



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

Request for Quotation

RFQ NUMBER
DPS0905

PAGE
1

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

VENDOR
 *709044322 304 746 0400
R M HUFFMAN COMPANY
PO BOX 8277
SOUTH CHARLESTON WV 25303

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

DATE PRINTED 08/04/2008	TERMS OF SALE	SHIP VIA	F.O.B.	FREIGHT TERMS
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BID OPENING DATE: **09/12/2008** BID OPENING TIME **01:30PM**

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	LS		415-52		
FUME HOODS, LABORATORY INSTALLATION OF CASEWORK AND FUMEHOODS FOR THE TOXICOLOGY AND FIREARMS/TOOLMARK SECTION OF THE FORENSICS LAB, WEST VIRGINIA STATE POLICE, PER THE SPECIFICATIONS AND DRAWINGS. MANDATORY ON-SITE PRE-BID: 8/27/2008; 1:30 PM 725 JEFFERSON ROAD SOUTH CHARLESTON, WV 25309 CONTACT: RICK PURSLEY AT 304-746-2141 EXHIBIT 5 NOTICE TO PROCEED: THIS CONTRACT IS TO BE PERFORMED WITHIN 90 CALENDAR DAYS AFTER THE NOTICE TO PROCEED IS RECEIVED. UNLESS OTHERWISE SPECIFIED, THE FULLY EXECUTED PURCHASE ORDER WILL BE CONSIDERED NOTICE TO PROCEED. CANCELLATION: THE DIRECTOR OF PURCHASING RESERVES THE RIGHT TO CANCEL THIS CONTRACT IMMEDIATELY UPON WRITTEN NOTICE TO THE VENDOR IF THE MATERIALS OR WORKMANSHIP SUPPLIED ARE OF AN INFERIOR QUALITY OR DO NOT CONFORM WITH THE SPECIFICATIONS OF THE BID AND CONTRACT HERE IN. WAGE RATES: THE CONTRACTOR OR SUBCONTRACTOR SHALL PAY						

RECEIVED
 2008 SEP 12 P 1:16
 PURCHASING DIVISION
 STATE OF WV

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE <i>Marie Guffey</i>	TELEPHONE 304-746-0400	DATE 9/12/08
TITLE PRESIDENT	FEIN 55 056 3437	ADDRESS CHANGES TO BE NOTED ABOVE

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.
15. **West Virginia Alcohol & Drug-Free Workplace Act:** If this Contract constitutes a public improvement construction contract as set forth in Article 1D, Chapter 21 of the West Virginia Code ("The West Virginia Alcohol and Drug-Free Workplace Act"), then the following language shall hereby become part of this Contract: "The contractor and its subcontractors shall implement and maintain a written drug-free workplace policy in compliance with the West Virginia Alcohol and Drug-Free Workplace Act, as set forth in Article 1D, Chapter 21 of the West Virginia Code. The contractor and its subcontractors shall provide a sworn statement in writing, under the penalties of perjury, that they maintain a valid drug-free work place policy in compliance with the West Virginia Alcohol and Drug-Free Workplace Act. It is understood and agreed that this Contract shall be cancelled by the awarding authority if the Contractor: 1) Fails to implement its drug-free workplace policy; 2) Fails to provide information regarding implementation of the contractor's drug-free workplace policy at the request of the public authority; or 3) Provides to the public authority false information regarding the contractor's drug-free workplace policy."

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:
Department of Administration, Purchasing Division, 2019 Washington Street East, P.O. Box 50130,
Charleston, WV 25305-0130



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08/04/2008				

BID OPENING DATE: **09/12/2008** BID OPENING TIME: **01:30PM**

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
<p>THE HIGHER OF THE U.S. DEPARTMENT OF LABOR MINIMUM WAGE RATES AS ESTABLISHED FOR KANAWHA COUNTY, PURSUANT TO WEST VIRGINIA CODE 21-5A, ET, SEQ. (PREVAILING WAGE RATES APPLY TO THIS PROJECT)</p> <p>ARBITRATION: ANY REFERENCES MADE TO ARBITRATION OR INTEREST FOR PAYMENTS DUE (EXCEPT FOR ANY INTEREST REQUIRED BY STATE LAW) CONTAINED IN THIS CONTRACT OR IN ANY AMERICAN INSTITUTE OF ARCHITECTS DOCUMENTS PERTAINING TO THIS CONTRACT ARE HEREBY DELETED.</p> <p>WORKERS' COMPENSATION: VENDOR IS REQUIRED TO PROVIDE A CERTIFICATE FROM WORKERS' COMPENSATION IF SUCCESSFUL.</p> <p>ALL OF THE ITEMS CHECKED BELOW WILL BE A REQUIREMENT OF THIS CONTRACT:</p> <p>(XX) INSURANCE: SUCCESSFUL VENDOR SHALL FURNISH PROOF OF COMMERCIAL GENERAL LIABILITY INSURANCE PRIOR TO ISSUANCE OF CONTRACT. UNLESS OTHERWISE SPECIFIED IN THE BID DOCUMENTS, THE MINIMUM AMOUNT OF INSURANCE COVERAGE REQUIRED IS \$250,000.</p> <p>() BUILDERS RISK INSURANCE: SUCCESSFUL VENDOR SHALL FURNISH PROOF OF BUILDERS RISK - ALL RISK INSURANCE IN AN AMOUNT EQUAL TO 100% OF THE AMOUNT OF THE CONTRACT.</p> <p>(XX) BONDS: FIVE PERCENT (5%) OF THE TOTAL AMOUNT OF THE BID PAYABLE TO THE STATE OF WEST VIRGINIA, SHALL BE SUBMITTED WITH EACH BID AS A BID BOND. THE SUCCESSFUL BIDDER SHALL ALSO FURNISH A PERFORMANCE BOND AND LABOR/MATERIAL BOND FOR 100% OF THE AMOUNT OF THE CONTRACT. BONDS MAY BE PROVIDED IN THE FORM OF A CERTIFIED CHECK, IRREVOCABLE LETTER OF CREDIT, OR BOND FURNISHED BY A SOLVENT SURETY COMPANY AUTHORIZED TO DO BUSINESS IN THE STATE OF WEST VIRGINIA. A LETTER OF CREDIT SUBMITTED</p>						

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<p>IN LIEU OF A PERFORMANCE AND LABOR & MATERIAL BOND WILL ONLY BE ALLOWED FOR PROJECTS UNDER \$100,000. PERSONAL OR BUSINESS CHECKS ARE NOT ACCEPTABLE IN LIEU OF THE 5% BID BOND, PERFORMANCE BOND, OR LABOR AND MATERIAL BOND.</p> <p>() MAINTENANCE BOND: A TWO (2) YEAR MAINTENANCE BOND COVERING THE ROOFING SYSTEM WILL BE A REQUIREMENT OF THE SUCCESSFUL VENDOR.</p> <p>REV. 11/00</p> <p>EXHIBIT 7</p> <p>DOMESTIC ALUMINUM, GLASS & STEEL IN PUBLIC WORKS PROJECTS</p> <p>IN ACCORDANCE WITH WEST VIRGINIA CODE 5-19-1 ET., SEQ., EVERY CONTRACT FOR CONSTRUCTION, RECONSTRUCTION, ALTERATION, REPAIR, IMPROVEMENT OR MAINTENANCE OF PUBLIC WORKS, WHERE THE COST IS MORE THAN \$50,000 AND, IN THE CASE OF STEEL ONLY, WHERE THE COST OF STEEL IS MORE THAN \$50,000 OR WHERE MORE THAN 10,000 POUNDS OF STEEL ARE REQUIRED, THE STATE WILL ACCEPT ONLY ALUMINUM GLASS, OR STEEL PRODUCTS PRODUCED IN THE UNITED STATES. IN ADDITION, ITEMS OF MACHINERY OR EQUIPMENT PURCHASED FOR USE AT THE SITE OF PUBLIC WORKS SHALL BE MADE OF DOMESTIC ALUMINUM, GLASS OR STEEL, UNLESS THE COST OF THE PRODUCT IS LESS THAN \$50,000 OR LESS THAN 10,000 POUNDS OF STEEL ARE USED IN PUBLIC WORKS PROJECTS.</p> <p>FOREIGN MADE ALUMINUM, GLASS OR STEEL PRODUCTS MAY BE ACCEPTED ONLY IF THE COST OF DOMESTIC PRODUCTS IS FOUND TO BE UNREASONABLE. SUCH COST IS UNREASONABLE IF IT IS 20% OR MORE HIGHER THAN THE BID PRICE FOR FOREIGN MADE</p>						

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<p>PRODUCTS. IF THE DOMESTIC ALUMINUM, GLASS OR STEEL PRODUCTS TO BE SUPPLIED OR PRODUCED IN A "SUBSTANTIAL LABOR SURPLUS AREA", AS DEFINED BY THE UNITED STATES DEPARTMENT OF LABOR, FOREIGN PRODUCTS MAY BE SUPPLIED ONLY IF DOMESTIC PRODUCTS ARE 30% OR MORE HIGHER IN PRICE THAN THE FOREIGN MADE PRODUCTS.</p> <p>IF, PRIOR TO THE AWARD OF A CONTRACT UNDER THE ABOVE PROVISIONS, THE SPENDING OFFICER OF THE SPENDING UNIT DETERMINES THAT THERE EXISTS A BID FOR LIKE FOREIGN ALUMINUM, GLASS OR STEEL THAT IS REASONABLE AND LOWER THAN THE LOWEST BID DOMESTIC PRODUCTS, THE SPENDING OFFICE MAY REQUEST, IN WRITING, A REEVALUATION AND REDUCTION IN THE LOWEST BID FOR SUCH DOMESTIC PRODUCTS. ALL VENDORS MUST INDICATE IN THEIR BID IF THEY ARE SUPPLYING FOREIGN ALUMINUM, GLASS OR STEEL.</p> <p>REV. 3/88</p> <p>EXHIBIT 9</p> <p>NOTICE FOR ISSUANCE & ACKNOWLEDGEMENT OF CONSTRUCTION PROJECT ADDENDA</p> <p>THE ARCHITECT/ENGINEER AND/OR AGENCY SHALL BE REQUIRED TO ABIDE BY THE FOLLOWING SCHEDULE IN ISSUING CONSTRUCTION PROJECT ADDENDA FOR STATE AGENCIES:</p> <p>(1) THE ARCHITECT/ENGINEER SHALL PREPARE THE ADDENDUM AND A LIST OF ALL PARTIES THAT HAVE PROCURED DRAWINGS AND SPECIFICATIONS FOR THE PROJECT. THE ADDENDUM AND LIST SHALL BE FORWARDED TO THE BUYER IN THE STATE PURCHASING DIVISION. THE ARCHITECT/ENGINEER SHALL ALSO SEND A COPY OF THE ADDENDUM TO THE STATE AGENCY FOR WHICH THE CONTRACT IS ISSUED.</p>						

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PAGE 5

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(2) THE BUYER SHALL SEND THE ADDENDUM TO ALL INTERESTED PARTIES AND, IF NECESSARY, EXTEND THE BID OPENING DATE. ANY ADDENDUM SHOULD BE RECEIVED BY THE BUYER WITHIN FOURTEEN (14) DAYS PRIOR TO THE BID OPENING DATE.

(3) ALL ADDENDA SHOULD BE FORMALLY ACKNOWLEDGED BY ALL BIDDERS AND SUBMITTED TO THE STATE PURCHASING DIVISION. THE SAME RULES AND REGULATIONS THAT APPLY TO THE ORIGINAL BIDDING DOCUMENT SHALL ALSO APPLY TO AN ADDENDUM DOCUMENT. THE ONLY EXCEPTION MAY BE FOR AN ADDENDUM THAT IS ISSUED FOR THE SOLE PURPOSE OF CHANGING A BID OPENING TIME AND/OR DATE.

REV. 11/96

EXHIBIT 10

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 NOS.:

- NO. 1
- NO. 2
- NO. 3
- NO. 4

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6

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NO. 5						
<p>I UNDERSTAND THAT FAILURE TO CONFIRM THE RECEIPT OF THE ADDENDUM(S) MAY BE CAUSE FOR REJECTION OF THE BIDS.</p> <p>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.</p> <p>.....<i>Thomas R. Huffman</i>.....SIGNATURE <i>THE R. M. HUFFMAN CO.</i>.....COMPANY <i>9/12/08</i>.....DATE</p> <p>REV. 11/96</p> <p>CONTRACTORS LICENSE</p> <p>WEST VIRGINIA STATE CODE 21-11-2 REQUIRES THAT ALL PERSONS DESIRING TO PERFORM CONTRACTING WORK IN THIS STATE MUST BE LICENSED. THE WEST VIRGINIA CONTRACTORS LICENSING BOARD IS EMPOWERED TO ISSUE THE CONTRACTORS LICENSE. APPLICATIONS FOR A CONTRACTORS LICENSE MAY B MADE BY CONTACTING THE WEST VIRGINIA DIVISION OF LABOR CAPITOL COMPLEX, BUILDING 3, ROOM 319, CHARLESTON, WV 25305. TELEPHONE: (304) 558-7890.</p> <p>WEST VIRGINIA STATE CODE 21-11-11 REQUIRES ANY PROSPECTIVE BIDDER TO INCLUDE THE CONTRACTORS</p>						

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PAGE
7

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BUDGET

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<p>LICENSE NUMBER ON THEIR BID. BIDDER TO COMPLETE: CONTRACTORS NAME: <i>THE R.M. HUFFMAN Co.</i> CONTRACTORS LICENSE NO.: <i>WV001580</i></p> <p>THE SUCCESSFUL BIDDER WILL BE REQUIRED TO FURNISH A COPY OF THEIR CONTRACTORS LICENSE PRIOR TO ISSUANCE OF A PURCHASE ORDER/CONTRACT</p> <p>APPLICABLE LAW</p> <p>THE WEST VIRGINIA STATE CODE, PURCHASING DIVISION RULES AND REGULATIONS, AND THE INFORMATION PROVIDED IN THE "REQUEST FOR QUOTATION" ISSUED BY THE PURCHASING DIVISION IS THE SOLE AUTHORITY GOVERNING THIS PROCUREMENT.</p> <p>ANY INFORMATION PROVIDED IN SPECIFICATION MANUALS, OR ANY OTHER SOURCE, VERBAL OR WRITTEN, WHICH CONTRADICTS OR ALTERS THE INFORMATION PROVIDED FROM THE SOURCES AS DESCRIBED IN THE ABOVE PARAGRAPH IS VOID AND OF NO EFFECT.</p> <p>BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THIS CONTRACT IS AUTOMATICALLY NULL AND VOID, AND IS TERMINATED WITHOUT FURTHER ORDER.</p> <p>REV. 1/2005</p> <p>NOTICE</p>						

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8

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<p>A SIGNED BID MUST BE SUBMITTED TO:</p> <p>DEPARTMENT OF ADMINISTRATION PURCHASING DIVISION BUILDING 15 2019 WASHINGTON STREET, EAST CHARLESTON, WV 25305-0130</p> <p>THE BID SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE BID MAY NOT BE CONSIDERED:</p> <p>SEALED BID</p> <p>BUYER: JOHN ABBOTT</p> <p>REQ. NO.: DPS0905</p> <p>BID OPENING DATE: 9/12/2008</p> <p>BID OPENING TIME: 1:30 PM</p> <p>PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR BID:</p> <p>-----304.746.0400-----</p> <p>PLEASE PRINT OR TYPE NAME OF PERSON TO CONTACT CONCERNING THIS QUOTE:</p> <p>-----DAN HUFFMAN-----</p>						

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***** THIS IS THE END OF RFQ DPS0905 ***** TOTAL:						\$123,543.00

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The West Virginia State Police is soliciting bids for additional laboratory furniture for the Toxicology Section of the Forensic Laboratory.

The following bid specification and corresponding drawings describe the particulars of the laboratory furniture, fume hoods, sink, and electrical work needed. All bids must include the following specification.

- **Fisher Hamilton “Inset Steel” casework/island – see drawings. (Or equivalent)**
- **1” thick black epoxy resin countertops**
- **Epoxy resin sink**
- **(2) Fisher Hamilton bypass fume hoods with gas service**
- **Furnish and install all spiral duct and transitions for each fume hood**
- **Furnish and install new roof flashings (per roof warranty requirements)**
- **Furnish and install all required roof flashing**
- **Furnish and install all electrical connections**
- **Install all casework and fume hoods**
- **All Freight costs**

West Virginia State Police Toxicology Lab Renovations South Charleston, WV

Elevation 1/L2

<u>Qty.</u>	<u>Product No.</u>	<u>Description</u>
24	04L02400	Mldg black rubber per ft
2	139S2220	8x29x22 base cabt
3	140S2220	8x29x22 base cabt
2	50154230	36x4x22 table frame
2	60052224	Filler end 4x25 rh
2	61656220	Knee space panel 36x20
4	618S0260	Filler, rear wall case
3	900H1220	48" wall case hanger
3	950H1320	48x16x12 closed cabinet
2	MS685761	Filler vertical asm
4	90L04000	Corner st st
1	C-TOP-A	1" thick black epoxy resin top with loose 4" high curb

Elevation 2/L2

<u>Qty.</u>	<u>Product No.</u>	<u>Description</u>
8	04L02400	Mldg black rubber per ft
1	115S6320	36x35x22 base cabt
1	174S7320	42x35x22 base cabt
1	EPL-15C	Black epoxy resin drop-in sink 16x12x8
1	32W40600	Deck faucet dsmcvb h/cw (watersaver #L411VB)
3	34L22400	Trap p 1-1/2
1	600S2324	Filler end 4x31 rh
2	60IM4330	Filler end 4x31x13
1	608M2330	Filler, corner 2x31x13
1	613M2330	Filler, end 16x31x13
2	706S5330	30x31x13 wall case
1	706S6330	36x31x13 wall case
3	MS685763	Filler vertical angle asm
1	C-TOP-A	1" thick black epoxy resin top with loose 4" high curb

Elevation 3/L2

<u>Qty.</u>	<u>Product No.</u>	<u>Description</u>
17	04L02400	Mldg black rubber per ft
1	136S1320	15x35x22 base cabt
2	30L81500	Prepiping 3/8 copper-air
2	30L81600	Prepiping 3/8 copper-vacuum
1	53IM1460	Back, finished 36x35
1	54L2594P0B	5ft constnt vol super rem
1	54L2597P0B	6ft constnt vol super rem
8	54L79900	Hood prewire/line est.
2	607S0320	Filler, corner 12x31

1	90L07800	Base unit vent
2	90L09000	Base unit vent
1	950S2280	30x35x22 acid stor unit-poly
1	950S2430	36x35x22 acid stor unit-poly
1	950S7521	30x35x22 solvent stor unit
1	950S7531	36x35x22 solvent stor unit
5	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

Elevation 4/L2

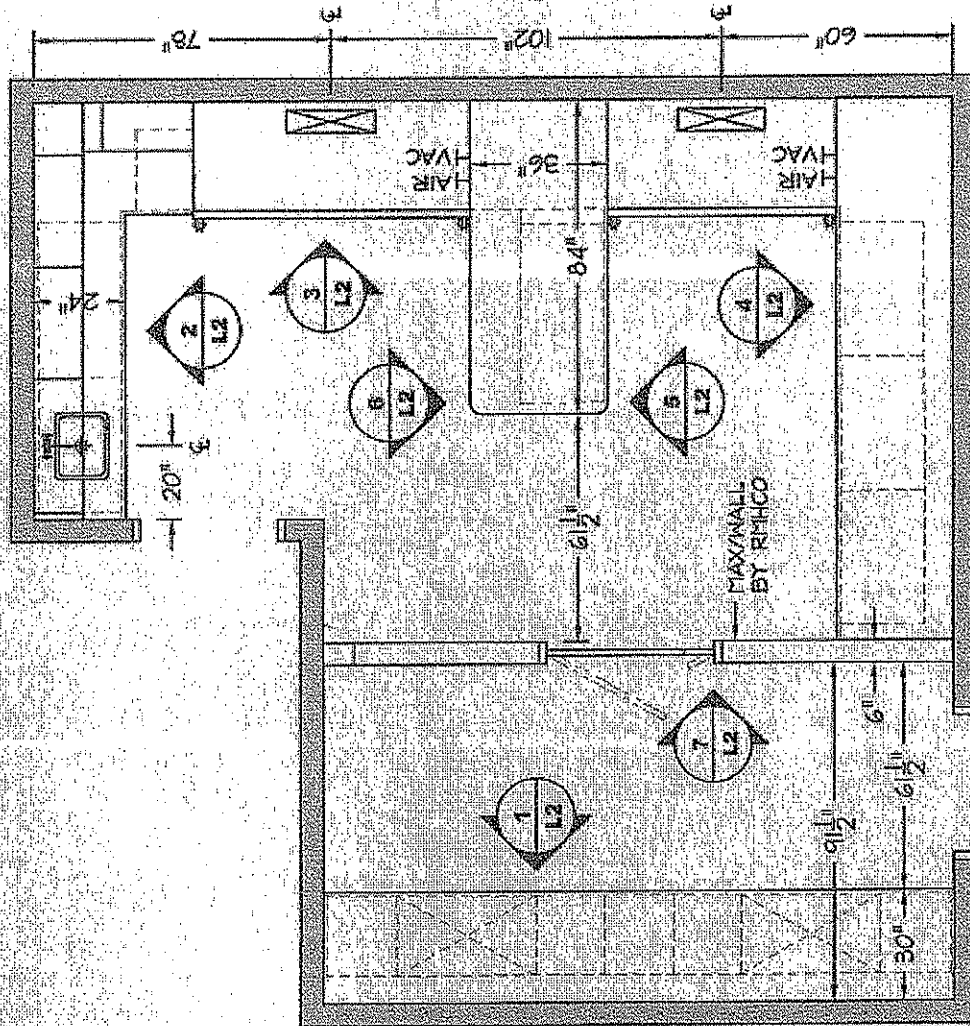
<u>Qty.</u>	<u>Product No.</u>	<u>Description</u>
10	04L02400	Mldg black rubber per ft
1	146S6320	36x35x22 base cabt
1	174S6320	36x35x22 base cabt
1	175S7320	30x35x22 base cabt
1	600S2325	Filler end 5x31 rh
1	MS685763	Filler vertical angle asm
1	C-TOP-A	1" thick black epoxy resin top with loose 4" high curb

Elevations 5-6/L2

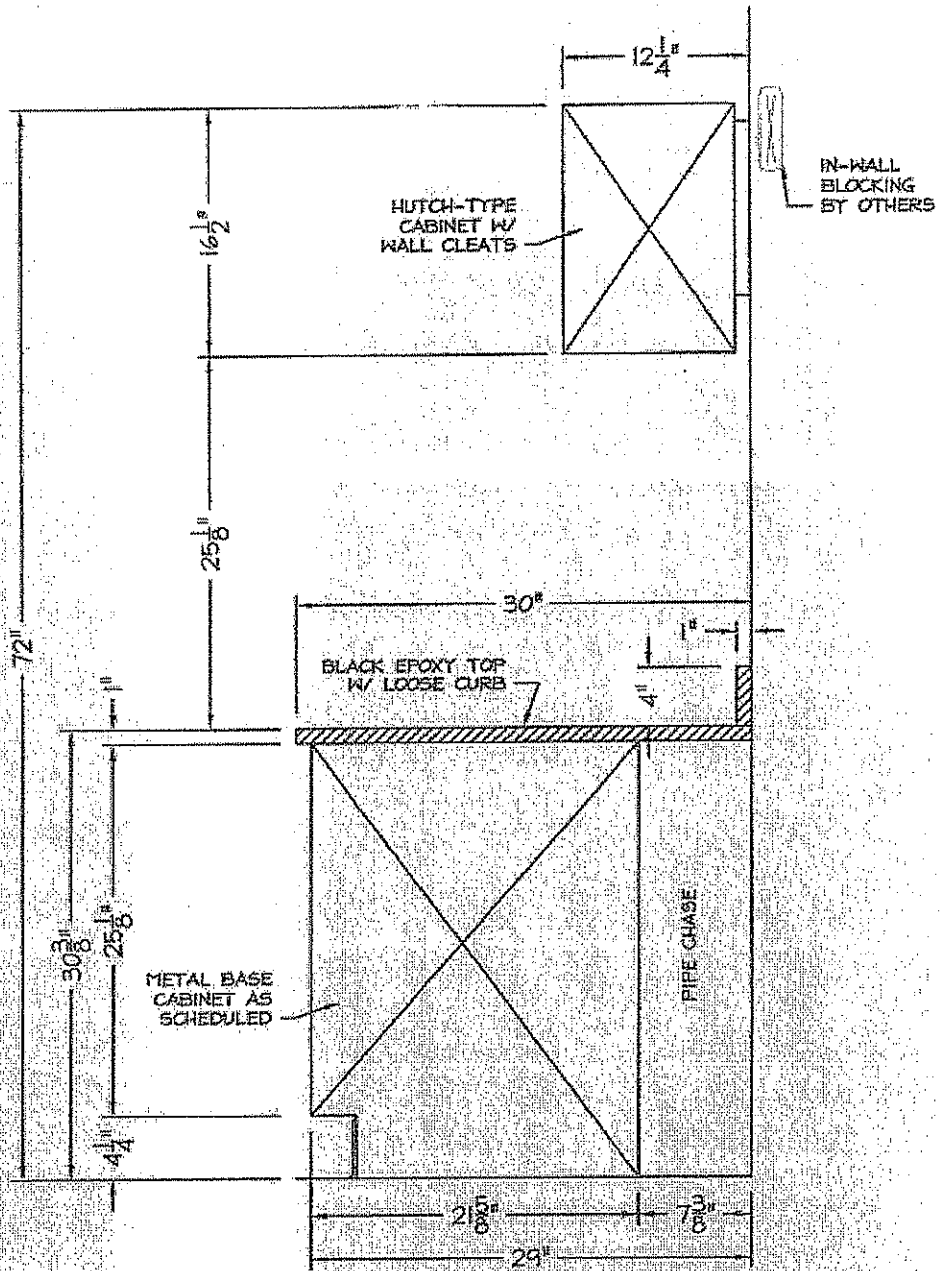
<u>Qty.</u>	<u>Product No.</u>	<u>Description</u>
12	04L02400	Mldg black rubber per ft
1	364S832L	48x25x22 base cabt
2	600S2324	Filler end 4x31 rh
2	90L04000	Corner st st
1	C-TOP-B	1" thick black epoxy resin top

Elevation 7/L2

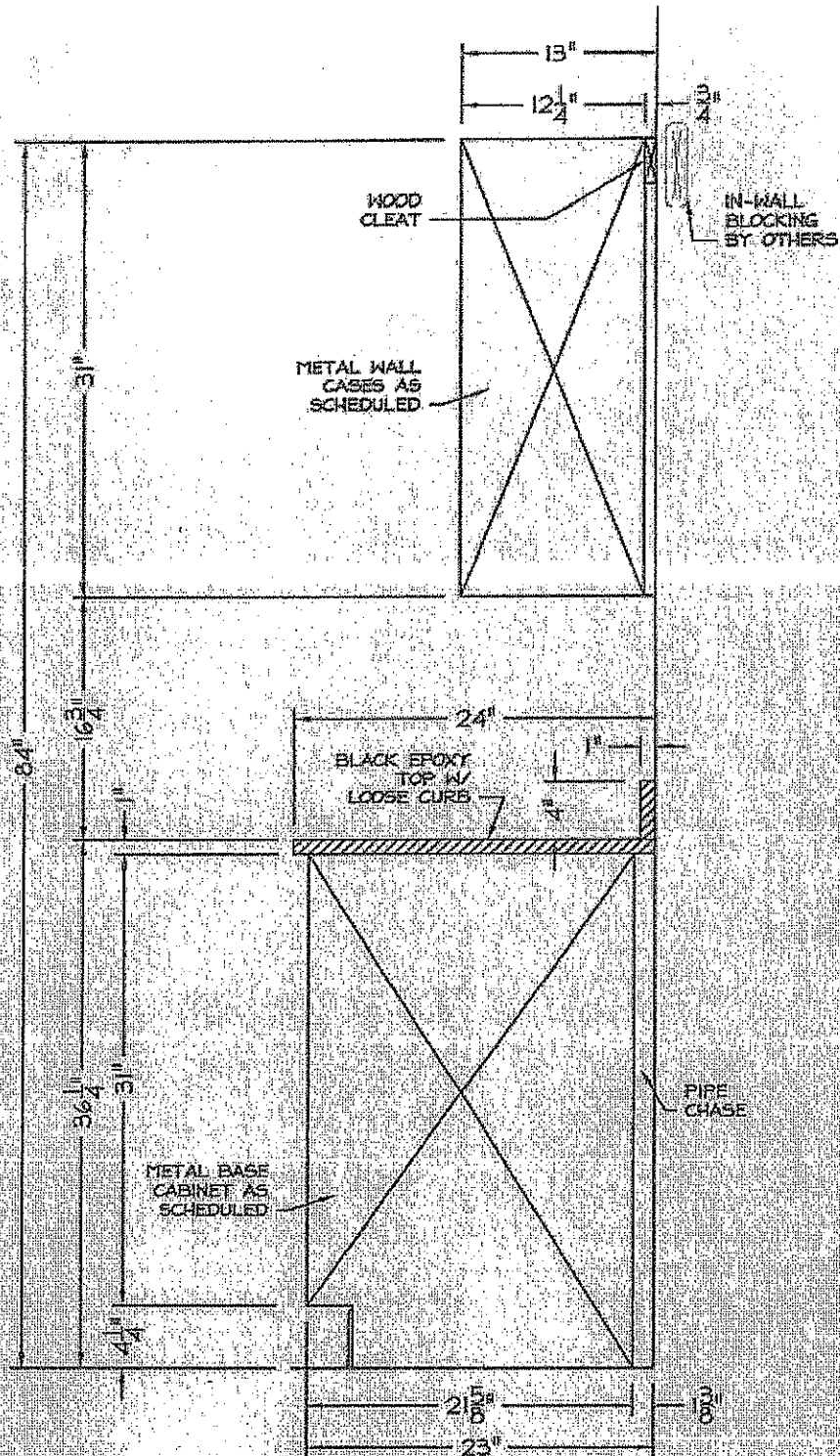
<u>Qty.</u>	<u>Product No.</u>	<u>Description</u>
20	04L02400	Mldg black rubber per ft
2	605V2120	12x120 end filler
3	900V0030	Ceiling connector 50in
3	900V0070	Ceiling mount, 4'
3	900V0080	Ceiling connector 96"
2	MS832028	Filler vertical angle asm
2	V400000S	29x46 upper steel panel
1	V4040000	30x48 lower panel
1	V4F00000	48x84x6 maxwall style "f"
1	V4HSSWLO	4 ft door & frame
2	V4UW 000	Glazed ceiling panel
2	V500000S	29x58 upper steel panel
1	V5040000	30x60 lower panel
1	V5F00000	60x84x6 max-wall style "f"
1	V5UW1000	Glazed ceiling panel



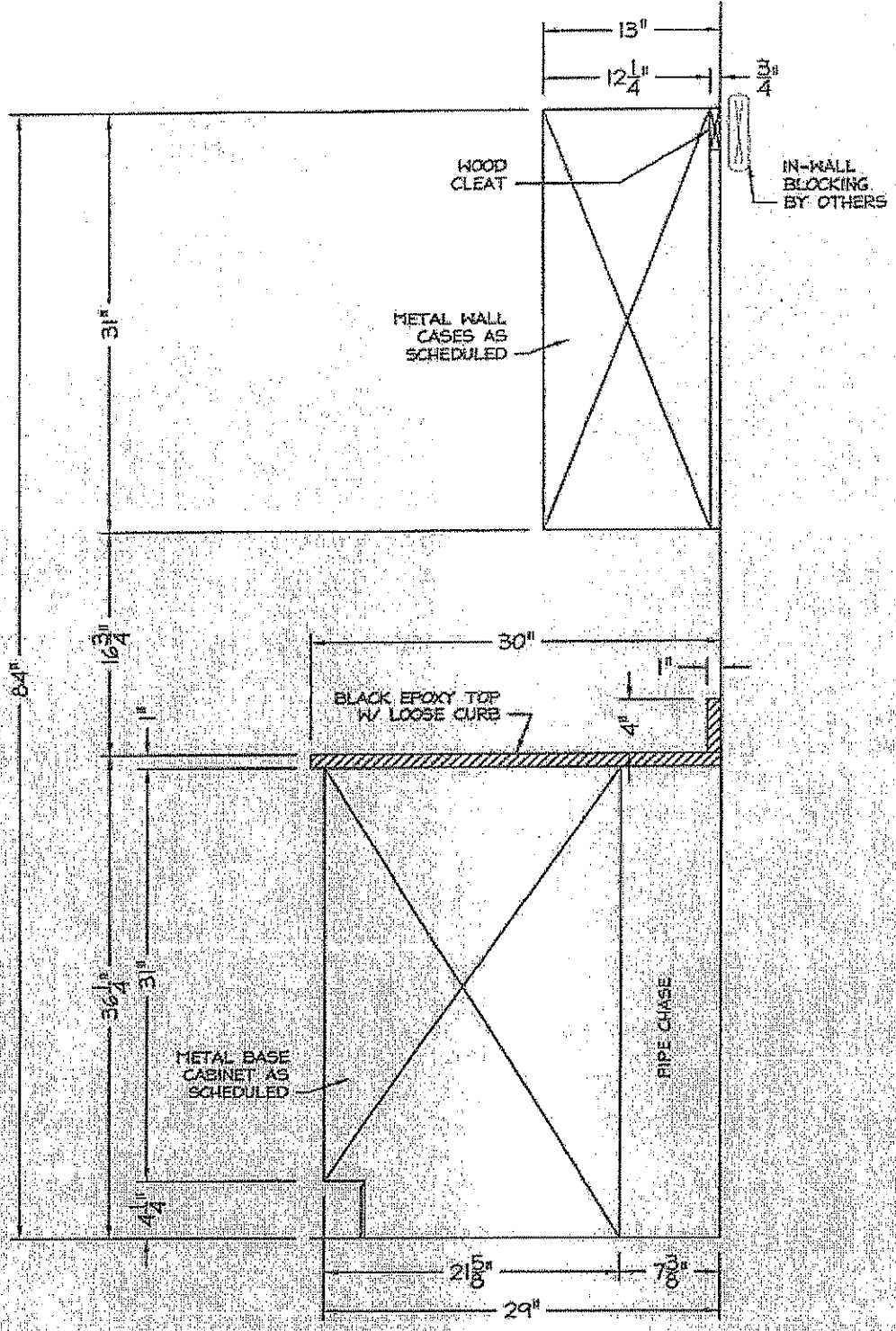
A Partial Plan View at Toxicology Lab
L1
Scale: 1/4"=1'-0"



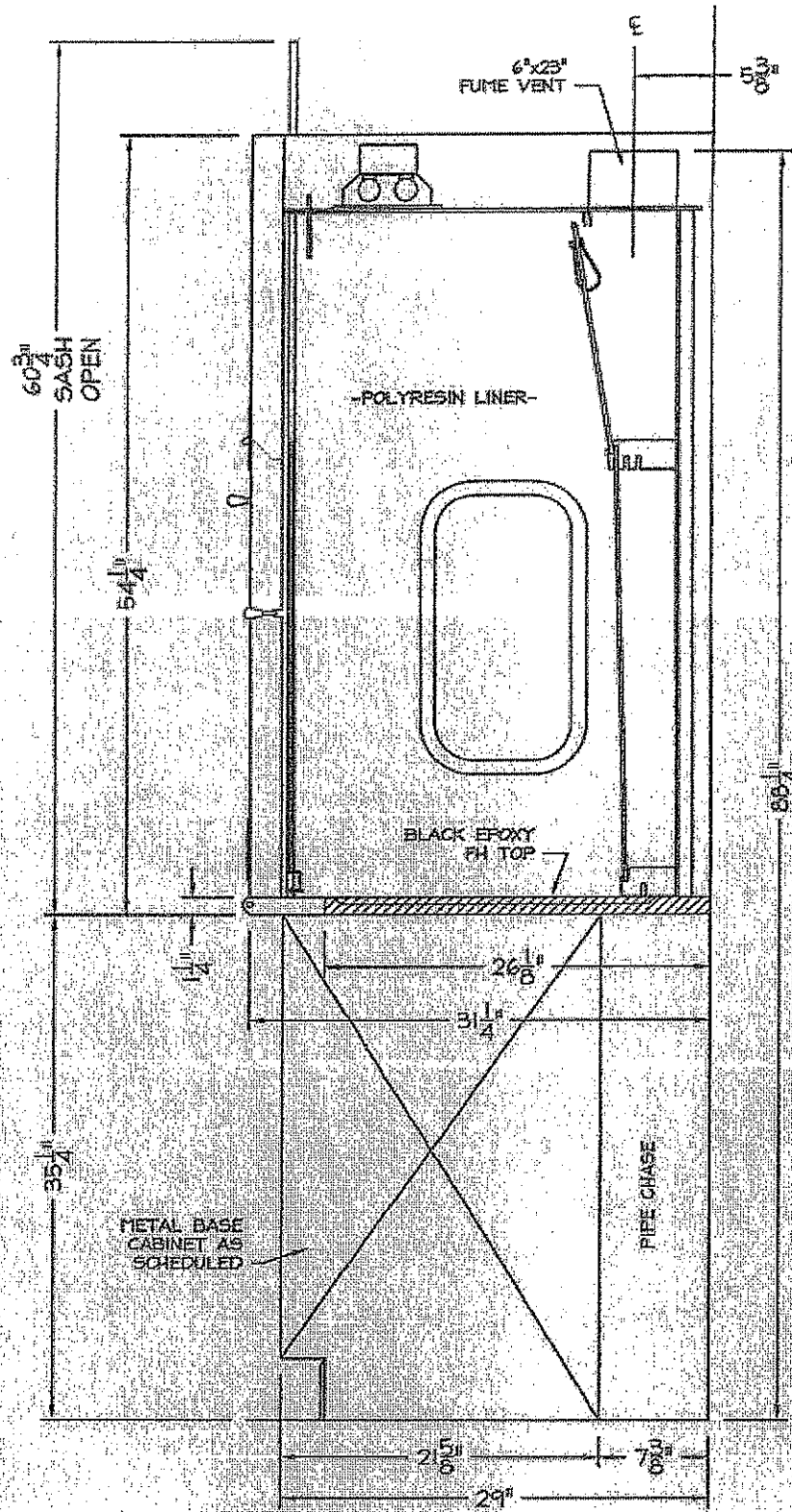
B Section
L1 Scale: 1"=1'-0"



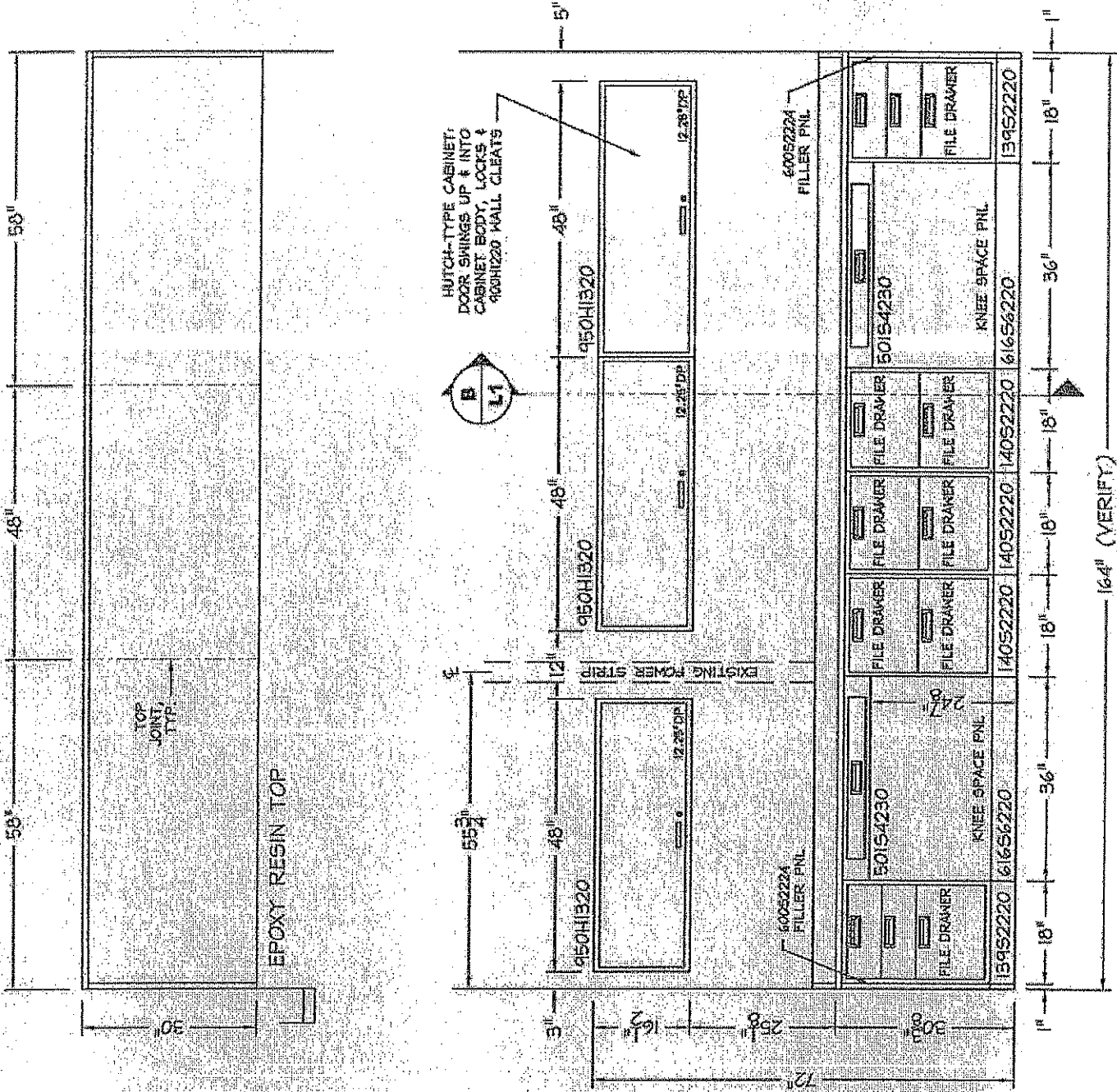
C
L1 Section
Scale: 1"=1'-0"



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



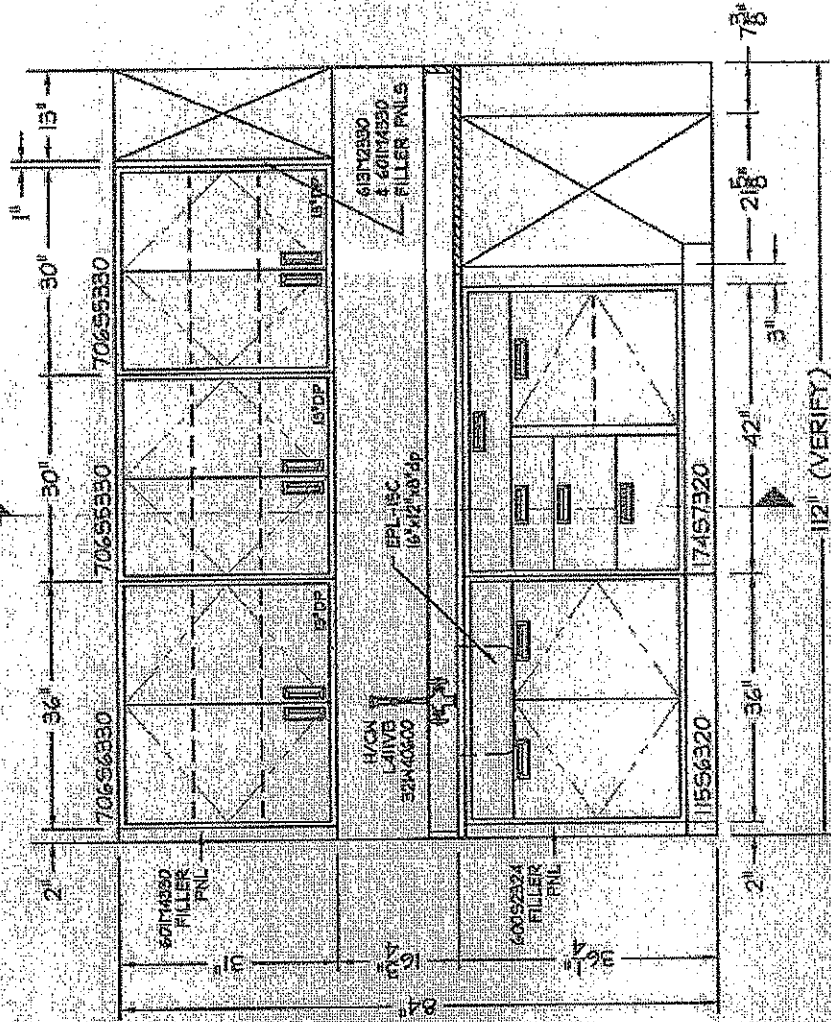
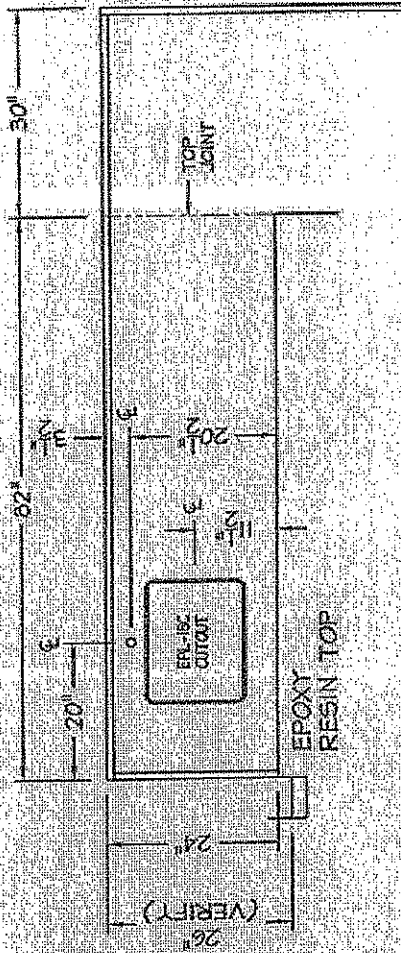
E Section
L1 Scale: 1"=1'-0"



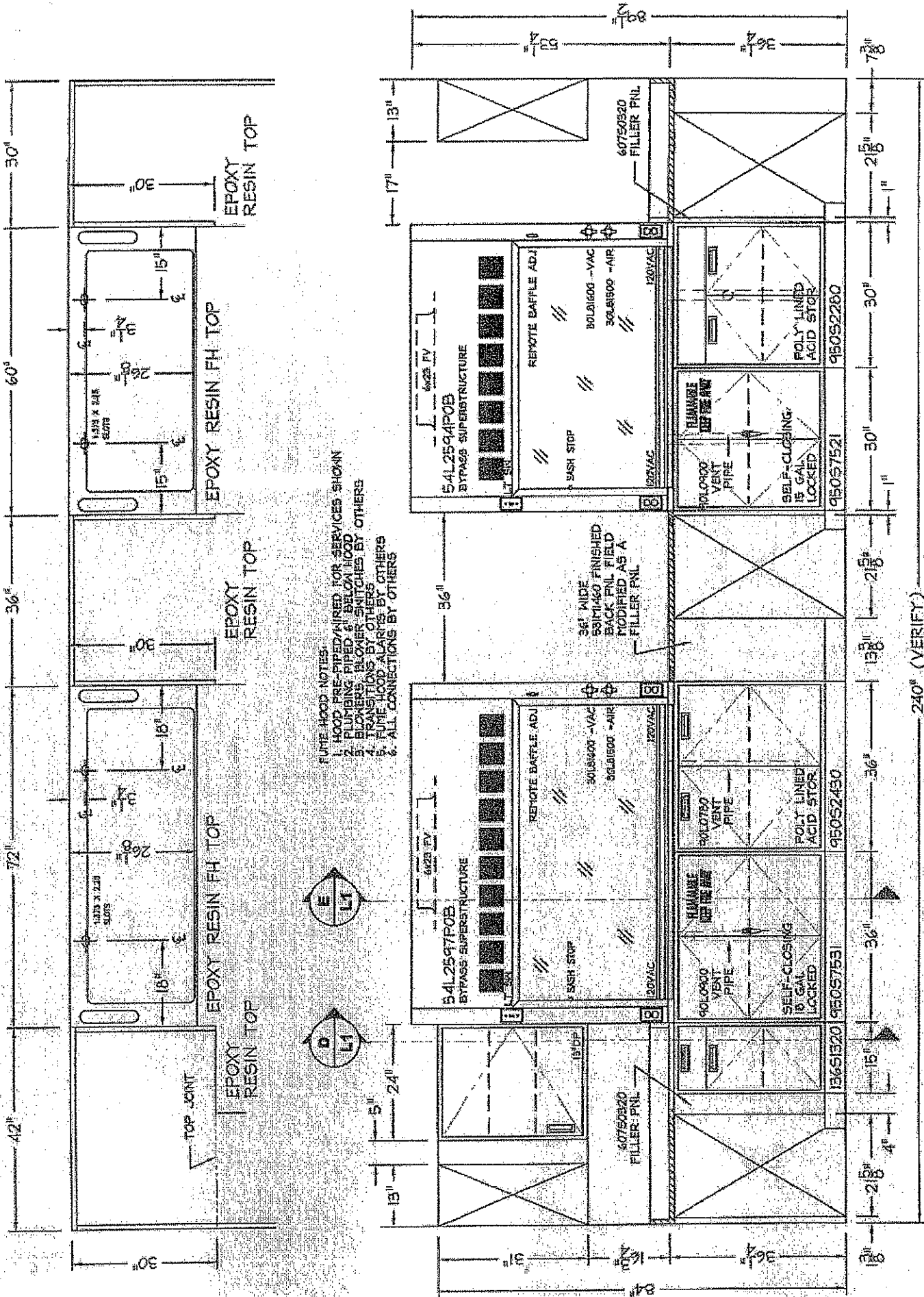
1 Elevation - Toxicology Lab

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

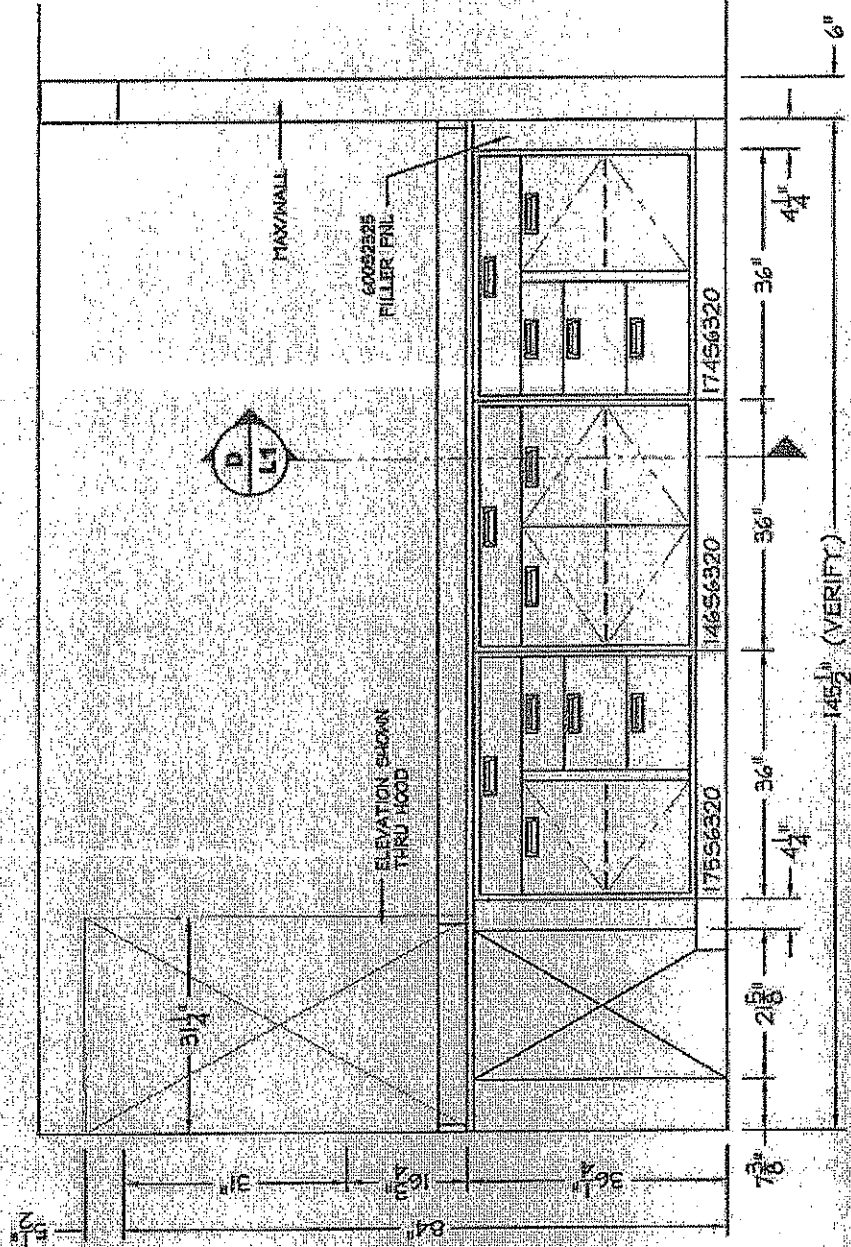
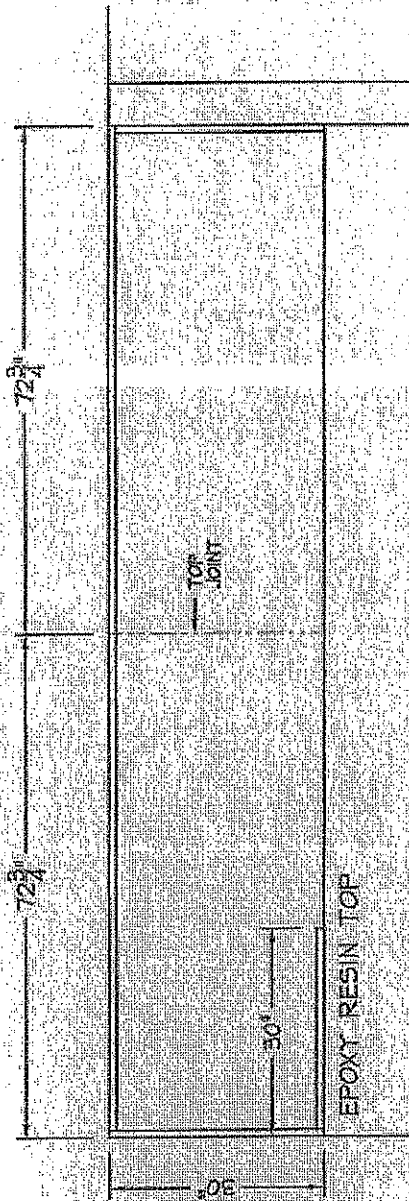
L2



2 Elevation - Toxicology Lab
 L2 Scale: 1/2" = 1'-0"

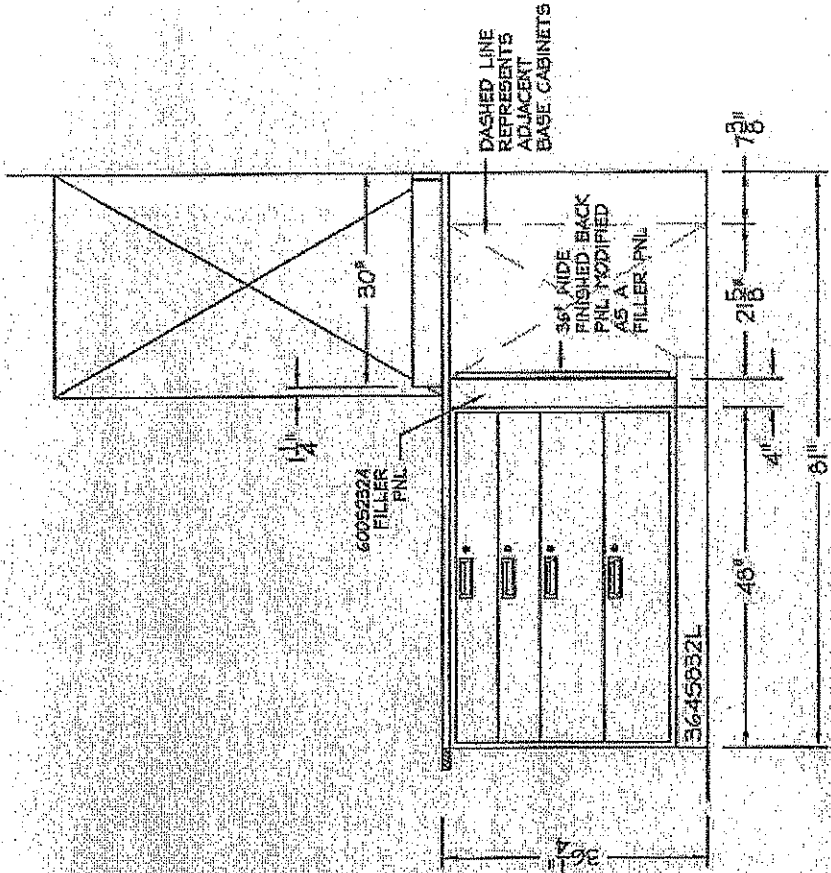
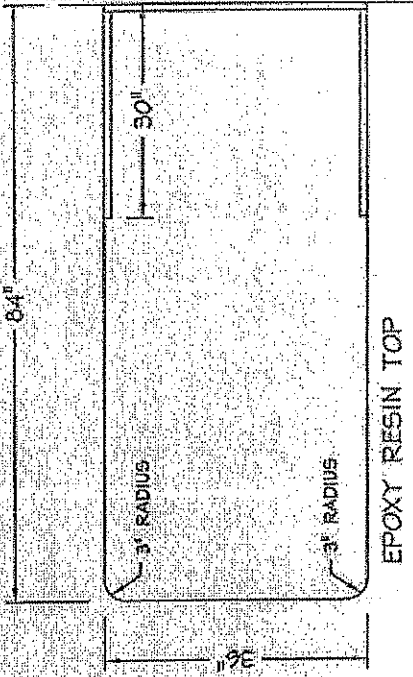


3 Elevation - Toxicology Lab
 Scale: 1/2" = 1'-0"
L2

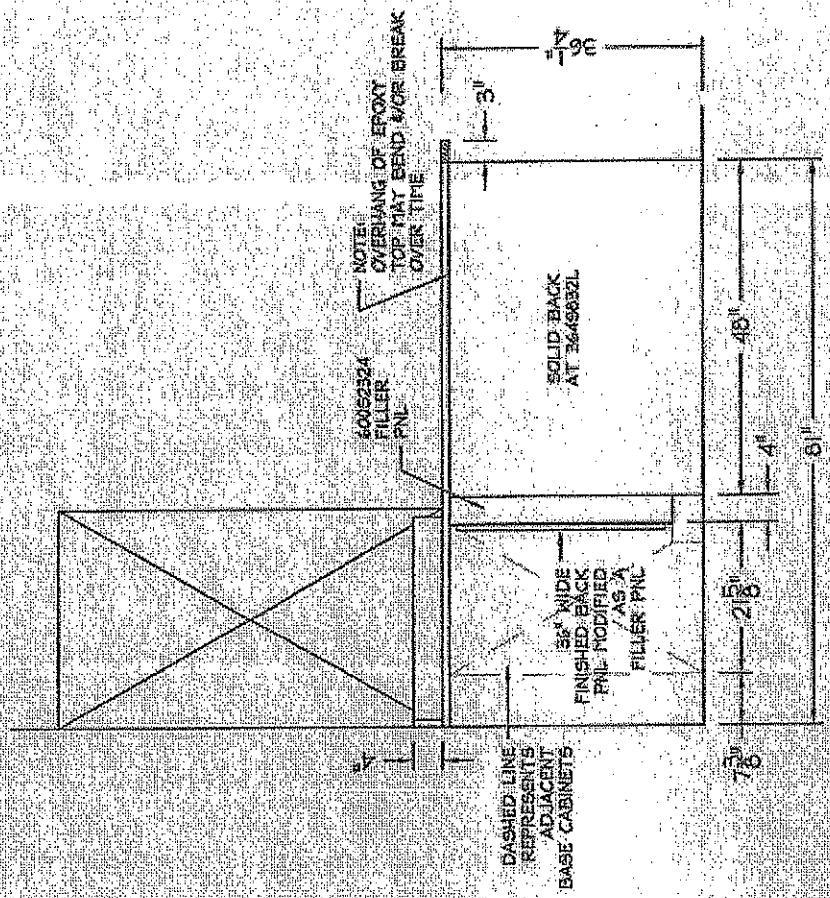


4 Elevation - Toxicology Lab
Scale: 1/2" = 1'-0"

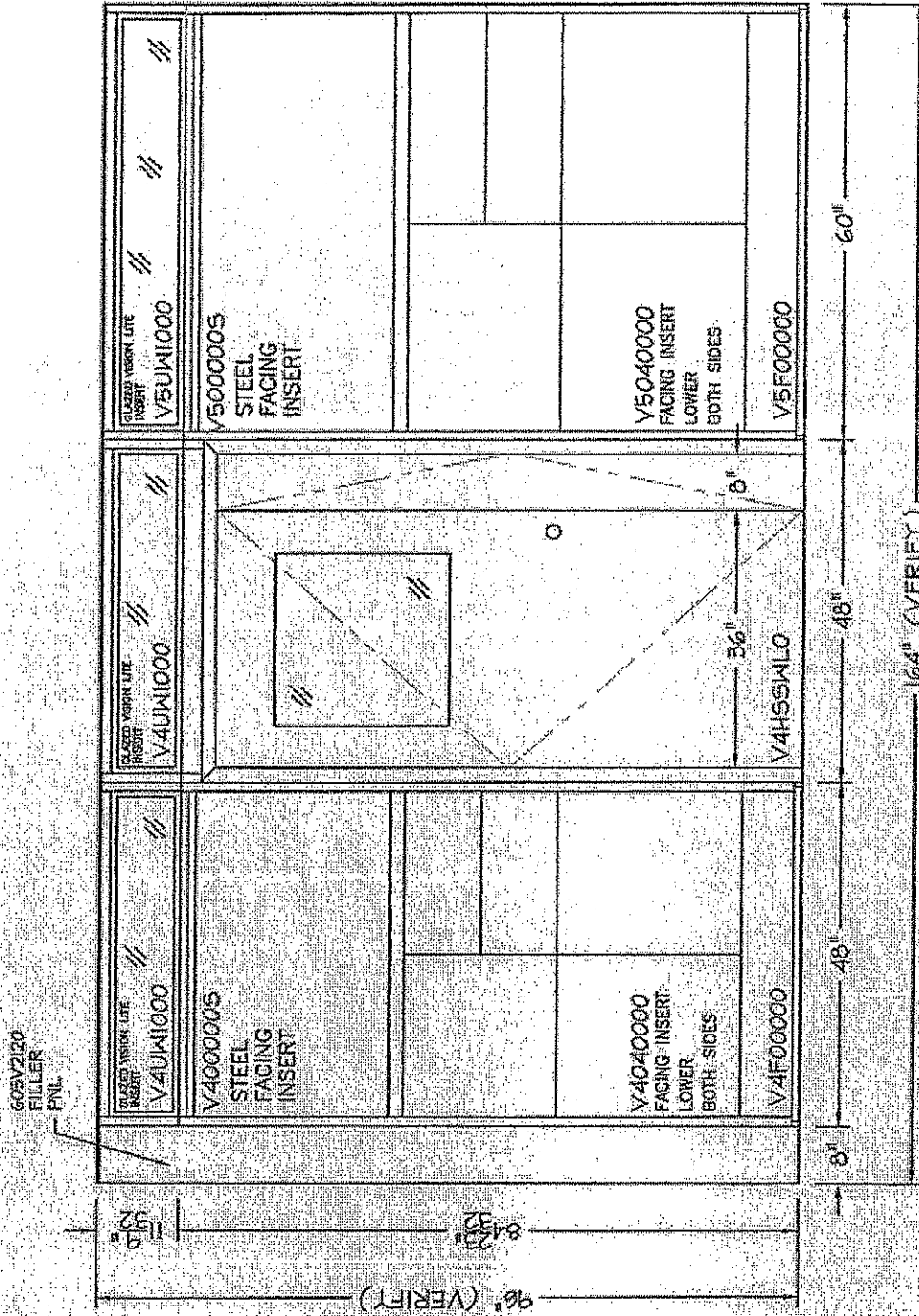
L2



5 Elevation - Toxicology Lab
 L2
 Scale: 1/2"=1'-0"



6 Elevation - Toxicology Lab
L2
Scale: 1/2"=1'-0"



7 Elevation - Toxicology Lab
 L2 Scale: 1/2" = 1'-0"

INSET STEEL LABORATORY CASEWORK**PART 1 GENERAL****1.00 SUMMARY**

- A. Section Includes:
1. Steel casework.
 2. Max Wall System
 3. Fume Hoods
 4. Fume Hood transitions, exhaust ductwork & blowers – Installation
 5. Table frames.
 6. Work surfaces.
 7. Sinks and outlets.
 8. Service fittings.
 9. 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.

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 $\frac{3}{4}$ " 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 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 fumehood 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 ¼" 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 $\frac{3}{4}$ " 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 $\frac{1}{2}$ " 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 $\frac{3}{8}$ " 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: $\frac{3}{4}$ " 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: $\frac{3}{4}$ " 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 $\frac{3}{4}$ ". Form ends down $\frac{3}{4}$ ".
 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 1/4" thick; 1/2" 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 1/4" deep x 12" high x 5 1/4" 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 verticle chases must be UL approved. Verticle pedestal to be provided in locations as shown in the drawings.

2.07 Adaptable Max Wall System

A. UPPER FACING INSERTS

1. Removable and reconfigurable 6mm laminated safety glass panel held in place within the structural core by an extruded PVC channel.
 1. Nominal Dimensions:
 - a. Width: 24", 30", 36", 48", 60" and 72"
 - b. Height: 26.5"
 - c. Depth: 1" (Located at center of 6" wide Wall Core)

B. CEILING FACING INSERTS

1. Structural Utility Frame to support a system of ceiling enclosure units. Telescoping Vertical Riser to incorporate an integral panel frame within standard module dimensions to be attached bottom and sizes to the support structure and captured at the top by the ceiling channel.
 1. Nominal Dimensions:
 - a. Width: 24", 30", 36", 48", 60" and 72"
 - b. Depth: 6"
 - c. Height: three sizes: 12", 24" and 36" (Nominal)

Ceiling Enclosure:

- a. 20 gauge panel frame capturing a 6mm laminated safety glass panel

C. MODULAR DOOR FRAME ASSEMBLIES

1. Structural Utility Frame to support a system of door module units. Structural Utility Frame to incorporate an integral door frame within

standard module dimensions. Manufacturer to supply hinge hardware. Owner to finish door to building standard. Owner to provide door latch/lock.

2. Active door units to incorporate a tempered glass window option. Door Module to accommodate 40" wide laboratory fume hoods, mobile instrumentation and apparatus without removal of door unit.
 1. Nominal dimensions:
 - a. Width: 48" (36" Active Door/8" Inactive Door) Single and Double swing capabilities; 60" (36" Active Door/20" Inactive Door) Single and double swing capabilities.
 - b. Depth: 1-3/4" thick Hollow Core door units to be suspended for a 7" wide 16 gauge cold rolled steel integral door jam.
 - c. Door Height to Door Jam: 6'8" clear
 2. Door Units:
 - a. 20 gauge cold rolled steel, primed only, with sound deadening material.

D. FINISHES

1. Metal finish:
 1. Preparation: Spray clean metal with a heated cleaner/phosphate solution, pre-treat 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, high grade laboratory furniture quality finish of the following thickness: Liquid, dipped, solvent based finishes are not and will not be acceptable.
 - a. Exterior and interior exposed surfaces: 1.5 mil average and 1.2 mil min.
2. Chemical Spot Test
 - 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.
 - 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@ 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±3°F (23±2°C) and 50±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.

<u>Test No.</u>	<u>Chemical Reagent</u>	<u>Test Method</u>
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

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.

3 Hot Water Test

1 Purpose of Test

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

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.

3 Acceptance Level

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

4 Impact Test

1 Purpose of Test

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

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.

3 Acceptance Level

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

2.08 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:

<u>Face Velocity</u>	<u>Measured S.P.L. (W.G.)</u>
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

Polyresin - Liner

- 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].
- 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. *Polyresin - Liner*.
- 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 A 366; 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]
- 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.

2.09 Casework Finish

2.10 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.

Cabinet Surface Finish Tests

1. Metal finish:
 1. Preparation: Spray clean metal with a heated cleaner/phosphate solution, pre-treat 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, high grade laboratory furniture quality finish of the following thickness: Liquid, dipped, solvent based finishes are not and will not be acceptable.
- a. Exterior and interior exposed surfaces: 1.5 mil average and 1.2 mil min.
2. Chemical Spot Test

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.

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±3°F (23±2°C) and 50±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.

<u>Test No.</u>	<u>Chemical Reagent</u>	<u>Test Method</u>
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

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.

3 Hot Water Test

1 Purpose of Test

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

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.

- 3 Acceptance Level

After cooling and wiping dry, the finish shall show no visible effect from the hot water.
- 4 Impact Test
 - 1 Purpose of Test

The purpose of this test is to evaluate the ductility of the coating.
 - 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.
 - 3 Acceptance Level

There shall be no visible evidence to the naked eye of cracks or checks in the finish due to impact.
- 5 Paint Adhesion on Steel Test
 - 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.
 - 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.
 - 3 Acceptance Level

Ninety or more of the squares shall show finish intact.
- 6 Paint Hardness on Steel Test
 - 1 Purpose of Test

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

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.

WEST VIRGINIA STATE POLICE FORENSIC LABORATORY



725 Jefferson Road, South Charleston, West Virginia 25309-1698

The West Virginia State Police are soliciting bids for additional laboratory furniture for the Firearm/Toolmark Section of the Forensic Laboratory. Matching the existing inset steel laboratory casework in style and color is paramount to being awarded this contract.

The following bid specification and corresponding drawings describe the particulars of the laboratory furniture, lighting, and electrical work needed. All bids must include the following specification.

- Fisher Hamilton "Inset Steel" casework/island – see drawings. (Or equivalent)
- Drawer suspension – 150 lbs. full extension
- Task lighting under wall cabinets – see drawings for locations
- Track Lighting System above lab bench—4'x 6' rectangle light fixture; Halo
- Power—Trac surface mounted track lighting system with adjustable heads
- Maple Butcher Block countertops – 1 ¼" thick
- All Freight costs

The successful vendor will install cabinetry, make all electrical connections and warrant all parts and labor for one (1) year.

West Virginia State Police – Firearms Lab Renovations
South Charleston, WV

Elevation 1/L2; Firing Range

<u>Qty.</u>	<u>Product No.</u>	<u>Description</u>
20	04L02400	Mldg black rubber per ft
1	502S222L	48x4x22 table frame
1	600S2320	Filler end 1x31 rh
1	611S7320	End filler 7-3/8x35
1	616S8320	Knee space panel 48x26
3	90L04000	Corner st st
4	BU001	Modified X141S432L – 24x35x22 base cab
1	C-TOP	1-1/2" thick butcher block top with loose 4" high curb

Elevation 2/L2; Firing Range

<u>Qty.</u>	<u>Product No.</u>	<u>Description</u>
19	04L02400	Mldg black rubber per ft
1	531M344A	Task light 42"-screw mount
3	531M345A	Task light 42"-screw mount
1	600S2320	Filler end 1x31 rh
1	601M2330	Filler, end 1x31x13
1	611S7320	End filler 7-3/8x35
1	618S0360	Filler, rear wall case
4	706S8360	48x31x16 wall case
1	90L04000	Corner st st
8	BU001	Modified X141S432L – 24x35x22 base cab
1	C-TOP	1-1/2" thick butcher block top with loose 4" high curb

Elevations 3-5/L2; IBIS Room

<u>Qty.</u>	<u>Product No.</u>	<u>Description</u>
26	04L02400	Mldg black rubber per ft
1	153S6220	36x29x22 base cabt
1	152S6220	36x29x22 base cabt
2	422S6220	36x29x22 base corner cabt
1	501S2220	30x4x22 table frame
1	616S5220	Knee space panel 30x20
1	531M339A	Task light 24"-screw mount
1	531M342A	Task light 36"-screw mount
5	531M343A	Task light 36"-screw mount
4	601M4330	Filler, end 4x31x13
2	611S3320	End filler
2	618S0360	Filler, rear wall case
1	703S2330	18x31x13 wall case
1	702S2330	18x31x13 wall case
1	706S5330	30x31x13 wall case
3	706S6330	36x31x13 wall case
2	723M2330	18x31x13 corner wall case
4	90L04000	Corner st st
4	MS685763	Filler vertical angle asm
1	MS682450	Filler vertical angle asm
1	MS832029	Filler vertical angle asm
1	C-TOP	1-1/2" thick butcher block top with loose 4" high curb
1	Lot-Electrical	Electrical Services provided – Add wire mold approx. 24'

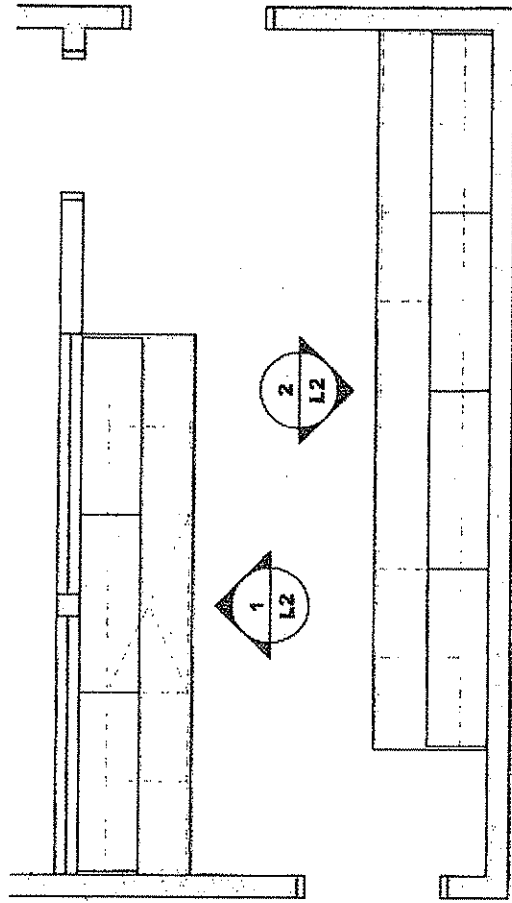
West Virginia State Police – Firearms Lab Renovations
South Charleston, WV

Elevations 6-9/L3; Island Room

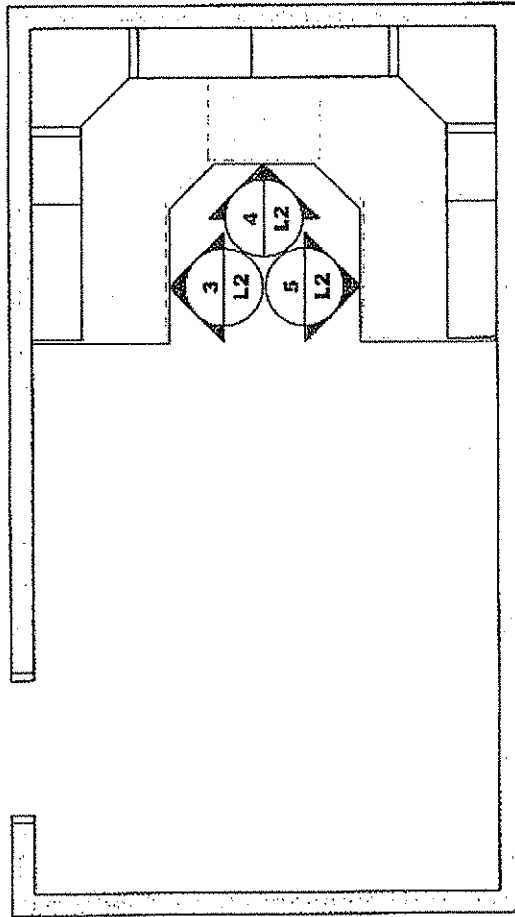
<u>Qty.</u>	<u>Product No.</u>	<u>Description</u>
40	04L02400	Mldg black rubber per ft
2	137S2320	18x35x22 base cabt
2	177S6320	36x35x22 base cabt
2	164S4320	24x35x22 base cabt
4	36L11200	Receptacle flush
2	501S2220	30x4x22 table frame
2	616S5320	Knee space panel 30x26
4	614S3120	Filler 1.375" w
4	MS685763	Filler vertical angle asm
12	90L04000	Corner st st
1	TRK-LGT	4'x6' rectangular track lighting
4	XG3	3" dia. Doug Mockett black plastic grommet
1	C-TOP	1-1/4" thick butcher block top with hole cutouts
1	Lot-Electrical	Electrical Services provided – Installation of Track Lighting Sys.

Elevations 10-11/L3; Island Room

<u>Qty.</u>	<u>Product No.</u>	<u>Description</u>
28	04L02400	Mldg black rubber per ft
5	140S2220	18x29x22 base cabt
1	422S6220	36x29x22 base corner cabt
1	501S4250	48x4x22 table frame
1	525S3080	Flush end support 28x29
3	531M339A	Task light 24"-screw mount
1	531M343A	Task light 36"-screw mount
2	531M345A	Task light 42"-screw mount
1	531M348A	Task light 24"-screw mount
1	611S2220	End filler
1	611S3220	End filler
1	616S8220	Knee space panel 48x20
2	618S0360	Filler, rear wall case
1	MS685762	Filler vertical angle asm
1	703S3330	21x31x13 wall case
1	706S5330	30x31x13 wall case
1	706S6330	36x31x13 wall case
1	723M2330	18x31x13 corner wall case
2	90L04000	Corner st st
1	C-TOP	1-1/4" thick butcher block top with loose 2" high curb

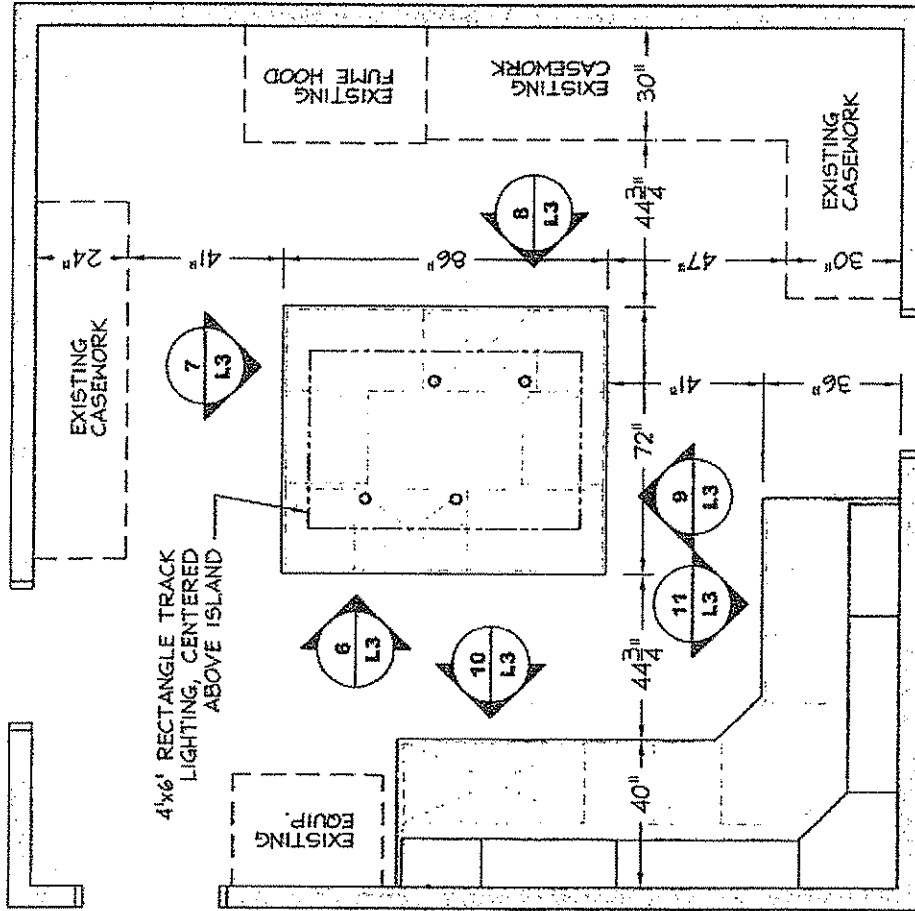


A
L1
Partial Plan View - Firing Range
Scale: 1/4"=1'-0"

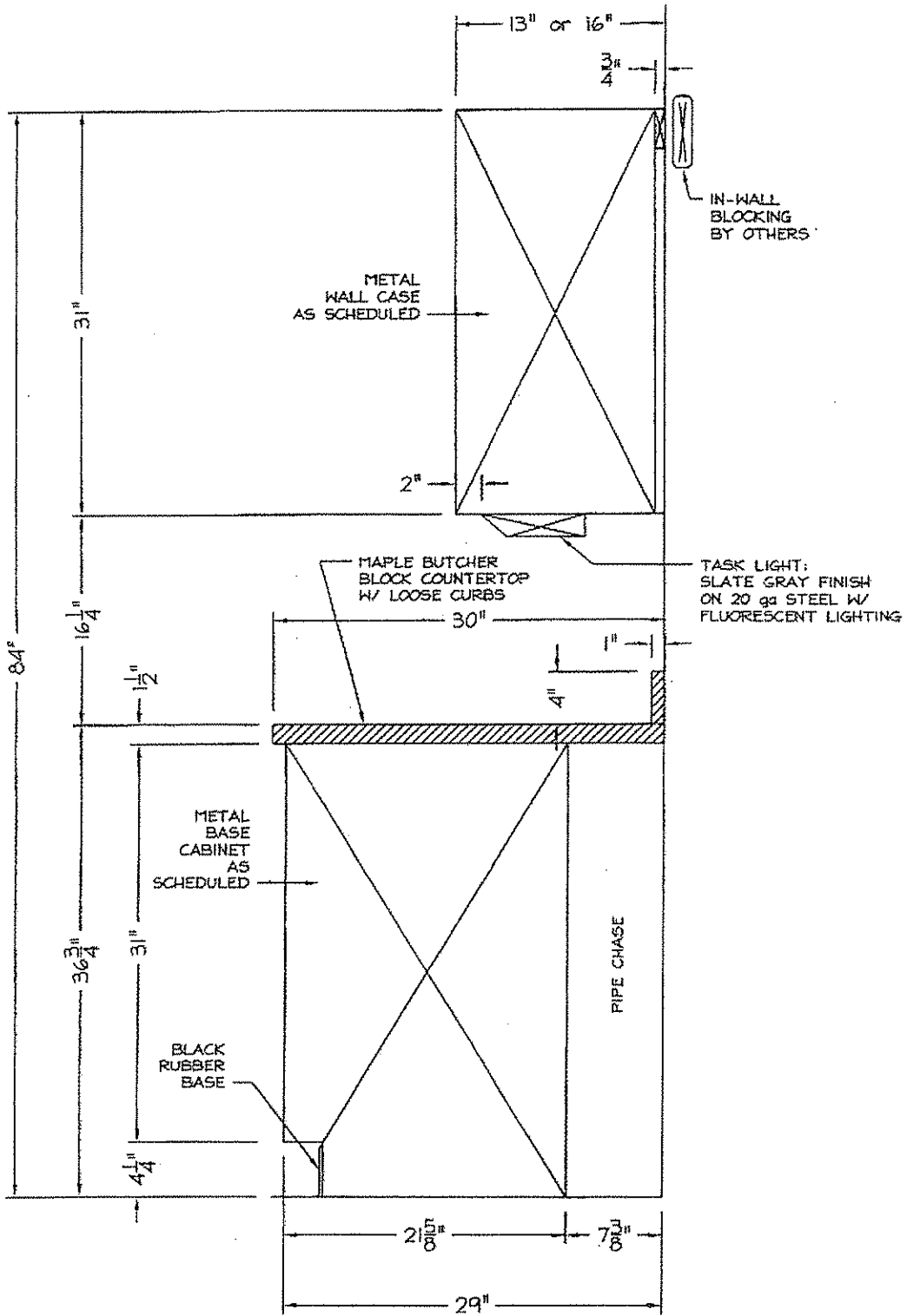


B
L1

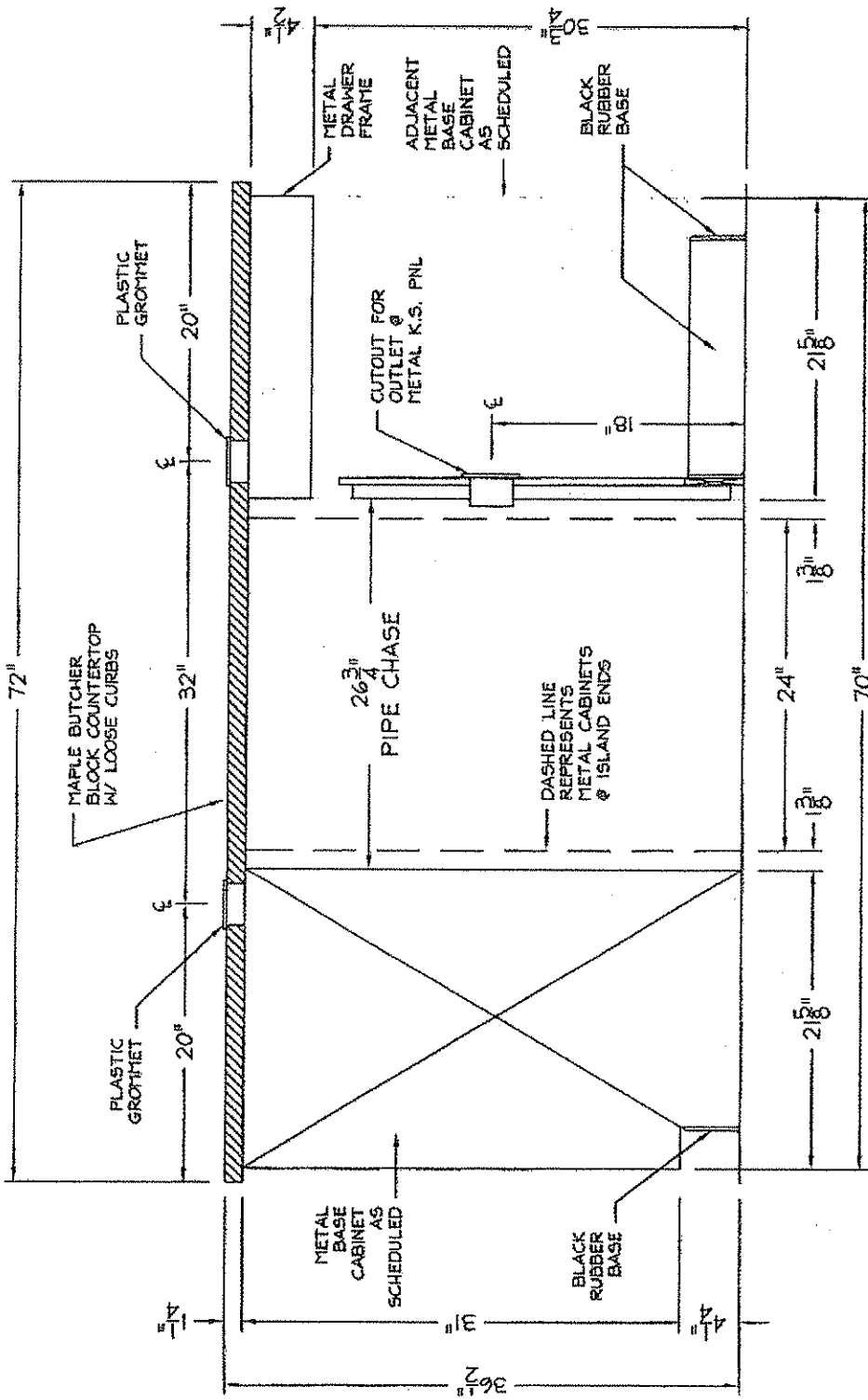
Partial Plan View - IBIS Room
Scale: 1/4" = 1'-0"



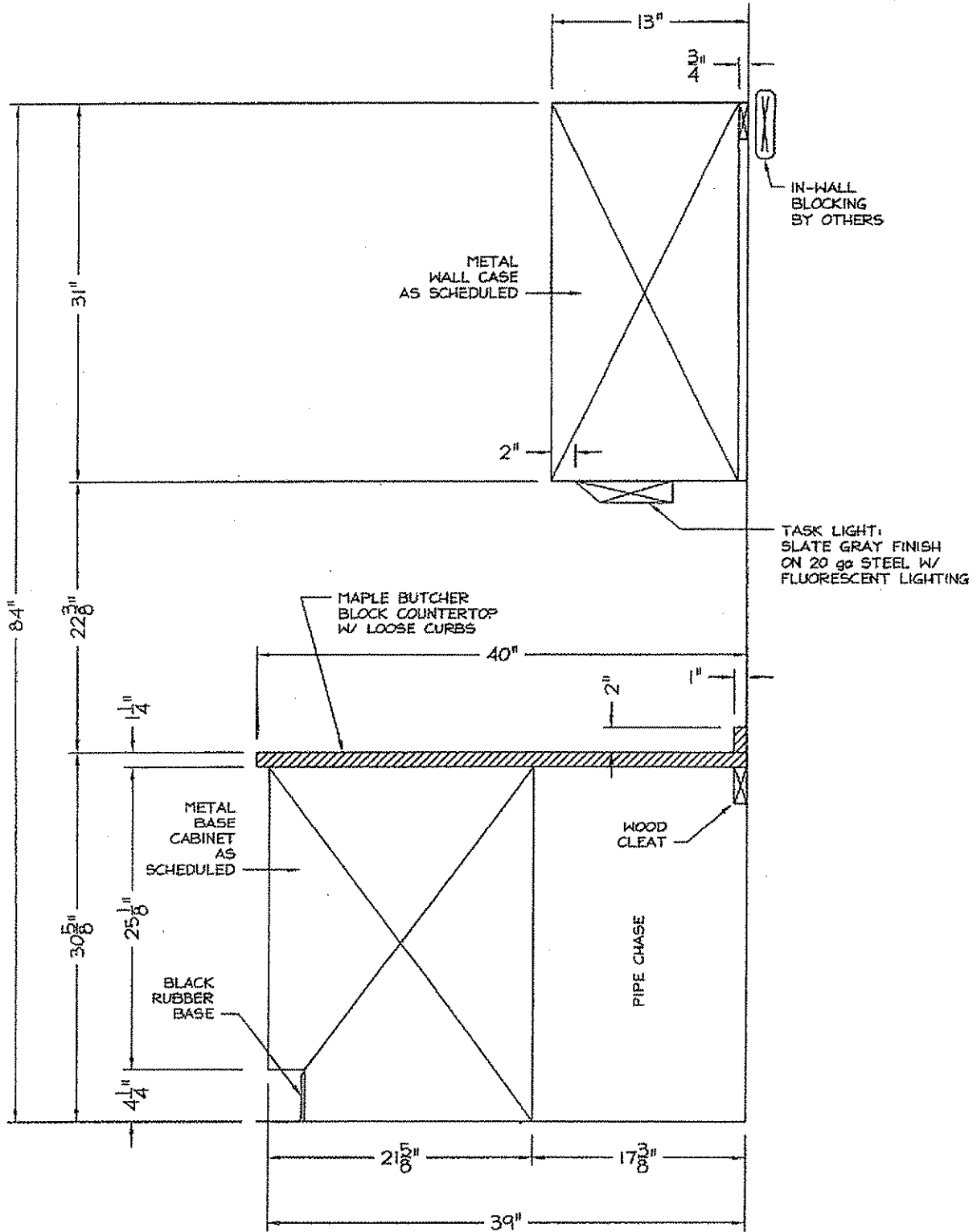
C Partial Plan View - Island
L1
Scale: 1/4"=1'-0"



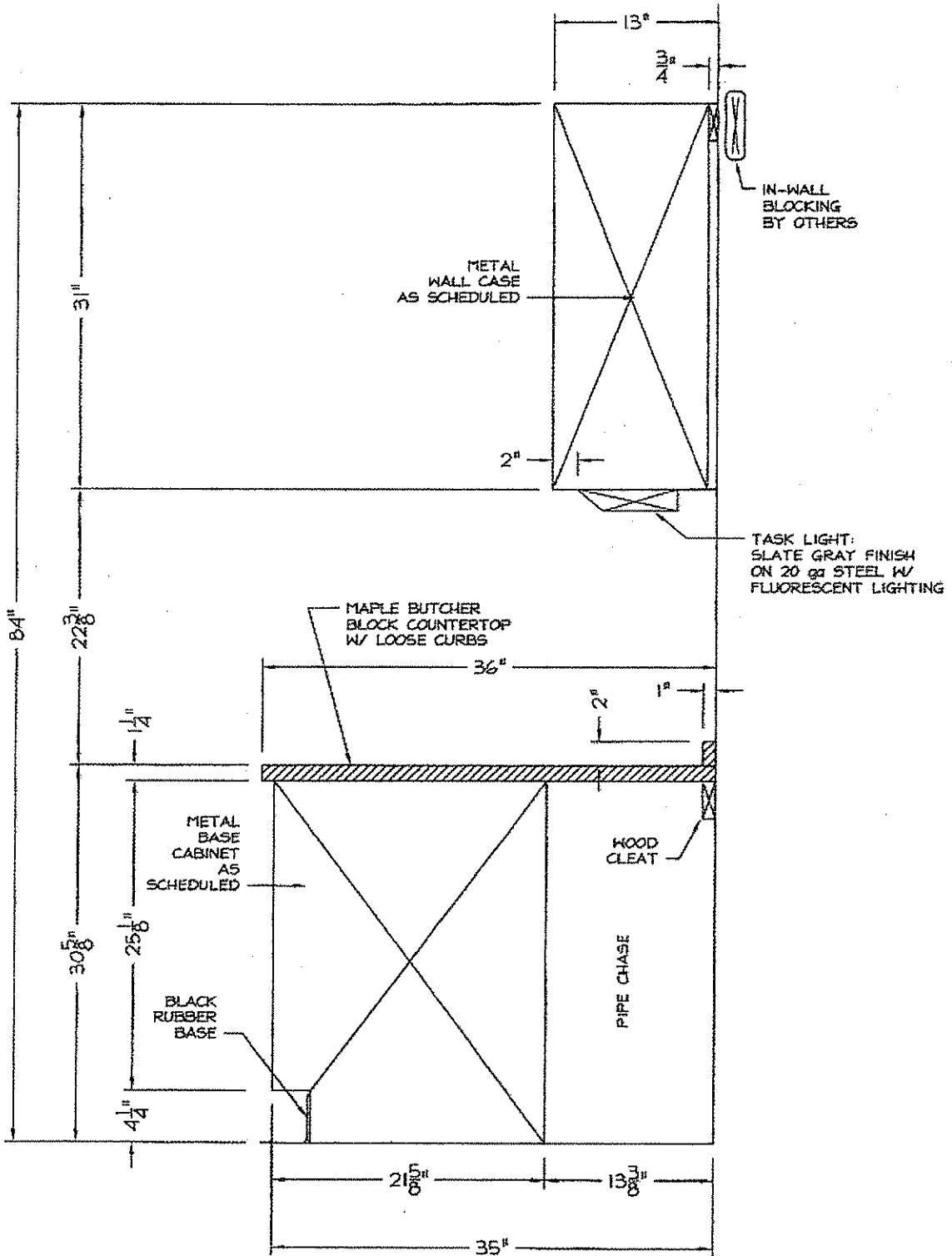
D Section
L1 Scale: 1"=1'-0"



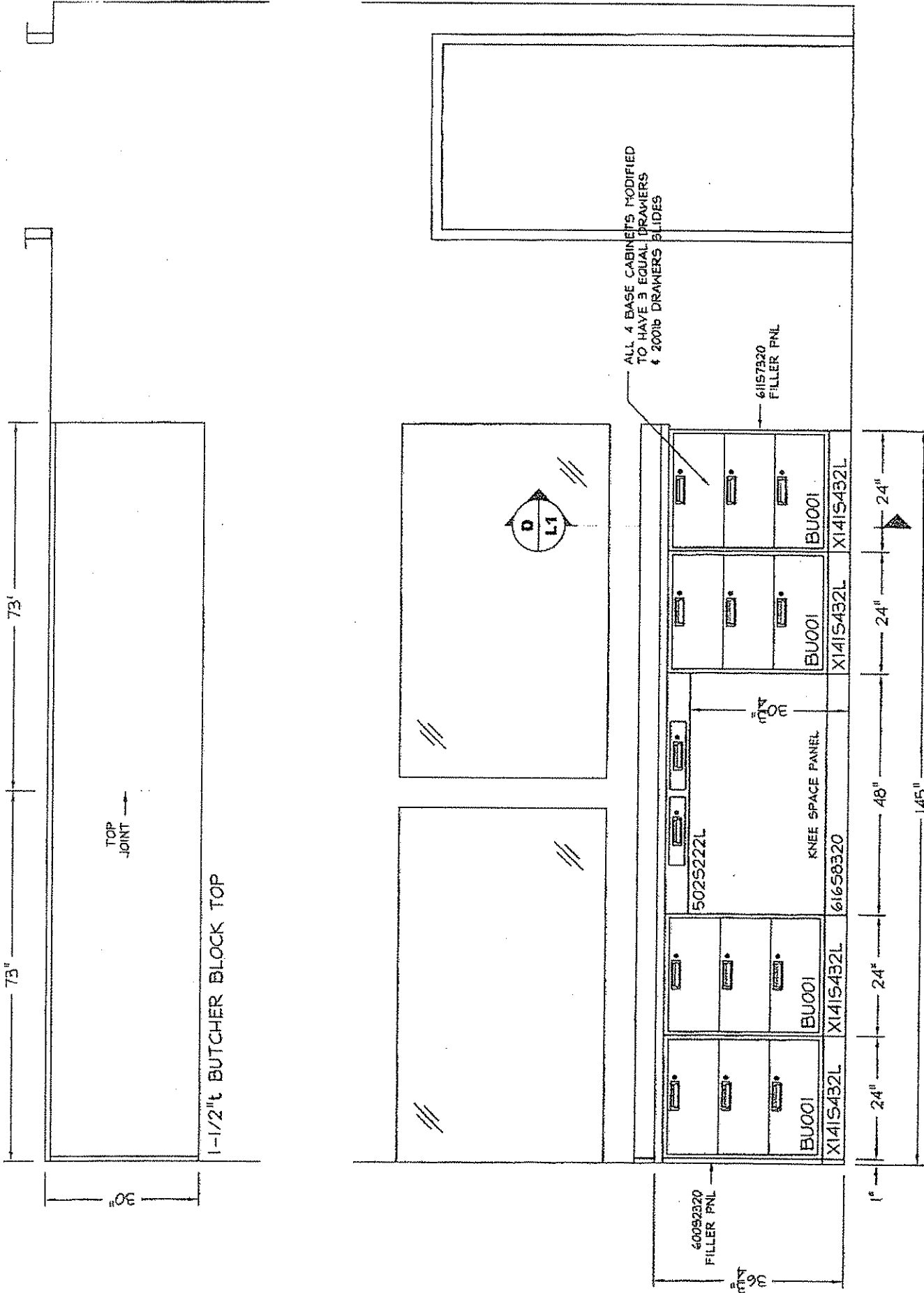
E Section
L1
Scale: 1"=1'-0"



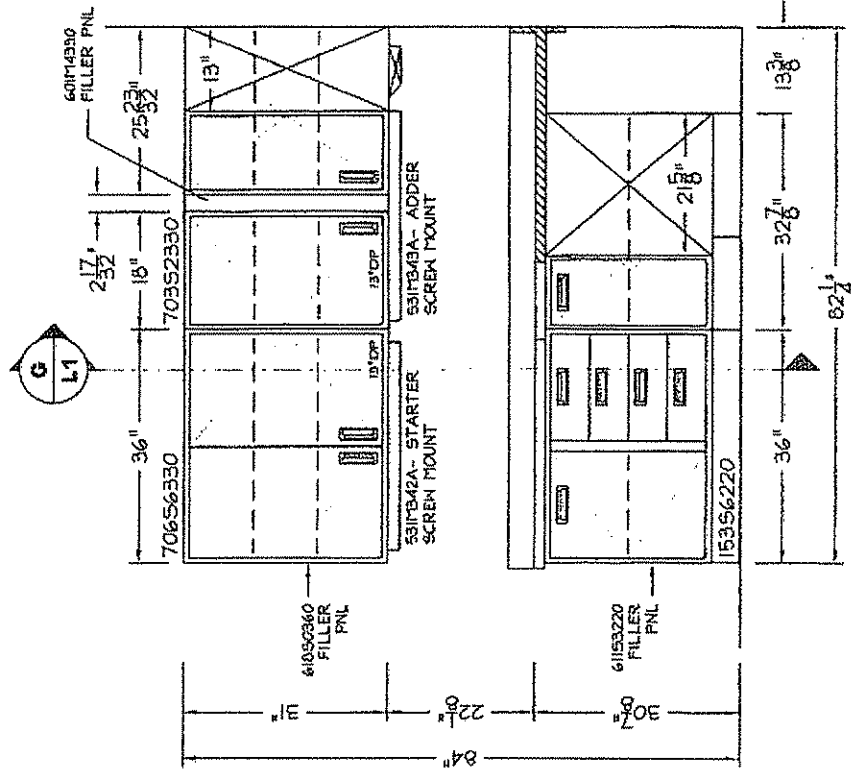
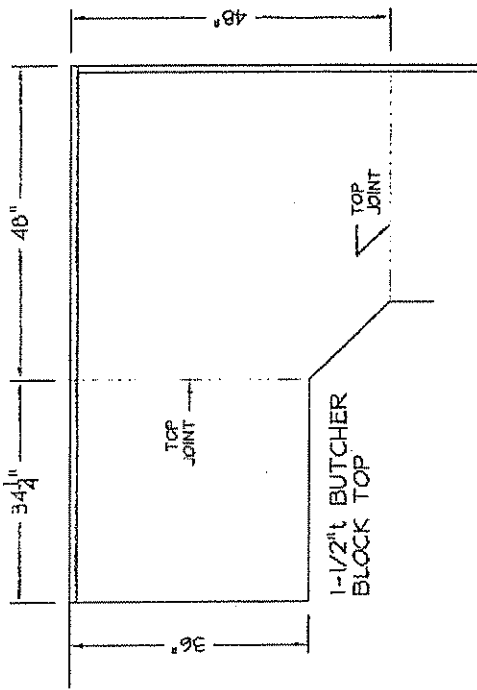
F Section
L1 Scale: 1"=1'-0"



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



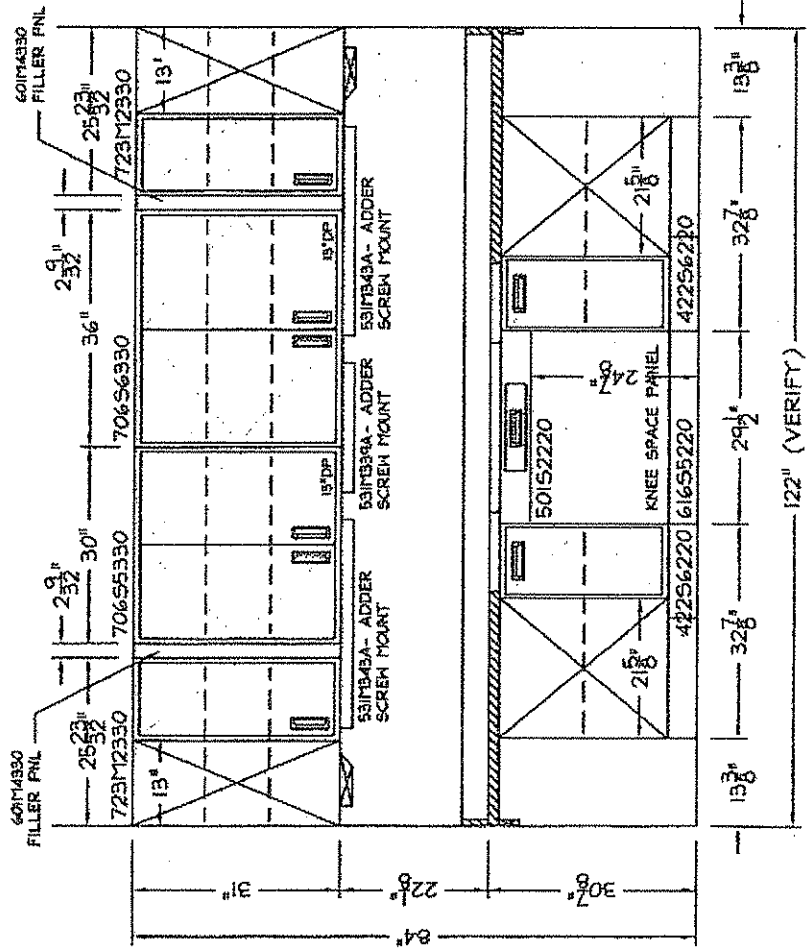
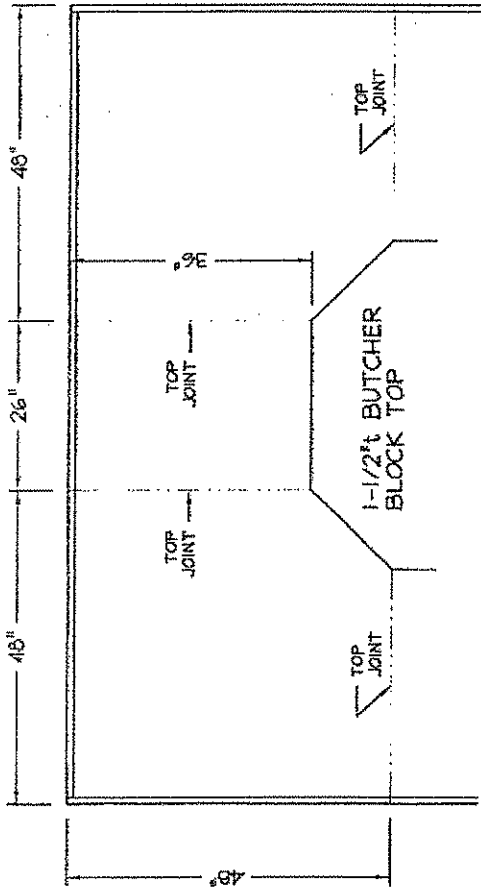
1 Elevation - Firing Range
L2
 Scale: 1/2"=1'-0"



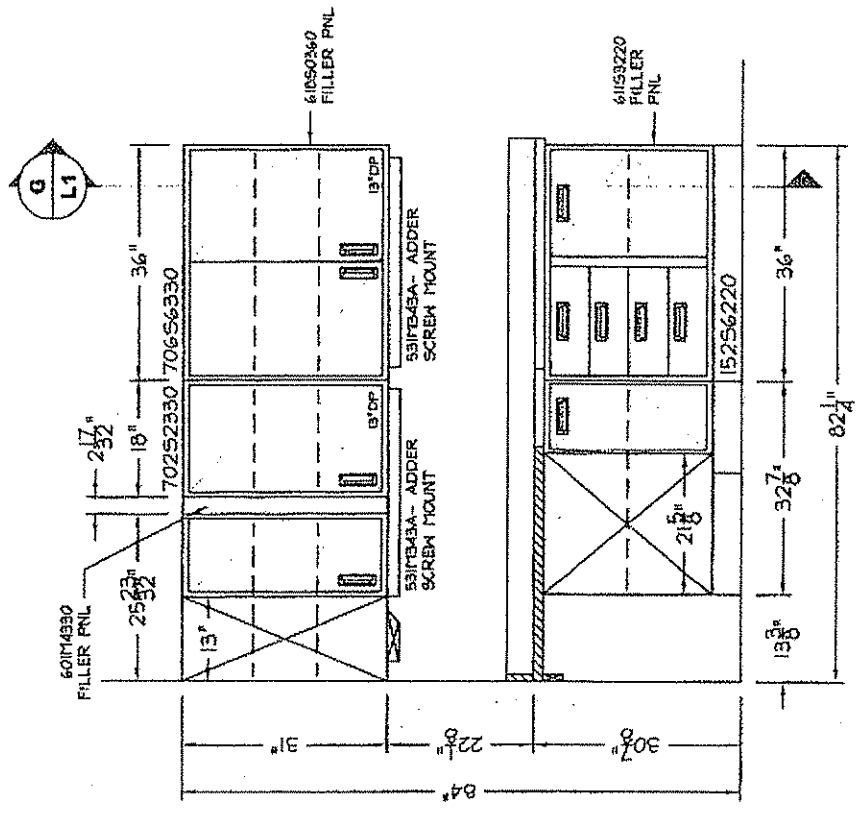
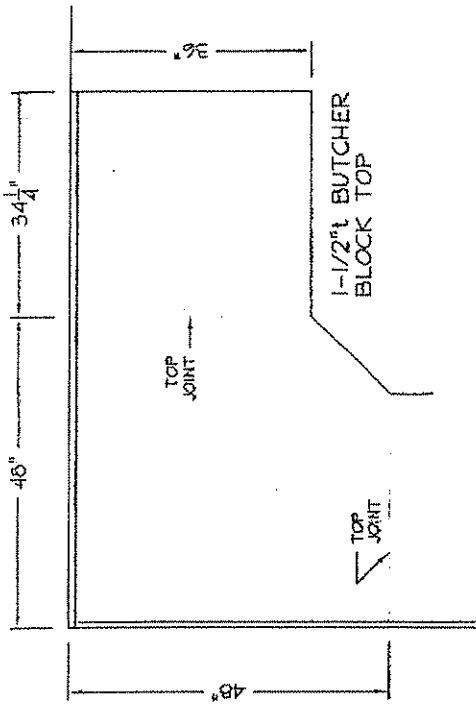
3 Elevation - IBIS Room

L2

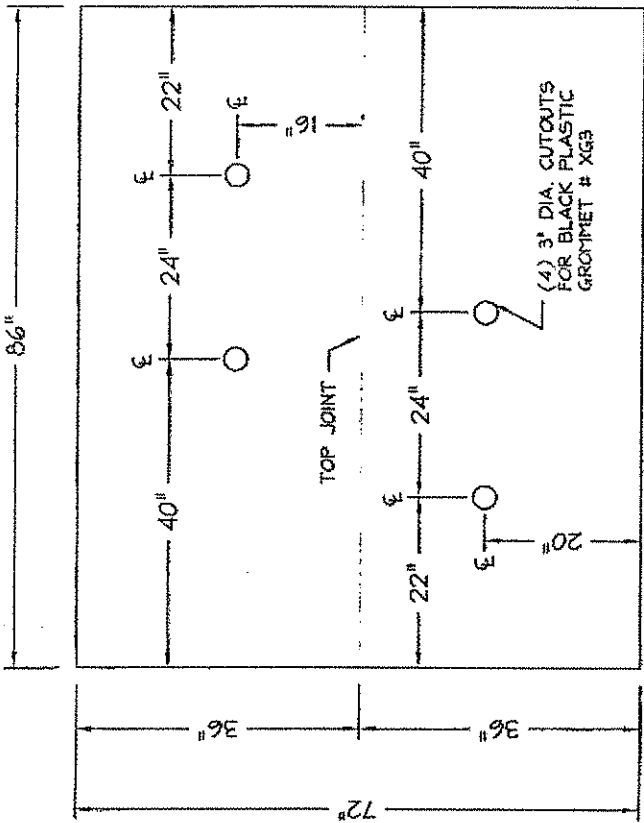
Scale: 1/2" = 1'-0"



4 Elevation - IBIS Room
 L2
 Scale: 1/2"=1'-0"



5 Elevation - IBIS Room
 L2 Scale: 1/2" = 1'-0"

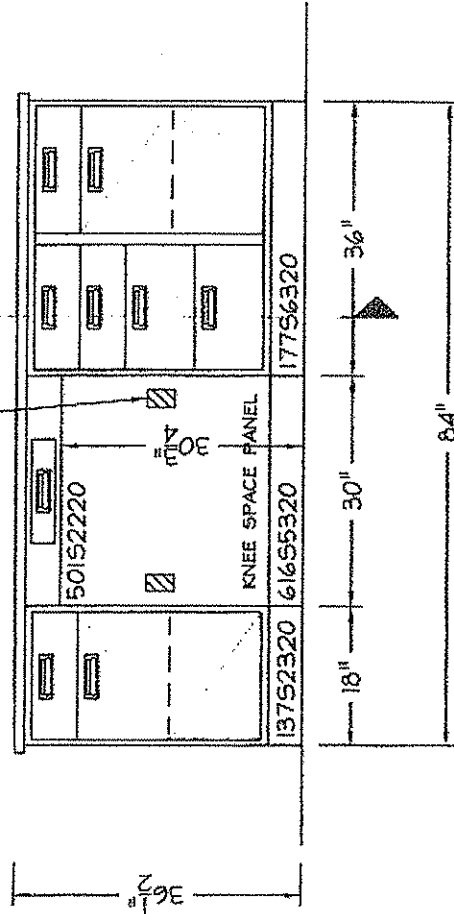


1-1/4" BUTCHER BLOCK TOP

OWNER ADVISE
OUTLET REQUIREMENTS



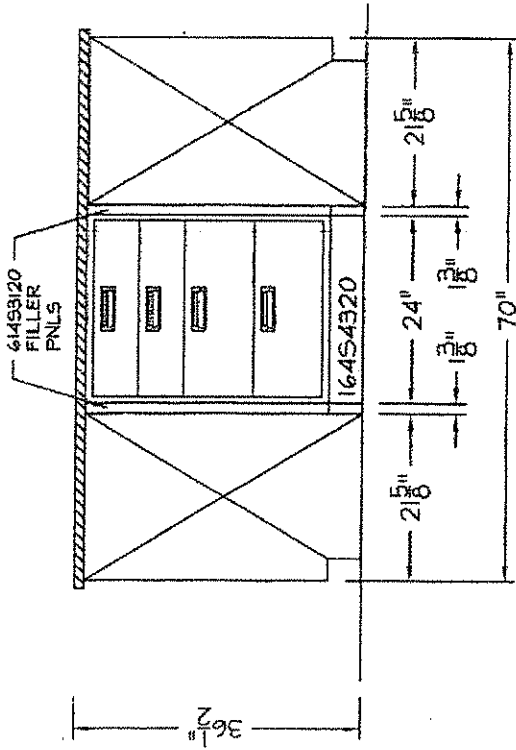
(2) CUTOUTS
FOR OUTLETS



6 Elevation - Island

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

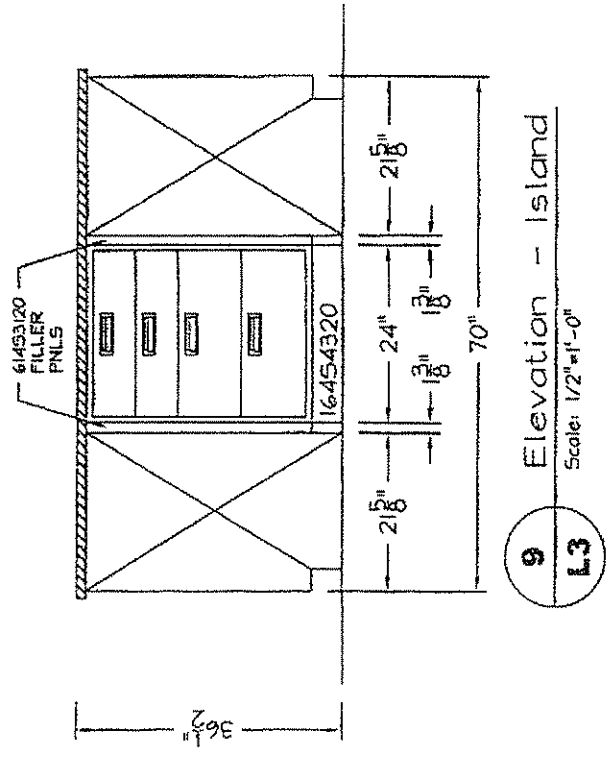
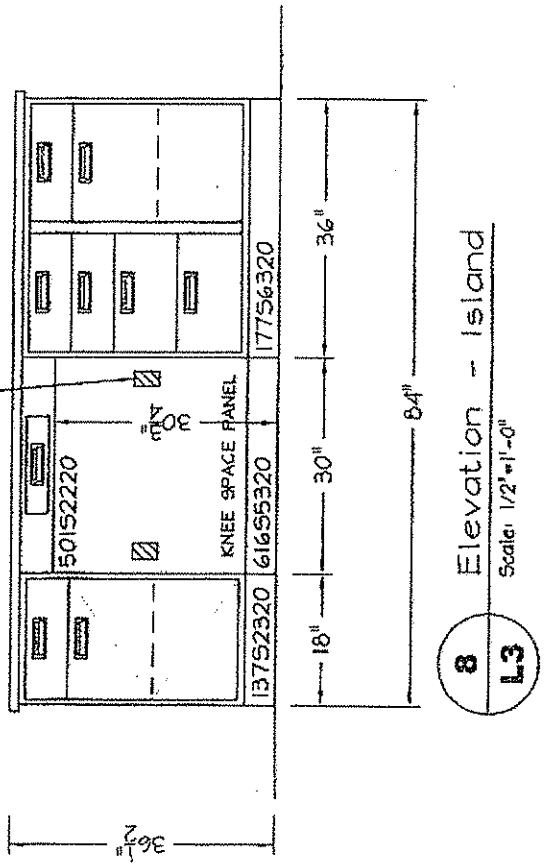
L3

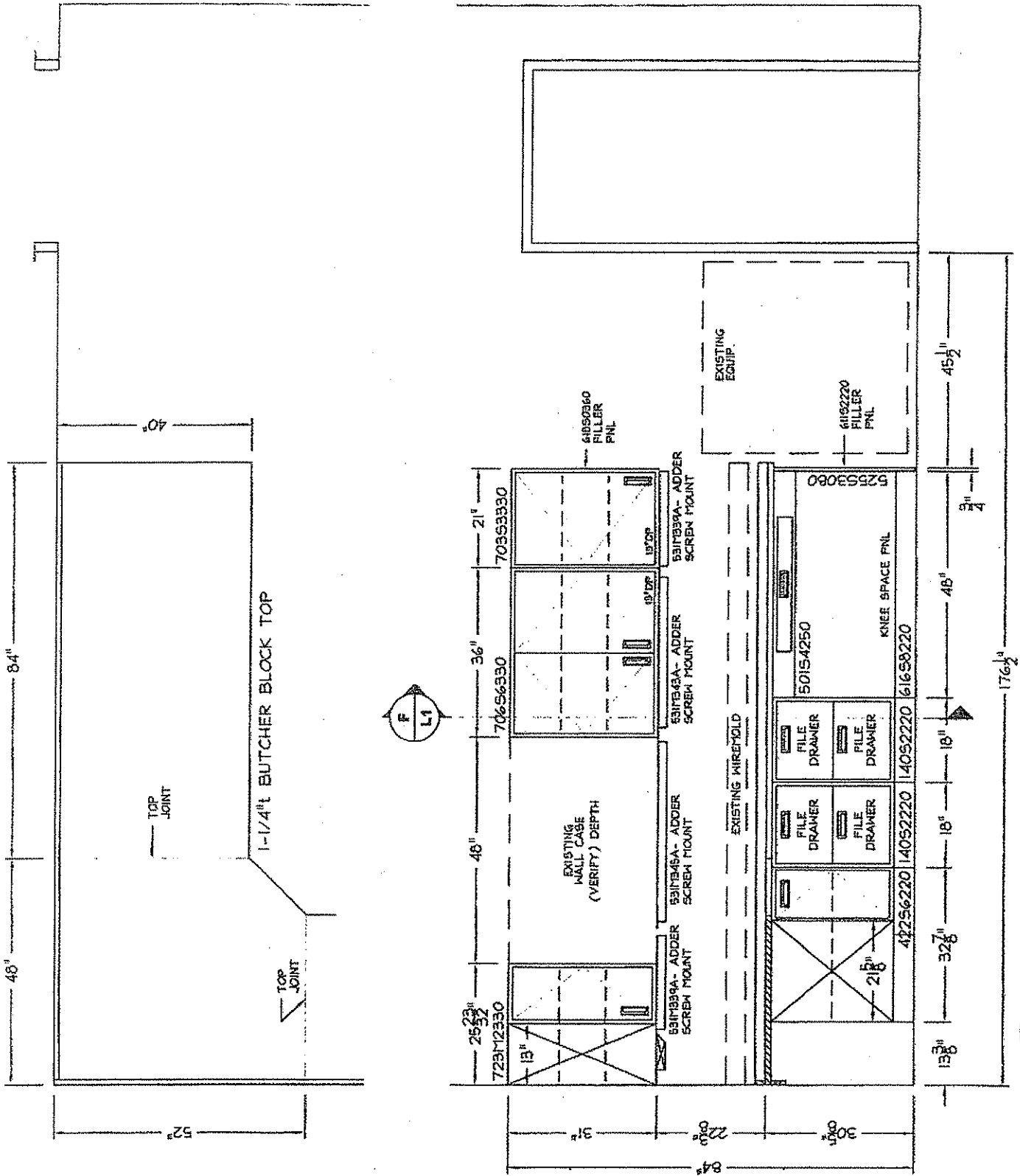


7 Elevation - Island

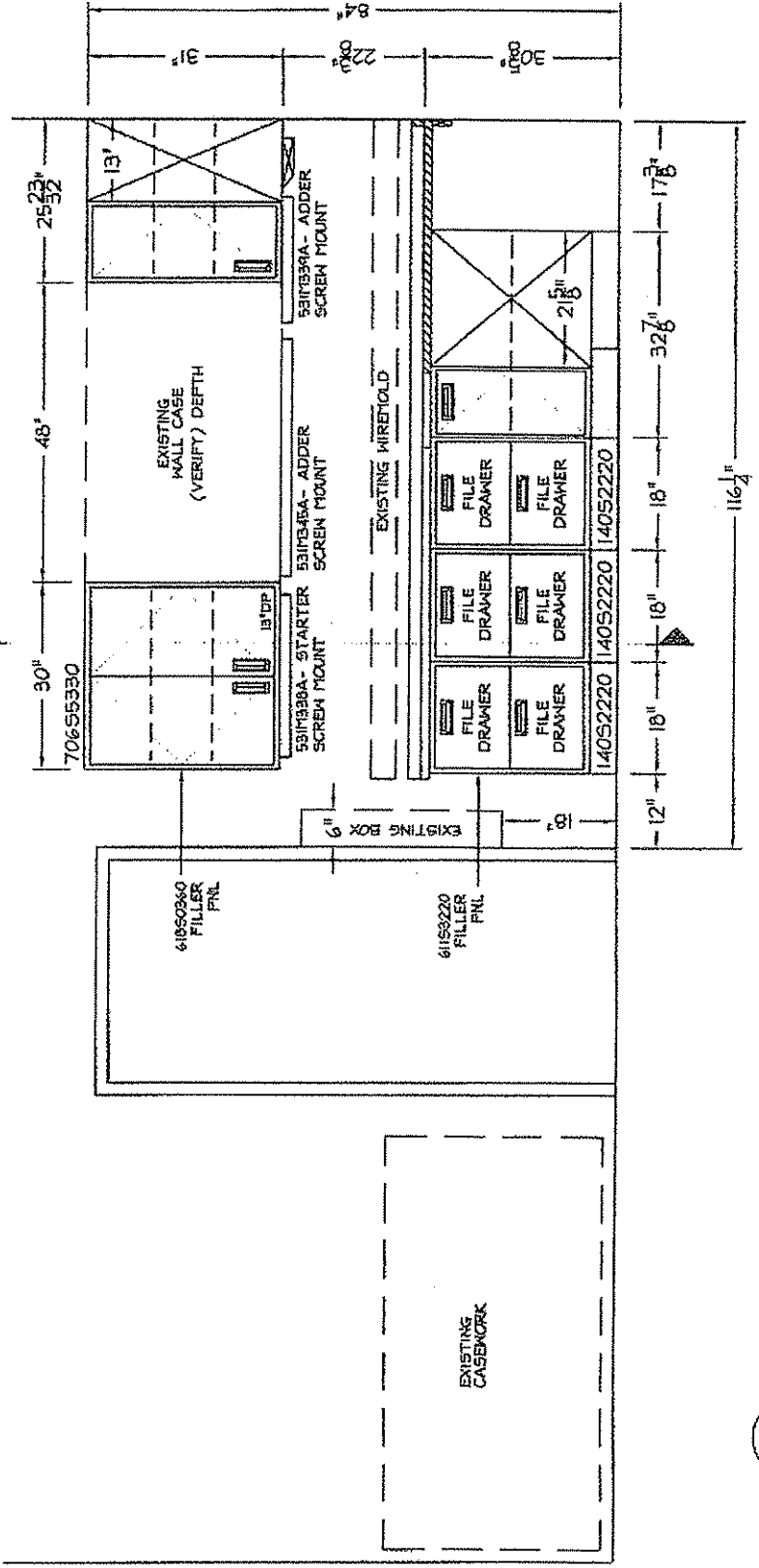
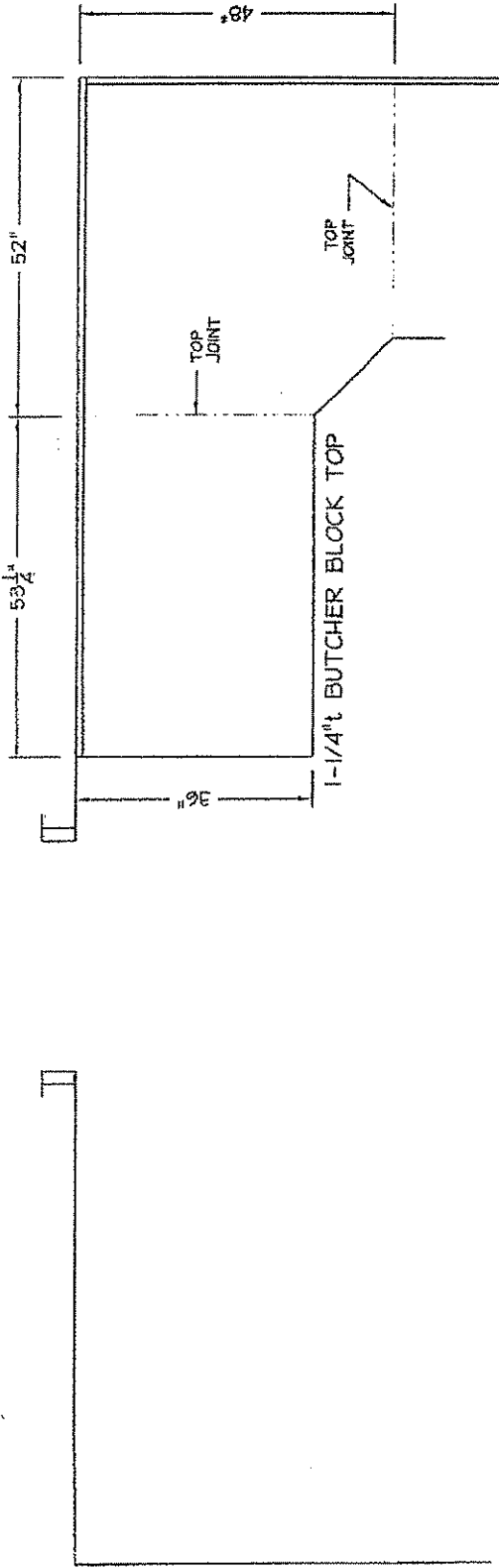
Scale: 1/2"=1'-0"

L3





10 Elevation - Island
 L3 Scale: 1/2" = 1'-0"



11 Elevation - Island
L3 Scale: 1/2"=1'-0"

INSET STEEL (MODULAR STEEL)
LABORATORY CASEWORK
V-4.3/05-01

SECTION 12345.4 INSET STEEL LABORATORY CASEWORK

PART 1 GENERAL

1.00 SUMMARY

- A. Section Includes:
1. Steel casework.
 2. Work surfaces.
 3. Track Lighting Systems.
 4. Electrical – Mechanical connections
 5. Project consists of product numbers per the attached sheets by elevation.

1.01 ALTERNATE PROPOSALS

Proposals are invited from alternate manufacturers only if they comply with the minimum design requirements and the minimum performance requirements.

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"

INSET STEEL (MODULAR STEEL)
LABORATORY CASEWORK
V-4.3/05-01

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,

INSET STEEL (MODULAR STEEL)
LABORATORY CASEWORK
V-4.3/05-01

- 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.

INSET STEEL (MODULAR STEEL)
LABORATORY CASEWORK
V-4.3/05-01

- 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.

INSET STEEL (MODULAR STEEL)
LABORATORY CASEWORK
V-4.3/05-01

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.
- B. Design, materials, construction and finish of track lighting specified is the minimum acceptable standard of quality for the proposed lighting requirements. The basis of this specification is Halo Power – Trac surface mounted track lighting system with adjustable heads, Houston, TX.

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:

INSET STEEL (MODULAR STEEL)
LABORATORY CASEWORK
V-4.3/05-01

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.

INSET STEEL (MODULAR STEEL)
LABORATORY CASEWORK
V-4.3/05-01

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:

INSET STEEL (MODULAR STEEL)
LABORATORY CASEWORK
V-4.3/05-01

1. Drawer and hinged door pulls: Semi recessed polypropylene pull. Color to be white.
2. 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.
3. Door catches: Adjustable type, spring actuated nylon roller catches.
4. Elbow catches: Spring type of cadmium plated steel, with strike of suitable design.
5. 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.
6. 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.
7. 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.
8. Shelf clips: Die formed steel, zinc plated, designed to engage in shelf adjustment holes.

2.04 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, omgh grade laboratory furniture quality finish of the

INSET STEEL (MODULAR STEEL)
LABORATORY CASEWORK
V-4.3/05-01

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 to 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.

INSET STEEL (MODULAR STEEL)
LABORATORY CASEWORK
V-4.3/05-01

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 $73\pm 3^{\circ}\text{F}$ ($23\pm 2^{\circ}\text{C}$) 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

INSET STEEL (MODULAR STEEL)
LABORATORY CASEWORK
V-4.3/05-01

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.

INSET STEEL (MODULAR STEEL)
LABORATORY CASEWORK
V-4.3/05-01

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.

INSET STEEL (MODULAR STEEL)
LABORATORY CASEWORK
V-4.3/05-01

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.

2.05 MAPLE BUTCHER BLOCK

- A. Material: 1.5" Glued maple strips, uniform in color, with TR-4 finish. Tops to be smooth with 3/8" radius edge. Tops to be sized to minimize seams.
- B. Backsplash curb: 4" High x 3/4" Deep to match countertop. Curb to be field applied.
- C. Countertop thickness – 1 1/4"

2.06 Halo Power – Trac Surface Mounted Track Lighting System with Adjustable Heads

- A. 1—L652P 8' Track
- 2—L651P 4' Track
- 4—L904P "L" Connector
- 1—L909P Floating Canopy
- 10—L4007P Track Head with 75 w par 30 Lamps
- 1—Lutron AY-10P-1v 1000 watt dimmer switch

INSET STEEL (MODULAR STEEL)
LABORATORY CASEWORK
V-4.3/05-01

- B. Installation of track lighting by certified electrician.

PART 3 EXECUTION

3.01 INSTALLATION

- A. Electrical – Mechanical Connections
1. Provide electrical connections via certificated electrician
- B. 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.
- C. 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.
- D. Sink installation: Sinks which were not factory installed shall be set in chemical resistant sealing compound and secured and supported per manufacturer's recommendations.
- E. Accessory installation: Install accessories and fittings in accordance with manufacturer's recommendations. Turn screws to seat flat; do not drive.

3.02 ADJUSTING

INSET STEEL (MODULAR STEEL)
LABORATORY CASEWORK
V-4.3/05-01

- 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.

STATE OF WEST VIRGINIA
Purchasing Division**PURCHASING AFFIDAVIT****VENDOR OWING A DEBT TO THE STATE:**

West Virginia Code §5A-3-10a provides that: 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.

PUBLIC IMPROVEMENT CONTRACTS & DRUG-FREE WORKPLACE ACT:

West Virginia Code §21-1D-5 provides that: Any solicitation for a public improvement construction contract shall require each vendor that submits a bid for the work to submit at the same time an affidavit that the vendor has a written plan for a drug-free workplace policy in compliance with Article 1D, Chapter 21 of the West Virginia Code. A public improvement construction contract may not be awarded to a vendor who does not have a written plan for a drug-free workplace policy in compliance with Article 1D, Chapter 21 of the West Virginia Code and who has not submitted that plan to the appropriate contracting authority in timely fashion. For a vendor who is a subcontractor, compliance with Section 5, Article 1D, Chapter 21 of the West Virginia Code may take place before their work on the public improvement is begun.

ANTITRUST:

In submitting a bid to any agency for the state of West Virginia, the bidder offers and agrees that if the bid is accepted the bidder will convey, sell, assign or transfer to the state of West Virginia all rights, title and interest in and to all causes of action it may now or hereafter acquire under the antitrust laws of the United States and the state of West Virginia for price fixing and/or unreasonable restraints of trade relating to the particular commodities or services purchased or acquired by the state of West Virginia. Such assignment shall be made and become effective at the time the purchasing agency tenders the initial payment to the bidder.

I certify that this bid is made without prior understanding, agreement, or connection with any corporation, firm, limited liability company, partnership or person or entity submitting a bid for the same materials, supplies, equipment or services and is in all respects fair and without collusion or fraud. I further certify that I am authorized to sign the certification on behalf of the bidder or this bid.

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 is in compliance with the requirements as stated.

Vendor's Name: THE R.M. HUFFMAN COAuthorized Signature: Date: 9/12/08

BID BOND

KNOW ALL MEN BY THESE PRESENTS, That we, the undersigned, R. M. Huffman Company
of South Charleston, WV, as Principal, and Ohio Farmers Insurance Company
of Westfield Center, OH, a corporation organized and existing under the laws of the State of OH
with its principal office in the City of Westfield Center, as Surety, are held and firmly bound unto the State
of West Virginia, as Obligee, in the penal sum of Five Percent of Amount Bid (\$ 5%) for the payment of which,
well and truly to be made, we jointly and severally bind ourselves, our heirs, administrators, executors, successors and assigns.

The Condition of the above obligation is such that whereas the Principal has submitted to the Purchasing Section of the
Department of Administration a certain bid or proposal, attached hereto and made a part hereof, to enter into a contract in writing for
DPS0905 - Installation of Casework and Fumehoods for the WV State Police - According to Plans & Specifications

NOW THEREFORE,

(a) If said bid shall be rejected, or
(b) If said bid shall be accepted and the Principal shall enter into a contract in accordance with the bid or proposal attached
hereto and shall furnish any other bonds and insurance required by the bid or proposal, and shall in all other respects perform the
agreement created by the acceptance of said bid, then this obligation shall be null and void, otherwise this obligation shall remain in full
force and effect. It is expressly understood and agreed that the liability of the Surety for any and all claims hereunder shall, in no event,
exceed the penal amount of this obligation as herein stated.

The Surety, for the value received, hereby stipulates and agrees that the obligations of said Surety and its bond shall be in no
way impaired or affected by any extension of the time within which the Obligee may accept such bid, and said Surety does hereby
waive notice of any such extension.

IN WITNESS WHEREOF, Principal and Surety have hereunto set their hands and seals, and such of them as are corporations
have caused their corporate seals to be affixed hereunto and these presents to be signed by their proper officers, this

12th day of September, 2008.

Principal Corporate Seal

R. M. Huffman Company

(Name of Principal)

By: Robert M. Huffman
(Must be President or
Vice President)

VP
(Title)

Surety Corporate Seal

Ohio Farmers Insurance Company

(Name of Surety)

By: Patricia A. Moye
Patricia A. Moye, WV Resident Agent Attorney-in-Fact

IMPORTANT – Surety executing bonds must be licensed in West Virginia to transact surety insurance. Corporate seals must be affixed,
and a power of attorney must be attached.

General Power of Attorney

Westfield Insurance Co. Westfield National Insurance Co. Ohio Farmers Insurance Co. Westfield Center, Ohio

CERTIFIED COPY

Know All Men by These Presents, That WESTFIELD INSURANCE COMPANY, WESTFIELD NATIONAL INSURANCE COMPANY and OHIO FARMERS INSURANCE COMPANY, corporations, hereinafter referred to individually as a "Company" and collectively as "Companies," duly organized and existing under the laws of the State of Ohio, and having its principal office in Westfield Center, Medina County, Ohio, do by these presents make, constitute and appoint LARRY D. KERR, GREGORY T. GORDON, STEPHEN B. STODGEN, PATRICIA A. MOYE, ALLAN L. MC VEY, KIMBERLY J. WILKINSON, JOINTLY OR SEVERALLY

of CHARLESTON and State of WV its true and lawful Attorney(s)-in-Fact, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver any and all bonds, recognizances, undertakings, or other instruments or contracts of suretyship.

LIMITATION: THIS POWER OF ATTORNEY CANNOT BE USED TO EXECUTE NOTE GUARANTEE, MORTGAGE DEFICIENCY, MORTGAGE GUARANTEE, OR BANK DEPOSITORY BONDS.

and to bind any of the Companies thereby as fully and to the same extent as if such bonds were signed by the President, sealed with the corporate seal of the applicable Company and duly attested by its Secretary, hereby ratifying and confirming all that the said Attorney(s)-in-Fact may do in the premises. Said appointment is made under and by authority of the following resolution adopted by the Board of Directors of each of the WESTFIELD INSURANCE COMPANY, WESTFIELD NATIONAL INSURANCE COMPANY and OHIO FARMERS INSURANCE COMPANY:

"Be It Resolved, that the President, any Senior Executive, any Secretary or any Fidelity & Surety Operations Executive or other Executive shall be and is hereby vested with full power and authority to appoint any one or more suitable persons as Attorney(s)-in-Fact to represent and act for and on behalf of the Company subject to the following provisions:

The Attorney-in-Fact, may be given full power and authority for and in the name of and on behalf of the Company, to execute, acknowledge and deliver, any and all bonds, recognizances, contracts, agreements of indemnity and other conditional or obligatory undertakings and any and all notices and documents canceling or terminating the Company's liability thereunder, and any such instruments so executed by any such Attorney-in-Fact shall be as binding upon the Company as if signed by the President and sealed and attested by the Corporate Secretary."

"Be It Further Resolved, that the signature of any such designated person and the seal of the Company heretofore or hereafter affixed to any power of attorney or any certificate relating thereto by facsimile, and any power of attorney or certificate bearing facsimile signatures or facsimile seal shall be valid and binding upon the Company with respect to any bond or undertaking to which it is attached." (Each adopted at a meeting held on February 8, 2000).

In Witness Whereof, WESTFIELD INSURANCE COMPANY, WESTFIELD NATIONAL INSURANCE COMPANY and OHIO FARMERS INSURANCE COMPANY have caused these presents to be signed by their Senior Executive and their corporate seals to be hereto affixed this 25th day of JUNE A.D., 2008.

Corporate Seals Affixed



WESTFIELD INSURANCE COMPANY WESTFIELD NATIONAL INSURANCE COMPANY OHIO FARMERS INSURANCE COMPANY

Richard L. Kinnaird, Jr. (Signature)

By: Richard L. Kinnaird, Jr., Senior Executive

State of Ohio County of Medina ss.:

On this 25th day of JUNE A.D., 2008, before me personally came Richard L. Kinnaird, Jr. to me known, who, being by me duly sworn, did depose and say, that he resides in Medina, Ohio; that he is Senior Executive of WESTFIELD INSURANCE COMPANY, WESTFIELD NATIONAL INSURANCE COMPANY and OHIO FARMERS INSURANCE COMPANY, the companies described in and which executed the above instrument: that he knows the seals of said Companies; that the seals affixed to said instrument are such corporate seals; that they were so affixed by order of the Boards of Directors of said Companies; and that he signed his name thereto by like order.

Notarial Seal Affixed



William J. Kahelin (Signature)

William J. Kahelin, Attorney at Law, Notary Public My Commission Does Not Expire (Sec. 147.03 Ohio Revised Code)

State of Ohio County of Medina ss.:

I, Frank A. Carrino, Secretary of WESTFIELD INSURANCE COMPANY, WESTFIELD NATIONAL INSURANCE COMPANY and OHIO FARMERS INSURANCE COMPANY, do hereby certify that the above and foregoing is a true and correct copy of a Power of Attorney, executed by said Companies, which is still in full force and effect; and furthermore, the resolutions of the Boards of Directors, set out in the Power of Attorney are in full force and effect.

In Witness Whereof, I have hereunto set my hand and affixed the seals of said Companies at Westfield Center, Ohio, this 12th day of September, A.D., 2008.



Frank A. Carrino (Signature) Secretary