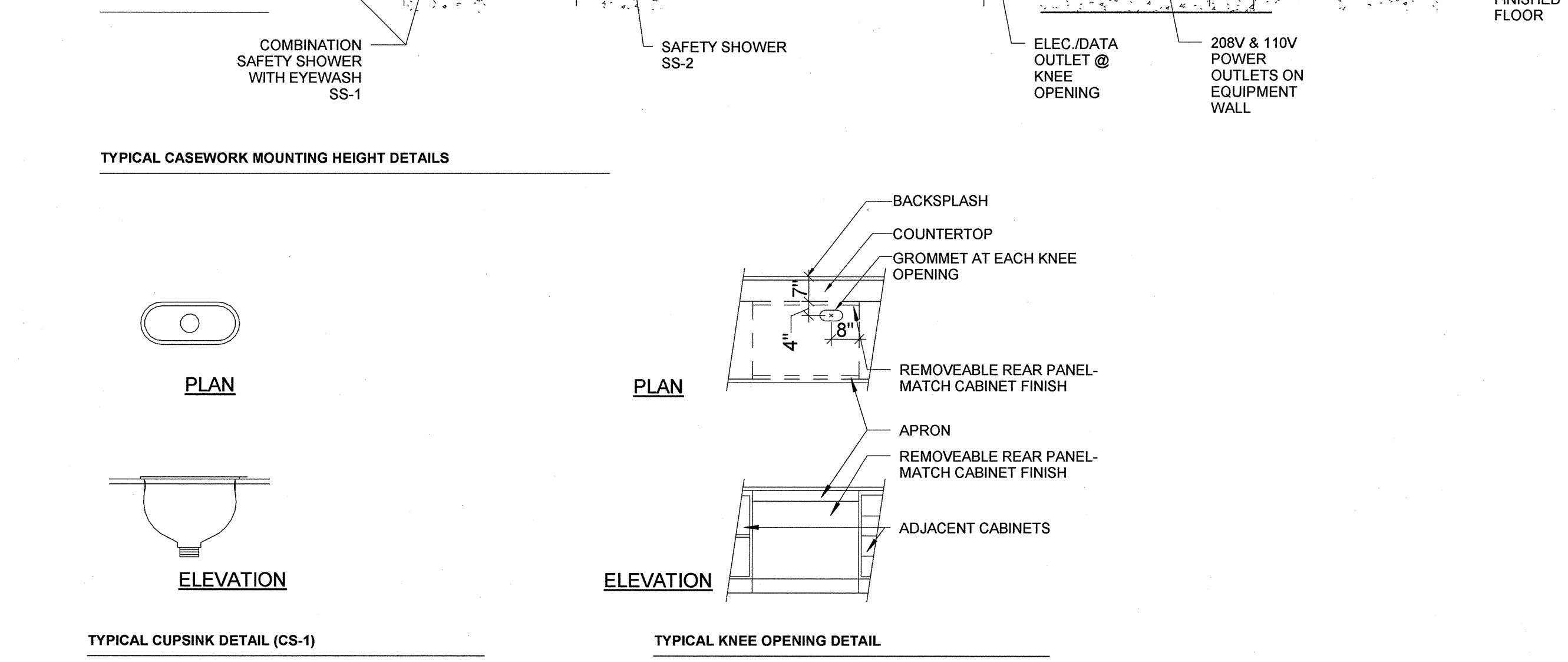
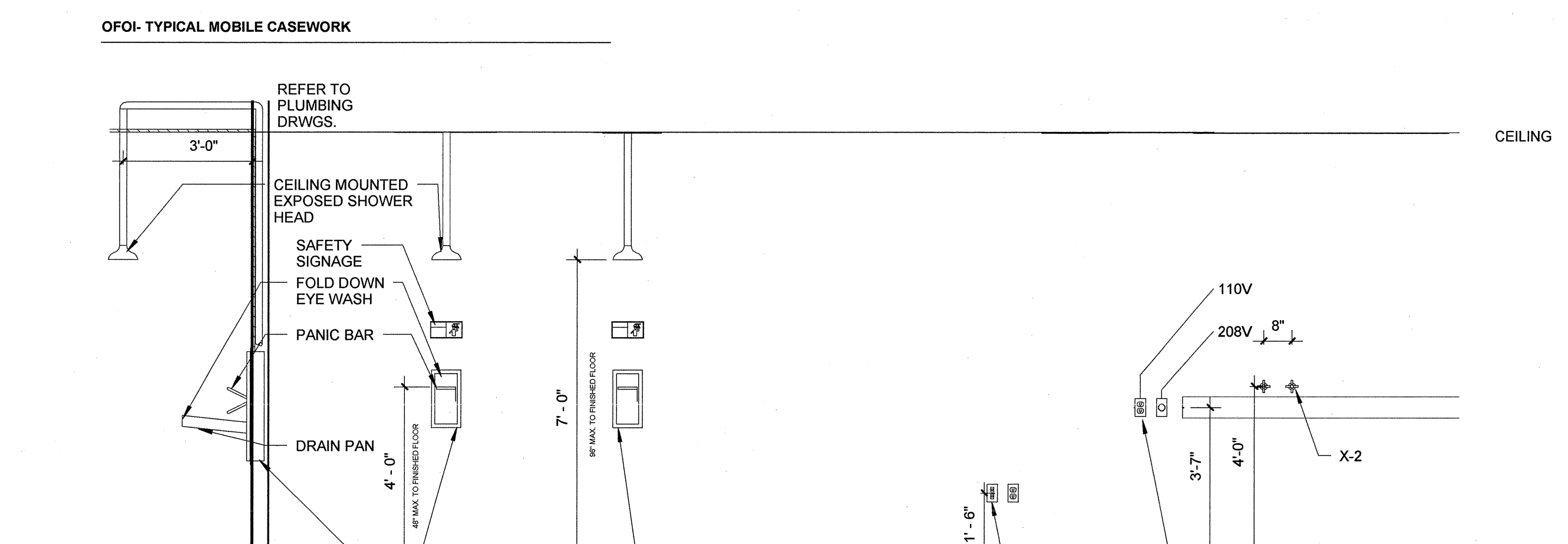
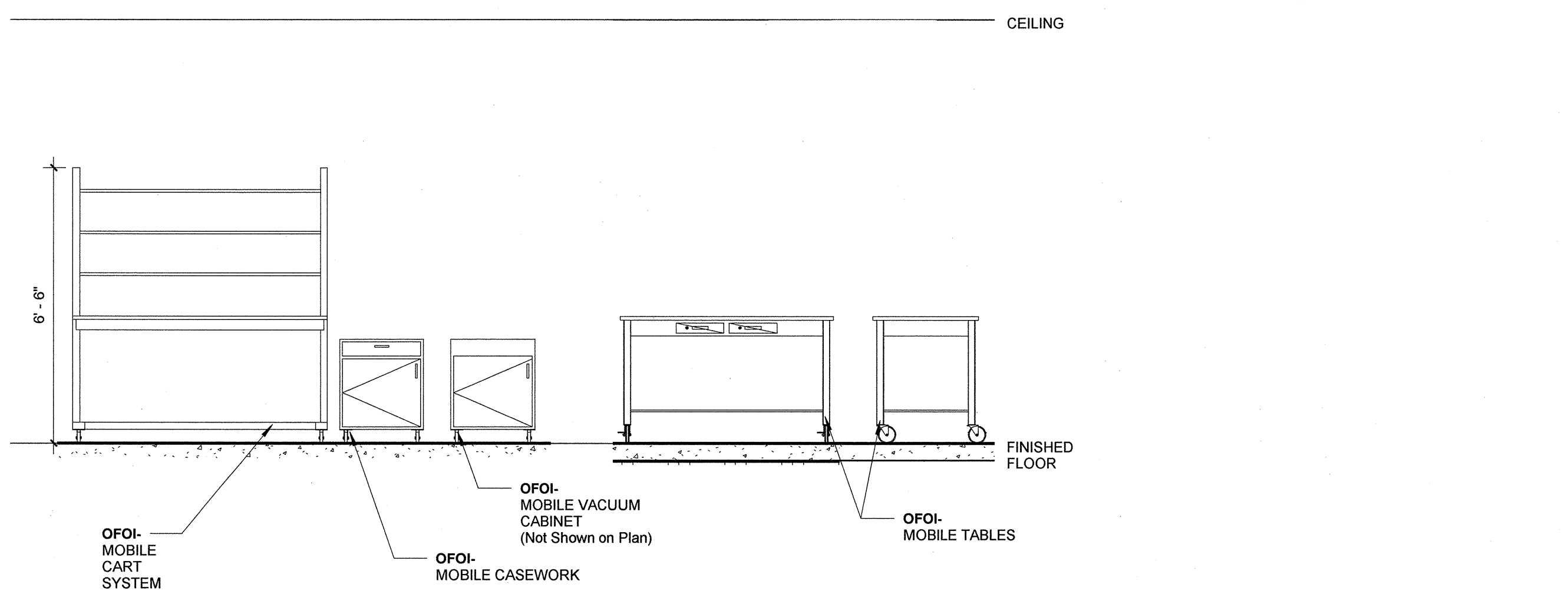


A | B | C | D | E | F | G

Fume Hood Schedule							
Group	Space Name	Space Number	Size	Type	Op	Comments	
FH-1	Wet Chemistry and Sample Prep	1137	4'-0"	Perchloric	CV	Washdown, No Vented Storage	
FH-2			5'-0"	General	VAV		
FH-3			6'-0"	General	VAV		
FH-4			6'-0"	General	VAV		
FH-5	Environmental Instrumentation	1136	4'-0"	General	VAV		
FH-6			6'-0"	General	VAV		
FH-7	Sample Receiving/Storage	1139	4'-0"	General	VAV		
FH-8	Mat'ls Compatibility/Instruments	1150	6'-0"	General	VAV		
FH-9			6'-0"	General	VAV		
FH-10			6'-0"	General	VAV		
FH-11	Organic Volatiles	1151	4'-0"	General	VAV		
FH-12	Organic Semi-Volatiles	1149	4'-0"	General	VAV		
FH-13	Organic Extraction	1147	4'-0"	General	VAV	Water Polisher	
FH-14			8'-0"	General	VAV	Distillation Rack, Water Polisher	
FH-15			8'-0"	General	VAV	Distillation Rack, Water Polisher	
FH-16	EM30 Corrosion Lab (Large)	1164	6'-0"	General	VAV		
FH-17			6'-0"	General	VAV		
FH-18	EM30 Corrosion Lab (Small)	1166	6'-0"	General	VAV		
FH-19	EM30 Salt Fog Chamber	1153	6'-0"	General	VAV		
FH-20	EM30 Plating Lab	1168	4'-0"	General	VAV		
FH-21			4'-0"	General	VAV		
FH-22	EM30 Plating Lab Analysis Area	1170	4'-0"	General	VAV		
FH-23	EM30 SEM/TEM Prep	1130	4'-0"	General	VAV		
FH-24			4'-0"	General	VAV		
FH-25	EM30 Metallography	1121	6'-0"	General	VAV	Polisher, Grinder Adjacent to Hood	
FH-26			6'-0"	General	VAV	Polisher, Grinder Adjacent to Hood	
FH-27	EM10 IC Prep	1134	6'-0"	General	VAV		
FH-28			4'-0"	General	VAV		
FH-29	EM10 Spectroscopy Lab	1134B	4'-0"	General	VAV		
FH-30			6'-0"	General	VAV		
FH-31	EM30 Sample Polishing & Etching Room	1174	6'-0"	General	VAV		
FH-32			4'-0"	General	VAV		
FH-33	EM30 High Temp Materials Processing	1179	6'-0"	General	VAV		
FH-34	EM40 High Temp Permeability Lab	1156	4'-0"	General	VAV		
FH-35	EM40 Fiber & High Temp Processing Lab	1154	4'-0"	General	VAV		
FH-36			6'-0"	General	VAV		
FH-37			6'-0"	General	VAV		
FH-38			6'-0"	General	VAV		
FH-39			6'-0"	General	VAV		
FH-40			6'-0"	General	VAV		
FH-41	EM40 Thermal Vacuum Test Lab & Equip	1172	4'-0"	General	VAV		
FH-42	EM40 Permeability and HPLC Testing	1152	8'-0"	General	VAV		
FH-43	EM40 Ionics Lab	1132	6'-0"	General	VAV		
FH-44			6'-0"	General	VAV		
FH-45	EM40 Bonding Lab	1143	6'-0"	General	VAV		
FH-46	EM40 O-Ring Materials Evaluation Lab	1148	6'-0"	General	VAV		



- CASEWORK GENERAL NOTES:**
- CAREFULLY EXAMINE THE LABORATORY FURNISHINGS DRAWINGS AND SPECIFICATIONS AND ALL OTHER DRAWINGS AND SPECIFICATIONS TO PROPERLY DETERMINE CONTRACTUAL RESPONSIBILITIES.
 - FOR ACTUAL ROOM DIMENSIONS REFER TO ARCHITECTURAL PLANS.
 - ALL DIMENSIONS SHALL BE FIELD CHECKED PRIOR TO FABRICATION.
 - COORDINATE THE LOCATION OF OVERHEAD SERVICE CARRIERS, SNORKELS, UMBILICALS, CANOPY HOODS, AND ANY OTHER CASEWORK AND FUME HOOD FURNISHINGS THAT PENETRATE CEILING WITH THE ARCHITECTURAL REFLECTED CEILING PLANS, MEP DRAWINGS AND LAB ELEVATIONS.
 - LOCATION OF EQUIPMENT, SUCH AS OVERHEAD SERVICE CARRIERS, UMBILICAL ENCLOSURES, FUME HOODS, BRACES OR ANY OTHER ITEMS THAT MAY INTERFERE WITH LIGHTING, OR STRUCTURAL, BRING TO ARCHITECT'S ATTENTION IMMEDIATELY.
 - ALL FIXED CASEWORK TO BE STANDING HEIGHT, UNLESS NOTED OTHERWISE.
 - OVERALL LENGTH OF TOPS SHALL BE DETERMINED BY CASEWORK AND DIMENSIONS AS INDICATED ON ELEVATIONS AND DETAIL DRAWINGS. SUCH LENGTHS SHALL REMAIN CONSTANT REGARDLESS OF SUCCESSFUL BIDDER'S STANDARDS. TOPS SHALL OVERHANG 1" AT EACH END AND 1" FROM FRONT OF BASE CABINET OR HORIZONTAL RAIL.
 - PROVIDE 1" MIN. FILLER PANEL/Scribe AT ALL CASEWORK AND FUME HOOD ITEMS AND WALLS.
 - PROVIDE 2"x2" PEDESTAL LEGS AT END OF BENCH AND MOVABLE TABLES WHERE NO CABINET IS NOTED.
 - COUNTERTOPS AND SPLASHES SHALL BE SCRIBED TO MATCH IRREGULARITIES AND CONTOURS OF WALLS.
 - ALL EXPOSED-TO-VIEW COUNTERTOP EDGES, BACKS OF SPLASHES, ALL EDGES OF TABLES, BACKS OF COUNTERTOPS AND SPLASHES HELD AWAY FROM WALL SHALL BE FILLED, SEALED AND FINISHED.
 - FILLER PANELS SHALL BE INSTALLED BETWEEN BACK OF CABINETS OR HOODS AND WALLS AT EXPOSED ENDS. WHEN BASE CABINETS AND/OR HOODS ARE SET BACK-TO-BACK, FILLER PANEL SHALL OCCUR EVEN WHERE NO BASE CABINET OCCURS BUT BENCH IS PRESENT. FILLER PANEL SHALL BE PROVIDED AT ALL OPEN SIDES OF TALL STORAGE CABINETS. SEE SPECIFICATIONS.
 - ALL CASEWORK, FUME HOODS AND ANY OTHER FURNISHINGS WITH EXPOSED-TO-VIEW BACKS AND SIDES SHALL BE FINISHED.
 - UNLESS OTHERWISE NOTED, ALL UNISTRUT BRACKETS AND FITTINGS INDICATED ON LABORATORY FURNISHINGS DRAWINGS SHALL BE PROVIDED AND PAINTED UNDER DIVISION 12.
 - FOR LABORATORY SERVICE FITTING TYPES, LOCATION AND ORDER, SEE LABORATORY ENLARGED PLANS AND DETAILS. THESE FITTINGS SHALL BE PROVIDED UNDER DIVISION 12. FOR FINAL CONNECTION SEE DIVISION 22.
 - ALL PLUMBING SYSTEM HANGERS AND FASTENERS SHALL BE PROVIDED UNDER DIVISION 22.
 - ALL LABORATORY SINKS AND CUPSINKS SHALL BE PROVIDED UNDER SECTION 12 36 53.74. FINAL CONNECTION TO LABORATORY WASTE SYSTEM BY DIVISION 22.
 - CENTER ALL SINKS AND UMBILICALS IN SINK CABINET UNLESS OTHERWISE NOTED. CONNECTION TO LABORATORY WASTE SYSTEM BY DIVISION 22.
 - ALL PENETRATIONS THROUGH COUNTERTOP SHALL BE CAULKED UNDER DIVISION 12 WITH ACID-RESISTANT SEALANT TO MATCH COUNTERTOP MATERIAL.
 - ARCHITECT SHALL SELECT COLORS FOR ALL COMPONENTS OF PROJECT INDICATED ON THESE DRAWINGS.
 - ALL FIXED CASEWORK TOPS THAT ABUT WALLS, FUME HOODS, TALL STORAGE CABINETS, ETC. SHALL HAVE BACKSPLASH AND OR SIDESPLASH. EXCEPTION SHALL BE AT MOVABLE TABLES THAT ABUT WALLS OR FUME HOODS.
 - ALL PIPED WALL MOUNTED SERVICE FIXTURES WILL BE 48" A.F.F. UNLESS OTHERWISE NOTED CONFLICTS WITH RACEWAY.
 - ELECTRICAL AND DATA OUTLETS MOUNTED IN KNEE OPENING PANELS WILL BE CENTERED IN PANEL AT 18" A.F.F.
 - COUNTER MOUNTED PLUMBING FIXTURES WILL BE LOCATED AT CENTERED IN CABINET OR KNEE OPENINGS BELOW COUNTER, WITH SPACING OF 6" O.C. UNLESS OTHERWISE NOTED IN PLAN.
 - SEE SIGNAL AND ELEC. PLAN FOR LOCATION OF ELECTRICAL AND DATA OUTLETS MOUNTED IN THE WALL.
 - ALIGN EDGE OF WALL MOUNTED SHELVING UNITS AND WALL CABINETS WITH EDGE OF BASE CABINETS BELOW UNLESS OTHERWISE NOTED.
 - PROVIDE WALL BLOCKING PER MANUFACTURER'S RECOMMENDATIONS FOR ALL CASEWORK ITEMS.
 - FUMEHOOD CEILING ENCLOSURE PANEL SHALL TERMINATE 6" ABOVE THE CEILING.
 - FOR CUPSINK DETAILS SEE XX.
 - PEGBOARDS AND SOAP DISPENSERS AT ALL SINK LOCATIONS ARE FOI.
 - ALL COUNTERTOPS TO BE 3/4" TRESPA OR EPOXY RESIN UNLESS NOTED OTHERWISE
 - BOTTOM OF OVERHEAD SERVICE CARRIERS SHALL BE MOUNTED AT MIN. 7'-6" AFF. FOR OVERHEAD SERVICE CARRIER TYPES, REFER TO SPECIFICATIONS.
 - CONTRACTOR TO PROVIDE BLOCKING FOR ALL FOI ADJUSTABLE SHELVES.

SYMBOLS	PLUMBING SYMBOLS
	(SEE SPEC. SECTION 123653.74 FOR FIXTURE SCHEDULE)
	Az ARGON
	CA COMPRESSED AIR
	CHW CHILLED WATER
	C02 CARBON DIOXIDE
	CS CUP SINK
	C2H2 ACETYLENE-SS PIPING
	C3H8 PROPANE
	CW COLD WATER
	EW EYE WASH
	FD FLOOR DRAIN
	GN2 GASEOUS NITROGEN
	HCW HOT & COLD WATER
	He HELIUM
	HW HOT WATER
	H2 HYDROGEN
	LHe LIQUID HELIUM
	LN2 LIQUID NITROGEN
	MGA MISSILE GRADE AIR
	N2 NITROGEN
	N2O NITROUS OXIDE
	O2 OXYGEN
	SK LAB SINK
	SD SPECIAL GAS - FUTURE SERVICE
	SS-2 SAFETY SHOWER
	SS-1 SAFETY SHOWER EYE WASH UNIT
	ST STEAM
	Vac VACUUM
	QAR ZERO AIR
	LHPN2 ULTRA HIGH PURITY NITROGEN-SS PIPING
	SGX SPECIAL GAS-SS PIPING

WARNING

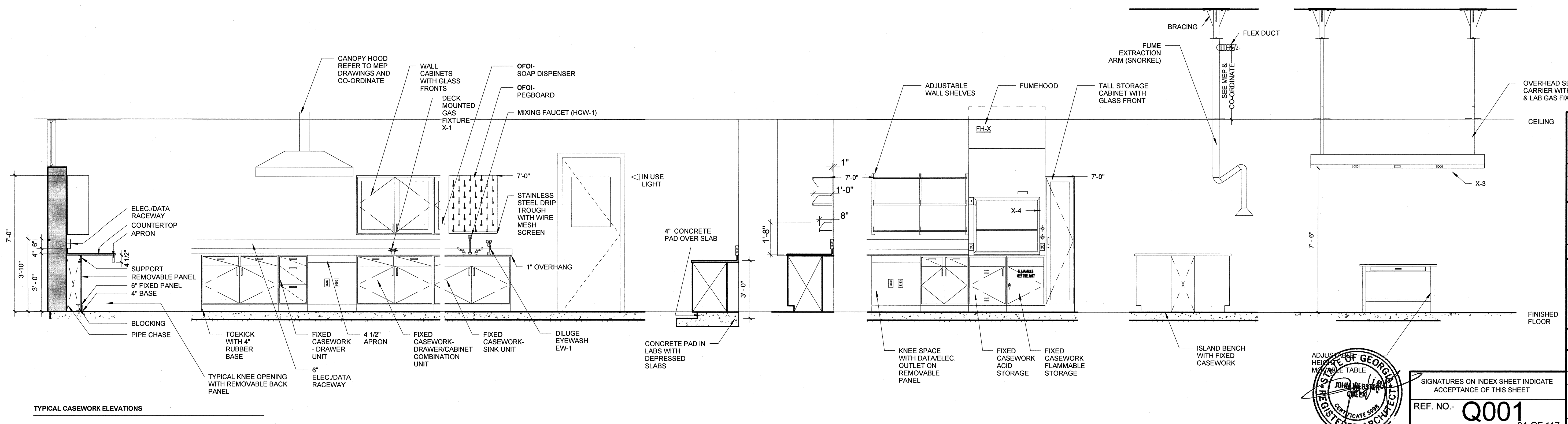
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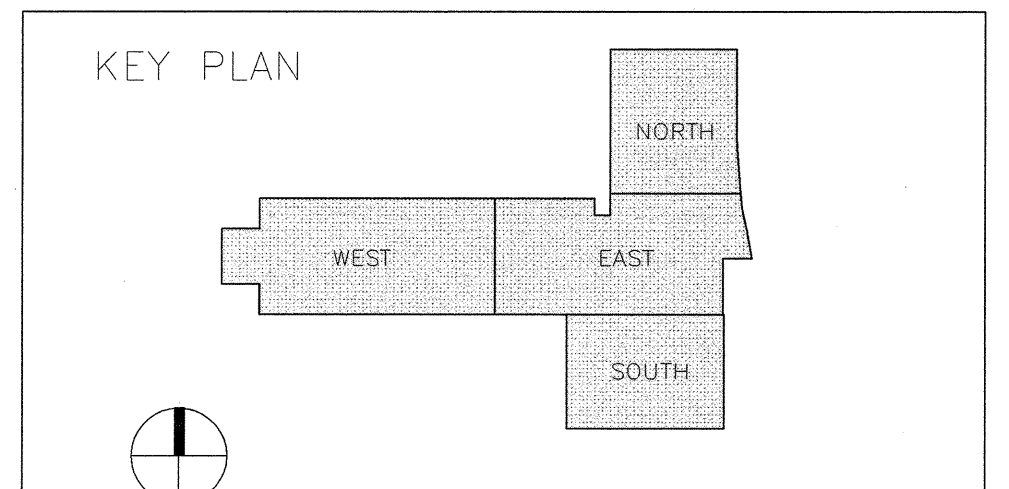
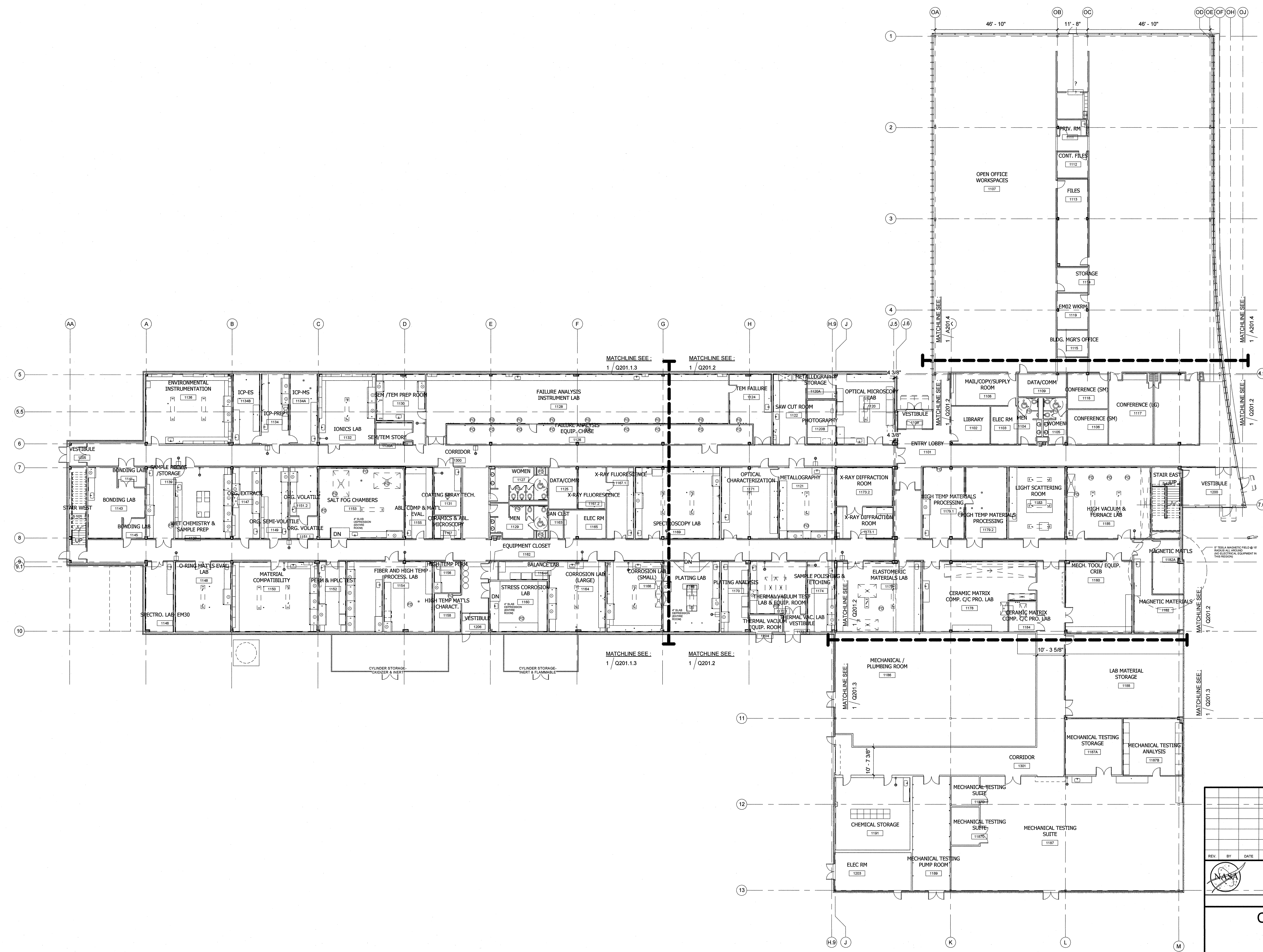
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REF. NO: **Q001**

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MSFC-Form 232 REV. 8-21-89-9CL

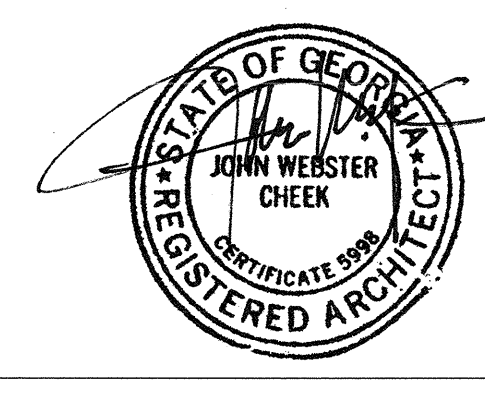
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BY: _____

COMPOSITE LAB
PLAN-OPTION-2
1/16" = 1'-0"



SIGNATURES ON INDEX SHEET INDICATE
ACCEPTANCE OF THIS SHEET
REF. NO Q101.3
87 OF 117

REV	BY	DATE	REVISION	C.I. NO.	APPROVED

Marshall Space Flight Center
Alabama, 35812
06-11-08 FOR CONSTRUCTION

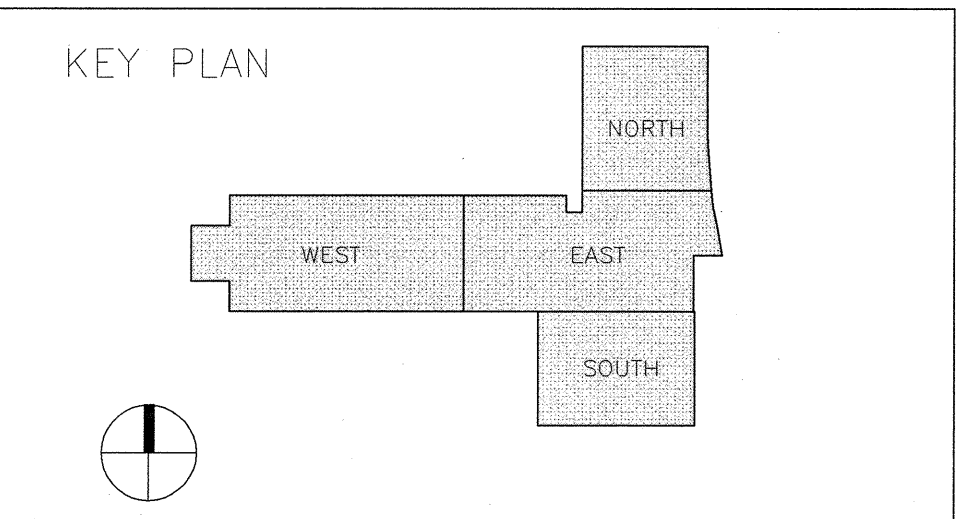
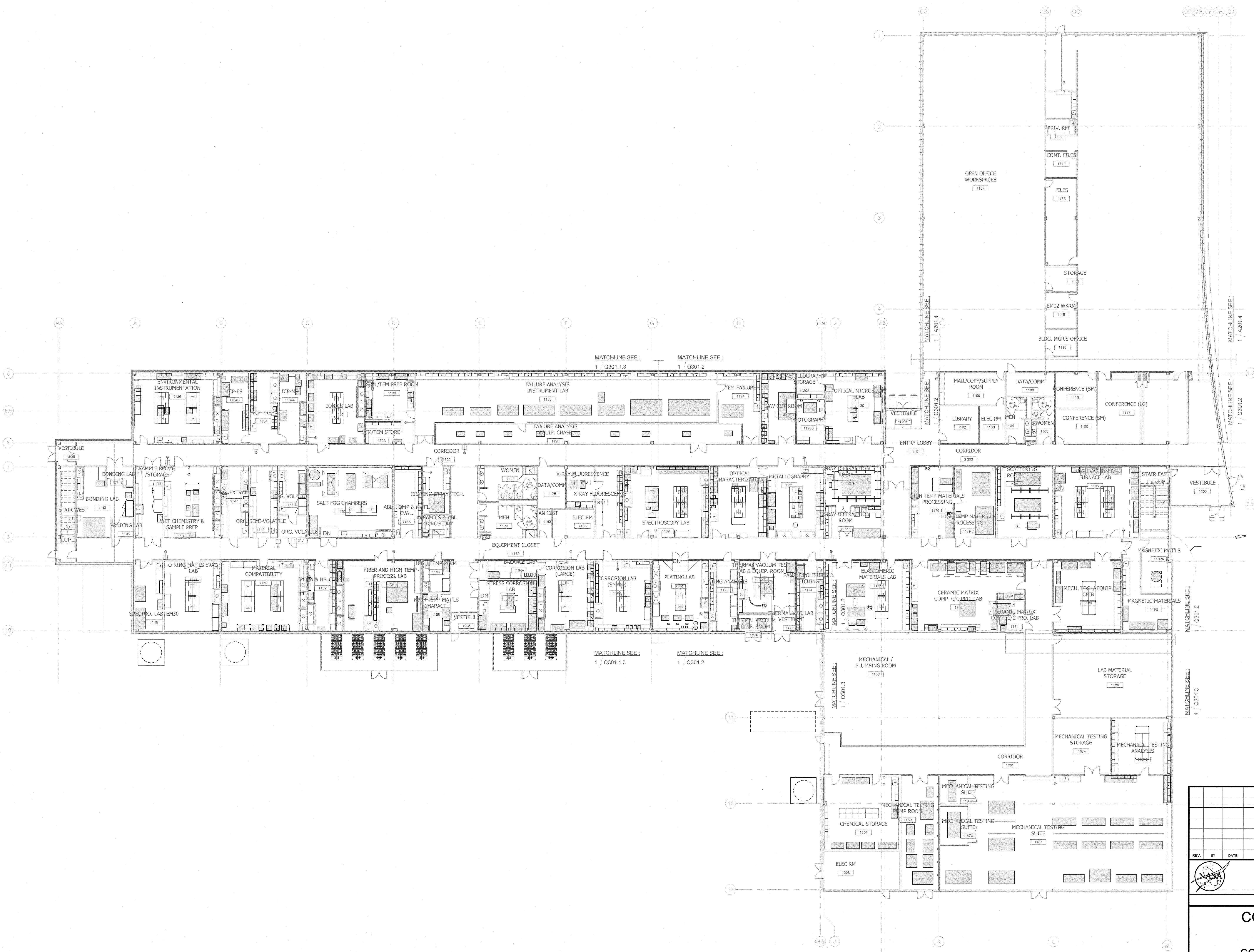
CONSTRUCT REPLACEMENT
BUILDING 4602
COMPOSITE LAB PLAN-OPTION-2

AE FIRM: HELLMUTH, OBATA, + KASSABAUM, Inc.	NASA AE CONTRACT NO. M5030
SUBMITTED: JOHN CHEEK	APPROVAL RECOMMENDED: ROBERT T. MATHIS
AE DATE: 06-11-08	APPROVAL PROJECT NO. 4602
DESIGNED BY: SSAS/ST/PP	APPROVAL RECOMMENDED: ROBERT T. MATHIS
DRAWN: SSAS/ST/PP	APPROVAL SUPPORT NO. 4602
CHECKED: SDB	APPROVAL RECOMMENDED: ROBERT T. MATHIS
SCALE: 1/16" = 1'-0"	APPROVAL TEAM LEAD: 4602
	APPROVAL SPEC. NO. FAC: M5030

APPROVED: VINCENT JAMES GUARIN	DATE: _____	AR22 GROUP LEAD
DRAWING NO.		
FAC - A - 4602 - Q101.3		
SHEET-169 OF 445		

MSFC-FORM 232 REV. 8-21-89-REV.1

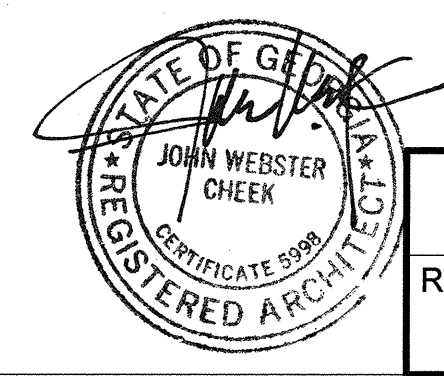
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BY: _____

COMPOSITE LAB PLAN-
OFOI-OPTION-2
1/16" = 1'-0"



SIGNATURES ON INDEX SHEET INDICATE
ACCEPTANCE OF THIS SHEET
REF. NO. **Q150.3**
90 OF 117

REV.	BY	DATE	REVISION	C.I. NO.	APPROVED

Marshall Space Flight Center
Alabama, 35812
06-11-08 FOR CONSTRUCTION

**CONSTRUCT REPLACEMENT
BUILDING 4602**

COMPOSITE LAB PLAN- OFOI-OPTION-2

AE FIRM: HELLMUTH, OBATA, + KASSABAUM, Inc. NASA AE CONTRACT NO. NA59-0303

SUBMITTED: JOHN CHEEK	APPROVAL RECOMMENDED: ROBERT T. MATHIS	APPROVED: VINCENT JAMES GUARN
DESIGNED BY: JOHN CHEEK	APPROVAL RECOMMENDED: ROBERT T. MATHIS	DATE: _____
DRAWN: SSAS/PLUP	APPROVAL RECOMMENDED: ROBERT T. MATHIS	DRAWING NO. FAC - A - 4602 - Q150.3
CHECKED: SOS	APPROVAL RECOMMENDED: JOHN WEBSTER CHEEK	SHEET: 172 OF 445
SCALE: 1/16" = 1'-0"	DATE: 06-11-08	DATE: _____



1 LAB PLAN-WEST-OPTION-2
 Q201.1.3 1/8" = 1'-0"

KEY PLAN

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LATEST CADD UPDATE: _____

BY: _____



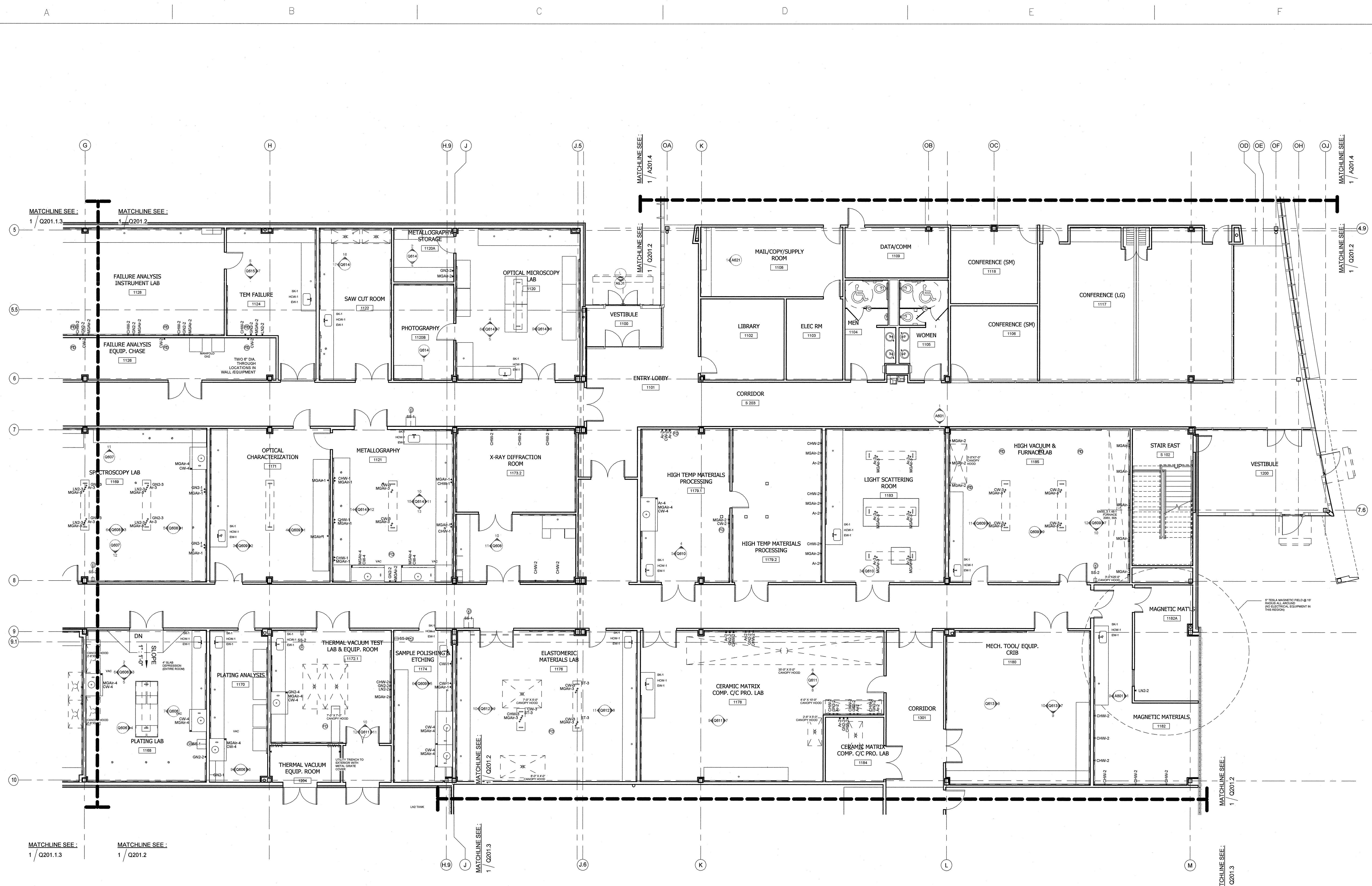
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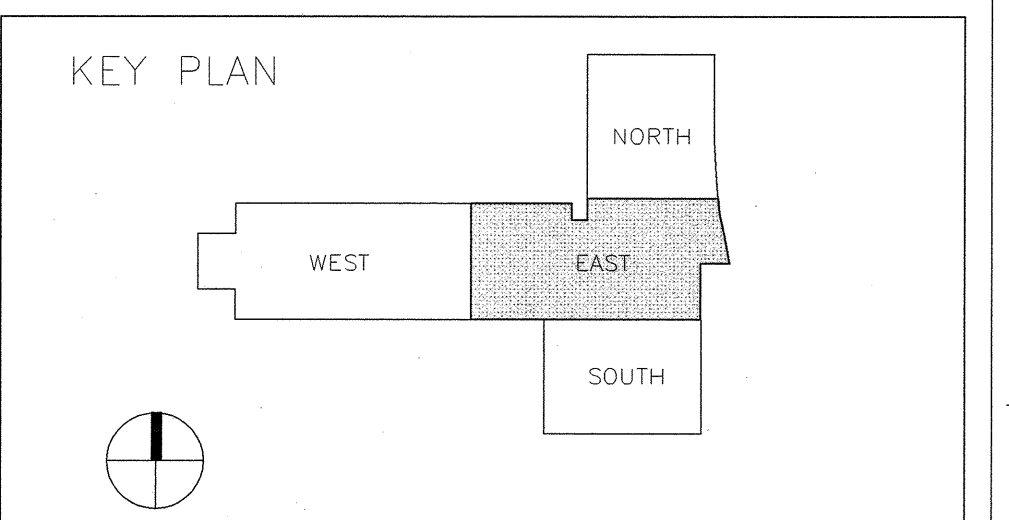
93 OF 117

SCALE: 1/8" = 1'-0"	DATE: 08-11-08	DESIGNED BY: SSAS/TLPP	CHECKED BY: SOS	APPROVAL RECOMMENDED: ROBERT T. NATHIS	APPROVAL: ROBERT T. NATHIS
SUBMITTED: JOHN CHEEK		APPROVAL RECOMMENDED: ROBERT T. NATHIS		APPROVAL: VINCENT JAMES GUARN	
AE FIRM: HELLMUTH, OBATA, + KASSABAUM, Inc.		NASA AE CONTRACT NO. NASS-0093		DATE: _____	
DRAWING NO. FAC - A - 4602 - Q201.1.3					
SHEET- 175 OF 445					

REV.	BY	DATE	REVISION	CL. NO.	APPROVED
Marshall Space Flight Center Alabama , 35812 08-11-08 FOR CONSTRUCTION CONSTRUCT REPLACEMENT BUILDING 4602 LAB PLAN - WEST-OPTION-2					
AE FIRM: HELLMUTH, OBATA, + KASSABAUM, Inc.			NASA AE CONTRACT NO. NASS-0093		
SUBMITTED: JOHN CHEEK		APPROVAL RECOMMENDED: ROBERT T. NATHIS		APPROVAL: VINCENT JAMES GUARN	
AE DATE: 08-11-08		APPROVAL RECOMMENDED: ROBERT T. NATHIS		DATE: _____	
DESIGNED BY: SSAS/TLPP		APPROVAL RECOMMENDED: ROBERT T. NATHIS		DRAWING NO.	
CHECKED BY: SOS		APPROVAL RECOMMENDED: ROBERT T. NATHIS		FAC - A - 4602 - Q201.1.3	
DRAWN BY: SSAS/TLPP		APPROVAL RECOMMENDED: ROBERT T. NATHIS		SHEET- 175 OF 445	
SCALE: 1/8" = 1'-0"		SPEC. NO. FAC: M5030		DATE: _____	



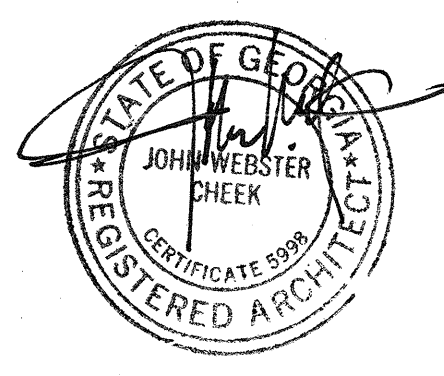
1 LAB PLAN-EAST
 1/8" = 1'-0"



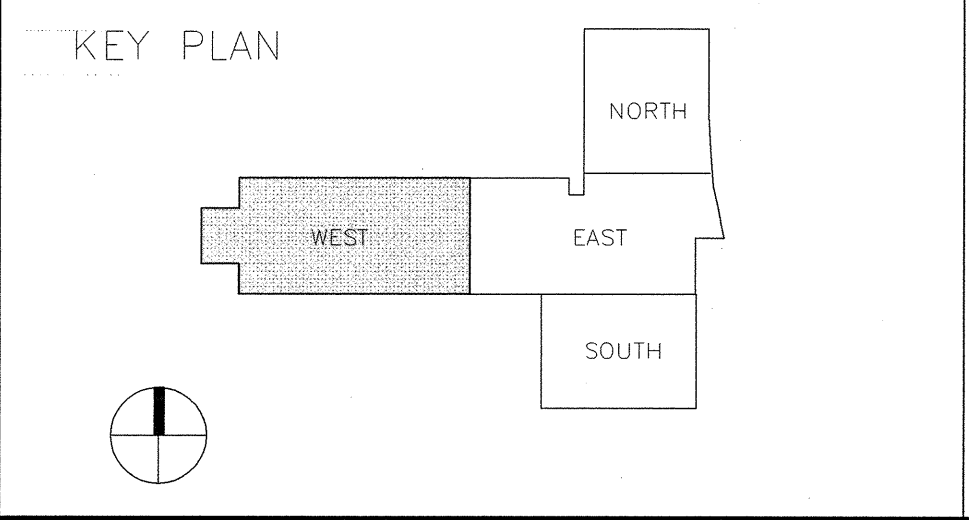
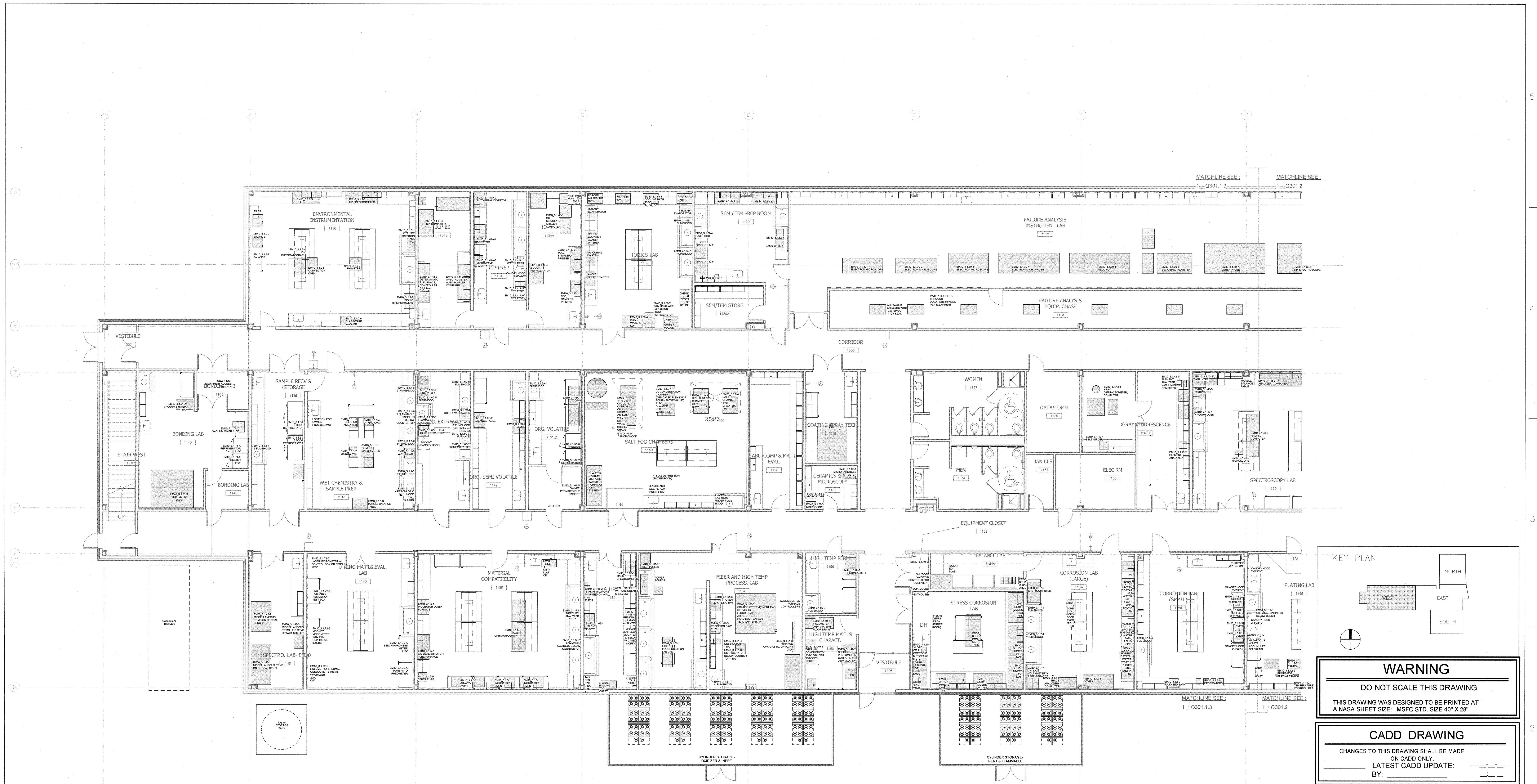
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Marshall Space Flight Center Alabama, 35812 06-11-08 FOR CONSTRUCTION					
CONSTRUCT REPLACEMENT BUILDING 4602 LAB PLAN - EAST					
AE FIRM: HELLMUTH, OBATA, + KASSABAUM, Inc.			NASA AE CONTRACT NO. NASA-0303		
SUBMITTED: JOHN CHEEK			APPROVED: ROBERT T. MATSIS		
AE DATE: 06-11-08			AE22 PROJECT MGR: VINCENT JAMES GUARN		
DESIGNED: BH			AE22 SUPPORT MGR: ROBERT T. MATSIS		
DRAWN: SSIAS/PLPP			AE22 GROUP LEAD: ROBERT T. MATSIS		
CHECKED: SDS			DATE: _____		
SCALE: 1/8" = 1'-0"			DRAWING NO. FAC - A - 4602 - Q201.2		
SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET			SPEC. NO. FAC M5030		
REF. NO. Q201.2			SHEET- 176 OF 445		
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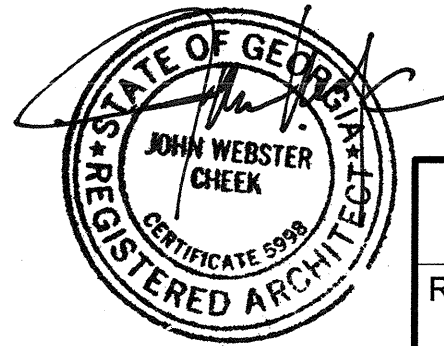


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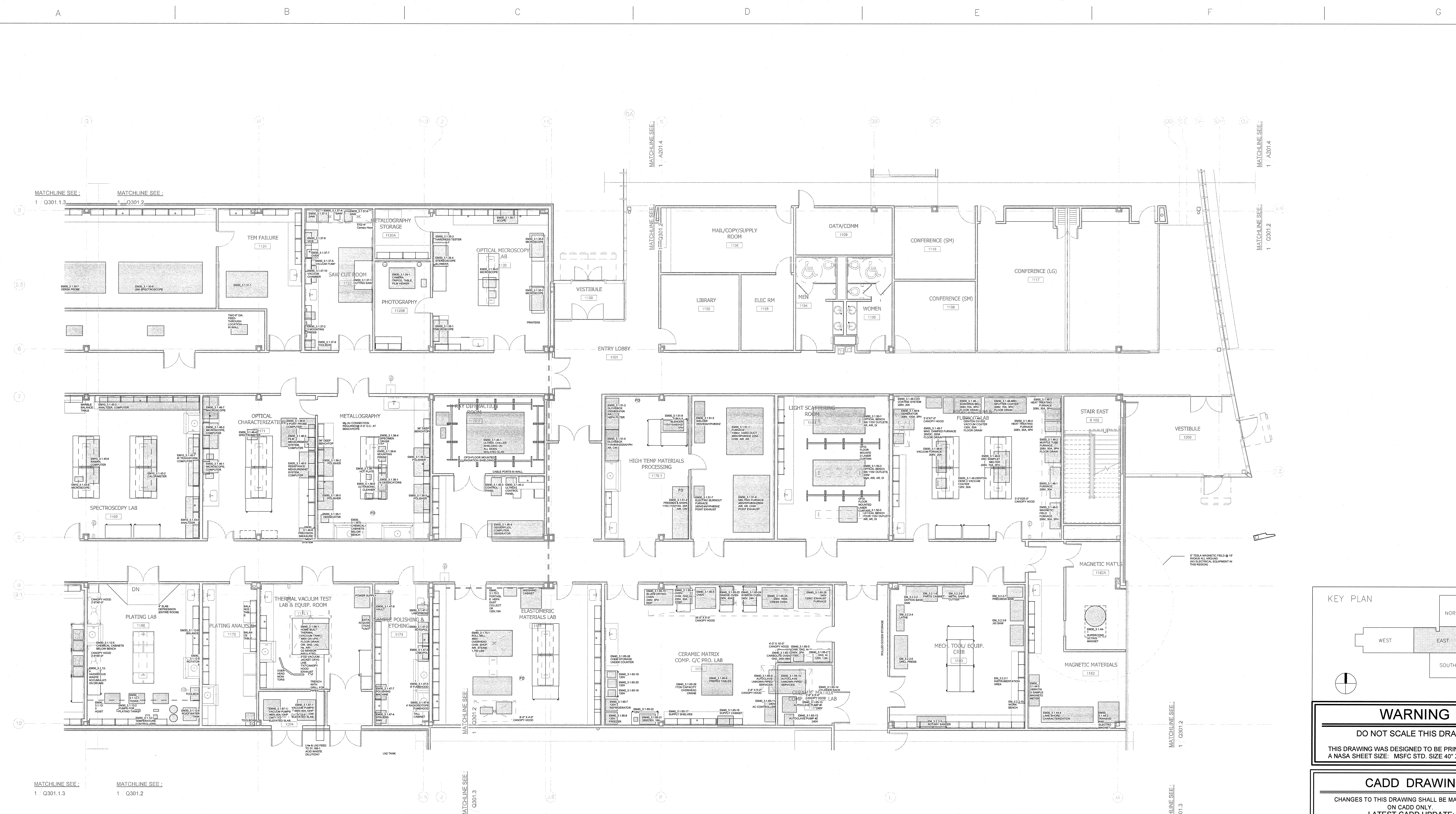
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BY: _____

1 LAB PLAN -
OFOI-WEST-OPTION-2
Asm 1/8" = 1'-0"

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ACCEPTANCE OF THIS SHEET
REF. NO. **Q301.1.3**
98 OF 117

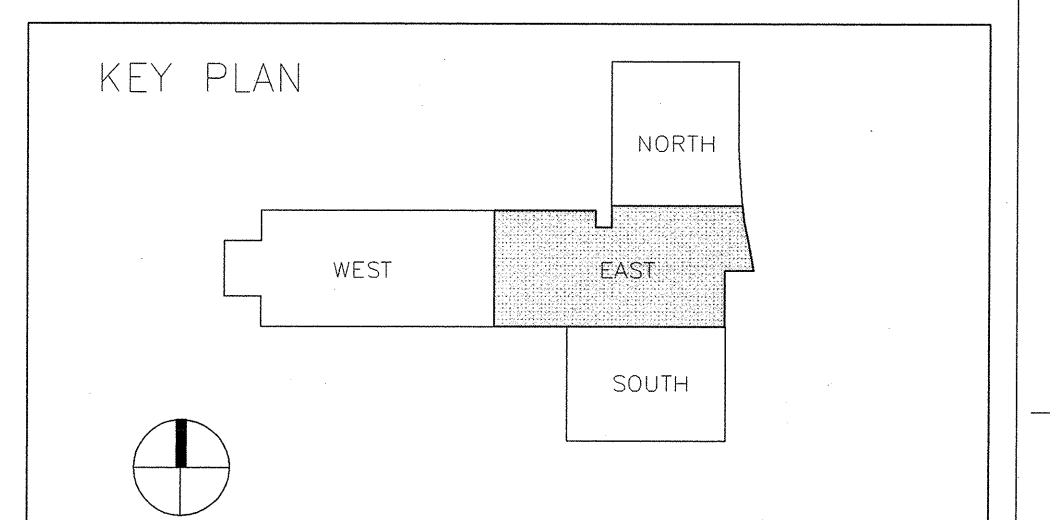


REV.	BY	DATE	REVISION	C.I. NO.	APPROVED
Marshall Space Flight Center Alabama , 35812 06-11-08 FOR CONSTRUCTION					
CONSTRUCT REPLACEMENT BUILDING 4602 LAB PAN-OFOI-WEST-OPTION-2					
AE FIRM: HELLMUTH, OBATA, + KASSABAUM, Inc.			NASA AE CONTRACT NO. MSFC-0000		
SUBMITTED BY: JOHN CHEEK		APPROVAL RECOMMENDED: ROBERT T. MATSIS ADD2 PROJECT AE		APPROVED: VINCENT JAMES GUARN ADD2 GROUP LEAD DATE: _____	
DESIGNED BY: _____ CHECKED BY: _____		APPROVAL RECOMMENDED: ROBERT T. MATSIS ADD2 SUPPORT AE		DRAWING NO. FAC - A - 4602 - Q301.1.3	
SCALE: 1/8" = 1'-0"		APPROVAL RECOMMENDED: ROBERT T. MATSIS ADD2 TEAM LEAD		SHEET- 180 OF 445	



MATCHLINE SEE: 1-Q301.1.3
 MATCHLINE SEE: 1-Q301.2

1 LAB PLAN-OFOI-EAST
 1/8" = 1'-0"



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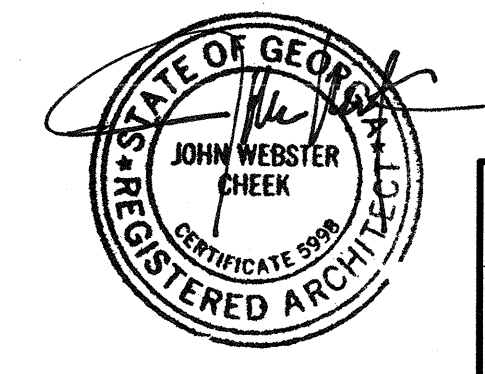
REV.	BY	DATE	REVISION	GI. NO.	APPROVED

Marshall Space Flight Center
Alabama, 35812
 06-11-08 FOR CONSTRUCTION

CONSTRUCT REPLACEMENT
BUILDING 4602
LAB PLAN-OFOI-EAST

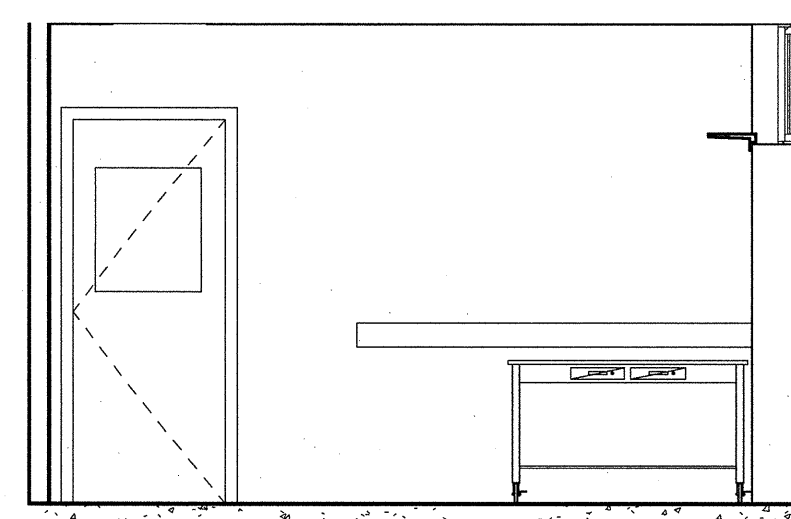
AE FIRM: HELLMUTH, OBATA, + KASSABAUM, Inc. NASA AE CONTRACT NO. 1458-0308

SUBMITTED:	APPROVAL RECOMMENDED:	APPROVED:
JOHN CHEEK	ROBERT T. MATHIS	VINCENT JAMES GUARIN
AE DATE: 06-11-08	APPROVAL RECOMMENDED:	AE22 GROUP LEAD DATE:
DESIGNED BY:	ROBERT T. MATHIS	
DRAWN: SSAS/PLP	AE22 SUPPORT IAE:	
CHECKED: SDB	APPROVAL RECOMMENDED:	DRAWING NO.:
SCALE: 1/8" = 1'-0"	ROBERT T. MATHIS	FAC - A - 4602 - Q301.2
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	SPFC NO. FAC: M5030	

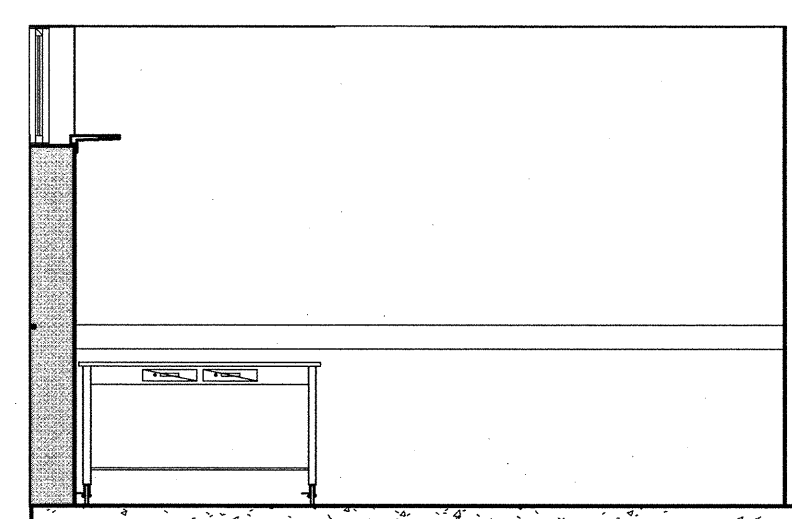


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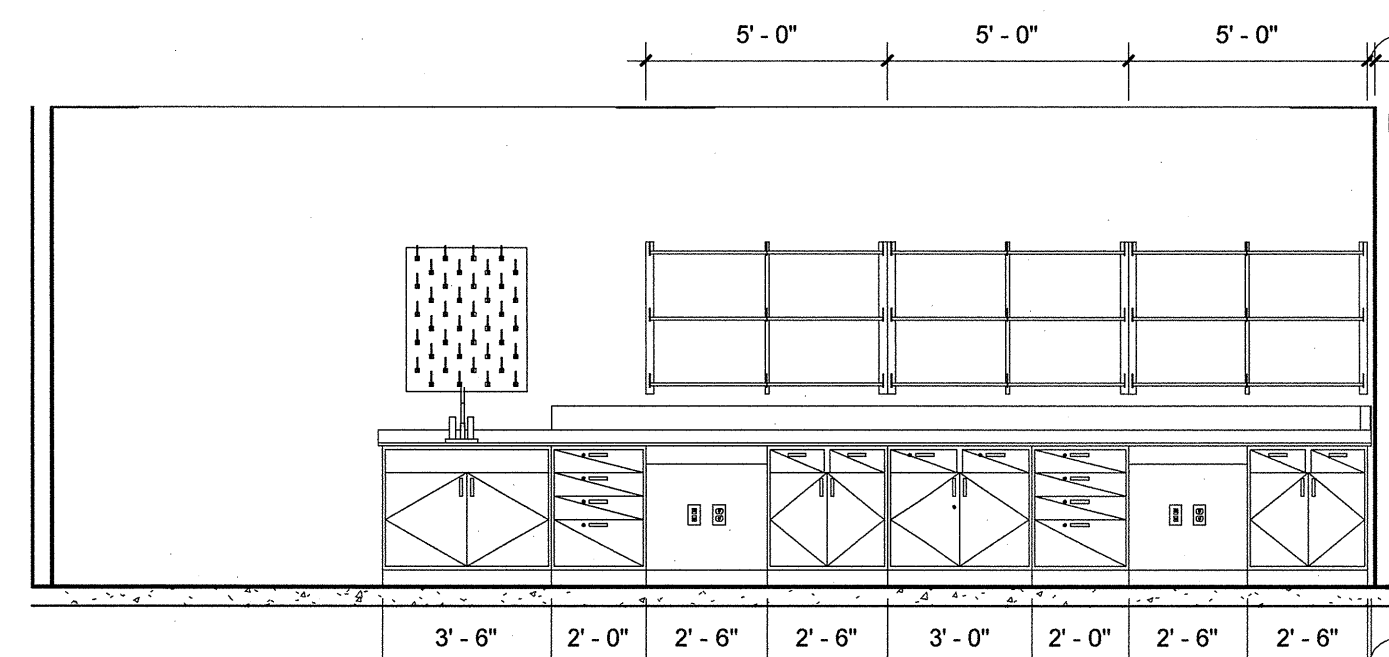
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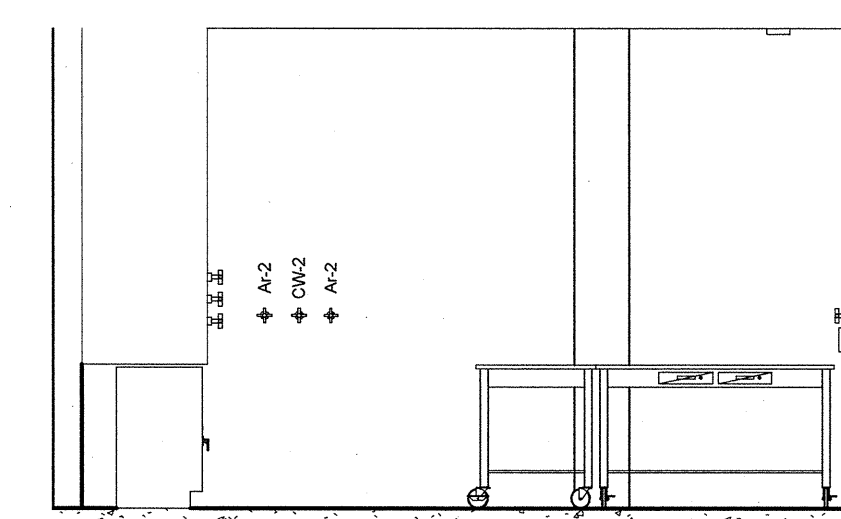
1 1158-E HIGH TEMP MAT'LS CHARACT. 1/4" = 1'-0"



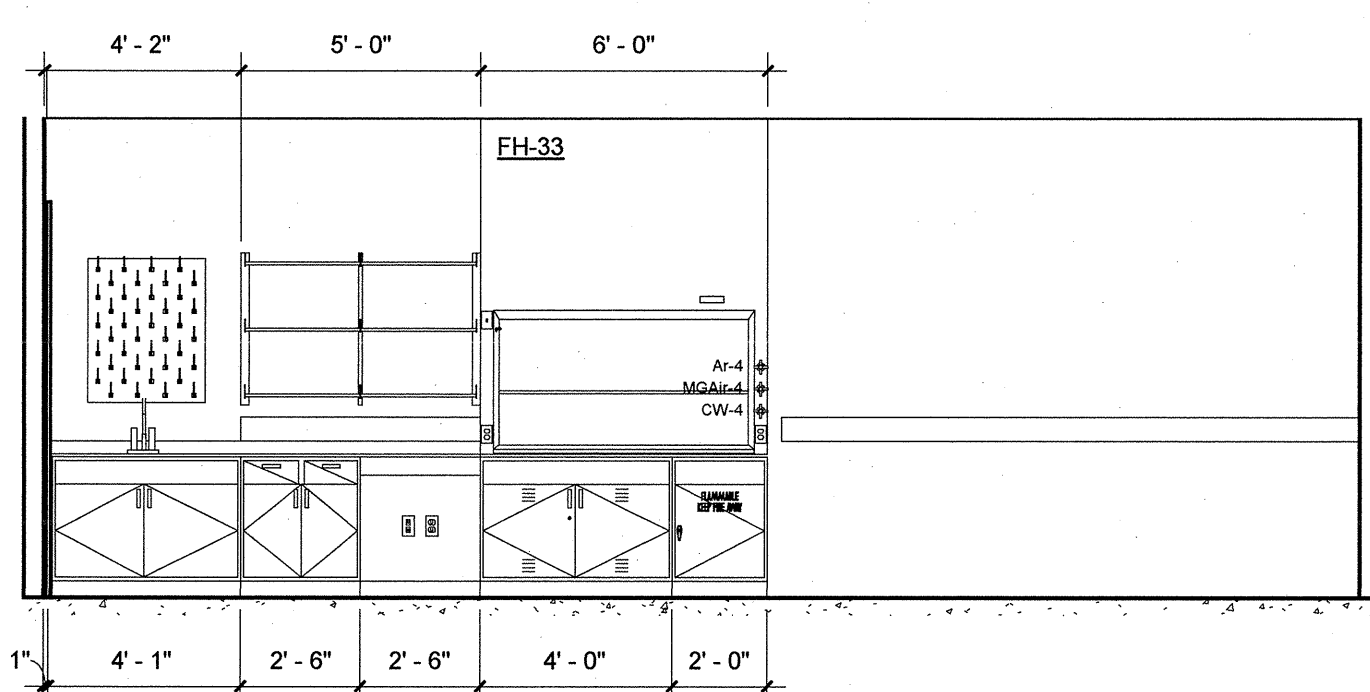
2 1158-W HIGH TEMP MAT'LS CHARACT. 1/4" = 1'-0"



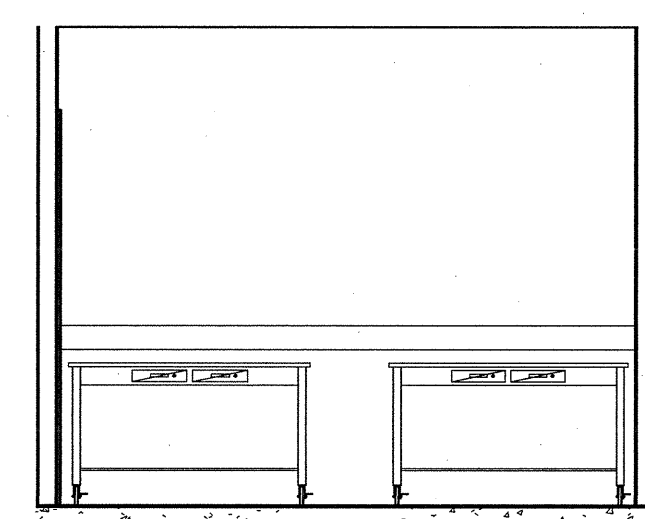
3 1183-E LIGHT SCATTERING ROOM 1/4" = 1'-0"



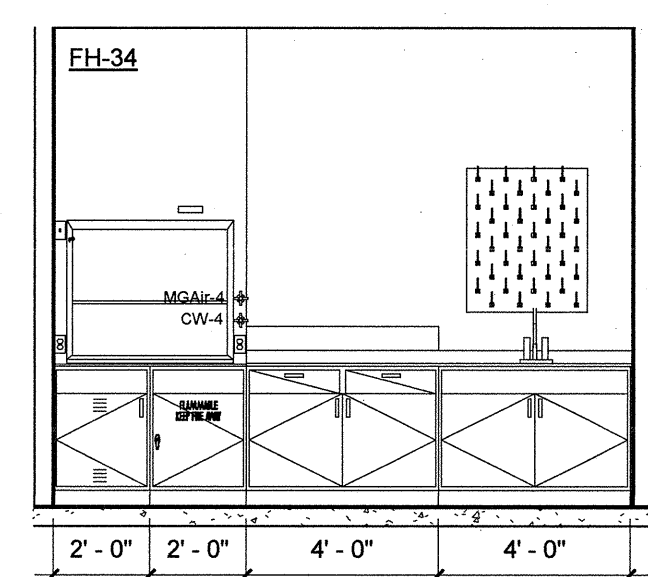
4 1179-N HIGH TEMP MATERIALS PROCESSING 1/4" = 1'-0"



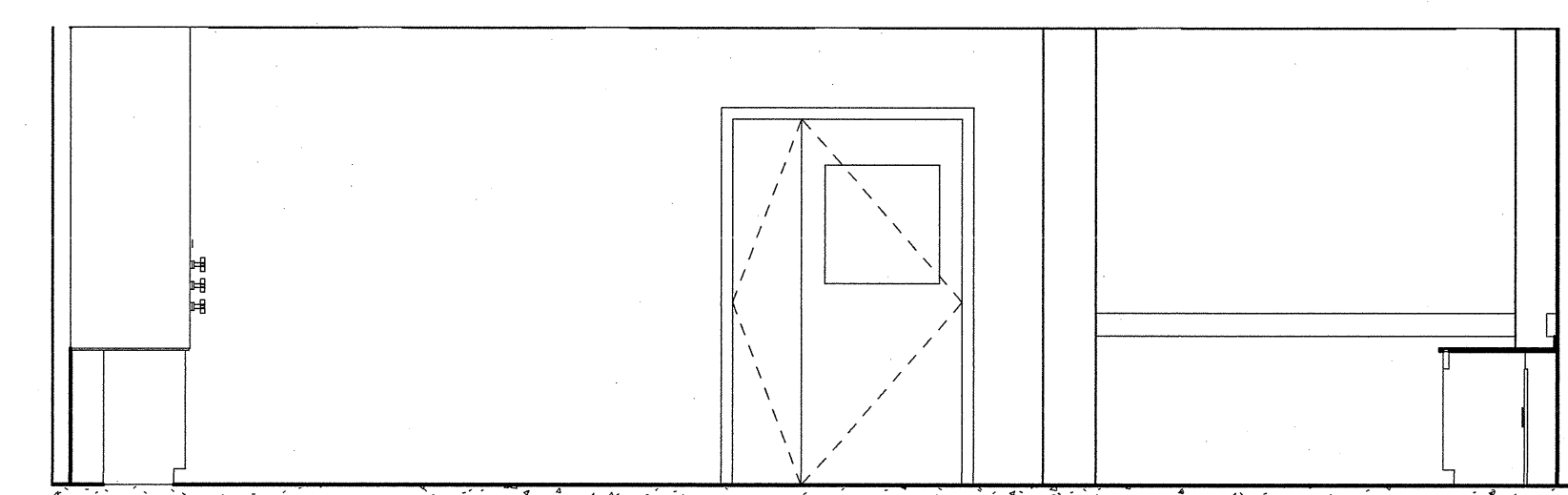
5 1179-E HIGH TEMP MATERIALS PROCESSING 1/4" = 1'-0"



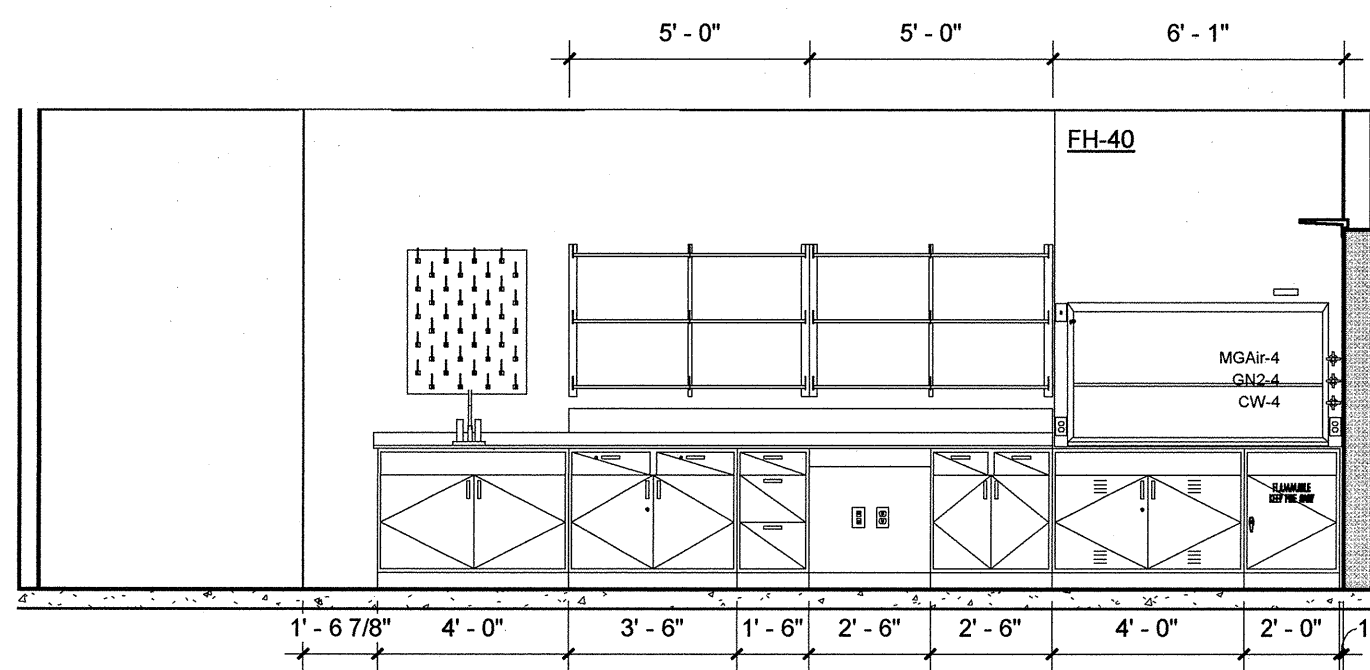
6 1156-E HIGH TEMP PERM 1/4" = 1'-0"



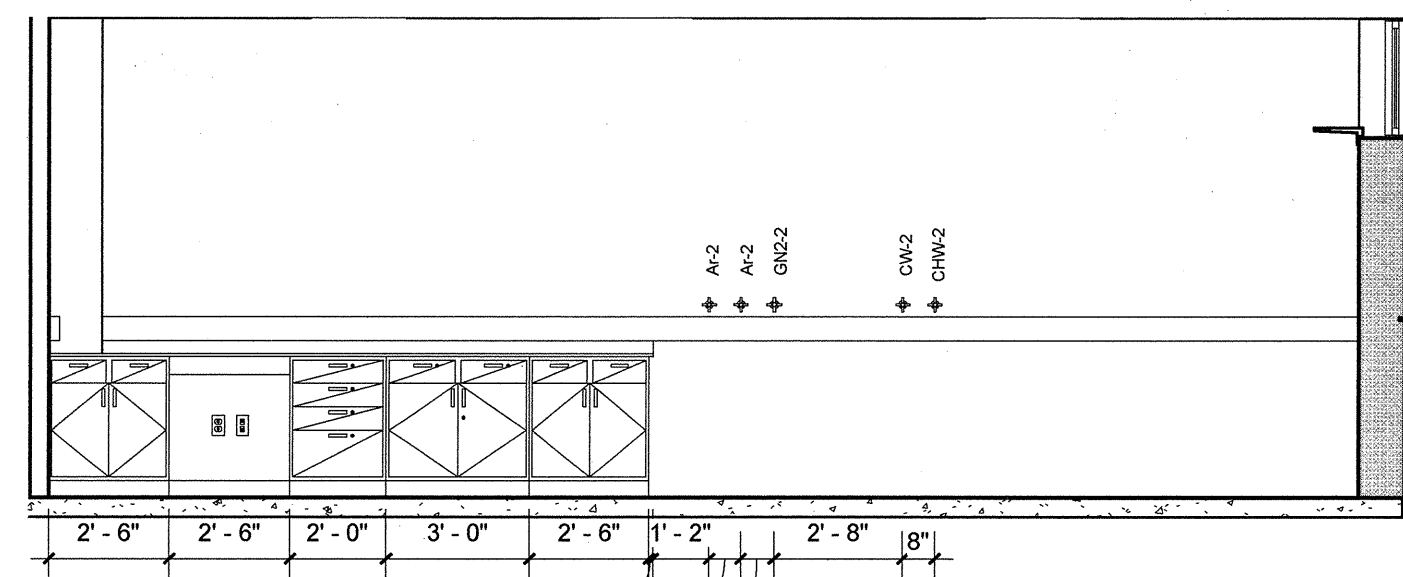
7 1156-W HIGH TEMP PERM 1/4" = 1'-0"



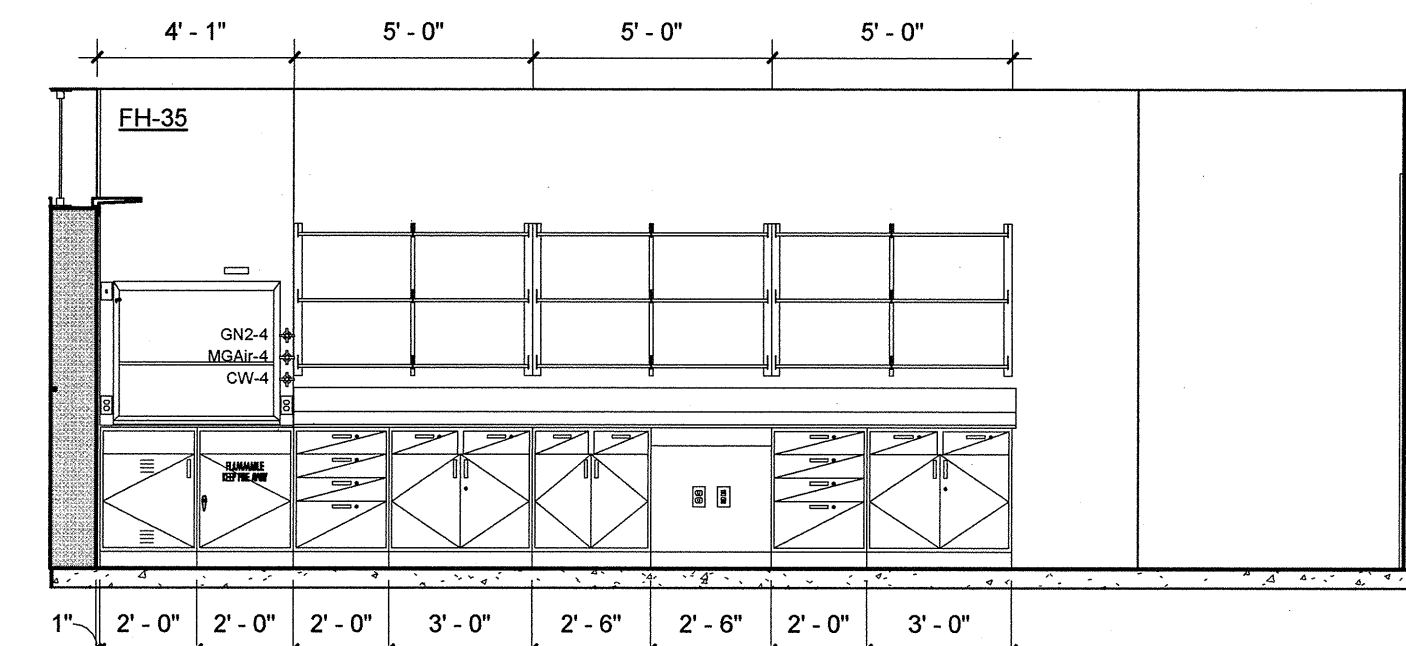
8 1154-N FIBER AND HIGH TEMP PROCESS. LAB 1/4" = 1'-0"



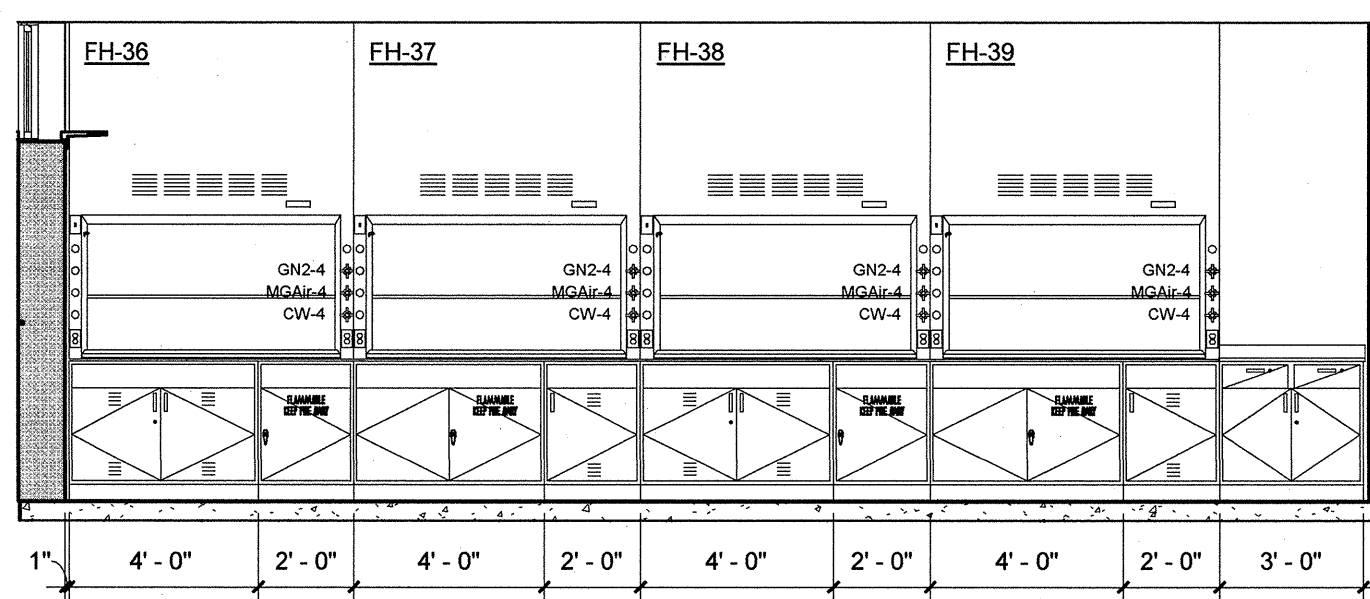
9 1154-E FIBER AND HIGH TEMP PROCESS. LAB 1/4" = 1'-0"



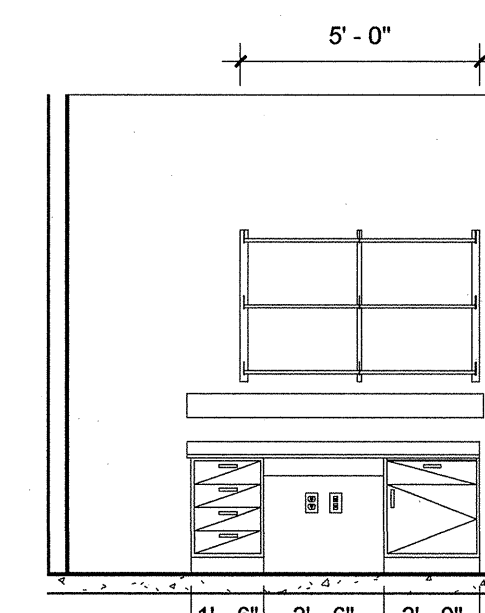
10 1154-E1 FIBER AND HIGH TEMP PROCESS. LAB 1/4" = 1'-0"



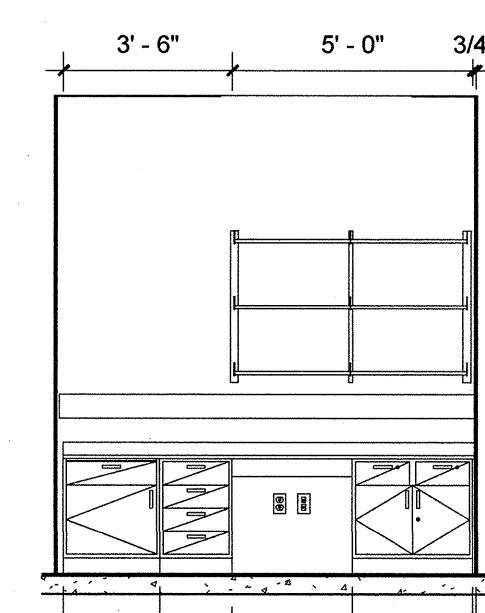
11 1154-W FIBER AND HIGH TEMP PROCESS. LAB 1/4" = 1'-0"



12 1154-W1 FIBER AND HIGH TEMP PROCESS. LAB 1/4" = 1'-0"



13 1157-E CERAMICS & ABL MICROSCOPY 1/4" = 1'-0"

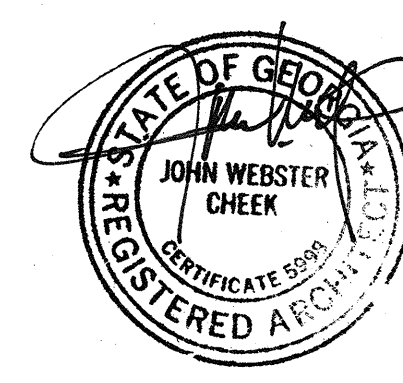


14 1157-W CERAMICS & ABL MICROSCOPY 1/4" = 1'-0"

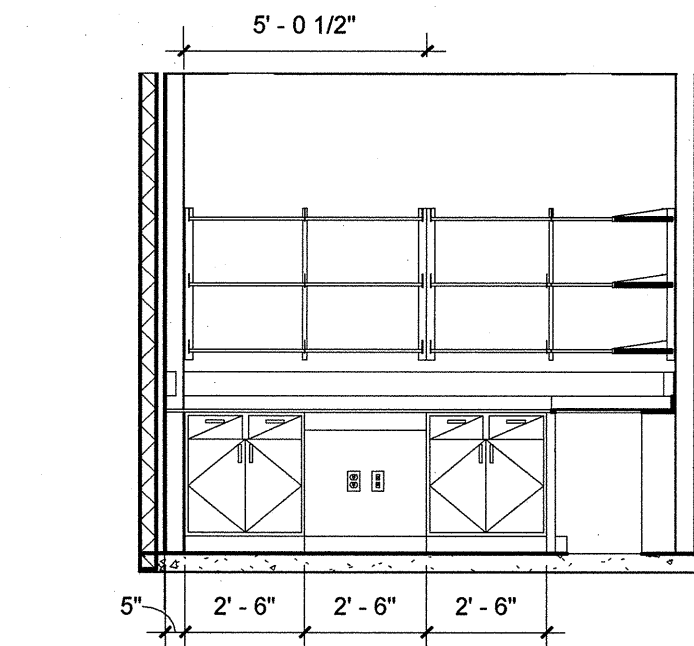
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BY: _____

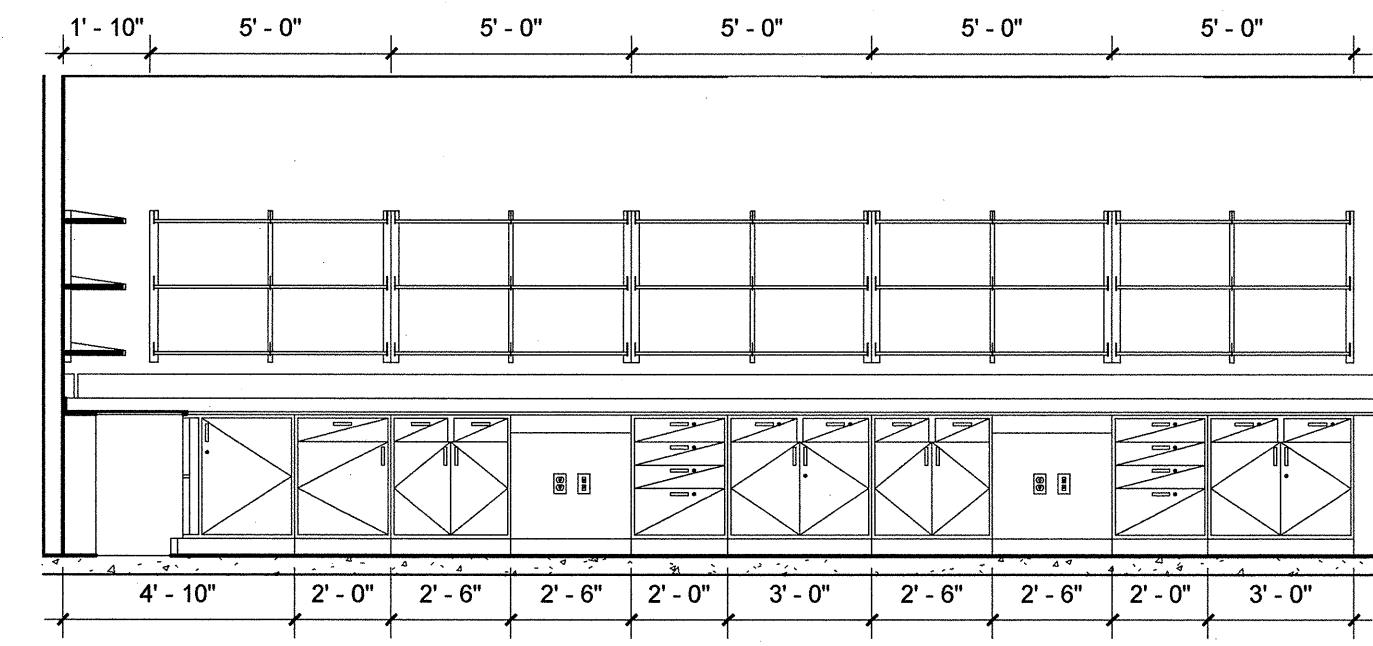
REV	BY	DATE	REVISION	C.I. NO.	APPROVED
Marshall Space Flight Center Alabama, 35812 05-11-08 FOR CONSTRUCTION					
CONSTRUCT REPLACEMENT BUILDING 4602 LABORATORY ELEVATIONS					
AE FIRM: HELLMUTH, OBATA, + KASSABAUM, Inc.			NASA AE CONTRACT NO. NAS8-0093		
SUBMITTED: JOHN CHEEK			APPROVED: ROBERT T. MATHIS		
AE: DATE 05-11-08			APPROVAL RECOMMENDED: ROBERT T. MATHIS		
DESIGNED BY: SSAS/PLPP			APPROVAL RECOMMENDED: ROBERT T. MATHIS		
CHECKED BY: EDS			APPROVAL RECOMMENDED: ROBERT T. MATHIS		
SCALE: 1/4" = 1'-0"			SPEC. NO. FAC M5030		
SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET			DRAWING NO. FAC - A - 4602 - Q610		
REF. NO. Q610			SHEET-192 OF 445		



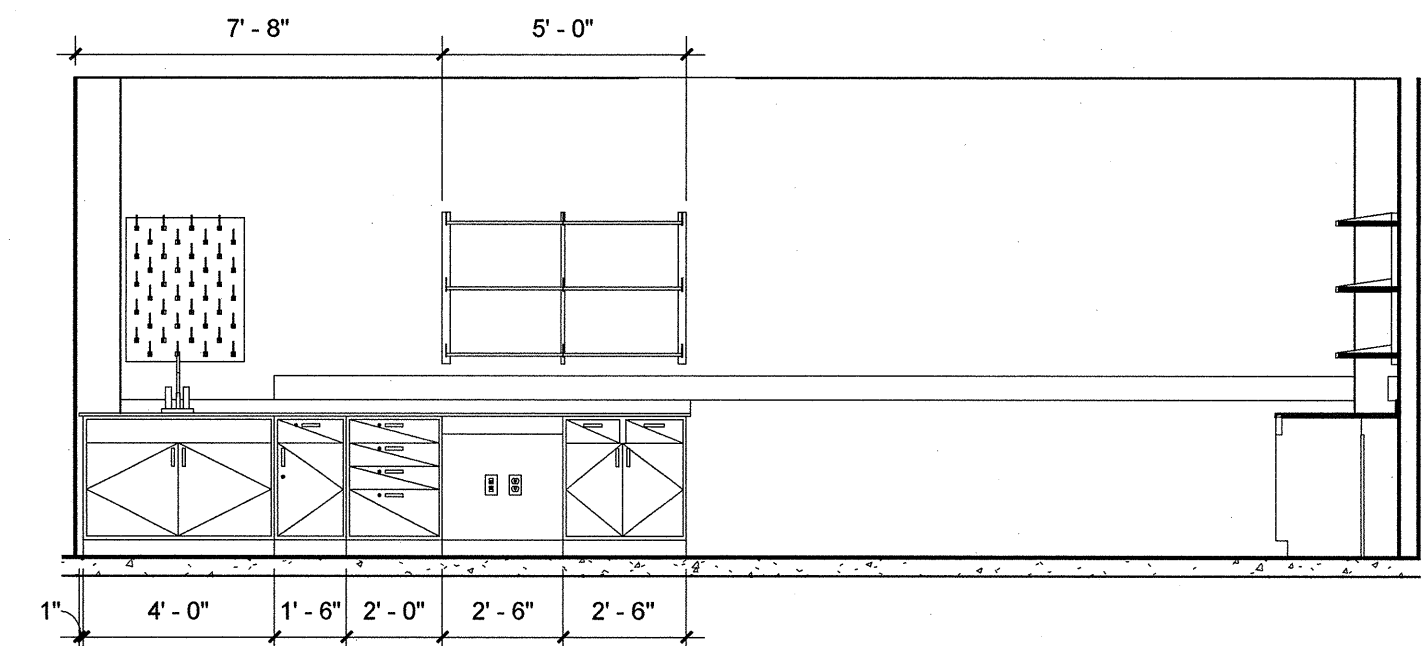
A B C D E F G



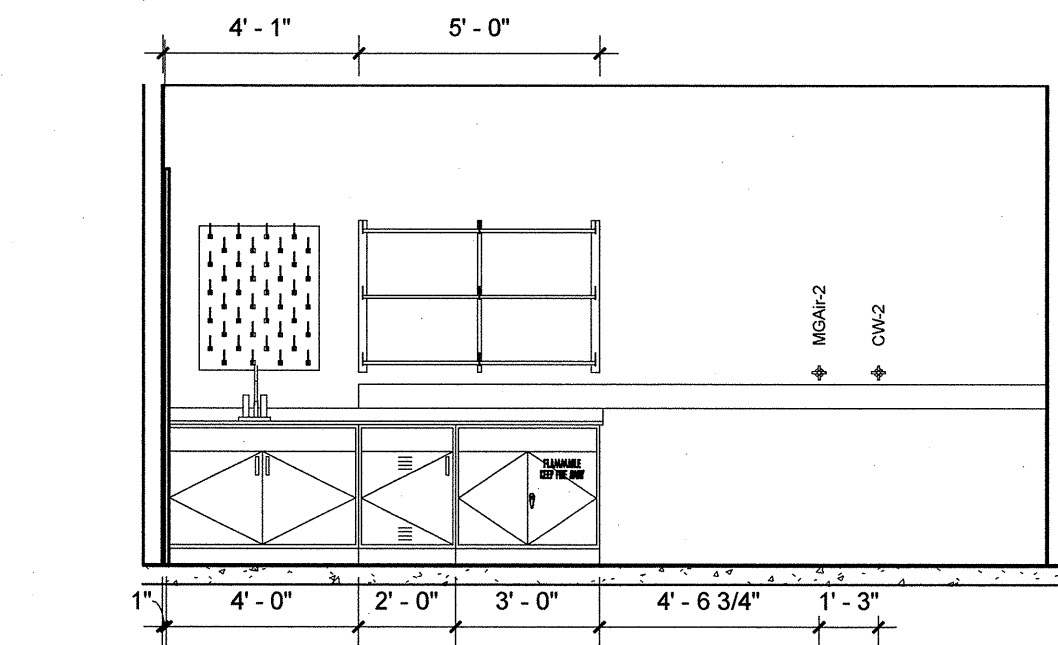
1 1155-N ABL. COMP & MAT'L
EVAL
1/4" = 1'-0"



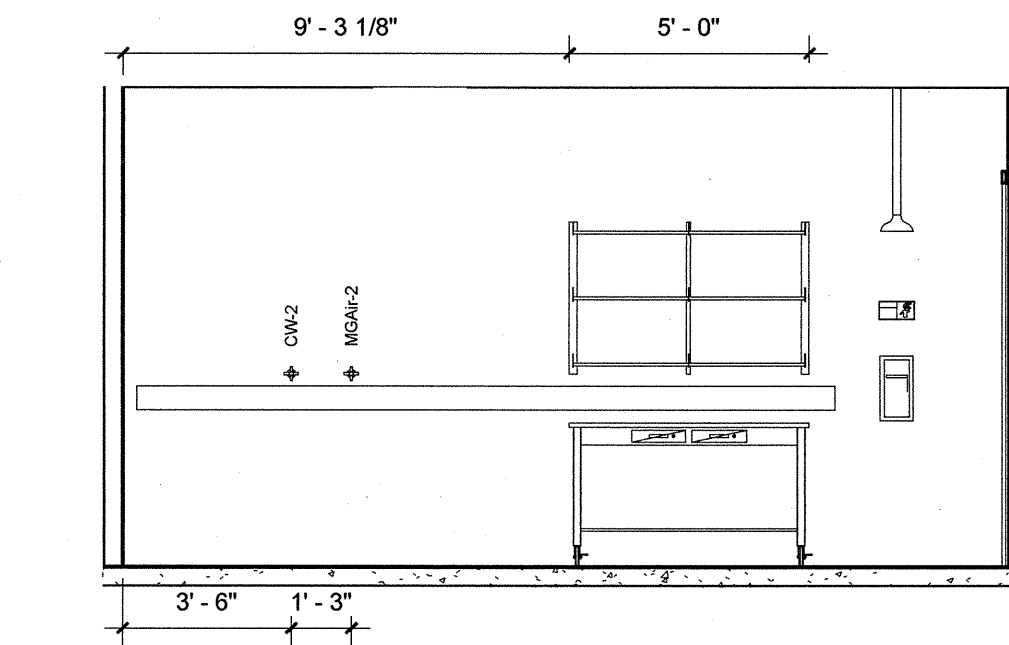
2 1155-E
1/4" = 1'-0"



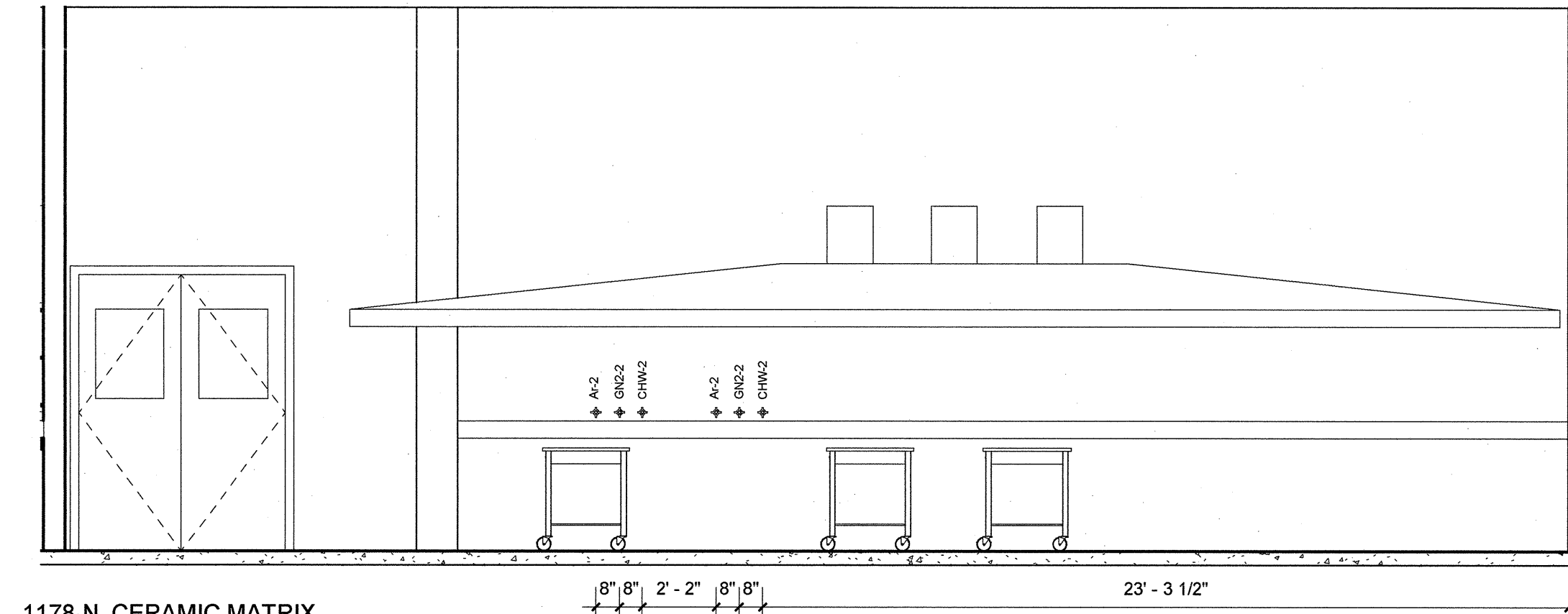
3 1155-W ABL. COMP & MAT'L
EVAL
1/4" = 1'-0"



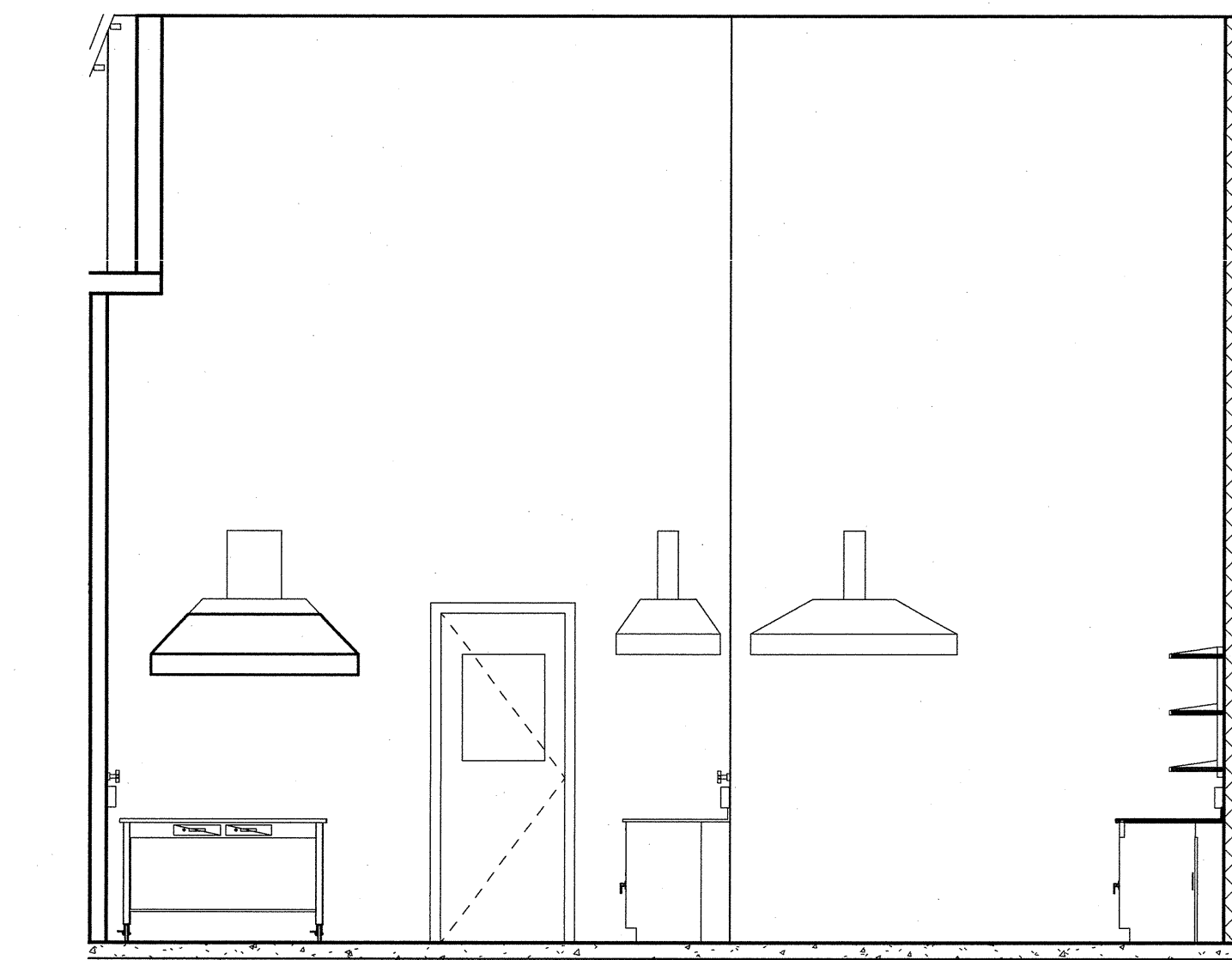
4 1131-E COATING SPRAY TECH.
1/4" = 1'-0"



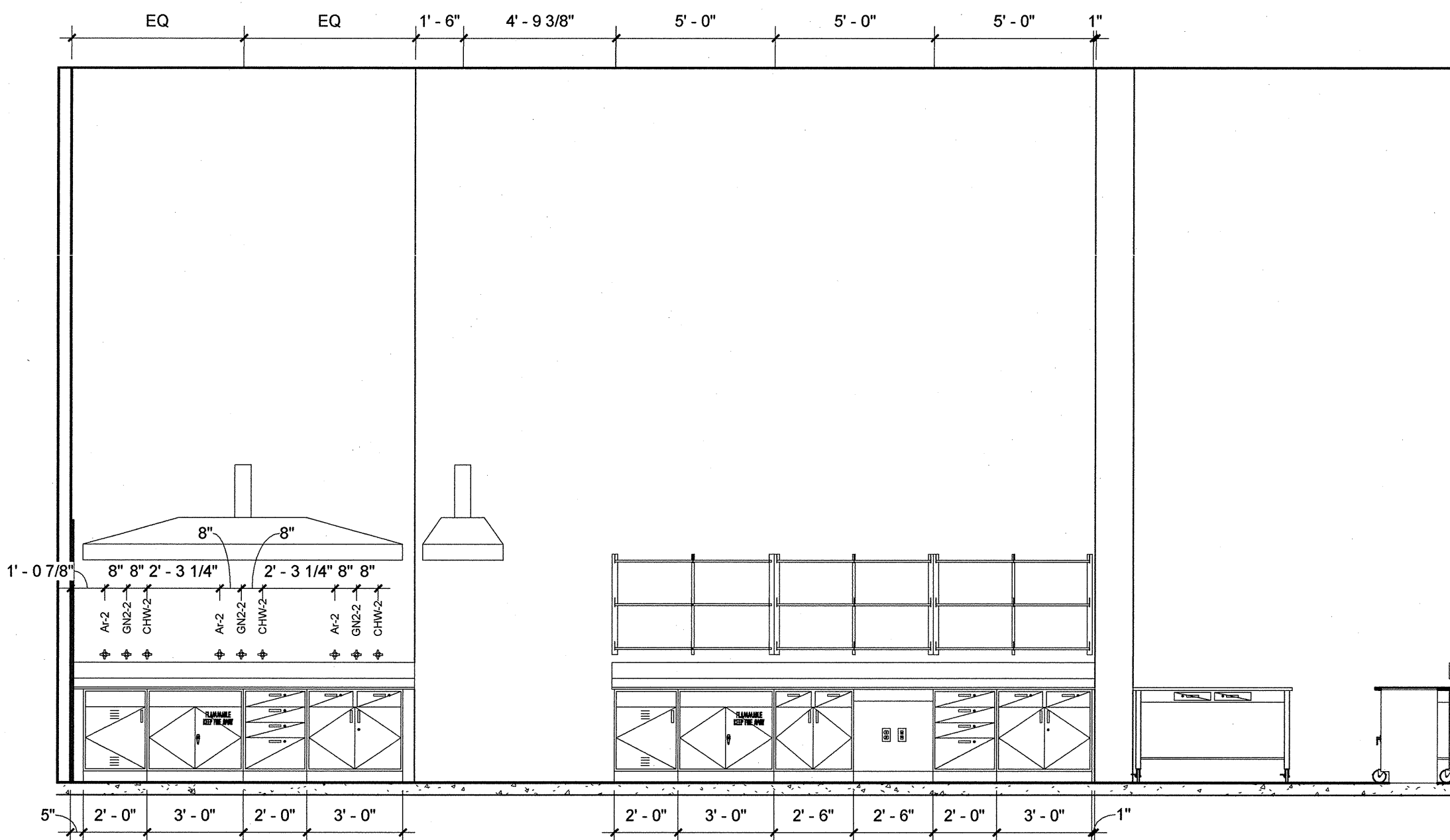
5 1131-W COATING SPRAY
TECH.
1/4" = 1'-0"



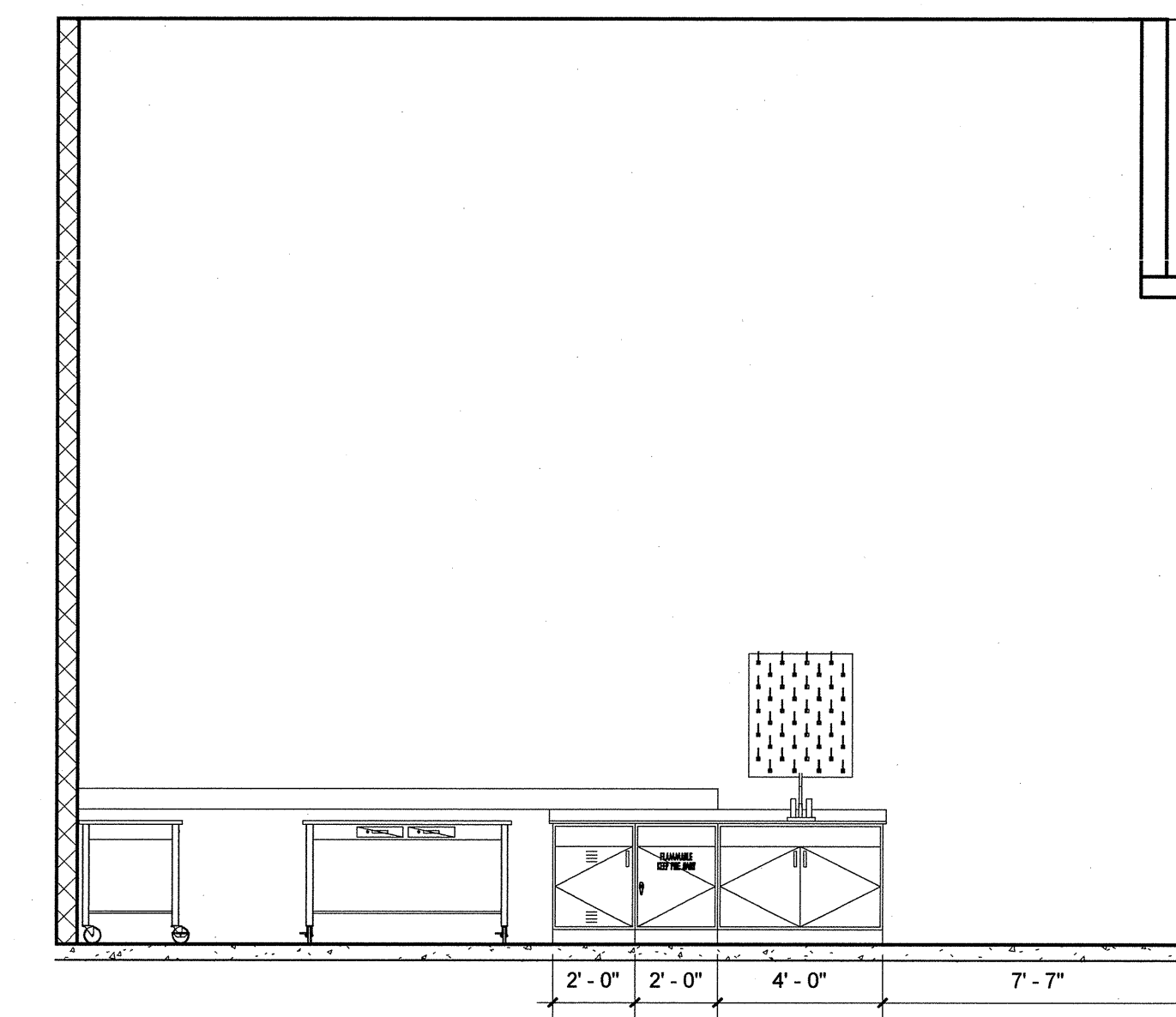
6 1178-N CERAMIC MATRIX
COMP. C/C PRO. LAB
1/4" = 1'-0"



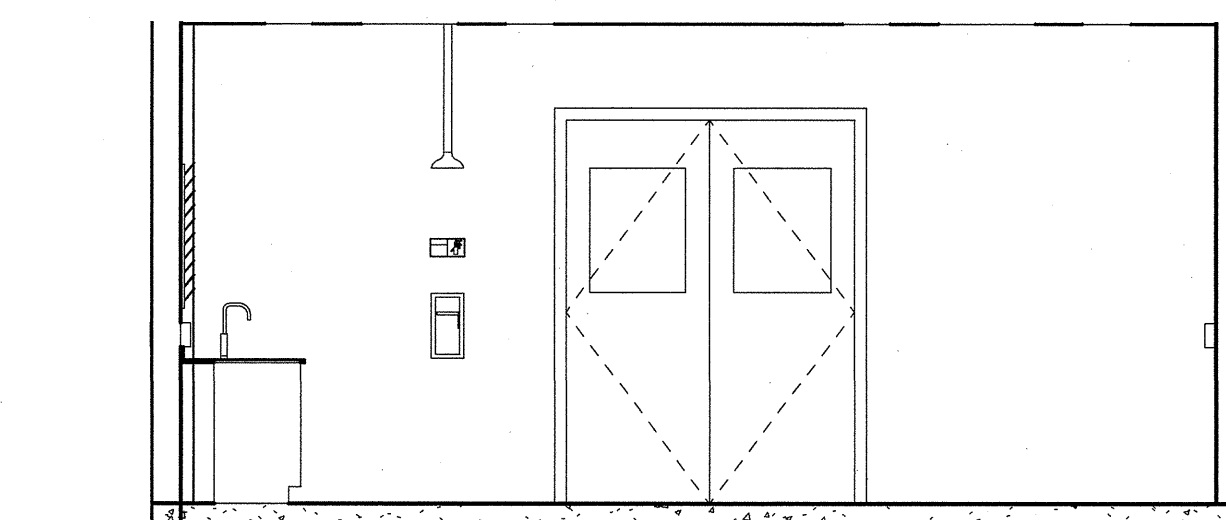
7 1178-E CERAMIC MATRIX
COMP. C/C PRO. LAB
1/4" = 1'-0"



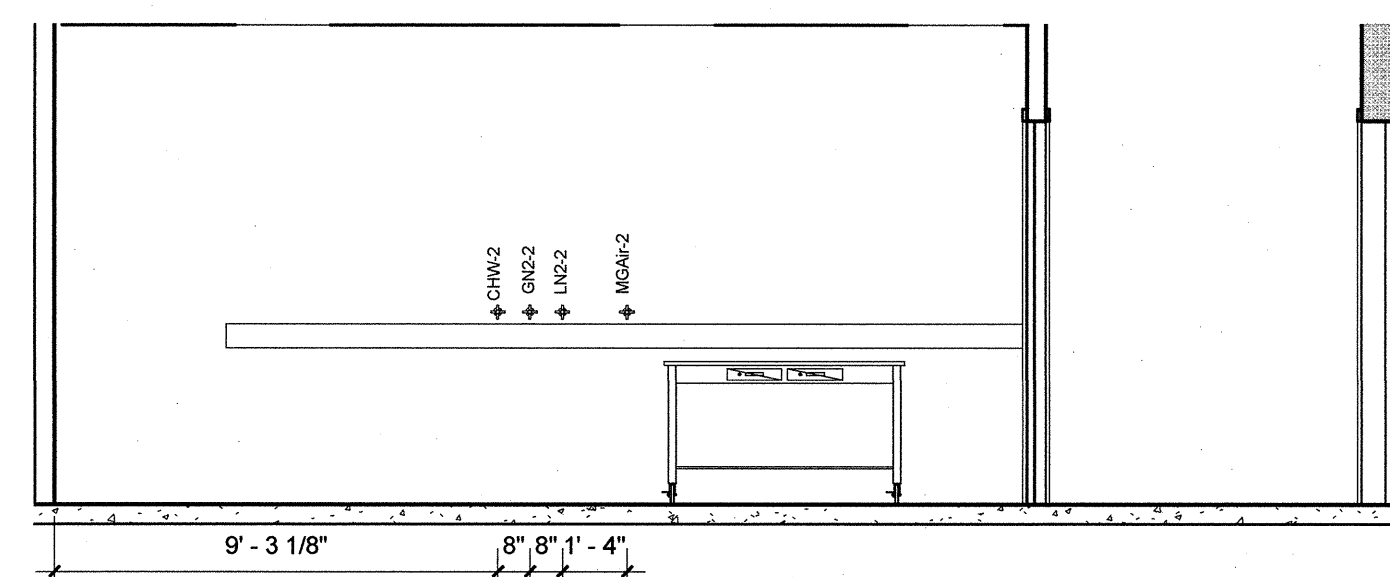
8 1178-S CERAMIC MATRIX
COMP. C/C PRO. LAB
1/4" = 1'-0"



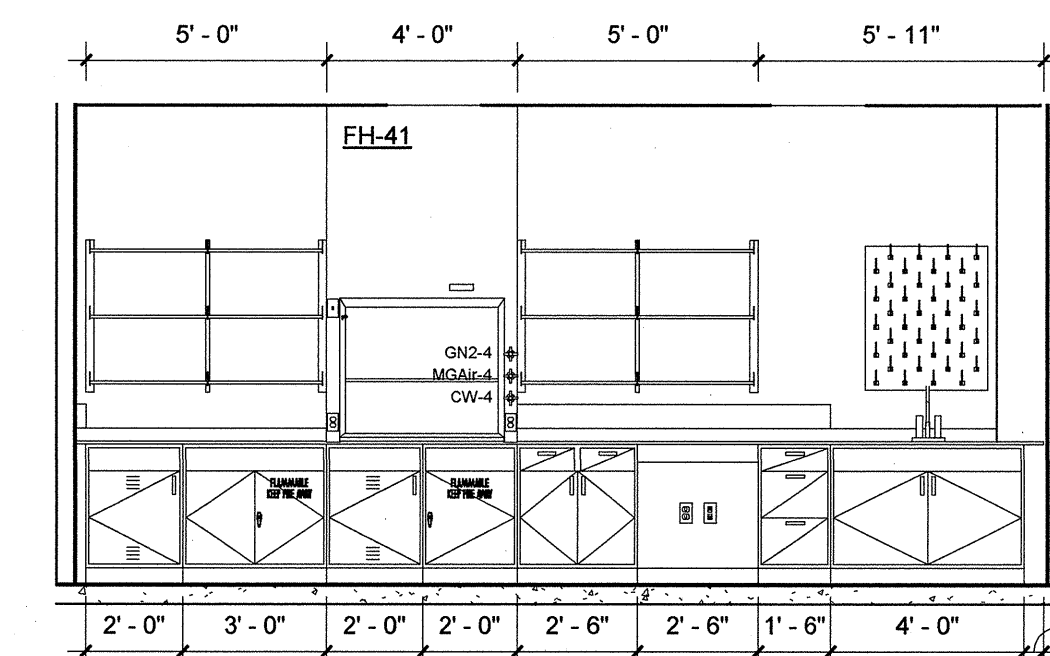
9 1178-W CERAMIC MATRIX
COMP. C/C PRO. LAB
1/4" = 1'-0"



10 1172-N THERMAL VACUUM
TEST LAB & EQUIP. ROOM
1/4" = 1'-0"



11 1172-E THERMAL VACUUM
TEST LAB & EQUIP. ROOM
1/4" = 1'-0"

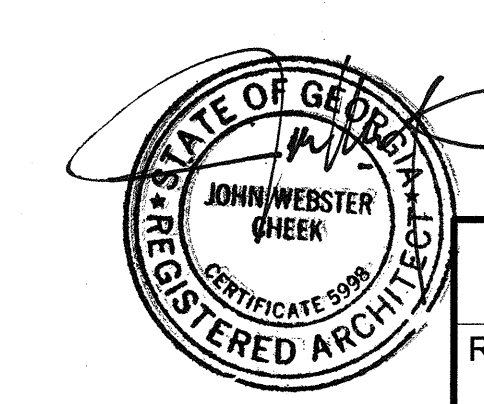


12 1172-W THERMAL VACUUM
TEST LAB & EQUIP. ROOM
1/4" = 1'-0"

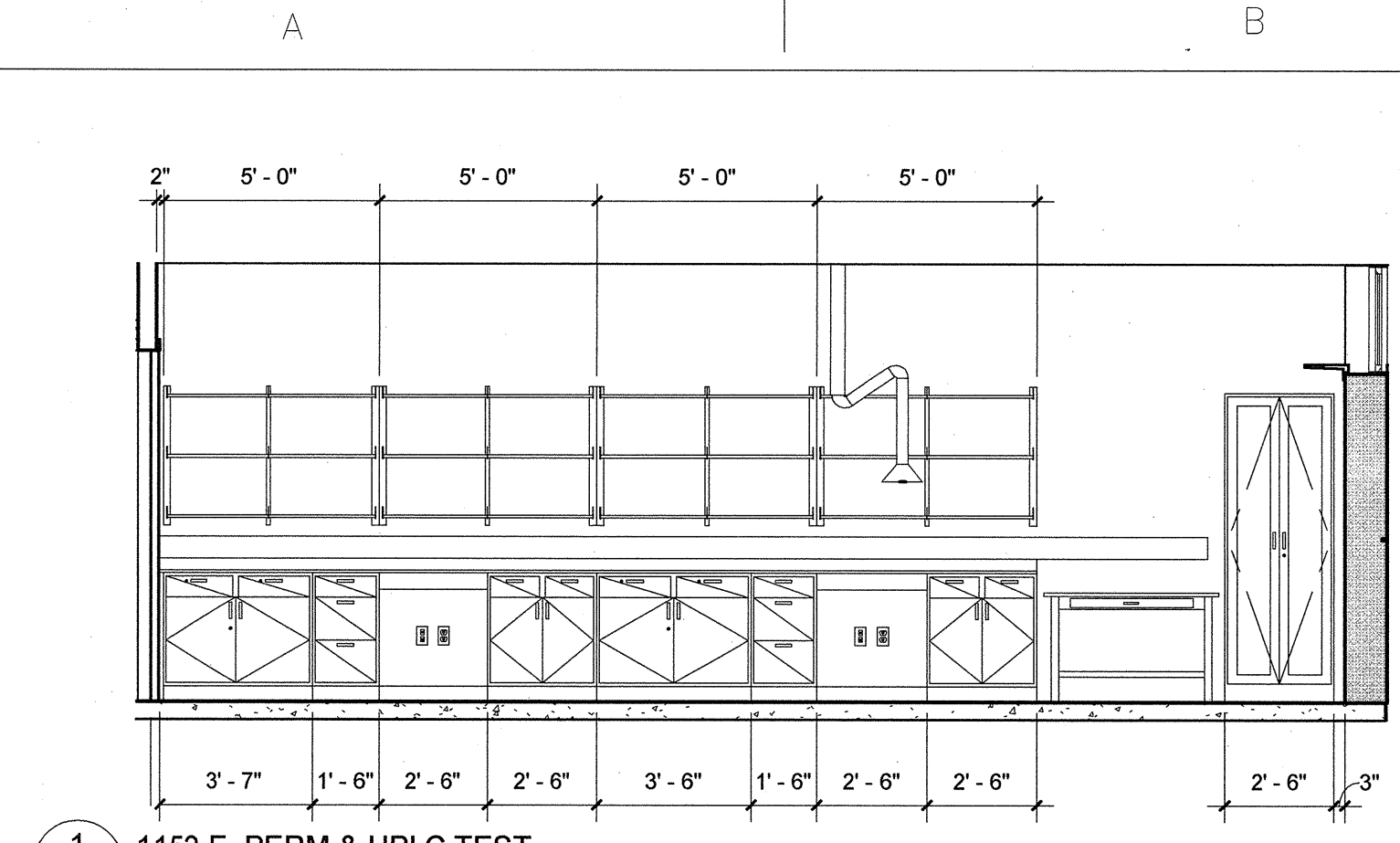
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BY: _____

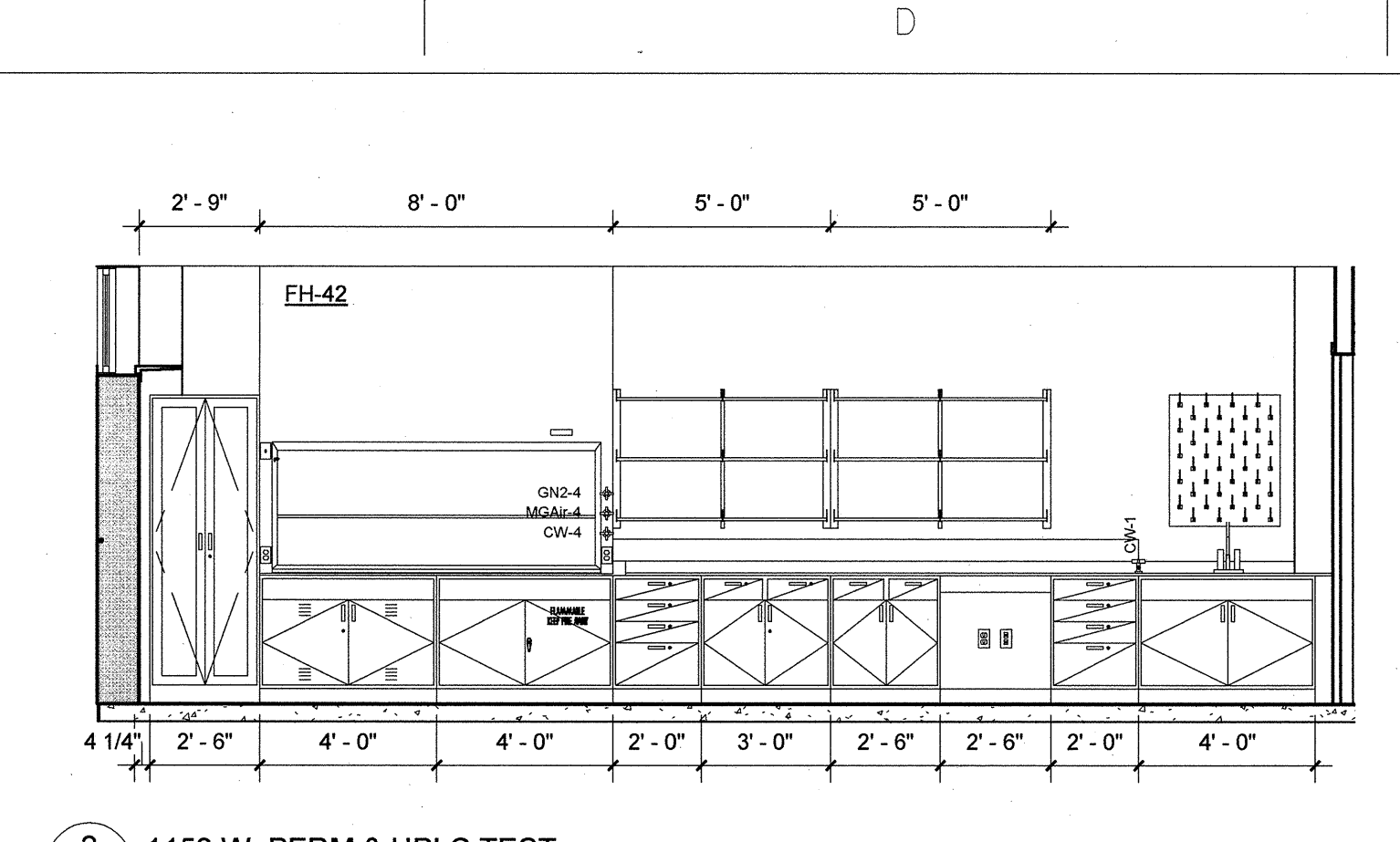
REV.	BY	DATE	REVISION	C.I. NO.	APPROVED
Marshall Space Flight Center Alabama, 35812 06-11-08 FOR CONSTRUCTION					
CONSTRUCT REPLACEMENT BUILDING 4602 LABORATORY ELEVATIONS					
AE FIRM: HELLMUTH, OBATA, + KASSABAUM, Inc.			NASA AE CONTRACT NO. NAB-0303		
SUBMITTED: JOHN CHEEK		APPROVAL RECOMMENDED: ROBERT T. MATHIS		APPROVED: VINCENT JAMES GUARN	
AE DATE: 06-11-08		APPROVAL RECOMMENDED: ROBERT T. MATHIS		AB22 GROUP LEAD DATE:	
DESIGNED BY: SBA/STL/PP		APPROVAL RECOMMENDED: ROBERT T. MATHIS		DRAWING NO. FAC - A - 4602 - Q611	
CHECKED: SDS		APPROVAL RECOMMENDED: ROBERT T. MATHIS		SHEET-193 OF 445	
DRAWN: SBA/STL/PP		APPROVAL RECOMMENDED: ROBERT T. MATHIS		SCALE: 1/4" = 1'-0"	
CHECKED: SDS		APPROVAL RECOMMENDED: ROBERT T. MATHIS		SPEC. NO. FAC: M6300	



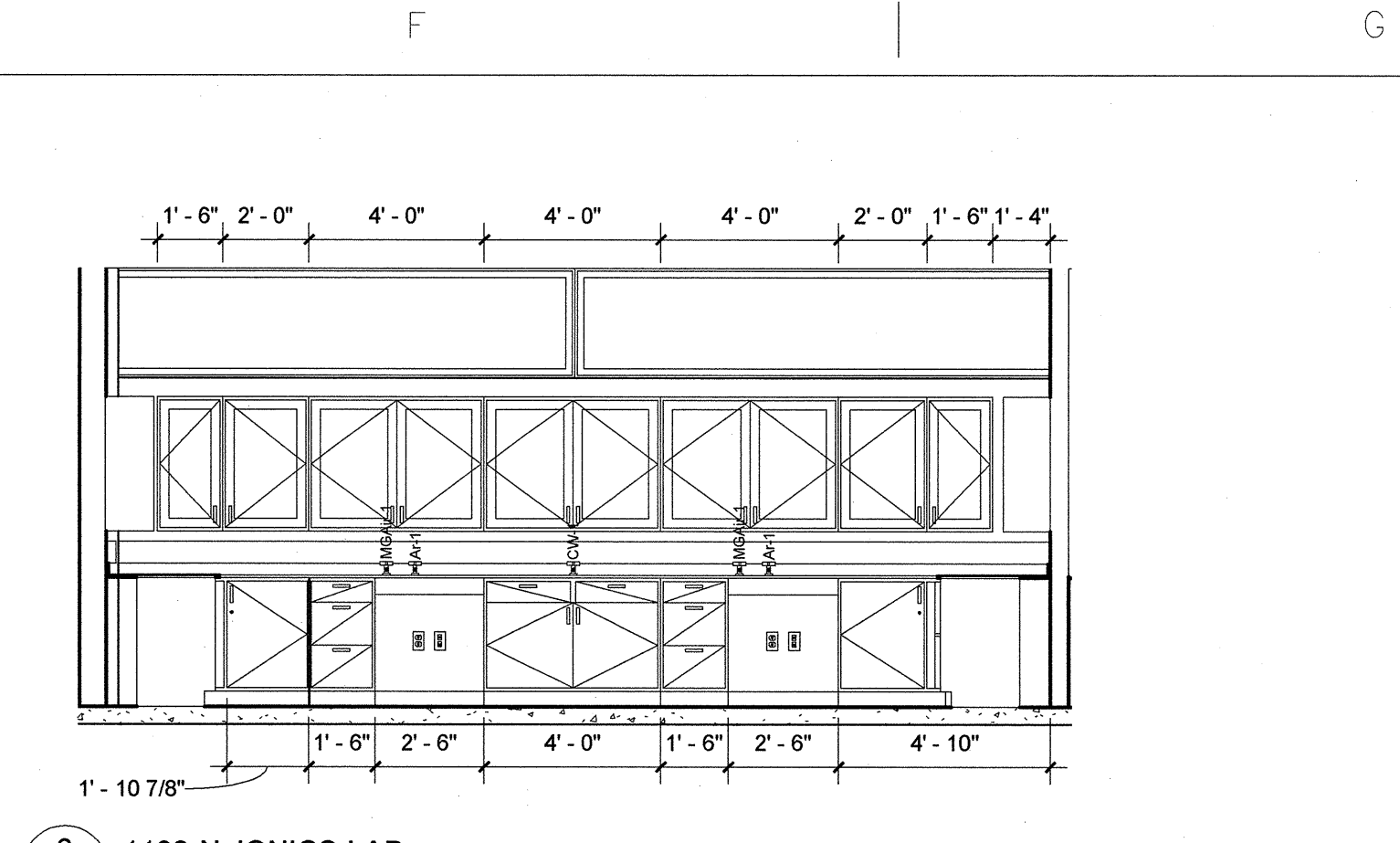
SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET
REF. NO. **Q611**
111 OF 117



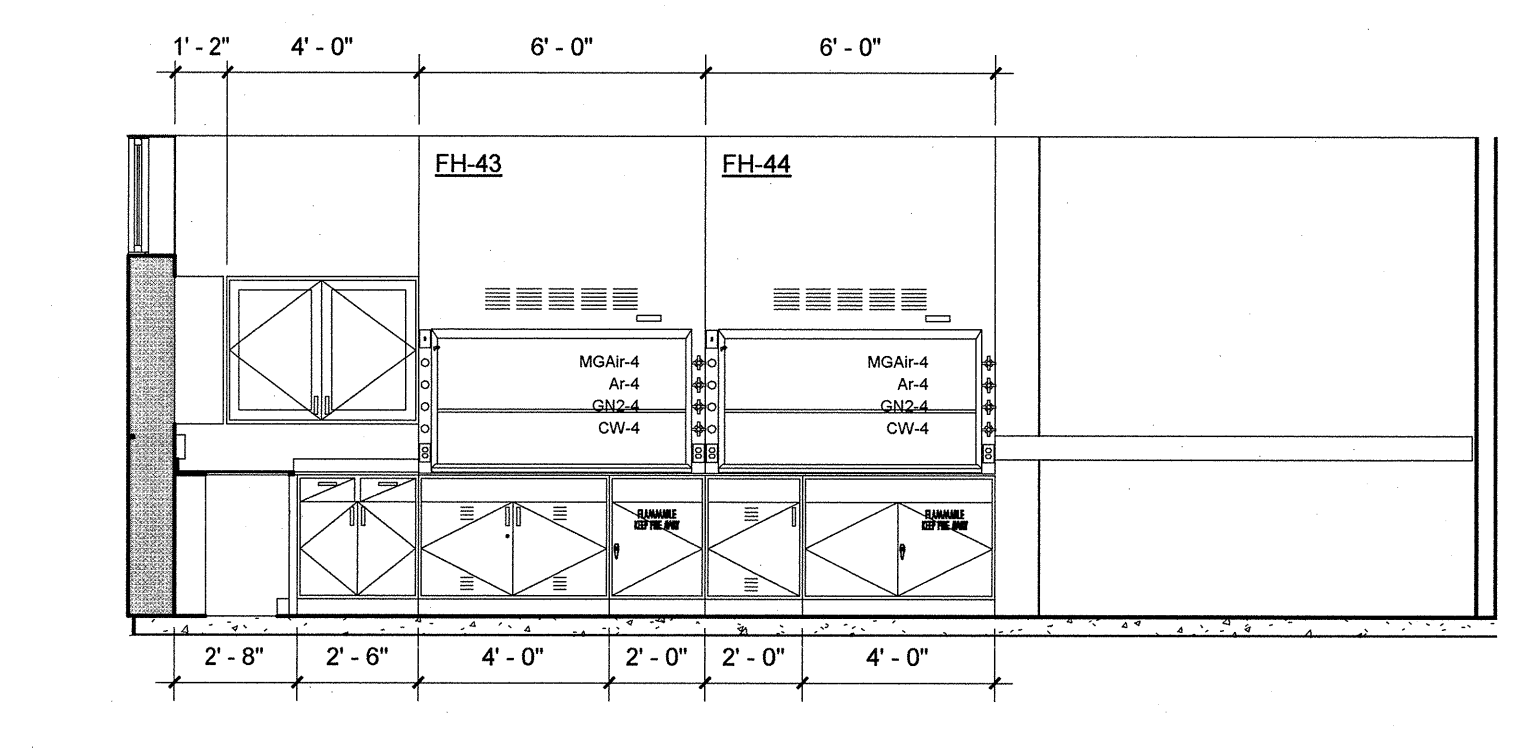
1 1152-E PERM & HPLC TEST
1/4" = 1'-0"



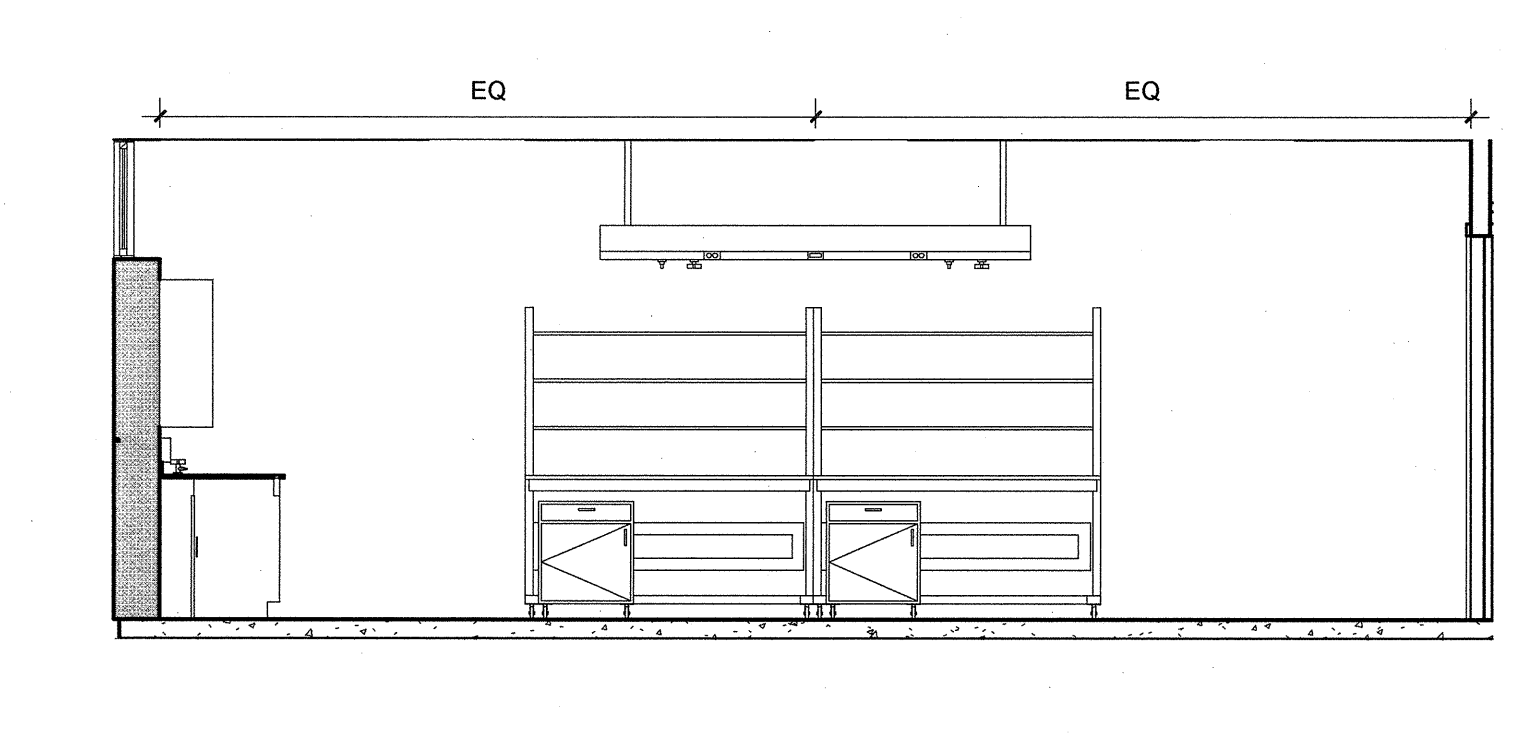
2 1152-W PERM & HPLC TEST
1/4" = 1'-0"



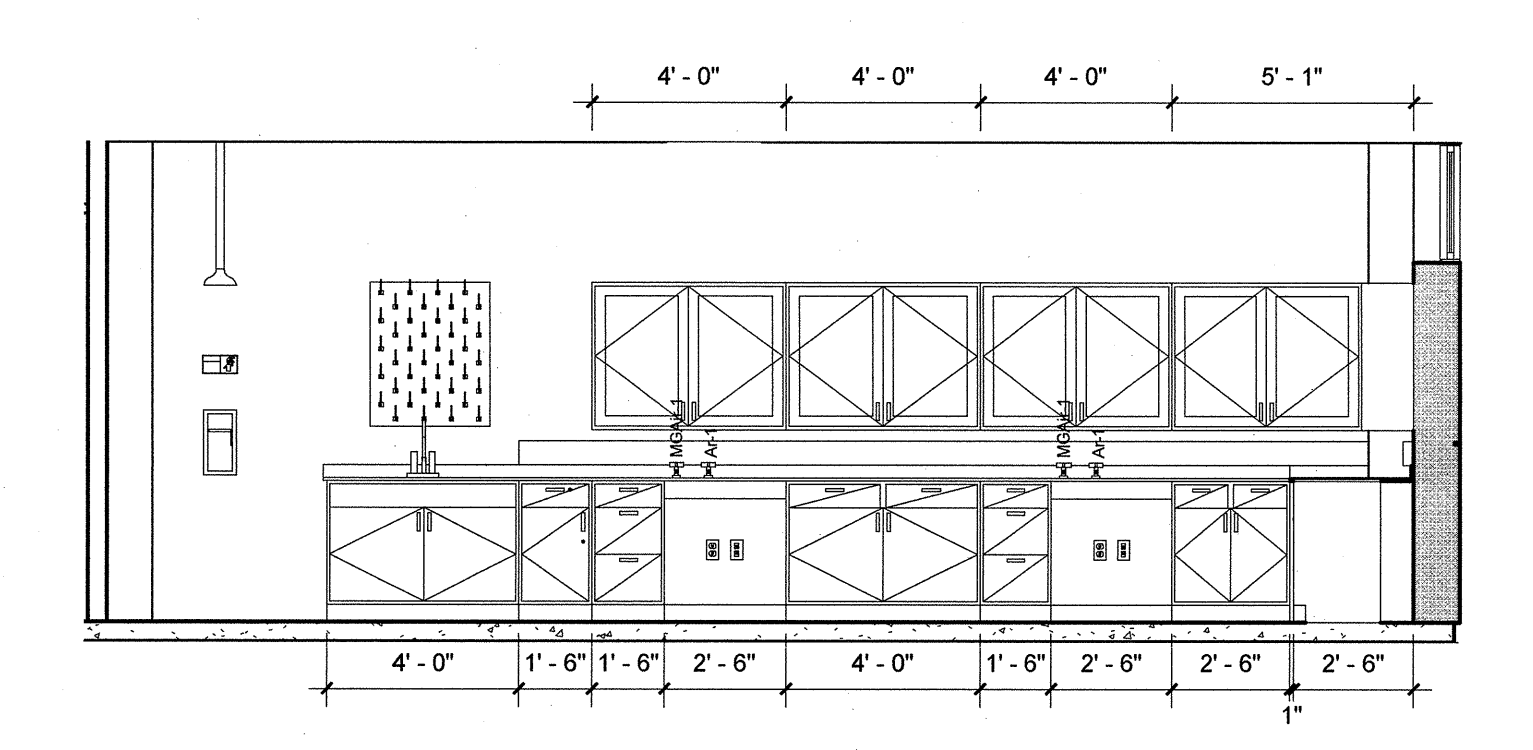
3 1132-N IONICS LAB
1/4" = 1'-0"



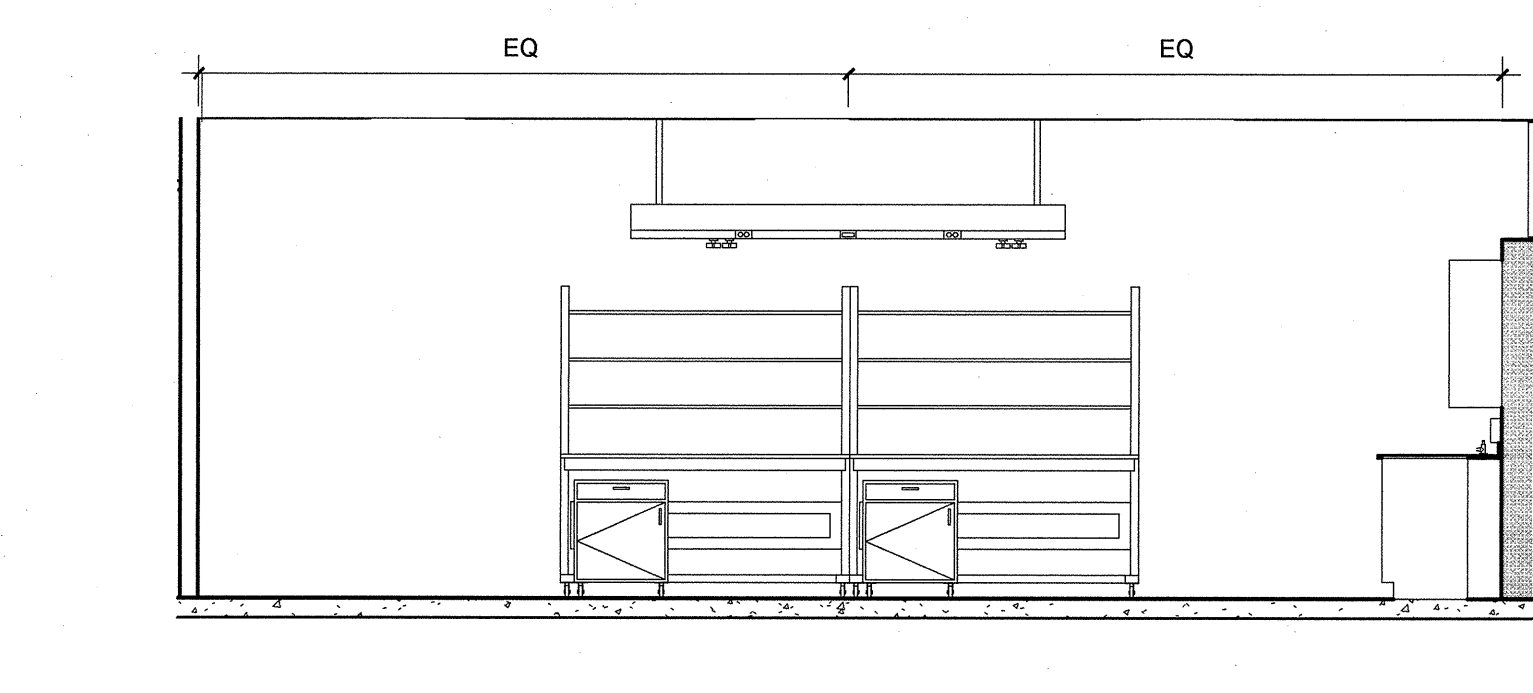
4 1132-E IONICS LAB
1/4" = 1'-0"



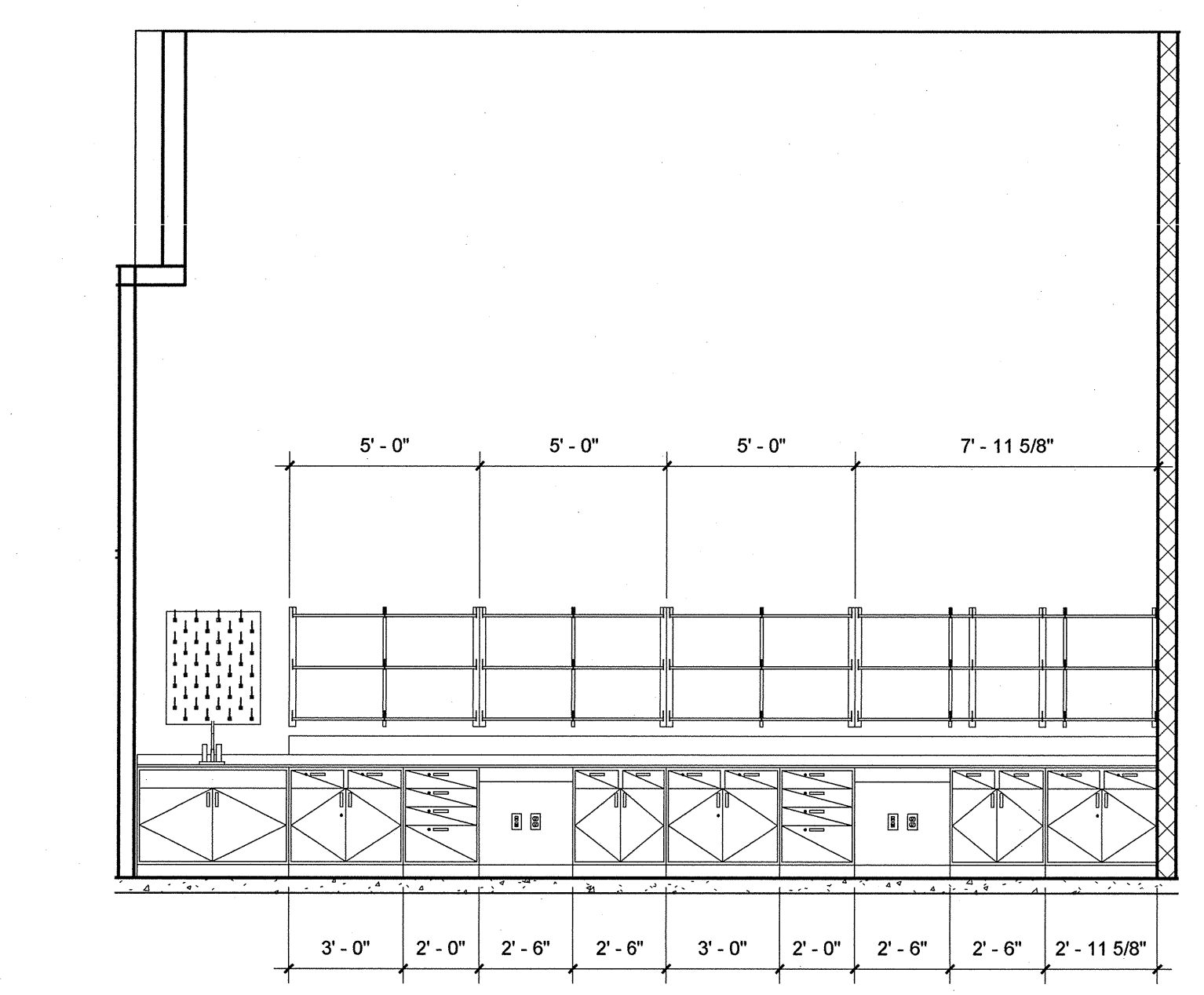
5 1132-E1 IONICS LAB
1/4" = 1'-0"



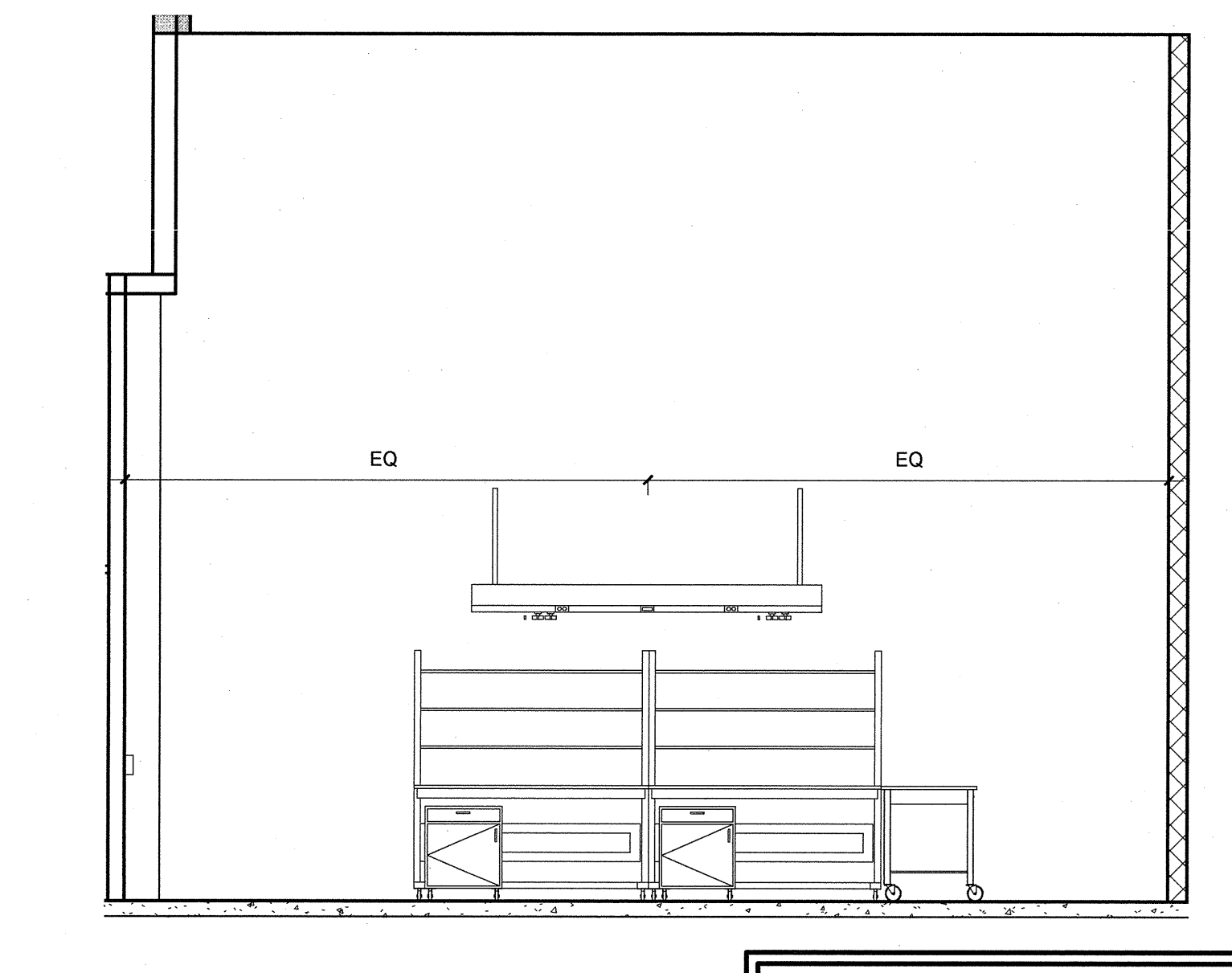
6 1132-W IONICS LAB
1/4" = 1'-0"



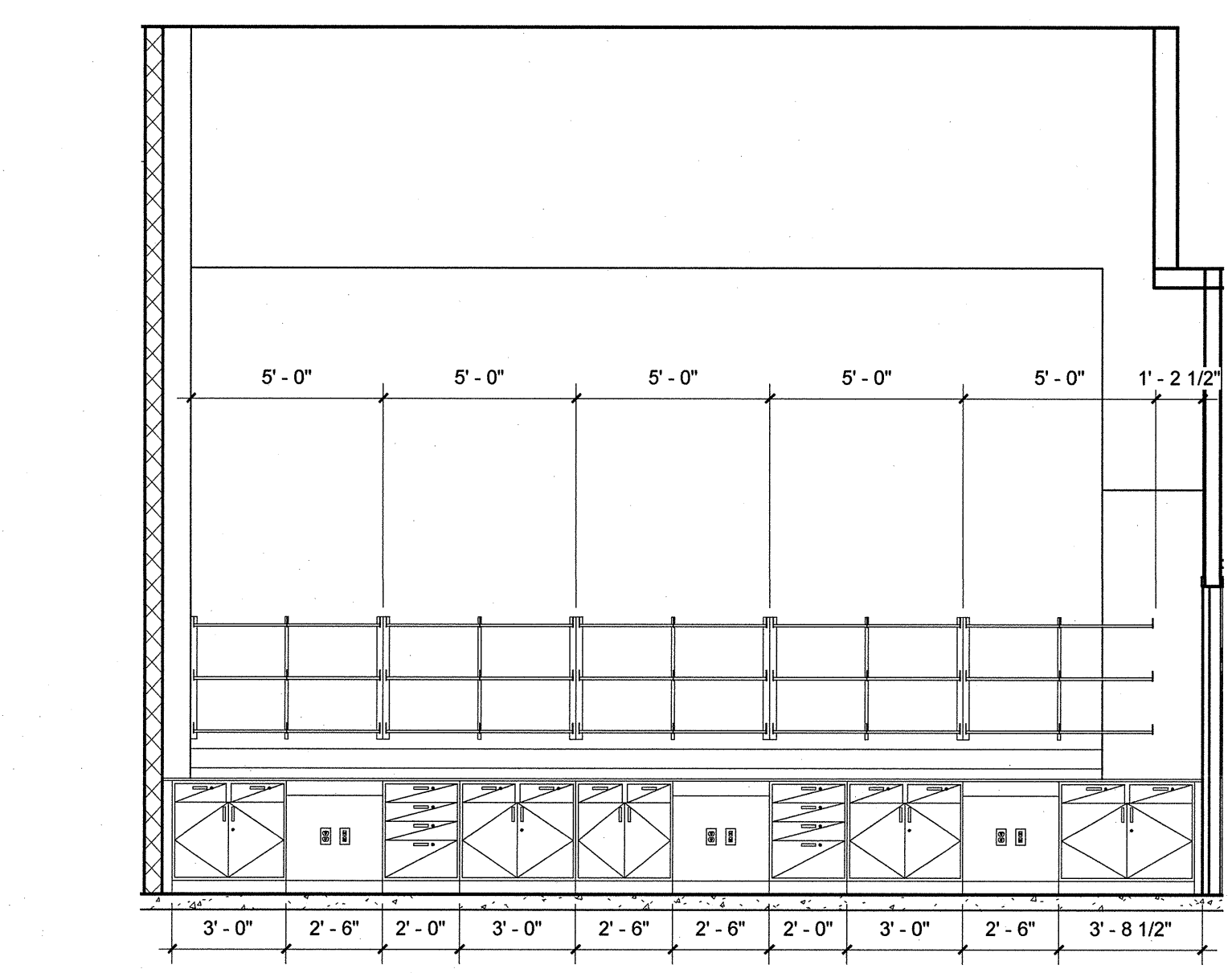
7 1132-W1 IONICS LAB
1/4" = 1'-0"



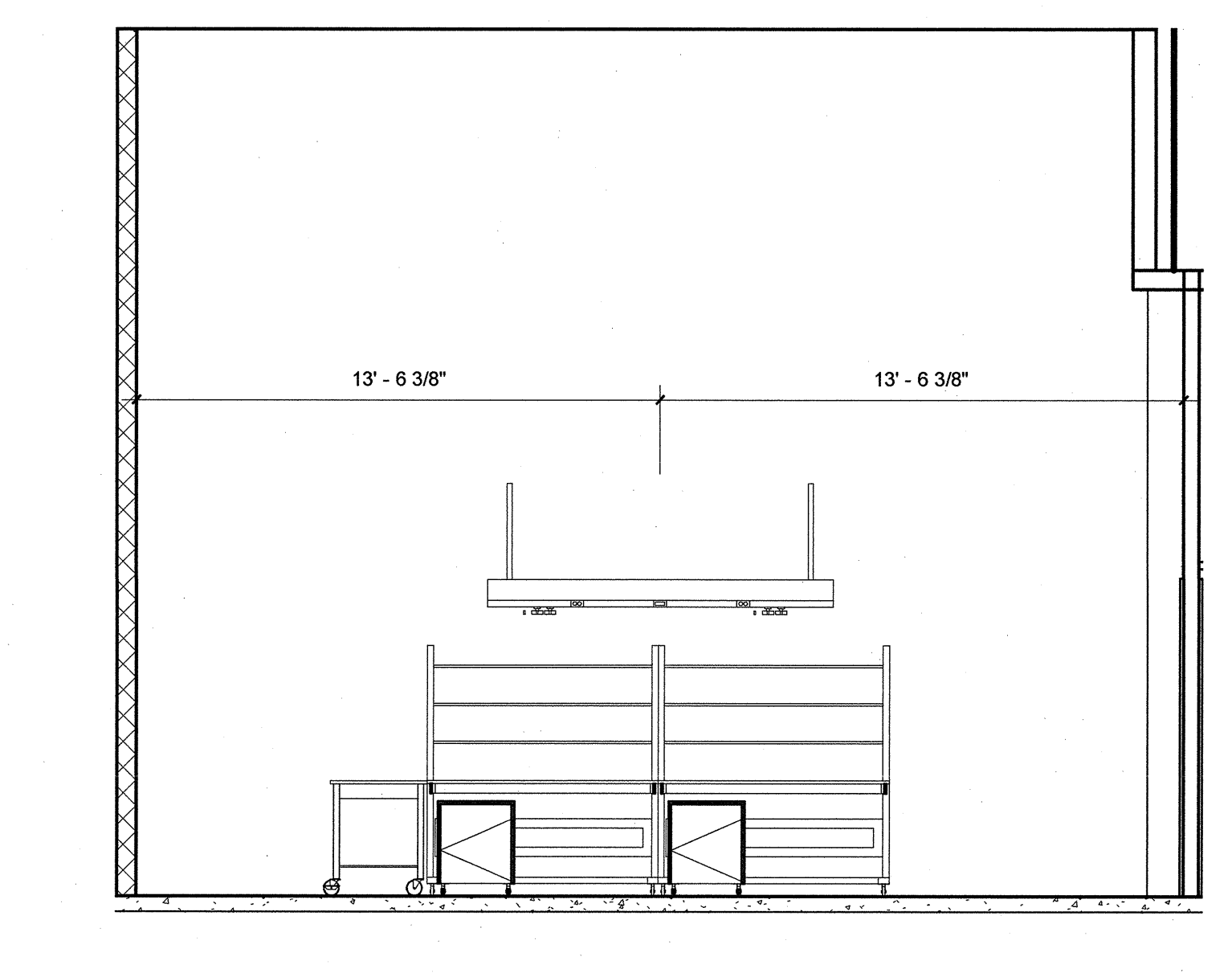
8 1176-E ELASTOMERIC MATERIALS LAB
1/4" = 1'-0"



9 1176-E1 ELASTOMERIC MATERIALS LAB
1/4" = 1'-0"



10 1176-W ELASTOMERIC MATERIALS LAB
1/4" = 1'-0"

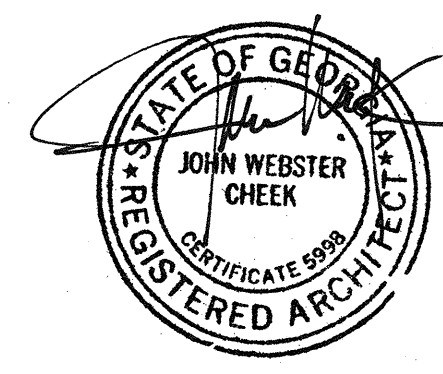


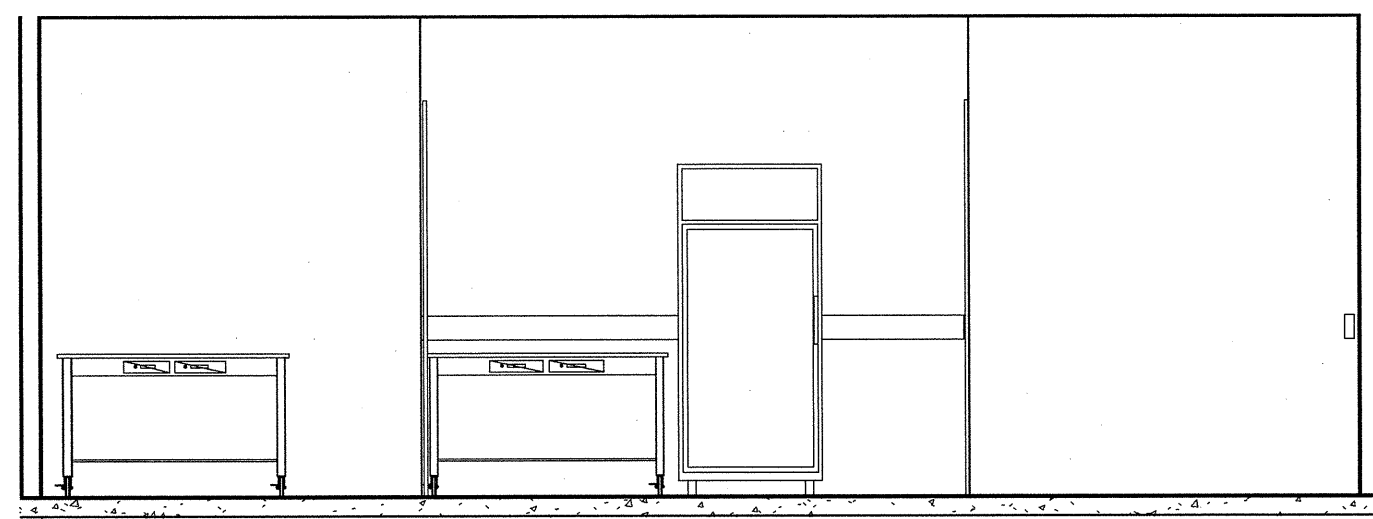
11 1176-W1 ELASTOMERIC MATERIALS LAB
1/4" = 1'-0"

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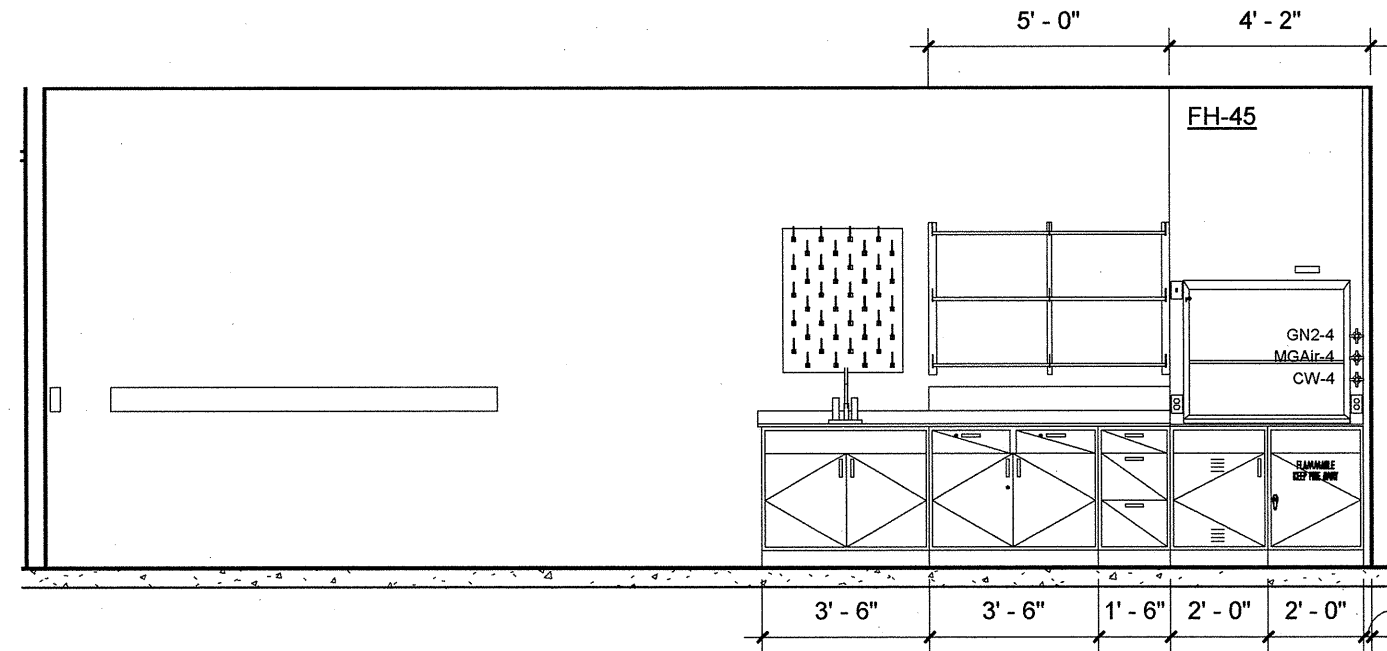
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REV.	BY	DATE	REVISION	CL. NO.	APPROVED
Marshall Space Flight Center Alabama, 35812 06-11-08 FOR CONSTRUCTION CONSTRUCT REPLACEMENT BUILDING 4602 LABORATORY ELEVATIONS					
AE FIRM: HELLMUTH, OBATA, + KASSABAUM, Inc.			NASA AE CONTRACT NO. NAS-03-003		
SUBMITTED: JOHN CHEEK		APPROVAL RECOMMENDED: ROBERT T. HATHIS		APPROVED: VINCENT JAMES GUARN	
AE DATE: 06-11-08		ADD: PROJEKT A/E		ARJZ GROUP LEAD DATE:	
DESIGNED BY:		APPROVAL RECOMMENDED: ROBERT T. HATHIS		DRAWING NO.	
DRAWN: SBA/TL/PP		ADD: SUPPORT A/E		FAC - A - 4602 - Q612	
CHECKED: SDS		APPROVAL RECOMMENDED: ROBERT T. HATHIS		SHEET- 194 OF 445	
SPEC. NO. FAC: M5030		SCALE: 1/4" = 1'-0"		REF. NO. - Q612 112 OF 117	

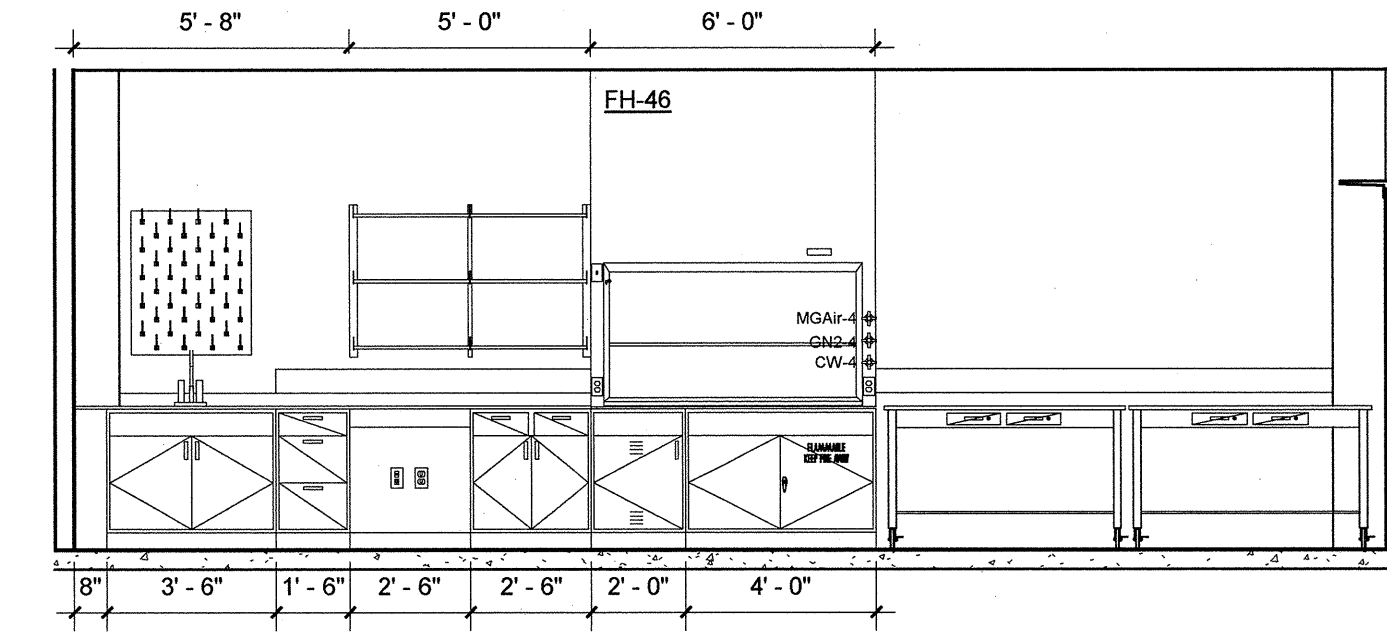




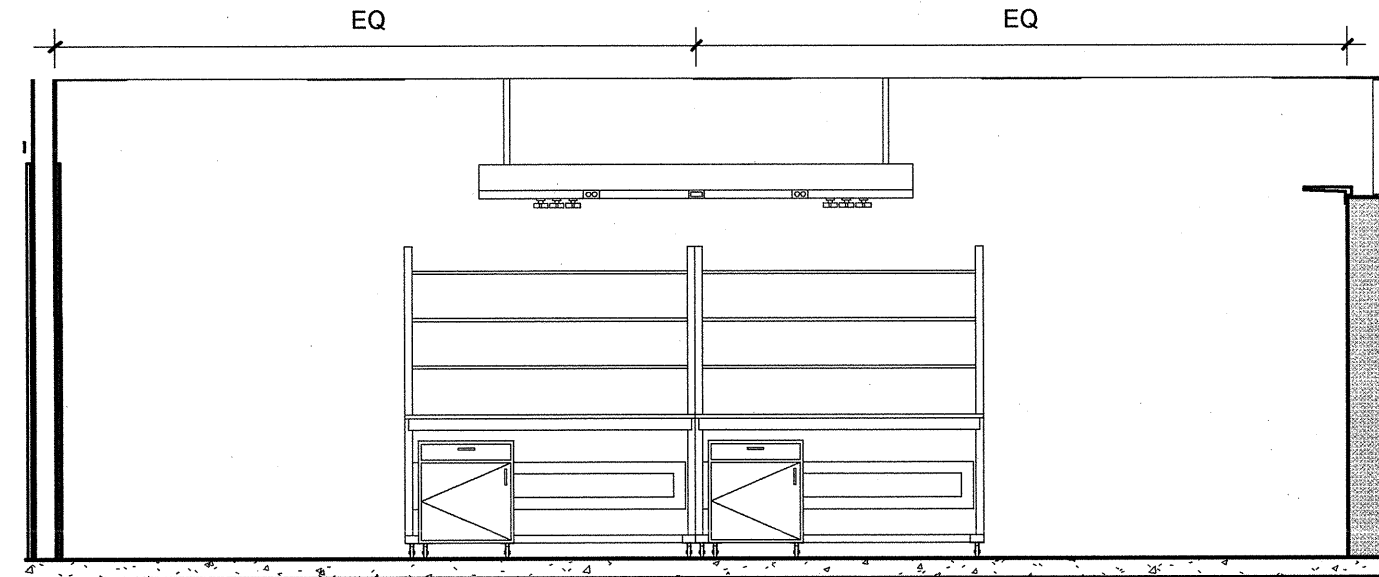
1 1143-E BONDING LAB
02/11/2013 1/4" = 1'-0"



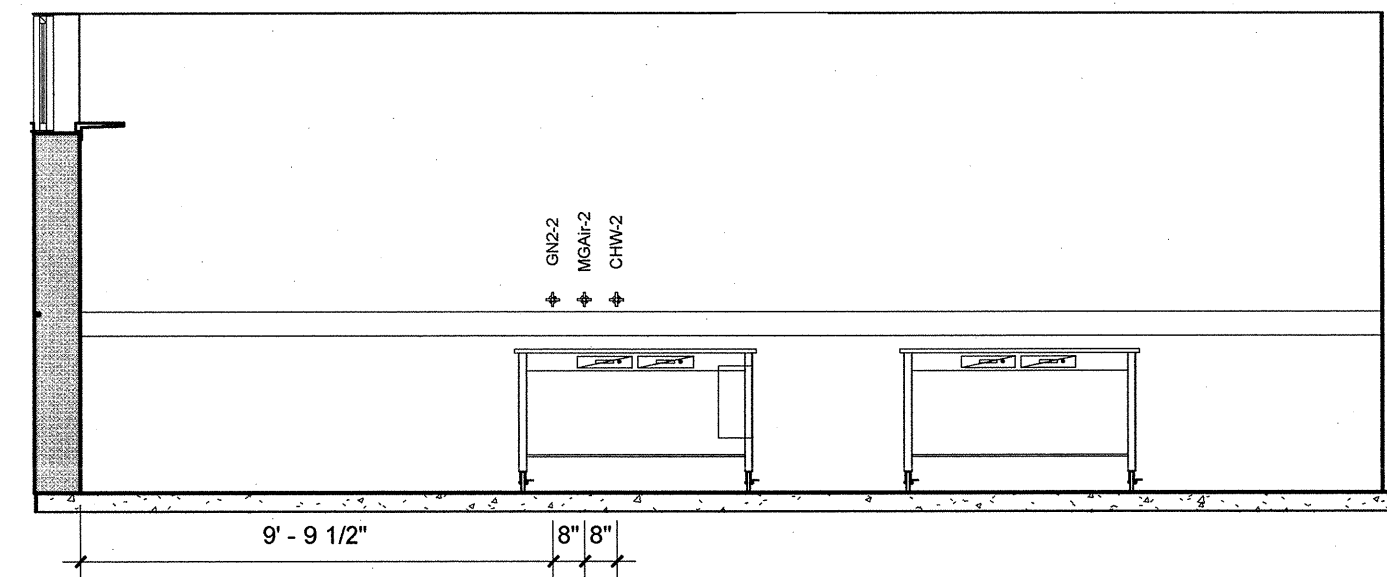
2 1143-W BONDING LAB
02/11/2013 1/4" = 1'-0"



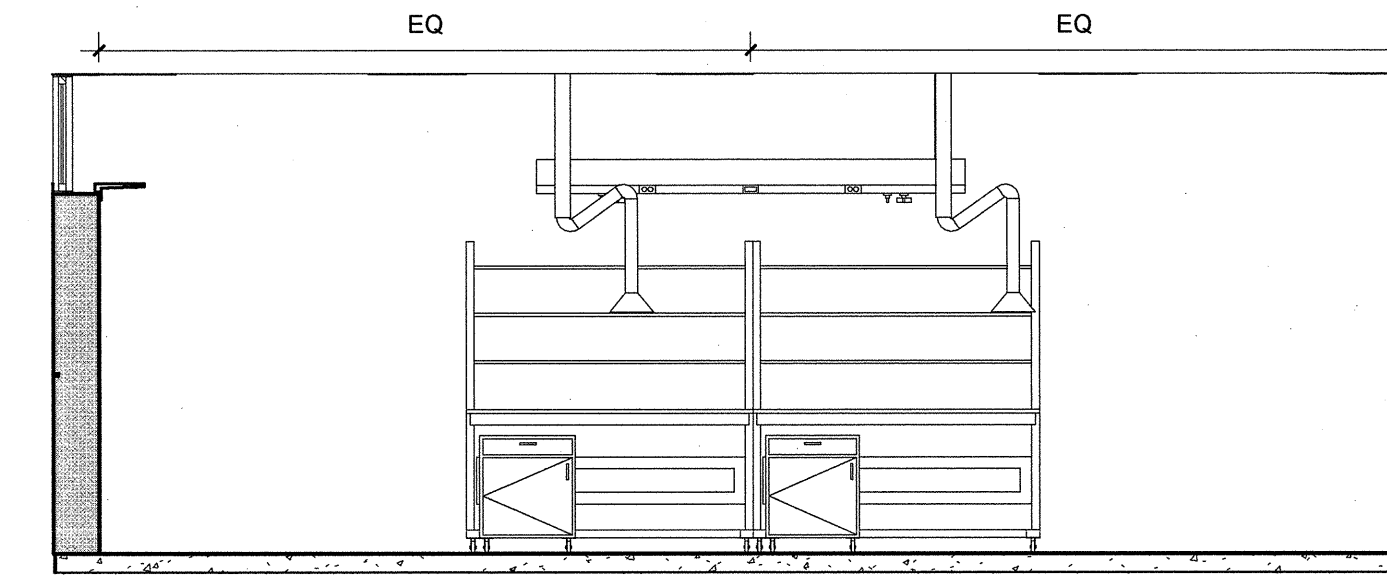
3 1148-E O-RING MATLS EVAL LAB
02/11/2013 1/4" = 1'-0"



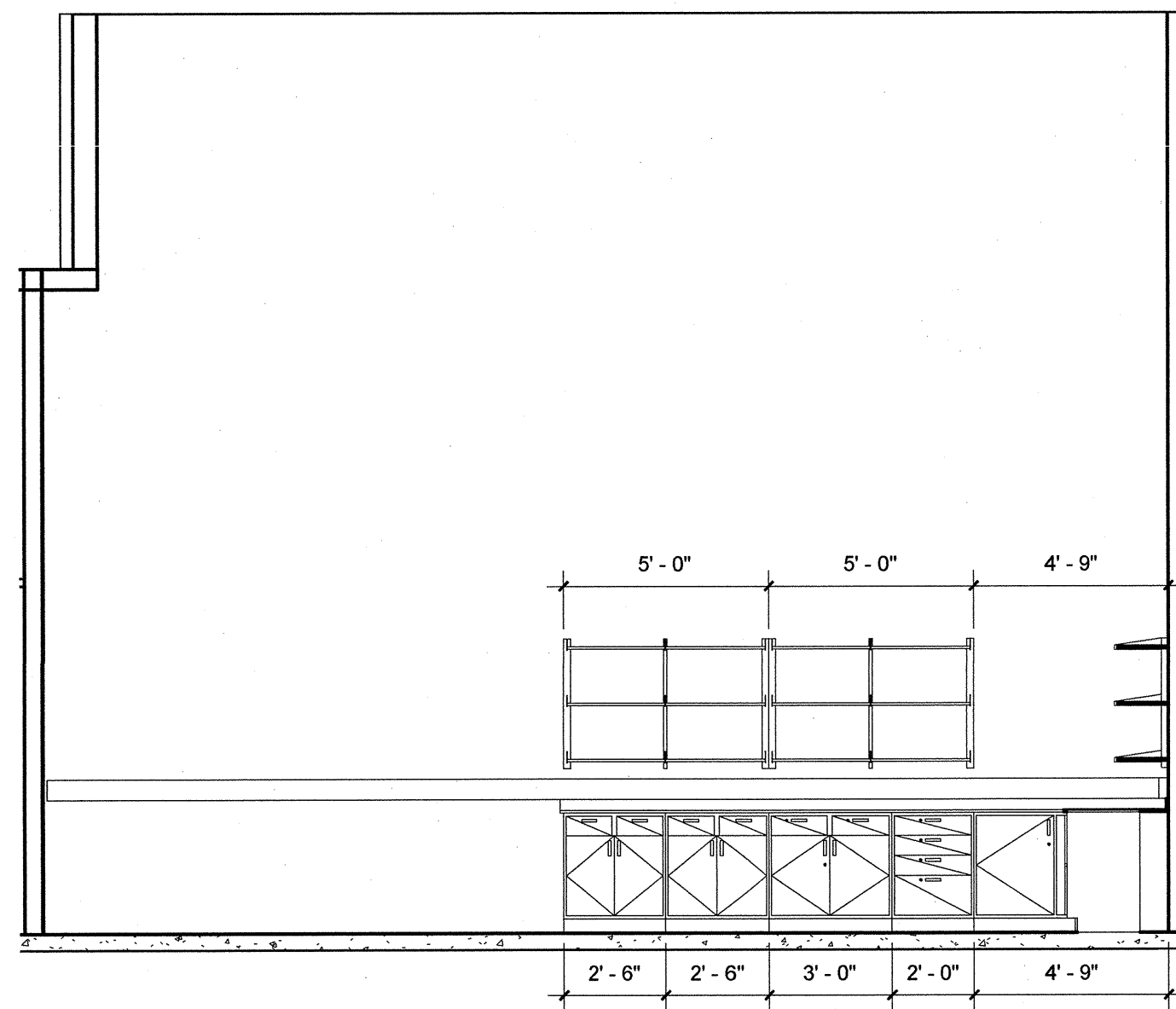
4 1148-E1 O-RING MATLS EVAL LAB
02/11/2013 1/4" = 1'-0"



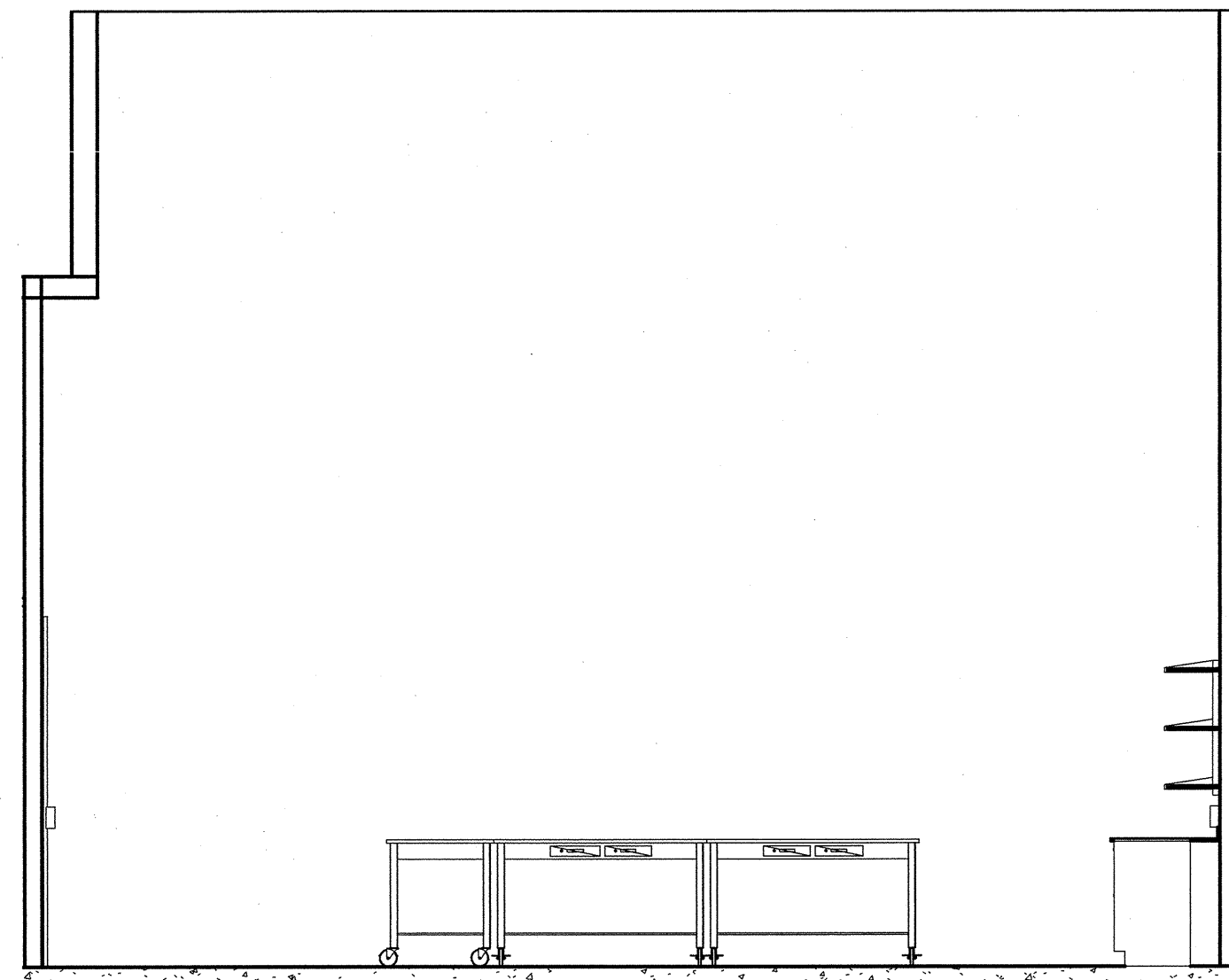
5 1148-W O-RING MATLS EVAL LAB
02/11/2013 1/4" = 1'-0"



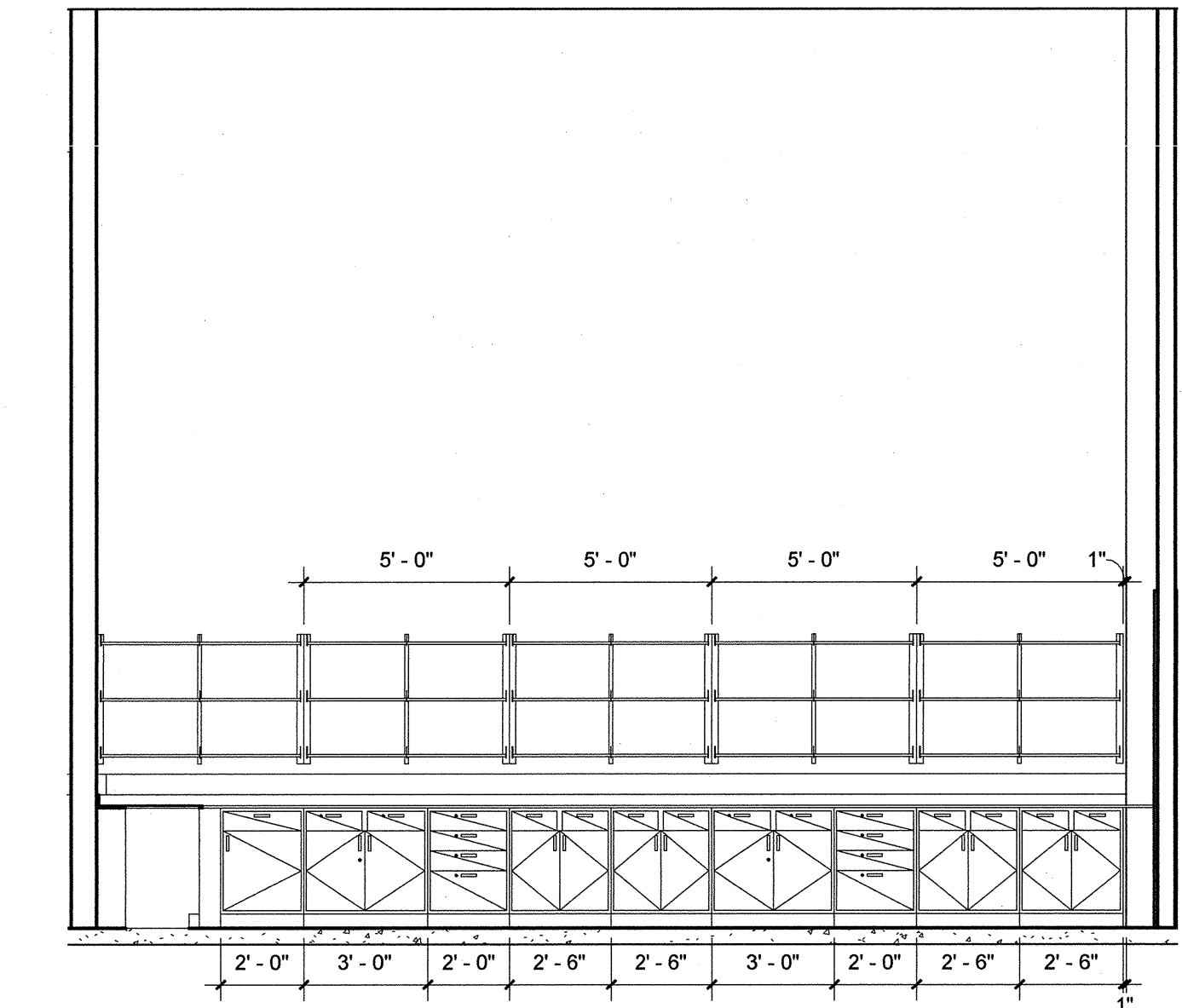
6 1148-W1 O-RING MATLS EVAL LAB
02/11/2013 1/4" = 1'-0"



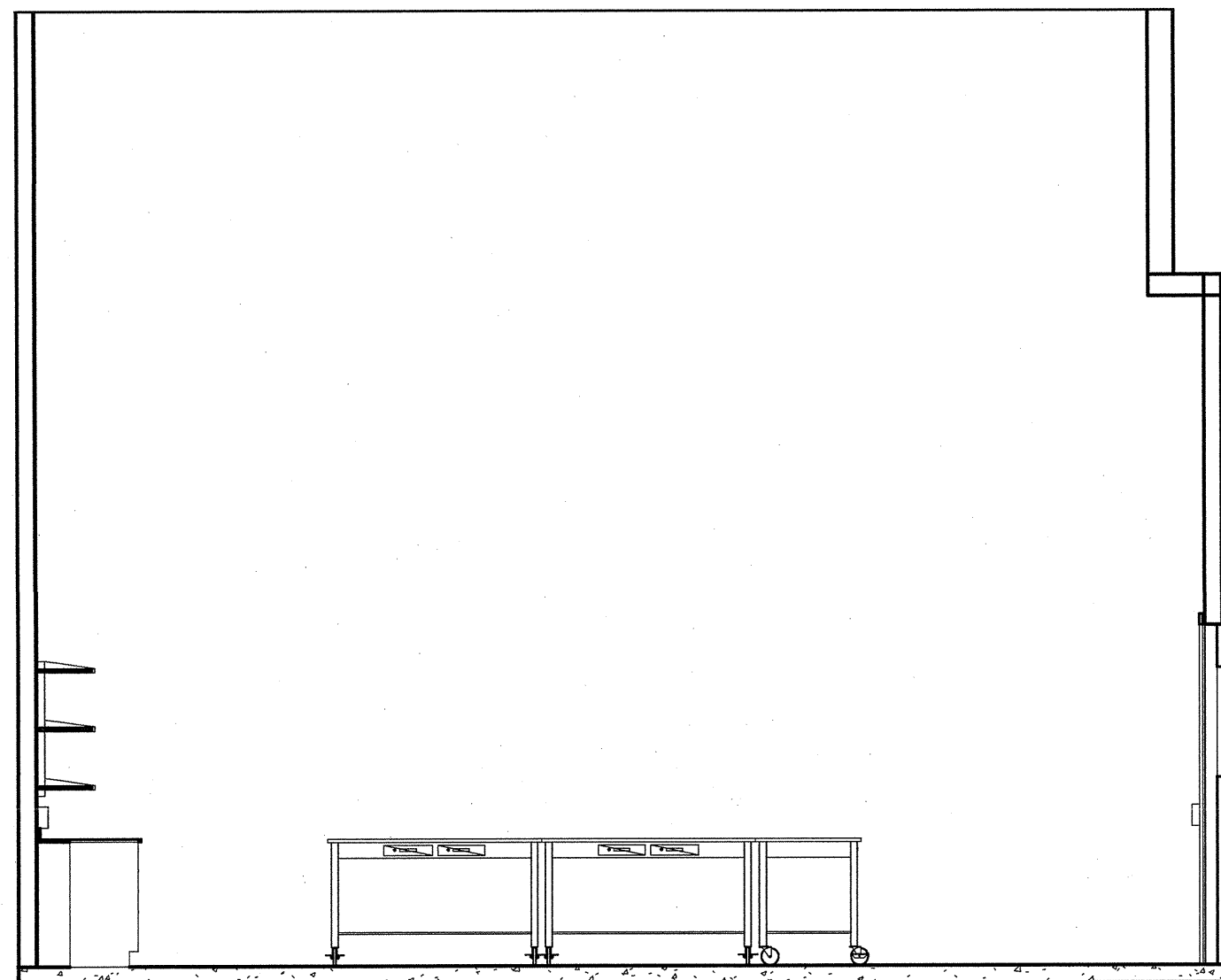
7 1180-E MECH. TOOL/EQUIP. CRIB
02/11/2013 1/4" = 1'-0"



8 1180-E1 MECH. TOOL/EQUIP. CRIB
02/11/2013 1/4" = 1'-0"



9 1180-S MECH. TOOL/EQUIP. CRIB
02/11/2013 1/4" = 1'-0"

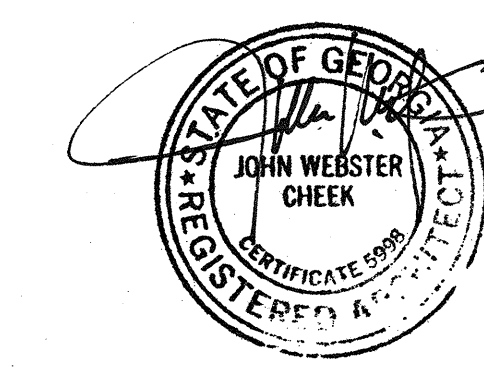


10 1180-W MECH. TOOL/EQUIP. CRIB
02/11/2013 1/4" = 1'-0"

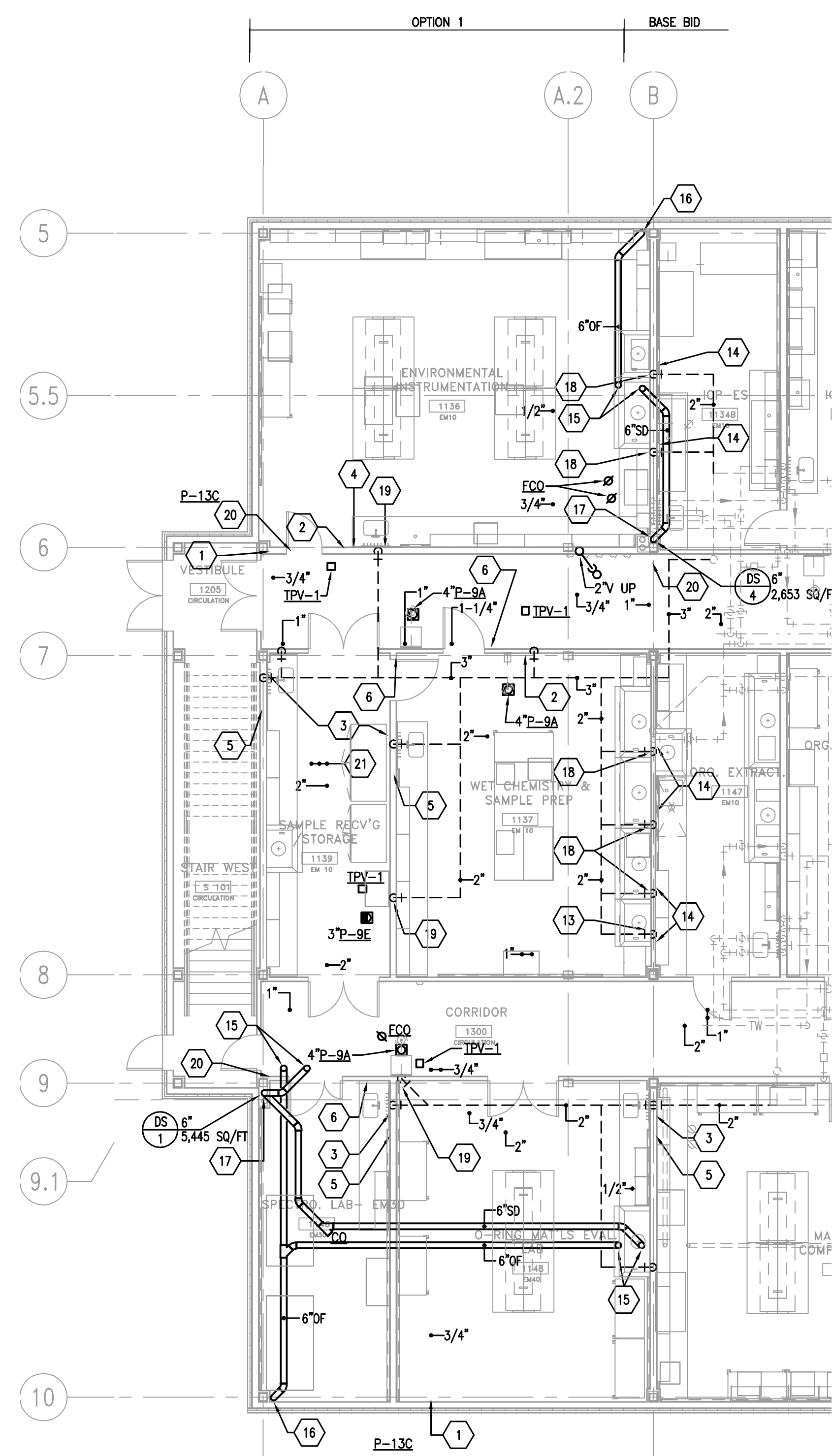
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A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

CADD DRAWING
CHANGES TO THIS DRAWING SHALL BE MADE
ON CADD ONLY.
LATEST CADD UPDATE: _____
BY: _____

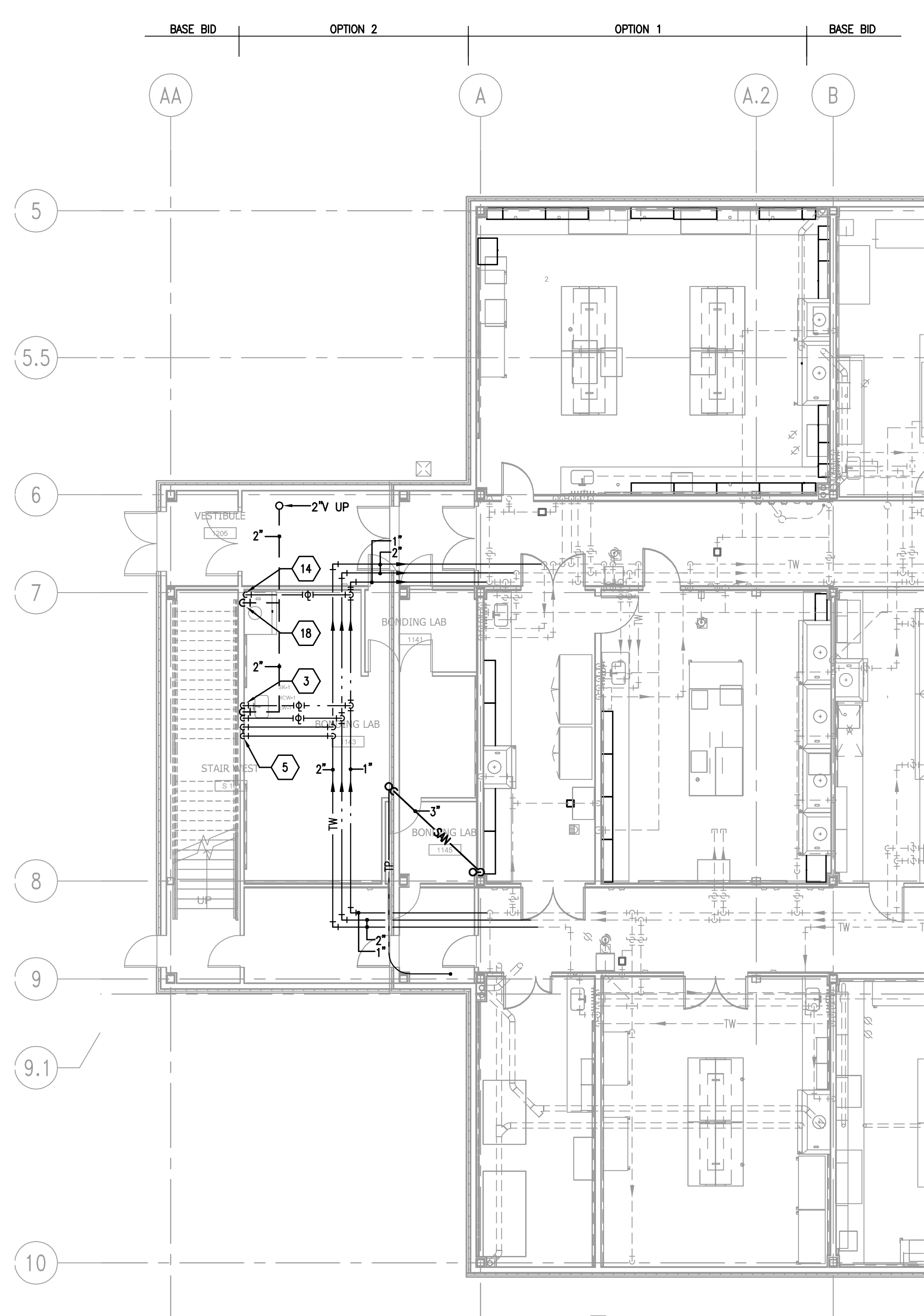
REV	BY	DATE	REVISION	C.I. NO.	APPROVED
Marshall Space Flight Center Alabama, 35812 06-11-08 FOR CONSTRUCTION					
CONSTRUCT REPLACEMENT BUILDING 4602 LABORATORY ELEVATIONS					
AE FIRM: HELLMUTH, OBATA, + KASSABAUM, Inc.			NASA AE CONTRACT NO. NASS-03083		
SUBMITTED: JOHN CHEEK		APPROVAL RECOMMENDED: ROBERT T. MATYIS		APPROVED: VINCENT JAMES GUARIN	
AE DATE: 06-11-08		APPROVAL RECOMMENDED: ROBERT T. MATYIS		AB22 GROUP LEAD DATE:	
DESIGNED BY: SSASTL/PP		APPROVAL RECOMMENDED: ROBERT T. MATYIS		DRAWING NO. FAC - A - 4602 - Q613	
DRAWN: SSASTL/PP		APPROVAL RECOMMENDED: ROBERT T. MATYIS		SHEET- 195 OF 445	
CHECKED: SDS		APPROVAL RECOMMENDED: ROBERT T. MATYIS		SCALE: 1/4" = 1'-0"	
SCALE: 1/4" = 1'-0"		APPROVAL RECOMMENDED: ROBERT T. MATYIS		SPEC NO. FAC M5030	



SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET
REF. NO. - **Q613**
113 OF 117



A FLOOR PLAN - LEVEL 1 - OPTION 1
 PLUMBING SERVICES PIPING
 1/8" = 1'-0"
 0 2 4 8 FT



B FLOOR PLAN - LEVEL 1 - OPTION 2
 PLUMBING SERVICES PIPING
 1/8" = 1'-0"
 0 2 4 8 FT

KEY NOTES:

- 1 3/4" COLD WATER DOWN TO BELOW SLAB TO SERVE P-13C.
- 2 1/2" COLD WATER FROM TPV DOWN TO BELOW SLAB TO SERVE FLOOR DRAIN(S).
- 3 1/2" COLD AND HOT WATER DOWN TO SERVE SINK(S); 2" WASTE DOWN TO BELOW SLAB AND 2" VENT UP.
- 4 2" TEMPERED WATER DOWN; PROVIDE 1/2" CONNECTION TO EYEWASH AT SINK AND 1-1/4" TO EMERGENCY SHOWER/EYEWASH; CONTINUE 2" TEMPERED WATER UP AND OFFSET ABOVE CEILING.
- 5 2" TEMPERED WATER DOWN; PROVIDE 1/2" CONNECTION TO EYEWASH AT SINK; CONTINUE 2" TEMPERED WATER UP AND OFFSET ABOVE CEILING.
- 6 2" TEMPERED WATER DOWN; PROVIDE 1-1/4" CONNECTION TO EMERGENCY SHOWER/EYEWASH; CONTINUE 2" TEMPERED WATER UP AND OFFSET ABOVE CEILING.
- 7 1/2" COLD WATER DOWN TO OWNER FURNISHED EQUIPMENT.
- 8 1/2" COLD WATER FROM TPV-1 DOWN TO BELOW SLAB TO SERVE P-9E.
- 9 2" COLD WATER AND 3/4" HOT WATER DOWN TO SERVE FIXTURES.
- 10 3/4" COLD WATER AND 1/2" HOT WATER DOWN TO SERVE FIXTURES.
- 11 1/2" COLD WATER DOWN TO SERVE FIXTURE.
- 12 1" COLD WATER DOWN TO RPZ BELOW AND UP TO OFFSET ABOVE CEILING.
- 13 3" WASTE AND VENT WITH 2" P-TRAP FOR HOOD WASHDOWN DRAIN.
- 14 1/2" COLD WATER DOWN TO OUTLET AT CUP SINK IN HOOD.
- 15 6" STORM AND OVERFLOW DRAIN FROM ABOVE.
- 16 6" OVERFLOW DRAIN DOWN, TERMINATE OVERFLOW DRAIN THRU WALL WITH DOWNSPOUT NOZZLE AT 12" ABOVE FINISHED FLOOR.
- 17 6" STORM DRAIN DOWN TO BELOW SLAB.
- 18 2" WASTE AND VENT.
- 19 2" VENT FROM BELOW.
- 20 3/4" COLD WATER UP TO PENTHOUSE.
- 21 OCCURS OPTION 1 ONLY.

WARNING

DO NOT SCALE THIS DRAWING

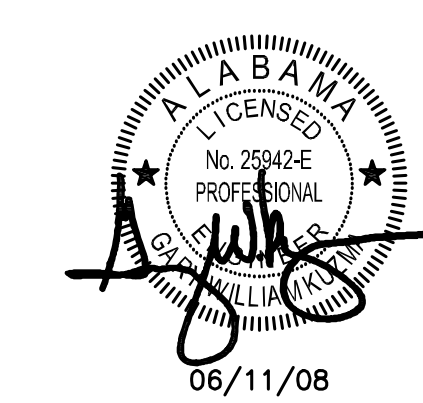
THIS DRAWING WAS DESIGNED TO BE PRINTED AT
 A NASA SHEET SIZE: MSFC STD. SIZE 40" X 28"

CADD DRAWING

CHANGES TO THIS DRAWING SHALL BE MADE
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LATEST CADD UPDATE: _____
 BY: _____

06/11/08



REV.	BY	DATE	REVISION	C.I. NO.	APPROVED
Marshall Space Flight Center Alabama, 35812 06-11-08 FOR CONSTRUCTION CONSTRUCT REPLACEMENT BUILDING 4602 LEVEL 1 - OPTIONS 1 AND 2					
AE FIRM: HELLMUTH, OBATA, + KASSABAUM, Inc.			NASA AE CONTRACT NO. NAS8-03083		
SUBMITTED: GARY MARSH		APPROVAL RECOMMENDED: ROBERT T. MATHIS		APPROVED: VINCENT JAMES GUARIN	
AE DATE: 06-11-08		APPROVAL RECOMMENDED: DENNIS FOSTER		AB22 GROUP LEAD DATE: _____	
DESIGNED: G. MARSH		APPROVAL RECOMMENDED: J. SAVINO		DRAWING NO. FAC-A-4602-P403	
CHECKED: G. MARSH		APPROVAL RECOMMENDED: PHILLIP HENDRIX			
SIGNATURES ON INDEX SHEET INDICATE ACCEPTANCE OF THIS SHEET			SCALE: NTS		
REF. NO. P403			SHEET 22 OF 39		
SPEC. NO. FAC M5030			SHEET 413 OF 445		