

SPECIFICATIONS:

SECTION 05 58 00 / METAL FABRICATIONS

1. SUBMIT SHOP DRAWINGS COMPLYING WITH SECTION 01 33 00 FOR WORK IN THIS SECTION.
- a. SUBMIT SHOP DRAWINGS FOR THE FABRICATION AND ERECTION OF ASSEMBLIES OF METALWORK, WHICH ARE NOT COMPLETELY SHOWN BY THE MANUFACTURER'S DATA SHEETS.
- b. INCLUDE PLANS, ELEVATIONS, AND DETAILS OF SECTIONS AND CONNECTIONS.
- c. SHOW ANCHORAGE AND ACCESSORY ITEMS.
2. THE EXTENT OF MISCELLANEOUS METALWORK IS SHOWN ON THE DRAWINGS AND INCLUDES ITEMS FABRICATED FROM IRON AND STEEL SHAPES, PLATES, BARS, STRIPS, TUBES, PIPES AND CASTINGS WHICH ARE NOT A PART OF THE STRUCTURAL STEEL OR OTHER METAL SYSTEMS.

3. COMPLY WITH THE PROVISIONS OF THE FOLLOWING:
- a. ALSO SPECIFICATIONS FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS, INCLUDING COMMENTARY OF THE AISC SPECIFICATIONS
- b. ALSO SPECIFICATIONS FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS
- c. AISC STRUCTURAL WELDING CODE - STEEL
- d. ASTM A 6 GENERAL REQUIREMENTS FOR DELIVERY OF ROLLED STEEL PLATES, SHAPES, SHEET PILING AND BARS FOR STRUCTURAL USE
- e. WELDING PROCESSES AND WELDING OPERATORS IN ACCORDANCE WITH AISC STANDARD QUALIFICATION PROCEDURE

4. THE TYPES OF ITEMS INCLUDE, BUT ARE NOT LIMITED TO THE FOLLOWING:
- a. CARPENTER'S IRONWORK
- b. PIPE GUARDS
- c. LADDERS
- d. LOOSE BEARING PLATES
- e. MISCELLANEOUS FRAMING AND SUPPORTS
- f. MISCELLANEOUS TRIM
- g. ANGLE CORNER GUARDS
- h. CHANNEL DOORFRAMES
- i. DOCK ANGLES
- j. ANGLE JAMBS
- k. PLATES FOR DOORS
- l. OVERHEAD TOLLET COMPARTMENT SUPPORT
- m. OVERHEAD FOLDING PARTITION SUPPORT
- n. TRELLIS
- o. FENCING AND GATES
- p. ELEVATOR SILL ANGLES AND GUIDE RAIL SUPPORTS

5. FURNISH INSERTS AND ANCHORING DEVICES WHICH MUST BE SET IN CONCRETE OR BUILT INTO MASONRY FOR THE INSTALLATION OF THE WORK.
6. PREASSEMBLE ITEMS IN THE SHOP TO THE GREATEST EXTENT POSSIBLE, SO AS TO MINIMIZE FIELD SPlicing AND ASSEMBLY OF UNITS AT THE PROJECT SITE. DISASSEMBLE UNITS ONLY TO THE EXTENT NECESSARY FOR SHIPPING AND HANDLING LIMITATIONS. CLEARLY MARK UNITS FOR REASSEMBLY.

MATERIALS

7. STEEL PLATES, SHAPES, BARS AND BAR-SIZE SHAPES: ASTM A_36.
8. STEEL TUBING (HOT FORMED, WELDED OR SEAMLESS): ASTM A_501.
9. HOT ROLLED CARBON STEEL BARS: ASTM A_575, GRADE AS SELECTED BY FABRICATOR.
10. COLD FINISHED STEEL BARS: ASTM A_108, GRADE AS SELECTED BY FABRICATOR.
11. HOT ROLLED CARBON STEEL SHEETS AND STRIPS: ASTM A_568 AND ASTM A_569; PICKLED AND OILED.
12. COLD ROLLED CARBON STEEL SHEETS: ASTM A_336.
13. GALVANIZED CARBON STEEL SHEETS: ASTM A_526, WITH ASTM A_525, G90 ZINC COATING.
14. COLD DRAWN STEEL TUBING: ASTM A_512 SUNK DRAWN, BUTT-WELDED, COLD FINISHED AND STRESS RELIEVED.
15. STEEL PIPE: ASTM A_53, TYPE AS SELECTED, GRADE A, BLACK FINISH UNLESS GALVANIZING IS REQUIRED, STANDARD WEIGHT, SCHEDULE 40, UNLESS OTHERWISE SHOWN OR SPECIFIED.

ANCHORS

16. THREADED TYPE CONCRETE INSERTS: GALVANIZED FERROUS CASTINGS, INTERNALLY THREADED TO RECEIVE 3/4" DIAMETER MACHINE BOLTS; EITHER MALLEABLE IRON COMPLYING WITH ASTM A_47 OR CAST STEEL COMPLYING WITH ASTM A_27; HOT DIP GALVANIZED IN COMPLIANCE WITH ASTM A_153.
17. WEDGE TYPE CONCRETE INSERTS: GALVANIZED BOX TYPE FERROUS CASTINGS, DESIGNED TO ACCEPT 3/4" DIAMETER BOLTS HAVING SPECIAL WEDGE, SHAPED HEADS, EITHER MALLEABLE IRON COMPLYING WITH ASTM A_47 OR CAST STEEL, COMPLYING WITH ASTM A_27; HOT DIPPED GALVANIZED IN COMPLIANCE WITH ASTM A153.
18. PROVIDE CARBON STEEL BOLTS HAVING SPECIAL WEDGE, SHAPED HEADS, NUTS, WASHERS AND SHIMS; GALVANIZED IN COMPLIANCE WITH ASTM A_153.
19. SLOTTED TYPE CONCRETE INSERTS: GALVANIZED 1/8" THICK PRESSED STEEL PLATE COMPLYING WITH ASTM A_283, BOX TYPE WELDED CONSTRUCTION WITH SLOT DESIGNED TO RECEIVE 3/4" DIAMETER SQUARE HEAD BOLT AND WITH KNOCKOUT COVER, HOT DIP GALVANIZED IN COMPLIANCE WITH ASTM A_386.
20. MASONRY ANCHORAGE DEVICES: EXPANSION SHIELD; FS FF_S_325.
21. TOGGLE BOLTS: TUMBLE WING TYPE; FS FF_S_588, TYPE, CLASS AND STYLE AS REQUIRED.

FASTENERS

22. PROVIDE ZINC COATED FASTENERS WITH GALVANIZING COMPLYING WITH ASTM A_153 FOR EXTERIOR USE OR WHERE BUILT INTO EXTERIOR WALLS; SELECT FASTENERS FOR THE TYPE, GRADE AND CLASS REQUIRED FOR THE INSTALLATION OF MISCELLANEOUS ITEMS.
23. STANDARD BOLTS AND NUTS: ASTM A_307, GRADE A, REGULAR HEXAGON HEAD.
24. LAG BOLTS: FS FF_B_561, SQUARE HEAD TYPE.
25. WOOD SCREWS: ANSII B_18.6.1 PLAT FLAT HEAD CARBON STEEL.
26. PLAIN WASHERS: FS FF_W_84, HELICAL SPRING TYPE CARBON STEEL.
27. METAL PRIMER PAINT: PRIMER SHALL BE TNEMC SERIES 10 GRAY.
28. GALVANIZING REPAIR PAINT: HIGH ZINC DUST CONTENT PAINT FOR WELDS IN GALVANIZED STEEL, COMPLYING WITH MILITARY SPECIFICATIONS MIL-P_21035

FABRICATION

29. USE MATERIALS OF THE SIZE AND THICKNESS SHOWN, OR IF NOT SHOWN, OF THE REQUIRED SIZE AND THICKNESS TO PRODUCE ADEQUATE STRENGTH AND DURABILITY OF THE FINISHED PRODUCT FOR THE INTENDED USE.
30. FOR THE FABRICATION OF METALWORK WHICH WILL BE EXPOSED TO VIEW, USE ONLY MATERIALS WHICH ARE SMOOTH AND FREE OF SURFACE BLEMISHES, SEAM MARKS, ROLLER MARKS, ROLLED TRADE NAMES AND ROUGHNESS. REMOVE SUCH BLEMISHES BY GRINDING OR BY WELDING AND GRINDING. PRIOR TO CLEANING, TREATING AND APPLICATION OF SURFACE FINISHES INCLUDING ZINC COATINGS.
31. FORM EXPOSED WORK TRUE TO LINE AND LEVEL WITH ACCURATE ANGLES AND SURFACES AND STRAIGHT SHARP EDGES. EASE EXPOSED EDGES TO A RADIUS OF APPROXIMATELY 1/32" UNLESS OTHERWISE SHOWN. FORM BENT METAL CORNERS TO THE SMALLEST RADIUS POSSIBLE WITHOUT CAUSING GRAIN SEPARATION.
32. WELD CORNERS AND SEAMS CONTINUOUSLY AND IN ACCORDANCE WITH THE RECOMMENDATIONS OF AWS. GRIND EXPOSED WELDS SMOOTH AND FLUSH, TO MATCH AND BLEND WITH ADJOINING SURFACES. FORM EXPOSED CONNECTIONS WITH HAIRLINE JOINTS WHICH ARE FLUSH AND SMOOTH, USING CONCEALED FASTENERS WHEREVER POSSIBLE. USE EXPOSED FASTENERS OF THE TYPE SHOWN, OR IF NOT SHOWN, USE COUNTERSUNK SCREWS OR BOLDS.
33. CUT, REINFORCE AND DRILL METALWORK AS MAY BE REQUIRED TO RECEIVE FINISH HARDWARE AND SIMILAR ITEMS OF WORK.

GALVANIZING

34. PROVIDE A ZINC COATING FOR THOSE ITEMS SHOWN OR SPECIFIED TO BE GALVANIZED, USING ONE OF THE FOLLOWING HOT DIP PROCESSES AFTER FABRICATION:
- ASTM A_153 FOR GALVANIZING OF IRON AND STEEL HARDWARE

36. ASTM A_123 FOR GALVANIZING OF ROLLED, PRESSED AND FORGED STEEL SHAPES, PLATES, BARS, AND STRIP 1/8" THICK AND HEAVIER, AND FOR GALVANIZING OF ASSEMBLED STEEL PRODUCTS
- SHOP PAINTING
37. SHOP PAINT METALWORK, EXCEPT THOSE MEMBERS OR PORTIONS OF MEMBERS TO BE EMBEDDED IN CONCRETE OR MASONRY, SURFACES AND EDGES TO BE FIELD WELDED, AND GALVANIZED SURFACES.
38. REMOVE SCALE, RUST AND OTHER DELETERIOUS MATERIALS BEFORE THE SHOP COAT OF PAINT IS APPLIED. CLEAN HEAVY RUST AND LOOSE MILL SCALE IN ACCORDANCE WITH SSPC SP_3 HAND TOOL CLEANING, OR SSPC SP_3 POWER TOOL CLEANING OR SSPC SP_7 BRUSH-OFF BLAST CLEANING. REMOVE OIL, GREASE AND SIMILAR CONTAMINANTS IN ACCORDANCE WITH SSPC SP_1 SOLVENT CLEANING.

39. APPLY ONE SHOP COAT OF METAL PRIMER PAINT TO FABRICATED METAL ITEMS; APPLY TWO COATS OF PAINT TO SURFACES WHICH ARE INACCESSIBLE AFTER ASSEMBLY. IMMEDIATELY AFTER SURFACE PREPARATION, BRUSH OR SPRAY ON METAL PRIMER PAINT, APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, AND AT A RATE TO PROVIDE A UNIFORM DRY FILM THICKNESS OF 2 MILS FOR EACH COAT.

CARPENTER'S IRON WORK

40. FURNISH BENT OR OTHERWISE CUSTOM FABRICATED BOLTS, PLATES, ANCHORS, HANGERS, DOWELS AND OTHER SHAPES AS REQUIRED FOR FRAMING AND SUPPORTING OF WOODWORK, AND FOR ANCHORING OR SECURING WOODWORK TO CONCRETE OR OTHER STRUCTURES.

41. MANUFACTURE OR FABRICATE ITEMS OF SIZES, SHAPES AND DIMENSIONS REQUIRED. FURNISH MALLEABLE IRON WASHERS FOR HEADS AND NUTS WHICH BEAR ON WOOD STRUCTURAL CONNECTIONS; ELSEWHERE FURNISH STEEL WASHERS.

LADDERS

42. FABRICATE LADDERS WITH DIMENSIONS, SPACINGS, DETAILS AND ANCHORAGES AS REQUIRED. COMPLY WITH THE REQUIREMENTS OF ANSI A14.3, EXCEPT AS OTHERWISE SHOWN. PROVIDE 12" X 2, 12" CONTINUOUS STRUCTURAL STEEL FLAT BAR SIDE RAILS WITH EASED EDGES, SPACED 18" APART. PROVIDE 3/4" DIAMETER SOLID STRUCTURAL STEEL BAR RUNGS, SPACED 12" OC.
43. FIT RUNGS INTO PUNCHED HOLES IN CENTERLINE OF SIDE RAILS, PLUG WELD AND GRIND SMOOTH ON OUTER RAIL FACES.

44. SUPPORT EACH LADDER AT TOP AND BOTTOM AND AT INTERMEDIATE POINTS SPACED NOT MORE THAN 8' OC. USE WELDED OR BOLTED STEEL BRACKETS, DESIGNED FOR ADEQUATE SUPPORT AND ANCHORAGE, AND TO HOLD THE LADDER OFF CLEAR OF THE WALL SURFACE AND OTHER OBSTRUCTING CONSTRUCTION. EXTEND RAILS 42" ABOVE TOP RUNG, AND RETURN RAILS TO WALL OR STRUCTURE UNLESS OTHER SECURE HANDHOLDS ARE PROVIDED. IF THE LADDER STRUCTURE IS TO BE USED TO CLIMB ABOVE THE STRUCTURE TO PROVIDE GOOSENECK THE EXTENDED RAILS BACK TO THE STRUCTURE TO PROVIDE SECURE LADDER ACCESS.

45. PROVIDE NONSLIP SURFACE ON THE TOP OF EACH RUNG, EITHER BY COATING THE RUNG WITH ALUMINUM OXIDE GRANULES SET IN EPOXY RESIN ADHESIVE, OR BY USING A TYPE OF MANUFACTURED RUNG WHICH IS FILLED WITH ALUMINUM OXIDE GROUT.

LOOSE BEARING PLATES

46. PROVIDE LOOSE BEARING PLATES FOR STEEL ITEMS BEARING ON MASONRY OR CONCRETE. THE REINFORCING OR THE PLATE, FRAMING OR ANCHORS, TWISTS, AND OF REQUIRED THICKNESS AND BEARING AREA. DRILL PLATES TO RECEIVE ANCHOR BOLTS AND FOR GROUTING AS REQUIRED.

LOOSE STEEL LINTELS

47. PROVIDE LOOSE STRUCTURAL STEEL SHAPE LINTELS FOR OPENINGS AND RECESSES IN MASONRY WALLS AND PARTITIONS, AS SHOWN. WELD ADJOINING MEMBERS TOGETHER TO FORM A SINGLE UNIT. PROVIDE NOT LESS THAN 6" BEARING AT EACH SIDE OF OPENINGS.

MISCELLANEOUS FRAMING AND SUPPORTS

48. PROVIDE STEEL FRAMING AND SUPPORTS WHICH ARE NOT A PART OF THE STRUCTURAL STEEL FRAMEWORK, AS REQUIRED TO COMPLETE THE WORK.
49. FABRICATE MISCELLANEOUS UNITS TO THE SIZES, SHAPES AND PROFILES SHOWN OR OF THE REQUIRED DIMENSIONS TO ABOVE ADJOINT GRATING, PLATES, DOORS OR OTHER WORK TO BE RETAINED BY THE FRAMING. FABRICATE FROM STRUCTURAL STEEL SHAPES AND PLATES AND STEEL BARS OF WELDED CONSTRUCTION USING MITERED CORNERS, WELDED BRACKETS AND SPlice PLATES AND A MINIMUM NUMBER OF JOINTS FOR FIELD CONNECTION. CUT, DRILL AND TAP UNITS TO RECEIVE HARDWARE AND SIMILAR ITEMS TO BE ANCHORED TO THE WORK.

MISCELLANEOUS STEEL TRIM

50. PROVIDE SHAPES AND SIZES AS REQUIRED FOR THE PROFILES SHOWN. FABRICATE UNITS FROM STRUCTURAL STEEL SHAPES AND PLATES AND STEEL BARS, WITH CONTINUOUSLY WELDED JOINTS AND SMOOTH EXPOSED EDGES. USE CONCEALED FIELD SPICES WHEREVER POSSIBLE. PROVIDE CUTOUTS, FITTINGS AND ANCHORAGES AS REQUIRED FOR COORDINATION OF ASSEMBLY AND INSTALLATION WITH OTHER WORK.

SHELF ANGLES

51. PROVIDE STRUCTURAL STEEL SHELF ANGLES OF SIZES SHOWN FOR ATTACHMENT TO CONCRETE FRAMING. PROVIDE SLOTTED HOLES TO RECEIVE 3/4" BOLTS, SPACES NOT MORE THAN 6" FROM ENDS AND NOT MORE THAN 24" OC.
52. FURNISH WEDGE TYPE CONCRETE INSERTS, COMPLETE WITH FASTENERS, FOR ATTACHMENT OF SHELF ANGLES TO CAST-IN PLACE CONCRETE.

SECTION 06 11 00 / WOOD FRAMING

WOOD PRESERVATIVE TREATMENT

1. PRESSURE-TREAT THE FOLLOWING ITEMS WITH WATER BORNE PRESERVATIVES FOR ABOVE-GROUND USE, COMPLYING WITH MWPS LP 2: WOOD CANTS, MAILERS, BLOCKING STRIPPING AND SIMILAR MEMBERS IN CONNECTION WITH ROOFING, FLASHING, VAPOR BARRIERS AND WATERPROOFING (EXCEPT PLYWOOD SHEATHING).
- a. WOOD SILLS, BLOCKING, FURRING, STRIPPING, AND SIMILAR CONCEALED MEMBERS IN CONTACT WITH MASONRY OR CONCRETE OR BELOW GRADE FOUNDATION GRADE REDWOOD, GRADE MARKED, IS ACCEPTABLE FOR WOOD SILLS IN LIEU OF TREATED LUMBER.

FIRE RETARDANT TREATMENT

2. FOR WOOD MEMBERS REQUIRED BY CODE TO BE FIRE RETARDANT TREATED, PROVIDE PRESSURE IMPREGNATION WITH DRIFCON FIRE RETARDANT CHEMICALS IN ACCORDANCE WITH THE RECOMMENDATIONS AND QUALITY CONTROL OF KOPPERS CO., INC., TO PROVIDE A UL FRS FIRE HAZARD CLASSIFICATION. WOOD SHALL BE IDENTIFIED WITH A UL LABEL CERTIFYING THIS CLASSIFICATION AND THE FM DIAMOND.

FIRE-BLOCKING IN COMBUSTIBLE CONCEALED SPACES

3. PROVIDE FIRE BLOCKING IN ACCORDANCE WITH THE IBC OR CBC DEPENDING ON THE JURISDICTION.
4. DOUBLE STUD WALLS: BATTS OR BLANKETS OF MINERAL OR GLASS FIBER, OR OTHER APPROVED NON-RIGID MATERIALS SHALL BE ALLOWED AS FIRE-BLOCKING IN WALLS CONSTRUCTED USING PARALLEL ROWS OF STUDS OR STAGGERED STUDS.

5. CONCEALED WALL SPACES: FIRE-BLOCKING SHALL BE PROVIDED IN CONCEALED SPACES OR STUD WALLS AND PARTITIONS, INCLUDING FURRED SPACES, AND PARALLEL ROWS OF STUDS OR STAGGERED STUDS, AS FOLLOWS: VERTICALLY AT CEILING AND FLOOR LEVELS, HORIZONTALLY AT INTERVALS NOT EXCEEDING 10'.

SECTION 06 20 00 / FINISH CARPENTRY

1. HANDLE AND STORE ARCHITECTURAL WOODWORK AND TRIM CAREFULLY, ACCEPTING DELIVERY ONLY AFTER STORAGE AREA TEMPERATURE IS BEING PERMANENTLY MAINTAINED ABOVE 62°F AND AREA IS SUFFICIENTLY DRY SO WOODWORK WILL NOT BE DAMAGED BY EXCESSIVE CHANGE IN MOISTURE CONTENT.

FASTENINGS

2. ATTACH WORK TO SECURE SUPPORT, WITH FASTENINGS CONCEALED. BLIND NAIL WHERE POSSIBLE, WHERE NOT POSSIBLE, LOCATE, DRIVE AND SET SURFACE NAILS FOR PUTTY STOPPING SO AS NOT TO BE CONSPICUOUS IN THE FINISH. SURFACE NAIL PLAN CASINGS AND BASE IN PAIRS AT 24" CENTERS. DRILL LEAD HOLES FOR SCREWS. APPLY ADHESIVES IN STRICT ACCORDANCE WITH MANUFACTURER'S DIRECTIONS, SUPPLEMENTING ADHESIVES WITH NAILING AS REQUIRED.

DOORS

3. PROVIDE UNIFORM 1/16" TO 1/8" EDGE CLEARANCE AT JAMBS AND HEADS AND BOTTOM CLEARANCE OF 1/8" ABOVE FINISH FLOORING EXCEPT AT UNDERCUT DOORS. REVEL LOOK UNITS AS REQUIRED TO MATCH HARDWARE. PROVIDE ALLOW FOR PROPER CLEARANCE IN OPENING AND CLOSING DOORS. INSTALL SPECIFIED HARDWARE TO PROVIDE FREE SWINGING OR SLIDING DOORS THAT CLOSE EASILY AND LATCH SECURELY, FREE FROM RATTLING. REMOVE DOORS AFTER FITTING FOR FINISHING. RE-HANG DOORS AFTER FINISHING.

4. MAKE LOCK CUTOUTS WITH TEMPLATES USING MANUFACTURER'S RECOMMENDED METHODS. CUT MORTISES ACCURATELY TO SIZE AND DEPTH, WITH MINIMUM CLEARANCE. PATCHING WILL NOT BE PERMITTED, AND DOORS AND FRAMES INCORRECTLY PREPARED FOR HARDWARE SHALL BE REPLACED.
- TRIM
5. INSTALL STANDING TRIM IN SINGLE LENGTHS WITHOUT SPICES, RUNNING TRIM IN LENGTHS AS LONG AS POSSIBLE, JOINED ONLY WHERE SLOTT FASTENINGS CAN BE MADE. END JOINTS IN BUILT-UP MEMBERS SHALL BE WELL DISTRIBUTED. MITER EXTERNAL CORNERS, COPE INTERNAL CORNERS.

SECTION 06 40 00 / ARCHITECTURAL WOODWORK

1. SUBMIT SHOP DRAWINGS COMPLYING WITH SECTION 01 33 00 FOR WORK IN THIS SECTION.
- a. SUBMIT DRAWINGS ON ITEMS OF ARCHITECTURAL WOODWORK.
- b. SUBMIT MANUFACTURER'S DESCRIPTIVE LITERATURE OF SPECIALTY ITEMS NOT MANUFACTURED BY THE ARCHITECTURAL WOODWORK MANUFACTURER.
- c. SUBMIT SAMPLES OF EACH WOOD SPECIES THAT IS TO RECEIVE TRANSPARENT FINISH AT JOB SITE.
- d. SUBMIT FINISHED SAMPLES OF EACH FINISH TO BE APPLIED AT FACTORY.

QUALITY ASSURANCE

2. THE QUALITY STANDARDS OF THE AIA SHALL APPLY AND BY REFERENCE ARE HEREBY MADE A PART OF THIS SPECIFICATION. REFERENCE TO CUSTOM GRADE IN THIS SPECIFICATION SHALL BE AS DEFINED IN THE LATEST EDITION OF THE AIA QUALITY STANDARDS. ITEMS NOT GIVEN A SPECIFIC QUALITY GRADE SHALL BE CUSTOM GRADE.
3. THE ARCHITECTURAL WOODWORK MANUFACTURER IS RESPONSIBLE FOR DETAILS AND DIMENSIONS NOT CONTROLLED BY JOB CONDITIONS AND SHALL SHOW ON HIS SHOP DRAWINGS REQUIRED FIELD MEASUREMENTS BEYOND HIS CONTROL.

MATERIALS

- a. PANELING AND TRIM
- b. STANDING AND RUNNING TRIM: AUI CUSTOM GRADE, SOLID WOOD, RED OAK
- c. PANELING: SOLID WOOD, RED OAK, PLYWOOD, 3/4" WITH RED OAK VENEER
- d. CASEWORK OR OPAQUE FINISH
- e. AUI CUSTOM GRADE, DETAILS SHALL CONFORM TO FULL OVERLAP DESIGN
- f. EXPOSED PARTS: HARDWOOD
- g. SEMI EXPOSED PARTS: AS GOVERNED BY SELECTED AUI QUALITY GRADE
- h. CASEWORK FOR TRANSPARENT FINISH
- i. AUI CUSTOM GRADE, DETAILS SHALL CONFORM TO FULL OVERLAY DESIGN
- j. EXPOSED PARTS: AS GOVERNED BY SELECTED AUI QUALITY GRADE
- k. SEMI EXPOSED PARTS: RED OAK
- l. SEMI EXPOSED PARTS: AS GOVERNED BY SELECTED AUI QUALITY GRADE
- m. CASEWORK WITH LAMINATE FINISH
- n. AUI CUSTOM GRADE, DETAILS SHALL CONFORM TO FULL OVERLAY DESIGN
- o. BAKING SHEET: NEMA LD_3, GRADE GP_28 AS SCHEDULED
- p. SEMI EXPOSED SURFACES: AS GOVERNED BY SELECTED AUI QUALITY GRADE
- q. LAMINATE COUNTER TOPS
- r. AUI CUSTOM GRADE
- s. LAMINATE SELECTION: NEMA LD_3, GRADE GP_50, COLOR PATTERNS AS SHOWN
- t. HARDWARE
- u. CASEWORK MANUFACTURER SHALL FURNISH AND INSTALL ITEMS OF CASEWORK HARDWARE AS FOLLOWS:
- v. PULLS: SCHAUB AND COMPANY SHC 721 3" (FINISH SHALL MATCH ROOM DOOR HARDWARE)
- w. DRAWER GUIDES: K_V 1260
- x. HINGES: MEPLA 89° FULL OVERLAY, SELF-CLOSING
- y. SHELF STANDARDS: K_V STANDARD 83 WHITE, BRACKETS 185 WHITE

SECTION 06 52 13 / FIBERGLASS-REINFORCED PLASTIC (FRP)

PART 1 - GENERAL

1. SUMMARY
- a. RELATED DOCUMENTS:
- b. DRAWINGS AND GENERAL PROVISIONS OF THE SUBCONTRACT APPLY TO THIS SECTION.
- c. REVIEW THESE DOCUMENTS FOR COORDINATION WITH ADDITIONAL REQUIREMENTS AND INFORMATION THAT APPLY TO WORK UNDER THIS SECTION.

- d. SECTION INCLUDES:
- e. FURNISHING AND INSTALLING FRAMING PIECES, FITTINGS, FIBERGLASS® GRATING DEVICES, BEARING PLATES, BOLTS, AND PROVIDING SPECIAL INSTRUCTIONS, TEMPLATES AND SETTING PLANS FOR THEIR INSTALLATION.
- f. INSTALLING FIBERGLASS® GRATING SHOWN ON THE DRAWINGS.
- g. SUPPLYING COMPLETE ERECTION DRAWINGS AND INSTRUCTIONS.

- h. RELATED SECTIONS:
- i. DIVISION 01 SECTION "GENERAL REQUIREMENTS."
- j. DIVISION 01 SECTION "SPECIAL PROCEDURES."

REFERENCES

1. GENERAL:
- a. THE FOLLOWING DOCUMENTS FORM PART OF THE SPECIFICATIONS TO THE EXTENT STATED, WHERE DIFFERENCES EXIST BETWEEN CODES AND STANDARDS, THE ONE AFFORDING THE GREATEST PROTECTION SHALL APPLY.
- b. UNLESS OTHERWISE NOTED, THE REFERENCED STANDARD EDITION IS THE CURRENT ONE AT THE TIME OF COMMENCEMENT OF THE WORK.
- c. REFER TO DIVISION 01 SECTION "GENERAL REQUIREMENTS" FOR THE LIST OF APPLICABLE REGULATORY REQUIREMENTS.

- d. MANUAL OF STEEL CONSTRUCTION OF THE AISC, 9TH EDITION.
- e. ASTM INTERNATIONAL APPLICABLE STANDARDS.
- f. U.S. DEPARTMENT OF ENERGY GENERAL DESIGN CRITERIA MANUAL, DOE 6430.1A

SUBMITTALS

1. SUBMIT UNDER PROVISIONS OF DIVISION 01 SECTION "GENERAL REQUIREMENTS."

2. SUBMIT SHOP DETAIL DRAWINGS INCLUDING BRACING.
3. SUBMIT MANUFACTURER'S SPECIFICATIONS AND INSTALLATION INSTRUCTIONS.

4. PRIOR TO FABRICATION, PROVIDE COMPLETE SHOP, ERECTION, INSTALLATION AND ASSEMBLY DRAWINGS FOR THE WORK, INCLUDING ANCHOR BOLT SETTINGS PLAN, AS REQUIRED TO ASSEMBLE ALL PARTS, COMPONENTS AND ACCESSORIES. DRAWINGS SHALL INDICATE THE PIECE MARKS OF ALL PARTS TO BE ERECTED OR ASSEMBLED AND CLEARLY DEPICT THE METHODS AND SEQUENCE OF ASSEMBLY AND ERECTION.

5. COPIES OF SHOP DRAWINGS, INCLUDING ERECTION DRAWINGS, SHALL BE SUBMITTED TO THE UNIVERSITY FOR REVIEW BEFORE THE START OF FABRICATION. THE UNIVERSITY REVIEW IS OF A GENERAL NATURE ONLY, AND ALL RESPONSIBILITY FOR COMPLIANCE WITH DRAWINGS, SPECIFICATIONS AND DIMENSIONS SHALL REMAIN WITH THE SUBCONTRACTOR. THE SUBCONTRACTOR SHALL VERIFY ALL LAYOUT DIMENSIONS WITH THE WINGS, AND WILL NOTIFY THE UNIVERSITY OF ANY DISCREPANCY AND/OR OMISSION. DO NOT FABRICATE ANY MEMBERS UNTIL ALL DIMENSIONS HAVE BEEN VERIFIED AND RESOLVED.

6. FOLLOWING THE MANUFACTURER'S FINAL INSPECTION SUBMIT THE MANUFACTURER'S CERTIFICATION IN ACCORDANCE WITH PARAGRAPH 3.3A.

QUALITY ASSURANCE

1. MANUFACTURER'S QUALIFICATIONS:

1. THE MANUFACTURER SHALL BE EXPERIENCED IN THE MANUFACTURE OF FIBERGLASS® REINFORCED PLASTIC STRUCTURES OF EQUIVALENT TYPE, SIZE, AND COMPLEXITY REQUIRED BY THESE SUBCONTRACT DOCUMENTS. MANUFACTURER SHALL HAVE A MINIMUM OF 5 YEARS EXPERIENCE IN FABRICATION OF FRP STRUCTURES.

2. THE SUBCONTRACTOR WILL CERTIFY IN WRITING THAT MATERIALS HAVE BEEN TESTED IN ACCORDANCE WITH A CERTIFIED QUALITY ASSURANCE PROGRAM, AND HAVE BEEN PROVEN TO BE SATISFACTORY FOR THE USE INTENDED BY THESE SUBCONTRACT DOCUMENTS.

3. DESIGN LOADS:
- a. LIVE LOAD: 125 POUNDS PER SQUARE FOOT (MINIMUM), 2000 POUNDS CONCENTRATED LOAD WITH 14" INCH OR LESS DEFLECTION.

4. DELIVERY, STORAGE, AND HANDLING
- a. DELIVER TO THE SITE ALL MATERIALS REQUIRED FOR ERECTION, PLACE

MEMBERS AND COMPONENTS OFF THE GROUND USING PALLETS, PLATFORMS, OR OTHER SUPPORTS. PROVIDE COVERS, AND PROTECT MEMBERS AND PACKAGED MATERIALS FROM THE WEATHER.

PART 2 - PRODUCTS

2.1 MATERIALS

- a. PRIMARY FRAMING:
1. STRUCTURAL SHAPES SHALL BE PULTRUDED FROM VINYLESTER RESIN SERIES 1625 BY CREATIVE PULTRUSIONS, ISOPHTHALIC POLYESTER SERIES 525 BY EXTRENE, OR EQUAL, HAVING AS CLASS 1 FIRE RATING PER ASTM E 84 WITH THE FOLLOWING MINIMUM STRENGTH CHARACTERISTICS: PROPERTY TEST METHOD VALUE FLEXURAL STRENGTH ASTM-D-790 LONGITUDINAL 37,000 PSI TRANSVERSE 10,000 PSI FLEXURAL MODULUS ASTM-D-790 LONGITUDINAL 2.0 X 106 PSI TRANSVERSE 1.0 X 106 PSI COMPRESSIVE STRENGTH ASTM-D-695 LONGITUDINAL 37,500 PSI TRANSVERSE 20,000 PSI TENSILE STRENGTH ASTM-A-638 37,500 PSI SHEAR STRENGTH ASTM-D-732 7,000 PSI MODULUS OF ELASTICITY 2.8X106 PSI
- b. THE FIBERGLASS® REINFORCED PLASTIC (FRP) GRATING FOR THE WORK WILL BE IFR MANUFACTURED FIBERGRATE CORPORATION AND WILL BE FURNISHED TO THE SUBCONTRACTOR BY THE UNIVERSITY. THE GRATING PANELS SHALL BE TRANSPORTED FROM THE MANUFACTURER'S LOCATION, CUT TO SIZE AND INSTALLED BY THE SUBCONTRACTOR.

- c. FASTENERS AND SADDLE CLIPS: 316 STAINLESS STEEL (S.S.)

2.2 FABRICATION

- a. STRUCTURAL MEMBERS, FASTENERS, AND ACCESSORIES SHALL BE SHOP FABRICATED IN ACCORDANCE WITH APPLICABLE ASTM STANDARDS.
- b. MATERIALS FURNISHED SHALL BE WITHIN THE STANDARD INDUSTRY TOLERANCES FOR THAT MATERIAL AS SPECIFIED BY THE MANUFACTURER.
- c. MANUFACTURER'S WORKMANSHIP SHALL BE SUCH THAT THE PARTS ARE ACCURATELY MADE AND TRUE TO DIMENSION SO THAT IN ERECTION OF SAME, ALL PARTS WILL PROPERLY FIT TOGETHER.
- d. THE DIMENSIONAL TOLERANCES OF PULTRUDED SHAPES SHALL BE AS SPECIFIED IN ASTM 3917-80 "STANDARD SPECIFICATIONS FOR DIMENSIONAL TOLERANCES OF THERMOSETTED GLASS REINFORCED PLASTIC PULTRUDED SHAPES".
- e. ALL FRP GRATING AND STRUCTURAL MEMBERS THAT ARE CUT OR DRILLED SHALL HAVE THOSE AFFECTED SURFACES SEALED WITH CATALYZED RESIN SEALANT PRIOR TO INSTALLATION. THE RESIN AND OTHER MATERIALS USED SHALL BE COMPATIBLE WITH THE ENVIRONMENT AND AS A MINIMUM SHALL BE SIMILAR TO, IF NOT THE SAME, AS THE BASE RESIN USED.
- f. FABRICATION AND INSTALLATION OF ALL PULTRUDED SHAPES SHALL BE DONE IN SUCH A WAY AS TO PREVENT ATTACK FROM CORROSIVE AGENTS. EXTRA CARE SHOULD BE TAKEN TO PREVENT ANY DAMAGE TO THE PULTRUDED SECTIONS, SCRATCHES AND GOUGES, AS WELL AS ALL CUT EDGES AND DRILLED HOLES, SHALL BE RESIN SEALED TO PREVENT EXCESSIVE ATTACK OF THE LAMINATE. THE RESIN AND OTHER MATERIALS USED SHALL BE COMPATIBLE WITH THE ENVIRONMENT AND AS A MINIMUM SHALL BE SIMILAR TO, IF NOT THE SAME, AS THE BASE RESIN USED. DRILLED HOLES MAY BE OVERSIZED A MAXIMUM OF 1/16 INCH.

PART 3 - EXECUTION

3.1 ERECTION

- a. THE SUBCONTRACTOR SHALL EXAMINE THE AREAS AND CONDITIONS UNDER WHICH THE WORK IS TO BE INSTALLED, DO NOT PROCEED WITH THE WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED. BEGINNING OF INSTALLATION MEANS THE ERECTOR ACCEPTS EXISTING CONDITIONS.
- b. ERECT FRAMING, GRATING AND ACCESSORY ITEMS IN ACCORDANCE WITH THE DRAWINGS AND GENERAL PROVISIONS OF THE SUBCONTRACT AS DIRECTED BY MANUFACTURER'S WRITTEN RECOMMENDATIONS.
- c. ALL FRAMING WORK SHALL BE TRUE TO LINE, LEVEL, AND PLUMB.
- d. IN ORDER TO PREVENT SECONDARY STRESSES, DO NOT FORCE MEMBERS INTO POSITION. PLAN ERECTION SEQUENCES ACCORDINGLY.
- e. PROVIDE TEMPORARY BRACING AND SUPPORTS AS REQUIRED TO ENSURE FRAME STABILITY DURING ERECTION.
- f. COMPLETED FRAME AND GRATING SHALL COMPLY WITH APPROVED ERECTION TOLERANCES AND SHOP DRAWING REQUIREMENTS.
- g. GRATING IS TO BE FASTENED TO SUPPORT MEMBERS WITH 1/4 INCH DIAMETER FASTENERS IN THE FOLLOWING PATTERN: TWO FASTENERS LOCATED BETWEEN THE THIRD AND FOURTH VERTICAL ON EACH END OF A PANEL AND ONE FASTENER IN THE MIDDLE ON INTERMEDIATE SUPPORTS.

- h. SEE PARAGRAPH 2.2F FOR PROTECTION AND REPAIR OF MEMBERS AND ASSEMBLY.

3.2 CLEANING

- a. UPON COMPLETION OF WORK CONTAINED IN THESE SPECIFICATIONS, LEAVE ALL WORK AND PREMISES CLEAN AND IN SATISFACTORY CONDITION.

3.3 INSPECTION

- a. THE COMPLETED ASSEMBLY SHALL UNDERGO A FINAL INSPECTION BY MANUFACTURER'S REPRESENTATIVE TO CERTIFY THAT THE FINISHED PRODUCT HAS BEEN ERECTED IN ACCORDANCE WITH THE MANUFACTURER'S SHOP DRAWINGS AND THESE SPECIFICATIONS.

SECTION 07 13 00 / MEMBRANE WATERPROOFING

1. ISSUE A WRITTEN GUARANTEE TO OWNER TO MAINTAIN WATERPROOFING IN A WATERTIGHT CONDITION FOR A PERIOD OF TWO YEARS AND A MANUFACTURER'S WARRANTY FOR PRODUCT USED FOR A PERIOD OF FOUR YEARS.
2. ON AREAS INDICATED, APPLY A WATERPROOF MEMBRANE WITH A MINIMUM .060" SELF-ADHERING MEMBRANE OF RUBBERIZED ASPHALT INTEGRALLY BONDED TO POLYETHYLENE SHEETING.

3. MATERIALS SHALL BE DELIVERED IN ORIGINAL PACKAGES. STORE MEMBRANE WHERE IT WILL NOT EXCEED 90° F. FOR EXTENDED PERIODS.

MATERIALS

- a. MATERIALS SHALL BE AS MANUFACTURED BY W. R. GRACE COMPANY.
- b. WATERPROOF MEMBRANE: BITUTHENE 3000.
- c. LIQUID MEMBRANE: BITUTHENE LM-3000.
- d. PRIMER: BITUTHENE WP-3000.
- e. ELASTOMERIC MASTIC: BITUTHENE EM-3000.
5. PROTECTION MATERIAL: MINERAL SURFACED FIBERGLASS CAP SHEET APPROVED BY MEMBRANE WATERPROOFING MANUFACTURER AT HORIZONTAL APPLICATIONS, HYDRODUCT COIL 600 AT VERTICAL APPLICATIONS.

INSTALLATION

6. SURFACES TO RECEIVE WATERPROOFING SHALL BE DRY, SMOOTH, RIGID, CLEAN, FROST-FREE, AND FREE OF VOIDS, DIRT, DEBRIS, SHARP PROJECTIONS, GREASE, OIL OR OTHER CONTAMINANTS. DIRT SHALL BE REMOVED FROM THE SURFACE IMMEDIATELY BEFORE APPLICATION OF PRIMER.

7. AT THE END OF EACH WORKING DAY, WATER CUT-OFFS MUST BE INSTALLED TO PROTECT AGAINST WATER PENETRATION UNDER INSTALLED MEMBRANE. THESE TEMPORARY WATER CUT-OFFS MUST BE CLEARLY REMOVED BEFORE WORK IS RESUMED.

8. APPLY PRIMER TO SURFACE WITH LAMB'S WOOL ROLLER AT A RATE OF 250 TO 350 SF PER GALLON. ALLOW PRIMER TO DRY UNTIL TACK FREE. PRIME ONLY THE AREA WHICH WILL COVER WITH MEMBRANE IN A WORKING DAY. AREAS NOT COVERED WITH MEMBRANE IN 4 HOURS MUST BE RE-PRIMED. DRY PRIMER SURFACES SHALL BE COVERED IMMEDIATELY WHERE CONTAMINANTS FROM THE AIR ARE ACCUMULATING ON THE SURFACE. METAL OR OTHER DENSE SURFACES SHALL NOT REQUIRE PRIMING BUT SHALL BE CLEAN, DRY, FREE OF LOOSE PARTICLE, RUST OR OTHER CONTAMINANTS.

9. APPLY MEMBRANES FROM THE LOW POINT TO THE HIGH POINT SO THAT LAPs SHED WATER. SIDE LAPs MUST BE OVERLAPPED A MINIMUM OF 2" ON NON-NAILED SYSTEMS. IF THE USE OF NAILS IS REQUIRED, LARGE HOLE NAILS AT 12" INTERVALS MUST BE COVERED WITH AN 8" STRIP OF BITUTHENE MEMBRANE.

10. APPLY A TROWELED BEAD OF ELASTOMERIC MASTIC TO VERTICAL AND

HORIZONTAL TERMINATIONS. LIQUID MEMBRANE CAN BE USED AS AN ALTERNATE METHOD.

11. HORIZONTAL APPLICATIONS SHALL BE FLOOD TESTED WITH A MINIMUM 2" HEAD OF WATER FOR 24 HOURS. MARK LEAKS AND REPAIR WHEN THE MEMBRANE IS DRY. BEFORE FLOOD TESTING, VERIFY THAT THE STRUCTURE WILL WITHSTAND THE DEAD LOAD OF THE WATER.

12. SEAL DAILY TERMINATIONS WITH A TROWELED BEAD OF ELASTOMERIC MEMBRANE. MEMBRANE WATERPROOFING SHALL NOT BE APPLIED TO AREAS WHERE PERMANENTLY EXPOSED TO SUNLIGHT.
13. THE SPECIFIED PRODUCTS ARE INCOMPATIBLE WITH FRESH TARS, PITCHES AND CERTAIN LIQUID WATERPROOFING PRODUCTS AND SEALANTS CONTAINING TAR OR POLYBUTYLENE POLYMER. AVOID DIRECT CONTACT OF THE ADHESIVE LAYER OF MEMBRANE OR ELASTOMERIC MASTIC WITH SUCH PRODUCTS. DO NOT APPLY ELASTOMERIC MASTIC WHERE IT WILL BE COVERED WITH MEMBRANE.

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