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EDDR# 1312707

DOCUMENT INFORMATION: (TITLE, NUMBER, REV, DATE)
 K0000071397
 Launch Complex 39, VAB, Bldg. K6-848, Space Launch System, Environmental Control System

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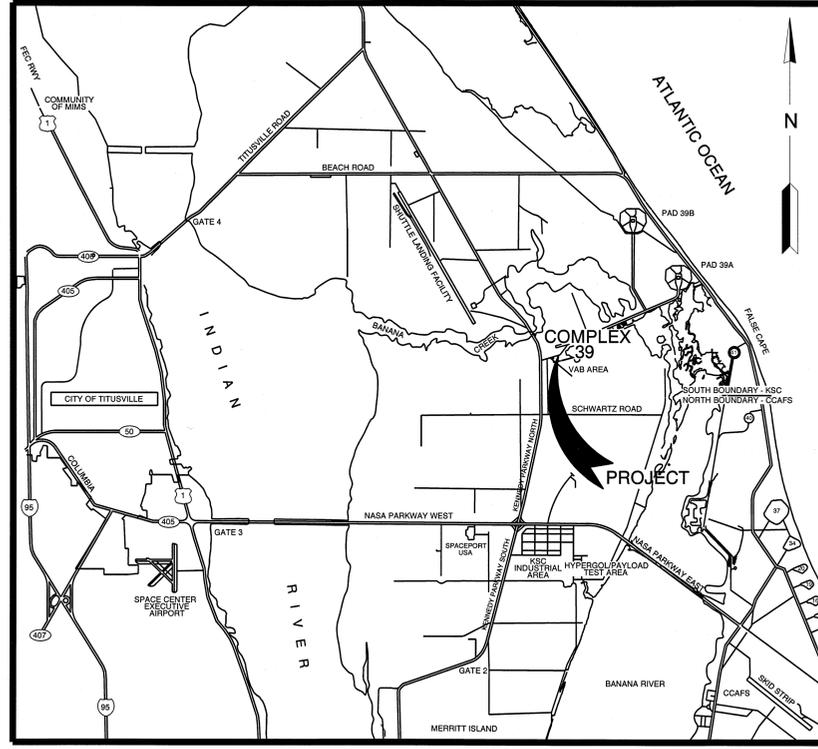
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SECTION 21.8 (REV 9/03)

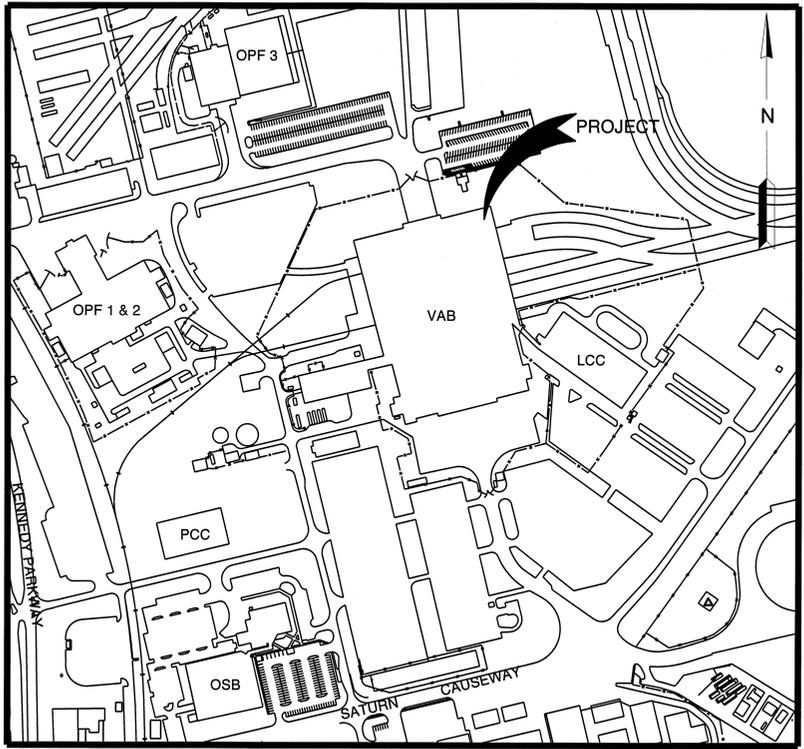
REVISION HISTORY				
PART NO.	ZONE REV	DESCRIPTION	DATE	APPROVAL

LAUNCH COMPLEX 39 VAB, BLDG K6-848

SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM

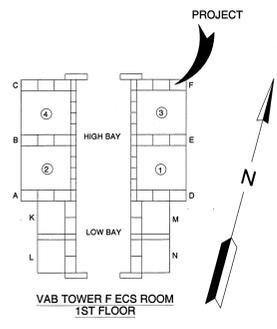


VICINITY MAP
SCALE NTS



LOCATION MAP
SCALE NTS

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VAB TOWER F ECS ROOM
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CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY. PRO/ENGINEER K0000071397D VOL-1 DATE: 2/24/11	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994. TOLERANCES ON: FRACTIONS DECIMALS ANGLES ±.1/16 1 PL ±.080 1 PL ±.1 2 PL ±.030 3 PL ±.010	ORIGINAL DATE OF DRAWING (YY/MM/DD) 2013/04/30 DRAWN BY: C. J. SANCHEZ CHECKED BY: M. L. ALLISON DESIGNED BY: R. N. BUCCIERI ENGINEER BY: B. BERTHIER/BRIDGE PROJECT MANAGER BY: M. L. PARENTI SUPERVISOR BY: V. J. WARD APPROVED BY: D. P. GILLESPIE DATE: 2/24/11	JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA LAUNCH COMPLEX 39 VAB, BLDG K6-848 SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM TITLE SHEET AND DRAWING INDEX	SHEET NO. 1 OF 32
				CASE CODE 22264

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REVISION HISTORY table with columns: PART NO., ZONE, REV, DESCRIPTION, DATE, APPROVAL

PROJECT: VAB ECS DUCT INSTALLATION FOR THE SLS PROGRAM. SCOPE OF WORK:

- PROJECT SCOPE IS TO INSTALL DUCT WORK AT VARIOUS LEVELS OF THE VAB TO SERVICE LAUNCH VEHICLES. PROJECT INCLUDES DEMOLITION AND RESTORATION OF AFFECTED AREAS AND PROVIDES SUPPORTS FOR DUCT LINES. THE WORK TO BE PERFORMED UNDER THIS PROJECT CONSISTS OF PROVIDING THE LABOR, EQUIPMENT, AND MATERIALS TO REFURBISH THE VEHICLE ASSEMBLY BUILDING (VAB), TOWER F, NORTH-EAST CORNER AS FOLLOWS: - CUT OUT HOLES OF THE EXTERIOR SIDING SYSTEM AND INTERIOR BLOCK WALL AT GROUND LEVEL. - CUT OUT HOLES OF THE CONCRETE ELEVATED SLABS AT FLOOR LEVEL 3 AND FLOOR LEVEL 4. - REFURBISH THE ALUMINUM V-BEAM SIDING WALL BY INSTALLING NEW PANELS TO COVER THE OPENINGS AND INSTALL ADDITIONAL BEAM TO FASTEN THE NEW SIDING. - REFURBISH THE INTERIOR BLOCK WALL BY INSTALLING NEW LINTEL STEEL BEAMS AND PATCHING WITH CONCRETE REMAINING OPENINGS AND STEEL PLATE COVER. - INSTALL STEEL FRAME TO SUPPORT AFFECTED CONCRETE SLAB SECTIONS AND COVER OPENINGS WITH STEEL PLATES. - INSTALL STEEL FRAME TO COVER EXISTING OPENING WITH FIBERGLASS GRATING AT FLOOR LEVEL 4. - INSTALL FOUR DIFFERENT TYPES OF DUCT SIZES FOR A TOTAL OF EIGHT DUCT LINES FROM GROUND LEVEL TO FLOOR LEVEL 4. - INSTALL STANTIONS, DUCT SUPPORTS, HANGERS AT DIFFERENT ELEVATIONS. - PROVIDE BONDING AND GROUNDING OF DUCTS.

GENERAL NOTES:

- 1. THE WORK SHOWN ON THESE DRAWINGS IS GOVERNED BY THE NOTES AND DETAILS PROVIDED HEREIN AND NOT THE TECHNICAL DETAILS OF 79K39287 OR 79K39288. 2. REFER TO STRUCTURAL AND MECHANICAL SHEETS FOR ADDITIONAL INFORMATION. 3. DO NOT SCALE DRAWINGS. IF DIMENSIONS ARE IN QUESTION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING CLARIFICATION OF AREA IN QUESTION. 4. REFER TO SPECIAL COATING SECTION NEXT SHEET FOR GENERAL COATINGS AND STEEL COATINGS REQUIRED FOR THIS PROJECT. QUALITY CONTROL SHALL BE PERFORMED BY AN INDEPENDENT NACE CERTIFIED COATING INSPECTOR LEVEL 3 PROVIDED BY THE GENERAL CONTRACTOR. 5. ISOLATE DISSIMILAR METALS SUCH AS ALUMINUM AND STAINLESS STEEL WITH TEFLON LINER OR TEFLON COATING DEPENDING ON ASSEMBLY. 6. CONTRACTOR SHALL PROVIDE TEMPORARY BRACING, SHORING AND OTHER MEASURES TO PROTECT PERSONNEL, STRUCTURES UNDER CONSTRUCTION, AND ADJACENT STRUCTURES DURING CONSTRUCTION. 7. CONTRACTOR IS RESPONSIBLE TO FIELD VERIFY DIMENSIONS AS SHOWN ON THE DRAWINGS AND PER EXISTING CONDITIONS PRIOR TO PROCEEDING WITH FABRICATION AND CONSTRUCTION.

DEMOLITION NOTES:

- 1. OWNER SHALL BE RESPONSIBLE FOR REMOVAL AND RELOCATION OF ANY AND ALL EQUIPMENT AND/OR FURNISHINGS, BUILDING MATERIALS, AND ITEMS STORED WITHIN THE AREA OF WORK, PRIOR TO START OF CONSTRUCTION. 2. CONTRACTOR SHALL CAREFULLY EXAMINE THE AREAS AND EXISTING CONDITIONS ASSOCIATED WITH THE WORK TO BE PERFORMED TO UNDERSTAND THE EXISTING FIELD CONDITIONS AND DIFFICULTIES THAT AFFECT EXECUTION OF THE WORK, AS WELL AS TO IDENTIFY SYSTEMS AND EQUIPMENT WHICH ARE TO REMAIN IN PLACE AND MUST BE PROTECTED FROM THE DEMOLITION ACTIVITIES. 3. CONTRACTOR SHALL COORDINATE ALL DEMOLITION SHOWN ON THE DRAWINGS. ANY QUESTIONS OR DISCREPANCIES OR REVEALED DISCREPANCIES FROM THE ORIGINAL BUILDING CONSTRUCTION DOCUMENTS SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER, PRIOR TO START OF AFFECTED DEMOLITION ACTIVITIES. 4. CONTRACTOR SHALL REMOVE THE STRUCTURAL ITEMS IDENTIFIED IN DEMOLITION DRAWINGS AND SHALL PROVIDE SHORING AS NECESSARY TO KEEP THE STRUCTURAL INTEGRITY OF THE BUILDING. ITEMS IDENTIFY FOR REUSE/REINSTALLATION SHALL BE REMOVED, STORED AND PROTECTED DURING CONSTRUCTION ACTIVITIES. ITEMS MARKED TO BE DEMOLISHED AND TURNED OVER TO THE GOVERNMENT AND WILL BE SEGREGATED, ITEMIZED AND DISPOSED PER INSTRUCTIONS OF THE CONTRACTING OFFICER. 5. CONTRACTOR SHALL BE RESPONSIBLE FOR DISPOSAL AND CLEAN-UP PROMPTLY. CONTRACTOR SHALL REMOVE FROM THE SITE AND LEGALLY DISPOSE OF ALL DEMOLISHED MATERIALS AND EQUIPMENT DESIGNATED BY THE OWNER. 6. CONTRACTOR SHALL VERIFY QUANTITIES AND SHALL BE RESPONSIBLE FOR THE ACCOMPLISHMENT OF WORK WITHIN THE DESCRIPTION OF THE SCOPE. 7. CONTRACTOR MAY NOT ALTER ANY ELEMENT OUTSIDE THE SCOPE OF THIS PROJECT WITHOUT THE PRIOR APPROVAL OF THE CONTRACTING OFFICER. 8. CONTRACTOR SHALL SUBMIT A DETAILED DEMOLITION PLAN OF THE WORK PROCEDURES AND SAFETY PRECAUTIONS TO BE USED PRIOR TO THE BEGINNING OF WORK.

SPECIFICATIONS:

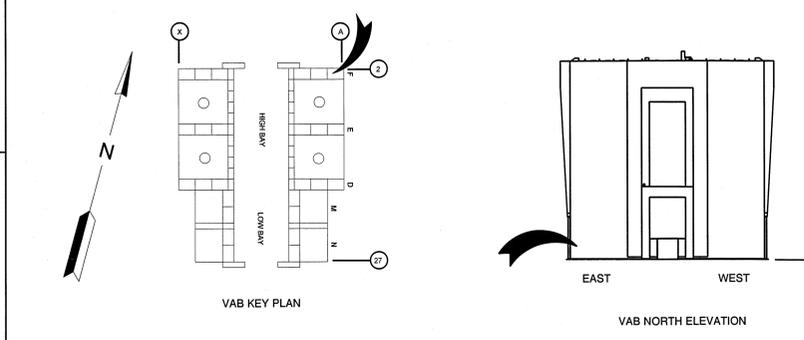
- 1. SUBMITTALS: SEE SUBMITTAL TABLE 2. SALVAGE MATERIAL AND EQUIPMENT: ITEMS OF MATERIAL DESIGNATED BY THE CONTRACTING OFFICER TO BE SALVAGE SHALL REMAIN THE PROPERTY OF THE GOVERNMENT. IT SHALL BE SEGREGATED, ITEMIZED, DELIVERED, AND OFFLOADED AT THE GOVERNMENT DESIGNATED STORAGE AREA LOCATED WITHIN 10 MILES OF THE CONSTRUCTION SITE. CONTRACTOR SHALL MAINTAIN PROPERTY CONTROL RECORDS FOR MATERIAL OR EQUIPMENT DESIGNATED AS SALVAGE. CONTRACTOR'S SYSTEM OF PROPERTY CONTROL MAY BE USED IF APPROVED BY THE CONTRACTING OFFICER. CONTRACTOR SHALL BE RESPONSIBLE FOR STORAGE AND PROTECTION OF SALVAGED MATERIALS AND EQUIPMENT UNTIL DISPOSITION BY THE CONTRACTING OFFICER. 3. GENERAL SAFETY REQUIREMENTS REFERENCES: 29 CFR 1920 (1999) OCCUPATIONAL SAFETY AND HEALTH STANDARDS 29 CFR 1926 (1999) SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION NASA NHB 1700.1 (1993) (V1-B) NASA SAFETY POLICY AND REQUIREMENTS DOCUMENTS CONTRACTOR SHALL PROVIDE THEIR OWN FULL TYPE 2A10BC FIRE EXTINGUISHERS FOR WORK ACTIVITIES. OBTAIN A DETERMINATION OF WHETHER THE WASTE IS HAZARDOUS FROM THE CONTRACTING OFFICER. NOTIFY THE CONTRACTING OFFICER PRIOR TO TAKING DISPOSAL ACTION FOR ANY HAZARDOUS WASTE. SEE CONTRACT CLAUSE ENTITLED "HAZARDOUS WASTES" FOR ADDITIONAL REQUIREMENTS. 4. QUALITY CONTROL: 4.1 - DRAWING AND CHANGE CONTROL DRAWING-CONTROL SYSTEM SHALL BE MAINTAINED TO PROVIDE REVISED DRAWINGS AND ENSURE CONTINUOUS REMOVAL OF OBSOLETE DRAWINGS FROM WORK AREAS. CHANGES INVOLVING INTERFACE WITH OTHER WORK AREAS, OR AFFECTING MATERIALS CONTROLLED BY OTHER SHALL BE CONTROLLED BY THE CONTRACTOR. THIS SYSTEM SHALL BE INTEGRATED WITH THE DOCUMENT REQUIREMENTS OF THE CONTRACT. DRAWING CHANGES SHALL BE CLEARLY ANNOTATED. IMPLEMENTED CHANGES SHALL BE CLEARLY IDENTIFIED AND ASSOCIATED DRAWINGS SHALL BE REVISED ACCORDINGLY. DRAWINGS THAT HAVE BEEN APPROVED OR APPROVED AS NOTED BY THE CONTRACTING OFFICER SHALL BE USED FOR FABRICATION AND INSPECTION.

SPECIFICATIONS: (CONT)

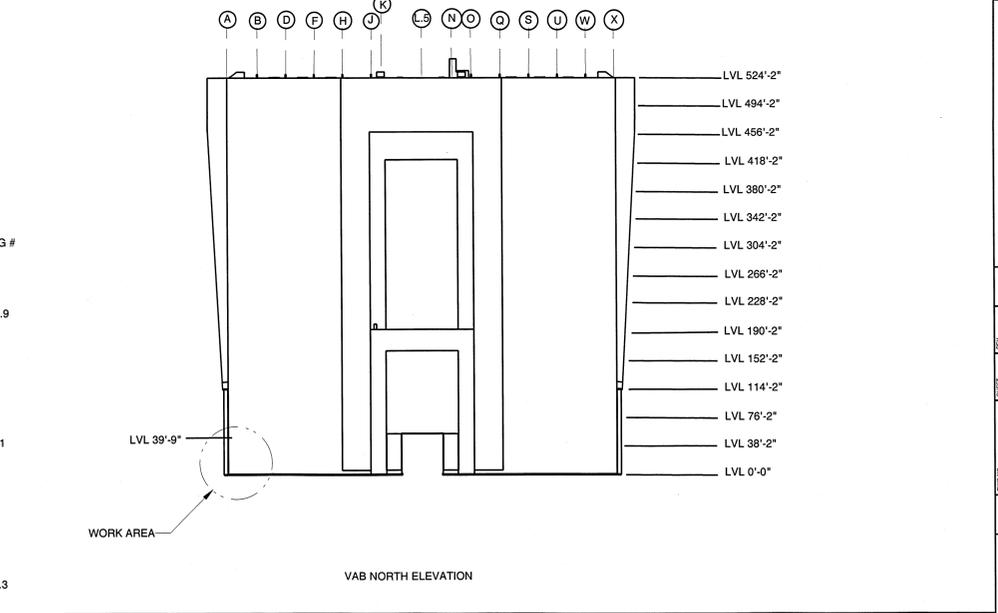
- 4.2 - CONTRACTOR'S QUALITY INSPECTIONS: CONTRACTOR SHALL IMPLEMENT AN INSPECTION SYSTEM. DOCUMENTATION SHALL INDICATE QUALITY CONTROL THROUGH RECORDS OF INSPECTIONS, TESTS, AND PROCEDURES. 4.3 - CONTRACTOR'S QUALITY ASSURANCE SYSTEM SHALL INCLUDE THE FOLLOWING: A. SINGLE CONTRACTOR'S REPRESENTATIVE RESPONSIBLE FOR ON-SITE COMMUNICATION AND OPERATION OF THE INSPECTION PROGRAM. B. PURCHASING CONTROL SYSTEM DOCUMENTING INSPECTIONS FOR EACH PROCUREMENT. C. RECEIVING INSPECTION SYSTEM DOCUMENTING INSPECTIONS FOR EACH PROCUREMENT. D. DOCUMENTATION FOR HANDLING AND DISPOSING OF NONCONFORMING COMPONENTS AND MATERIALS. E. INSPECTION RECORDS FOR EACH SPECIFIC SECTION OF THE DRAWINGS. F. IDENTIFICATION OF TEST(S) TO BE PERFORMED, TEST PROCEDURES, RECORDS, AND INDEPENDENT ORGANIZATIONS USED. G. DOCUMENTING AND MAINTAINING CERTIFICATION OR RE-CERTIFICATION OF PROCEDURES. H. MANAGEMENT OF GOVERNMENT-FURNISHED EQUIPMENT, COMPONENTS, AND MATERIALS. I. CALIBRATION OF GAGES, TOOLS, MEASURING INSTRUMENTS, AND INDEPENDENT LABORATORIES USED. 4.4 - RESPONSIBILITY FOR INSPECTION AND TESTING CONTRACTOR SHALL BE RESPONSIBLE FOR ALL INSPECTIONS AND TESTS, AND THE ACCOMPANYING DOCUMENTATION FOR EACH INSPECTION AND TEST. CONTRACTOR MAY UTILIZE INDEPENDENT INSPECTION AND TESTING LABORATORIES OR SERVICES AS APPROVED BY THE CONTRACTING OFFICER. 4.5 - INSPECTION AND TEST RECORDS CONTRACTOR SHALL PROVIDE ON-SITE RECORDS OF EACH INSPECTION AND TEST PERFORMED THROUGHOUT THE LIFE OF THE CONTRACT. RECORDS SHALL INCLUDE, BUT NOT LIMITED TO, FACTUAL EVIDENCE THAT THE REQUIRED INSPECTIONS OR TESTS HAVE BEEN PERFORMED, INCLUDING TYPE AND NUMBER OF INSPECTIONS OR TESTS INVOLVED, IDENTIFICATION OF OPERATORS AND INSPECTORS, RESULT OF INSPECTIONS OR TESTS, NATURE OF DEFECTS, CAUSES FOR REJECTION, PROPOSED REMEDIAL ACTION, AND CORRECTIVE ACTIONS TAKEN. 4.6 - HANDLING AND STORAGE CONTRACTOR SHALL PROVIDE CONTROLS, PROCEDURES AND DOCUMENTATION WITH EACH SHIPMENT THAT MEET REQUIREMENTS OF EACH SECTION OF THE SPECIFICATIONS. CONTRACTOR SHALL INCLUDE DOCUMENTATION WITH EACH SHIPMENT. THE DATA SHALL CONSIST OF DOCUMENTATION REQUIRED BY THE CONTRACTOR ALONG WITH SPECIFICATIONS REQUIRED TO IDENTIFY, STORE, PRESERVE, OPERATE, AND MAINTAIN THE ITEMS SHIPPED. 4.7 - SEQUENCING AND SCHEDULING CONTRACTOR SHALL NOTIFY THE GOVERNMENT AT LEAST 24 HOURS PRIOR TO SCHEDULED INSPECTIONS AND TESTS. CONTRACTOR SHALL PROVIDE 24 HOURS NOTICE TO THE GOVERNMENT OF THE DATE WHEN THE CONTRACT WORK WILL BEGIN AT THE SITE. WHEN CONTRACTOR SUSPENDS WORK FOR 1 DAY OR LONGER PRIOR TO COMPLETION, THE CONTRACTING OFFICER SHALL BE NOTIFIED. WORK SHALL NOT RESUME WITHOUT NOTIFICATION OF THE CONTRACTING OFFICER. 5. DEMOLITION 5.1 - DEMOLITION PLAN CONTRACTOR SHALL PREPARE AND SUBMIT A DETAILED DEMOLITION PLAN OF THE WORK PROCEDURES AND SAFETY PRECAUTIONS TO BE USED IN THE IDENTIFICATION, DEMOLITION, HANDLING, REMOVAL, TRANSPORTATION, STORAGE AND RECLAMATION OR DISPOSAL OF REMOVED MATERIALS. CONTRACTOR SHALL MEET WITH THE CONTRACTING OFFICER, PRIOR TO BEGINNING WORK, TO DISCUSS IN DETAIL THE DEMOLITION PLAN. ALL SALVAGEABLE MATERIALS SHALL REMAIN THE PROPERTY OF THE GOVERNMENT. SALVAGEABLE COMPONENTS THAT WILL NOT BE REFURBISHED OR RE-USED ON THIS PROJECT SHALL BE TURNED OVER TO THE CONTRACTING OFFICER FOR DISPOSITION. 5.2 - EXISTING CONDITIONS EXISTING CONDITIONS SHALL BE RECORDED IN THE PRESENCE OF THE CONTRACTING OFFICER SHOWING THE CONDITION OF STRUCTURES AND OTHER FACILITIES ADJACENT TO AREAS OF THE ALTERATION OR REMOVAL. SUCH RECORD SHALL CONTAIN ELEVATIONS, CRITICAL DISTANCE, THE LOCATION AND EXTENT OF CRITICAL DAMAGE AND DESCRIPTION OF THE SURFACE CONDITIONS THAT EXIST PRIOR TO START OF WORK. COPIES OF THE RECORD SHALL BE SUBMITTED AND THE STATED CONDITIONS BEFORE STARTING WORK SHALL BE VERIFIED. 5.3 - EXISTING CONSTRUCTION SHALL NOT BE DISTURBED EXISTING CONSTRUCTION SHALL NOT BE DISTURBED BEYOND THE EXTENT INDICATED OR NECESSARY FOR INSTALLATION OF NEW WORK. TEMPORARY SHORING AND BRACING SHALL BE PROVIDED FOR SUPPORT OF BUILDING COMPONENTS, WHERE NECESSARY, TO PREVENT SETTLEMENT, MOVEMENT, OR COLLAPSE OF STRUCTURAL MEMBERS DURING WORK. 5.4 - PROTECTIVE MEASURES PROTECTIVE MEASURE SHALL BE PROVIDED TO CONTROL ACCUMULATION AND MIGRATION OF DUST AND DIRT IN ALL AREAS OF WORK. DUST, DIRT, AND DEBRIS SHALL BE REMOVED FROM THE AREAS OF WORK DAILY. DETAILS OF DEBRIS BARRICADE LOCATION/REQUIREMENTS SHALL BE DEFINED WITHIN THE CONSTRUCTION IMPLEMENTATION PLAN APPLICABLE TO THE PROJECT SITE. DUST/DIRT/DEBRIS BARRICADES SHALL PREVENT CONSTRUCTION DUST/DIRT/DEBRIS MIGRATION INTO ADJACENT NON-CONSTRUCTION FACILITY AREAS AND SHALL PROVIDE A LEVEL OF PROTECTION AGAINST WEATHER AND AIRBORNE PARTICULATE AT LEAST EQUIVALENT TO EXISTING FACILITY CLOSURES. 5.5 - DISCONNECTING EXISTING UTILITIES PRIOR TO START WORK, THE GOVERNMENT SHALL DISCONNECT AND SEAL THE UTILITIES SERVICING EACH AREA OF ALTERATION OR REMOVAL. 5.6 - TEMPORARY UTILITY SERVICES INSTALL TEMPORARY UTILITY SERVICES BEFORE DISCONNECTING EXISTING UTILITIES. 6. STRUCTURAL STEEL: 6.1 - STRUCTURAL STEEL WORK: ALL WORK SHALL BE IN ACCORDANCE WITH THE AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS" AND THE "CODE OF STANDARD PRACTICE" AS CONTAINED IN THE FOURTH TENTH EDITION OF THE AISC STEEL CONSTRUCTION MANUAL. ERECTION OF THE STRUCTURAL STEEL SHALL BE IN ACCORDANCE WITH THE AISC 303-10. 6.2 - STRUCTURAL STEEL PROPERTIES UNLESS OTHERWISE NOTED: PLATE THICKNESS <= 4" ASTM A 572, GRADE 50 W SHAPES ASTM A992 HSS SHAPES ASTM A 500 GRADE B. WF AND B SHAPES EXISTING ASTM A36 ANGLES AND CHANNEL SHAPES EXISTING ASTM A36 STRUCTURAL STEEL BOLTS ASTM A325 STRUCTURAL STEEL NUTS ASTM A563 GRADE A STRUCTURAL STEEL WASHERS ASTM F436 6.3 - WELDING MATERIALS: WELDING MATERIALS, TO INCLUDE WELDING ELECTRODES AND RODS, SHALL BE IN ACCORDANCE WITH ASW D1.1 AND THE REQUIREMENTS OF NASA-SPEC-5004. WELDERS AND WELDING OPERATORS SHALL BE QUALIFIED IN ACCORDANCE WITH AWS D1.1. ALL WELDS REQUIRE A CLASS B INSPECTION UNLESS NOTED OTHERWISE. 6.4 - SUBSTITUTIONS: SUBSTITUTIONS OF SPECIFIED MEMBER SIZE OR CHANGE IN DETAILS OR DIMENSIONS OF ANY KIND SHALL NOT BE PERMITTED WITHOUT PRIOR WRITTEN APPROVAL FROM THE CONTRACTING OFFICER OR HIS/HER DESIGNEE. 6.5 - WELDED JOINTS: WELDED JOINTS SHALL CONFORM TO THE AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDING- ASD. 6.6 - BOLTED JOINTS: BOLTED JOINTS SHALL CONFORM TO THE AISC SPECIFICATION FOR STRUCTURAL STEEL BUILDING- ASD. BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH "SPECIFICATIONS FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS" 2009 AND USING THE TURN-OF-THE-NUT-METHOD. ALL CARBON STEEL FASTENERS AND HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A123. 6.7 - SHARP EDGES: BREAK SHARP EDGES TO BE COPED WITH 1/8" RADIUS MINIMUM.

SPECIFICATIONS: (CONT)

- 6.8 - TOUCH-UP: AFTER ERECTION OF STRUCTURAL STEEL, THE CONTRACTOR SHALL TOUCH UP BOLT HEADS AND NUTS, FIELD WELDS, AND ABRASIONS PER COATING SECTION. 6.9 - PROTECTIVE COATING: STEEL WORK SHALL BE COATED AS INDICATED IN "PROTECTIVE COATING FOR CARBON STEEL" 7. STRUCTURAL ALUMINUM: 7.1 - ALUMINUM WORK: ALL WORK SHALL BE IN ACCORDANCE WITH "THE ALUMINUM ASSOCIATIONS 2010 ALUMINUM DESIGN MANUAL" 7.2 - STRUCTURAL ALUMINUM PROPERTIES UNLESS OTHERWISE NOTED: SHEET AND PLATE SHALL CONFORM TO ASTM B209, ALLOY 6061 TEMPER T6. PIPE SHALL CONFORM TO ASTM B 241, ALLOY 6061-T6. 7.3 - WELDING SHALL BE IN ACCORDANCE WITH AWS D1.2 AND THE REQUIREMENTS OF NASA-SPEC-5004. ALL WELDS REQUIRE CLASS B INSPECTION UNLESS NOTED. 7.4 - STRUCTURAL ALUMINUM SHALL BE FABRICATED AND ASSEMBLED IN THE SHOP TO THE GREATEST EXTENT POSSIBLE. SHEARING AND CHIPPING SHALL BE DONE ACCURATELY. PARTS NOT ASSEMBLED IN THE SHOP SHALL BE SECURED BY BOLTS FOR SHIPMENT. 7.5 - ALUMINUM WORK SHALL BE PRIMED IN ACCORDANCE WITH "PROTECTIVE COATING FOR ALUMINUM", EXCEPT SURFACES TO BE WELDED AND CONTACT SURFACES TO BE HIGH-STRENGTH BOLT CONNECTED. 7.6 - AFTER ERECTION THE CONTRACTOR SHALL TOUCH UP BOLT HEADS AND NUTS, FIELD WELDS, AND ABRASIONS IN THE SHOP COAT TOUCHUP AND REPAIR SHALL BE ACCOMPLISHED AS SOON AS POSSIBLE AFTER THE DAMAGE OR INSTALLATION HAS OCCURRED. SURFACES SHALL BE DEGREASED, AS REQUIRED, PRIOR TO SUBSEQUENT SURFACE PREPARATION. DEGREASING SHALL BE ACCOMPLISHED BY STEAM CLEANING OR WASHING WITH A SOLUTION OF TRISODIUM PHOSPHATE IN WATER, FOLLOWED BY A FRESH WATER RINSE. REPAIR COATING SHALL BE APPLIED WITHIN 6 HOURS AFTER SURFACE PREPARATION. TOUCH AND REPAIR MATERIAL SHALL BE THE SAME COATING AS APPLIED IN THE SHOP. 7.7 - PAINT SHALL CONFORM TO THE REQUIREMENTS SECTION "PROTECTIVE COATING OF ALUMINUM". 8. VAB SIDING PANELS: 8.1 - METAL SIDING COMPONENTS AND ASSEMBLIES SHALL BE CAREFULLY HANDLED AT ALL TIMES TO PREVENT DAMAGE TO THE SURFACES, EDGES, AND ENDS. CONTRACTOR SHALL BE RESPONSIBLE FOR ADEQUATE STORAGE, PROTECTION AND HANDLING OF THE MATERIALS. 8.2 - ALL FASTENER MATERIAL SHALL BE ASTM F593, TYPE 304 OR 305, STAINLESS STEEL UNLESS OTHERWISE SPECIFIED. THE USE OF TYPE 303 SS IS DISALLOWED ON THIS PROJECT. 8.3 - ALUMINUM SIDING SHALL BE ALLOY 3004-H36 PER ASTM B209 WITH PROFILE DIMENSIONS AS SHOWN ON THE DRAWINGS. STUCCO FINISH WITH FACTORY APPLIED COATING OF POLYVINYLIDENE FLUORIDE (PVDF) 2 MILS DFT, ON EACH SIDE OF PANEL EQUAL TO KYNAR 500/HYLAR 5000 FINISH SYSTEM. MIN ULTIMATE TENSILE STRENGTH OF 35,000 POUNDS PER SQUARE INCH (PSI) AND A MIN YIELD STRENGTH OF 28,000 PSI. 8.4 - SIDING SUB-COMPONENTS (ITEM #1) SHEETS -SHALL BE V-BEAM ALUMINUM, 6.33 INCH PITCH BY 2.34-INCH DEPTH, 0.040 INCH THICK. (ITEM # 2) STEEL LINER PANELS - SHALL BE FLAT STEEL SHEET PER ASTM A 653, GRADE 33, 20 GAUGE THICKNESS, HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A 653, G165. (ITEM # 4) SUBGIRTS -SHALL BE ELECTRICAL RESISTANCE WELDED STEEL TUBES CONFORMING TO ASTM A 513, HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A 123 GRADE 85. SUBGIRTS SHALL BE 1-1/2" X 1-1/2" MIN UNCOATED WALL THICKNESS OF 0.083 INCH. 8.5 - FASTENERS: (ITEM # 7) HEX FLANGE HEAD BOLT - (FOR ATTACHMENT OF SIDING ASSEMBLIES TO STRUCTURAL ANGLES), 3/8" X 3-1/2" LONG, PER ANSI B18.2.1, ASTM F 593, TYPE 304 OR 305, CONDITION A, UNC CLASS 2A THREADS. (ITEM # 6) SELF-TAPPING SCREW - (FOR ATTACHMENT OF SIDING ASSEMBLIES TO THE STRUCTURAL ANGLES), SCREW, 1/4"-14 X 3" LONG, PER ANSI B18.6.4, HEX HEAD, BLUNT TIP, UNF THREADS, 1-1/2" LONG THREADS, TYPE 304 OR 305, EQUAL TO HILTI HH 304 SS BPTW. (ITEM # 14) SELF-TAPPING SCREW - (FOR ATTACHMENT OF SIDING TO SUBGIRT), SCREW, 1/4" X 1" CARBON STEEL POINT, SELF DRILLING, SELF TAPPING, TYPE 304 OR 305, HEX FLANGE HEAD WITH SEPARATE TEFLON WASHER. (ITEM # 12) SELF-TAPPING SCREW (FOR LINER PANEL ATTACHMENT TO THE SUBGIRT) SCREW, #8 X 1/2", SPLIT POINT, SELF DRILLING, SELF TAPPING, CARBON STEEL FLAT PHILLIPS HEAD, COUNTERSUNK TYPE. (ITEM # 5) SIDE LAP SCREW (FOR SIDING OVERLAP AT CORRUGATION CROWN) SCREW, #12-14 X 5/8" LONG, TYPE AB, HEX FLANGE HEAD, 2024-T4 ALUMINUM WITH 0.195" THICK BY 7/16" OD EPDM RUBBER SEAL AND ALUMINUM HARD WASHER, 0.266" ID X 11/16" OD X 0.051" THICK, EQUAL TO MCMASTER CARR # 93286A029. (ITEM # 8) LOCK NUT- 3/8" HEX HEAD, ASTM F 594, TYPE 304 OR 305, UNC CLASS 2A THREADS, WITH NYLON INSERT LOCKING FEATURE. (ITEM # 13) RETAINING NUT- 3/8" BOLT DIAMETER, NYLON MATERIAL, SPECIAL SHAPED CENTER FOR GRIPPING SHANK AND SCREW THREADS, 1/16" THICK EQUAL TO MCMASTER CARR # 91755A117. (ITEM # 9) INSULATING WASHER- 1-1/8" OD X 7/16" ID FOR 3/8" CARRIAGE BOLTS AND 1-1/8" OD X 5/16" ID FOR 1/2" FASTENERS, TYPE 304 SS, 3/64" THICK, WITH 1/16" THICK TEFLON BONDED TO ONE SIDE OF WASHER EQUAL TO PHOENIX PART NOS. 1187716 AND 118516, PHOENIX SPECIALTY CO. BAMBURG, SC (1-800-378-3884). (ITEM # 16) INSULATING WASHER- 3/8" ID X 1" OD, 0.083" THICK, TYPE 304 OR 316 SS PER ANSI B18.22.1. (ITEM # 15) BEVELED WASHER, 3/8" BOLT DIAMETER, ANSI B18.23.1, UNHARDED TYPE B, HOT-DIPPED GALVANIZED TO ASTM A 153, G90. (ITEM # 17) INSULATING WASHER/SLEEVE, TEFLON MATERIAL, WITH INTEGRAL FLAT HEAD WASHER AND TUBE SHANK, 0.379" ID X 0.419" OD X 1-1/2" LONG FOR 3/8" BOLTS AND 0.252" ID X 0.292" OD X 1-1/2" LONG FOR 1/2" BOLTS EQUAL TO NYLITTE CORP., S. PLAINFIELD, NJ. (ITEM # 18) INSULATING WASHER- TEFLON MATERIAL, 0.281" ID X 0.735" OD X 0.062" THICK FOR 1/4" X 5/8" LONG SELF-TAPPING SCREW.



SUBMITTAL TABLE and SUBMITTAL TABLE: (CONTINUED) with columns: ITEM, SPEC # OR DWG #, ITEM, SPEC # OR DWG #



Project information block including: CAD MAINTAINED, UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES, INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994, TOLERANCES ON: FRACTIONS DECIMALS ANGLES, ORIGINAL DATE OF DRAWING (2013/04/20), JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA, LAUNCH COMPLEX 39 VAB, BLDG K6-848 SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM NOTES, T. O. ADAMS, 22264, K0000071397, A. C. LITTLEFIELD

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REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

SPECIFICATIONS (CONT):

8.6 - SEALANTS:
(ITEM # 19) TAPE FOR ALUMINUM SIDING OVERLAPS-BUTYL RUBBER 1/8" THICK X 1/2" WIDE, 100% SOLID PREFORMED SYNTHETIC POLYMER BASED ADHESIVE COMPLYING WITH AMMA 804.1, 806.1 AND 807.3 WITH REMOVABLE BACKING, COLOR GRAY, TEMPERATURE RANGE -60 TO +212 DEGREES F EQUAL TO MOREAU POLYSULF TAPE, MOREAU CO., WINSTON-SALEM, NC 27127 (336) 764-5232.

(ITEM # 10) SEALANT FOR LINER PANEL INTERLOCK-1/8" X 5/8" BEAD, BUTYL RUBBER SEALANT, SINGLE COMPONENT, A NON-DRYING, NON-SKIMMING SEALANT FOR BEDDING AND SEALING PANELS, SHEETS AND OTHER JOINTS.

8.7 - INSULATION:
(ITEM # 3) INSULATION SHALL BE 1-1/2 INCH THICK, SEMI-RIGID MINERAL FIBER, CONFORMING TO ASTM C 612, TYPE IA, CLASS A, WITHOUT FACING WITH DENSITY NOT GREATER THAN 3.0 POUNDS PER CUBIC FOOT AND THERMAL CONDUCTIVITY (K) NOT GREATER THAN 0.26 BTU IN/HR FT2 DEGREE F AT MEAN TEMPERATURE OF 75 DEGREE F EQUAL TO OWENS CORNING SCR BOARD, OWENS CORNING, TOLEDO, OH.

8.8 - ADHESIVE TAPE:
(ITEM # 11) ADHESIVE TAPE, 2" WIDE, CLOSED CELL POLYETHYLENE, WHITE 63 MILS THICK, ACRYLIC ADHESIVE, TEMPERATURE RANGE -20 TO +158 DEGREES F EQUAL TO MCMMASTER CARR # 7598A58.

8.9 - INSTALLATION:
SIDING INSTALLER SHALL HAVE A MINIMUM OF TWO (2) YEARS OF EXPERIENCE IN THE INSTALLATION OF EXPOSED FASTENER SIDING AND SHOW EVIDENCE OF SUCCESSFUL COMPLETION OF AT LEAST THREE (3) PROJECTS OF SIMILAR SIZE, SCOPE AND COMPLEXITY.

SIDING SHALL BE INSTALLED WITH CORRUGATIONS VERTICAL.

END LAPS OF EXTERIOR SIDING SHEETS SHALL NOT BE LESS THAN 3-5/8" INCHES; THE SIDE LAPS OF EXTERNAL SIDING SHEETS SHALL BE NOT LESS THAN ONE AND ONE-HALF CORRUGATIONS FOR V-BEAM .

SEPARATE ALUMINUM FROM CONTACTING DISSIMILAR METALS WITH INSULATING TAPE, TEFLON OR NYLON INSULATING MATERIAL.

8.10 - FASTENING SYSTEM
8.10.1 - TORQUE REQUIREMENT
THE TORQUE REQUIREMENTS FOR INSTALLATION OF THE SIDING FASTENERS SHALL BE DETERMINED BY A PERFORMANCE TEST BY THE CONSTRUCTION CONTRACTOR AND WITNESSED BY CONTRACTING OFFICER REPRESENTATIVES.

ALL FASTENERS SHALL BE INSTALLED WITH TORQUE REQUIRED TO COMPRESS THE SEALING COMPONENTS OF THE ASSEMBLIES FOR WATER TIGHT, SNUG FIT WITHOUT BENDING, DIMPLING, STRIPPING OUT THREADED ENGAGEMENTS OR CUPPING OF WASHERS OR SIDING.

THE PERFORMANCE TEST SHALL DEMONSTRATE THE TORQUE SETTING FOR EACH TYPE AND SIZE FASTENER USED ON ASSEMBLY OF A TYPICAL PANEL INCLUDING ATTACHMENT OF THE ASSEMBLY TO THE MAIN STRUCTURAL GIRTS.

THE CONTRACTOR SHALL USE A TORQUE SETTING AND TORQUE LIMITING TOOL WITH VISUAL INDICATION OF THE TORQUE VALUE UTILIZED FOR EACH FASTENER (ITEM NOS. 5,6,7/8, 12, AND 14).

THE ITEM #16, 1/4" X 3" LONG SELF-TAPPING SCREW SHALL BE INSTALLED INTO 0.228" DIAMETER PRE-DRILLED HOLES USING A WAX STICK TO PROVIDE A UNIFORM TORQUING ACTION.

UPON APPROVAL BY THE CONTRACTING OFFICER THE ESTABLISHED TORQUE SETTING AND INSTALLATION PROCEDURES SHALL BE UTILIZED AS STANDARD FOR FABRICATION AND INSTALLATION OF ALL SIDING.

8.10.2 - METAL SIDING SYSTEM
ALUMINUM SIDING SHALL BE ATTACHED WITH FASTENERS OF A LENGTH TO PENETRATE THE SUPPORT MEMBER AS SHOWN ON THE SIDING PANEL ASSEMBLY DRAWING. V-BEAM SHEET FASTENERS SHALL BE SPACED AT INTERVALS SHOWN ON THE DRAWINGS. SIDE LAP FASTENERS SHALL BE SPACED AT NOT MORE THAN 12 INCHES ON CENTER. END LAPS OF SIDING SHEETS SHALL BE NOT LESS THAN 3-5/8 INCHES. SIDE LAPS SHALL BE TWO CROWNS AND ONE VALLEY OVERLAP AS SHOWN ON THE DRAWINGS. INTERLOCKING SIDE JOINTS SHALL BE FACTORY CAULKED. OVERLAP JOINTS SHALL BE SEALED WITH A CONTINUOUS BEAD OF THE SPECIFIED JOINT SEALANT. SUBGIRTS SHALL BE INSTALLED AT INDICATED SPACING BUT NOT MORE THAN 6 FEET 4 INCHES ON CENTER AND SECURED THROUGH THE INTERIOR SHEET INTO THE BUILDING STEEL GIRT SUPPORTS WITH FASTENERS SPACED AS SHOWN IN THE DRAWINGS. INSULATION SHALL BE PLACED AGAINST THE INNER SHEET AND SUPPORTED ON SUBGIRT, BUTTING EACH INSULATION BOARD TIGHTLY TOGETHER. EXTERIOR SHEETS SHALL BE FASTENED TO SUBGIRTS WITH EXPOSED FASTENERS AT THE SPECIFIED SPACING.

8.11 DISSIMILAR METALS
DISSIMILAR METALS SHALL BE INSULATED FROM EACH OTHER BY INSULATING TAPE, NYLON INSULATOR MATERIAL OR OTHER SYSTEM APPROVED BY THE CONTRACTING OFFICER.

8.12 - JOINT SEALANTS
JOINT SEALANTS SHALL BE WEATHERTIGHT. END JOINTS OF METAL SIDING AND OPENINGS IN WALLS SHALL BE SEALED WITH THE SPECIFIED JOINT SEALANT. SEALING BEADS SHALL BE CONTINUOUS AT ALL HORIZONTAL AND VERTICAL JOINTS AND APPLIED TO ENSURE A WEATHERTIGHT JOINT.

8.13 WARRANTIES
THE ALUMINUM SIDING COATING SYSTEM SHALL BE WARRANTED FOR A PERIOD OF 20 YEARS FROM DATE OF INSTALLATION COVERING CHALKING, CRACKING, BLISTERING, FLAKING AND FADING. THE COATING SHALL NOT FADE OR CHANGE COLOR FOR TWENTY YEARS IN EXCESS OF 5 NBS UNITS WHEN MEASURED IN ACCORDANCE WITH ASTM D 2244. DEFECTS IN MATERIALS, WORKMANSHIP AND APPEARANCE AFTER EXPOSURE TO THE ELEMENTS OF FLORIDA SUNLIGHT AND SEA-COAST ENVIRONMENT SHALL BE REPAIRED OR REPLACED BY THE SIDING MANUFACTURER AT NO EXPENSE TO THE GOVERNMENT.

9. PROTECTIVE COATING FOR ALUMINUM:
9.1 - PRODUCTS
ABRASIVES:
BLASTING AGGREGATE SHALL BE APPROVED MATERIALS IN ACCORDANCE WITH MIL-A-22262 OR AB1, TYPE I OR II, CLASS A, OR STEEL GRIT. ONLY MATERIALS APPROVED IN THE OPL ATTACHED TO MIL-A-22262 SHALL BE USED. THE ABRASIVE GRADE SELECTED MUST PRODUCE THE REQUIRED SURFACE PROFILE AND POSSESS PHYSICAL PROPERTIES THAT ARE COMPATIBLE WITH THE REQUIREMENTS OF THIS STANDARD. THE STEEL GRIT SHALL BE NEUTRAL (6.0 TO 8.0 PH), RUST OIL FREE, DRY, COMMERCIAL-GRADE BLASTING GRIT WITH A HARDNESS OF 40 TO 50 ROCKWELL C. THE SIZE SHALL BE SELECTED TO PRODUCE THE REQUIRED ANCHOR PROFILE. FOR PAINT REMOVAL OR CLEANING OF ALUMINUM, MIL-P-85891 MAY BE USED AS AN ALTERNATE. ONLY AGGREGATE THAT IS FREE OF CRYSTALLINE SILICA SHALL BE SELECTED FOR USE AT NASA.

SEALANT:
SEALANT SHALL BE A SELF-CURING, SINGLE COMPONENT, POLYSULFIDE-RUBBER TYPE OR POLYURETHANE MATERIAL CONFORMING TO ASTM C 920, TYPE S, GRADE NS, CLASS 25, USE NT, A AND O. SEALANT SHALL BE GRAY IN COLOR AND CAPABLE OF BEING APPLIED INTO THE JOINT WITH A CAULKING GUN.

9.2 - COATINGS:
COATING SYSTEM I SHOWN APPLY TO NEW ALUMINUM V-BEAM SIDING AND NEW ALUMINUM PLATES AND TUBING EXPOSED TO EXTERIOR.

COATING SYSTEM SHALL BE SELECTED FROM THE FOLLOWING LISTING. NO SUBSTITUTION SHALL BE MADE WITHOUT THE APPROVAL OF THE CONTRACTING OFFICER. ALL THINNERS AND CLEANERS SHALL BE PRODUCTS OF THE COATING MANUFACTURER. PRIMER AND FINISH COATS OF THE COATING SYSTEM SHALL BE PRODUCTS OF THE SAME MANUFACTURER.

SYSTEM:	PRIMER	FINISH COAT	MANUFACTURER
DTM BONDING PRIMER B6A50 OR EQUAL	SHER-CRYL HPA ACRYLIC	666-3650 OR EQUAL	THE SHERWIN WILLIAMS COMPANY 101 PROSPECT AVE., N.W. CLEVELAND, OH 44115-1075 (216) 566-2000
	CAROCRYLIC 120	CARBOCRYLIC 3358	CARBOLINE COMPANY 350 HANELY INDUSTRIAL CT. ST. LOUIS, MO 62144 (800) 677-0753 WWW.CARBOLINE.COM

9.3 - FINISH COLOR:
FINISH COLORS SHALL CONFORM TO THE FOLLOWING FED-STD 595 NUMBERS WHEN SPECIFIED IN THE COATING SCHEDULE AND SHALL BE SELECTED BY THE CONTRACTING OFFICER.

CHARCOAL	NO. 16081 (ALCOA E-287 GRAY)
WHITE	NO. 27898 (ALCOA E-245 WHITE)

9.4 SURFACE PREPARATION:
ALL SURFACES TO BE PAINTED SHALL BE CLEAN, DRY, AND FREE FROM OIL, GREASE, DIRT, DUST, CORROSION, PEELING PAINT, AND ANY OTHER SURFACE CONTAMINANTS.

SURFACE SHALL BE ABRASIVE-BLASTED, (SEE CAUTION), MECHANICALLY CLEANED WITH ABRASIVE DISCS OR HAND-SANDED OR POWER-SANDED WITH ABRASIVE SANDING SHEETS (APPROXIMATELY 220-GRIT) OR DISCS (APPROXIMATELY 36-GRIT). ABRASIVE BLASTING SHALL BE USED WHENEVER POSSIBLE. MECHANICAL CLEANING SHALL BE USED ONLY WHEN ABRASIVE BLASTING IS IMPRACTICAL, WOULD DAMAGE STRUCTURE OR COMPONENT, OR IS PROHIBITED IN THE AREA OF WORK. ALL CORROSION AND FOREIGN MATERIAL SHALL BE COMPLETELY REMOVED AND ALL SURFACES SLIGHTLY ROUGHENED. ABRASIVE BLASTING MATERIAL SHALL NOT BE REUSED.

CAUTION:
ALUMINUM IS SUSCEPTIBLE TO DISTORTION WHEN IT IS ABRASIVE-BLASTED. SPECIAL CARE SHALL BE TAKEN TO ENSURE AGAINST ANY METAL DISTORTION BY REDUCING BLAST NOZZLE PRESSURE AND INCREASING THE WORKING DISTANCE FROM NOZZLE TO SURFACE. IN SOME CASES, SUCH AS IN THE SURFACE PREPARATION OF LIGHT GAUGE ALUMINUM SHEET, THESE PRECAUTIONS MAY NOT BE SUFFICIENT TO PREVENT DISTORTION, AND AN ALTERNATE PROCEDURE, SUCH AS SANDING OR MECHANICAL CLEANING MUST BE USED.

COMPRESSED AIR USED FOR SURFACE PREPARATION OPERATIONS SHALL BE FREE OF MOISTURE AND OIL.

LIGHTLY ABRASE NEW SIDING SURFACES IN ACCORDANCE WITH MIL-A-22262 USING PLASTIC MEDIA PER MIL-P-85891 FOLLOWED BY WATER BLST CLEANING USING POTABLE WATER WITH DETERGENT INHIBITOR AT 2500 PSI TO 5000 PSI AND 6-8 GALLONS PER MINUTE.

9.5 INSPECTION:
IMMEDIATELY AFTER THE SURFACE HAS BEEN PREPARED, IT WILL BE INSPECTED BY THE NACE INSPECTOR TO DETERMINE COMPLIANCE WITH THE SPECIFICATION FOR SURFACE PREPARATION. IF THE SURFACE PREPARATION DOES NOT MEET THE REQUIREMENTS, THE SURFACE SHALL BE RECLEANED UNTIL APPROVED. NO COATINGS SHALL BE APPLIED UNTIL THE SURFACE PREPARATION HAS BEEN APPROVED.

SPECIFICATIONS: (CONT)

9.6 - COATING APPLICATION:
MANUFACTURER'S RECOMMENDATIONS FOR THINNING, MIXING, HANDLING, AND APPLYING THIS PRODUCT SHALL BE CONSIDERED A PART OF THIS SPECIFICATION. IN THE EVENT OF CONFLICT BETWEEN THE REQUIREMENTS OF THIS SPECIFICATION AND THE MANUFACTURER'S RECOMMENDATIONS, THIS SPECIFICATION SHALL TAKE PRECEDENCE.

EACH COAT OF MATERIALPLIED SHALL BE FREE FROM RUNS, SAGS, BLISTERS, AND BUBBLES; VARIATIONS IN COLOR, GLOSS, AND TEXTURE; HOLIDAYS (MISSED AREAS); EXCESSIVE FILM BUILD; FOREIGN CONTAMINANTS; DRY OVERSPRAY. MASKING SHALL BE COMPLETE AND EACH COAT APPLIED SHALL FORM A FILM OF UNIFORM THICKNESS.

ALL COATINGS SHALL BE THOROUGHLY WORKED INTO ALL JOINTS, CREVICES, AND OPEN SPACES.

ALL NEWLY COATED SURFACES SHALL BE ADEQUATELY PROTECTED FROM DAMAGE.

ALL COATINGS SHALL BE APPLIED BY CONVENTIONAL OR AIRLESS SPRAY. CONVENTIONAL SPRAY IS GOOD FOR INTRICATE CONFIGURATION AND TOUCHUP.

WEATHER CONDITION-NO COATING SHALL BE APPLIED WHEN CONTAMINATION FROM RAINFALL IS IMMINENT OR WHEN THE TEMPERATURE OR HUMIDITY IS OUTSIDE LIMITS RECOMMENDED BY THE COATING MANUFACTURER. TO PREVENT MOISTURE CONDENSATION DURING APPLICATION, SURFACE TEMPERATURE MUST BE AT LEAST 3 DEGREES CELSIUS (5 DEGREES FAHRENHEIT) ABOVE THE DEWPOINT. WIND SPEED SHALL NOT EXCEED 25 KILOMETERS PER HOUR (15 MILES PER HOUR) IN THE IMMEDIATE COATING AREA WHEN USING SPRAY APPLICATION METHODS.

MIXING AND APPLICATION PROCEDURES- MATERIAL SHALL BE THOROUGHLY STIRRED WITH A MIXING INSTRUMENT SUCH AS A JIFFY MIXER, MANUFACTURED BY THE JIFFY MIXER COMPANY, INC., SAN FRANCISCO, CALIFORNIA, OR APPROVED EQUAL. MIXER SHALL BE POWERED BY AN AIR MOTOR OR AN EXPLOSION PROOF ELECTRIC MOTOR.

MIXED MATERIAL SHALL BE STRAINED THROUGH A 30 TO 60 MESH SCREEN.

MATERIAL SHALL BE APPLIED IN EVEN PARALLEL PASSES, OVERLAPPING 50 PERCENT TO PROVIDE COMPLETE AND UNIFORM COVERAGE. SPECIAL ATTENTION SHALL BE GIVEN TO WELDS, CUTOUTS, SHARP EDGES, RIVETS, CREVICES, AND BOLTS TO ENSURE PROPER COVERAGE.

PRESSURE POT, WHEN USED, SHALL BE KEPT AT THE SAME LEVEL OR ABOVE THE SPRAY GUN FOR PROPER MATERIAL DELIVERY.

9.7 - DRY-FILM THICKNESS (DFT):
DTM BONDING PRIMER SHALL BE 2.0 TO 4.0 MILS.
SHER-CRYL HPA ACRYLIC SHALL BE 2.0 TO 4.0 MILS.

TOUCHUP:
ABRASIONS AND SCRATCHES SHALL BE TOUCHED UP AS FOLLOWS:
A. SURFACE SHALL BE CLEANED AND DEGREASED PER SSPC SP 1.
B. DAMAGED AREA SHALL BE SANDED LIGHTLY WITH SANDPAPER TO SMOOTH AND FEATHER THE EDGES.
C. FINISH COATS SHALL BE APPLIED TO THE AFFECTED AREA. FINISH COAT SHALL BE COMPATIBLE WITH EXISTING COATINGS.
A TEST PATCH MAY BE REQUIRED AT THE OPTION OF THE CONTRACTING OFFICER.
TOUCHUP AREAS SHALL BLEND IN WITH THE SURROUNDING COATING.

CAULKING:
CAULKING SHALL BE ACCOMPLISHED AFTER APPLICATION AND CURE OF THE PRIMER.
ALL EXTERIOR EXPOSED JOINTS SHALL BE CAULKED, INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
A. PERIMETER OF FLYING AND BEARING SURFACES OF STRUCTURAL MEMBERS.
B. JOINTS IN MEMBERS BETWEEN INTERMEDIATE WELDS.
C. ALL OPENINGS OF 1/8" INCH OR SMALLER. POLYETHYLENE, CLOSED CELL ROD, BACKUP MATERIAL SHALL BE USED AS REQUIRED.

9.8 - COATING SCHEDULE:
NEW ALUMINUM V-BEAM SIDING #27886 WHITE FOR OFF-WHITE.

10. PROTECTIVE COATING FOR CARBON STEEL:
10.1 - GENERAL:
A SAFETY PLAN SHALL BE SUBMITTED FOR PROTECTIVE COATING SYSTEMS IN ACCORDANCE WITH OSHA REGULATIONS. MATERIAL, EQUIPMENT, AND FIXTURE LISTS SHALL BE SUBMITTED FOR MANUFACTURER'S STYLE OR CATALOG NUMBERS, SPECIFICATION NUMBER, AND DRAWING NUMBERS AND WARRANTY INFORMATION FOR THE PROTECTIVE COATING SYSTEM FABRICATOR.
THIS SECTION ESTABLISHES THE REQUIREMENTS FOR THE APPLICATION OF PROTECTIVE COATING TO PREVENT CORROSION OF CARBON STEEL SURFACES AND IS ADAPTED FROM THE REQUIREMENTS OF NASA-STD-5008.

10.2 - PRODUCTS:
10.2.1 - ABRASIVE BLASTING MATERIAL
BLASTING AGGREGATES SHALL BE APPROVED MATERIALS IN ACCORDANCE WITH MIL-A-22262 OR SSPC AB 1, TYPE I OR II, CLASS A, OR STEEL GRIT. ONLY MATERIALS APPROVED IN THE ATTACHED TO MIL-A-22262 SHALL BE USED. THE ABRASIVE GRADE SELECTED MUST PRODUCE THE REQUIRED SURFACE PROFILE AND POSSESS PHYSICAL PROPERTIES THAT ARE COMPATIBLE WITH THE REQUIREMENTS OF THIS STANDARD. THE STEEL GRIT SHALL BE NEUTRAL (6.0 TO 8.0 PH), RUST AND OIL FREE, DRY, COMMERCIAL-GRADE BLASTING GRIT WITH A HARDNESS OF 40 TO 50 ROCKWELL C. THE SIZE SHALL BE SELECTED TO PRODUCE THE REQUIRED ANCHOR PROFILE.

10.2.2 - SEALANT COMPOUND
SEALANT SHALL BE A SELF-CURING, SINGLE COMPONENT, POLYSULFIDE-RUBBER TYPE CONFORMING TO ASTM C 920, TYPE S, GRADE NS, CLASS 25, USE NT, A AND O. SEALANT SHALL BE GRAY IN COLOR AND CAPABLE OF BEING APPLIED INTO THE JOINT WITH A CAULKING GUN.

10.2.3 - PROTECTIVE COATINGS
THE FOLLOWING COATING SYSTEM DEFINITIONS ARE TO BE SPECIFIED FOR USE ON THE SURFACES LISTED IN THE COATING SCHEDULE FOR ZONES 3B, ZONE 4A AND ZONE 4C IN ACCORDANCE WITH NASA-STD-5008B.

COATING SYSTEM SHALL CONSIST OF INORGANIC ZINC COATS (APPLIED TO STEEL SURFACES PREPARED IN ACCORDANCE TO SSPC SP-1 AND SSPC SP-3. MATERIALS WITH LESS THAN 400 GRAMS/LITER (3.3 POUNDS/GALLON) VOC (SB IS SOLVENT BASED AND WB IS WATER BASED):

COATING SYSTEM SHALL CONSIST OF INORGANIC ZINC COATS (APPLIED TO STEEL SURFACES PREPARED IN ACCORDANCE TO SSPC SP-1 AND SSPC SP-3. MATERIALS WITH LESS THAN 400 GRAMS/LITER (3.3 POUNDS/GALLON) VOC (SB IS SOLVENT BASED AND WB IS WATER BASED):

COATING SYSTEM SHALL CONSIST OF INORGANIC ZINC COATS (APPLIED TO STEEL SURFACES PREPARED IN ACCORDANCE TO SSPC SP-1 AND SSPC SP-3. MATERIALS WITH LESS THAN 400 GRAMS/LITER (3.3 POUNDS/GALLON) VOC (SB IS SOLVENT BASED AND WB IS WATER BASED):

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SPECIFICATIONS: (CONT)

10.2.7 TOUCH-UP:
NEWLY APPLIED COATINGS SHALL BE REPAIRED BY USING INORGANIC ZINC COAT IN THE SMALL AREA. SURFACES SHALL BE PREPARED BY WATER WASHING AND BY MECHANICAL METHODS TO SSPC SP 11 TO REMOVE CORROSION, WELD SLAG, AND TO "FEATHER BACK" COATING EDGES. TOUCHUP AND REPAIR SHALL BE ACCOMPLISHED PROMPTLY AFTER THE DAMAGE HAS OCCURRED. TOUCHUP AND REPAIR OF SHOP-APPLIED COATINGS SHALL BE ACCOMPLISHED USING COATINGS FROM THE SAME MANUFACTURER AS THOSE APPLIED IN THE SHOP.
SEALANT COMPOUND APPLICATION:
CAULKING SHALL BE ACCOMPLISHED AFTER APPLICATION AND CURE OF INORGANIC ZINC COATING.

10.2.8 QUALITY ASSURANCE:
ON-SITE WORK SHALL BE INSPECTED FOR COMPLIANCE WITH THIS SPECIFICATION BY AN INDEPENDENT NACE (NATIONAL ASSOCIATION OF CORROSION ENGINEERS) CERTIFIED COATING INSPECTOR, LEVEL III, PROVIDED BY THE CONSTRUCTION CONTRACTOR.

FOR ALL PROTECTIVE COATINGS APPLIED OFF-SITE LOCATIONS, CONSTRUCTION CONTRACTOR SHALL PROVIDE FULL INSPECTION BY AN INDEPENDENT NACE CERTIFIED COATING INSPECTOR, LEVEL III.

10.2.9 RESPONSIBILITY FOR INSPECTION:
THE COATING CONTRACTOR/APPLICATOR SHALL PROVIDE CONTINUOUS QUALITY CONTROL INSPECTION OF THE WORK TO ENSURE COMPLETE CONFORMANCE TO THE PROJECT SPECIFICATIONS. A PROJECT PROJECT-SPECIFIC QUALITY CONTROL COATING INSPECTION PLAN SHALL BE SUBMITTED TO THE CONTRACTING OFFICER.

AN INDEPENDENT NACE CERTIFIED COATING INSPECTOR, LEVEL III, PROVIDED BY THE CONSTRUCTION CONTRACTOR SHALL PERFORM ALL OF THE IN-PROCESS INSPECTIONS REQUIRED BY THIS DRAWING AND THE PROJECT SPECIFICATIONS.

MANDATORY INSPECTION POINTS SHALL INCLUDE BUT NOT LIMITED TO THE FOLLOWING:
A. VERIFICATION OF AMBIENT WEATHER CONDITIONS
B. PRIOR TO BEGINNING OF SURFACE PREPARATION WORK, INCLUDING THE OPERATION OF EQUIPMENT.
C. AFTER SURFACE PREPARATION WORK AND BEFORE THE BEGINNING OF THE COATING APPLICATION WORK, INCLUDING THE MIXING OF PRODUCTS.
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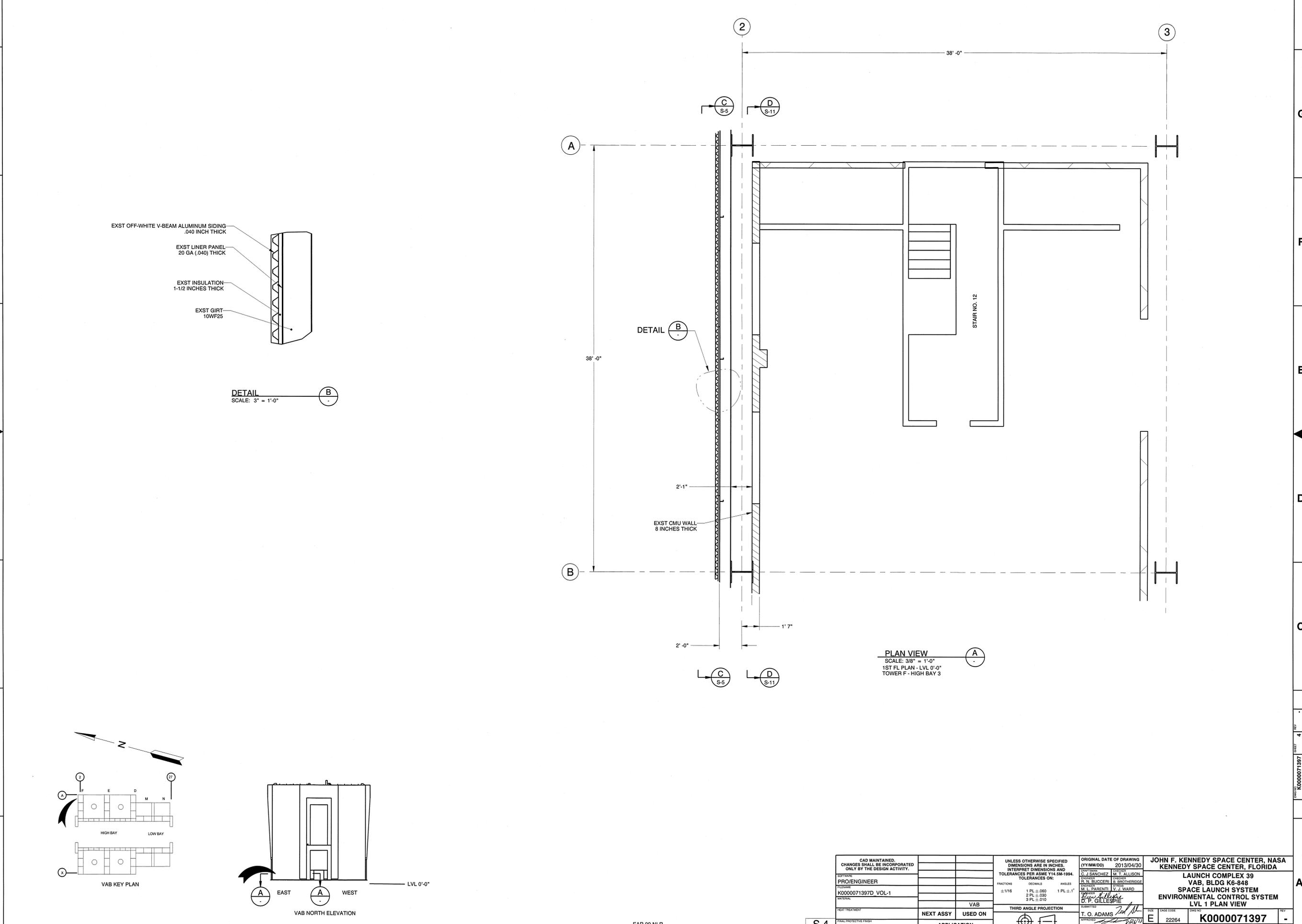
MANDATORY INSPECTION POINTS SHALL INCLUDE BUT NOT LIMITED TO THE FOLLOWING:
A. VERIFICATION OF AMBI

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REVISION HISTORY			
PART NO.	ZONE REV	DESCRIPTION	DATE

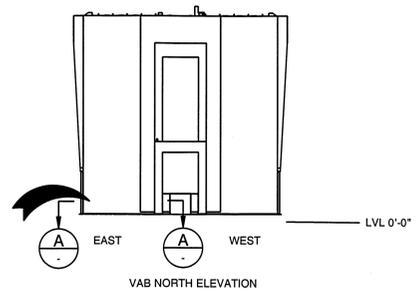
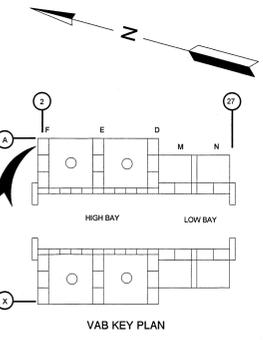
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DETAIL
SCALE: 3" = 1'-0"

PLAN VIEW
SCALE: 3/8" = 1'-0"
1ST FL PLAN - LVL 0'-0"
TOWER F - HIGH BAY 3



CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY.	PRO/ENGINEER K0000071397D_VOL-1	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994. TOLERANCES ON: FRACTIONS DECIMALS ANGLES $\pm 1/16$ 1 PL $\pm .000$ 1 PL $\pm .1$ 2 PL $\pm .000$ 3 PL $\pm .010$	ORIGINAL DATE OF DRAWING (YY/MM/DD) 2013/04/30	JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA
			T. O. ADAMS A. C. LITTLEFIELD	CASE CODE 22264
FINISH TREATMENT NEXT ASSY USED ON	MATERIAL VAB	THIRD ANGLE PROJECTION	SUBMITTED T. O. ADAMS A. C. LITTLEFIELD	SCALE NOTED

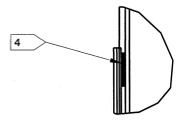
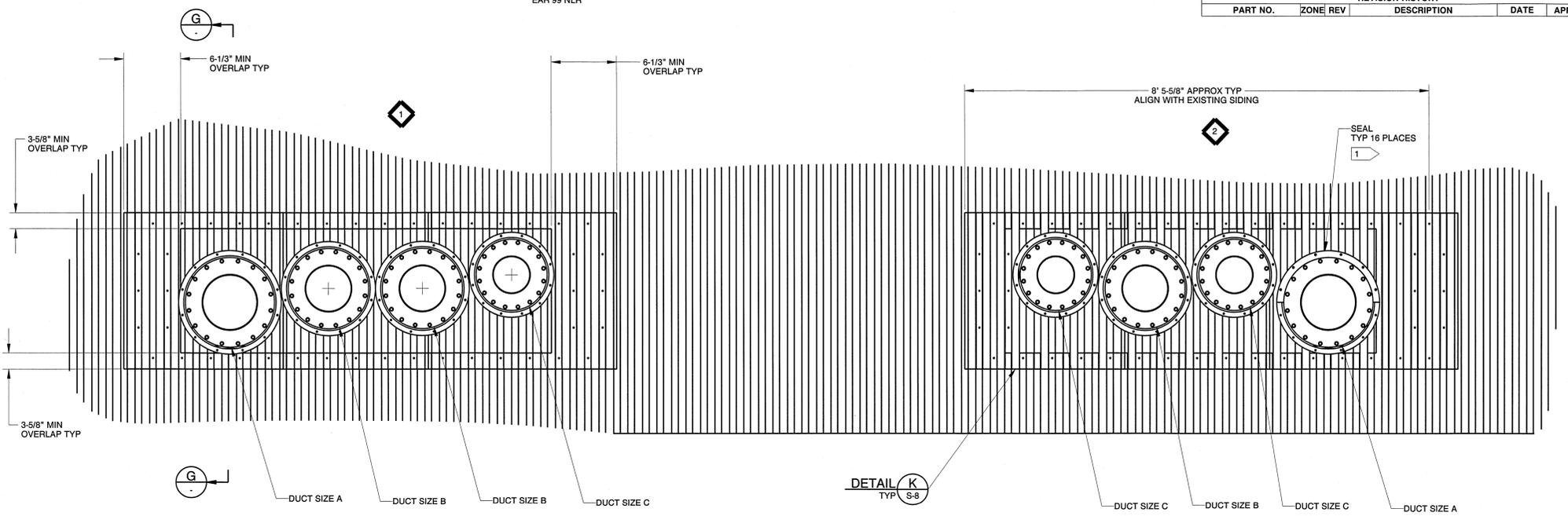
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FORM 8-132207

PART NO.		ZONE	REV	DESCRIPTION	DATE	APPROVAL

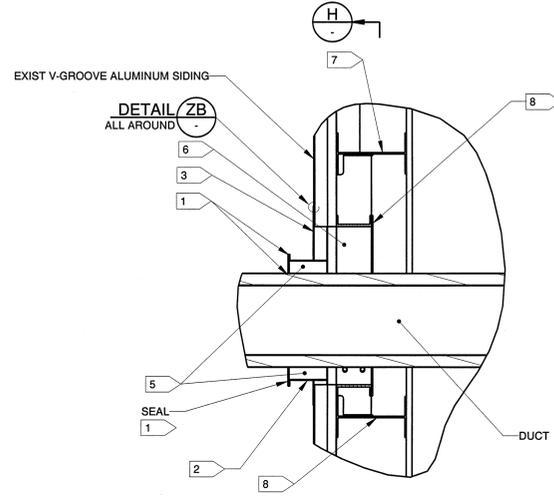
- SPECIFIC NOTES: (TYPICAL)**
- WHITE POLYURETHANE SEALANT CAULK ALL AROUND SLEEVE (SEE SECTION G) AND SEAL PLATE (SEE SECTION F) FOR EACH DUCT.
 - ALUMINUM SLEEVE WELDED TO V-GROOVE PANEL 1 AND PANEL 2.
 - V-GROOVE ALUMINUM SIDING.
 - USE SEALANT TAPE ALL AROUND NEW PANELS TO ENSURE WEATHERPROOF SEAL.
 - FILL AREA BETWEEN DUCT AND SLEEVE WITH FIRESTOP SEALANT.
 - FILL ENTIRE AREA BETWEEN GIRTS WITH INSULATION.
 - EXST GIRT.
 - LINER PANEL.



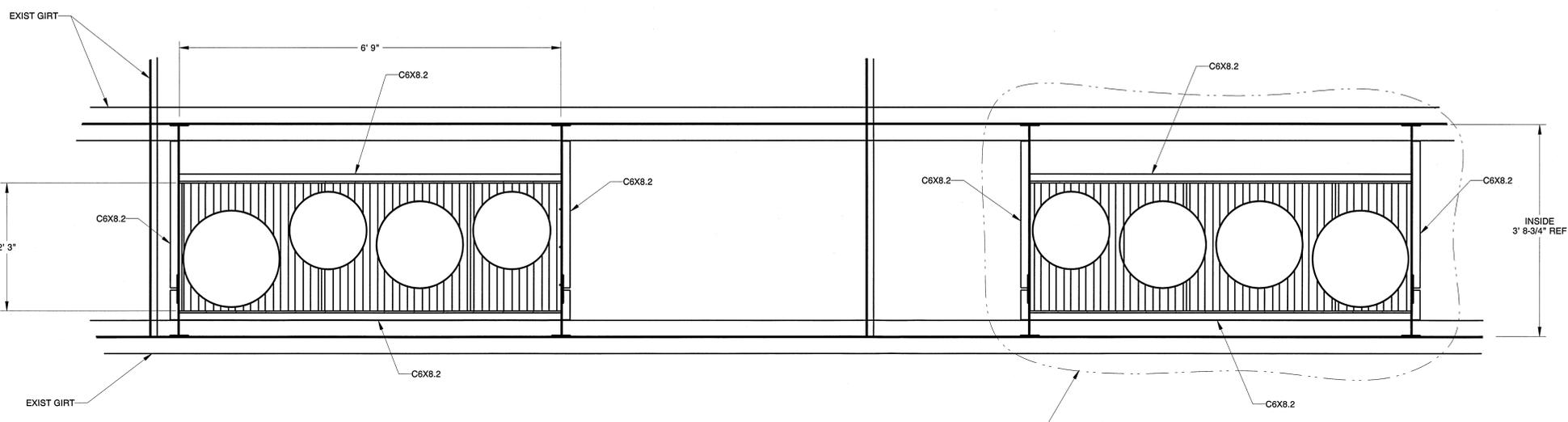
SECTION ZB
SCALE: 1/8" = 1'-0"

DETAIL K
TYP S-9

SECTION F
SCALE: 1" = 1'-0"
RESTORATION, EXTERIOR WALL
MOST SEALS REMOVED

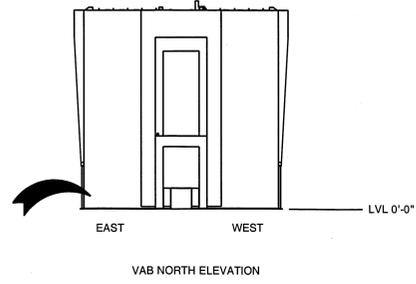
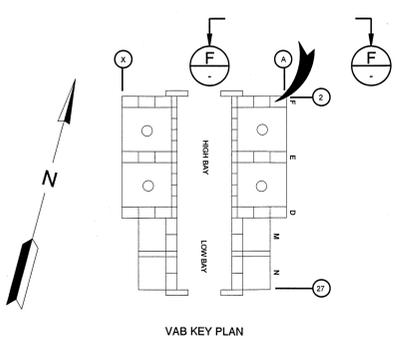


SECTION G
SCALE: 3" = 1'-0"



DETAIL J
TYP S-7

SECTION H
SCALE: 3" = 1'-0"
SIDING INSIDE RESTORATION
DUCTS NOT SHOWN

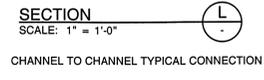
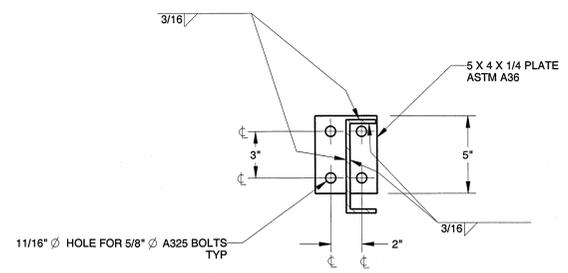
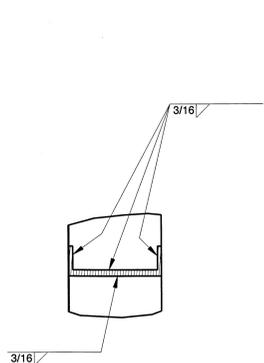
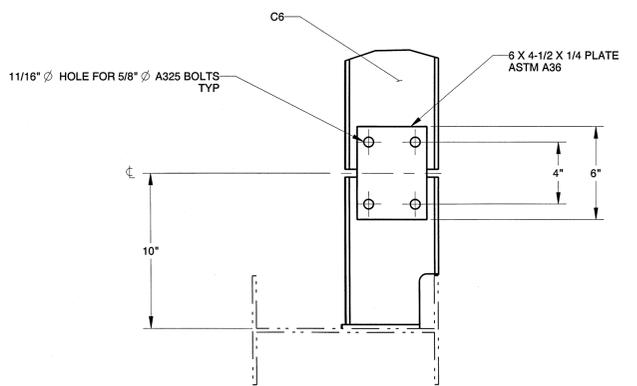
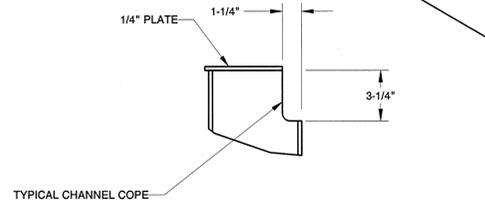
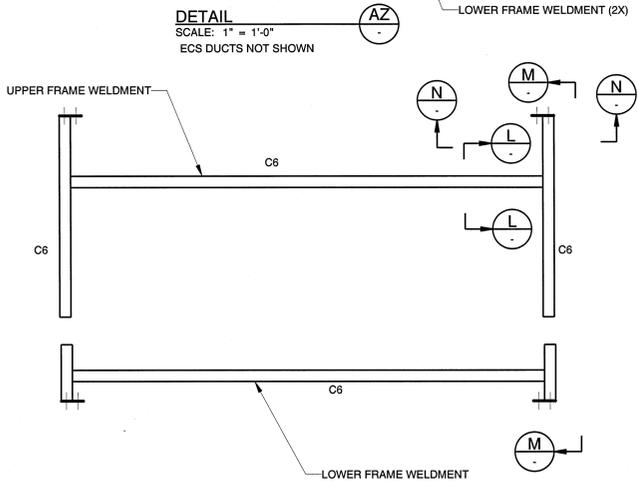
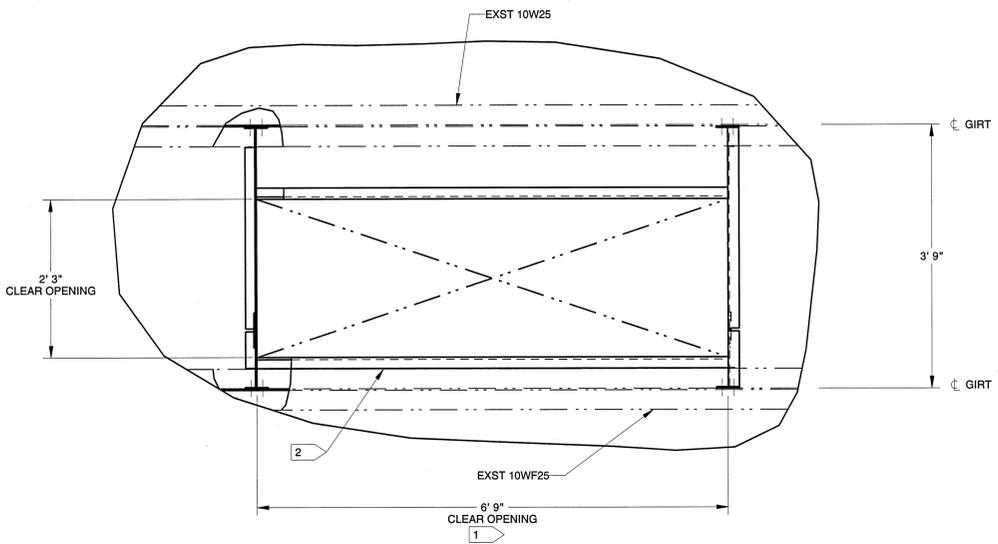
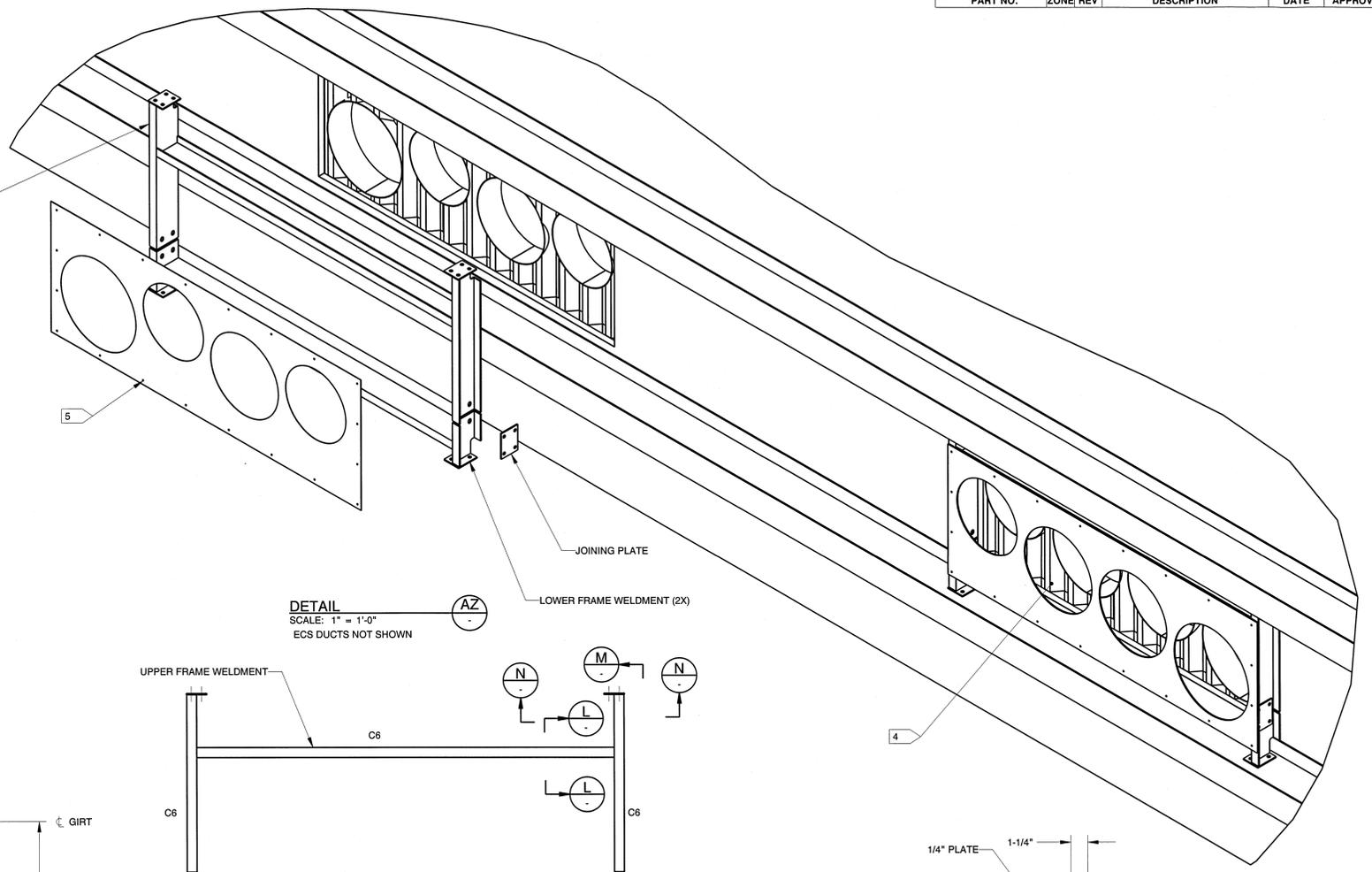


CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY.	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994.	ORIGINAL DATE OF DRAWING (YYMMDD) 2013/04/30	JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA		
			LAUNCH COMPLEX 39 VAB, BLDG K6-848 SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM RESTORATION, EXTERIOR WALL		
SOFTWARE PRO/ENGINEER	FRACTIONS DECIMALS ANGLES 1/16 1 PL ±.060 1 PL ±.1 2 PL ±.030 3 PL ±.010	DESIGNED BY C. J. SANCHEZ M. T. ALLISON CHECKED BY R. N. BUCCIERI B. BERTHIERDORF M. J. PARENTI V. J. WARD B. P. GILLESPIE	DRAWN BY T. O. ADAMS	DATE CODE 22264	DRAWING NO. K000071397
MATERIAL VAB	THIRD ANGLE PROJECTION	SUBMITTED BY T. O. ADAMS	DATE 22264	SCALE NOTED	SHEET 6 OF 6
FINISH TREATMENT FINAL PROTECTIVE FINISH	NEXT ASSY APPLICATION	APPROVED BY A. C. LITTLEFIELD	DATE 22264	SCALE NOTED	SHEET 6 OF 6

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REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

- SIDING RESTORATION NOTES:**
- PRIOR TO INSTALLATION OF SIDING CONTRACTOR NEEDS TO ADJUST THE PANELS TO MATCH CURRENT V-BEAM CONFIGURATION. ADJUST THE DISTANCE BETWEEN CHANNELS TO MAINTAIN OPENING CLEARANCE.
 - CHECK MEMBER LENGTH WITH RESPECT TO THE ADJUSTED AS STATED IN NOTE 1.
 - INSTALL NEW SIDING V-BEAM PANELS TO COVER THE NEW OPENING AND RESEAL TO RESTORE THE VAB TO ITS ORIGINAL SIDING CONFIGURATION AS FOLLOWS:
 - INSTALL THE TOP EDGE OF THE NEW PANELS UNDERNEATH THE BOTTOM EDGE OF THE TOP PANELS TO PROVIDE THE STANDARD 3/8" OVERLAP.
 - INSTALL NEW SEALANT TAPE (ITEM #19) AROUND THE PERIMETER OF EACH PANEL.
 - CLEAN THE FAYING SURFACE OF THE NEW STEEL FRAME PER SP-3 AND SP-1 AND INSTALL NEW ADGESIVE TAPE (ITEM #11)
 - INSTALL NEW SELF-TAPPING SCREWS (ITEM # 6) WITH 1 1/8" DIA INSULATING WASHERS (ITEM # 9) VERIFY THAT ALL SCREWS PENETRATE AND ARE SECURED TO THE FLANGES.
 - INSTALL INSULATION WITH SNUG FIT ALL AROUND AT SUBGIRTS AND LINER PANEL SEAMS.
 - LINER PANEL TO BE ATTACHED TO CHANNELS USING 1/4" X 1" SELF TAPPING SCREWS.



CAD MAINTAINED CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY.	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. TOLERANCES PER ASME Y14.5M-1994. TOLERANCES ON: FRACTIONS DECIMALS ANGLES ±1/16 1 PL ±.050 1 PL ±.1° 2 PL ±.030 3 PL ±.010	ORIGINAL DATE OF DRAWING (YYMMDD) 2013/04/30	JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA
		SOFTWARE PRO/ENGINEER	DESIGNED BY C. J. SANCHEZ
TITLE K0000071397D VOL-1	DRAWN BY M. L. PARENT	PROJECT D. P. GILLESPIE	SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM RESTORATION, EXTERIOR WALL
MATERIAL VAB	THIRD ANGLE PROJECTION	SUBMITTED BY T. O. ADAMS	DRAWN BY K0000071397
FINISH TREATMENT FINAL PROTECTIVE FRISH	NEXT ASSY USED ON APPLICATION	APPROVED BY A. C. LITTLEFIELD	SCALE NOTED

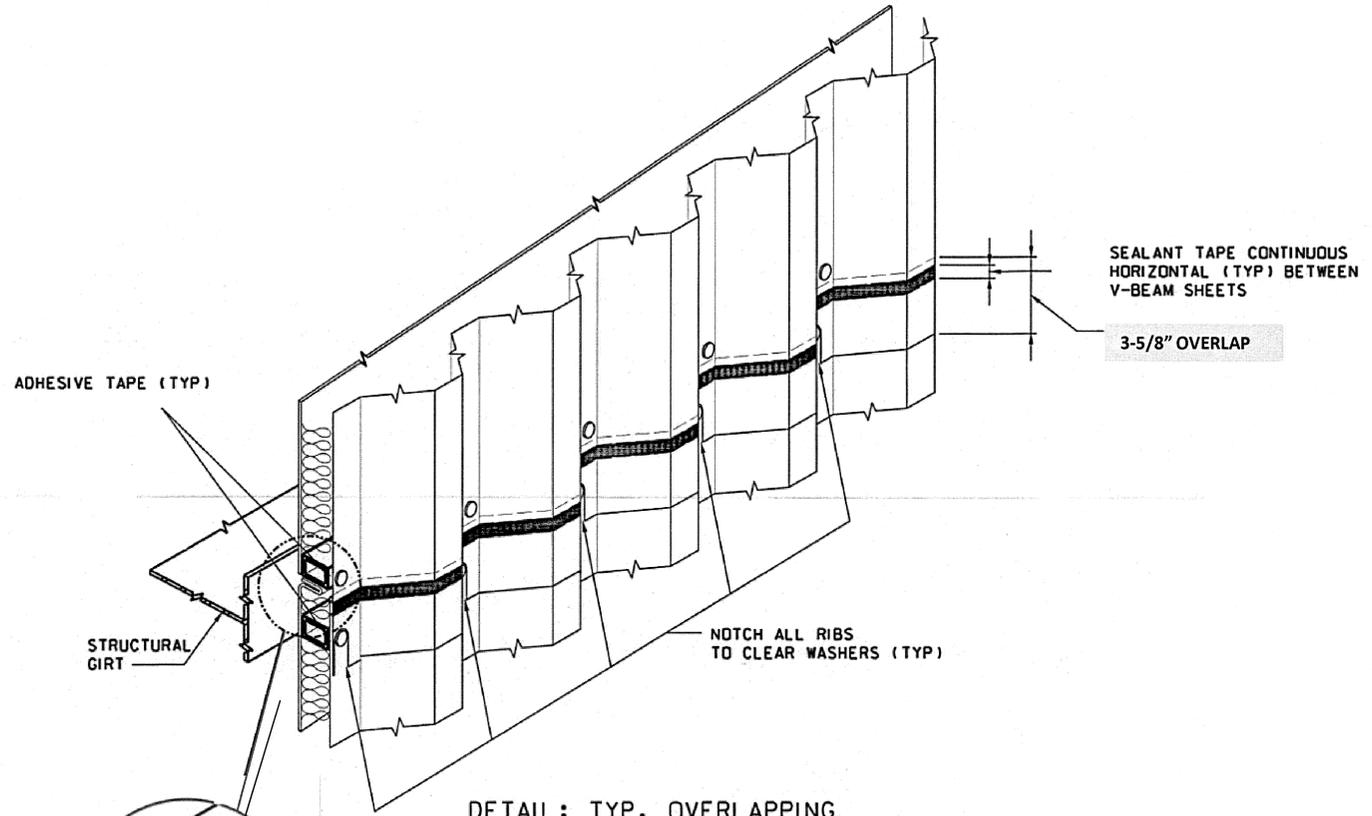
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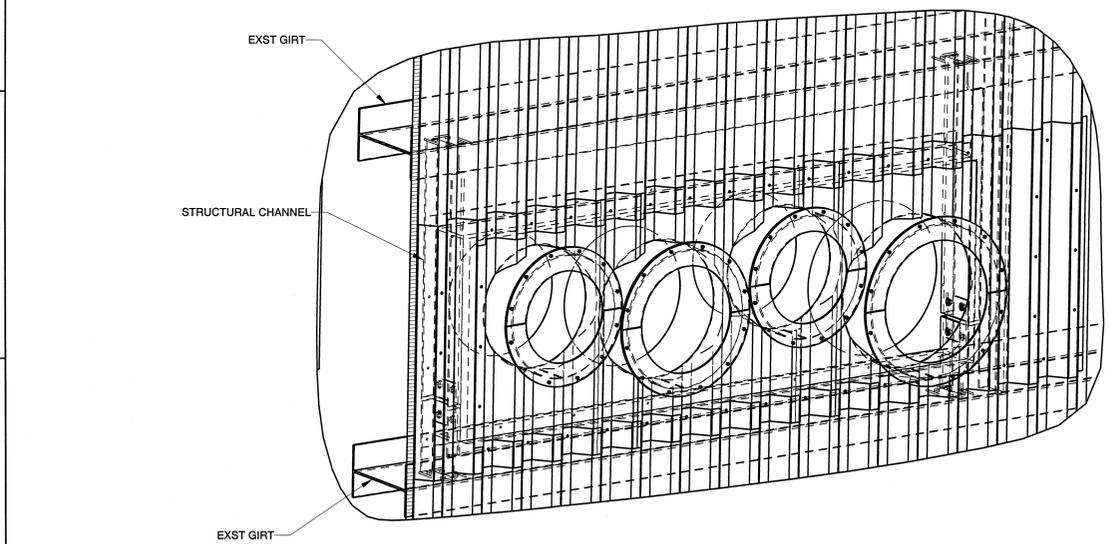
REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

SIDING RESTORATION BILL OF MATERIALS:

- ALUMINUM V-BEAM PANEL, 6.33 INCH PITCH BY 2.34-INCH DEPTH, 0.040 ICH THICK, ALLOY 3004-H36, PER ASTM B2009, STUCCO FINISH WITH FACTORY APPLIED PVDF (KYNAR) COATING 2 MILS DFT, ON EACH SIDE.
- STEEL LINER PANELS - SHALL BE FLAT STEEL SHEET PER ASTM A 653, GRADE 33, 20 GAUGE THICKNESS, HOT-DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A 653, G165.
- INSULATION SHALL BE 1-1/2 INCH THICK, SEMI-RIGID MINERAL FIBER, CONFORMING TO ASTM C 612, TYPE IA, CLASS A.
- SUBGIRTS - SHALL BE ELECTRICAL RESISTANCE WLDDED STEEL TUBES CONFORMING TO ASTM A 513, HOT DIPPED GALVANIZED IN ACCORDANCE WITH ASTM A 123 GRADE 85. SUBGIRTS SHALL BE 1-1/2" X 1-1/2" MIN UNCOATED WALL THICKNESS OF 0.063 INCH.
- SIDE LAP SCREW (FOR SIDING OVERLAP AT CORRUGATION CROWN) SCREW, #12-14 X 5/8" LONG, TYPE AB, HEX FLANGE HEAD, 2024-T4 ALUMINUM WITH 0.195" THICK BY 7/16" OD EPDM RUBBER SEAL AND ALUMINUM HARD WASHER, 0.286" ID X 11/16" OD X 0.051" THICK, EQUAL TO MCMASTER CARR # 93286A029.
- SELF-TAPPING SCREW (FOR ATTACHMENT OF SIDING ASSEMBLIES TO THE STRUCTURAL ANGLES), SCREW, 1/4" X 1" LONG, PER ANSI B18.6.4, HEX HEAD, BLUNT TIP, UNF THREADS, 1-1/2" LONG THREADS, TYPE 304 OR 305, EQUAL TO HILTI HH 304 SS BPTW.
- HEX FLANGE HEAD BOLT (FOR ATTACHMENT OF SIDING ASSEMBLIES TO STRUCTURAL ANGLES), 3/8" X 3-1/2" LONG, PER ANSI B18.2.1, ASTM F 593, TYPE 304 OR 305, CONDITION A, UNC CLASS 2A THREADS.
- LOCK NUT- 3/8" HEX HEAD, ASTM F 594, TYPE 304 OR 305, UNC CLASS 2A THREADS, WITH NYLON INSERT LOCKING FEATURE.
- INSULATING WASHER- 1-1/8" OD X 7/16" ID FOR 3/8" CARRIAGE BOLTS AND 1-1/8" OD X 5/16" ID FOR 1/4" FASTENERS, TYPE 304 SS, 3/64" THICK, WITH 1/16" THICK TEFLON BONDED TO ONE SIDE OF WASHER EQUAL TO PHOENIX PART NOS. 1187716 AND 118516, PHOENIX SPECIALTY CO. BAMBURG, SC (1-800-379-3884).
- SEALANT FOR LINER PANEL INTERLOCK- 1/8" X 5/8" BEAD, BUTYL RUBBER SEALANT, SINGLE COMPONENT, A NON-DRYING, NON-SKIMMING SEALANT FOR BEDDING AND SEALING PANELS, SHEETS AND OTHER JOINTS.
- ADHESIVE TAPE - 2" WIDE, CLOSED CELL POLYETHYLENE, WHITE 63 MILS THICK, ACRYLIC ADHESIVE, TEMPERATURE RANGE -20 TO + 158 DEGREES F EQUAL TO MCMASTER CARR # 7598A58.
- SELF-TAPPING SCREW (FOR LINER PANEL ATTACHMENT TO THE SUBGIRT) SCREW, #8 X 1/2", SPLIT POINT, SELF DRILLING, SELF TAPPING, CARBON STEEL FLAT PHILLIPS HEAD, COUNTERSUNK TYPE.
- RETAINING NUT- 3/8" BOLT DIAMETER, NYLON MATERIAL, SPECIAL SHAPED CENTER FOR GRIPPING SHANK AND SCREW THREADS, 1/16" THICK EQUAL TO MCMASTER CARR # 91755A117.
- SELF-TAPPING SCREW (FOR ATTACHMENT OF LINER PANEL TO CHANNELS), SCREW, 1/4" X 1" CARBON STEEL POINT, SELF DRILLING, SELF TAPPING, TYPE 304 OR 305, HEX FLANGE HEAD WITH SEPARATE TEFLON WASHER.
- BEVELED WASHER, 3/8" BOLT DIAMETER, ANSI B18.23.1, UNHARDED TYPE B, HOT-DIPPED GALVANIZED TO ASTM A 153, G90.
- INSULATING WASHER/SLEEVE, TEFLON MATERIAL, WITH INTEGRAL FLAT HEAD WASHER AND TUBE SHANK, 0.379" ID X 0.419" OD X 1-1/2" LONG FOR 3/8" BOLTS AND 0.252" ID X 0.292" OD X 1-1/2" LONG FOR 1/4" BOLTS EQUAL TO NYLITE CORP., S. PLAINFIELD, NJ.
- INSULATING WASHER- TEFLON MATERIAL, 0.281" ID X 0.735" OD X 0.082" THICK FOR 1/4" X 5/8" LONG SELF-TAPPING SCREW.
- TAPE FOR ALUMINUM SIDING OVERLAPS- BUTYL RUBBER 1/8" THICK X 1/2" WIDE, 100% SOLID PREFORMED SYNTHETIC POLYMER BASED ADHESIVE COMPLYING WITH AAMA 804.1, 806.1 AND 807.3 WITH REMOVABLE BACKING, COLOR GRAY.
- SEALANT SHALL BE A SELF-CURING, SINGLE COMPONENT, POLYSULFIDE-RUBBER TYPE OR POLYURETHANE MATERIAL CONFORMING TO ASTM C 920, TYPE S, GRADE NS, CLASS 25, USE NT, A AND O. SEALANT SHALL BE GRAY IN COLOR AND CAPABLE OF BEING APPLIED INTO THE JOINT WITH A CALKING GUN.



DETAIL: TYP. OVERLAPPING HORIZONTAL JOINT-WITH NOTCH AT BOTTOM JOINT
SCALE: 3" = 1'-0"

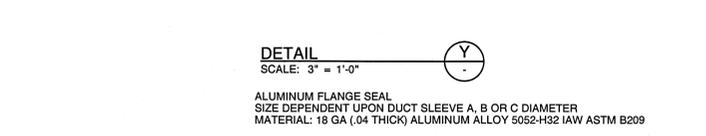
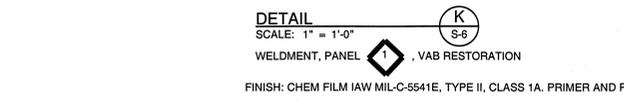
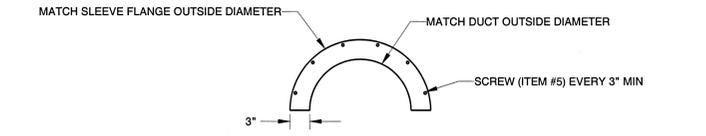
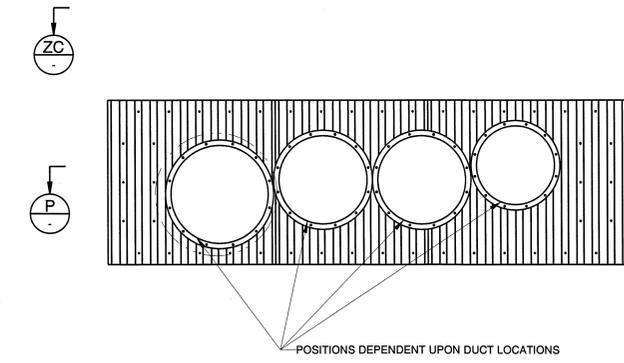
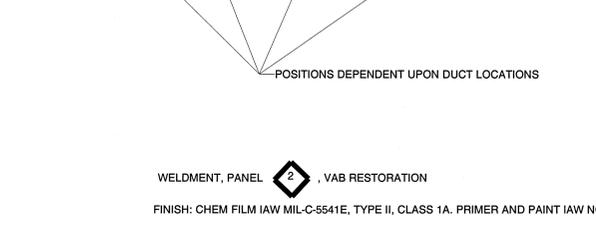
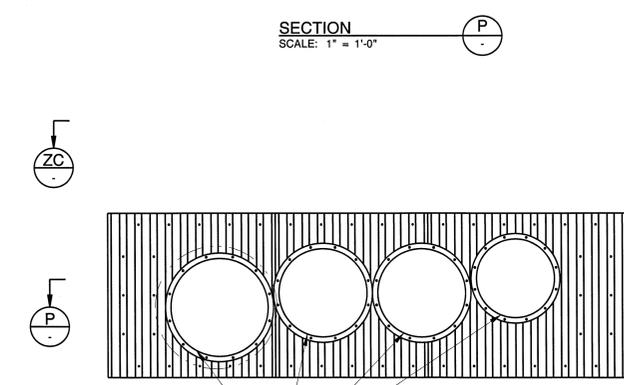
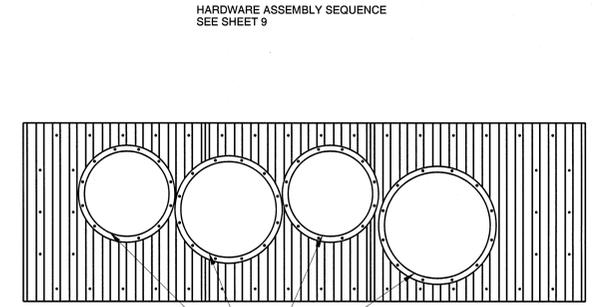
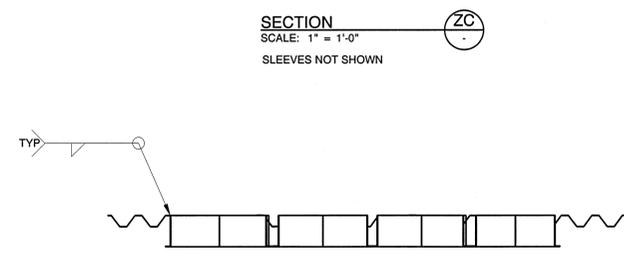
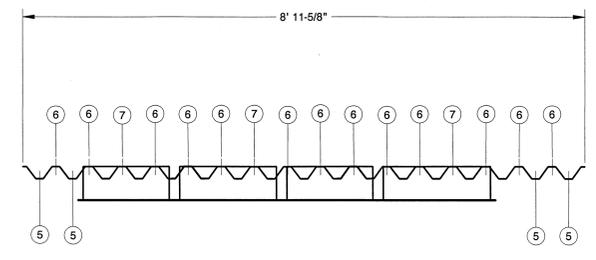
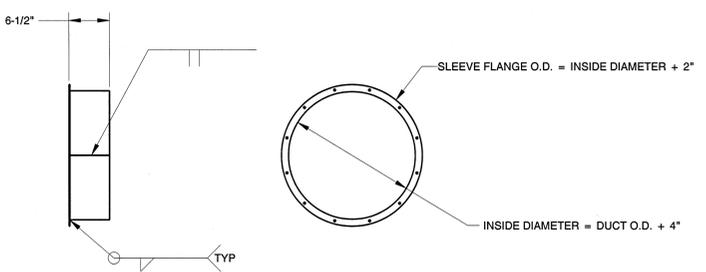
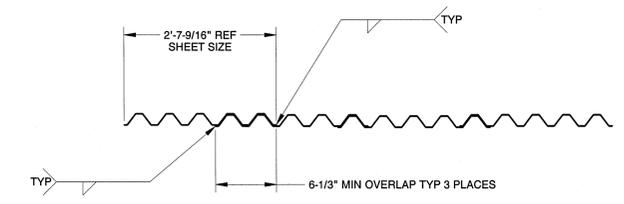
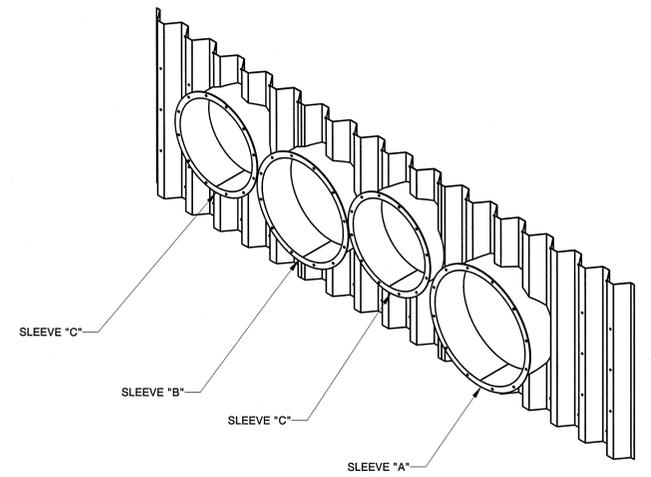
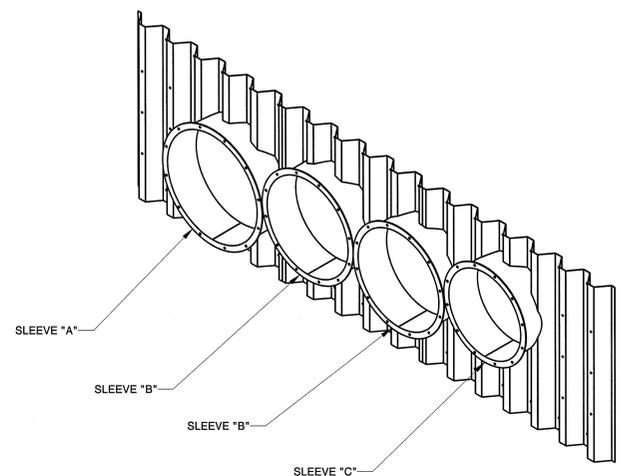


STANDARD V-BEAM PANEL ASSEMBLY ATTACHMENT TO VAB
SEE SHEETS S-9 AND S-10 FOR ASSEMBLY DETAILS
DUCTS NOT SHOWN

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SOFTWARE PRO/ENGINEER	DESIGNER C. J. SANCHEZ	FRACCTIONS ± 1/16	DECIMALS 1 PL ± .000 2 PL ± .003 3 PL ± .010	ANGLES 1 PL ± .1°	DATE 2013/04/30	SCALE NOTED	PROJECT NO. K0000071397
PROJECT K0000071397D_VOL-1	CHECKER M. T. ALLISON	TOLERANCES ON:		APPROVED T. O. ADAMS	DATE 2013/04/30	LAUNCH COMPLEX 39 VAB, BLDG K6-848 SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM RESTORATION, SIDING DETAILS	
MATERIAL VAB	DESIGNED BY D. P. GILLESPIE	THIRD ANGLE PROJECTION		APPROVED A. C. LITTLEFIELD	DATE 2013/04/30	SHEET 8 OF 8	
FINISH TREATMENT FINAL PROTECTIVE FINISH	NEXT ASSY USED ON	APPLICATION					

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REVISION HISTORY		PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL



OPENING ID	DUCT SYSTEM (OD)	V-BEAM SYSTEM OPENING SIZE	MAX SLEEVE FLANGE O.D.	DUCT HOLE AT SIDING (INSIDE Ø OF SLEEVE)
1	A - Ø 16"	6'-9" X 2'-3"	Ø 22-1/2"	Ø 22-1/4"
	B - Ø 14"		Ø 20-1/2"	Ø 20-1/4"
	B - Ø 14"		Ø 20-1/2"	Ø 20-1/4"
	C - Ø 12"		Ø 18-1/2"	Ø 18-1/4"
2	C - Ø 12"	6'-9" X 2'-3"	Ø 18-1/2"	Ø 18-1/4"
	B - Ø 14"		Ø 20-1/2"	Ø 20-1/4"
	A - Ø 16"		Ø 22-1/2"	Ø 22-1/4"

CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY. SOFTWARE: PRO/ENGINEER TITLE: K0000071397D_VOL-1 MATERIAL: VAB NEXT ASSY: USED ON APPLICATION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994. TOLERANCES ON: FRACTIONS: DECIMALS: ANGLES: ±1/16 1 PL ±.050 1 PL ±.1° ±.003 2 PL ±.010 3 PL ±.010	ORIGINAL DATE OF DRAWING (YY/MM/DD): 2013/04/30 DESIGNED BY: C. J. SANCHEZ CHECKED BY: M. T. ALLISON DRAWN BY: R. N. BLANCHARD APPROVED BY: M. L. PARENTI DATE: 4/11/13 BY: A. C. LITTLEFIELD	JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA LAUNCH COMPLEX 39 VAB, BLDG K6-848 SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM RESTORATION, SIDING DETAILS SHEET: K0000071397 OF 10

NOTES: WHEN GOVERNMENT DRAWINGS, SPECIFICATIONS, CONTRACT DATA ARE USED FOR ANY PURPOSE OTHER THAN IN CONNECTION WITH A DEFINITELY RELATED GOVERNMENT PURCHASE OR OPERATION, THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMISSIONS AND THE FACT THAT THE GOVERNMENT HAS REVIEWED AND APPROVED THESE DRAWINGS DOES NOT CONSTITUTE AN ENDORSEMENT OR A GUARANTEE OF THE ACCURACY OF THE INFORMATION CONTAINED HEREIN. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMISSIONS AND THE FACT THAT THE GOVERNMENT HAS REVIEWED AND APPROVED THESE DRAWINGS DOES NOT CONSTITUTE AN ENDORSEMENT OR A GUARANTEE OF THE ACCURACY OF THE INFORMATION CONTAINED HEREIN.

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

CMU WALL DEMOLITION NOTES: (FOR HOLE A & B)

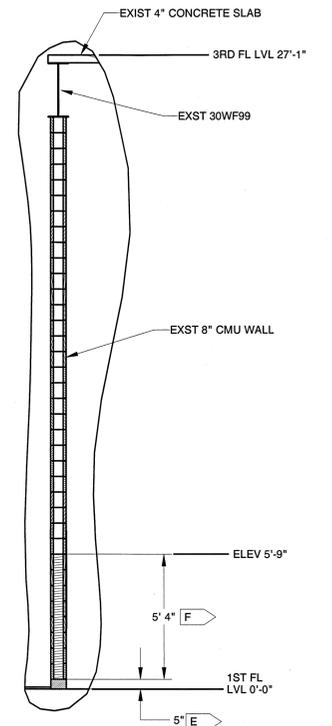
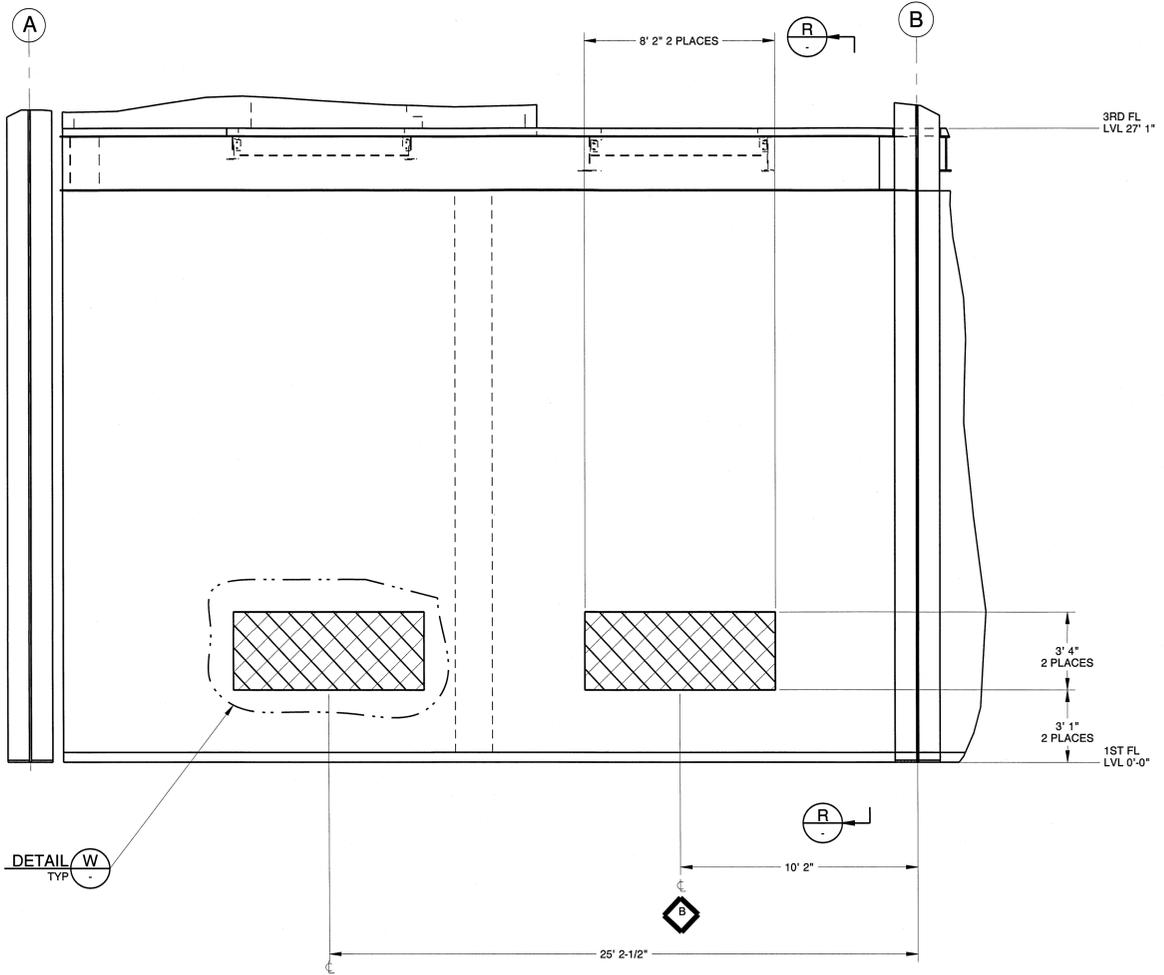
- CONTRACTOR SHALL SUBMIT A DEMOLITION AND SHORING PLAN TO THE CONTRACTING OFFICER FOR APPROVAL PRIOR TO COMMENCE WORK.
- PROVIDE TEMPORARY SHORING TO SUPPORT EXISTING CMU WALL AS NEEDED AND SECURE AGAINST UPPER WALL CUTOFF FOR FULL BEARING SURFACE. SHORING SYSTEM SHOULD BE ABLE TO SUPPORT 2,000 LBS PER LINEAR FEET MINIMUM. CONTRACTOR SHALL CONSIDER ADDITIONAL SHORING LOAD IF WORK ACTIVITIES WOULD BE OCCURRING SIMULTANEOUSLY AT THE 3RD FLOOR.
- DEMOLITION SEQUENCE FOR OPENINGS A AND B SHOULD BE IN SERIES BUT NOT AT THE SAME TIME. ONCE ONE OPENING IS COMPLETE WITH PROPER SHORING, CONTRACTOR SHALL PROCEED WORK WITH NEXT OPENING.

CMU WALL RESTORATION NOTES: (FOR HOLE A & B)

- DRILL AND DOWEL #6 REBARS INTO GROUT USING "HILTI" HSE 2421 INJECTION EDHESIVE EPOXY OR EQUIVALENT AT 4" SPACING, 6" EMBEDMENT.
- INSTALL #6 REBARS AT A MIN LAP SPLICE LENGTH OF 12" AT THE TOP. USE #3 REBAR FOR TIES @ 6" SPACING.
- PREPARE OPENING TO POUR CONCRETE OF 4,000 PSI MIN AT 28 DAYS COMPRESSIVE STRENGTH, ASTM C150 TYPE I OR TYPE II CEMENT.
- POUR CONCRETE AT BOTH SIDES OF OPENINGS TO BOTTOM AND SIDES OF W8 STEEL BEAMS.
- REMOVE SHORING AND FORMWORK AFTER CONCRETE HAS REACHED DESIRED COMPRESSIVE STRENGTH.

SPECIFIC NOTES:

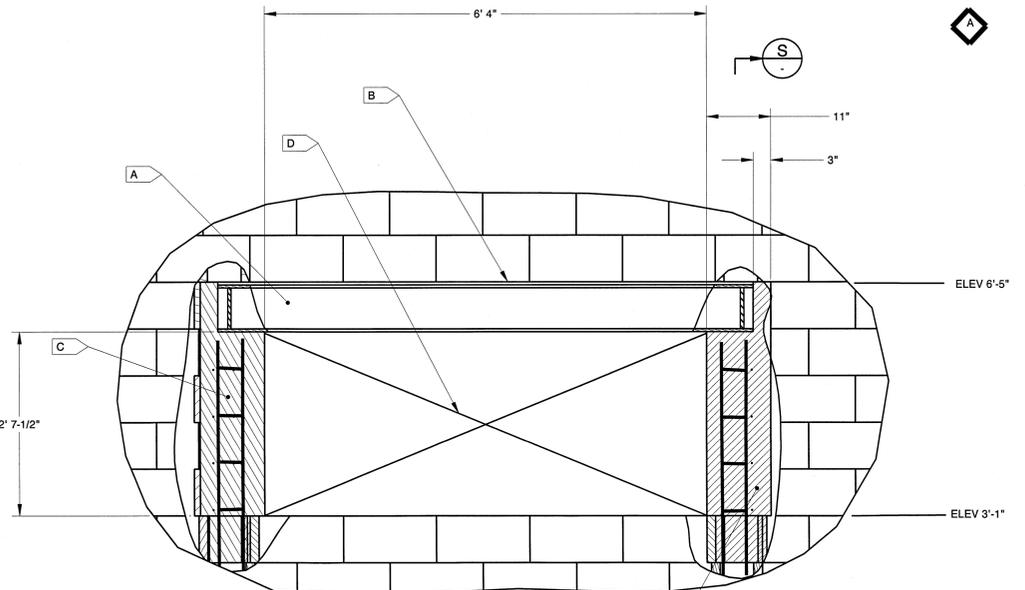
- A W8 x 35 BEAM WITH WELDED STUDS.
- B DRY PACK MORTAR OR HIGH STRENGTH NON-SHRINK GROUT SUITABLE FOR THIS TASK.
- C COMPRESSIVE STRENGTH CONCRETE OF 4,000 PSI MIN AT 28 DAYS, TYPE I OR TYPE II CEMENT ASTM C-150.
- D DUCT OPENING.
- E EXST 5" CONCRETE COURSE.
- F EXST BLOCKS FILLED WITH WITH CONCRETE WITH 1/2" DIA RODS @ 16" O.C. FOR FULL HEIGHT.
- G 3/8" KWIK BOLT 3, HILTI ITEM #282542 OR SIMILAR. MINIMUM EMBEDMENT - 2".



DETAIL W TYP

SECTION D S-4
SCALE: 3/8" = 1'-0"
INTERIOR WALL CUTOUTS
(8 IN THK CONCRETE BLOCK WALL)

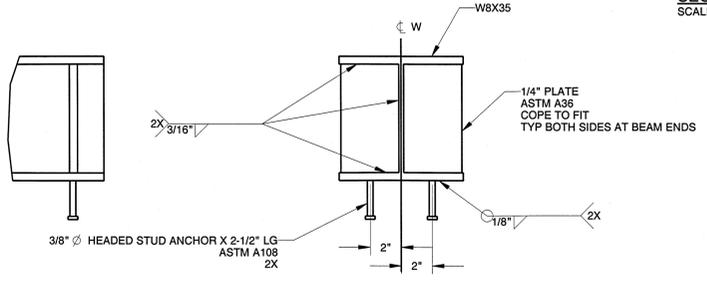
SECTION R
SCALE: 3/8" = 1'-0"



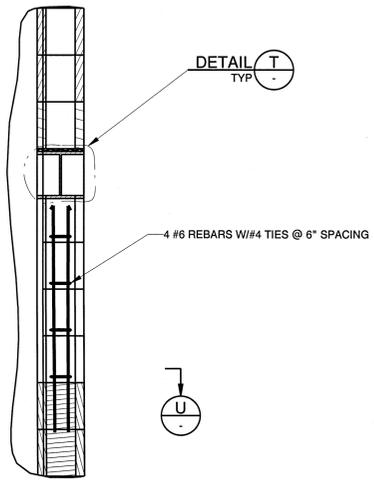
SECTION N-N
SCALE: 1" = 1'-0"

CMU WALL RESTORATION DETAIL

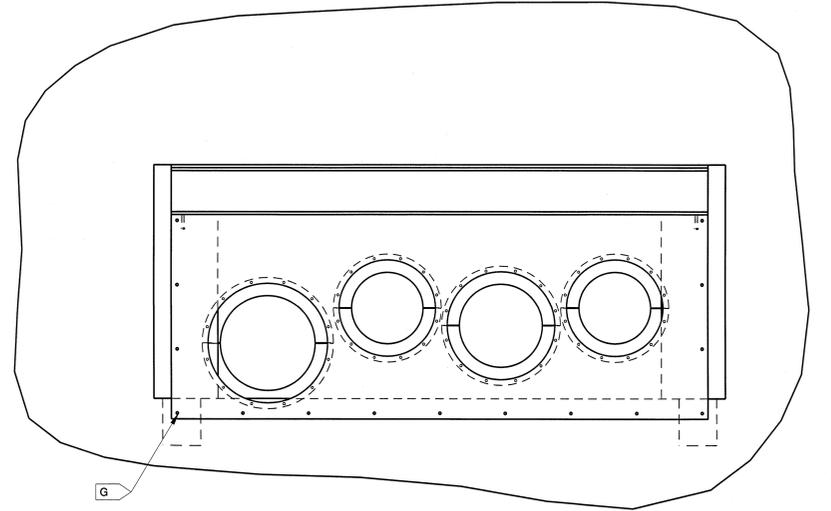
SEE WALL RESTORATION NOTES
CUTOFF A & B



DETAIL T
SCALE: 3/4" = 1'-0"



SECTION S
SCALE: 1" = 1'-0"

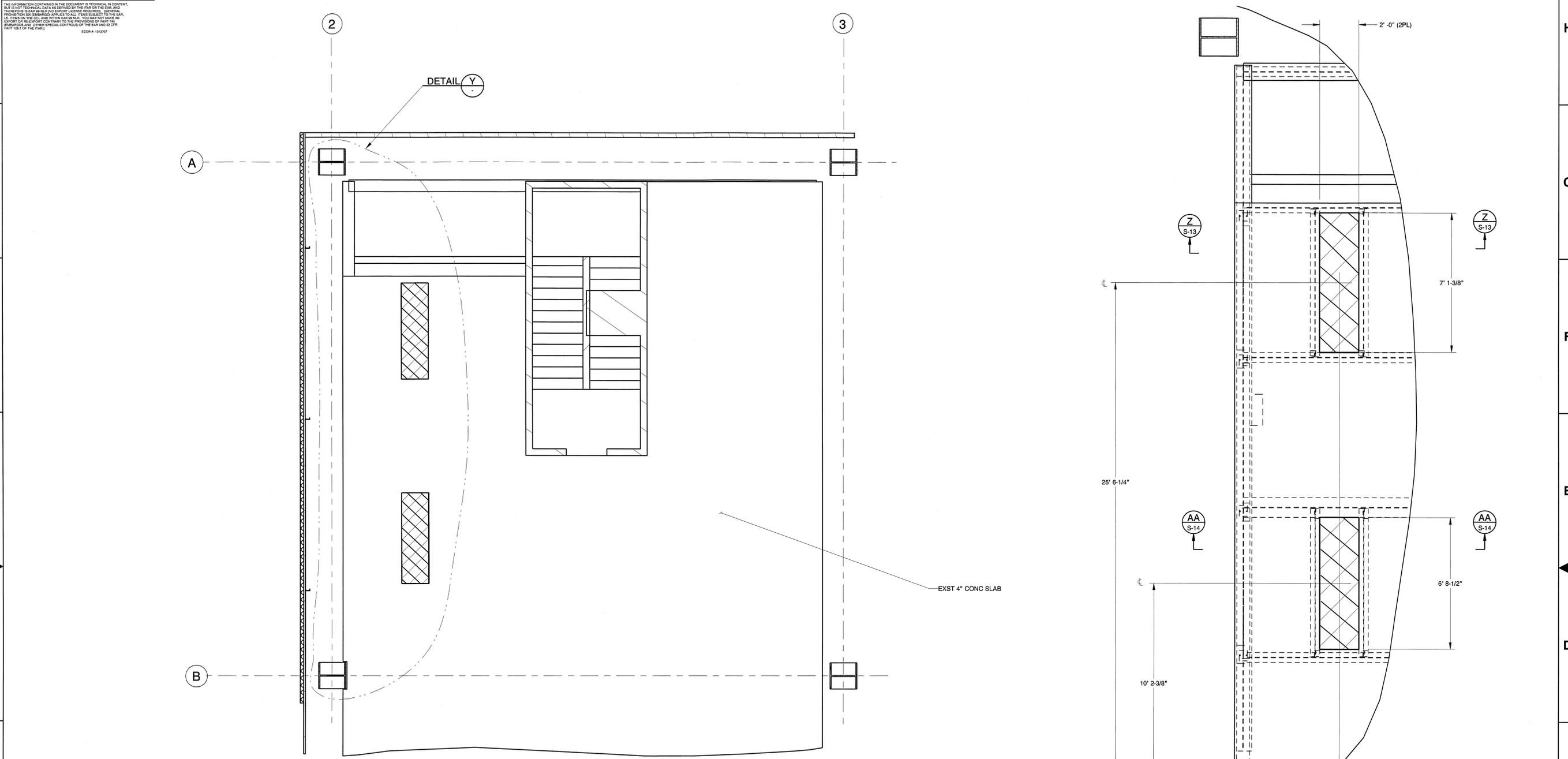


SECTION V
SCALE: 1" = 1'-0"

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		PROJECT: K0000071397D_VOL-1 DRAWN BY: T. O. ADAMS CHECKED BY: A. C. LITTLEFIELD	LAUNCH COMPLEX 39 VAB, BLDG K6-848 SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM DEMOL & RESTOR, INTERIOR CMU WALL
NEXT ASSY USED ON APPLICATION	THIRD ANGLE PROJECTION	T. O. ADAMS A. C. LITTLEFIELD	SHEET NO. 11 SCALE: NOTED DATE: 22284 DRAWING NO. K0000071397

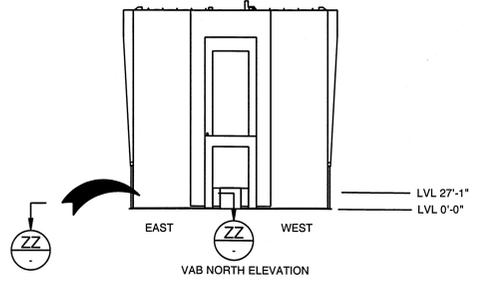
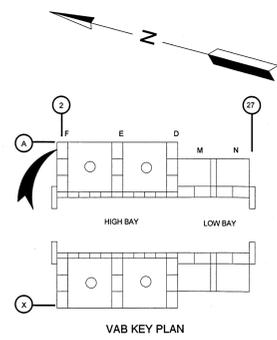
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REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL



SECTION
SCALE: 3/8" = 1'-0"
3RD FL PLAN - LVL 27'-1"
TOWER F - HIGH BAY 3

DETAIL
SCALE: 1/2" = 1'-0"
DEMOLITION, 3RD FL



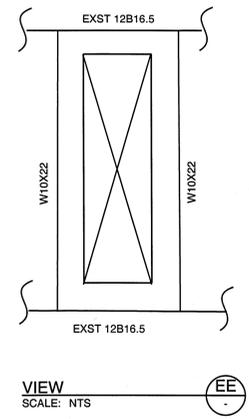
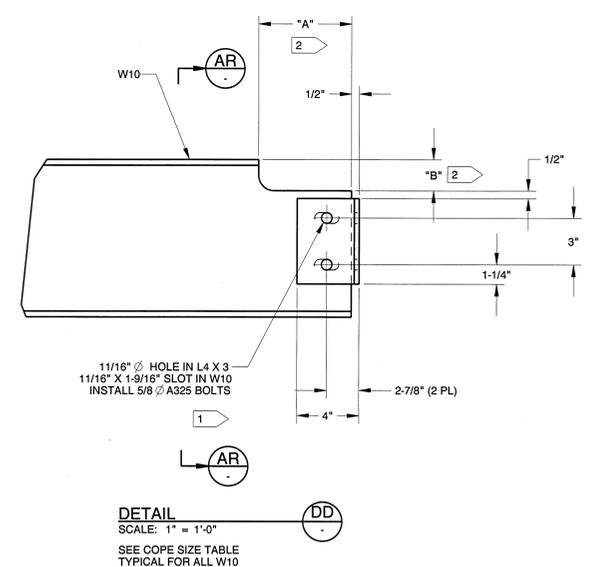
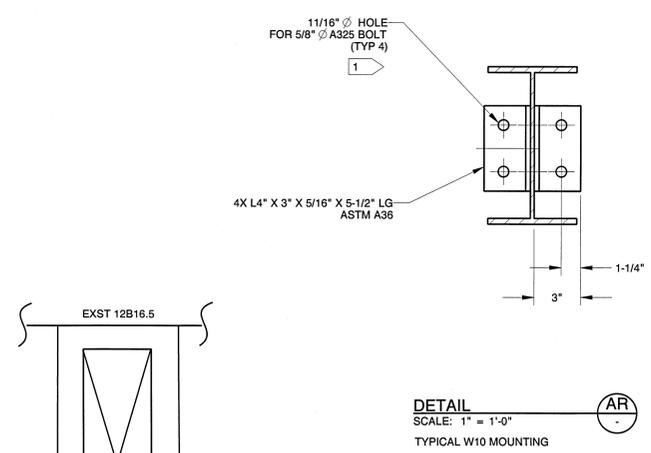
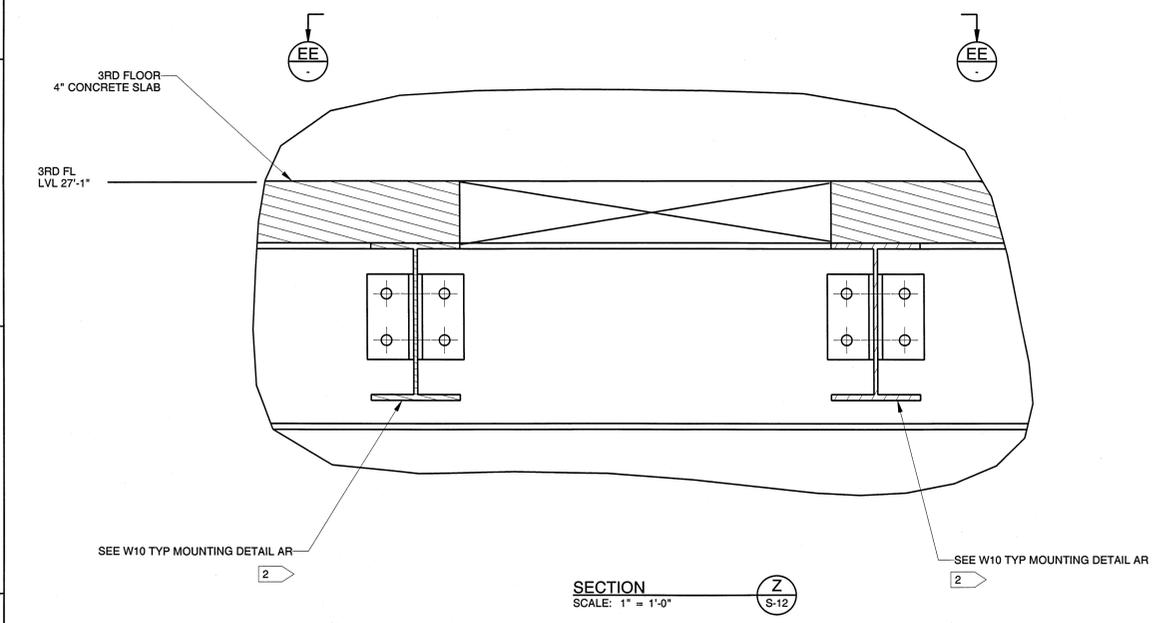
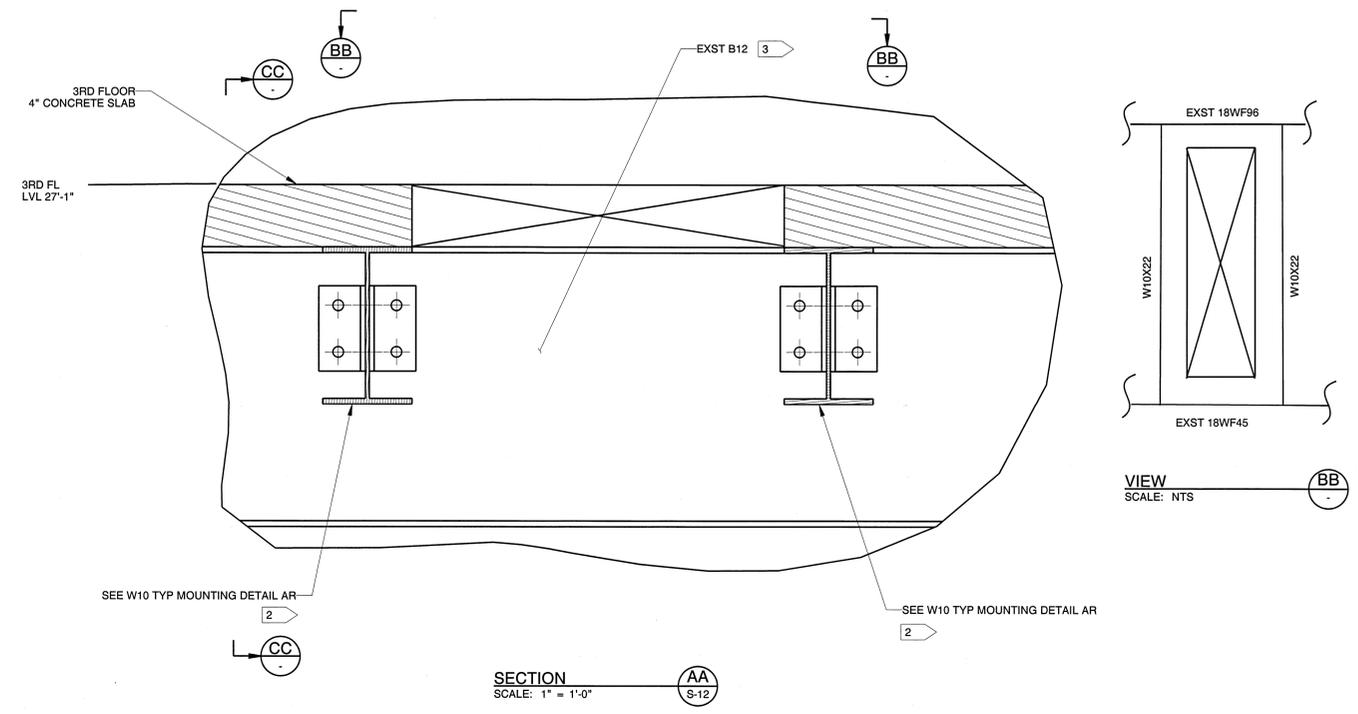
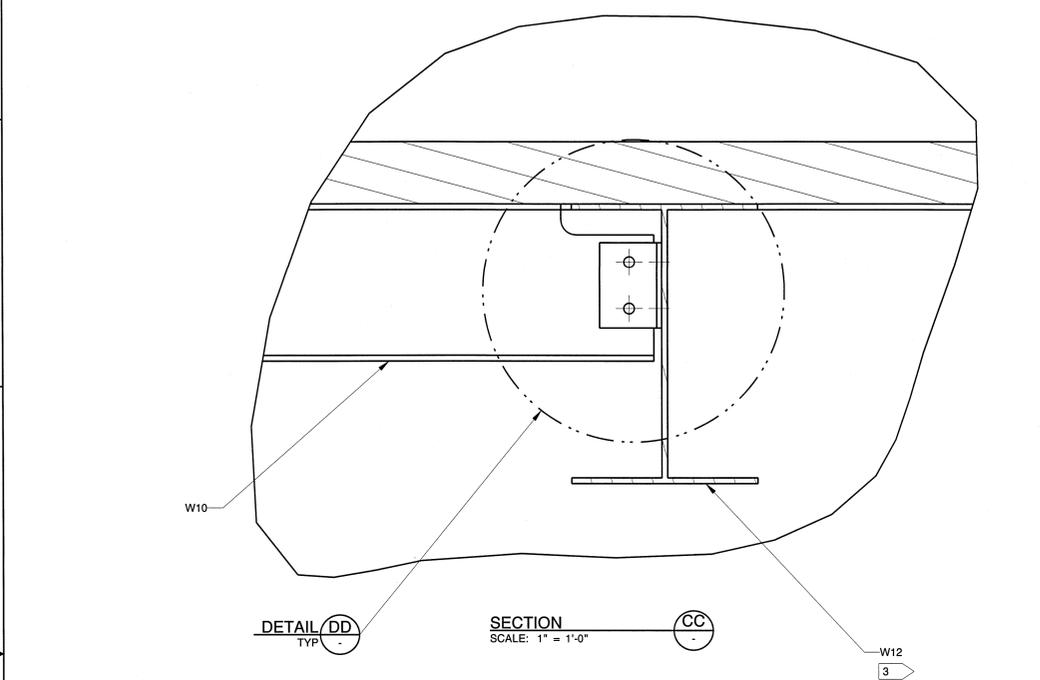
CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY.		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994.		ORIGINAL DATE OF DRAWING (YYMMDD) 2013/04/30		JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA	
SOFTWARE PRO/ENGINEER	DESIGNER K0000071397D_VOL-1	FRACCTIONS 1/16	DECIMALS 1 PL ±.000 2 PL ±.000 3 PL ±.010	ANGLES 1 PL ±.1°	DESIGNED BY T. O. ADAMS	CHECKED BY A. C. LITTLEFIELD	DATE CODE 22264
MATERIAL VAB	NEXT ASSY USED ON	THIRD ANGLE PROJECTION		DRAWN BY A. C. LITTLEFIELD		DRAW NO. K0000071397	
FINAL TREATMENT PROTECTIVE FINISH	APPLICATION	SCALE NOTED		SHEET WEIGHT 12 LB		SHEET NO. 12	

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REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

- NOTES:**
- 1 FIELD MATCH DRILL HOLES TO EXST BEAMS.
 - 2 SEE COPE TABLE FOR COPING DIMENSIONS THIS SHEET.
 - 3 VERIFY EXISTING BEAM SIZES AND DIMENSIONS PRIOR TO START OF STEEL WORK.
 - 4 RESTORE EXPOSED CONCRETE SURFACES USING BONDING AGENT AND REBAR COATING EMACO P24 (BY BASF CO) OR EQUIVALENT AND CONCRETE REPAIR MORTAR EMACO FS (BY BASF CO) OR EQUIVALENT.



EXIST BEAM SIZE	"A" DIM	"B" DIM
12WF16.5 12B16.5	3"	1-1/2"
18WF45 18WF50	4"	2"
18WF96 18WF114	6"	2"

CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY. PRO/ENGINEER K0000071397D_VOL-1 DATE:	VAB USED ON APPLICATION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994. TOLERANCES ON: FRACTIONS DECIMALS ANGLES ±1/16 1 PL ±.060 1 PL ±.1 2 PL ±.030 3 PL ±.010	ORIGINAL DATE OF DRAWING (YY/MM/DD) 2013/04/30 DESIGNED BY C. J. SANCHEZ CHECKED BY M. T. ALLISON DRAWN BY R. N. BUCCENTI IN CHARGE BY B. BROTHERRIDGE PROJECT MANAGER BY M. PARENTI PROJECT ENGINEER BY V. J. WARD SUBMITTED BY D. P. GILLESPIE APPROVED BY T. O. ADAMS AUTHORIZED BY A. C. LITTLEFIELD	JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA LAUNCH COMPLEX 39 VAB, BLDG K6-848 SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM RESTORATION, 3RD FL	SHEET 13 OF 13
					DATE: 22264 SCALE: NOTED DWG NO: K0000071397 REV: -

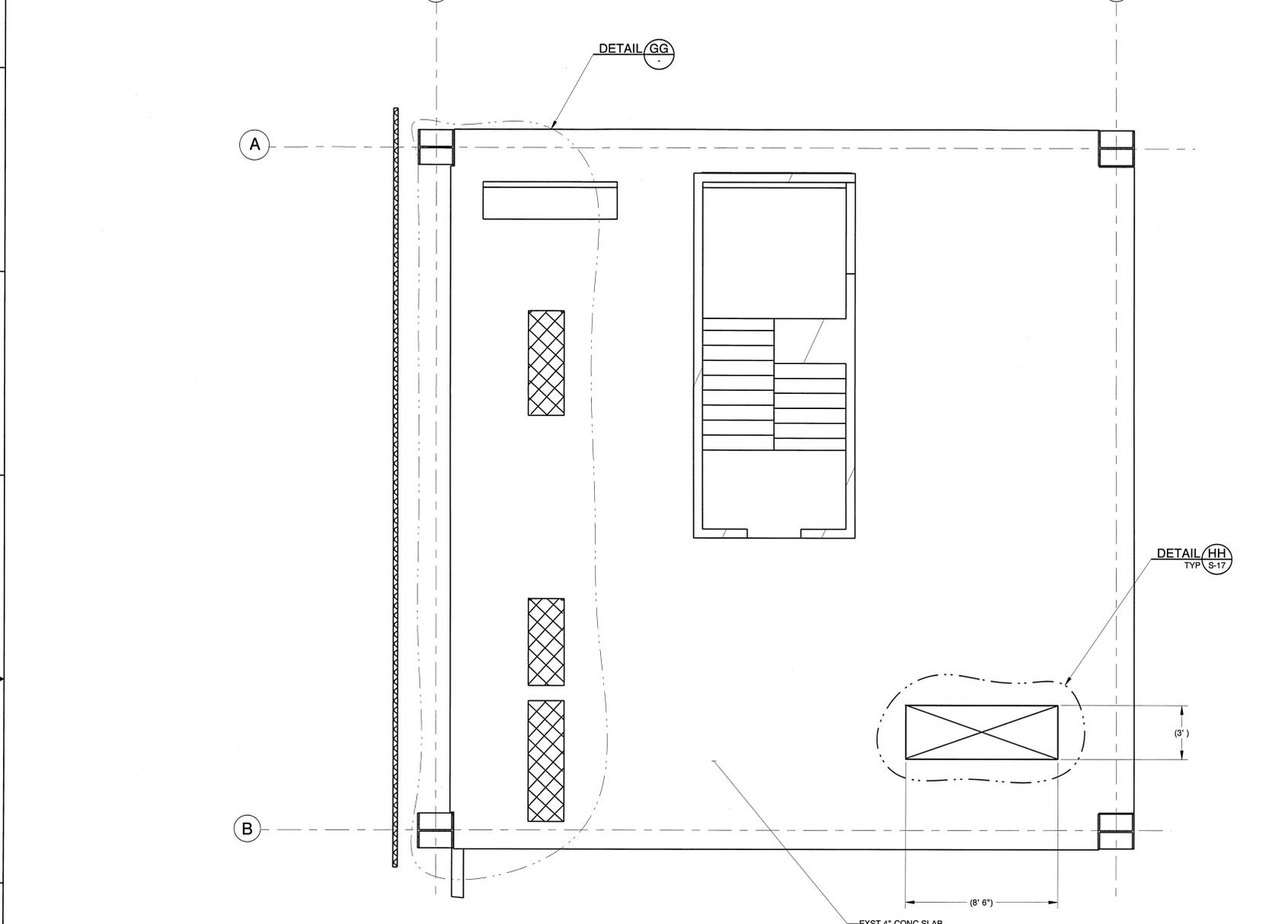
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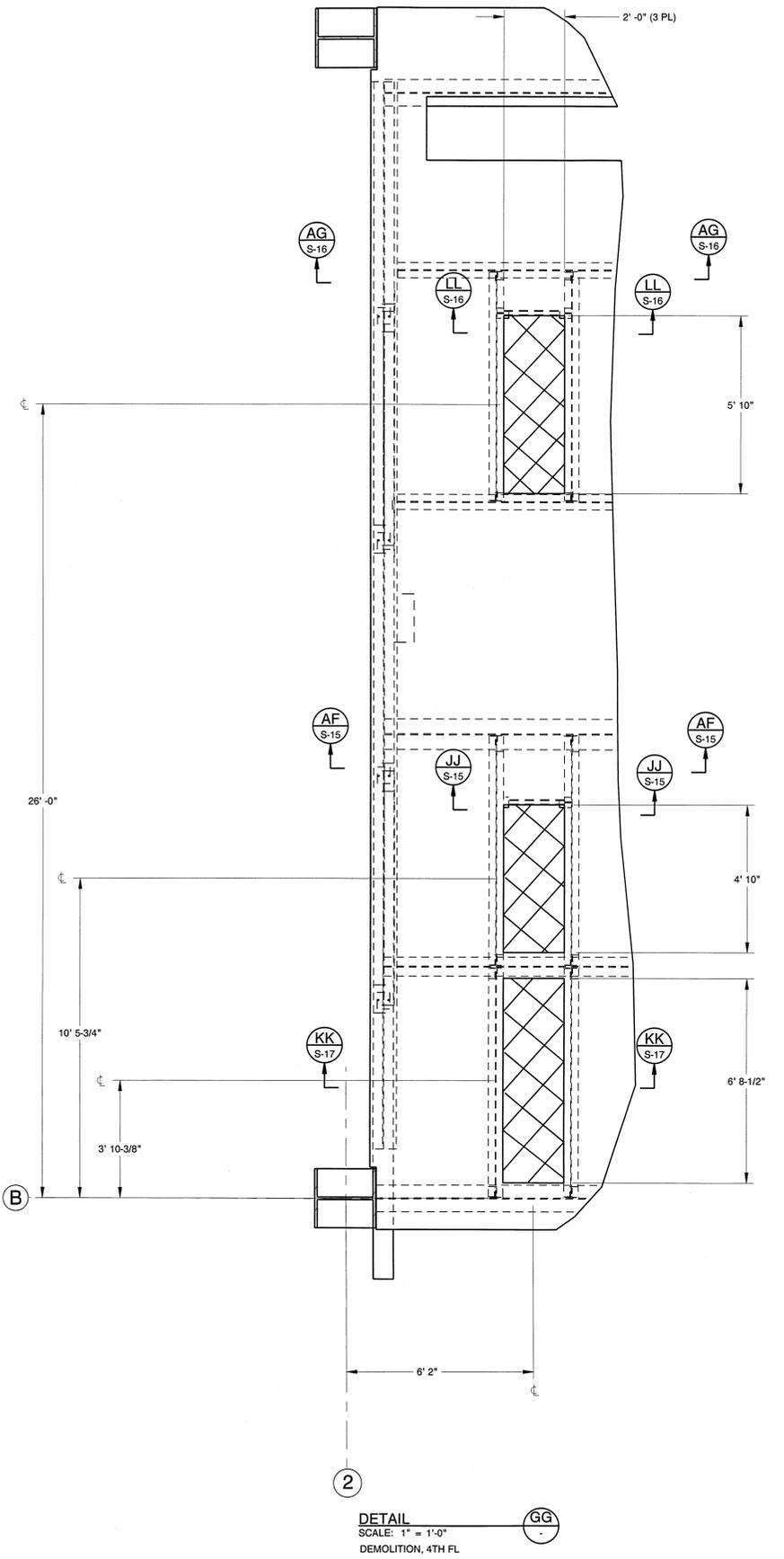
EDOR # 1312707

EAR 99 NLR

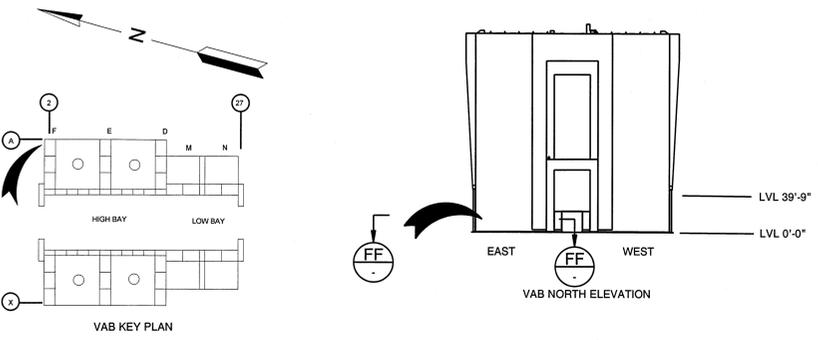
REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL



FLOOR PLAN
SCALE: 3/8" = 1'-0"
4TH FL PLAN - LVL 39'-9"
TOWER F - HIGH BAY 3



DETAIL
SCALE: 1" = 1'-0"
DEMOLITION, 4TH FL

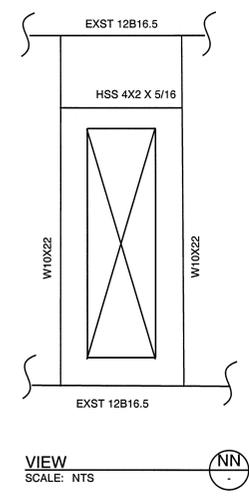
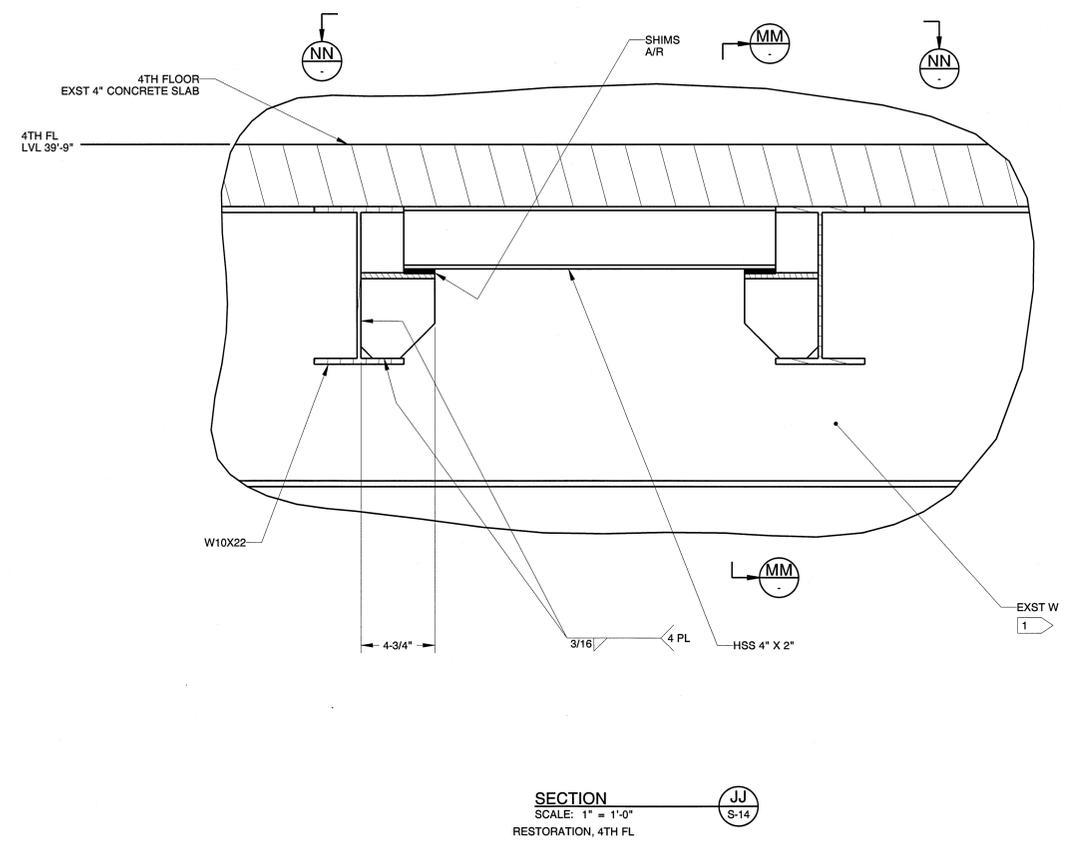
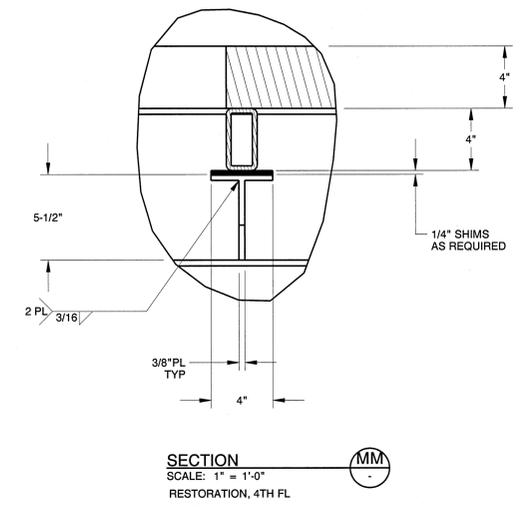
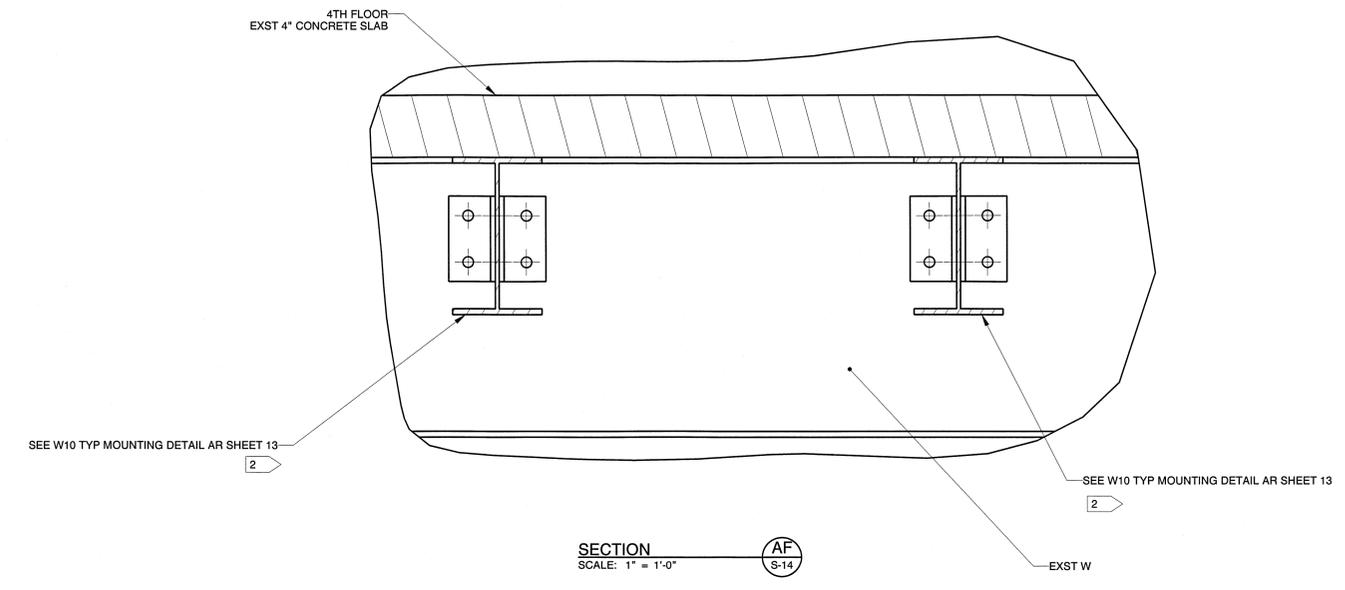


CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY. SOFTWARE: PRO/ENGINEER PROJECT: K0000071397D_VOL-1 REVISION:	UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994. TOLERANCES ON: FRACTIONS DECIMALS ANGLES ±1/16 1 PL ±.060 1 PL ±.1 2 PL ±.030 3 PL ±.010	ORIGINAL DATE OF DRAWING (YYMM/DD) 2013/04/30 DRAWN BY: C. J. SANCHEZ CHECKED BY: M. T. ALLISON DESIGNED BY: R. N. BUCCIERI ENGINEER: M. L. PARENTI PROJECT ENGINEER: D. P. GILLESPIE	JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA LAUNCH COMPLEX 39 VAB, BLDG K6-848 SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM LVL 4 PLAN VIEW
NEXT ASSY USED ON APPLICATION	THIRD ANGLE PROJECTION	SCALE: NOTED	SHEET: 14 OF

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REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

- NOTES:**
- VERIFY EXISTING BEAM SIZES AND DIMENSIONS PRIOR TO START OF STEEL WORK.
 - SEE COPE SIZE TABLE FOR COPING DIMENSIONS S-13.
 - RESTORE EXPOSED CONCRETE SURFACES USING BONDING AGENT AND REBAR COATING EMACO P24 (BY BASF CO) OR EQUIVALENT AND CONCRETE REPAIR MORTAR EMACO FS (BY BASF CO) OR EQUIVALENT.



CAD MAINTAINED CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY.	PRO/ENGINEER K0000071397D_VOL-1	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994.	ORIGINAL DATE OF DRAWING (YYMMDD) 2013/04/30	JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA	
				LAUNCH COMPLEX 39 VAB, BLDG K6-848 SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM RESTORATION, 4TH FL	
TOLERANCES ON: FRACTIONS DECIMALS ANGLES ± 1/16 1 PL ± .000 1 PL ± .1° 2 PL ± .000 3 PL ± .010	THIRD ANGLE PROJECTION	SUBMITTED BY T. O. ADAMS	CHECKED BY A. C. LITTLEFIELD	DATE 22264	DRAWING NO. K0000071397
NEXT ASSY USED ON APPLICATION	VAB	SCALE NOTED	SHEET 15	OF	OF

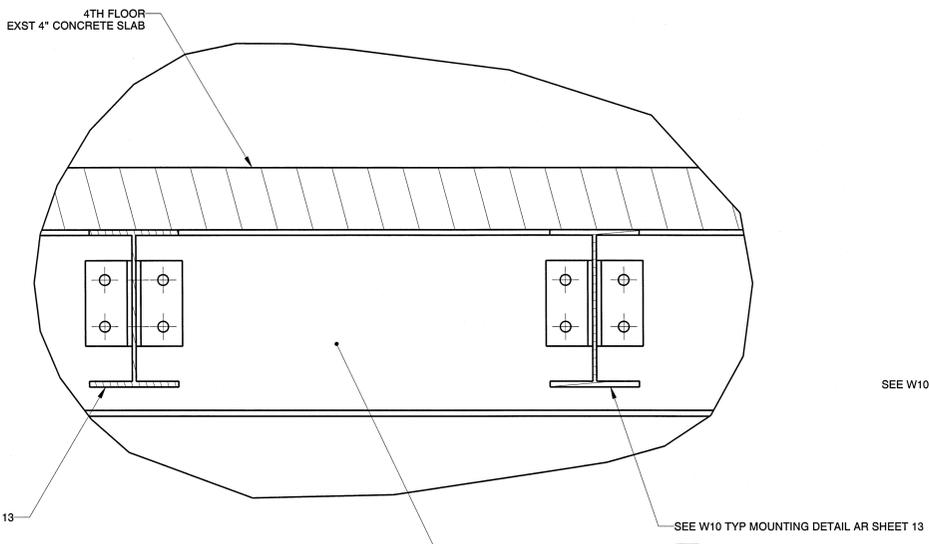
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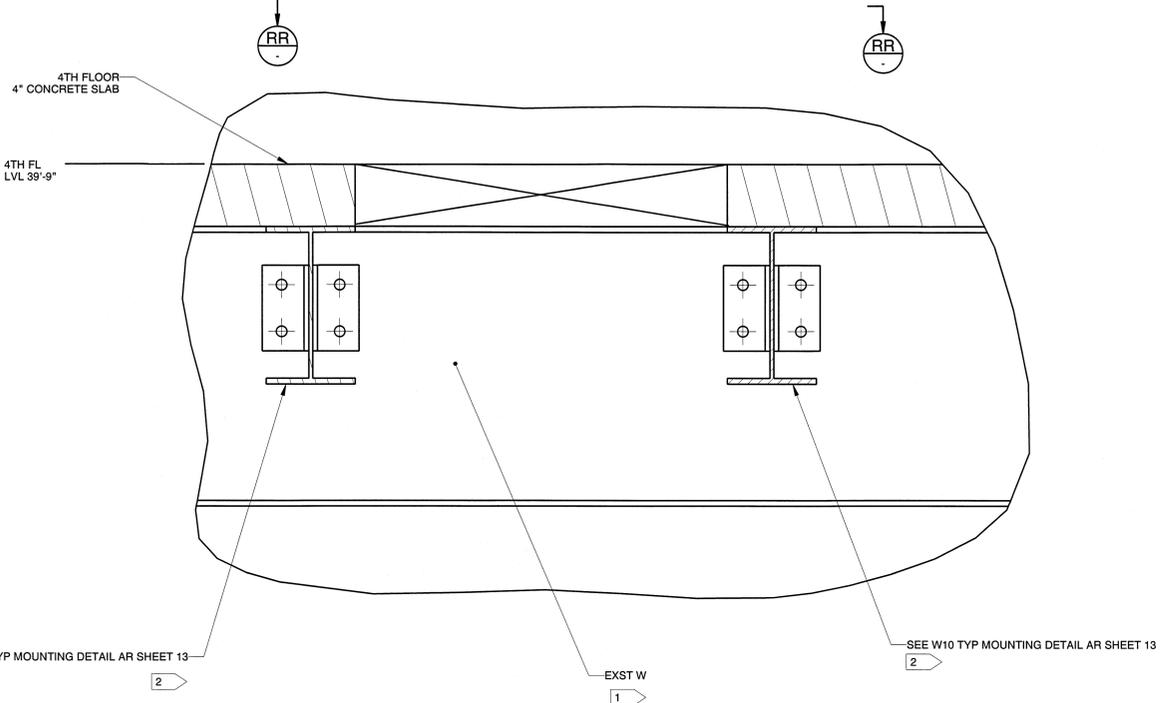
DATE: 2013/04/30

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

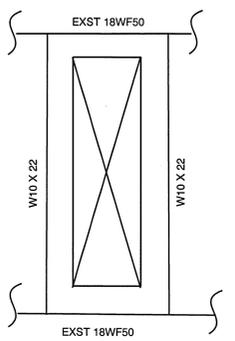
- NOTES:**
- 1 VERIFY EXISTING BEAM SIZES AND DIMENSIONS PRIOR TO START OF STEEL WORK.
 - 2 SEE COPE SIZE TABLE FOR COPING DIMENSIONS S-13.
 - 3 RESTORE EXPOSED CONCRETE SURFACES USING BONDING AGENT AND REBAR COATING EMACO P24 (BY BASF CO) OR EQUIVALENT AND CONCRETE REPAIR MORTAR EMACO FS (BY BASF CO) OR EQUIVALENT.



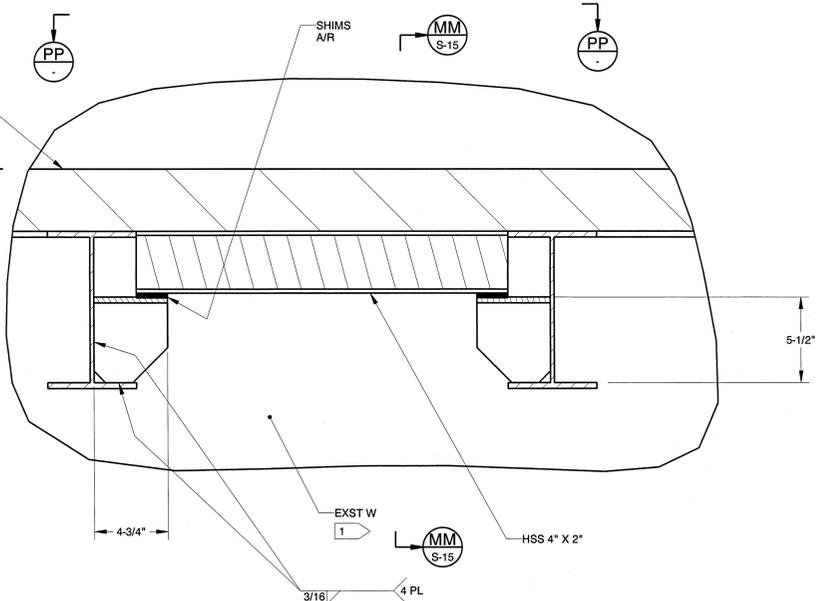
SECTION AG S-14
SCALE: 1" = 1'-0"



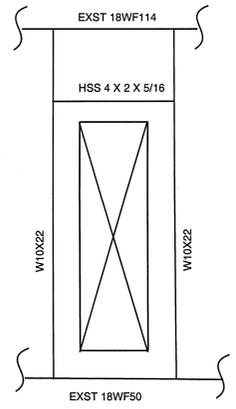
SECTION KK S-14
SCALE: 1" = 1'-0"



VIEW RR
SCALE: NTS



SECTION LL S-14
SCALE: 1" = 1'-0"



VIEW PP
SCALE: NTS

CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY. SOFTWARE: PRO/ENGINEER TITLE: K0000071397D VOL-1 MATERIAL: TREAT TREATMENT: FINAL PROTECTIVE FINISH	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994. TOLERANCES ON: FRACTIONS DECIMALS ANGLES ±1/16 1 PL ±.050 1 PL ±.1° 2 PL ±.030 3 PL ±.010	ORIGINAL DATE OF DRAWING (YYMMDD) 2013/04/30 DRAWN BY: C. J. SANCHEZ CHECKED BY: M. T. ALLISON DESIGNED BY: R. N. BUCCIERI PROJECT ENGINEER: M. L. PARENTI PROJECT MANAGER: D. P. GILLESPIE	JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA LAUNCH COMPLEX 39 VAB, BLDG K6-848 SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM RESTORATION, 4TH FL
		THIRD ANGLE PROJECTION SUBMITTED BY: T. O. ADAMS APPROVED BY: A. C. LITTLEFIELD	VAB NEXT ASSY USED ON APPLICATION

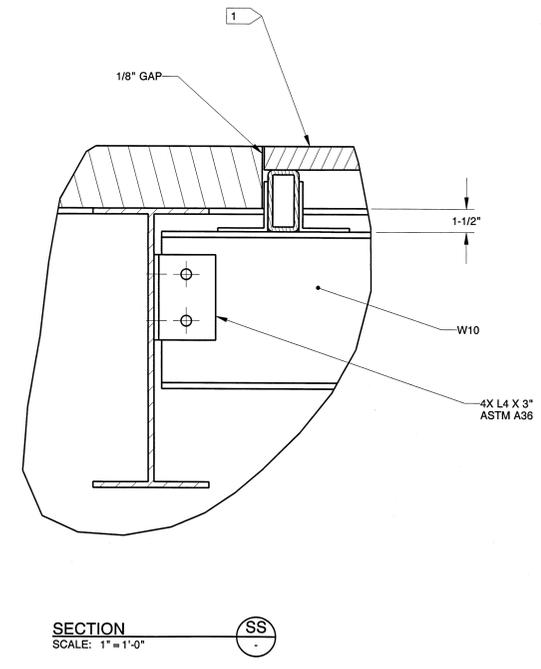
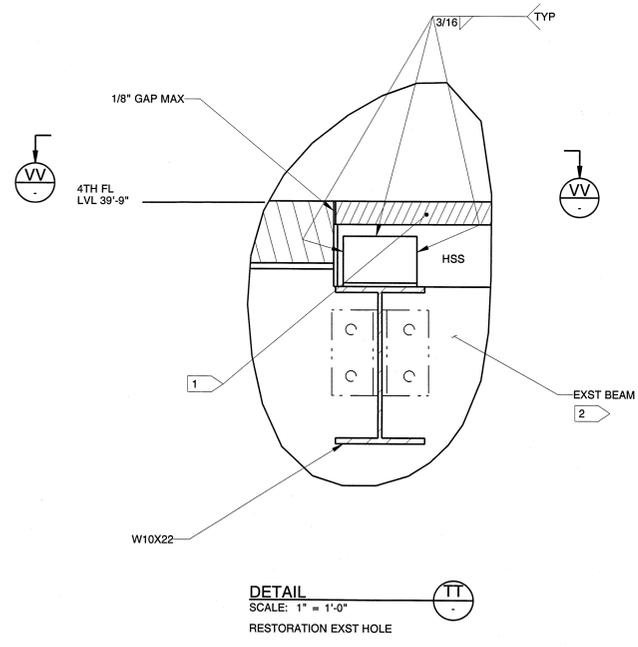
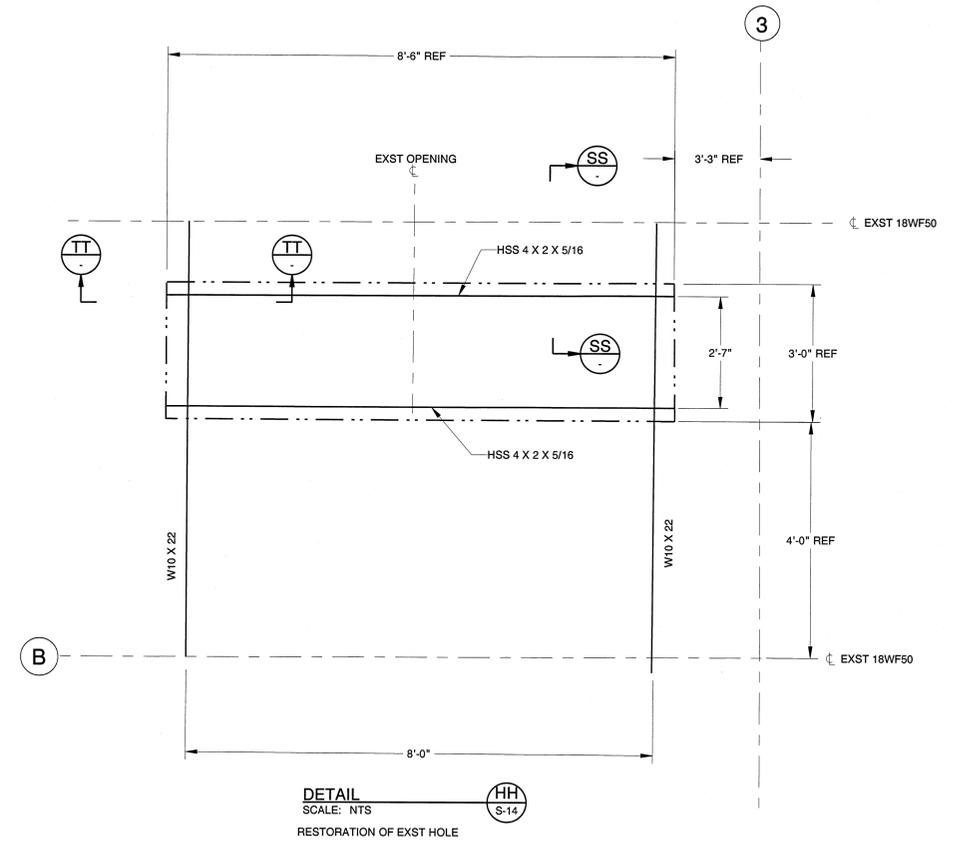
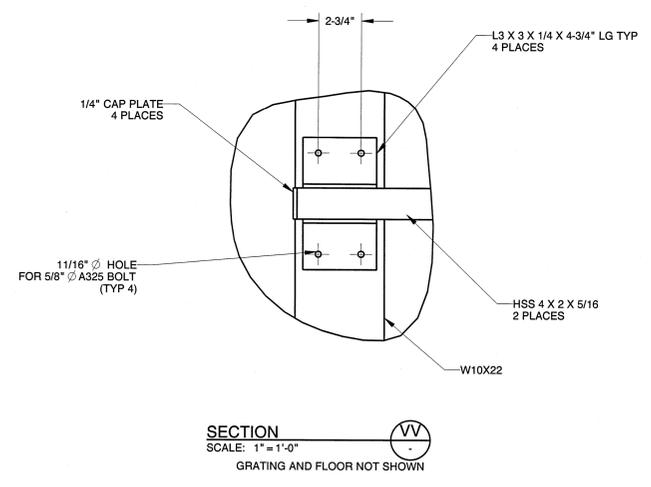
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FORM 1281.1 OF THE IAWG EDITION 1-1970

REVISION HISTORY				
PART NO.	ZONE REV	DESCRIPTION	DATE	APPROVAL

- NOTES:**
- MCNICHOLS, MS M-150, 1-1/2" HEIGHT, 3.8#/SF OR SIMILAR FIBERGLASS GRATING
 - VERIFY EXISTING BEAM SIZES AND DIMENSIONS PRIOR TO START OF STEEL WORK.
 - SEE COPE SIZE TABLE FOR COPING DIMENSIONS S-13.



CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY. PROJECT: K0000071397/D VOL-1 DRAWING: VAB DATE: 2/21/13	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994. TOLERANCES ON: FRACTIONS DECIMALS ANGLES ±1/16 1 PL ±.060 1 PL ±.1 2 PL ±.030 2 PL ±.010 3 PL ±.010	ORIGINAL DATE OF DRAWING (YY/MM/DD) 2013/04/30 DESIGNED BY: T. O. ADAMS CHECKED BY: A. C. LITTLEFIELD DATE: 2/21/13	JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA LAUNCH COMPLEX 39 VAB, BLDG K6-848 SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM RESTORATION, 4TH FL
S-17	SCALE: NOTED	CASE CODE: 22264 DRAW NO: K0000071397	SHEET: 17 OF 17

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FORM 214-100 (REV 9/00)

EAR 99 NLR

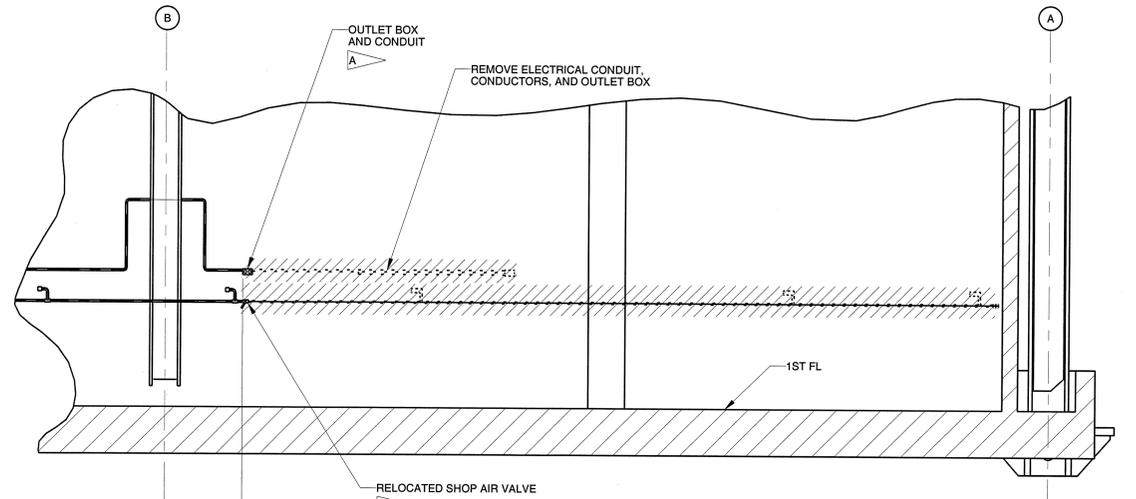
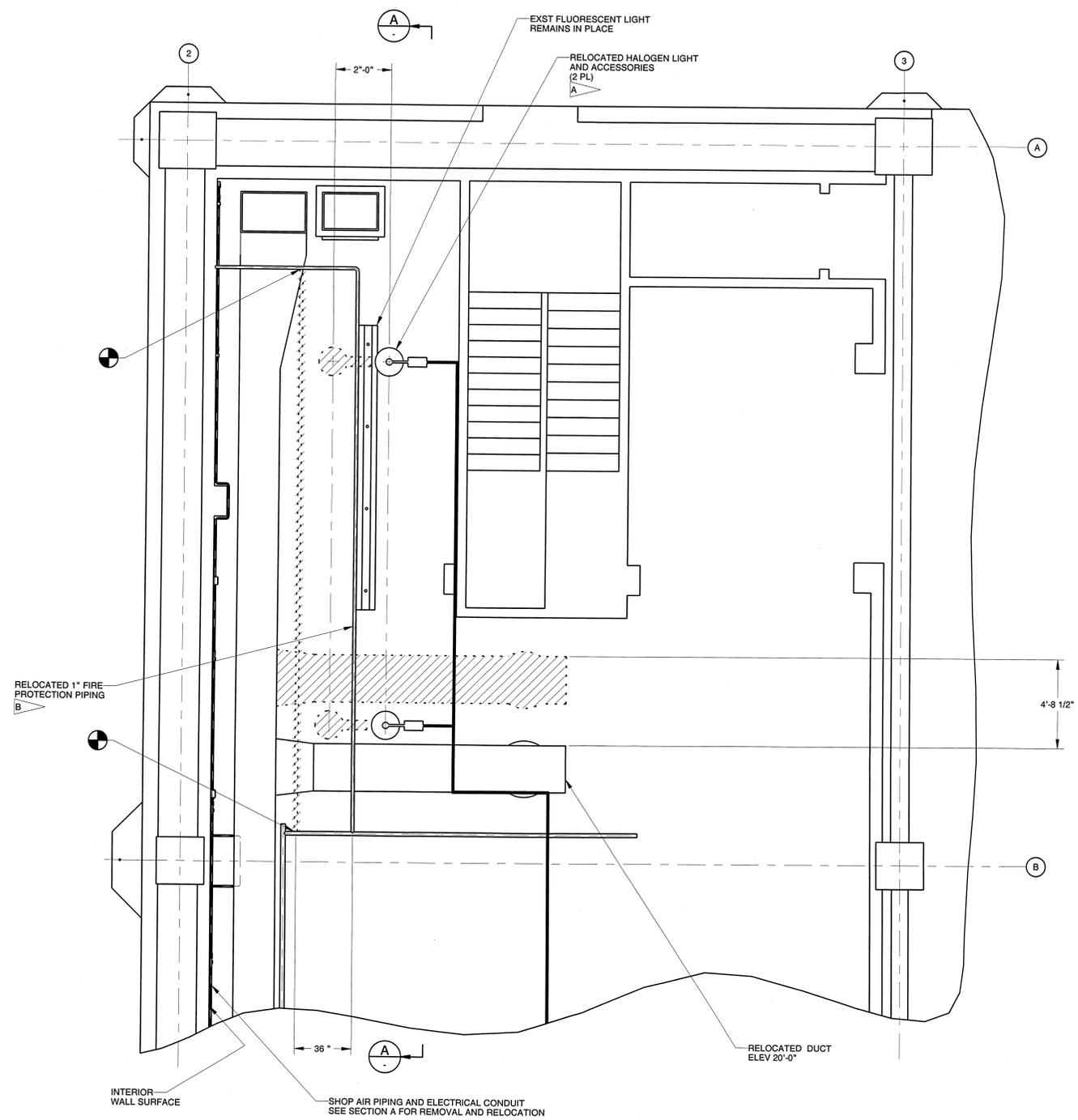
REVISION HISTORY				
PART NO.	ZONE/REV	DESCRIPTION	DATE	APPROVAL

- SPECIFIC NOTES:**
- A RELOCATION AND INSTALLATION SHALL COMPLY WITH LATEST EDITION OF THE NATIONAL ELECTRIC CODE (NEC) EXISTING CONDUCTORS SHALL BE CUT BACK OR PULLED BACK. NO SPLICING OF CONDUCTORS ARE ALLOWED. CONDUCTOR CONNECTIONS SHALL BE MADE ONLY WITH PROPER ELECTRICAL ENCLOSURES. CONTRACTING OFFICER IS RESPONSIBLE FOR LOCK-OUT TAG-OUT OF ELECTRICAL POWER CIRCUITS TO BE WORKED ON.
 - B RELOCATION AND INSTALLATION SHALL COMPLY WITH NFPA 13 FOR INSTALLATION, AND NFPA 4 FOR TESTING.
 - C SEE SHOP AIR LEAK TEST REQUIREMENTS ON SHT M-1.

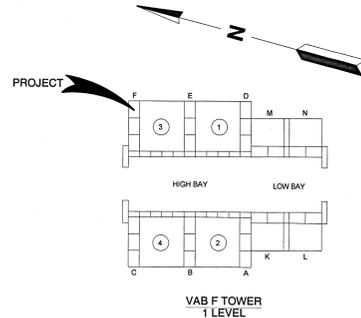


LEGEND:

● - POINT OF DISCONNECT



SECTION
SCALE: 3/8" = 1'-0"



1ST FLOOR REMOVAL AND RELOCATION PLAN
SCALE: 3/8" = 1'-0"

CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY. PRO/ENGINEER FILENAME K0000071397D_VOL-2 MATERIAL TREATMENT FINISH/PROTECTIVE FINISH	SLS VAB NEXT ASSY USED ON APPLICATION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994. TOLERANCES ON: FRACTIONS: 1 PL ±.060, 2 PL ±.030, 3 PL ±.010 DECIMALS ANGLES: 1 PL ±.1°	ORIGINAL DATE OF DRAWING (YYMMDD) DESIGNED BY: C.J. SANCHEZ CHECKED BY: M.T. ALLISON DRAWN BY: R.L. BUCCIERI ESTIMATED BY: M.L. PARENTI DATE: 1/24/13 D.P. GILLESPIE	JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA LAUNCH COMPLEX 39 VAB BLDG K6-848 SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM REMOVAL / RELOCATION PLAN AND SECTION	SIZE: E CASE CODE: 22264 SCALE: NOTED	SHEET NO: K0000071397 OF: 19
					SUBMITTED BY: T.O. ADAMS APPROVED BY: A.C. LITTLEFIELD	DATE: 1/24/13

EAR 99 NLR

M-2

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EAR 99 NLR

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

COMPONENT LIST				
FIND NO.	DESCRIPTION	MFG PART NO.	MANUFACTURER	CAGE CODE
A202181	14" DUST CAP	79K08152-226	FLEXFAB (OR APVD EQ)	16632
A202182	10" DUST CAP	79K08152-162	FLEXFAB (OR APVD EQ)	16632
A202183	10" DUST CAP	79K08152-162	FLEXFAB (OR APVD EQ)	16632
A202184	10" DUST CAP	79K08152-162	FLEXFAB (OR APVD EQ)	16632
A202185	10" DUST CAP	79K08152-162	FLEXFAB (OR APVD EQ)	16632
A202186	14" DUST CAP	79K08152-226	FLEXFAB (OR APVD EQ)	16632
A202187	10" DUST CAP	79K08152-162	FLEXFAB (OR APVD EQ)	16632
A202188	14" DUST CAP	79K08152-226	FLEXFAB (OR APVD EQ)	16632
A202190	10" DUST CAP	79K08152-162	FLEXFAB (OR APVD EQ)	16632
A202191	12" DUST CAP	79K08152-194	FLEXFAB (OR APVD EQ)	16632
A202192	10" DUST CAP	79K08152-162	FLEXFAB (OR APVD EQ)	16632
A202193	8" DUST CAP	79K08152-130	FLEXFAB (OR APVD EQ)	16632
A202194	12" DUST CAP	79K08152-194	FLEXFAB (OR APVD EQ)	16632
A202195	8" DUST CAP	79K08152-130	FLEXFAB (OR APVD EQ)	16632
A202196	12" DUST CAP	79K08152-194	FLEXFAB (OR APVD EQ)	16632
A202197	14" DUST CAP	79K08152-226	FLEXFAB (OR APVD EQ)	16632
A202198	12" CS/IT INNER EXPANSION JOINT	SN-75M15214-12	SESCO (OR APVD EQ)	7YR761
A202199	10" CS/FS INNER EXPANSION JOINT	SN-75M15214-10	SESCO (OR APVD EQ)	7YR762
A202200	10" ICPS INNER EXPANSION JOINT	SN-75M15214-10	SESCO (OR APVD EQ)	7YR763
A202201	8" SM/SA INNER EXPANSION JOINT	SN-75M15214-8	SESCO (OR APVD EQ)	7YR764
A202202	8" LAS/FA INNER EXPANSION JOINT	SN-75M15214-8	SESCO (OR APVD EQ)	7YR765
A202203	10" EC/CC INNER EXPANSION JOINT	SN-75M15214-10	SESCO (OR APVD EQ)	7YR766
A202204	8" CS/ENG INNER EXPANSION JOINT	SN-75M15214-8	SESCO (OR APVD EQ)	7YR767
A202205	12" CS/AFT INNER EXPANSION JOINT	SN-75M15214-12	SESCO (OR APVD EQ)	7YR768
A202206	12" CS/IT OUTER EXPANSION JOINT	SN-75M15214-1G	SESCO (OR APVD EQ)	7YR770
A202207	10" CS/FS OUTER EXPANSION JOINT	SN-75M15214-1E2	SESCO (OR APVD EQ)	7YR771
A202208	10" ICPS OUTER EXPANSION JOINT	SN-75M15214-1E2	SESCO (OR APVD EQ)	7YR772
A202209	8" SM/SA OUTER EXPANSION JOINT	SN-75M15214-1D2	SESCO (OR APVD EQ)	7YR773
A202210	8" LAS/FA OUTER EXPANSION JOINT	SN-75M15214-1D2	SESCO (OR APVD EQ)	7YR774
A202211	10" EC/CC OUTER EXPANSION JOINT	SN-75M15214-1E2	SESCO (OR APVD EQ)	7YR775
A202212	8" CS/ENG OUTER EXPANSION JOINT	SN-75M15214-1D2	SESCO (OR APVD EQ)	7YR776
A202213	12" CS/AFT OUTER EXPANSION JOINT	SN-75M15214-1G	SESCO (OR APVD EQ)	7YR777
NA	8" CLAMP (2 REQD)	MB9460-S-150-N-812-T	EATON AEROQUIP (OR APVD EQ)	26622
NA	10" CLAMP (7 REQD)	MB9460-S-150-N-1012-T	EATON AEROQUIP (OR APVD EQ)	26622
NA	12" CLAMP (3 REQD)	MB9460-S-150-N-1212-T	EATON AEROQUIP (OR APVD EQ)	26622
NA	14" CLAMP (4 REQD)	MB9460-S-150-N-1412-T	EATON AEROQUIP (OR APVD EQ)	26622

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994.

TOLERANCES ON:

FRACTIONS	DECIMALS	ANGLES
± 1/16	1 PL ± .000	1 PL ± .1°
	2 PL ± .000	
	3 PL ± .010	

ORIGINAL DATE OF DRAWING (YYMMDD)

LAUNCH COMPLEX 39
VAB BLDG K6-848
SPACE LAUNCH SYSTEM
ENVIRONMENTAL CONTROL SYSTEM
COMPONENTS LIST

DATE: 22264
SCALE: NOTED

SOFTWARE: PRO/ENGINEER

DESIGNER: K0000071397D_VOL-2

MATERIAL:

FINISH TREATMENT:

PROTECTIVE FINISH:

UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994.

TOLERANCES ON:

FRACTIONS	DECIMALS	ANGLES
± 1/16	1 PL ± .000	1 PL ± .1°
	2 PL ± .000	
	3 PL ± .010	

LAUNCH COMPLEX 39
VAB BLDG K6-848
SPACE LAUNCH SYSTEM
ENVIRONMENTAL CONTROL SYSTEM
COMPONENTS LIST

DATE: 22264
SCALE: NOTED

APPROVED: T.O. ADAMS

DATE: 2/2/00

BY: A.C. LITTLEFIELD

THIRD ANGLE PROJECTION

DATE: 22264
SCALE: NOTED

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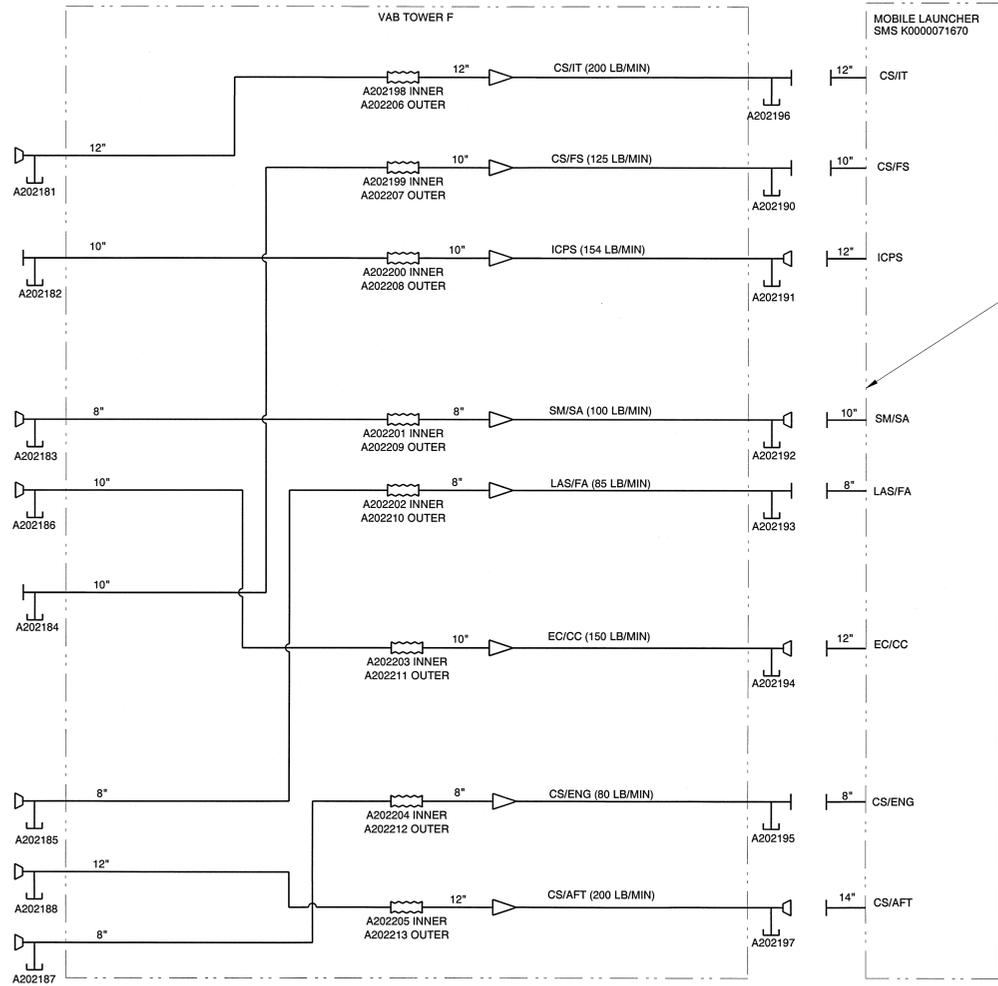
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FORM 8-13 (REV 9/00)

EAR 99 NLR

REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

- LEGEND:**
-  DUST CAP
 -  FLOW ARROW
 -  REDUCER
 -  EXPANSION JOINT
 -  EXPANDER

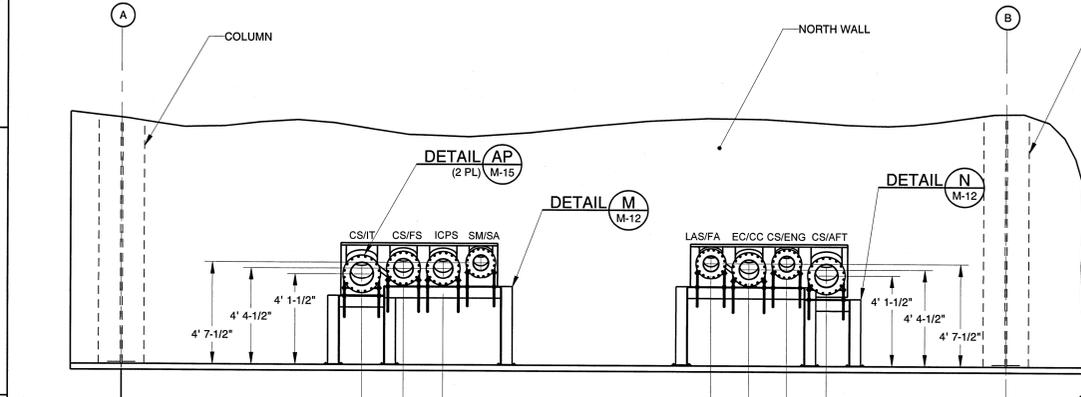


ML INTERFACE CONNECTIONS (8 PL)

CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY.		UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994. TOLERANCES ON:		ORIGINAL DATE OF DRAWING (YYMMDD)		JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA	
SOFTWARE	PRO/ENGINEER	FRACTIONS	DECIMALS	ANGLES	1 PL ± .050	2 PL ± .030	3 PL ± .010
DESIGNER	K0000071397D_VOL-2	1/16			1 PL ± .1		
MATERIAL							
REVISION							
APPROVED	T.O. ADAMS	THIRD ANGLE PROJECTION		SUBMITTED		LAUNCH COMPLEX 39 VAB BLDG K6-848 SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM MECHANICAL SCHEMATIC	
DATE	22264	NOTED		SCALE		SHEET 22 OF 22	
SCALE		APPLICATION		PART NO.		K0000071397	

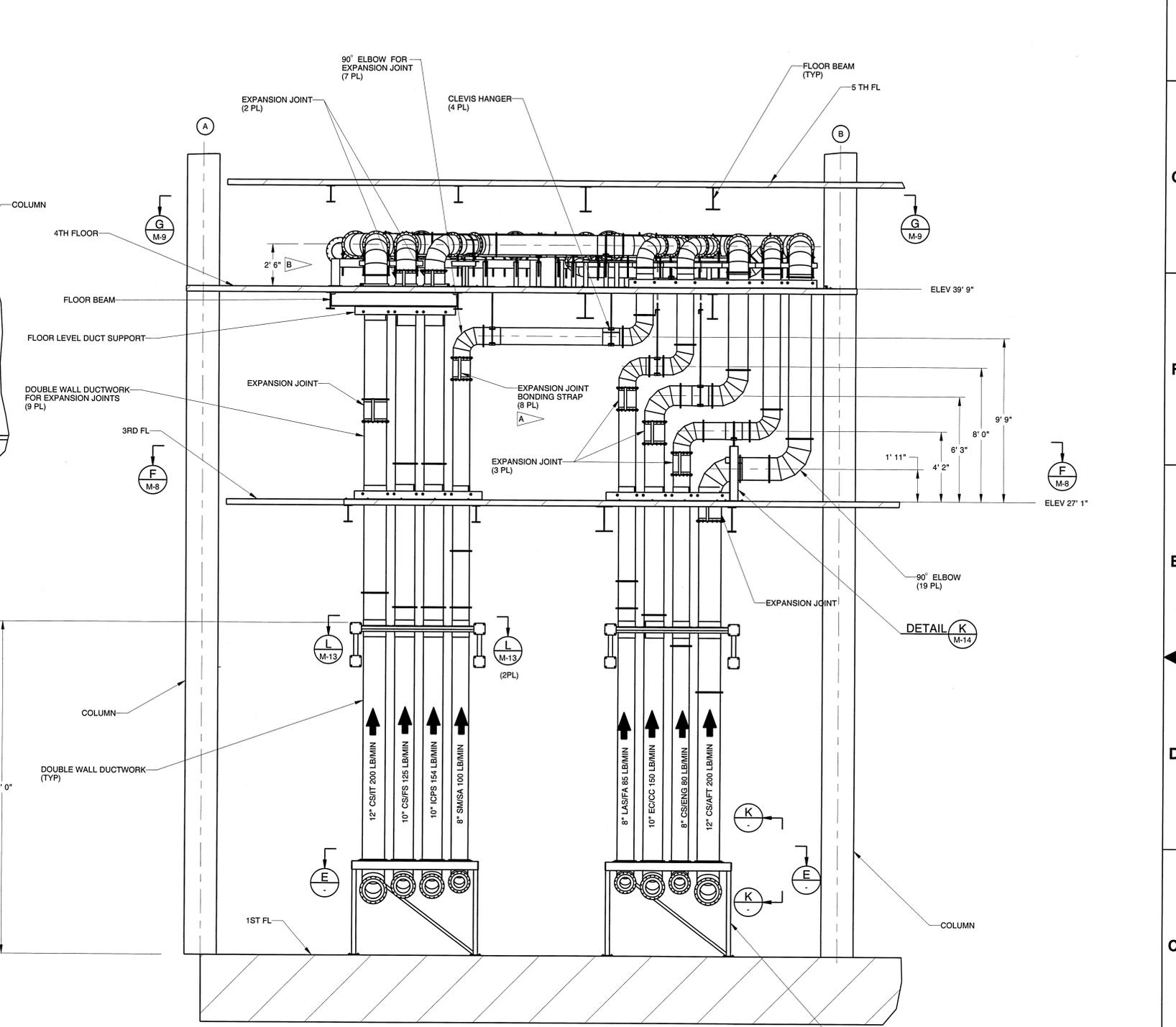
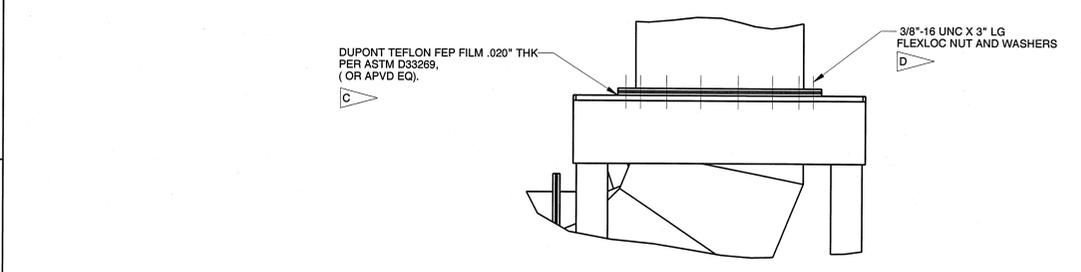
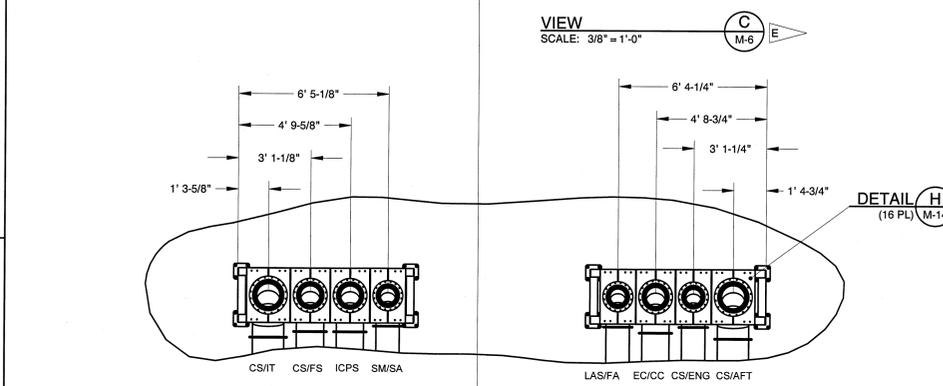
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- SPECIFIC NOTES:**
- A** BONDING STRAPS SHALL BE INSTALLED ACROSS OUTER EXPANSION JOINT AND CONNECTING DUCT ALUMINUM FLANGES. STRAP SHALL BE FABRICATED FROM (0.1" THK X 1-1/2" WIDE) 5052-H32 ALUMINUM SHEET. STRAPS SHALL BE LENGTH AS REQUIRED BETWEEN FLANGES TO ALLOW FOR EXPANSION AND CONTRACTION OF DUCTS. STRAP ENDS SHALL HAVE 7/16" DIA HOLES FOR CONNECTION POINTS. STRAP ENDS SHALL BE CONNECTED TO DUCT FLANGE BOLTS. DUCT SURFACES IN CONTACT WITH STRAP ENDS SHALL BE CLEANED FREE OF FLANGE DUCT FINISH AND DEBRIS BEFORE INSTALLING.
 - B** CENTER LINE DISTANCE ABOVE 4TH FLOOR IS FOR ALL DUCTWORK UNLESS OTHERWISE SPECIFIED.
 - C** CUT FILM TO MATCH FLANGE SIZE AND BOLT PATTERN. INSTALL FILM BETWEEN STEEL SUPPORT PLATE AND ELBOW FLANGE.
 - D** FLEXLOC NUTS SHALL BE PER ASTM F593, 304 SST.
 - E** SEE FLEX DUCT TYPICAL NIPPLE ADAPTER AND TYPICAL NIPPLE DETAILS ON SHHEET M-11. ALSO SEE TABLE 1 AND TABLE 2 TO DETERMINE REQUIRED INLET AND OUTLET DIAMETERS



**TABLE 1
NIPPLE AND DUCT SIZE**

SLS CIRCUIT	NIPPLE SIZE OD	DUCT SIZE
CS/IT	14"	12"
CS/FS	10"	10"
ICPS	10"	10"
SM/SA	10"	8"
LAS/FA	10"	8"
EC/CC	14"	10"
CS/ENG	10"	8"
CS/AFT	14"	12"



SECTION
SCALE: 3/8" = 1'-0"
M-6

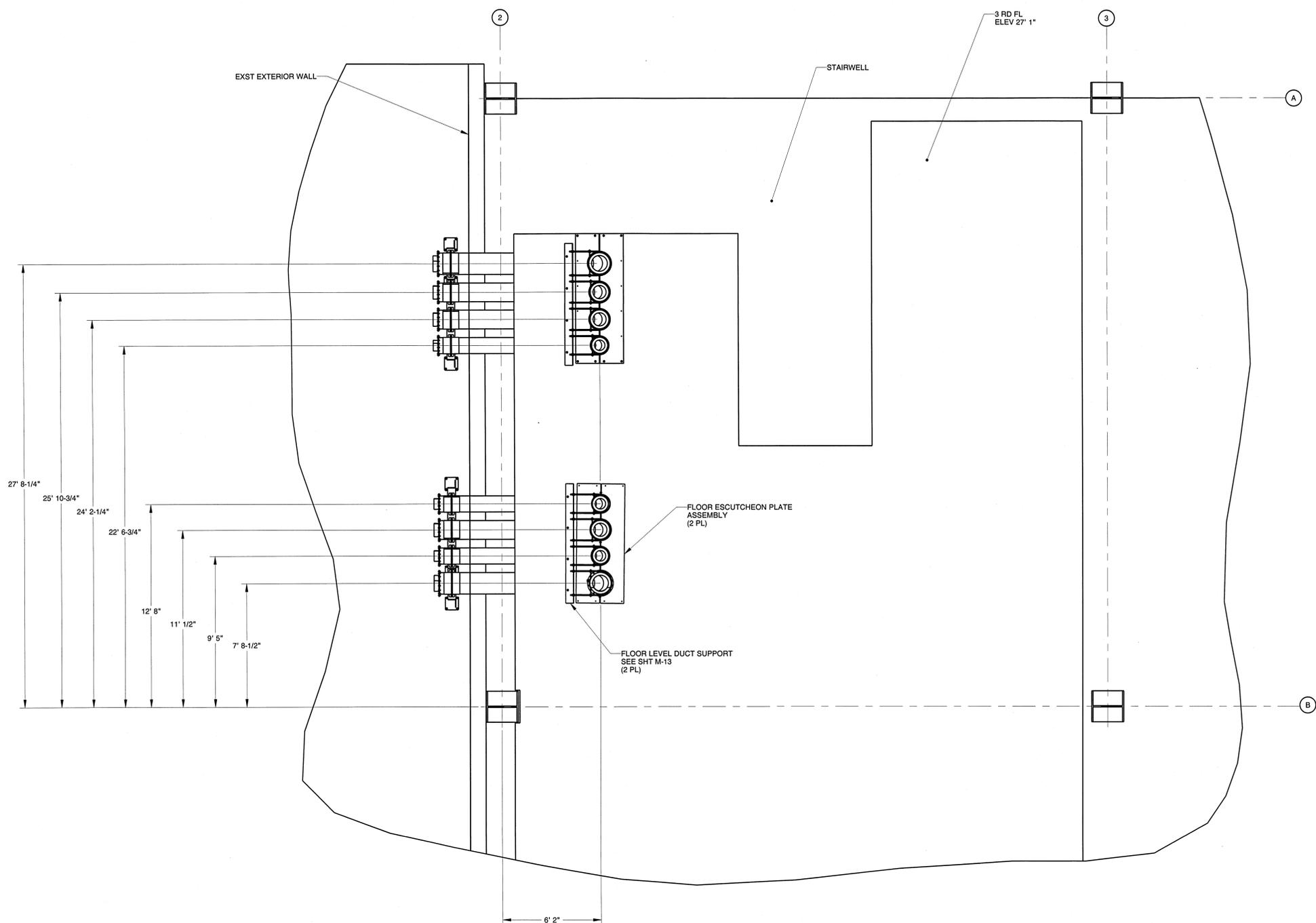
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			LAUNCH COMPLEX 39 VAS, Bldg K6-B4B SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM SECTIONS & VIEW	
PROJECT: K0000071397D VOL-3	TOLERANCES ON: FRACTIONS DECIMALS ANGLES ±1/16 1 PL ±.080 1 PL ±.1 2 PL ±.030 2 PL ±.010 3 PL ±.010	DRAWN BY: T. O. ADAMS CHECKED BY: A.C. LITTLEFIELD DATE: 11/24/13	SIZE: E DATE CODE: 22264 SCALE: NOTED	DWG NO: K0000071397 SHEET: 24 OF 24
HEAT TREATMENT: FINAL PROTECTIVE FINISH	APPLICATION: SLS VAB	THIRD ANGLE PROJECTION		

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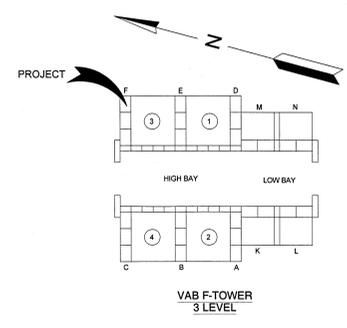
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REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

H
G
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A



SECTION F
SCALE: 3/8" = 1'-0"



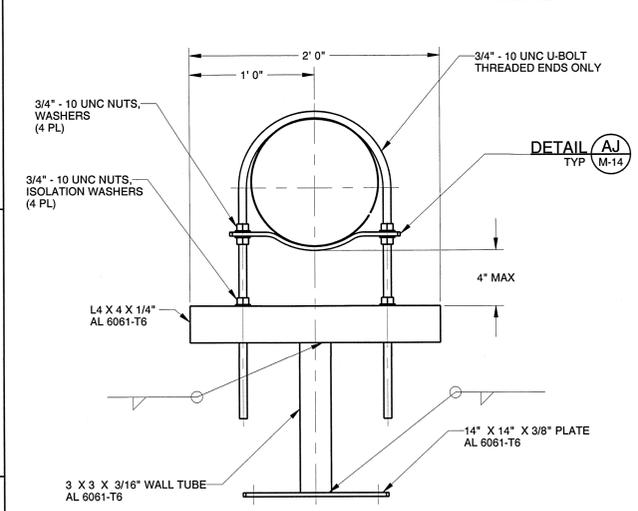
SOFTWARE PRO/ENGINEER	TOLERANCES PER ASME Y14.5M-1994. TOLERANCES ON: FRACTIONS DECIMALS ANGLES ±1/16 1 PL ±.050 1 PL ±.1 ±.000 2 PL ±.030 ±.010 3 PL ±.010	ORIGINAL DATE OF DRAWING (YYMMDD) 2013/04/30 DESIGNED BY C.J. SANCHEZ CHECKED BY M.T. ALLISON DRAWN BY H.N. BUCCHETTI IN CHARGE BY S. BROTHWELL PROJECT MANAGER BY J.J. WARD DATE OF ISSUE BY D.P. GILLESPIE	SUBMITTED BY T. O. ADAMS APPROVED BY A.C. LITTLEFIELD	JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA	
				LAUNCH COMPLEX 39 VAB, Bldg K6-848 SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM 3RD FLOOR PLAN	
DATE TREATMENT	NEXT ASSY	USED ON	THIRD ANGLE PROJECTION	SCALE	NOTED
FINAL PROTECTIVE FINISH	APPLICATION			22264	25

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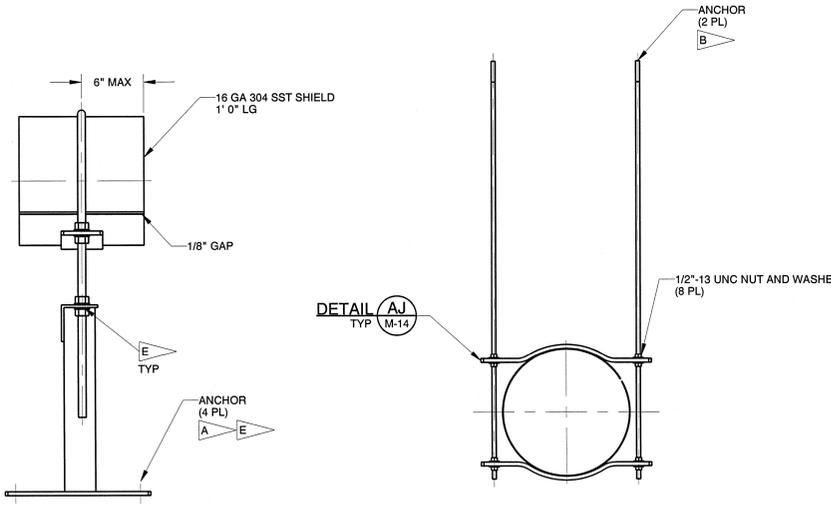
REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

GENERAL NOTE:
1. DETERMINE HEIGHTS OF SUPPORTS BASED ON DUCT CENTERLINE DIMENSIONS SHOWN IN ELEVATION VIEWS.

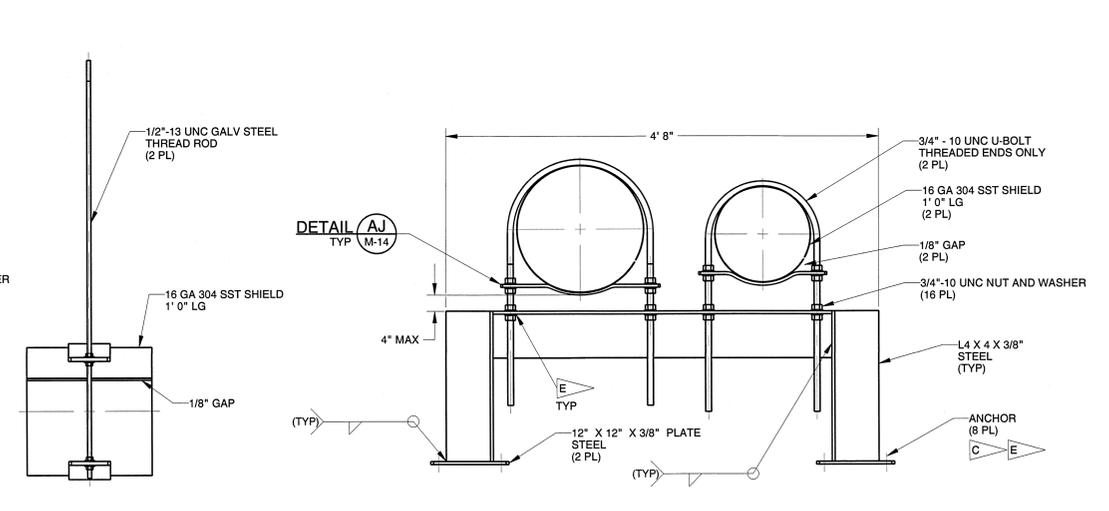
- SPECIFIC NOTES:**
- A 1/4"-20 UNC TRUBOLT PN WW-1422 304 SST, REDHEAD, (OR APVD EQ).
 - B PN HIT-IC 1/2 X 2 THREADED, SLEEVE PN HIT-HY EPOXY, HILTI, (OR APVD EQ).
 - C 3/8"-16 UNC TRUBOLT ZIC, PN WS-3836, REDHEAD, (OR APVD EQ).
 - D 1/2"-13 UNC X 6-1/2" LG GLAV, PN HAS 5.8, ADHERE USING PN HIT-HY MORTAR, HILTI, (OR APVD EQ).
 - E CONTRACTOR SHALL DETERMINE SIZE AND LOCATION OF HOLES FOR HARDWARE.



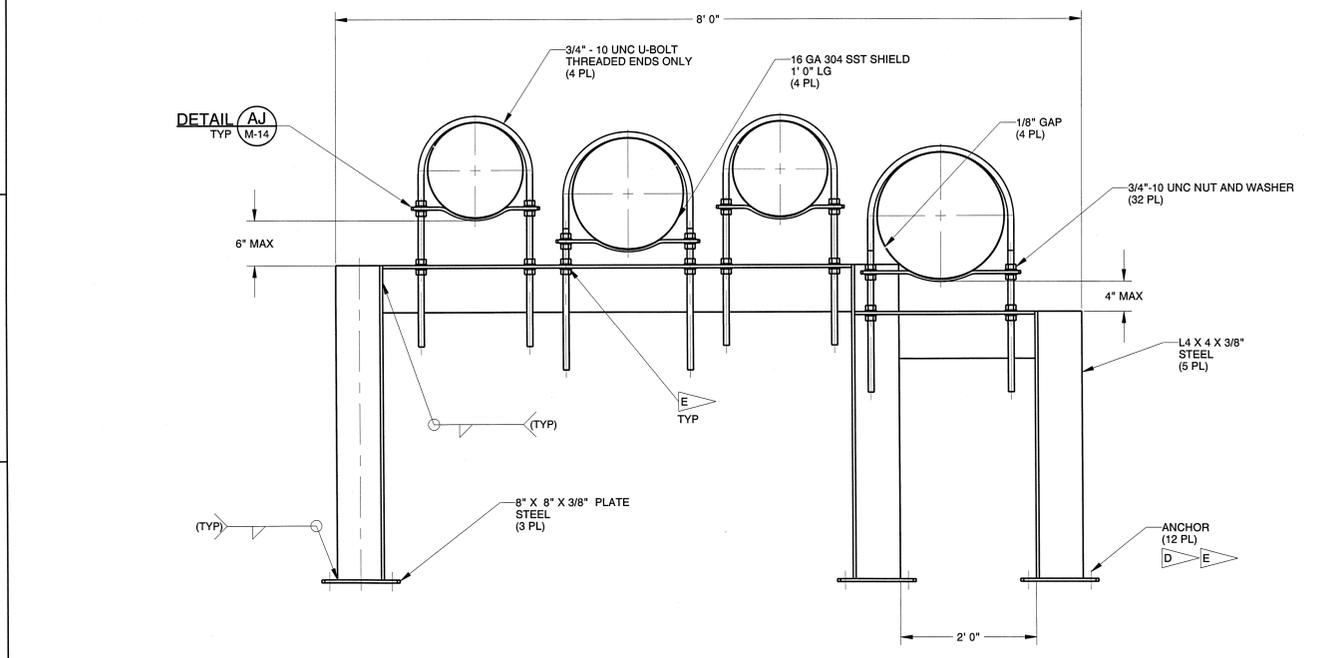
TYPICAL DUCT STANCHION DETAIL
SCALE: 2" = 1'-0"



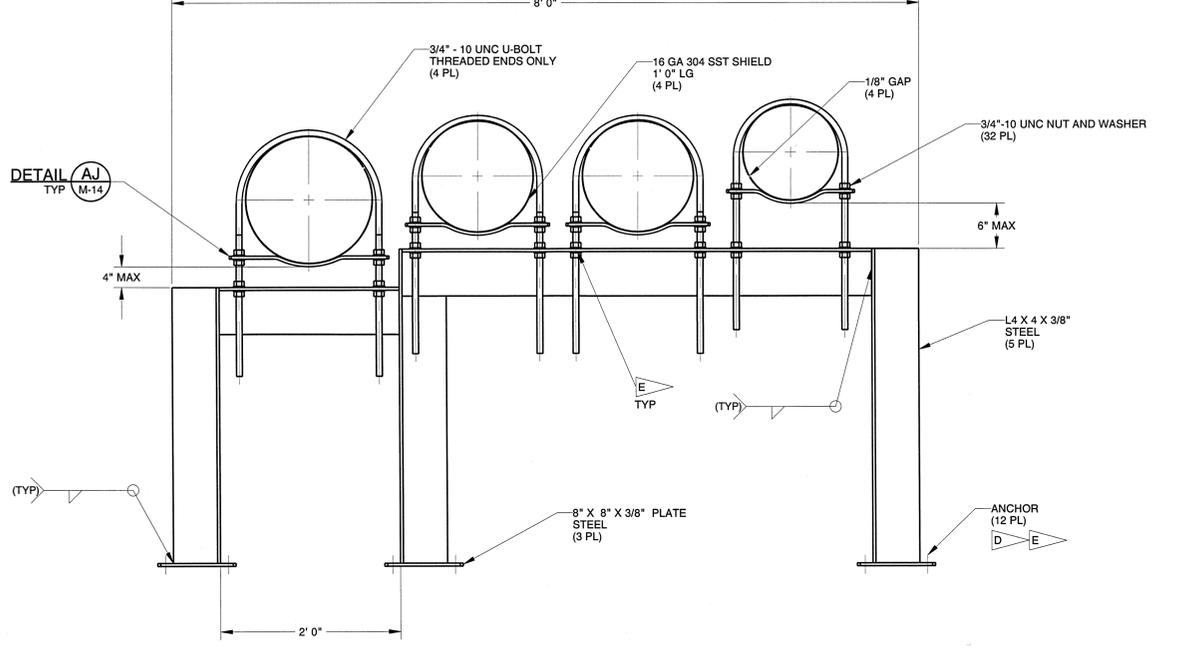
TYPICAL CLEVIS HANGER DETAIL
SCALE: 2" = 1'-0"



DETAIL TYP M-14
SCALE: 1-1/2" = 1'-0"



DETAIL TYP M-14
SCALE: 1-1/2" = 1'-0"



DETAIL TYP M-14
SCALE: 1-1/2" = 1'-0"

CAD MAINTAINED CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY. PROJECT: PRO/ENGINEER FILENAME: K0000071397D_VOL-4 MATERIAL: SLS VAB HEAT TREATMENT: NEXT ASSY USED ON APPLICATION FINAL PROTECTIVE FINISH:	UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994. TOLERANCES ON: FRACTIONS DECIMALS ANGLES ±1/16 1 PL ±.060 1 PL ±.1 2 PL ±.030 3 PL ±.010	ORIGINAL DATE OF DRAWING (YY/MM/DD): 2013/04/30 DESIGNED BY: C. M. SANCHEZ CHECKED BY: M. T. ALLISON DRAWN BY: M. L. PARENTI IN CHARGE: D. P. GILLESPIE	JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA LAUNCH COMPLEX 39 VAB, BLDG K6-848 SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM DETAILS
		T. O. ADAMS A. C. LITTLEFIELD	SIZE: E CASE CODE: 22264 SCALE: NOTED

PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

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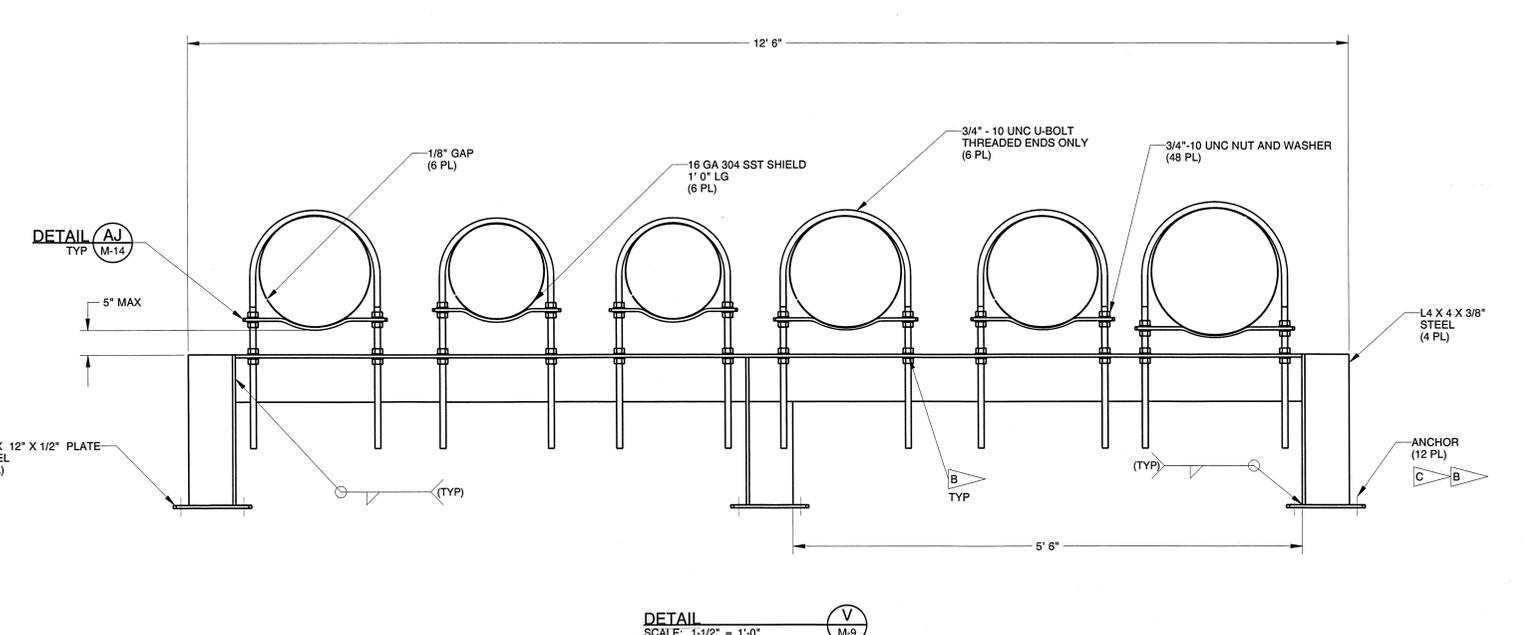
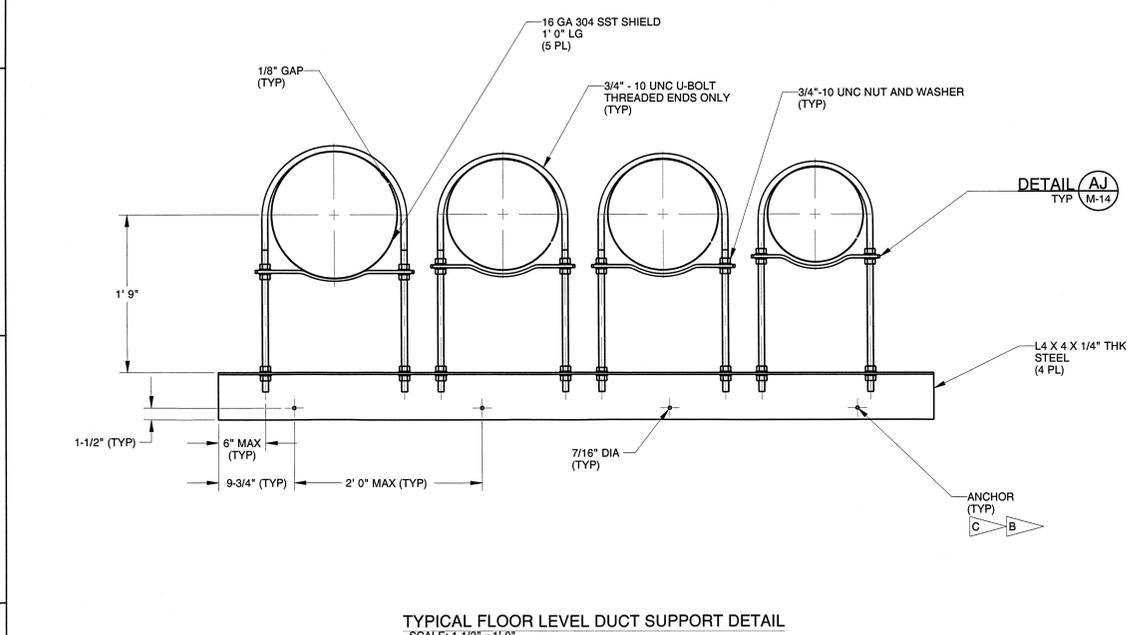
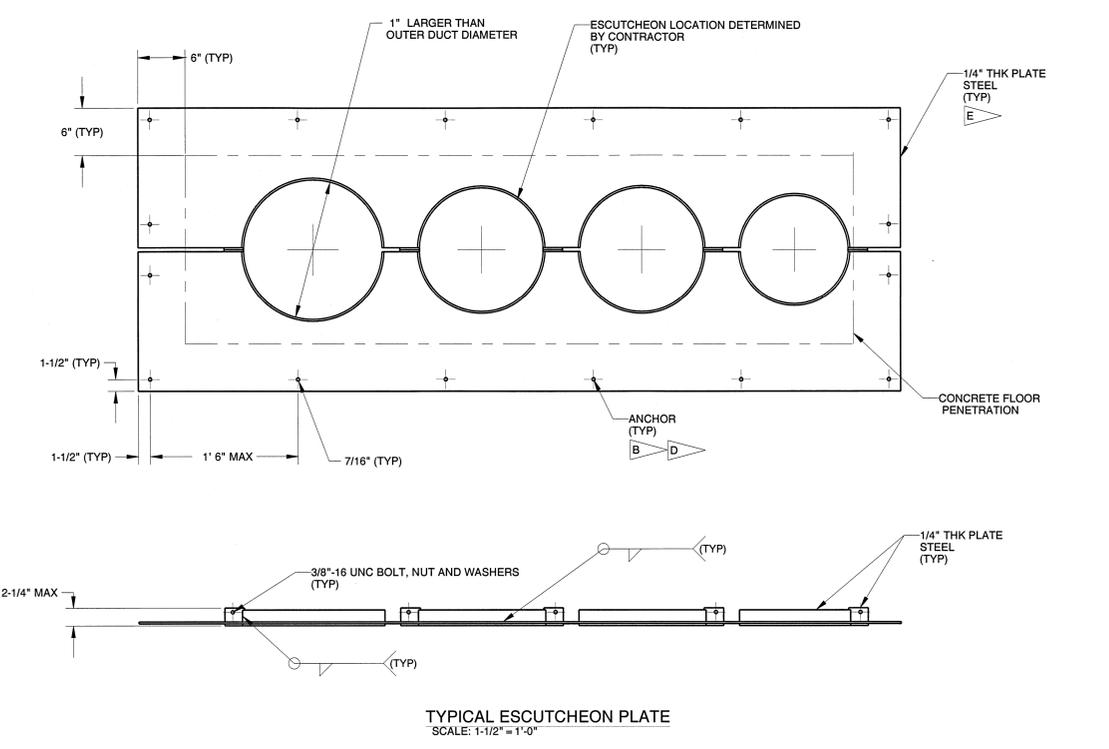
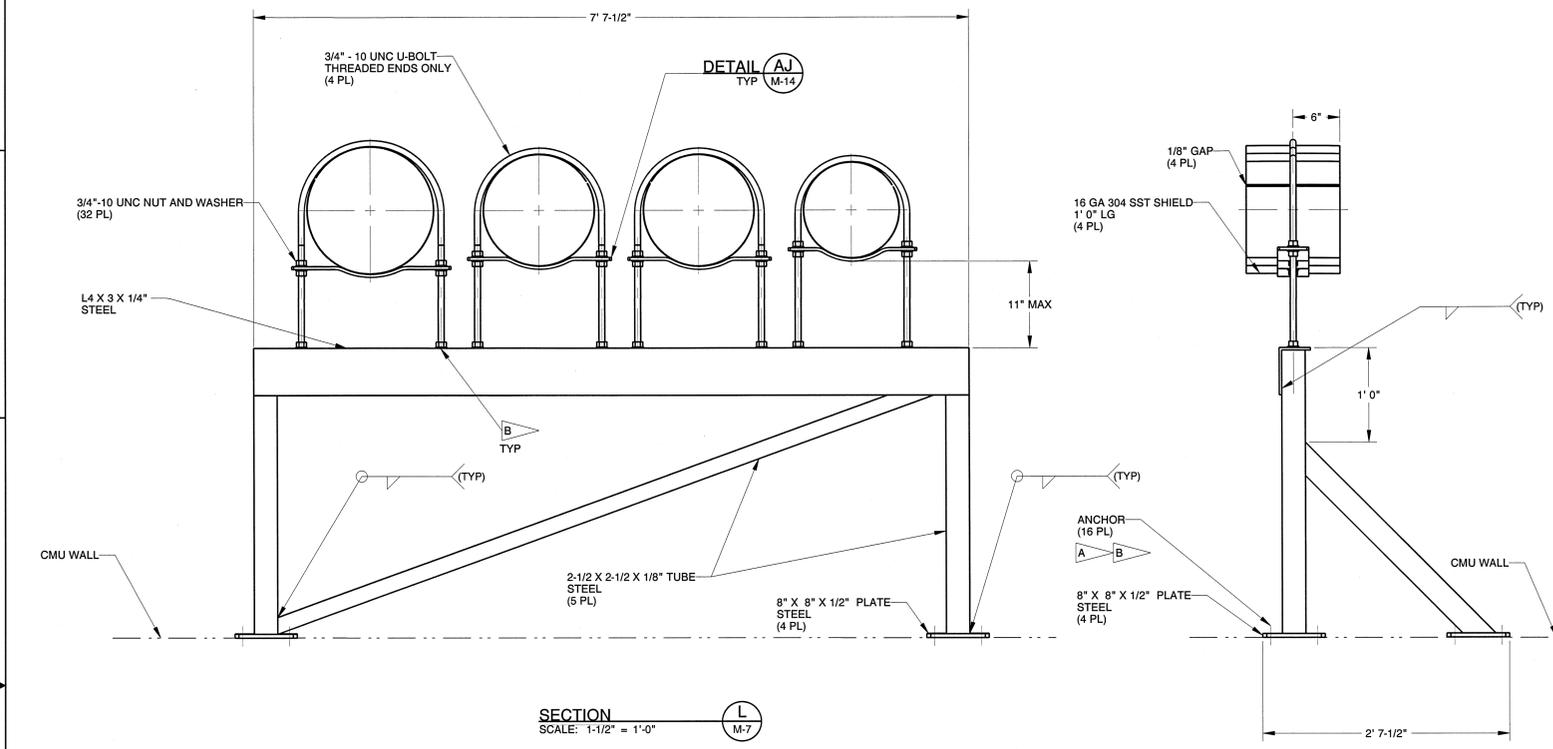
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GENERAL NOTE:

- 1. DETERMINE HEIGHTS OF SUPPORTS BASED ON DUCT CENTERLINE DIMENSIONS SHOWN IN ELEVATION VIEWS.

SPECIFIC NOTES:

- A P/N HIS-RN 1/2" THREADED SLEEVE ELEMENT, P/N HIT-SC 18 X 50 MESH SLEEVE, P/N HIT-HY EPOXY, HILT, NUT AND WASHER, (OR APVD EQ).
- B CONTRACTOR SHALL DETERMINE SIZE AND LOCATION OF HOLES FOR HARDWARE.
- C 3/8"-16 UNC TRUBOLT ZINC, P/N WS-3836, REDHEAD, (OR APVD EQ).
- D 1/4"-20 UNC TRUBOLT ZINC, P/N WS-1422, REDHEAD, (OR APVD EQ).
- E FINISH ESCUTCHEON PLATES, COLOR SAFETY YELLOW NO. 13655.



CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY. PROJECT: K0000071397D VOL-4 MATERIAL: SLS VAB TREATMENT: NEXT ASSY USED ON APPLICATION FINAL PROTECTIVE FINISH	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994. TOLERANCES ON: DIMENSIONS: ANGLES FRACTIONS: DECIMALS 1 PL ±.060 1 PL ±.1 2 PL ±.030 3 PL ±.010	ORIGINAL DATE OF DRAWING: 2013/04/30 DESIGNED BY: M.T. ALLISON CHECKED BY: G.J. SANCHEZ ENGINEER: B.M. BUCCIERI PROJECT: SLS VAB DRAWING: ENVIRONMENTAL CONTROL SYSTEM DETAILS	JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA LAUNCH COMPLEX 39 VAB, BLDG K6-848 SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM DETAILS
		T. O. ADAMS A. C. LITTLEFIELD	SIZE: E CASE CODE: 22264 SCALE: NOTED

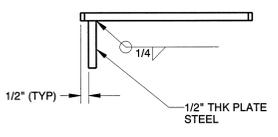
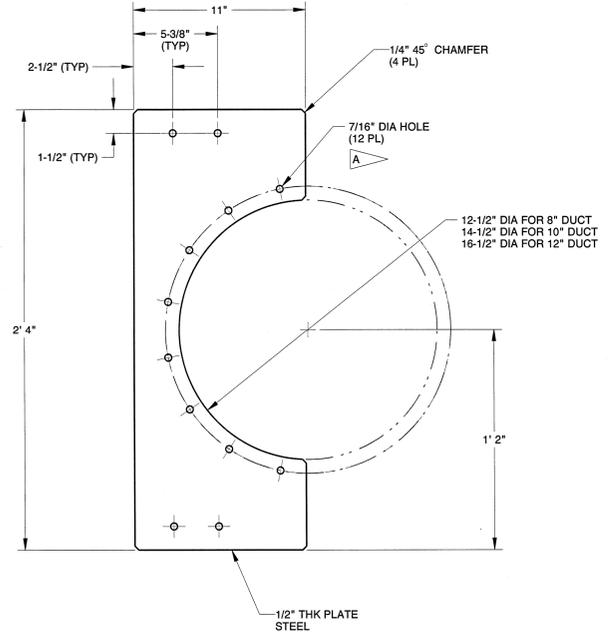
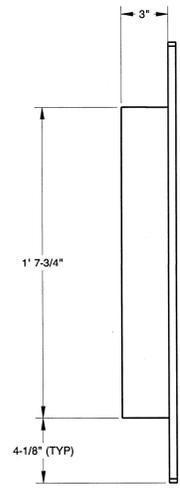
REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

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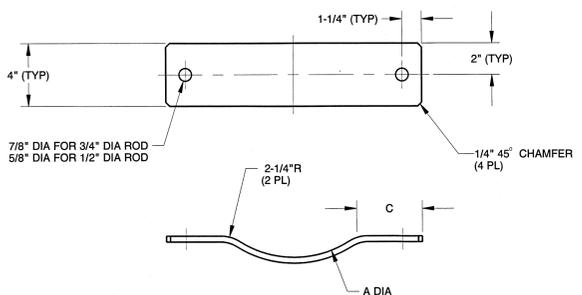
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GENERAL NOTE:
 1. DETERMINE HEIGHTS OF SUPPORTS BASED ON DUCT CENTERLINE DIMENSIONS SHOWN IN ELEVATION VIEWS.

- SPECIFIC NOTES:**
- A MATCH ATTACHING FLANGE HOLE PATTERN.
 - B 1/2"-13 UNC TRUBOLT ZINC, PN WS-1270, REDHEAD, (OR APVD EQ).
 - C CONTRACTOR SHALL DETERMINE SIZE AND LOCATION OF HOLES FOR HARDWARE.
 - D 3/8"-16 UNC TRUBOLT ZINC, PN WS-3836, REDHEAD, (OR APVD EQ).

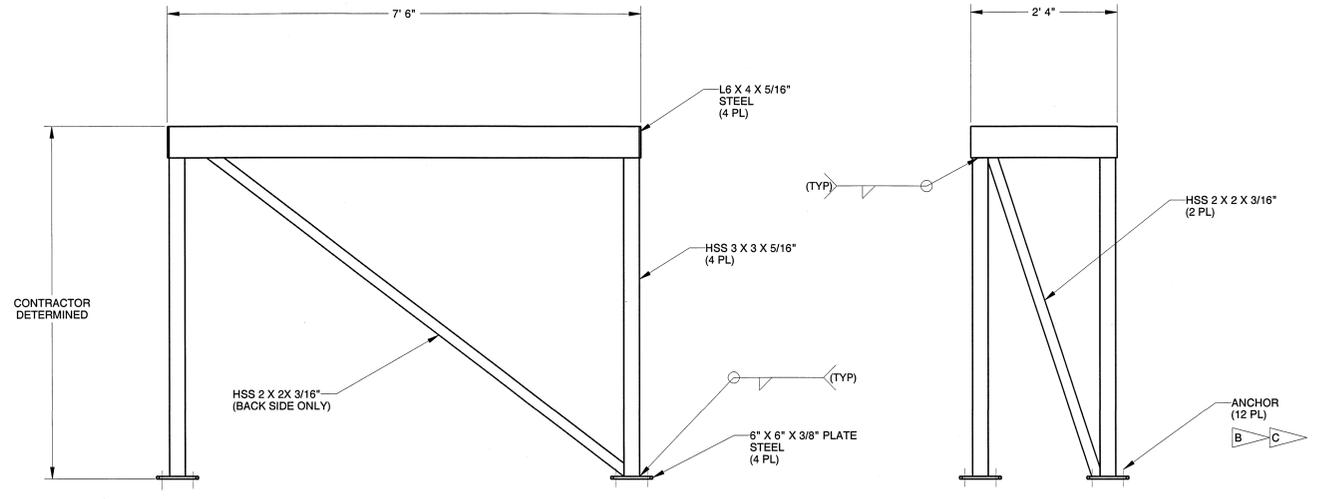


DETAIL H
SCALE: 3" = 1'-0"

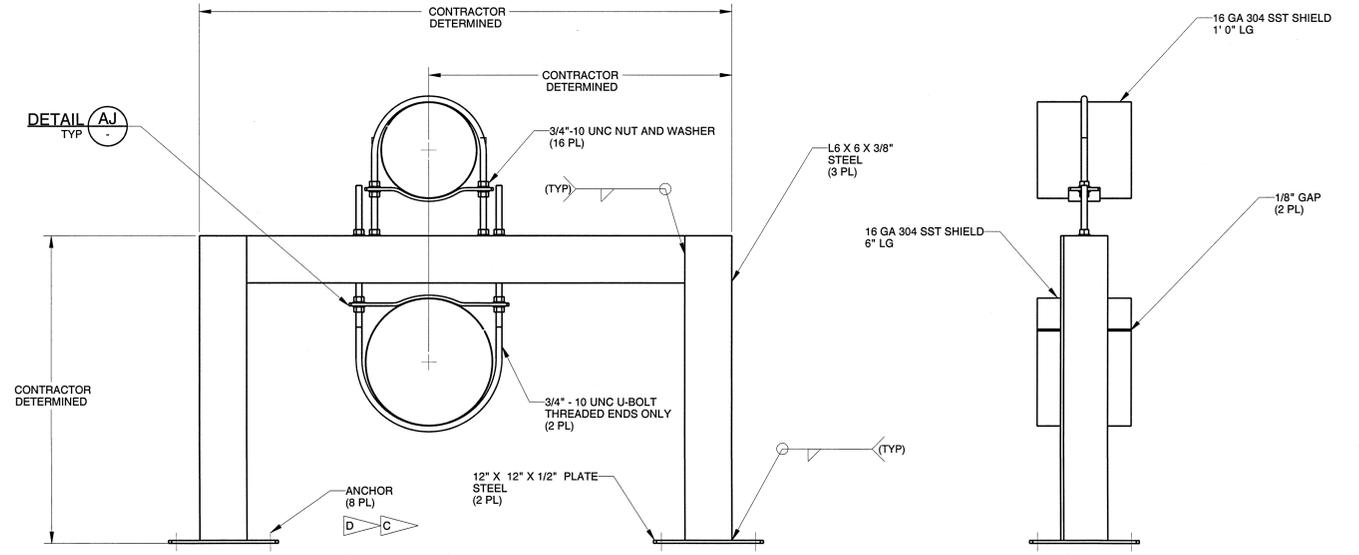


DETAIL AJ
SCALE: 3" = 1'-0"

DUCT SIZE	A	C
8"	13-1/4"	4-1/4"
10"	15-1/4"	5-1/4"
12"	17-1/4"	6-1/4"



DETAIL P
SCALE: 1-1/2" = 1'-0"



DETAIL K
SCALE: 3" = 1'-0"

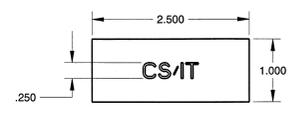
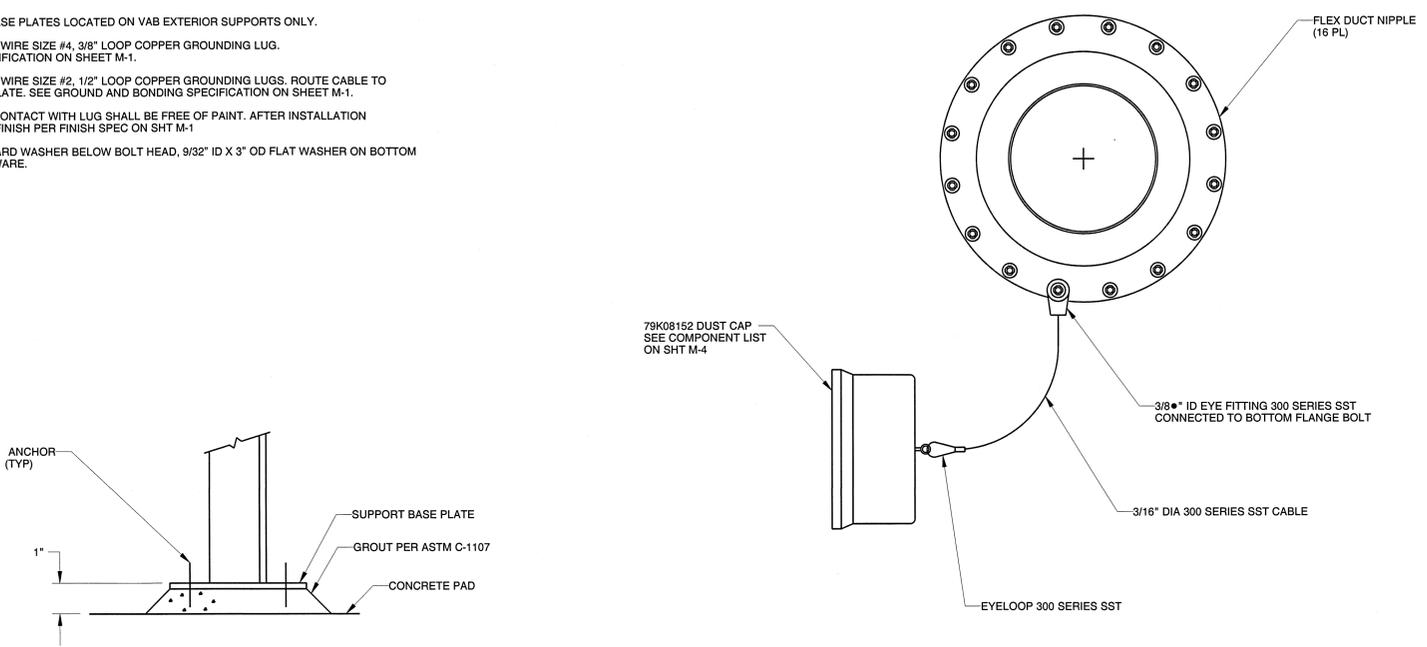
CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY. PROJECT: K0000071397D VOL-4 MATERIAL: SLS VAB HEAT TREATMENT: NEXT ASSY USED ON APPLICATION FINISH: PROTECTIVE FINISH	UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994. TOLERANCES ON: FRACTIONS DECIMALS ANGLES ±.1/16 1 PL ±.060 1 PL ±.1 2 PL ±.030 3 PL ±.010	ORIGINAL DATE OF DRAWING: 2013/04/30 DESIGNED BY: M.T. ALLISON CHECKED BY: M.L. BUCCIERI DRAWN BY: M.L. BUCCIERI IN CHARGE: D. P. GILLESPIE	JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA LAUNCH COMPLEX 39 VAB, BLDG K6-848 SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM DETAILS
		T. O. ADAMS A. C. LITTLEFIELD	CASE CODE: 22264 DWG NO: K0000071397 SHEET: 31 OF 31

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REVISION HISTORY					
PART NO.	ZONE	REV	DESCRIPTION	DATE	APPROVAL

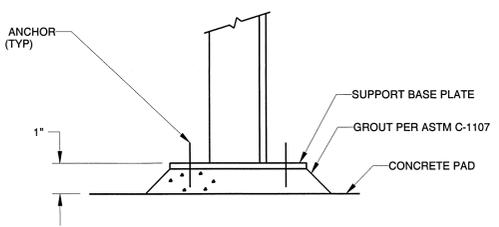
- SPECIFIC NOTES:**
- A GROUT BELOW DUCT SUPPORT BASE PLATES LOCATED ON VAB EXTERIOR SUPPORTS ONLY.
 - B GROUNDING COPPER BRAID, AWG WIRE SIZE #4, 3/8" LOOP COPPER GROUNDING LUG. SEE GROUND AND BONDING SPECIFICATION ON SHEET M-1.
 - C GROUNDING COPPER BRAID, AWG WIRE SIZE #2, 1/2" LOOP COPPER GROUNDING LUGS. ROUTE CABLE TO CLOSEST FACILITY GROUNDING PLATE. SEE GROUND AND BONDING SPECIFICATION ON SHEET M-1.
 - D STRUCTURAL BEAM SURFACE IN CONTACT WITH LUG SHALL BE FREE OF PAINT. AFTER INSTALLATION IS COMPLETED, TOUCH-UP BEAM FINISH PER FINISH SPEC ON SHT M-1
 - E 1/4"-20 UNC X 3" LG BOLT, STANDARD WASHER BELOW BOLT HEAD, 9/32" ID X 3" OD FLAT WASHER ON BOTTOM OF GRATING, NUT, 316 SST HARDWARE.



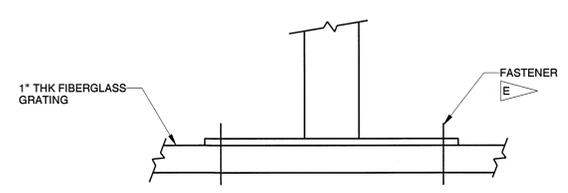
DETAIL M-11 (8 PL)
SCALE: 12" = 1'-0"

**TABLE 4
PLACARDS REQ'D**

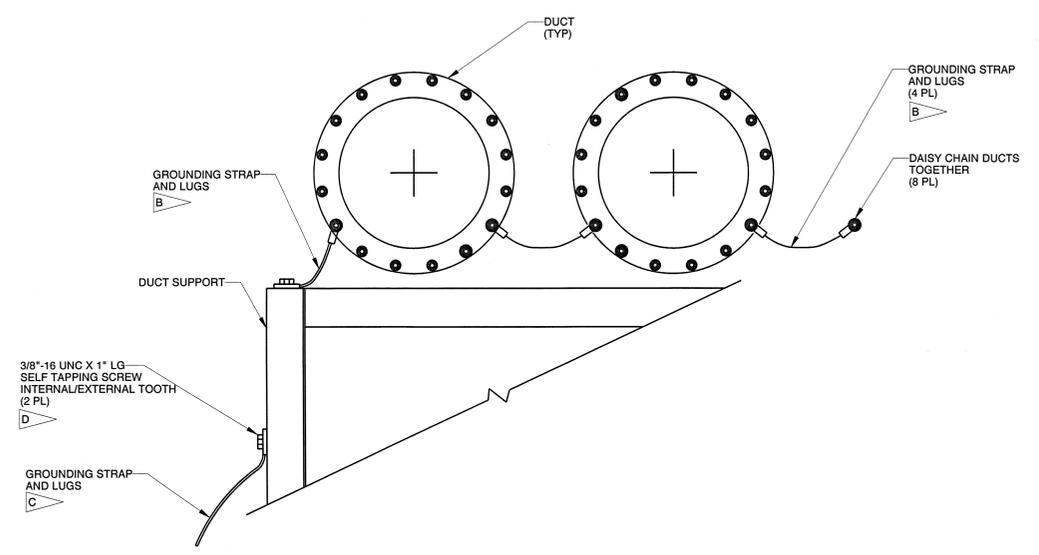
SLS CIRCUIT ID	QTY
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CS/FS	2
ICPS	2
SM/SA	2
LAS-FA	2
EC/CC	2
CS/ENG	2
CS/AFT	2



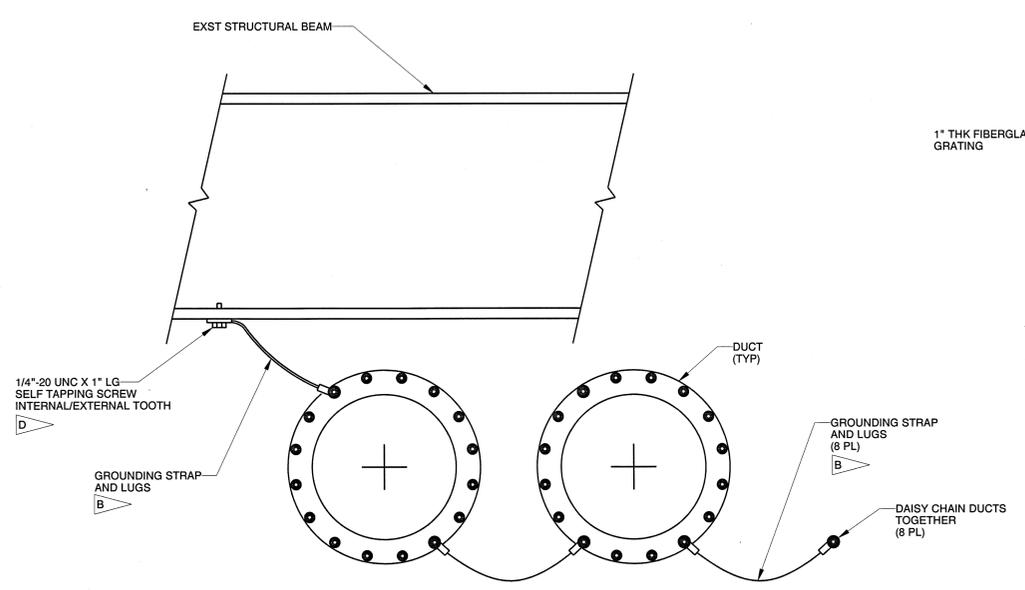
TYPICAL GROUT DETAIL
SCALE: NONE



DETAIL M-9 (AW)
SCALE: NONE



DETAIL M-7 (AP)
SCALE: NONE



DETAIL M-9 (AN)
SCALE: NONE

CAD MAINTAINED. CHANGES SHALL BE INCORPORATED ONLY BY THE DESIGN ACTIVITY. DESIGNED BY: PRO/ENGINEER DRAWING NO: K0000071397D_VOL-4 DATE: 2013/04/30 REVISIONS: 1 REVISION DESCRIPTION: 1. REVISED FOR MOUNTING TO EXISTING STRUCTURAL BEAM.	UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE IN INCHES. INTERPRET DIMENSIONS AND TOLERANCES PER ASME Y14.5M-1994. TOLERANCES ON: FRACTIONS DECIMALS ANGLES ± 1/16 1 PL ± .060 1 PL ± .1 2 PL ± .030 3 PL ± .010	ORIGINAL DATE OF DRAWING (YYMMDD) 2013/04/30 DESIGNED BY: C.J. SANCHEZ CHECKED BY: M.T. ALLISON DRAWN BY: R.N. BUCCINI APPROVED BY: D.P. GILLESPIE AUTHORITY: T.O. ADAMS DATE: 2013/04/30	JOHN F. KENNEDY SPACE CENTER, NASA KENNEDY SPACE CENTER, FLORIDA LAUNCH COMPLEX 39 VAB, BLDG K6-848 SPACE LAUNCH SYSTEM ENVIRONMENTAL CONTROL SYSTEM DETAILS	SHEET 32 OF 32
				SCALE NOTED