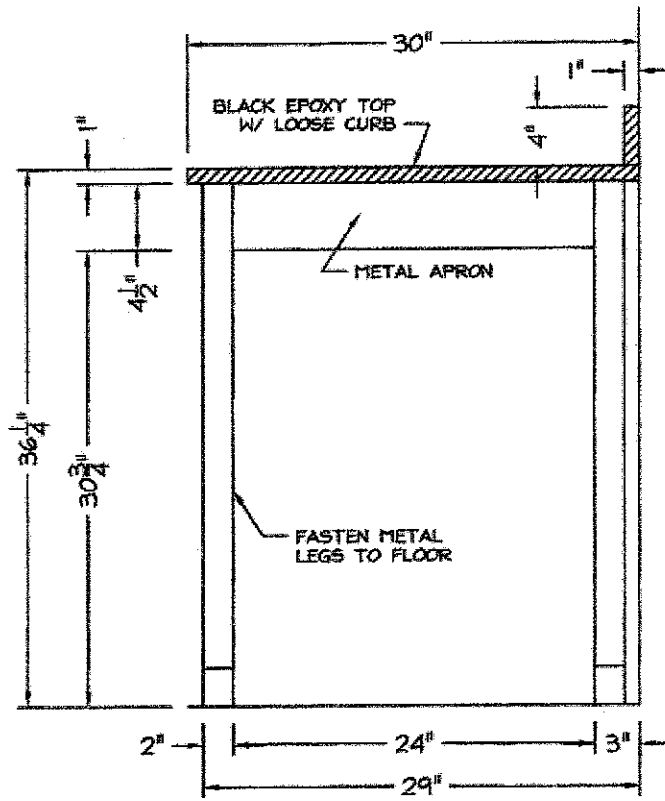


B
L1

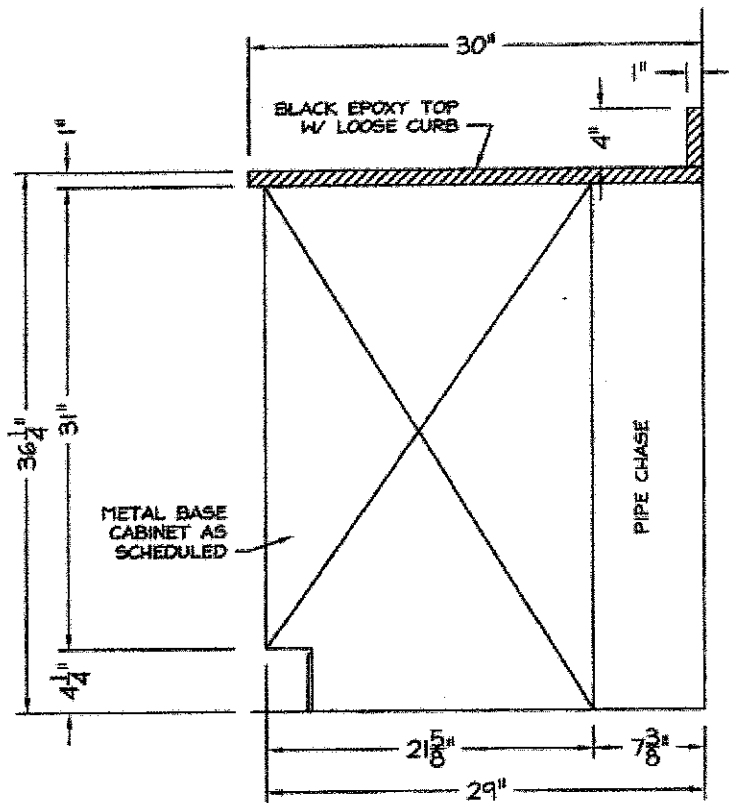
Partial Plan View
Scale: 1/4"=1'-0"



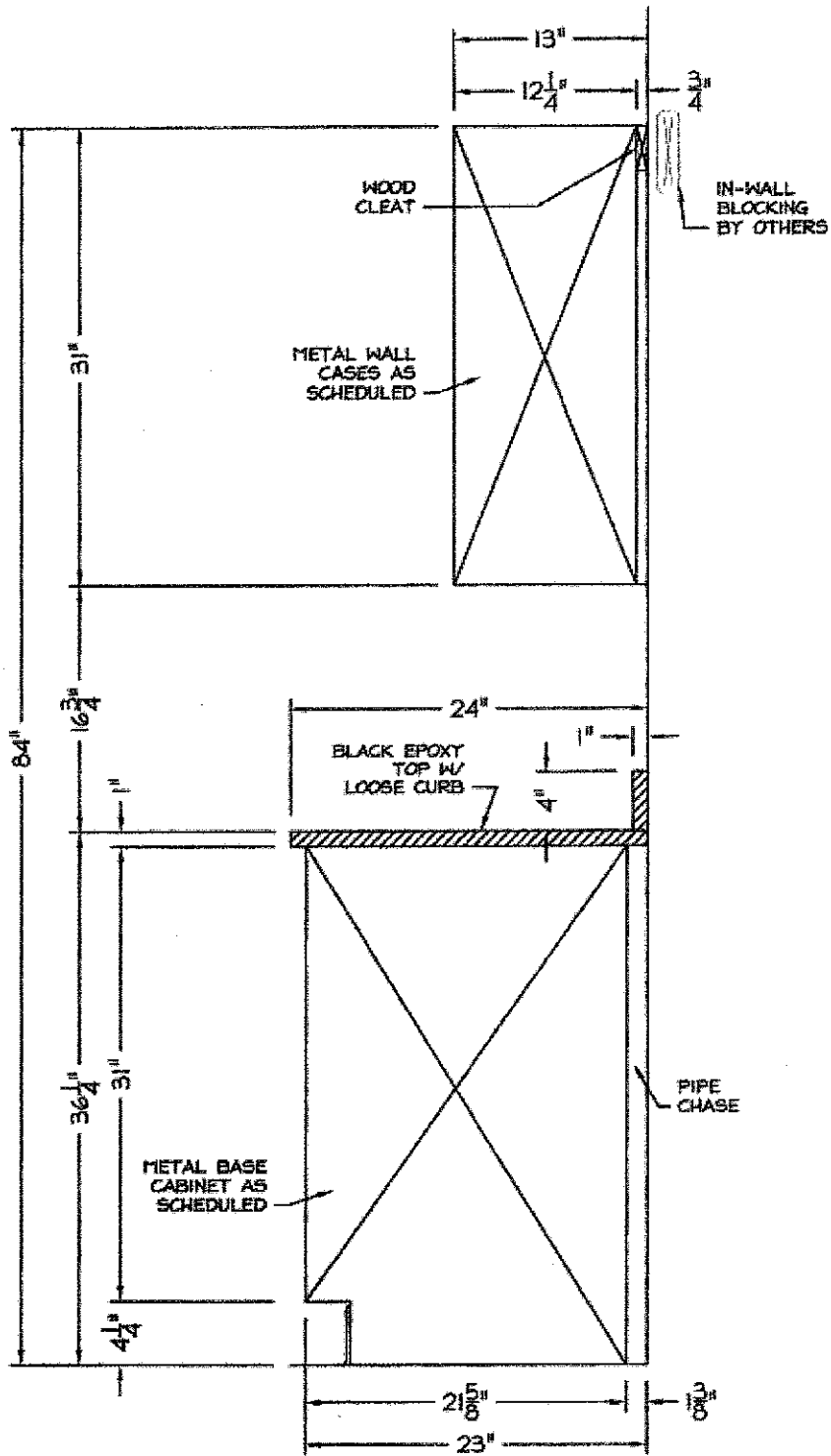
D Section
L1 Scale: 1"=1'-0"



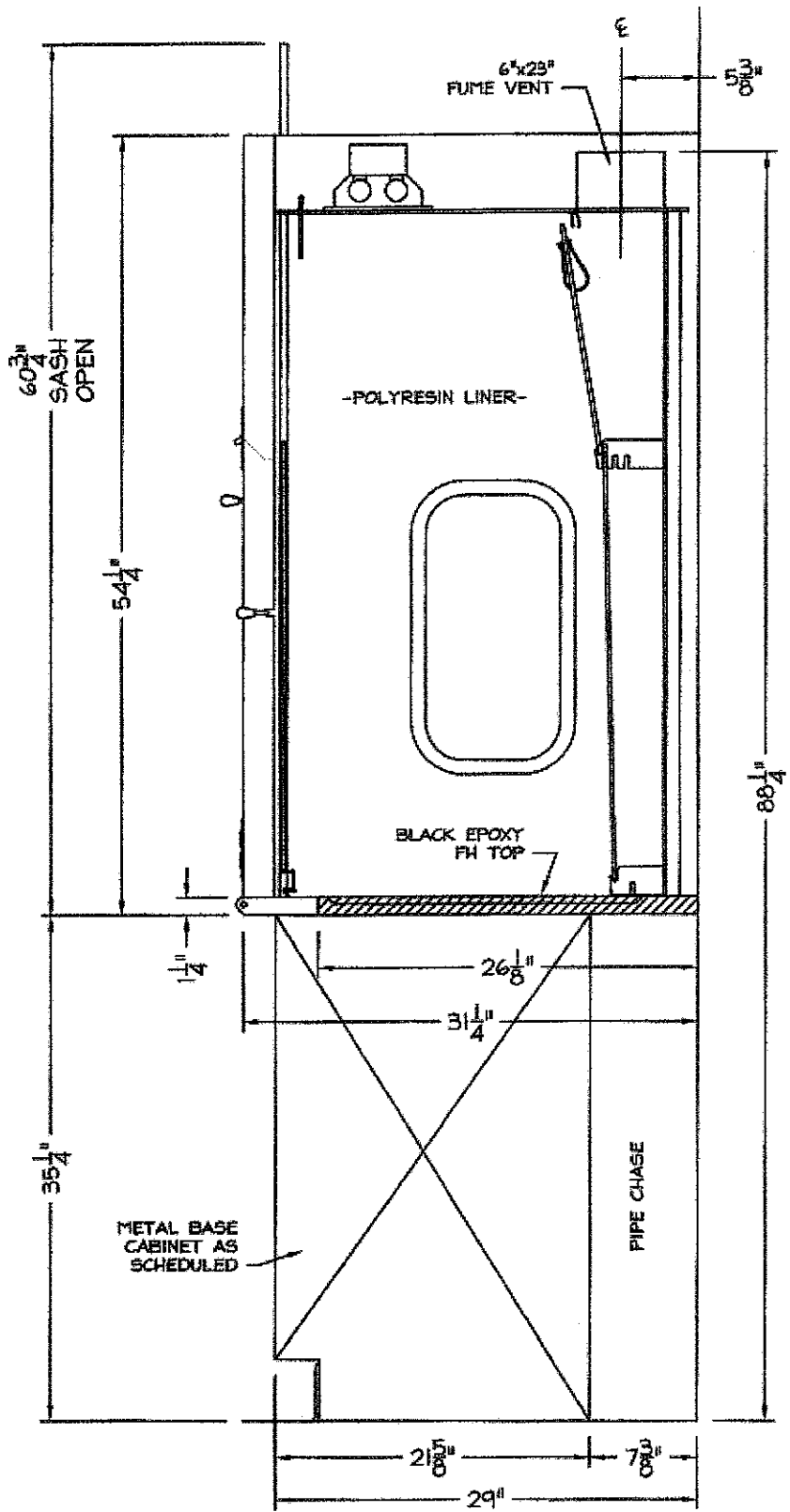
E Section
L1 Scale: 1"=1'-0"



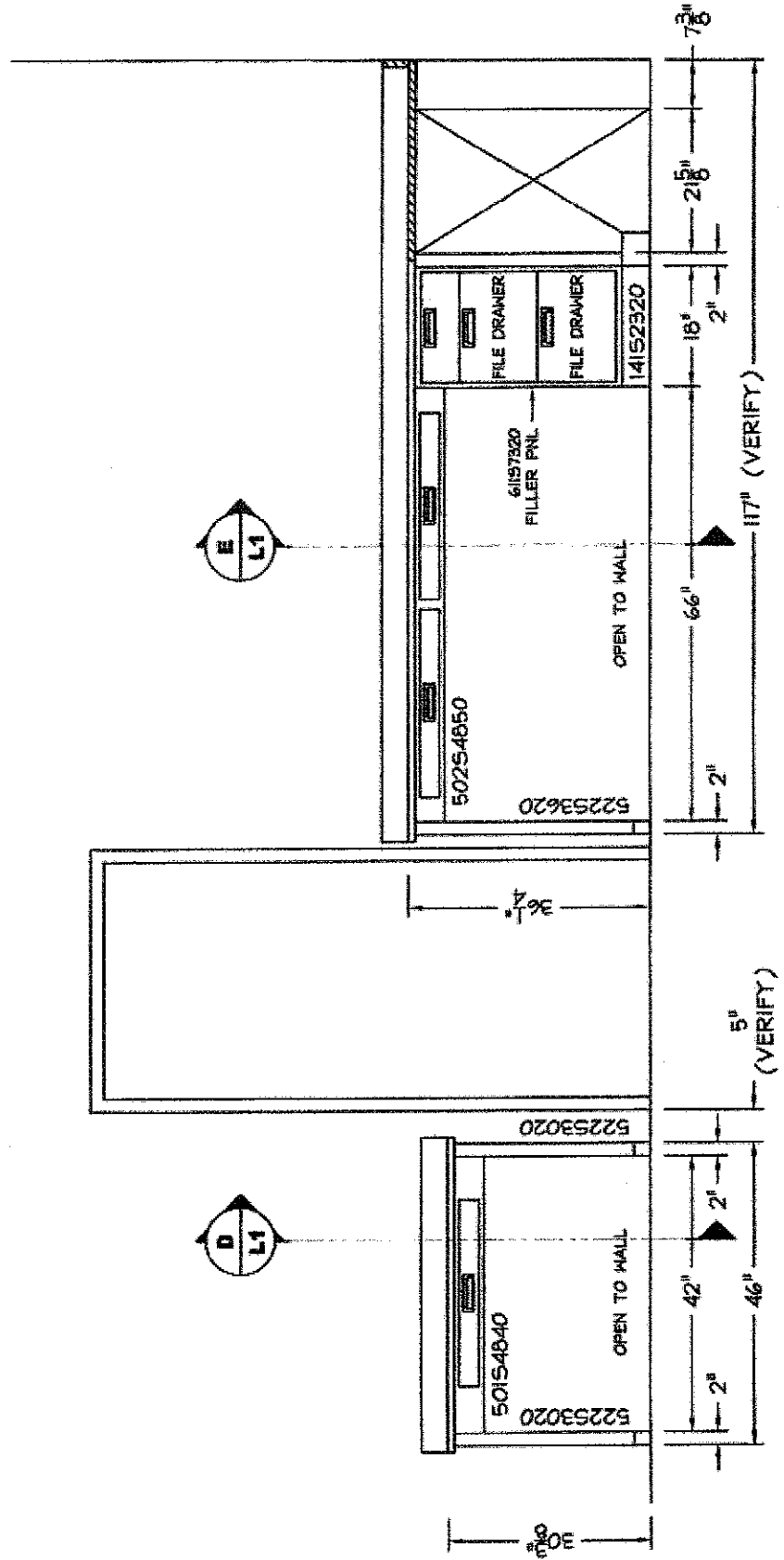
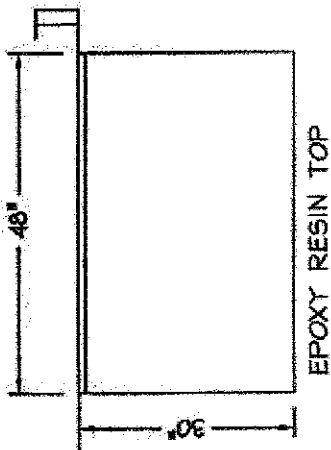
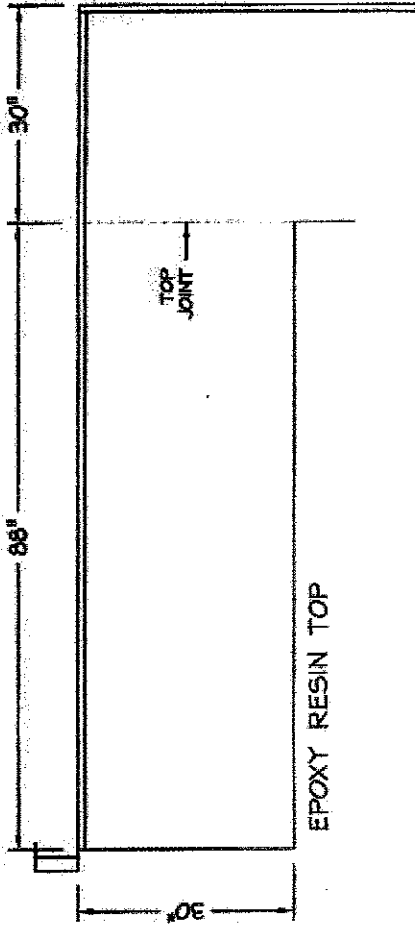
F
L1 Section
Scale: 1"=1'-0"



G Section
L1 Scale: 1"=1'-0"

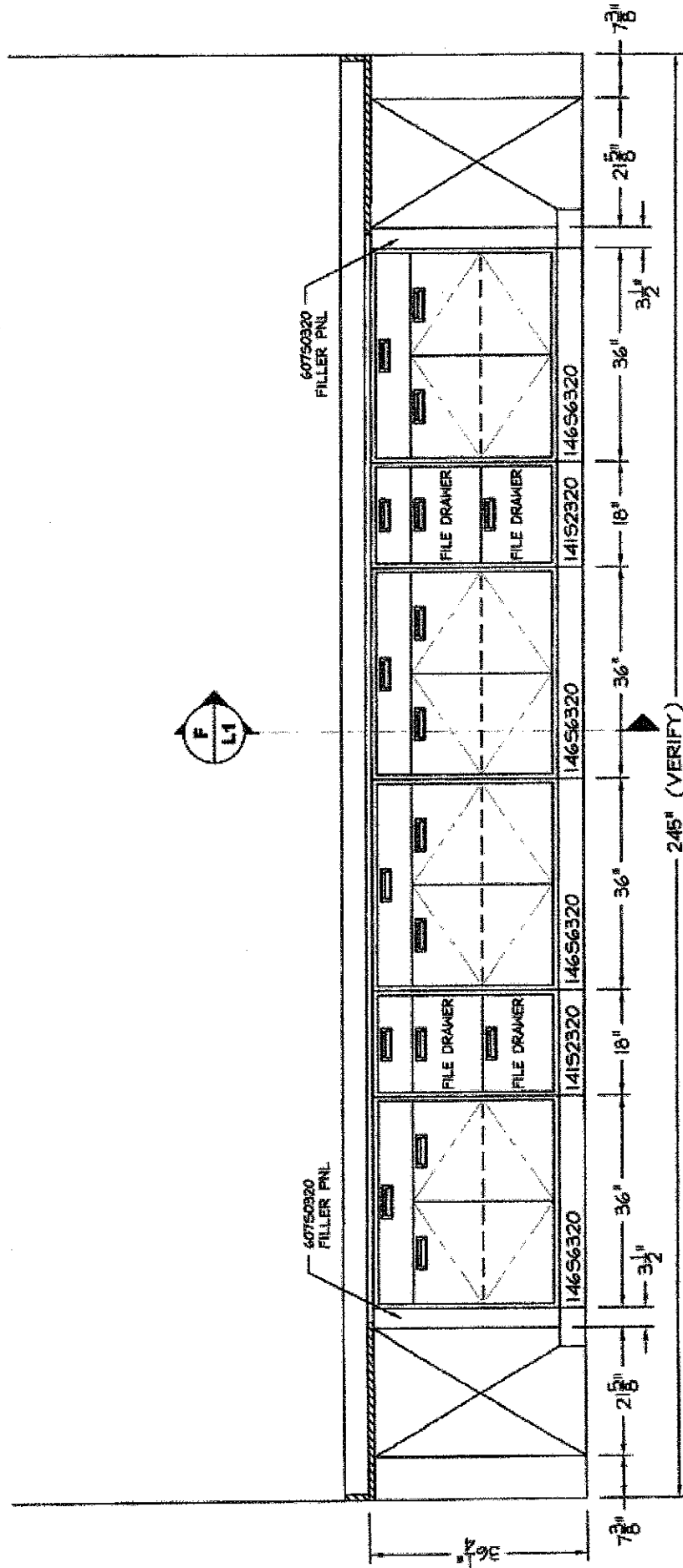
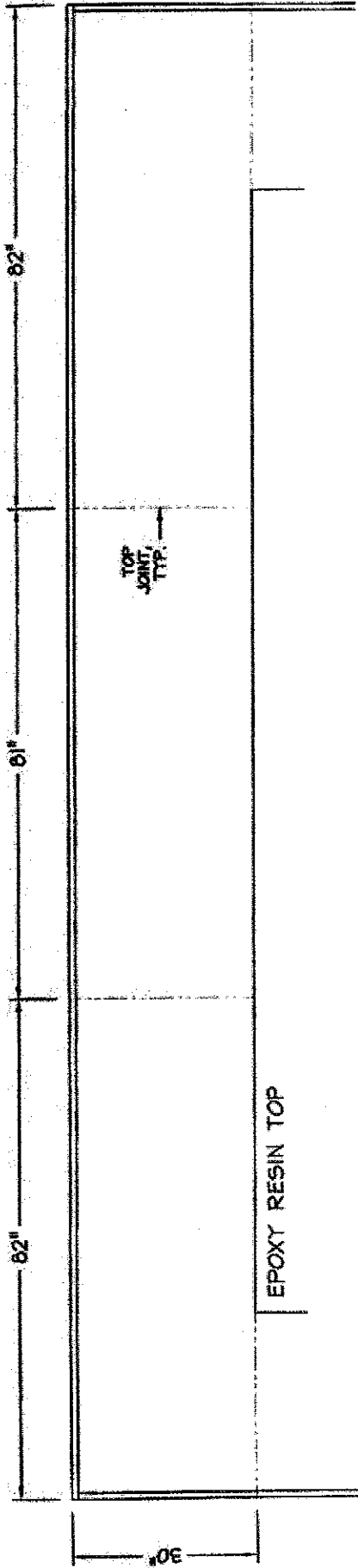


H Section
L1 Scale: 1"=1'-0"



1 Elevation - Instrumentation Rm.
Scale: 1/2" = 1'-0"

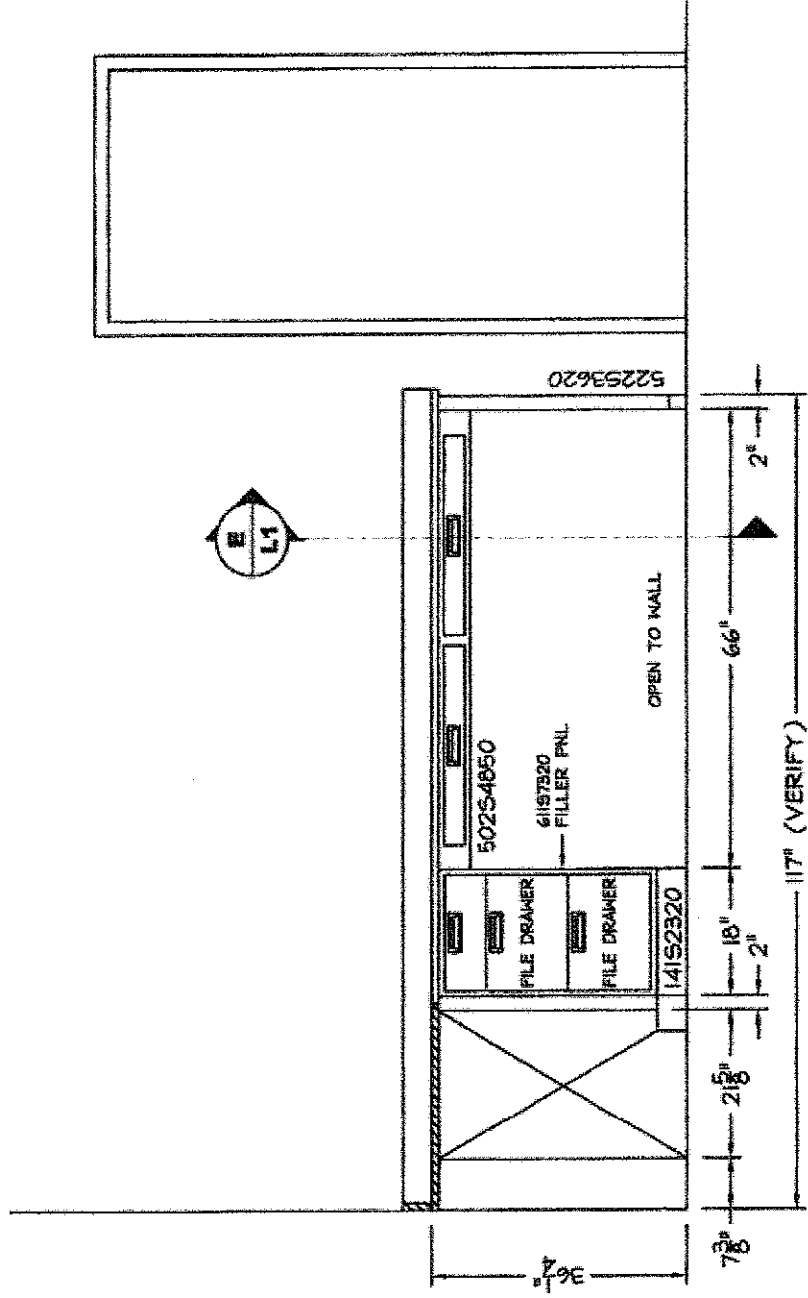
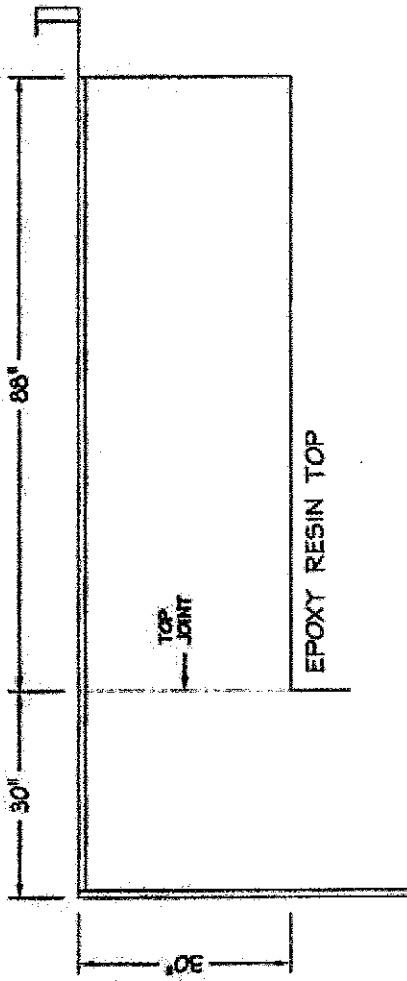




2 Elevation - Instrumentation Rm.

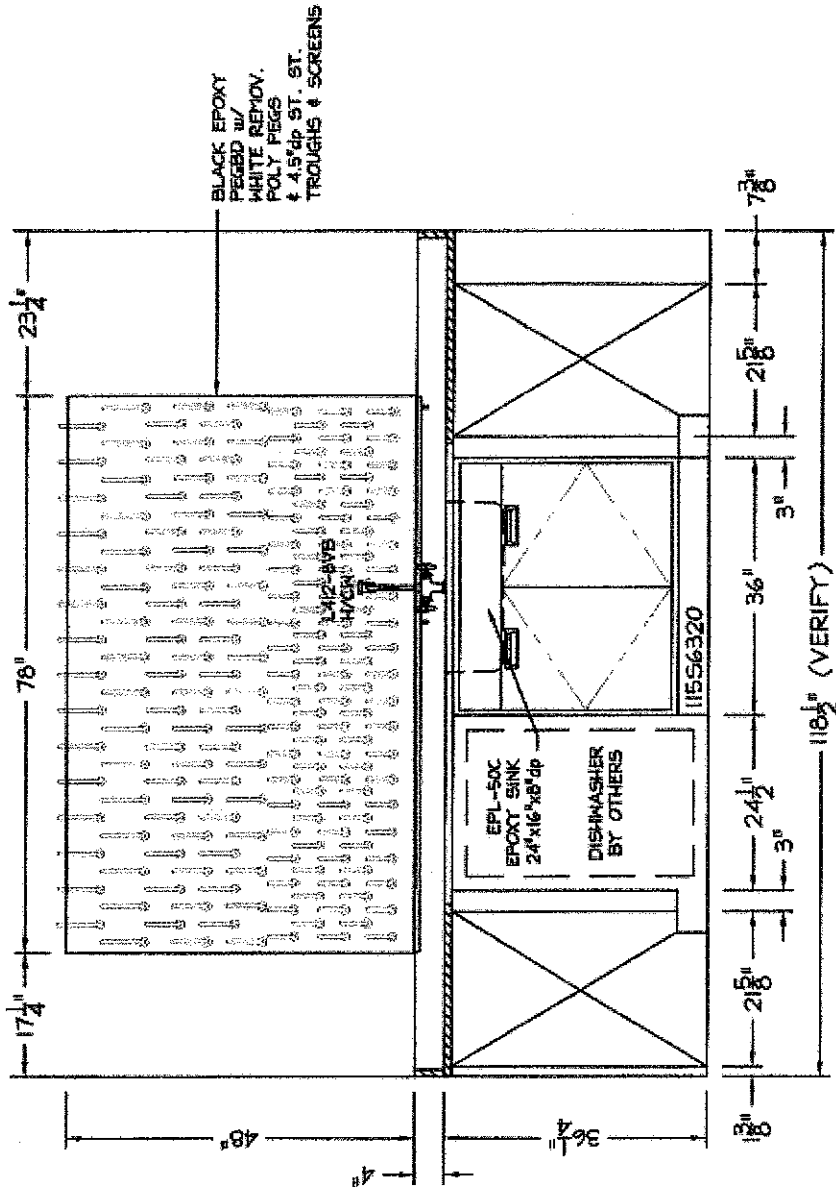
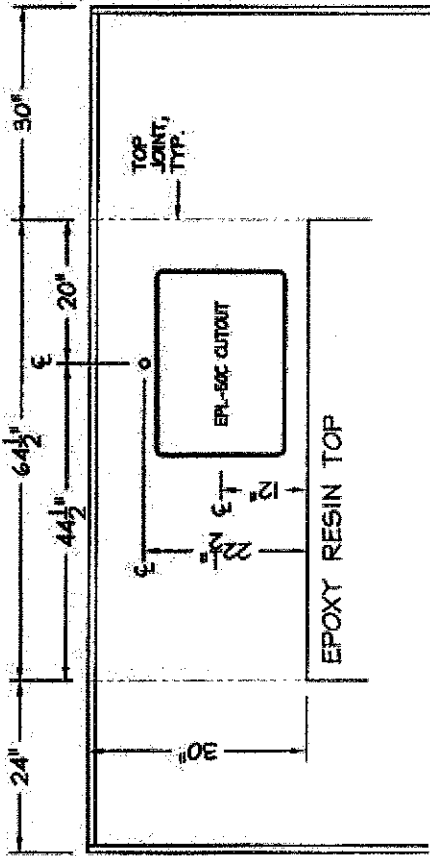
Scale: 1/2" = 1'-0"

L2



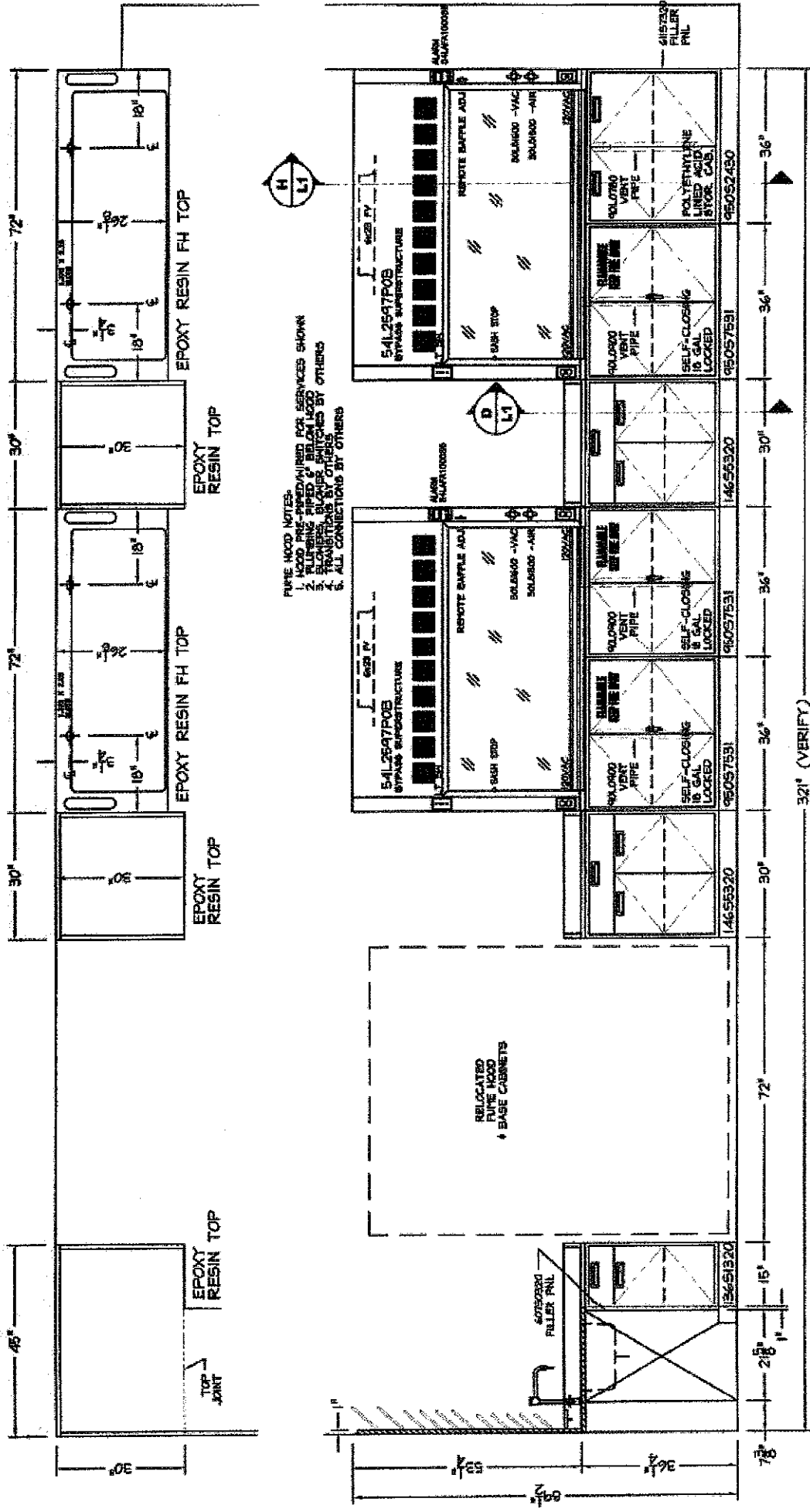
3 Elevation - Instrumentation Rm.
 Scale: 1/2"=1'-0"

L2



BLACK EPOXY
 PEGGED W/
 WHITE REMOV.
 POLY PEGS
 & 4.5"dp ST. ST.
 TROUGHS & SCREENS

5 Elevation - Extraction Rm.
 Scale: 1/2" = 1'-0"
L3

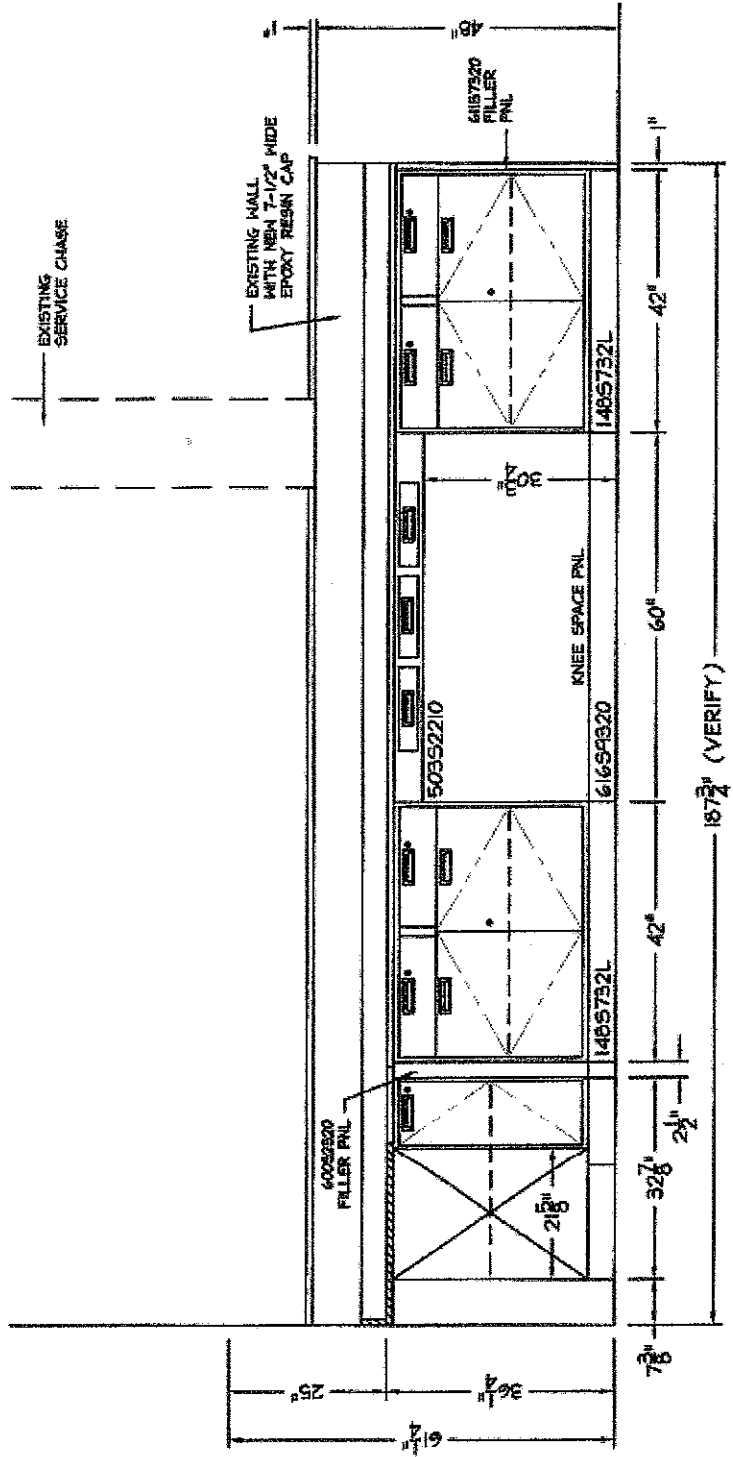
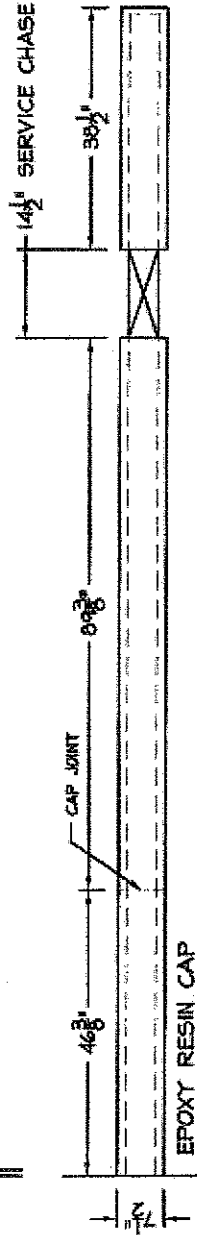
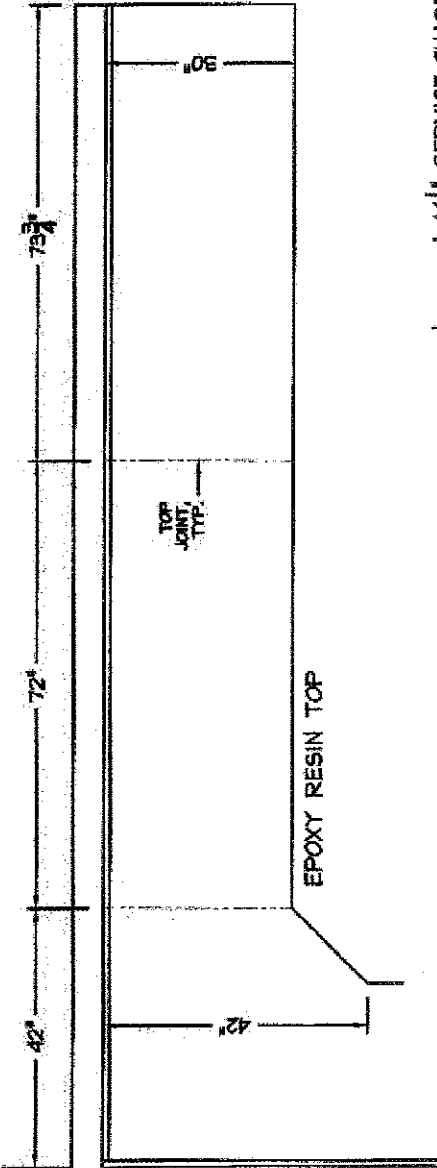


PLUMBING HOOD NOTES:
 1. HOOD PRE-DESIGNED FOR SERVICES SHOWN
 2. ALL WORK TO BE DONE BY OTHERS
 3. TRANSMISSIONS BY OTHERS
 4. ALL CONNECTIONS BY OTHERS

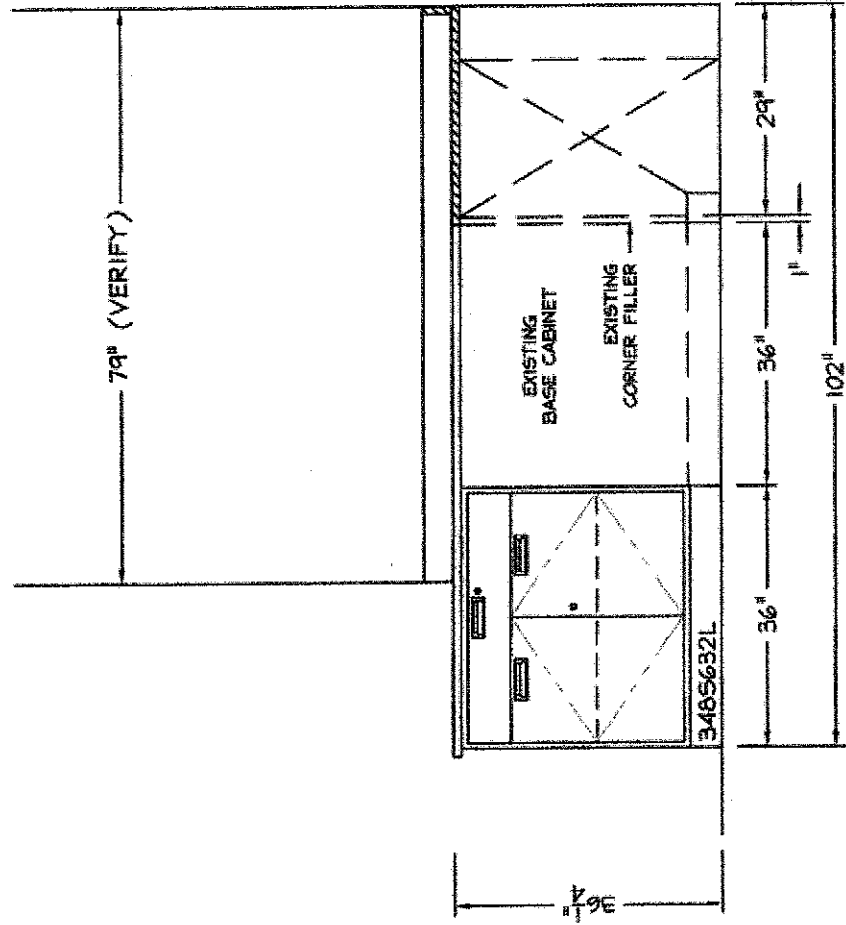
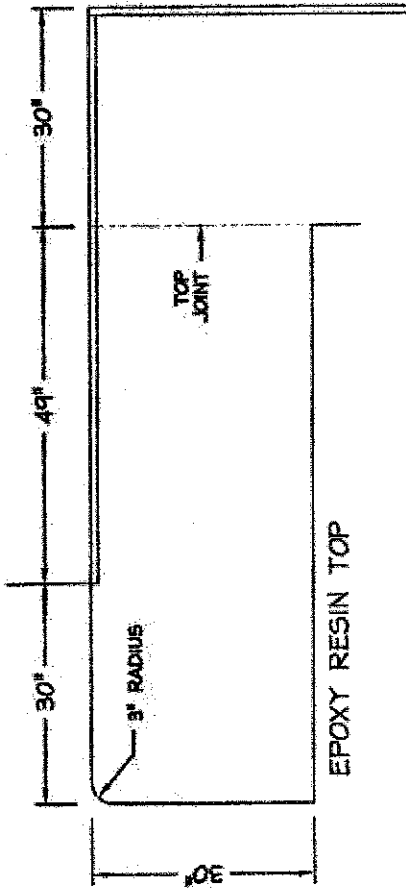
321" (VERIFY)

6 Elevation - Extraction Rm.
 Scale: 1/2"=1'-0"

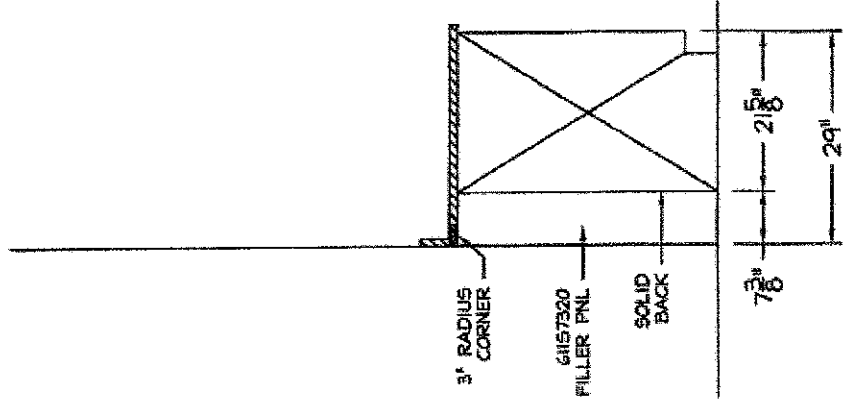
L3



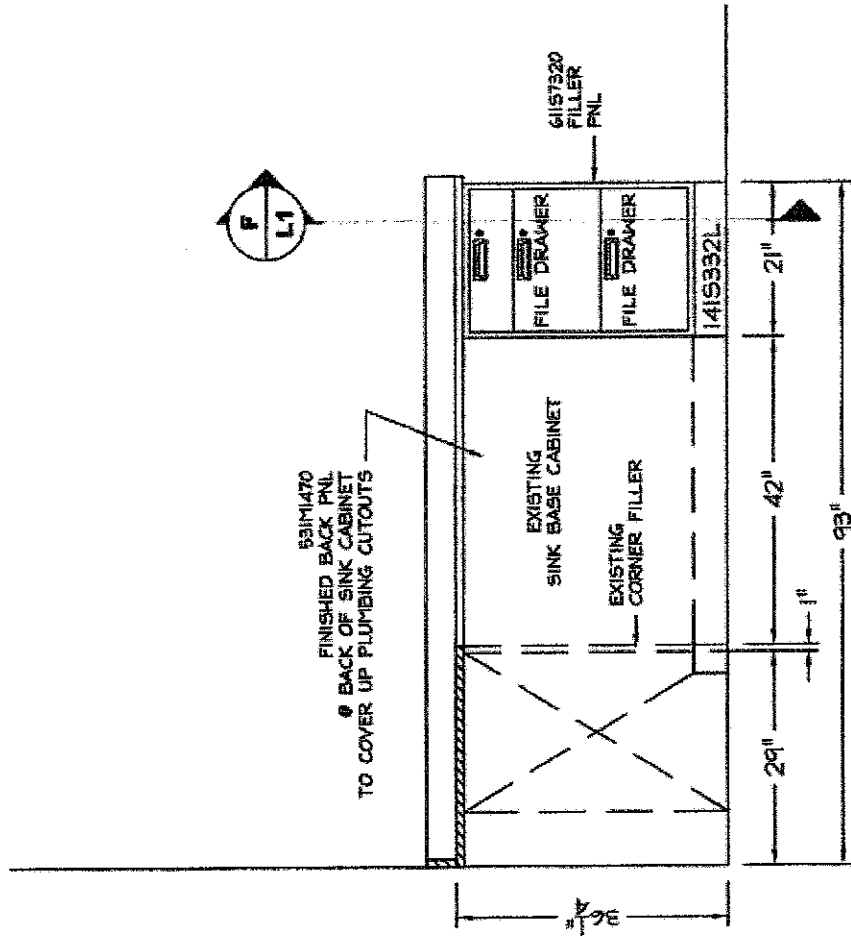
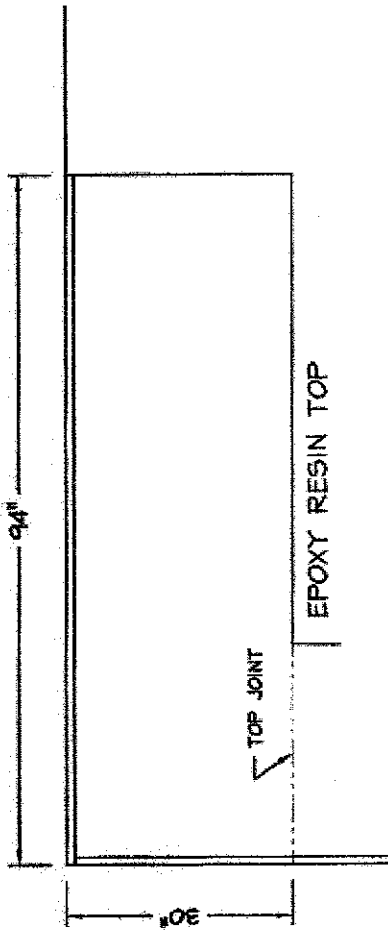
8 Elevation
 L4 Scale: 1/2" = 1'-0"



9 Elevation
Scale: 1/2"=1'-0"



10 Elevation
Scale: 1/2"=1'-0"



11 Elevation
L4 Scale: 1/2" = 1'-0"

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceed five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

LICENSING: Vendors must be licensed and in good standing in accordance with any and all state and local laws and requirements by any state or local agency of West Virginia, including, but not limited to, the West Virginia Secretary of State's Office, the West Virginia Tax Department, West Virginia Insurance Commission, or any other state agencies or political subdivision. Furthermore, the vendor must provide all necessary releases to obtain information to enable the Director or spending unit to verify that the vendor is licensed and in good standing with the above entities.

CONFIDENTIALITY: The vendor agrees that he or she will not disclose to anyone, directly or indirectly, any such personally identifiable information or other confidential information gained from the agency, unless the individual who is the subject of the information consents to the disclosure in writing or the disclosure is made pursuant to the agency's policies, procedures and rules. Vendors should visit www.state.wv.us/admin/purchase/privacy for the Notice of Agency Confidentiality Policies.

Under penalty of law for false swearing (West Virginia Code, §61-5-3), it is hereby certified that the vendor acknowledges the information in this said affidavit and are in compliance with the requirements as stated.

Vendor's Name: _____

Authorized Signature: _____ Date: _____