Indian Health Service
Division of Engineering Services
Addendum 001 – Bid Set
Specifications – Volume 1

Browning, Montana

Contract Number: **HHSI102201800005I**
Task Order Number: **75H70119F30002**

HFG project no.: **H IH BLAC 19100**
Issue date: **February 2, 2022**

Professional Architect-Engineer (A-E) Services for Design for Browning 18-Unit Apartment Building, Blackfeet Service Unit, Browning, Montana

Health Facilities Group, LLC ***Planners and Architects***
2380 McGee St, Suite 310 Kansas City, MO 64108 phone: 816.249.1500

SECTION 00 01 03 - DESIGN TEAM

PART 1 GENERAL

1.1 ARCHITECTURAL: HEALTH FACILITIES GROUP, PLANNERS & ARCHITECTS

(A) 1300 E. 104TH ST., SUITE 225.

(B) KANSAS CITY, MO 64131

(C) (816) 249-1500.

1. PRIMARY CONTACT: ALL CORRESPONDENCE FROM THE CONTRACTOR TO THE ARCHITECT WILL BE THROUGH THIS PARTY, UNLESS ALTERNATE ARRANGEMENTS ARE MUTUALLY AGREED UPON AT PRECONSTRUCTION MEETING.

a. NAME: ANDREW RUTENBECK, AIA.

b. EMAIL: ANDREWR@HEALTHFACILITIESGROUP.COM.

1.2 DESIGN CONSULTANT: BLUE STAR INTEGRATIVE STUDIO INC.

(A) 1430 S. BOULDER AVE.

(B) TULSA, OK 74119

(C) (918) 359-5640

1. PRIMARY CONTACT:

a. NAME: SCOTT MOORE Y MEDINA

b. EMAIL: SCOTTMM@BSI.STUDIO.COM

1.3 CIVIL: PROFESSIONAL ENGINEERING CONSULTANTS

(A) 303 SOUTH TOPEKA

(B) WICHITA, KS 67202.

(C) TELEPHONE: (313) 206-1417.

1. PRIMARY CONTACT: .

a. NAME: DAR CRONK.

b. EMAIL: DAR.CRONK@PEC1.COM.

1.4 STRUCTURAL: PROFESSIONAL ENGINEERING CONSULTANTS

(A) 623 MASSACHUSETTS ST., SUITE 200.

(B) LAWRENCE, KS 66044.

(C) (785) 842-6464.

1. PRIMARY CONTACT: .

a. NAME: PAUL RADLEY.

b. EMAIL: PAUL.RADLEY@PEC1.COM.

1.5 MECHANICAL: FARRIS ENGINEERING

(A) 844 11TH AVE..

(B) SYDNEY, NE 69162.

(C) (308) 203-2222.

1. PRIMARY CONTACT: .

a. NAME: BEN SCHMITT.

b. EMAIL: BSCHMITT@FARRIS-USA.COM.

1.6 ELECTRICAL: FARRIS ENGINEERING

(A) 844 11TH AVE..

(B) SYDNEY, NE 69162.

(C) (308) 203-2222.

(D) PRIMARY CONTACT: .

1. NAME: ERICKA NIENHUESER.

2. EMAIL: ENIENHUESER@FARRIS-USA.COM.

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SECTION 01 00 00 – GENERAL REQUIREMENTS

PART 1 - GENERAL

1.01 WORK BY OWNER

(A) THE OWNER RESERVES THE RIGHT TO AWARD SEPARATE CONTRACTS FOR SUPPLY AND INSTALLATION OF CERTAIN EQUIPMENT AND FINISHES, WHICH MAY BE INSTALLED BY OTHERS DURING THE CONSTRUCTION TIME FOR THIS CONTRACT.

(B) ITEMS NOTED "N.I.C." (NOT IN CONTRACT), OR "BY OTHERS", ARE NOT PART OF THIS CONTRACT.

1.02 CONTRACTOR USE OF PREMISES

(A) LIMIT USE OF PREMISES TO ALLOW:

1. OWNER OCCUPANCY.
2. WORK BY OTHERS AND WORK BY OWNER.
3. WORK BY GENERAL CONTRACTOR AND SUB-CONTRACTORS

1.04 INSPECTION AND TESTING ALLOWANCES

(A) N.A.

1.05 SCHEDULE OF VALUES

(A) SUBMIT SCHEDULE ON AIA FORM G703. CONTRACTOR'S STANDARD FORM OR ELECTRONIC MEDIA PRINTOUT WILL BE CONSIDERED.

(B) SUBMIT SCHEDULE OF VALUES IN DUPLICATE WITHIN 10 DAYS AFTER DATE ESTABLISHED IN NOTICE TO PROCEED.

1.06 APPLICATIONS FOR PAYMENT

(A) SUBMIT THREE COPIES OF EACH APPLICATION ON AIA FORM G702.

(B) CONTENT AND FORMAT: UTILIZE SCHEDULE OF VALUES FOR LISTING ITEMS IN APPLICATION FOR PAYMENT.

(C) PAYMENT PERIOD: SEE "GENERAL CONDITIONS OF THE CONTRACT" AND "SUPPLEMENTARY CONDITIONS"

1.07 CHANGE PROCEDURES

(A) CHANGE ORDER FORMS: AIA G701.

(B) CONSTRUCTION CHANGE DIRECTIVE FORMS: AIA G714.

1.08 ALTERNATES

(A) ALTERNATES QUOTED ON BID FORMS WILL BE REVIEWED AND ACCEPTED OR REJECTED AT THE OWNER'S OPTION.

(B) COORDINATE RELATED WORK AND MODIFY SURROUNDING WORK AS REQUIRED.

(C) ALTERNATES ARE LISTED IN DOCUMENT-C OF THIS PROJECT MANUAL.

1.09 COORDINATION

(A) COORDINATE SCHEDULING, SUBMITTALS, AND WORK OF THE VARIOUS SECTIONS OF SPECIFICATIONS TO ASSURE EFFICIENT AND ORDERLY SEQUENCE OF INSTALLATION OF INTERDEPENDENT CONSTRUCTION ELEMENTS.

(B) VERIFY UTILITY REQUIREMENT CHARACTERISTICS OF OPERATING EQUIPMENT ARE COMPATIBLE WITH BUILDING UTILITIES.

(C) COORDINATE SPACE REQUIREMENTS AND INSTALLATION OF MECHANICAL AND ELECTRICAL WORK WHICH ARE INDICATED DIAGRAMMATICALLY ON DRAWINGS. FOLLOW ROUTING SHOWN FOR PIPES, DUCTS, AND CONDUIT, AS CLOSELY AS PRACTICABLE.

(D) IN FINISHED AREAS, CONCEAL PIPES, DUCTS, AND WIRING WITHIN THE CONSTRUCTION.

1.10 FIELD ENGINEERING

(A) GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL BUILDING AND SITE LAYOUT WORK, INCLUDING ESTABLISHING FLOOR ELEVATIONS AS SHOWN. GENERAL CONTRACTOR SHALL MAINTAIN AND PROTECT SURVEY CONTROL AND REFERENCE POINTS.

(B) GENERAL CONTRACTOR SHALL ESTABLISH AND MAINTAIN OTHER GRADES, LINES, LEVELS, AND DIMENSIONS INDICATED THEREON, AND CERTIFY THAT ELEVATIONS AND LOCATIONS OF THE WORK CONFORM WITH CONTRACT DOCUMENTS. GENERAL CONTRACTOR SHALL REPORT ANY INCONSISTENCIES TO ARCHITECT AND RECEIVE HIS INSTRUCTIONS BEFORE COMMENCING WORK.

(C) OWNER WILL FURNISH EVIDENCE OF THE LOCATIONS OF PROPERTY LINES, EASEMENTS AND OTHER RESTRICTIONS.

(D) GENERAL CONTRACTOR SHALL PROVIDE AND MAINTAIN WELL-BUILT BATTER BOARDS AT CORNERS AND ESTABLISH AND SAFEGUARD BENCH MARKS IN AT LEAST TWO WIDELY SEPARATED PLACES. AS WORK PROGRESSES, HE SHALL ALSO ESTABLISH BENCH MARKS AT EACH BUILDING LEVEL AND MARK EXACT LOCATIONS OF PARTITIONS ON ROUGH FLOORS AS A GUIDE TO THE VARIOUS TRADES.

1.11 CUTTING AND PATCHING

(A) EMPLOY A SKILLED AND EXPERIENCED INSTALLER TO PERFORM CUTTING AND PATCHING OF NEW OR PREVIOUSLY INSTALLED WORK; RESTORE WORK WITH NEW PRODUCTS.

(B) SUBMIT WRITTEN REQUEST IN ADVANCE OF CUTTING OR ALTERING STRUCTURAL OR BUILDING ENCLOSURE ELEMENTS.

(C) FIT WORK TIGHT TO ADJACENT ELEMENTS. MAINTAIN INTEGRITY OF WALL, CEILING, OR FLOOR CONSTRUCTION; COMPLETELY SEAL VOIDS.

(D) REFINISH SURFACES TO MATCH ADJACENT FINISHES.

1.12 CONFERENCES

(A) WHEN REQUIRED IN INDIVIDUAL SPECIFICATION SECTIONS, THE GENERAL CONTRACTOR SHALL CONVENE A PRE-INSTALLATION CONFERENCE AT PROJECT SITE PRIOR TO COMMENCING WORK OF THAT SECTION. GIVE ALL PARTIES REQUIRED TO ATTEND A MINIMUM 48 HOURS NOTICE.

1.15 PROGRESS MEETINGS

(A) GENERAL CONTRACTOR SHALL SCHEDULE AND ADMINISTER MEETINGS THROUGHOUT PROGRESS OF THE WORK AT MAXIMUM MONTHLY INTERVALS.

(B) GENERAL CONTRACTOR SHALL PRESIDE AT MEETINGS, RECORD MINUTES, AND DISTRIBUTE COPIES WITHIN SEVEN DAYS TO THOSE AFFECTED BY DECISIONS MADE.

1.16 SUBMITTAL PROCEDURES

(A) SUBMITTAL FORM TO IDENTIFY PROJECT, CONTRACTOR, SUBCONTRACTOR OR SUPPLIER; AND PERTINENT CONTRACT DOCUMENT REFERENCES.

(B) APPLY CONTRACTOR'S STAMP, SIGNED OR INITIALED, CERTIFYING THAT REVIEW, VERIFICATION OF PRODUCTS REQUIRED, CHECKING OF FIELD DIMENSIONS, ADJACENT CONSTRUCTION WORK, AND COORDINATION OF INFORMATION IS IN ACCORDANCE WITH THE REQUIREMENTS OF THE WORK AND CONTRACT DOCUMENTS.

(C) IDENTIFY VARIATIONS FROM CONTRACT DOCUMENTS, AND PRODUCT OR SYSTEM LIMITATIONS WHICH MAY BE DETRIMENTAL TO SUCCESSFUL PERFORMANCE OF THE COMPLETED WORK.

(D) REVISE AND RESUBMIT SUBMITTALS AS REQUIRED; IDENTIFY ALL CHANGES MADE SINCE PREVIOUS SUBMITTAL.

1.17 CONSTRUCTION PROGRESS SCHEDULES

(A) SUBMIT INITIAL PROGRESS SCHEDULE IN DUPLICATE WITHIN 15 DAYS AFTER DATE ESTABLISHED IN NOTICE TO PROCEED FOR ARCHITECT/ENGINEER REVIEW.

(B) SUBMIT REVISED SCHEDULES WITH EACH MONTHLY APPLICATION FOR PAYMENT, IDENTIFYING CHANGES SINCE PREVIOUS VERSION. INDICATE ESTIMATED PERCENTAGE OF COMPLETION FOR EACH ITEM OF WORK AT EACH SUBMISSION.

(C) SUBMIT A HORIZONTAL BAR CHART WITH SEPARATE LINE FOR EACH MAJOR SECTION OF WORK OR OPERATION, IDENTIFYING FIRST WORK DAY OF EACH WEEK.

1.18 PROPOSED PRODUCTS LIST

(A) WITHIN 10 DAYS AFTER DATE ESTABLISHED IN NOTICE TO PROCEED, SUBMIT COMPLETE LIST OF MAJOR PRODUCTS PROPOSED FOR USE, WITH NAME OF MANUFACTURER, TRADE NAME, AND MODEL NUMBER OF EACH PRODUCT.

(B) WITHIN 10 DAYS AFTER DATE ESTABLISHED IN NOTICE TO PROCEED, SUBMIT COMPLETE LIST OF ALL PROPOSED SUBCONTRACTORS.

1.19 SHOP DRAWINGS

(A) LARGE SUBMITTALS – DRAWINGS, OR OTHER INFORMATION THAT REQUIRE A FORMAT LARGER THAN 8.5" X 11" (TO BE CLEARLY READABLE) OR MATERIAL AND EQUIPMENT SUBMITTALS CONTAINING MORE THAN (10) PAGES (APPLICABLE TO ONE SPECIFICATION SECTION).

1. SUBMIT IN THE FORM OF ONE EDITABLE .PDF FILE, DELIVERED BY EMAIL, UPLOADED TO A PROJECT WEBSITE LOCATION, OR AS OTHERWISE DIRECTED.

(B) SMALL SUBMITTALS – MATERIAL, EQUIPMENT, CATALOG AND OTHER 8.5" X 11" FORMAT SUBMITTALS (10) SHEETS OR LESS FOR ANY ONE SPECIFICATION SECTION.

1. SUBMIT IN THE FORM OF ONE EDITABLE .PDF FILE, DELIVERED BY EMAIL, UPLOADED TO A PROJECT WEBSITE LOCATION, OR AS OTHERWISE DIRECTED.

(C) AT THE ARCHITECT/ENGINEERS OPTION, REVIEW MARKS WILL BE INDICATED ON ONE OR BOTH OF THE SUBMITTED FORMATS. ALL REVIEW MARKS SHOULD BE COLOR CODED TO REFLECT VARIOUS REVIEWERS MARKS.

(D) ARCHITECT SHALL KEEP ONE COPY OF ALL SUBMITTALS. CONTRACTOR SHALL KEEP ONE COPY OF ALL SUBMITTALS ON FILE TO BE GIVEN TO THE OWNER AT THE COMPLETION OF THE PROJECT.

(E) THE CONTRACTOR SHALL PROVIDE TO THE OWNER AND ARCHITECT A DIGITAL MEDIA COPY OF AN INDEXED AND BOOKMARKED .PDF FORMAT FILE THAT INCLUDES ALL OF THE SUBMITTALS AT THE CLOSE OUT OF THE PROJECT.

1.20 PRODUCT DATA

(A) SUBMIT THE NUMBER OF COPIES WHICH THE CONTRACTOR REQUIRES, PLUS TWO COPIES WHICH WILL BE RETAINED BY THE ARCHITECT/ENGINEER.

(B) MARK EACH COPY TO IDENTIFY APPLICABLE PRODUCTS, MODELS, OPTIONS, AND OTHER DATA. SUPPLEMENT MANUFACTURERS' STANDARD DATA TO PROVIDE INFORMATION UNIQUE TO THIS PROJECT.

1.21 SAMPLES

(A) SUBMIT SAMPLES TO ILLUSTRATE FUNCTIONAL AND AESTHETIC CHARACTERISTICS OF THE PRODUCT.

(B) SUBMIT SAMPLES OF FINISHES FROM THE FULL RANGE OF MANUFACTURERS' STANDARD COLORS, OR IN CUSTOM COLORS AS NOTED IN INDIVIDUAL SPECIFICATION SECTIONS, INCLUDING OPTIONAL TEXTURES AND PATTERNS FOR ARCHITECT/ENGINEER'S SELECTION.

(C) WHERE APPROVAL OF ARCHITECT FOR MATERIALS OR EQUIPMENT IS REQUIRED, SECURE SUCH APPROVAL BEFORE PROCUREMENT. WHERE COLORS AND/OR PATTERNS ARE TO BE SELECTED BY ARCHITECT, REQUEST SUCH SELECTION IN AMPLE TIME FOR PROCUREMENT.

1.22 MANUFACTURERS' INSTRUCTIONS

(A) WHEN SPECIFIED IN INDIVIDUAL SPECIFICATION SECTIONS, SUBMIT MANUFACTURERS' PRINTED INSTRUCTIONS FOR DELIVERY, STORAGE, ASSEMBLY, INSTALLATION, START-UP, ADJUSTING, AND FINISHING, IN QUANTITIES SPECIFIED FOR PRODUCT DATA.

1.23 MANUFACTURER'S CERTIFICATES

(A) WHEN SPECIFIED IN INDIVIDUAL SPECIFICATION SECTIONS, SUBMIT MANUFACTURERS' CERTIFICATE TO ARCHITECT/ENGINEER FOR REVIEW, IN QUANTITIES SPECIFIED FOR PRODUCT DATA.

(B) INDICATE MATERIAL OR PRODUCT CONFORMS TO OR EXCEEDS SPECIFIED REQUIREMENTS. SUBMIT SUPPORTING REFERENCE DATA, AFFIDAVITS, AND CERTIFICATIONS AS APPROPRIATE.

1.24 CONSTRUCTION PHOTOGRAPHS

(A) THE CONTRACTOR SHALL PHOTOGRAPH WORK IN PROGRESS AT REGULAR INTERVALS TO DOCUMENT THE OVERALL PROGRESS OF CONSTRCTION. PHOTOGRAPHS WILL BE UPLOADED TO A PROJECT WEBSITE AND AVAILABLE FOR ACCESS BY THE OWNER AND ARCHITECT. .

1.25 QUALITY ASSURANCE/CONTROL OF INSTALLATION

(A) MONITOR QUALITY CONTROL OVER SUPPLIERS, MANUFACTURERS, PRODUCTS, SERVICES, SITE CONDITIONS, AND WORKMANSHIP, TO PRODUCE WORK OF SPECIFIED QUALITY.

(B) COMPLY FULLY WITH MANUFACTURERS' INSTRUCTIONS.

(C) COMPLY WITH SPECIFIED STANDARDS AS A MINIMUM QUALITY FOR THE WORK EXCEPT WHEN MORE STRINGENT TOLERANCES, CODES, OR SPECIFIED REQUIREMENTS INDICATE HIGHER STANDARDS OR MORE PRECISE WORKMANSHIP.

1.26 REFERENCES

(A) CONFORM TO REFERENCE STANDARD BY DATE OF ISSUE CURRENT AS OF DATE OF CONTRACT DOCUMENTS.

(B) SHOULD SPECIFIED REFERENCE STANDARD CONFLICT WITH CONTRACT DOCUMENTS, REQUEST CLARIFICATION FROM ARCHITECT/ENGINEER BEFORE PROCEEDING.

(C) UNLESS NOTED OTHERWISE, THE RECOMMENDATIONS AND STANDARDS OF THE FOLLOWING ORGANIZATIONS SHALL APPLY TO THIS PROJECT:

AA	ALUMINUM ASSOCIATION
AAMA	ARCHITECTURAL ALUMINUM MANUFACTURERS ASSOCIATION
AASHO	AMERICAN ASSOCIATION OF STATE HIGHWAY & TRANSPORTATION OFFICIALS
ACI	AMERICAN CONCRETE INSTITUTE
AFI	AIR FILTER INSTITUTE
AGA	AMERICAN GAS ASSOCIATION
AGC	ASSOCIATED GENERAL CONTRACTORS OF AMERICA
AIA	AMERICAN INSTITUTE OF ARCHITECTS
AIA	AMERICAN INSURANCE ASSOCIATION (FORMERLY NFFU)
AIEE	AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS
AISC	AMERICAN INSTITUTE OF STEEL CONSTRUCTION
AISI	AMERICAN IRON AND STEEL INSTITUTE
ALS	AMERICAN LUMBER STANDARDS

ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE (FORMERLY USAS)
APA	AMERICAN PLYWOOD ASSOCIATION
API	AMERICAN PETROLEUM INSTITUTE
ARI	AIR CONDITIONING AND REFRIGERATION INSTITUTE
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
AWI	ARCHITECTURAL WOODWORK INSTITUTE
AWPA	AMERICAN WOOD PRESERVER'S INSTITUTE
AWS	AMERICAN WELDING SOCIETY
AWWA	AMERICAN WATER WORKS ASSOCIATION
CISPI	CAST IRON SOIL PIPE INSTITUTE
CS	COMMERCIAL STANDARD, U. S. DEPARTMENT OF COMMERCE
CGA	COMPRESSED GAS ASSOCIATION
CSI	CONSTRUCTION SPECIFICATION INSTITUTE
FGJA	FLAT GLASS JOBBERS ASSOCIATION
FIA	FACTORY INSURANCE ASSOCIATION
FM	FACTORY MUTUAL ENGINEERING AND RESEARCH
FS	FEDERAL SPECIFICATION
GA	GYPSUM ASSOCIATION
IEEE	INSTITUTE OF ELECTRIC AND ELECTRONICS ENGINEERS
IES	ILLUMINATING ENGINEERING SOCIETY
IPC	INTERNATIONAL PLUMBING CODE
MIA	MARBLE INSTITUTE OF AMERICA
MLMA	METAL LATH MANUFACTURERS ASSOCIATION
MS	MILITARY SPECIFICATION
MSTD	MILITARY STANDARD
NAAMM	NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS
NACE	NATIONAL ASSOCIATION OF CORROSION ENGINEERS
NAFM	NATIONAL ASSOCIATION OF FAN MANUFACTURERS
NBS	NATIONAL BUREAU OF STANDARDS
NEC	NATIONAL ELECTRIC CODE
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NHLA	NATIONAL HARDWOOD LUMBER ASSOCIATION
NIOSH/OSHA	NATIONAL INSTITUTE OF OCCUPATIONAL SAFETY AND HEALTH
NTMA	NATIONAL TERRAZZO AND MOSAIC ASSOCIATION
NWMA	NATIONAL WOODWORK MANUFACTURERS ASSOCIATION
PEI	PORCELAIN ENAMEL INSTITUTE
RTI	RESILIENT TILE INSTITUTE
SBI	STEEL BOILER INSTITUTE
SCPI	STRUCTURAL CLAY PRODUCTS INSTITUTE
SDI	STEEL DECK INSTITUTE
SJI	STEEL JOIST INSTITUTE
SMACNA	SHEET METAL AND AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION
SSPC	STEEL STRUCTURE PAINTING COUNCIL
STI	STEEL TANK INSTITUTE
TCA	TILE COUNCIL OF AMERICA
UBC	UNIFORM BUILDING CODE

UL	UNDERWRITER'S LABORATORIES
UFC	UNIFORM FIRE CODE

1.27 FIELD SAMPLES

(A) FOR EACH JOB-FINISHED MATERIAL, SUCH AS MASONRY, PLASTER, CONCRETE, PAINT OR OTHER FINISHES, CONSTRUCT FIELD SAMPLES AT THE SITE FOR ARCHITECT'S REVIEW AND APPROVAL, AS REQUIRED BY INDIVIDUAL SPECIFICATIONS SECTIONS.

(B) OBTAIN ARCHITECT'S APPROVAL BEFORE INSTALLING THE BALANCE OF SUCH WORK. WHEN THE ARCHITECT'S APPROVAL REQUIRES ADDITIONAL PANELS OR SAMPLES, PROVIDE SAME AS NECESSARY TO SECURE HIS APPROVAL.

(C) SAMPLE PANELS MAY BECOME PART OF FINAL BUILDING CONSTRUCTION, WITH PRIOR APPROVAL OF ARCHITECT.

(D) ACCEPTABLE SAMPLE PANELS REPRESENT A MINIMUM QUALITY LEVEL FOR ALL SUBSEQUENT WORK.

1.28 INSPECTION AND TESTING LABORATORY SERVICES

(A) CONTRACTOR SHALL APPOINT, EMPLOY, AND PAY FOR SERVICES OF AN INDEPENDENT FIRM(S) TO PERFORM INSPECTION AND TESTING, WHERE NOTED IN INDIVIDUAL SPECIFICATION SECTIONS.

(B) THE INDEPENDENT FIRM WILL PERFORM INSPECTIONS, TESTS, AND OTHER SERVICES AS REQUIRED OR SPECIFIED HEREIN.

(C) COOPERATE WITH INDEPENDENT FIRM; FURNISH SAMPLES AS REQUESTED.

(D) RE-TESTING REQUIRED BECAUSE OF NON-CONFORMANCE TO SPECIFIED REQUIREMENTS WILL BE CHARGED TO THE CONTRACTOR.

(E) SHOULD SUCH TEST OR VISUAL OBSERVATION INDICATE A FAILURE OF MATERIALS OR CONSTRUCTION TO MEET REQUIREMENTS OF DRAWINGS AND/OR SPECIFICATIONS, RESPECTIVE CONTRACTOR SHALL PAY FOR ADDITIONAL TESTS, AS DIRECTED BY THE ARCHITECT UNTIL COMPLIANCE HAS BEEN PROVEN, AND SHOULD SUCH WORK FAIL TO COMPLY, THIS CONTRACTOR SHALL REPLACE IT AT NO ADDITIONAL COST TO THE OWNER.

(F) COPIES OF TESTING REPORTS SHALL BE SENT TO THE OWNER, THE ARCHITECT, THE MECHANICAL ENGINEER AND THE CONTRACTOR OR OTHERWISE AS NOTED HEREIN.

1.29 MANUFACTURERS' FIELD SERVICES AND REPORTS

(A) WHEN SPECIFIED IN INDIVIDUAL SPECIFICATION SECTIONS, REQUIRE MATERIAL OR PRODUCT SUPPLIERS OR MANUFACTURERS TO PROVIDE QUALIFIED STAFF PERSONNEL TO OBSERVE SITE CONDITIONS AND TO INITIATE INSTRUCTIONS WHEN NECESSARY.

(B) REPORT OBSERVATIONS AND SITE DECISIONS OR INSTRUCTIONS THAT ARE SUPPLEMENTAL OR CONTRARY TO MANUFACTURERS' WRITTEN INSTRUCTIONS.

1.30 TEMPORARY ELECTRICITY

(A) PROVIDE AND PAY FOR POWER SERVICE REQUIRED FROM SOURCE.

(B) PROVIDE POWER OUTLETS FOR CONSTRUCTION OPERATIONS, BRANCH WIRING, DISTRIBUTION BOXES, AND FLEXIBLE POWER CORDS AS REQUIRED.

1.31 TEMPORARY LIGHTING

(A) PROVIDE AND MAINTAIN TEMPORARY LIGHTING FOR CONSTRUCTION OPERATIONS, AND SECURITY LIGHT(S) AROUND CONSTRUCTION AREA(S).

(B) PROVIDE BRANCH WIRING FROM POWER SOURCE TO DISTRIBUTION BOXES WITH LIGHTING CONDUCTORS, PIGTAILS, AND LAMPS AS REQUIRED.

(C) PERMANENT BUILDING LIGHTING MAY BE UTILIZED DURING CONSTRUCTION. REPAIR, CLEAN, AND REPLACE LAMPS AT END OF CONSTRUCTION AS REQUIRED, PRIOR TO SUBSTANTIAL COMPLETION INSPECTION.

1.32 TEMPORARY HEAT AND COOLING

(A) THE GENERAL CONTRACTOR SHALL PROVIDE TEMPORARY HEAT AND/OR COOLING AS REQUIRED TO MAINTAIN SPECIFIED CONDITIONS FOR CONSTRUCTION OPERATIONS, OR TO PREVENT DAMAGE FROM DAMPNESS AND COLD, OR TO DRY OUT WORK. DO NOT USE TEMPORARY EQUIPMENT WHICH MIGHT DAMAGE BUILDING. MECHANICAL CONTRACTOR SHALL MAKE PERMANENT HEATING SYSTEMS READY AND SUPPLY TEMPORARY HEAT FROM THESE AS SOON AS PERMANENT SYSTEMS ARE COMPLETED.

(B) GENERAL CONTRACTOR SHALL PROVIDE AND PAY FOR OPERATION, MAINTENANCE, AND REGULAR REPLACEMENT OF FILTERS AND WORN OR CONSUMED PARTS.

(C) MAINTAIN MINIMUM TEMPERATURES FOR INSTALLATION OF MATERIAL(S) AS SPECIFIED HEREIN, OR OTHERWISE AS REQUIRED BY PRODUCT MANUFACTURER(S). CONTRACTOR SHALL REPAIR OR REPLACE MATERIALS DAMAGED AS A RESULT OF EXPOSURE TO LOW TEMPERATURE; EITHER DURING INITIAL APPLICATION OR INSTALLATION, CURING, OR SUBSEQUENT CONSTRUCTION ACTIVITY.

(D) PROVIDE QUALIFIED PERSONNEL TO OPERATE TEMPORARY AND PERMANENT EQUIPMENT.

1.33 TEMPORARY VENTILATION

(A) VENTILATE ENCLOSED AREAS AS REQUIRED TO ASSIST CURE OF MATERIALS, TO DISSIPATE HUMIDITY, AND TO PREVENT ACCUMULATION OF DUST, FUMES, VAPORS, AND GASES.

(B) GENERAL CONTRACTOR MAY UTILIZE PERMANENT H.V.A.C. SYSTEMS AS SOON AS THESE SYSTEMS ARE AVAILABLE. EXTEND AND SUPPLEMENT EQUIPMENT WITH TEMPORARY FAN UNITS AS REQUIRED TO MAINTAIN CLEAN AIR FOR CONSTRUCTION OPERATIONS.

1.34 TELEPHONE SERVICE

(A) PROVIDE, MAINTAIN, AND PAY FOR TEMPORARY TELEPHONE SERVICE AT THE CONTRACTOR'S FIELD OFFICE FOR THE DURATION OF CONSTRUCTION, INCLUDING USE OF THE PHONE BY THE ARCHITECT

OR HIS REPRESENTATIVE, FOR CALLS TO THE ARCHITECT'S OFFICE, THE OWNER, PROJECT ENGINEERING CONSULTANTS, SUPPLIERS, OR OTHERS, AS NECESSARY FOR THE PROPER AND EXPEDIENT COMPLETION OF ALL DUTIES REQUIRED FOR ADMINISTRATION OF THIS PROJECT.

1.35 TEMPORARY WATER SERVICE

(A) PROVIDE, MAINTAIN AND PAY FOR SUITABLE QUALITY WATER SERVICE REQUIRED FOR CONSTRUCTION ACTIVITIES. CONNECT TO EXISTING WATER SOURCE, AND MAKE ALL EXTENSIONS NECESSARY FOR CONSTRUCTION OPERATIONS.

1.36 TEMPORARY SANITARY FACILITIES

(A) GENERAL CONTRACTOR SHALL PROVIDE PROPERLY SERVICED TOILET FACILITIES FOR USE OF ALL WORKMEN.

(B) MAINTAIN IN CLEAN AND SANITARY CONDITION.

1.37 BARRIERS AND FENCING

(A) GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL INSTALL AND MAINTAIN ALL WARNINGS, BARRICADES, CONSTRUCTION FENCES, SIGNAL LIGHTS, AND ANY OTHER WARNING OR BARRICADE AS REQUIRED TO WARN AND PROTECT THE PUBLIC FROM HAZARDS DUE TO HIS OPERATIONS.

(B) PROVIDE TEMPORARY SECURITY FENCING AROUND PERIMETER OF CONSTRUCTION AND MATERIAL STORAGE AREA(S), INCLUDING LOCKABLE GATES. CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING SECURITY FENCING IN GOOD REPAIR THROUGHOUT THE PROJECT, AND FOR LOCKING JOB SITE AT NIGHT. VERIFY PLACEMENT OF SECURITY FENCING WITH ARCHITECT PRIOR TO INSTALLATION. THE NUMBER AND SIZES OF GATES IN THE TEMPORARY SECURITY FENCE WILL BE AS DETERMINED BY GENERAL CONTRACTOR REQUIREMENTS.

(C) ALL SUCH WARNING DEVICES AND BARRICADES SHALL BE INSTALLED IN COMPLIANCE WITH O.S.H.A. AND U.B.C. REQUIREMENTS, AND ANY ADDITIONAL LOCAL ORDINANCES.

1.38 WATER CONTROL

(A) MAINTAIN EXCAVATIONS FREE OF WATER. PROVIDE, OPERATE, AND MAINTAIN PUMPING EQUIPMENT AS REQUIRED. COSTS FOR ALL SUCH PUMPING SHALL BE PAID FOR BY GENERAL CONTRACTOR.

1.39 EXTERIOR ENCLOSURES

(A) PROVIDE TEMPORARY WEATHER-TIGHT CLOSURES TO EXTERIOR OPENINGS TO PERMIT ACCEPTABLE WORKING CONDITIONS AND PROTECTION OF THE WORK.

(B) PROVIDE TEMPORARY ROOFING AS REQUIRED TO PROTECT INTERIOR BUILDING FINISHES AND EQUIPMENT IF THERE IS A DELAY IN INSTALLING FINAL ROOF.

(C) COSTS FOR ALL SUCH TEMPORARY CLOSURES SHALL BE PAID FOR BY THE GENERAL CONTRACTOR

1.40 INFECTION CONTROL MEASURES

(A) THE OWNER WILL PREPARE AN INFECTION CONTROL RISK ASSESSMENT AT EACH MAJOR WORK AREA AND WILL IMPOSE REQUIRMENTS ON THE PROJECT TO CONTROL THE SPREAD OF DUST AND

AIRBORNE PATHOGENS DISTURBED DURING CONSTRUCTION OPERATIONS AND TO PREVENT MIGRATION OF SUCH INTO SENSITIVE AREAS OF THE FACILITY. THE CONTRACTOR SHALL BE PREPARED TO ADDRESS THESE REQUIREMNTS, WHICH MAY INCLUDE THE FOLLOWING ELEMENTS:

1. PROVIDE STICKY TACK MATS AT ENTRANCES AND EXITS FROM CONSTRUCTION AREAS, AS REQUIRED.

2. PROVIDE UNITS CAPABLE OF SUPPLYING NEGATIVE PRESSURE IN ACTIVE CONSTRUCTION AREAS. IF UNITS RECIRCULATE AIR WITHIN THIS SPACE, THE UNITS WILL BE CAPABLE OF FILTERING THE AIR UTILIZING HEPA FILTRATION.

3. CONTRACTOR WILL BE REQUIRED TO COVER ANY CONSTRUCTION DEBRIS AND WIPE DOWN CARTS BEFORE TRAVELING THROUGH ANY PATIENT CARE AREA.

4. CONTRACTOR WILL BE REQUIRED TO SEAL ALL HOLES, PIPES AND CONDUIT AND OTHER WALL PENETRATIONS, AS REQUIRED, AT BARRIERS BETWEEN CONSTRUCTION OPERATIONS AND ADJACENT PATIENT CARE AREAS.

5. IF CONSTRUCTION AREAS ARE IN PROXIMITY TO HIGH RISK PATIENT POPULATIONS, CONTRACTOR MAY BE REQUIRED TO BUILD ANTE ROOM FOR PERSONNEL TO PASS THROUGH, SO THE PERSONNEL CAN BE VACUUMED USING A HEPA VACUUM PRIOR TO LEAVING THE WORK SITE.

6. CONSTRUCTION PERSONNEL MAY BE REQUIRED TO WEAR STERILE PERSONAL PROTECTIVE EQUIPMENT WHEN WORKING IN HIGH RISK PATIENT CARE AREAS.

7. CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE INFECTION CONTROL RISK ASSESSMENT MATRIX ATTACHED AS AN APPENDIX TO THIS PROJECT MANUAL FOR ALL MEASURES THAT MAY BE REQUIRED IN THIS PROJECT.

8. REFER TO MECHANICAL AND ELECTRICAL SPECIFICATIONS FOR INFORMATION REGARDING SEALING AND CLEANING OF DUCTWORK AND OTHER OPERATIONAL MEASURES THAT MAY BE REQUIRED.

1.41 PROTECTION OF INSTALLED WORK

(A) PROTECT INSTALLED WORK AND PROVIDE SPECIAL PROTECTION WHERE SPECIFIED IN INDIVIDUAL SPECIFICATION SECTIONS.

(B) PROHIBIT TRAFFIC OR STORAGE UPON WATERPROOFED OR ROOFED SURFACES.

(C) KEEP PROPERLY COVERED ALL MATERIALS, CAVITIES, AND HOLES SUBJECT TO DAMAGE BY FALLING MATERIALS.

(D) LOAD, TRANSPORT, UNLOAD, STORE AND ERECT MATERIALS IN A MANNER TO KEEP THEM FROM INJURY.

(E) SUPPORT NO RUNWAYS, RAMPS OR CONSTRUCTION EQUIPMENT ON, NOR TRANSPORT OVER ANY ITEMS OR ASSEMBLIES SUBJECT TO DISPLACEMENT, DISFIGUREMENT OR OTHER DAMAGE.

(F) PROTECT PREVIOUSLY PLACED WORK BY SUITABLE COVERINGS OR OTHER PROTECTIONS DURING INSTALLATION OF SUBSEQUENT WORK.

(G) PROTECT WORK IN PLACE REQUIRING JOB FINISH UNTIL SUCH FINISHING HAS BEEN COMPLETED.

(H) WHERE FINISHED FLOORS ARE SUBJECT TO DAMAGE, SUITABLY COVER TRAFFIC AREAS UNTIL BUILDING ACCEPTANCE.

(I) ONCE GLASS, MIRRORS AND OTHER SUCH DAMAGEABLE ITEMS HAVE BEEN INSTALLED, IDENTIFY SAME WITH APPROPRIATE WARNING MARKING AND LEAVE ON UNTIL FINAL CLEANING.

1.42 SECURITY

(A) PROVIDE SECURITY AND FACILITIES TO PROTECT WORK AND OWNER'S OPERATIONS FROM UNAUTHORIZED ENTRY, VANDALISM, OR THEFT.

1.43 ACCESS ROADS

(A) CONSTRUCT AND MAINTAIN TEMPORARY ROADS ACCESSING PUBLIC THOROUGHFARES TO SERVE CONSTRUCTION AREA.

1.44 PARKING

(A) PROVIDE TEMPORARY PARKING AREAS TO ACCOMMODATE CONSTRUCTION PERSONNEL. VERIFY LOCATION OF SUCH AREAS WITH OWNER PRIOR PROJECT START-UP.

(B) RETURN PARKING AREA(S) TO ORIGINAL CONDITION AT END OF PROJECT, INCLUDING REGRADING AND RESEEDING OF GRASS IF REQUIRED.

1.45 PROGRESS CLEANING

(A) MAINTAIN AREAS FREE OF WASTE MATERIALS, DEBRIS, AND RUBBISH. MAINTAIN SITE IN A CLEAN AND ORDERLY CONDITION.

1.46 PROJECT IDENTIFICATION

(A) PROVIDE AN 8 FT WIDE X 4 FT HIGH PROJECT SIGN OF EXTERIOR GRADE PLYWOOD AND WOOD FRAME CONSTRUCTION, PAINTED, TO ARCHITECT/ENGINEER'S DESIGN AND COLORS.

(B) ERECT ON SITE AT LOCATION ESTABLISHED BY ARCHITECT/ENGINEER.

(C) MAINTAIN IN GOOD REPAIR THROUGHOUT CONSTRUCTION PERIOD.

1.47 FIELD OFFICES AND SHEDS

(A) THE GENERAL CONTRACTOR SHALL FURNISH AND MAINTAIN IN GOOD CONDITION DURING PROGRESS OF WORK A FIELD OFFICE FACILITY FOR USE OF GENERAL CONTRACTOR AND THE ARCHITECT. PROVIDE A TABLE OR OTHER FLAT SURFACE ON WHICH TO REVIEW PLANS AND SPECIFICATIONS. THIS FACILITY WILL REMAIN PROPERTY OF THE GENERAL CONTRACTOR.

(B) THE FIELD OFFICE SHALL BE: WEATHER-TIGHT, WITH LIGHTING, ELECTRICAL OUTLETS, HEATING, COOLING AND/OR VENTILATING EQUIPMENT, AND EQUIPPED WITH STURDY FURNITURE AND DRAWING DISPLAY TABLE.

1. PROVIDE SPACE FOR PROJECT MEETINGS, WITH TABLE AND CHAIRS TO ACCOMMODATE 6 PERSONS

(C) CONTRACTOR SHALL KEEP A COMPLETE SET OF DRAWINGS, GENERAL CONDITIONS OF THE CONTRACT, SUPPLEMENTARY CONDITIONS, SPECIFICATIONS, ADDENDA, CHANGE ORDERS, SHOP DRAWINGS, AND ANY SUPPLEMENTARY DRAWINGS OR OTHER WRITTEN INSTRUCTIONS PERTAINING TO THE CONSTRUCTION OF THIS PROJECT AT THE FIELD OFFICE LOCATION, FOR USE BY ALL WORKMEN, THE OWNER, AND THE ARCHITECT.

1.48 REMOVAL OF TEMPORARY UTILITIES, FACILITIES, AND CONTROLS

(A) REMOVE TEMPORARY ABOVE GRADE OR BURIED UTILITIES, EQUIPMENT, FACILITIES, MATERIALS, PRIOR TO FINAL INSPECTION.

(B) REMOVE UNDERGROUND INSTALLATIONS TO A MINIMUM DEPTH OF 2 FT, OR AS OTHERWISE NOTED IN INDIVIDUAL SPECIFICATION SECTIONS.

(C) CLEAN AND REPAIR DAMAGE CAUSED BY INSTALLATION OR USE OF TEMPORARY WORK.

(D) RESTORE EXISTING FACILITIES USED DURING CONSTRUCTION TO ORIGINAL CONDITION. RESTORE PERMANENT FACILITIES USED DURING CONSTRUCTION TO SPECIFIED CONDITION.

1.49 PRODUCTS

(A) PRODUCTS: MEANS NEW MATERIAL, MACHINERY, COMPONENTS, EQUIPMENT, FIXTURES, AND SYSTEMS FORMING THE WORK, BUT DOES NOT INCLUDE MACHINERY AND EQUIPMENT USED FOR PREPARATION, FABRICATION, CONVEYING AND ERECTION OF THE WORK. PRODUCTS MAY ALSO INCLUDE EXISTING MATERIALS OR COMPONENTS SPECIFICALLY IDENTIFIED FOR REUSE.

(B) DO NOT USE MATERIALS AND EQUIPMENT REMOVED FROM EXISTING PREMISES, EXCEPT AS SPECIFICALLY IDENTIFIED OR ALLOWED BY THE CONTRACT DOCUMENTS.

(C) USE INTERCHANGEABLE COMPONENTS OF THE SAME MANUFACTURE FOR SIMILAR COMPONENTS.

(D) FURNISH MATERIALS AND EQUIPMENT THAT HAVE BEEN PROPERLY INSPECTED AND TESTED IN ACCORDANCE WITH ACCEPTED INDUSTRIES STANDARDS.

1.50 TRANSPORTATION, HANDLING, STORAGE AND PROTECTION

(A) TRANSPORT, HANDLE, STORE AND PROTECT PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(B) CONTRACTORS AND SUBCONTRACTORS SHALL PROVIDE BUILDINGS, ENCLOSURES, OR TRAILERS TO PROTECT MATERIALS AND EQUIPMENT WHICH WOULD BE DAMAGED BY EXPOSURE. FAILURE TO DO SO WILL CAUSE MATERIALS OR EQUIPMENT NOT PROPERLY PROTECTED TO BE EXCLUDED FROM PERIODIC PAYMENT.

(C) CHECK MATERIALS AND EQUIPMENT FOR IN-TRANSIT DAMAGE IN AMPLE TIME TO REPLACE ANY DAMAGED MATERIALS PRIOR TO INSTALLATION TIME.

(D) STORE MATERIALS IN A MANNER TO PREVENT DETERIORATION, STAINING, SOILING AND INTRUSION OF FOREIGN SUBSTANCES. KEEP MATERIALS SUBJECT TO DETERIORATION BY DAMPNESS INSIDE AND/OR COVERED WITH MOISTURE PROOF TARPS AND RAISED OFF THE GROUND. ADEQUATELY PROTECT THOSE MATERIALS SUBJECT TO DAMAGE BY FREEZING OR FROST.

(E) CONTRACTOR SHALL REMOVE FROM THE JOBSITE AND REPLACE WITH NEW ANY MATERIALS DAMAGED BY IMPROPER STORING OR FAILURE TO PROPERLY PROTECT MATERIALS FROM THE ELEMENTS, AT NO ADDITIONAL COST TO OWNER.

1.51 PRODUCT OPTIONS

(A) PRODUCTS SPECIFIED BY REFERENCE STANDARDS OR BY DESCRIPTION ONLY: ANY PRODUCT MEETING THOSE STANDARDS OR DESCRIPTION.

(B) PRODUCTS SPECIFIED BY NAMING ONE OR MORE MANUFACTURERS: PRODUCTS OF MANUFACTURERS NAMED AND MEETING SPECIFICATIONS, NO OPTIONS OR SUBSTITUTIONS ALLOWED.

(C) PRODUCTS SPECIFIED BY NAMING ONE OR MORE MANUFACTURERS WITH A PROVISION FOR SUBSTITUTIONS: SUBMIT A REQUEST FOR SUBSTITUTION FOR ANY MANUFACTURER NOT NAMED.

(D) IN GENERAL, THESE SPECIFICATIONS IDENTIFY THE REQUIRED MATERIALS AND EQUIPMENT BY NAMING ONE OR MORE PRODUCTS BY MANUFACTURER'S BRAND, MODEL AND CATALOG NUMBER AND/OR OTHER IDENTIFICATION, THE FIRST-NAMED HAVING BEEN USED AS THE BASIS FOR DESIGN AND OTHER BRANDS CONSIDERED EQUIVALENT. CONTRACTORS MAY PROVIDE ANY BRANDS AT THEIR OPTION.

(E) WHERE MATERIAL OR EQUIPMENT ARE DESCRIBED, BUT NOT NAMED, CONTRACTORS SHALL PROVIDE SUCH FIRST QUALITY ITEMS, FULLY ADEQUATE IN EVERY RESPECT FOR THE IMPLIED AND INTENDED USAGE, SUCH ITEMS BEING SUBJECT TO THE ARCHITECT'S FINAL APPROVAL PRIOR TO PROCUREMENT.

1.52 SUBSTITUTIONS

(A) SEE SECTION 3.03 IN THE INSTRUCTIONS TO BIDDERS, DOCUMENT "B", AND IN OTHER DIVISION 00 DOCUMENTS FOR INFORMATION RELATIVE TO SUBSTITUTION.

1.53 STARTING SYSTEMS

(A) PROVIDE SEVEN DAYS NOTIFICATION PRIOR TO START-UP OF EACH ITEM, AS REQUIRED IN INDIVIDUAL SPECIFICATION SECTIONS.

(B) ENSURE THAT EACH PIECE OF EQUIPMENT OR SYSTEM IS READY FOR OPERATION.

(C) EXECUTE START-UP UNDER SUPERVISION OF RESPONSIBLE PERSONS IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS.

(D) SUBMIT A WRITTEN REPORT THAT EQUIPMENT OR SYSTEM HAS BEEN PROPERLY INSTALLED AND IS FUNCTIONING CORRECTLY.

1.54 DEMONSTRATION AND INSTRUCTIONS

(A) BEFORE BEING ELIGIBLE FOR FINAL PAYMENT, CONTRACTOR SHALL DEMONSTRATE OPERATION AND MAINTENANCE OF ALL PIECES AND SYSTEMS OF EQUIPMENT INCLUDING: HEATING, VENTILATION AND AIR CONDITIONING SYSTEMS, LIGHTING AND POWER SYSTEMS, INTERCOM AND FIRE ALARM SYSTEMS, ELEVATOR, ETC., TO OWNER'S PERSONNEL PRIOR TO DATE OF FINAL INSPECTION.

(B) FOR EQUIPMENT OR SYSTEMS REQUIRING SEASONAL OPERATION, PERFORM DEMONSTRATION FOR OTHER SEASON WITHIN SIX MONTHS, OR AS SOON AS TEMPERATURE OR OTHER ENVIRONMENTAL CONDITIONS PERMIT.

(C) DEMONSTRATE START-UP, OPERATION, CONTROL, ADJUSTMENT, TROUBLE-SHOOTING, SERVICING, MAINTENANCE, AND SHUTDOWN OF EACH ITEM OF EQUIPMENT AT AGREED-UPON TIMES, AT PROJECT LOCATION.

(D) ASSIST OWNER IN DETERMINING MAINTENANCE SCHEDULES FOR ALL EQUIPMENT REQUIRING PERIODIC MAINTENANCE.

1.55 TESTING, ADJUSTING, AND BALANCING

(A) CONTRACTOR SHALL APPOINT AN INDEPENDENT FIRM TO PERFORM TESTING, ADJUSTING, AND BALANCING FOR MECHANICAL SYSTEMS AS SPECIFIED IN DIVISION 15.

(B) REPORTS WILL BE SUBMITTED BY THE INDEPENDENT FIRM TO THE ARCHITECT/ENGINEER INDICATING OBSERVATIONS AND RESULTS OF TESTS AND INDICATING COMPLIANCE OR NON-COMPLIANCE WITH SPECIFIED REQUIREMENTS AND WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

(C) COOPERATE WITH INDEPENDENT FIRM; FURNISH ASSISTANCE AS REQUESTED.

(D) RE-TESTING REQUIRED BECAUSE OF NON-CONFORMANCE TO SPECIFIED REQUIREMENTS WILL BE CHARGED TO THE CONTRACTOR.

1.56 CONTRACT CLOSEOUT PROCEDURES

(A) SUBMIT WRITTEN CERTIFICATION THAT CONTRACT DOCUMENTS HAVE BEEN REVIEWED, WORK HAS BEEN INSPECTED, AND WORK IS COMPLETE IN ACCORDANCE WITH CONTRACT DOCUMENTS AND READY FOR ARCHITECT/ENGINEER'S INSPECTION.

(B) SUBMIT COMPLETE DIGITAL SET OF "AS-BUILT" DRAWINGS AND SPECIFICATIONS, SHOWING ALL DEVIATIONS FROM ORIGINAL CONTRACT DOCUMENTS.

(C) CONTRACTOR SHALL KEEP ON FILE A COPY OF ALL SHOP DRAWINGS TO BE GIVEN TO OWNER AT COMPLETION OF THE PROJECT.

(D) SUBMIT A COPY OF ALL SUPPLIERS AND SUBCONTRACTORS WITH NAME, ADDRESS, AND PHONE NUMBERS IF DIFFERENT FROM ORIGINAL LIST.

(E) SUBMIT TWO (2) COMPLETE MANUALS ON THE ELECTRICAL AND MECHANICAL SYSTEMS, INCLUDING MAINTENANCE AND OPERATIONAL RECOMMENDATIONS.

(F) SUBMIT ONE (1) NOTARIZED ORIGINAL AND TWO (2) COPIES OF THE MANUFACTURER'S CERTIFICATES OF WARRANTIES AND/OR GUARANTEES AS REQUIRED IN INDIVIDUAL SPECIFICATION SECTIONS.

(G) SUBMIT ONE (1) NOTARIZED ORIGINAL AND TWO (2) COPY OF THE CONTRACTOR'S AFFIDAVIT OF RELEASE OF LIENS AIA DOCUMENT G706A, CONDITIONAL UPON RECEIPT OF FINAL PAYMENT.

(H) SUBMIT ONE (1) ORIGINAL AND TWO (2) COPIES OF THE CONSENT OF SURETY TO FINAL PAYMENT, AIA DOCUMENT G707.

(I) SUBMIT ONE (1) NOTARIZED ORIGINAL AND TWO (2) COPIES OF FINAL APPLICATION FOR PAYMENT IDENTIFYING TOTAL ADJUSTED CONTRACT SUM/PRICE, PREVIOUS PAYMENTS, AND AMOUNT REMAINING DUE.

1.57 FINAL CLEANING

(A) EXECUTE FINAL CLEANING PRIOR TO FINAL INSPECTION.

(B) CLEAN INTERIOR AND EXTERIOR SURFACES EXPOSED TO VIEW. VACUUM CARPETED AND SOFT SURFACES.

(C) CLEAN DEBRIS FROM SITE, ROOFS, GUTTERS, DOWNSPOUTS, AND DRAINAGE SYSTEMS.

(D) REPLACE FILTERS OF OPERATING EQUIPMENT.

(E) REMOVE WASTE AND SURPLUS MATERIALS, RUBBISH, AND CONSTRUCTION FACILITIES FROM THE SITE.

(F) TOUCH-UP IMPERFECTIONS IN ALL BUILDING FINISHES AFTER CONTRACTORS AND TRADESMEN HAVE COMPLETED THEIR WORK.

(G) CLEAN SURFACES USING APPROPRIATE MATERIALS AND METHODS THAT WILL THOROUGHLY CLEAN BUT NOT DAMAGE MATERIALS AND THEIR FINISHES. CHECK WITH MANUFACTURER OF PRODUCT IN QUESTION TO DETERMINE CORRECT CLEANING PROCEDURE AND MATERIALS. THE OWNER WILL BE RESPONSIBLE FOR APPLYING FINAL WAX AND SEALERS AS REQUIRED.

1.58 ADJUSTING

(A) ADJUST OPERATING PRODUCTS AND EQUIPMENT TO ENSURE SMOOTH AND UNHINDERED OPERATION.

(B) ADJUST WINDOWS, DOORS, DRAWERS, HARDWARE, APPLIANCES, MOTORS, VALVES, CONTROLS AND OTHER EQUIPMENT AS REQUIRED FOR PROPER OPERATION.

1.59 PROJECT RECORD DOCUMENTS

(A) MAINTAIN ON SITE, ONE SET OF CONTRACT DOCUMENTS TO BE UTILIZED FOR "AS-BUILT" RECORD DOCUMENTS.

(B) RECORD ACTUAL REVISIONS TO THE WORK. RECORD INFORMATION CONCURRENT WITH CONSTRUCTION PROGRESS.

(C) SPECIFICATIONS: LEGIBLY MARK AND RECORD AT EACH PRODUCT SECTION A DESCRIPTION OF ACTUAL PRODUCTS INSTALLED.

(D) RECORD DOCUMENTS AND SHOP DRAWINGS: LEGIBLY MARK EACH ITEM TO RECORD ACTUAL CONSTRUCTION.

(E) SUBMIT DOCUMENTS TO ARCHITECT/ENGINEER WITH APPLICATION FOR FINAL APPLICATION FOR PAYMENT.

1.60 OPERATION AND MAINTENANCE DATA

(A) BEFORE BEING ELIGIBLE FOR FINAL PAYMENT, GENERAL CONTRACTOR SHALL SECURE AND DELIVER TO OWNER, THROUGH ARCHITECT, TWO (2) COPIES OF MANUFACTURER'S OPERATION INSTRUCTIONS AND MANUALS FOR ALL EQUIPMENT SUBMIT TWO SETS PRIOR TO FINAL INSPECTION, BOUND IN 8-1/2 X 11 INCH TEXT PAGES, THREE D SIDE RING BINDERS WITH DURABLE PLASTIC COVERS.

(B) PREPARE BINDER COVER WITH PRINTED TITLE "OPERATION AND MAINTENANCE INSTRUCTIONS", AND TITLE OF PROJECT.

(C) INTERNALLY SUBDIVIDE THE BINDER CONTENTS WITH PERMANENT PAGE DIVIDERS, LOGICALLY ORGANIZED, WITH TABS CLEARLY PRINTED UNDER REINFORCED LAMINATED PLASTIC TABS.

(D) CONTENTS:

1. DIRECTORY, LISTING NAMES, ADDRESSES, AND TELEPHONE NUMBERS OF ARCHITECT/ENGINEER, CONTRACTOR, SUBCONTRACTORS, AND MAJOR EQUIPMENT SUPPLIERS.
2. OPERATION AND MAINTENANCE INSTRUCTIONS, ARRANGED BY SYSTEM, AND BY SPECIFICATION SECTION.
3. PROJECT DOCUMENTS AND CERTIFICATES.

(E) SEE MECHANICAL AND ELECTRICAL SPECIFICATIONS, DIVISIONS 15 AND 16, FOR ADDITIONAL REQUIREMENTS.

1.61 WARRANTIES

(A) BEFORE BEING ELIGIBLE FOR FINAL PAYMENT, THE GENERAL CONTRACTOR SHALL DELIVER TO OWNER THROUGH THE ARCHITECT, ALL MANUFACTURER'S AND SPECIAL WARRANTIES SPECIFIED FOR MATERIAL, EQUIPMENT AND INSTALLATIONS, AS REQUIRED BY INDIVIDUAL SPECIFICATION SECTIONS. WARRANTIES SHALL BE NOTARIZED, AND FURNISHED IN DUPLICATE.

(B) EXECUTE AND ASSEMBLE DOCUMENTS FROM SUBCONTRACTORS, SUPPLIERS, AND MANUFACTURERS.

(C) SUBMIT PRIOR TO FINAL APPLICATION FOR PAYMENT.

1.62 SPARE PARTS AND MAINTENANCE MATERIALS

(A) PROVIDE PRODUCTS, SPARE PARTS, MAINTENANCE AND EXTRA MATERIALS IN QUANTITIES SPECIFIED IN INDIVIDUAL SPECIFICATION SECTIONS.

(B) DELIVER TO PROJECT SITE AND PLACE IN LOCATION AS DIRECTED ARCHITECT; OBTAIN RECEIPT PRIOR TO FINAL PAYMENT.

1.63 INSTALLATION OF MATERIALS

(A) FURNISH, APPLY, INSTALL, CONNECT, ERECT, CLEAN AND CONDITION MANUFACTURED ARTICLES, MATERIALS AND EQUIPMENT PER MANUFACTURER'S PRINTED DIRECTIONS WHICH MUST BE ON THE JOB PRIOR TO AND DURING INSTALLATION OF MATERIALS AND EQUIPMENT.

(B) PROVIDE ALL ATTACHMENT DEVICES AND MATERIALS NECESSARY TO SECURE MATERIALS TOGETHER, OR OTHER MATERIALS AS REQUIRED TO SECURE WORK OF OTHER TRADES.

(C) MAKE ALLOWANCES FOR AMPLE EXPANSION AND CONTRACTION OF ALL BUILDING COMPONENTS SUBJECT TO SAME, INCLUDING CONTROL AND/OR EXPANSION JOINTS IN: CONCRETE AND MASONRY, PLYWOOD SHEATHING, METAL ROOFING AND GUTTERING, GYPSUM BOARD WALLS AND CEILINGS, ALL BUILDING FINISHES, ALUMINUM "STORE-FRONT" AND GLAZING SYSTEMS, EXTERIOR INSULATION AND FINISH SYSTEMS, BUILT-UP OR MEMBRANE ROOFING, OTHER MATERIALS OR AREAS REQUIRING EXPANSION CONTROL AS INDICATED BY PLANS AND/OR SPECIFICATIONS OR AS OTHERWISE REQUIRED BY PRODUCT MANUFACTURERS.

1. SEE PLANS FOR LOCATIONS OF MAJOR BUILDING EXPANSION JOINTS.

2. WHERE NO CONTROL JOINTS ARE INDICATED, VERIFY LOCATION OF JOINTS IN ALL MATERIALS WITH ARCHITECT FOR PLACEMENT PRIOR TO INSTALLATION. INSTALL JOINTS THUS LOCATED AT NO ADDITIONAL COST TO OWNER.

(D) EACH TRADE SHALL PROVIDE SLEEVES, RECESSES AND OPENINGS TO THEIR WORK AS REQUIRED TO RECEIVE WORK OF OTHER TRADES. GENERAL CONTRACTOR IS RESPONSIBLE FOR COORDINATION OF ALL SUCH OPENINGS, SLEEVES, RECESSES, ETC.

(E) MAKE FIELD CHECK OF ACTUAL BUILDING DIMENSIONS BEFORE FABRICATING PRODUCTS.

(F) WHERE PROPER FIT OF WORK DEPENDS ON CLOSE TOLERANCE OF MANUFACTURED PRODUCTS, FURNISH MANUFACTURER WITH NECESSARY TEMPLATES TO INSURE PROPER FIT OF ALL COMPONENTS.

(G) INSTALL MATERIALS ONLY WHEN CONDITIONS OF TEMPERATURE, MOISTURE, HUMIDITY, AND CONDITION OF ADJACENT BUILDING COMPONENTS ARE CONDUCIVE TO ACHIEVING BEST INSTALLATION RESULTS. VERIFY REQUIREMENTS WITH PRODUCT MANUFACTURER'S

(H) IN JOB ASSEMBLING, EACH TRADE SHALL PROPERLY CUT AND FIT TO MAKE ITS OWN ASSEMBLIES FIT ACCURATELY INTO THE EXISTING WORK, AND AS NECESSARY FOR OTHER TRADES HAVING WORK OCCURRING HEREIN. WHERE NECESSARY TO CUT INTO OTHER BUILDING COMPONENTS, DO SO NEATLY AND ONLY IN A MANNER SO AS NOT TO DAMAGE BUILDING STRUCTURALLY. DO NOT CUT STRUCTURAL COMPONENTS OR ASSEMBLIES WITHOUT PRIOR APPROVAL OF ARCHITECT AND STRUCTURAL ENGINEER.

(I) WHERE CONSTRUCTION CONSISTS OF A SERIES OF COURSES OF UNITS, ASSEMBLE UNITS IN BEST ACCEPTABLE MANNER TO PROVIDE A STRUCTURALLY SOUND INSTALLATION, WITH JOINTS OF UNIFORM SIZE, WHICH IS TOTALLY WATERPROOF WHERE EXPOSED TO EXTERIOR. ACCURATELY PLUMB AND LEVEL ALL COURSES AND VERIFY LEVELS FREQUENTLY WITH INSTRUMENT.

(J) HANDLE MATERIALS IN A MANNER SO AS TO PREVENT SCRATCHING, ABRADING, DISTORTION, CHIPPING, BREAKING, OR OTHER DISFIGUREMENT. UNLESS OTHERWISE SPECIFIED, FABRICATE AND INSTALL MATERIALS TRUE TO LINE, PLUMB AND LEVEL. LEAVE FINISH SURFACES SMOOTH AND FLAT, OR OF SMOOTH CONTOUR WHERE INDICATED, FREE FROM WRINKLES, WARPS, SCRATCHES, DENTS AND OTHER IMPERFECTIONS. PROVIDE QUALITY WORKMANSHIP NOT LESS THAN THE COMMERCIALLY ACCEPTED STANDARDS OF THAT TRADE. WHERE OBVIOUSLY OF BEST PRACTICE,

FURNISH MATERIALS IN THE LONGEST PRACTICAL LENGTH AND LARGEST PRACTICAL SIZES TO AVOID UNNECESSARY JOINTING. MAKE ALL JOINTS SECURE.

(K) CONSULT ARCHITECT FOR MOUNTING HEIGHT AND POSITION OF ANY UNIT NOT SPECIFICALLY LOCATED.

(L) MIX NO MORE MATERIALS THAN CAN BE USED BEFORE MATERIAL BEGINS TO "SET". MIX NO PARTIALLY "SET" BATCH WITH ANOTHER. CLEAN TOOLS AND APPLIANCES PRIOR TO MIXING MATERIALS THAT CAN BE CONTAMINATED.

(M) CONDUCT WORK IN A MANNER SO AS TO AVOID DAMAGE TO PREVIOUSLY PLACED WORK.

(N) DO NOT DISTURB MATERIALS REQUIRING CURING TIME UNTIL APPROPRIATE TIME HAS TRANSPIRED.

(0) PROPERLY PREPARE ALL WORK TO RECEIVE SUBSEQUENT WORK OR FINISH. NOTIFY ARCHITECT IF ANY WORK IS UNSATISFACTORY TO RECEIVE SUBSEQUENT WORK OR FINISH, AND RECEIVE HIS INSTRUCTIONS BEFORE PROCEEDING. IF NO SPECIFIC INSTRUCTIONS ARE SPECIFIED HEREIN, FOLLOW MANUFACTURER'S INSTRUCTIONS.

(P) SEAL EXTERIOR JOINTS BETWEEN MATERIAL(S) TO FORM A WATERPROOFED ENCLOSURE.

1.64 <u>CLOSING IN WORK:</u>

(A) GENERAL CONTRACTOR SHALL NOTIFY HIS SUBCONTRACTORS, OTHER CONTRACTORS, OWNER AND ALL CONTRACTORS AND SUBCONTRACTORS UNDER THE OWNER WHEN HE IS READY FOR THEM TO INSTALL THEIR PORTIONS OF THE WORK AND SEE THAT THEY COMPLY IN A TIMELY MANNER TO ACHIEVE THE SCHEDULED COMPLETION DATE FOR THE ENTIRE PROJECT.

(B) NEITHER ENCLOSE NOR COVER ANY PIPING, WIRING, DUCTS, EQUIPMENT OR OTHER ITEMS UNTIL PROPER TESTS AND INSPECTIONS HAVE BEEN MADE BY THE ARCHITECT AND/OR PROPER AUTHORITIES.

(C) NOTIFY ARCHITECT WHEN SUBSEQUENTLY PLACED WORK WOULD PREVENT OBSERVATION OF PREVIOUS WORK.

1.65 <u>REPAIRS:</u>

(A) UNLESS ARCHITECT GRANTS PERMISSION TO REPAIR ANY DEFECTIVE WORK, REMOVE FROM PROJECT ANY WORK NOT IN ACCORDANCE WITH CONTRACT DOCUMENTS. PERMISSION TO REPAIR ANY SUCH WORK SHALL NOT CONSTITUTE WAIVER OF ARCHITECT'S RIGHTS TO REQUIRE COMPLETE REMOVAL OF DEFECTIVE WORK IF REPAIR OPERATION DOES NOT RESTORE QUALITY AND APPEARANCE OF MEMBER OR SURFACE TO ARCHITECT'S ORIGINAL SPECIFICATIONS.

1.67 <u>REPAIR OF RIGHT-OF-WAY AND PRIVATE PROPERTY</u>

(A) CONTRACTOR SHALL, AS A CONDITION OF FINAL PAYMENT, RESTORE ALL RIGHT-OF-WAY AND ADJACENT PRIVATE PROPERTY THAT HAS BEEN DISTURBED, DAMAGED, OR OTHERWISE AFFECTED BY CONSTRUCTION TO A CONDITION EQUAL TO OR BETTER THAN EXISTED PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. SUCH RESTORATION SHALL INCLUDE BUT NOT BE LIMITED TO:

1. REMOVAL AND REPLACEMENT OF DAMAGED PAVING, SIDEWALKS, DRIVEWAYS, ETC., INCLUDING CURB AND GUTTER

2. REGRADING AND SEEDING OF AREAS WHERE GRASS WAS PLANTED AND GROWING PRIOR TO CONSTRUCTION.

3. ADDITIONAL LANDSCAPING OR RESTORATION WORK AS REQUIRED TO RETURN AN AREA TO ITS ORIGINAL CONDITION.

(B) CONTRACTOR SHALL HAVE NO RESPONSIBILITY TO ENSURE GROWTH OF SUCH SEEDED OR OTHER LANDSCAPED AREA(S).

(C) THIS RESTORATION SHALL BE CONSIDERED PART OF THE CONTRACTOR'S WORK AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PERFORMANCE OF SUCH RESTORATION WORK IN THE SAME MANNER AS IT WAS RESPONSIBLE FOR PERFORMANCE OF THE CONTRACT WORK.

1.68 MISCELLANEOUS REQUIREMENTS

(A) THE CONSTRUCTION SITE IS LIMITED TO THE AREAS INDICATED ON THE SITE PLAN.

(B) UTILITIES ARE NOTED ON THE DRAWINGS. CONTRACTOR SHALL PROVIDE ALL SERVICE LINES AS SHOWN AND/OR NECESSARY. GENERAL CONTRACTOR AND ALL SUBCONTRACTORS SHALL BE RESPONSIBLE FOR REPAIRING ANY NEW OR EXISTING UTILITIES WHICH ARE DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITIES.

(C) COSTS FOR TEMPORARY ELECTRICITY, GAS, WATER, TELEPHONE, AND ALL OTHER UTILITIES SHALL BE PAID FOR BY THE GENERAL CONTRACTOR UNTIL PROJECT SUBSTANTIAL COMPLETION CERTIFICATE IS ISSUED BY THE ARCHITECT.

(D) THE INTENT OF THESE SPECIFICATIONS IS TO ALLOW AMPLE OPPORTUNITY FOR THE CONTRACTORS TO USE THEIR INGENUITY AND ABILITIES TO EXPEDITE THE WORK TO THEIR AND THE OWNER'S BEST ADVANTAGE, AND TO PERMIT MAXIMUM COMPETITION IN BIDDING ON ESTABLISHED STANDARDS OF MATERIALS AND EQUIPMENT AS DEFINED BY THE PLANS AND SPECIFICATIONS.

(E) CONTRACTOR AND SUB CONTRACTORS MUST RECOGNIZE THAT CERTAIN ITEMS CANNOT BE FULLY ILLUSTRATED OR EXPLAINED WITHOUT FIELD OBSERVATION. THUS, BEFORE SUBMITTING HIS BID, HE SHALL VISIT AND EXAMINE THE SITE IN EVERY DETAIL AND MAKE ALLOWANCE IN HIS BID FOR ALL CONDITIONS THAT WILL AFFECT THE WORK INDICATED OR REASONABLY IMPLIED BY THE DRAWINGS AND THESE SPECIFICATIONS.

(F) DO NOT SCALE ARCHITECTURAL, MECHANICAL OR ELECTRICAL DRAWINGS FOR DIMENSIONS. ACCURATELY LAYOUT SUCH WORK FROM DIMENSIONS INDICATED ON ARCHITECTURAL DRAWINGS UNLESS SUCH BE FOUND IN ERROR. CONSULT ARCHITECT FOR ANY INTERPRETATIONS CONCERNING LOCATIONS OF EQUIPMENT.

(G) CONSULT DRAWINGS AND/OR SPECIFICATIONS FOR MISCELLANEOUS ITEMS OF EACH TRADE AND PROVIDE SAME AS INDICATED. GENERAL CONTRACTOR AND ALL SUB-CONTRACTORS ARE RESPONSIBLE FOR ITEMS RELATING TO THEIR INDIVIDUAL TRADES, AS NOTED ON ALL CONTRACT DOCUMENTS INCLUDING DRAWINGS, SPECIFICATIONS, BIDDING DOCUMENTS, ADDENDA, AND MODIFICATIONS TO THE CONTRACT (CHANGE ORDERS).

(H) CONTRACTORS SHALL PROVIDE TEMPORARY LADDERS, RUNWAYS, SCAFFOLDING, SHORING, BRACING AND OTHER EQUIPMENT REQUIRED FOR PROPER PROGRESS OF THEIR WORK AND REMOVE SAME AT WORK COMPLETION. PROVIDE ANY SUCH TEMPORARY LADDERS OR OTHER EQUIPMENT NECESSARY FOR ARCHITECT OR HIS REPRESENTATIVE TO INSPECT WORK THROUGHOUT THE COURSE OF CONSTRUCTION.

END OF SECTION 01 00 00 – GENERAL REQUIREMENTS

SECTION 03 30 00 - CAST-IN-PLACE CONCRETE

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) CONCRETE FORMWORK.

(B) FLOORS AND SLABS ON GRADE.

(C) CONCRETE REINFORCEMENT.

(D) JOINT DEVICES ASSOCIATED WITH CONCRETE WORK.

(E) CONCRETE CURING.

1.2 RELATED REQUIREMENTS

(A) SECTION 07 92 00 - JOINT SEALANTS: PRODUCTS AND INSTALLATION FOR SEALANTS AND JOINT FILLERS FOR SAW CUT JOINTS AND ISOLATION JOINTS IN SLABS.

1.3 REFERENCE STANDARDS

(A) ACI 117 - STANDARD SPECIFICATIONS FOR TOLERANCES FOR CONCRETE CONSTRUCTION AND MATERIALS; 2010 (REAPPROVED 2015).

(B) ACI 211.1 - STANDARD PRACTICE FOR SELECTING PROPORTIONS FOR NORMAL, HEAVYWEIGHT, AND MASS CONCRETE; 1991 (REAPPROVED 2009).

(C) ACI 301 - SPECIFICATIONS FOR STRUCTURAL CONCRETE; 2016.

(D) ACI 302.1R - GUIDE TO CONCRETE FLOOR AND SLAB CONSTRUCTION; 2015.

(E) ACI 304R - GUIDE FOR MEASURING, MIXING, TRANSPORTING, AND PLACING CONCRETE; 2000 (REAPPROVED 2009).

(F) ACI 305R - GUIDE TO HOT WEATHER CONCRETING; 2010.

(G) ACI 306R - GUIDE TO COLD WEATHER CONCRETING; 2016.

(H) ACI 308R - GUIDE TO EXTERNAL CURING OF CONCRETE; 2016.

(I) ACI 318 - BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY; 2014 (ERRATA 2017).

(J) ACI 347R - GUIDE TO FORMWORK FOR CONCRETE; 2014.

(K) ASTM C1602/C1602M - STANDARD SPECIFICATION FOR MIXING WATER USED IN THE PRODUCTION OF HYDRAULIC CEMENT CONCRETE; 2012.

(L) ASTM C33/C33M - STANDARD SPECIFICATION FOR CONCRETE AGGREGATES; 2016, WITH EDITORIAL REVISION (2016).

(M) ASTM C39/C39M - STANDARD TEST METHOD FOR COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS; 2017B.

(N) ASTM C94/C94M - STANDARD SPECIFICATION FOR READY-MIXED CONCRETE; 2017A.

(O) ASTM C143/C143M - STANDARD TEST METHOD FOR SLUMP OF HYDRAULIC-CEMENT CONCRETE; 2015A.

(P) ASTM C150/C150M - STANDARD SPECIFICATION FOR PORTLAND CEMENT; 2017.

(Q) ASTM C171 - STANDARD SPECIFICATION FOR SHEET MATERIALS FOR CURING CONCRETE; 2016.

(R) ASTM C173/C173M - STANDARD TEST METHOD FOR AIR CONTENT OF FRESHLY MIXED CONCRETE BY THE VOLUMETRIC METHOD; 2016.

(S) ASTM C260/C260M - STANDARD SPECIFICATION FOR AIR-ENTRAINING ADMIXTURES FOR CONCRETE; 2010A (REAPPROVED 2016).

(T) ASTM C309 - STANDARD SPECIFICATION FOR LIQUID MEMBRANE-FORMING COMPOUNDS FOR CURING CONCRETE; 2011.

(U) ASTM C330/C330M - STANDARD SPECIFICATION FOR LIGHTWEIGHT AGGREGATES FOR STRUCTURAL CONCRETE; 2017A.

(V) ASTM C494/C494M - STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR CONCRETE; 2017.

(W) ASTM C618 - STANDARD SPECIFICATION FOR COAL FLY ASH AND RAW OR CALCINED NATURAL POZZOLAN FOR USE IN CONCRETE; 2015.

(X) ASTM C685/C685M - STANDARD SPECIFICATION FOR CONCRETE MADE BY VOLUMETRIC BATCHING AND CONTINUOUS MIXING; 2014.

(Y) ASTM C881/C881M - STANDARD SPECIFICATION FOR EPOXY-RESIN-BASE BONDING SYSTEMS FOR CONCRETE; 2015.

(Z) ASTM C1059/C1059M - STANDARD SPECIFICATION FOR LATEX AGENTS FOR BONDING FRESH TO HARDENED CONCRETE; 2013.

(AA) ASTM D471 - STANDARD TEST METHOD FOR RUBBER PROPERTY--EFFECT OF LIQUIDS; 2016A.

(AB) ASTM D1752 - STANDARD SPECIFICATION FOR PREFORMED SPONGE RUBBER CORK AND RECYCLED PVC EXPANSION JOINT FILLERS FOR CONCRETE PAVING AND STRUCTURAL CONSTRUCTION; 2004A (REAPPROVED 2013).

(AC) ASTM E1155 - STANDARD TEST METHOD FOR DETERMINING F(F) FLOOR FLATNESS AND F(L) FLOOR LEVELNESS NUMBERS; 2014.

(AD) ASTM E1155M - STANDARD TEST METHOD FOR DETERMINING F(F) FLOOR FLATNESS AND F(L) FLOOR LEVELNESS NUMBERS (METRIC); 2014.

(AE) ASTM E1643 - STANDARD PRACTICE FOR SELECTION, DESIGN, INSTALLATION AND INSPECTION OF WATER VAPOR RETARDERS USED IN CONTACT WITH EARTH OR GRANULAR FILL UNDER CONCRETE SLABS; 2011 (REAPPROVED 2017).

(AF) ASTM E1745 - STANDARD SPECIFICATION FOR PLASTIC WATER VAPOR RETARDERS USED IN CONTACT WITH SOIL OR GRANULAR FILL UNDER CONCRETE SLABS; 2017.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: SUBMIT MANUFACTURERS' DATA ON MANUFACTURED PRODUCTS SHOWING COMPLIANCE WITH SPECIFIED REQUIREMENTS AND INSTALLATION INSTRUCTIONS.

1. FOR CURING COMPOUNDS, PROVIDE DATA ON METHOD OF REMOVAL IN THE EVENT OF INCOMPATIBILITY WITH FLOOR COVERING ADHESIVES.

2. FOR CHEMICAL-RESISTANT WATERSTOPS, PROVIDE DATA ON ASTM D471 TEST RESULTS.

(C) MIX DESIGN: SUBMIT PROPOSED CONCRETE MIX DESIGN.

1. INDICATE PROPOSED MIX DESIGN COMPLIES WITH REQUIREMENTS OF ACI 301, SECTION 4 - CONCRETE MIXTURES.

2. INDICATE PROPOSED MIX DESIGN COMPLIES WITH REQUIREMENTS OF ACI 318, CHAPTER 5 - CONCRETE QUALITY, MIXING AND PLACING.

(D) SAMPLES: SUBMIT SAMPLES OF UNDERSLAB VAPOR RETARDER TO BE USED.

(E) TEST REPORTS: SUBMIT REPORT FOR EACH TEST OR SERIES OF TESTS SPECIFIED.

(F) MANUFACTURER'S INSTALLATION INSTRUCTIONS: FOR CONCRETE ACCESSORIES, INDICATE INSTALLATION PROCEDURES AND INTERFACE REQUIRED WITH ADJACENT CONSTRUCTION.

(G) PROJECT RECORD DOCUMENTS: ACCURATELY RECORD ACTUAL LOCATIONS OF EMBEDDED UTILITIES AND COMPONENTS THAT WILL BE CONCEALED FROM VIEW UPON COMPLETION OF CONCRETE WORK.

(H) WARRANTY: SUBMIT MANUFACTURER WARRANTY AND ENSURE FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER.

1.5 QUALITY ASSURANCE

(A) PERFORM WORK OF THIS SECTION IN ACCORDANCE WITH ACI 301 AND ACI 318.

(B) FOLLOW RECOMMENDATIONS OF ACI 305R WHEN CONCRETING DURING HOT WEATHER.

(C) FOLLOW RECOMMENDATIONS OF ACI 306R WHEN CONCRETING DURING COLD WEATHER.

(D) FOR SLABS REQUIRED TO INCLUDE MOISTURE VAPOR REDUCTION ADMIXTURE (MVRA), DO NOT PROCEED WITH PLACEMENT UNLESS MANUFACTURER'S REPRESENTATIVE IS PRESENT FOR EVERY DAY OF PLACEMENT.

(E) WATER VAPOR REDUCING ADIXTURE.

1. WATER VAPOR REDUCING ADMIXTURE (WVRA) MANUFACTURER QUALIFICATIONS:

a. A FIRM WITH NOT LESS THAN 10 YEARS EXPEERIENCE IN MANUFACTUREING CONCRETE WATER VAPOR REDUCING AMIXTURE OF THE TYPE SPECIFIED, CAPABLE OF PROVIDING TEST REPORTS INDICATING COMPLIANCE WITH SPECIFIED PERFORMANCE REQUIREMENTS, AND ABLE TO PROVIDE ON-SITE TECHNICAL REPRESENTATION.

2. WVRA MOSITURE TESTING:

a. THE WVRA SUPPLIER WILL PREFORM ALL MISTURE TESTING. WVRA MANUFACTURER WILL ISSUE WARRANTY PRIOR TOSTART OF INSTALLATION OF FLOORING AND MOSITURE SENSITIVE ADHESIVES AND COATINGS.

3. WVRA PREINSTALLATION CONFERENCE:

a. CONDUCT CONFERENCE AT PROJECT SITE WITH CONTRACTOR, CONCRETE WVRA MANUFACTURER OR AUTHORIZED REPRESENTATIVE, CONCRETE SUPPLIER, CONCRETE FINISHER TOVERIFY PROJECT REQUIREMENTS, SUBSTRATE CONDITIONS, MANUFACTURER'S INSTALLATION INSTRUCTIONS, AND MANUFACTURER'S WARRANTY REQUIREMENTS.

4. CONCRETE SUPPLIER AND FINISHERS MUST BE CERTIFIED BT WVRA MANUFACTURER.

5. WVRA SOURCE LIMITATIONS:

a. OBTAIN EACH TYPE OF CONCRETE WVRA FROM THE SAME MANUFACTURER.

1.6 MOCK-UP

(A) CONSTRUCT AND ERECT MOCK-UP PANEL FOR ARCHITECTURAL CONCRETE SURFACES INDICATED TO RECEIVE SPECIAL TREATMENT OR FINISH AS RESULT OF FORMWORK.

(B) ACCEPTED MOCK-UP PANEL IS CONSIDERED BASIS OF QUALITY FOR THE FINISHED WORK. KEEP MOCK-UP EXPOSED TO VIEW FOR DURATION OF CONCRETE WORK.

1.7 WARRANTY

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL WARRANTY REQUIREMENTS.

(B) SLABS WITH MOISTURE VAPOR REDUCING ADMIXTURE (MVRA): PROVIDE WARRANTY TO COVER THE COST OF FLOORING FAILURES DUE TO MOISTURE MIGRATION FROM SLABS FOR TEN YEARS.

1. INCLUDE COST OF REPAIR OR REMOVAL OF FAILED FLOORING, PLACEMENT OF TOPICAL MOISTURE REMEDIATION SYSTEM, AND REPLACEMENT OF FLOORING WITH COMPARABLE FLOORING SYSTEM.

2. PROVIDE WARRANTY BY MANUFACTURER OF MVRA MATCHING TERMS OF FLOORING ADHESIVE OR PRIMER MANUFACTURER'S MATERIAL DEFECT WARRANTY.

(C) MANUFACTURER'S WARRANTY: PROVIDE MANUFACTURER'S STANDARD-FORM WARRANTY DOCUMENT EXECUTED BY AN AUTHORIZED COMPANY OFFICAL TO WARRANT ALL NEW CONCRETE INTERIOR SLABS ON GRADE.

1. WARRANTY PERIOD: 10 YEARS FORM DATE OF SUBSTANTIAL COMPLETION.

2. WARRANTY COVERS PERFORMANCE OF CONCRETE WATERVAPOR REDUCING ADMIXTURE AS WELL AS LABOR AND MATERIAL FOR FLOORING REPLACEMENT IN ACCORDANCE WITH THE

MANUFACTURER'S CURRENT STANDARDS AND APPLICABLE TEST RESULTS PREFORMED IN ACCORDANCE WITH ASTM D 5084.

PART 2 PRODUCTS

2.1 FORMWORK

(A) FORMWORK DESIGN AND CONSTRUCTION: COMPLY WITH GUIDELINES OF ACI 347R TO PROVIDE FORMWORK THAT WILL PRODUCE CONCRETE COMPLYING WITH TOLERANCES OF ACI 117.

(B) FORM MATERIALS: CONTRACTOR'S CHOICE OF STANDARD PRODUCTS WITH SUFFICIENT STRENGTH TO WITHSTAND HYDROSTATIC HEAD WITHOUT DISTORTION IN EXCESS OF PERMITTED TOLERANCES.

1. FORM COATING: RELEASE AGENT THAT WILL NOT ADVERSELY AFFECT CONCRETE OR INTERFERE WITH APPLICATION OF COATINGS.

2. FORM TIES: CONE SNAP TYPE THAT WILL LEAVE NO METAL WITHIN 1-1/2 INCHES OF CONCRETE SURFACE.

2.2 CONCRETE MATERIALS

(A) CEMENT: ASTM C150/C150M, TYPE I - NORMAL OR TYPE II - MODERATE PORTLAND TYPE.

1. ACQUIRE CEMENT FOR ENTIRE PROJECT FROM SAME SOURCE.

(B) FINE AND COARSE AGGREGATES: ASTM C 33.COARSE AGGREGATE NO. 57 OR 67.

1. ACQUIRE AGGREGATES FOR ENTIRE PROJECT FROM SAME SOURCE.

(C) FLY ASH: ASTM C618, CLASS C OR F.

(D) CALCINED POZZOLAN: ASTM C618, CLASS N.

(E) WATER: ASTM C1602/C1602M; CLEAN, POTABLE, AND NOT DETRIMENTAL TO CONCRETE.

2.3 ADMIXTURES

(A) CHEMICAL ADMIXTURE MANUFACTURERS:

1. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) DO NOT USE CHEMICALS THAT WILL RESULT IN SOLUBLE CHLORIDE IONS IN EXCESS OF 0.1 PERCENT BY WEIGHT OF CEMENT.

(C) AIR ENTRAINMENT ADMIXTURE: ASTM C260/C260M.

(D) HIGH RANGE WATER REDUCING AND RETARDING ADMIXTURE: ASTM C494/C494M TYPE G.

(E) WATER REDUCING AND ACCELERATING ADMIXTURE: ASTM C494/C494M TYPE E.

(F) WATER REDUCING AND RETARDING ADMIXTURE: ASTM C494/C494M TYPE D.

(G) WATER REDUCING ADMIXTURE: ASTM C494/C494M TYPE A.

(H) CONCRETE WATER VAPOR REDUCING ADMIXTURE (WVRA). A COMPLEX ADMIXTURE FOR CEMENTITIOUS MATERIALS, FREE OF VOLATILE ORGANIC COMPOUNDS (VOC), DESIGNED TO NATURALLY CHEMICALLY REACT WITH PRE-EXISTING ELEMENTS WITHIN THE CEMENTITIOUS MATERIAL TO ELIMINATE THE ROUTE OF MOISTURE VAPOR EMISSION BY INTEGRALLY AND PERMANENTLY CLOSING THE CAPILLARY SYSTEM IN THE CONCRETE WITH THE FOLLOWING CHARACTERISTICS:

1. BASIS OF DESIGN: THE CONCRETE WATER VAPOR REDUCING ADMIXTURE (WVRA) IS BASED ON VAPOR LOCL 20/20, AS MANUFACTURED BY SPECIALTY OPRODUCTS GROUP (SPG), 6254 SKYWAY RD. PO BOX 915 SMITHVILLE OH, LOR 2A0, CANADA; WWW.SPGOGREEN.COM

   a. SUBSTITUTIONS: SECTION 01 00 00 - GENERAL REQUIREMENTS.

2. WATERPROOFING: MINIMUM 1 X 10-8 CM/S IN ACCORDANCE WITH ASTM D5084

3. TOXICITY: NONE

4. FLAMMABILITY: NONE

5. SOLVENT: WATER

6. ACID RESISTANCE: EXCELLENT

7. HAZARDOUS VAPORS: NONE

8. CAPILLARYBREAK: CALCIUM SILICATE HYDRATE

9. INSTALLATION: ALL CEMENTITIOUS MATERIAL AT NEW INTERIOR SLAB-ON-GRADE

10. VOC LEVEL: ZERO

11. INHIBIT MOLD AND BACTERIA GROWTH BY ELIMINATING MOSITURE VAPOR.

12. ADD WVRA TO CONCRETE IN ACCORDANCE WITH SUPPLIER'S WRITTEN INSTRUCTIONS.

13. OBTAIN APPROVAL OF THE WVRA SUPPLIER FOR THE MIX 1DESIGN. WVRA SUPPLIER WILL PROVIDE SPECIFIC TESTING AND WARRANT INFORMATION IN ACCORDANCE WITH APPLICATION REQUIREMENTS.

14. NOTIFY WVRA SUPPLIER A MINIMUM OF 10 DAYS PRIOR TO THE PLACEMENT OF THE FIRST BATCH OF TREATED CONCRETE.

15. DISPENSE WVRA IN COMPLIANCE WITH MIX DESIGN AND SUPPLIER'S RECOMMENDATIONS.

16. THE USE OF OTHER ADMIXTURES WITH WVRA IN THE SAME CONCRETE BATCH IS ACCEPTABLE WHEN INCLUDED IN THE APPROVED MIX DSIGN.

(I) AIR ENTRAINMENT ADMIXTURE: ASTM C260.

2.4 ACCESSORY MATERIALS

(A) UNDERSLAB VAPOR RETARDER: SHEET MATERIAL COMPLYING WITH ASTM E1745, CLASS A; STATED BY MANUFACTURER AS SUITABLE FOR INSTALLATION IN CONTACT WITH SOIL OR GRANULAR FILL UNDER CONCRETE SLABS. THE USE OF SINGLE PLY POLYETHYLENE IS PROHIBITED.

1. INSTALLATION: COMPLY WITH ASTM E1643.

2. ACCESSORY PRODUCTS: VAPOR RETARDER MANUFACTURER'S RECOMMENDED TAPE, ADHESIVE, MASTIC, PREFABRICATED BOOTS, ETC., FOR SEALING SEAMS AND PENETRATIONS.

(B) INSULATED UNDERSLAB VAPOR RETARDER: MULTI-LAYER PRODUCT OF HIGH DENSITY CLOSED-CELL FOAM AND HIGH DENSITY POLYETHYLENE BUBBLE SANDWICHED BETWEEN OUTER LAYERS OF ALUMINUM-REINFORCED POLYETHYLENE OR EQUIVALENT, STATED BY MANUFACTURER AS SUITABLE FOR INSTALLATION IN CONTACT WITH SOIL OR GRANULAR FILL UNDER CONCRETE SLABS. THE USE OF SINGLE PLY POLYETHYLENE IS PROHIBITED.

1. INSTALLATION: COMPLY WITH ASTM E1643.

2. ACCESSORY PRODUCTS: VAPOR RETARDER MANUFACTURER'S RECOMMENDED TAPE, ADHESIVE, MASTIC, PREFABRICATED BOOTS, ETC., FOR SEALING SEAMS AND PENETRATIONS.

2.5 BONDING AND JOINTING PRODUCTS

(A) LATEX BONDING AGENT: NON-REDISPERSABLE ACRYLIC LATEX, COMPLYING WITH ASTM C1059/C1059M, TYPE II.

1. MANUFACTURERS:

a. W. R. MEADOWS, INC; ACRY-LOK-: WWW.WRMEADOWS.COM/#SLE.

b. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) EPOXY BONDING SYSTEM:

1. COMPLYING WITH ASTM C881/C881M AND OF TYPE REQUIRED FOR SPECIFIC APPLICATION.

2. MANUFACTURERS:

a. W. R. MEADOWS, INC; REZI-WELD GEL PASTE, REZI-WELD GEL PASTE STATE, REZI-WELD 1000: WWW.WRMEADOWS.COM/#SLE.

b. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(C) SLAB ISOLATION JOINT FILLER: 1/2 INCH THICK, HEIGHT EQUAL TO SLAB THICKNESS, WITH REMOVABLE TOP SECTION THAT WILL FORM 1/2 INCH DEEP SEALANT POCKET AFTER REMOVAL.

1. MATERIAL: ASTM D1751, CELLULOSE FIBER.

2. MATERIAL: CLOSED-CELL, NON-ABSORBENT, COMPRESSIBLE POLYMER FOAM IN SHEET FORM.

3. MANUFACTURERS:

a. W. R. MEADOWS, INC; FIBER EXPANSION JOINT FILLER WITH SNAP-CAP: WWW.WRMEADOWS.COM/#SLE.

b. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(D) SLAB CONTRACTION JOINT DEVICE: PREFORMED LINEAR STRIP INTENDED FOR PRESSING INTO WET CONCRETE TO PROVIDE STRAIGHT ROUTE FOR SHRINKAGE CRACKING.

(E) SLAB CONSTRUCTION JOINT DEVICES: COMBINATION KEYED JOINT FORM AND SCREED, GALVANIZED STEEL, WITH RECTANGULAR OR ROUND KNOCKOUT HOLES FOR CONDUIT OR REBAR TO PASS THROUGH JOINT FORM AT 6 INCHES ON CENTER; RIBBED STEEL STAKES FOR SETTING.

2.6 CURING MATERIALS

(A) CURING COMPOUND, NATURALLY DISSIPATING: CLEAR, WATER-BASED, LIQUID MEMBRANE-FORMING COMPOUND; COMPLYING WITH ASTM C309.

(B) CURING COMPOUND, NON-DISSIPATING: LIQUID, MEMBRANE-FORMING, CLEAR, NON-YELLOWING ACRYLIC; COMPLYING WITH ASTM C309.

1. VEHICLE: WATER-BASED.

2. MANUFACTURERS:

a. L&M CONSTRUCTION CHEMICALS, INC, A SUBSIDIARY OF LATICRETE INTERNATIONAL, INC; DRESS & SEAL: WWW.LMCC.COM/#SLE.

b. L&M CONSTRUCTION CHEMICALS, INC, A SUBSIDIARY OF LATICRETE INTERNATIONAL, INC; DRESS & SEAL WB: WWW.LMCC.COM/#SLE.

c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(C) MOISTURE-RETAINING SHEET: ASTM C171.

1. CURING PAPER, REGULAR.

2. POLYETHYLENE FILM, WHITE OPAQUE, MINIMUM NOMINAL THICKNESS OF 4 MIL, 0.004 INCH.

3. WHITE-BURLAP-POLYETHYLENE SHEET, WEIGHING NOT LESS THAN 3.8 OUNCES PER SQUARE YARD.

(D) WATER: POTABLE, NOT DETRIMENTAL TO CONCRETE.

2.7 CONCRETE MIX DESIGN

(A) PROPORTIONING NORMAL WEIGHT CONCRETE: COMPLY WITH ACI 211.1 RECOMMENDATIONS.

(B) CONCRETE STRENGTH: ESTABLISH REQUIRED AVERAGE STRENGTH FOR EACH TYPE OF CONCRETE ON THE BASIS OF FIELD EXPERIENCE OR TRIAL MIXTURES, AS SPECIFIED IN ACI 301.

1. FOR TRIAL MIXTURES METHOD, EMPLOY INDEPENDENT TESTING AGENCY ACCEPTABLE TO ARCHITECT FOR PREPARING AND REPORTING PROPOSED MIX DESIGNS.

(C) ADMIXTURES: ADD ACCEPTABLE ADMIXTURES AS RECOMMENDED IN ACI 211.1 AND AT RATES RECOMMENDED OR REQUIRED BY MANUFACTURER.

(D) NORMAL WEIGHT CONCRETE:

1. COMPRESSIVE STRENGTH, WHEN TESTED IN ACCORDANCE WITH ASTM C39/C39M AT 28 DAYS: 4000 PSI

2. CEMENT CONTENT: 470 PCY

3. WATER-CEMENT RATIO: 0.45

4. TOTAL AIR CONTENT: 5%

5. MAXIMUM SLUMP: 5 INCHES

6. MAXIMUM AGGREGATE SIZE: ¾ INCH.

2.8 MIXING

(A) ON PROJECT SITE: MIX IN DRUM TYPE BATCH MIXER, COMPLYING WITH ASTM C685/C685M. MIX EACH BATCH NOT LESS THAN 1-1/2 MINUTES AND NOT MORE THAN 5 MINUTES.

(B) TRANSIT MIXERS: COMPLY WITH ASTM C94/C94M.

(C) ADDING WATER: IF CONCRETE ARRIVES ON-SITE WITH SLUMP LESS THAN SUITABLE FOR PLACEMENT, DO NOT ADD WATER THAT EXCEEDS THE MAXIMUM WATER-CEMENT RATIO OR EXCEEDS THE MAXIMUM PERMISSIBLE SLUMP.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY LINES, LEVELS, AND DIMENSIONS BEFORE PROCEEDING WITH WORK OF THIS SECTION.

3.2 PREPARATION

(A) FORMWORK: COMPLY WITH REQUIREMENTS OF ACI 301. DESIGN AND FABRICATE FORMS TO SUPPORT ALL APPLIED LOADS UNTIL CONCRETE IS CURED, AND FOR EASY REMOVAL WITHOUT DAMAGE TO CONCRETE.

(B) VERIFY THAT FORMS ARE CLEAN AND FREE OF RUST BEFORE APPLYING RELEASE AGENT.

(C) COORDINATE PLACEMENT OF EMBEDDED ITEMS WITH ERECTION OF CONCRETE FORMWORK AND PLACEMENT OF FORM ACCESSORIES.

(D) WHERE NEW CONCRETE IS TO BE BONDED TO PREVIOUSLY PLACED CONCRETE, PREPARE EXISTING SURFACE BY CLEANING AND APPLYING BONDING AGENT IN ACCORDING TO BONDING AGENT MANUFACTURER'S INSTRUCTIONS.

1. USE EPOXY BONDING SYSTEM FOR BONDING TO DAMP SURFACES, FOR STRUCTURAL LOAD-BEARING APPLICATIONS, AND WHERE CURING UNDER HUMID CONDITIONS IS REQUIRED.

2. USE LATEX BONDING AGENT ONLY FOR NON-LOAD-BEARING APPLICATIONS.

(E) WHERE NEW CONCRETE WITH INTEGRAL WATERPROOFING IS TO BE BONDED TO PREVIOUSLY PLACED CONCRETE, PREPARE SURFACES TO BE TREATED IN ACCORDANCE WITH WATERPROOFING MANUFACTURER'S INSTRUCTIONS. SATURATE COLD JOINT SURFACE WITH CLEAN WATER, AND REMOVE EXCESS WATER BEFORE APPLICATION OF COAT OF WATERPROOFING ADMIXTURE SLURRY. APPLY SLURRY COAT UNIFORMLY WITH SEMI-STIFF BRISTLE BRUSH AT RATE RECOMMENDED BY WATERPROOFING MANUFACTURER.

(F) INTERIOR SLABS ON GRADE: INSTALL VAPOR RETARDER UNDER INTERIOR SLABS ON GRADE. LAP JOINTS MINIMUM 6 INCHES. SEAL JOINTS, SEAMS AND PENETRATIONS WATERTIGHT WITH MANUFACTURER'S RECOMMENDED PRODUCTS AND FOLLOW MANUFACTURER'S WRITTEN INSTRUCTIONS. REPAIR DAMAGED VAPOR RETARDER BEFORE COVERING.

1. GRANULAR FILL OVER VAPOR RETARDER: COVER VAPOR RETARDER WITH COMPACTIBLE GRANULAR FILL AS INDICATED ON DRAWINGS. DO NOT USE SAND.

2. VAPOR RETARDER OVER GRANULAR FILL: INSTALL COMPACTIBLE GRANULAR FILL BEFORE PLACING VAPOR RETARDER AS INDICATED ON DRAWINGS. DO NOT USE SAND.

3.3 PLACING CONCRETE

(A) PLACE CONCRETE IN ACCORDANCE WITH ACI 304R.

(B) PLACE CONCRETE FOR FLOOR SLABS IN ACCORDANCE WITH ACI 302.1R.

(C) NOTIFY ARCHITECT NOT LESS THAN 24 HOURS PRIOR TO COMMENCEMENT OF PLACEMENT OPERATIONS.

(D) MAINTAIN RECORDS OF CONCRETE PLACEMENT. RECORD DATE, LOCATION, QUANTITY, AIR TEMPERATURE, AND TEST SAMPLES TAKEN.

(E) ENSURE REINFORCEMENT, INSERTS, WATERSTOPS, EMBEDDED PARTS, AND FORMED CONSTRUCTION JOINT DEVICES WILL NOT BE DISTURBED DURING CONCRETE PLACEMENT.

(F) PLACE CONCRETE CONTINUOUSLY WITHOUT CONSTRUCTION (COLD) JOINTS WHEREVER POSSIBLE; WHERE CONSTRUCTION JOINTS ARE NECESSARY, BEFORE NEXT PLACEMENT PREPARE JOINT SURFACE BY REMOVING LAITANCE AND EXPOSING THE SAND AND SOUND SURFACE MORTAR, BY SANDBLASTING OR HIGH-PRESSURE WATER JETTING.

(G) FINISH FLOORS LEVEL AND FLAT, UNLESS OTHERWISE INDICATED, WITHIN THE TOLERANCES SPECIFIED BELOW.

3.4 SLAB JOINTING

(A) LOCATE JOINTS AS INDICATED ON DRAWINGS.

(B) ANCHOR JOINT FILLERS AND DEVICES TO PREVENT MOVEMENT DURING CONCRETE PLACEMENT.

(C) ISOLATION JOINTS: USE PREFORMED JOINT FILLER WITH REMOVABLE TOP SECTION FOR JOINT SEALANT, TOTAL HEIGHT EQUAL TO THICKNESS OF SLAB, SET FLUSH WITH TOP OF SLAB.

1. INSTALL WHEREVER NECESSARY TO SEPARATE SLAB FROM OTHER BUILDING MEMBERS, INCLUDING COLUMNS, WALLS, EQUIPMENT FOUNDATIONS, FOOTINGS, STAIRS, MANHOLES, SUMPS, AND DRAINS.

(D) LOAD TRANSFER CONSTRUCTION AND CONTRACTION JOINTS: INSTALL LOAD TRANSFER DEVICES AS INDICATED; SAW CUT JOINT AT SURFACE AS INDICATED FOR CONTRACTION JOINTS.

(E) SAW CUT CONTRACTION JOINTS: SAW CUT JOINTS BEFORE CONCRETE BEGINS TO COOL, WITHIN 4 TO 12 HOURS AFTER PLACING; USE 3/16 INCH THICK BLADE AND CUT AT LEAST 1 INCH DEEP BUT NOT LESS THAN ONE QUARTER (1/4) THE DEPTH OF THE SLAB.

(F) CONTRACTION JOINT DEVICES: USE PREFORMED JOINT DEVICE, WITH TOP SET FLUSH WITH TOP OF SLAB.

(G) CONSTRUCTION JOINTS: WHERE NOT OTHERWISE INDICATED, USE METAL COMBINATION SCREED AND KEY FORM, WITH REMOVABLE TOP SECTION FOR JOINT SEALANT.

3.5 FLOOR FLATNESS AND LEVELNESS TOLERANCES

(A) AN INDEPENDENT TESTING AGENCY, AS SPECIFIED IN SECTION 01 40 00, WILL INSPECT FINISHED SLABS FOR COMPLIANCE WITH SPECIFIED TOLERANCES.

(B) MAXIMUM VARIATION OF SURFACE FLATNESS:

(C) MINIMUM F(F) FLOOR FLATNESS AND F(L) FLOOR LEVELNESS VALUES:

1. EXPOSED TO VIEW AND FOOT TRAFFIC: F(F) OF 20; F(L) OF 15, ON-GRADE ONLY.

2. UNDER THICK-BED TILE: F(F) OF 20; F(L) OF 15, ON-GRADE ONLY.

3. UNDER CARPETING: F(F) OF 25; F(L) OF 20, ON-GRADE ONLY.

4. UNDER THIN RESILIENT FLOORING AND THINSET TILE: F(F) OF 35; F(L) OF 25, ON-GRADE ONLY.

(D) MEASURE F(F) FLOOR FLATNESS AND F(L) FLOOR LEVELNESS IN ACCORDANCE WITH ASTM E1155 (ASTM E1155M), WITHIN 48 HOURS AFTER SLAB INSTALLATION; REPORT BOTH COMPOSITE OVERALL VALUES AND LOCAL VALUES FOR EACH MEASURED SECTION.

(E) CORRECT THE SLAB SURFACE IF COMPOSITE OVERALL VALUE IS LESS THAN SPECIFIED AND IF LOCAL VALUE IS LESS THAN TWO-THIRDS OF SPECIFIED VALUE OR LESS THAN F(F) 13/F(L) 10.

(F) CORRECT DEFECTS BY GRINDING OR BY REMOVAL AND REPLACEMENT OF THE DEFECTIVE WORK. AREAS REQUIRING CORRECTIVE WORK WILL BE IDENTIFIED. RE-MEASURE CORRECTED AREAS BY THE SAME PROCESS.

3.6 CONCRETE FINISHING

(A) REPAIR SURFACE DEFECTS, INCLUDING TIE HOLES, IMMEDIATELY AFTER REMOVING FORMWORK.

(B) UNEXPOSED FORM FINISH: RUB DOWN OR CHIP OFF FINS OR OTHER RAISED AREAS 1/4 INCH OR MORE IN HEIGHT.

(C) EXPOSED FORM FINISH: RUB DOWN OR CHIP OFF AND SMOOTH FINS OR OTHER RAISED AREAS 1/4 INCH OR MORE IN HEIGHT. PROVIDE FINISH AS FOLLOWS:

(D) CONCRETE SLABS: FINISH TO REQUIREMENTS OF ACI 302.1R, AND AS FOLLOWS:

1. SURFACES TO RECEIVE THICK FLOOR COVERINGS: "WOOD FLOAT" AS DESCRIBED IN ACI 302.1R; THICK FLOOR COVERINGS INCLUDE QUARRY TILE, CERAMIC TILE, AND PORTLAND CEMENT TERRAZZO WITH FULL BED SETTING SYSTEM.

2. SURFACES TO RECEIVE THIN FLOOR COVERINGS: "STEEL TROWEL" AS DESCRIBED IN ACI 302.1R; THIN FLOOR COVERINGS INCLUDE CARPETING, RESILIENT FLOORING, SEAMLESS FLOORING, RESINOUS MATRIX TERRAZZO, THIN SET QUARRY TILE, AND THIN SET CERAMIC TILE.

3. DECORATIVE EXPOSED SURFACES: TROWEL AS DESCRIBED IN ACI 302.1R; USE STEEL-REINFORCED PLASTIC TROWEL BLADES INSTEAD OF STEEL BLADES TO AVOID BLACK-BURNISH MARKS; DECORATIVE EXPOSED SURFACES INCLUDE SURFACES TO BE STAINED OR DYED, PIGMENTED CONCRETE, SURFACES TO RECEIVE LIQUID HARDENERS, SURFACES TO RECEIVE DRY-SHAKE HARDENERS, SURFACES TO BE POLISHED, AND ALL OTHER EXPOSED SLAB SURFACES.

(E) IN AREAS WITH FLOOR DRAINS, MAINTAIN FLOOR ELEVATION AT WALLS; PITCH SURFACES UNIFORMLY TO DRAINS AT 1:100 NOMINAL.

3.7 CURING AND PROTECTION

(A) COMPLY WITH REQUIREMENTS OF ACI 308R. IMMEDIATELY AFTER PLACEMENT, PROTECT CONCRETE FROM PREMATURE DRYING, EXCESSIVELY HOT OR COLD TEMPERATURES, AND MECHANICAL INJURY.

(B) MAINTAIN CONCRETE WITH MINIMAL MOISTURE LOSS AT RELATIVELY CONSTANT TEMPERATURE FOR PERIOD NECESSARY FOR HYDRATION OF CEMENT AND HARDENING OF CONCRETE.

(C) FORMED SURFACES: CURE BY MOIST CURING WITH FORMS IN PLACE FOR FULL CURING PERIOD.

(D) SURFACES NOT IN CONTACT WITH FORMS:

1. SLABS AND FLOORS TO RECEIVE ADHESIVE-APPLIED FLOORING: CURING COMPOUNDS AND OTHER SURFACE COATINGS ARE USUALLY CONSIDERED UNACCEPTABLE BY FLOORING AND ADHESIVE MANUFACTURERS. IF SUCH MATERIALS MUST BE USED, EITHER OBTAIN THE APPROVAL OF THE FLOORING AND ADHESIVE MANUFACTURERS PRIOR TO USE OR REMOVE THE SURFACE COATING AFTER CURING TO FLOORING MANUFACTURER'S SATISFACTION.

2. INITIAL CURING: START AS SOON AS FREE WATER HAS DISAPPEARED AND BEFORE SURFACE IS DRY. KEEP CONTINUOUSLY MOIST FOR NOT LESS THAN THREE DAYS BY WATER PONDING, WATER-SATURATED SAND, WATER-FOG SPRAY, OR SATURATED BURLAP.

3. FINAL CURING: BEGIN AFTER INITIAL CURING BUT BEFORE SURFACE IS DRY.

3.8 FIELD QUALITY CONTROL

(A) AN INDEPENDENT TESTING AGENCY WILL PERFORM FIELD QUALITY CONTROL TESTS, AS SPECIFIED IN SECTION 01 40 00 - QUALITY REQUIREMENTS.

(B) PROVIDE FREE ACCESS TO CONCRETE OPERATIONS AT PROJECT SITE AND COOPERATE WITH APPOINTED FIRM.

(C) SUBMIT PROPOSED MIX DESIGN OF EACH CLASS OF CONCRETE TO INSPECTION AND TESTING FIRM FOR REVIEW PRIOR TO COMMENCEMENT OF CONCRETE OPERATIONS.

(D) TESTS OF CONCRETE AND CONCRETE MATERIALS MAY BE PERFORMED AT ANY TIME TO ENSURE COMPLIANCE WITH SPECIFIED REQUIREMENTS.

(E) COMPRESSIVE STRENGTH TESTS: ASTM C39/C39M, FOR EACH TEST, MOLD AND CURE THREE CONCRETE TEST CYLINDERS. OBTAIN TEST SAMPLES FOR EVERY 100 CUBIC YARDS OR LESS OF EACH CLASS OF CONCRETE PLACED.

(F) TAKE ONE ADDITIONAL TEST CYLINDER DURING COLD WEATHER CONCRETING, CURED ON JOB SITE UNDER SAME CONDITIONS AS CONCRETE IT REPRESENTS.

(G) PERFORM ONE SLUMP TEST FOR EACH SET OF TEST CYLINDERS TAKEN, FOLLOWING PROCEDURES OF ASTM C143/C143M.

(H) TESTING FOR WATER VAPOR REDUCTING ADMIXTURE TREATED SLABS.

1. MAINTAIN ALL FOUR (4) INCH CONCRETE TEST CYLINDERS FOR A MINIMUM OF ONE (1) YEAR FROM DATE OF SUBSTANTIAL COMPLETION.

2. TEST CYLINDERS AR REQUIRED BY WARRANTY OR IN ACCORDANCE WITH SUPPLIER'S RECOMMENDATIONS.

3. TEST CYLINDERS TO DEMONSTRATE THAT THE MINIMUM WATERPROOFING IS 1 X 10-8 CCM/S IN ACCORDANCE WITH ASTM D 5084.

4. FREQUENCY: TEST ONE (1) CYLINDER PER EVERY YARD POURED WITH THE COST BORNE BY THE ADMIXTURE SUPPLIER.

5. REPORT TEST RSULTS IN WRITING TO ARCHITECT, WVRA SUPPLIER, AND CONTRACTOR WITH 48 HOURS OF TESTING. TEST REPORTS SHALL CONTAIN PROJECT NAME AND NUMBER, DATE OF WVRA APPLICATION, NAME OF TESTING AGENCY, LOCATION OF CONCRETE BATCH IN WORK, CONCRETE MIX PROPORTIONS AND MATERIALS, AND WATERPROOFING CAPABILITY.

6. ADDITIONAL TESTING, AT CONTRACTOR'S EXPENSE, WILL BE PREFORMED TO DETERMINE COMPLIANCE OF REPLACED OR ADDITIONAL WORK WITH SPECIFIED REQUIREMENTS.

7. CORRECT DEFICIENCIES IN THE WORK THAT REPORTS INDICATE DO NOT COMPLY WITH THE CONTRACT DOCUMENTS.

8. REPAIR CONCRETE IN ACCORDANCE WITH OTHER DIVISION 03 SECTIONS AND AS RECOMMENDED IN MANUFACTURER'S WRITTEN INSTRUCTIONS.

3.9 DEFECTIVE CONCRETE

(A) TEST RESULTS: THE TESTING AGENCY SHALL REPORT TEST RESULTS IN WRITING TO ARCHITECT AND CONTRACTOR WITHIN 24 HOURS OF TEST.

(B) DEFECTIVE CONCRETE: CONCRETE NOT COMPLYING WITH REQUIRED LINES, DETAILS, DIMENSIONS, TOLERANCES OR SPECIFIED REQUIREMENTS.

(C) REPAIR OR REPLACEMENT OF DEFECTIVE CONCRETE WILL BE DETERMINED BY THE ARCHITECT. THE COST OF ADDITIONAL TESTING SHALL BE BORNE BY CONTRACTOR WHEN DEFECTIVE CONCRETE IS IDENTIFIED.

(D) DO NOT PATCH, FILL, TOUCH-UP, REPAIR, OR REPLACE EXPOSED CONCRETE EXCEPT UPON EXPRESS DIRECTION OF ARCHITECT FOR EACH INDIVIDUAL AREA.

3.10 PROTECTION

(A) DO NOT PERMIT TRAFFIC OVER UNPROTECTED CONCRETE FLOOR SURFACE UNTIL FULLY CURED.

END OF SECTION

SECTION 03 54 13 - GYPSUM CEMENT UNDERLAYMENT

PART 1 - GENERAL

1.1 SECTION INCLUDES

(A) LIQUID APPLIED, SELF-LEVELING FLOOR UNDERLAYMENT.

1. INSTALL OVER EXISTING AND NEW CONCRETE FLOOR DECK WITHIN AREA OF WORK SHOWN FOR HEALTH DEPARTMENT REMODEL ON THE FIRST FLOOR.

(B) PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, AND MISCELLANEOUS ACCESSORIES FOR A COMPLETE INSTALLATION.

(C) RELATED SECTIONS:

1. SECTION 03 30 30: CONCRETE

1.2 SUBMITTALS

(A) PRODUCT DATA: PROVIDE MANUFACTURER'S LITERATURE AND RECOMMENDED INSTALLATION PROCEDURES.

1.3 QUALITY ASSURANCE

(A) APPLICATOR: COMPANY SPECIALIZING IN SELF-LEVELING UNDERLAYMENT WORK APPROVED BY THE MANUFACTURER, AND USING MANUFACTURER'S APPROVED MIXING AND PUMPING EQUIPMENT..

1.4 DELIVERY, STORAGE AND HANDLING

(A) GENERAL REQUIREMENTS: MATERIALS SHALL BE DELIVERED IN THEIR ORIGINAL, UNOPENED PACKAGES, AND PROTECTED FROM EXPOSURE TO THE ELEMENTS. DAMAGED OR DETERIORATED MATERIALS SHALL BE REMOVED FROM THE PREMISES.

1.5 SITE CONDITIONS

(A) ENVIRONMENTAL REQUIREMENTS: BUILDING INTERIOR SHALL BE ENCLOSED. MAINTAIN MINIMUM AMBIENT TEMPERATURES OF 50 DEGREES F (10 DEGREES C) 24 HOURS BEFORE, DURING AND 72 HOURS AFTER INSTALLATION OF UNDERLAYMENT.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

(A) SUBJECT TO COMPLIANCE WITH REQUIREMENTS, MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED IN THE WORK INCLUDE THE FOLLOWING:

1. GYP-CRETE "DURA-CAP" FLOOR UNDERLAYMENT.

2. OTHERS AS APPROVED BY ARCHITECT.

2.2 MATERIALS

(A) GYPSUM CEMENT: FLOOR UNDERLAYMENT DURA-CAP GYPSUM CEMENT AS MANUFACTURED BY GYP-CRETE CORPORATION, HAMEL, MN.

(B) SAND AGGREGATE: SAND SHALL BE 1/8 INCH (3 MM) OR LESS, WASHED MASONRY OR PLASTER SAND, MEETING REQUIREMENTS OF GYP-CRETE CORPORATION SAND SPECIFICATION 101.

(C) MIX WATER: POTABLE, FREE FROM IMPURITIES.

(D) SUBFLOOR PRIMER: GYP-CRETE FLOOR PRIMER

(E) PRIMER: GYP-CRETE OVERSPRAY OR GYP-CRETE FLOOR PRIMER.

(F) JOINT AND CRACK FILLER: LATEX BASED.

2.3 MIXING

(A) GENERAL REQUIREMENTS: SITE MIX PROPORTIONS AND METHODS SHALL BE IN STRICT ACCORDANCE WITH PRODUCT MANUFACTURER RECOMMENDATIONS..

(B) MIX PROPORTIONS:

1. GYP-CRETE 1-4 MIX DESIGN -- THIS MIX DESIGN IS FOR NEW COMMERCIAL PROJECTS AND CONCRETE RENOVATION; IT'S EQUIVALENT TO 1.4 CUBIC FEET OF SAND PER 80 POUND BAG OF "DURA-CAP:

(C) MIX TO ACHIEVE FOLLOWING CHARACTERISTICS:

1. DENSITY: 115 LB/CU FT MINIMUM DRY DENSITY.

2. COMPRESSIVE STRENGTH: 2,500-3,000 PSI IN ACCORDANCE WITH ASTM C472.

3. FIRE HAZARD CLASSIFICATION IN ACCORDANCE WITH ASTM E286:

a. FLAME SPREAD: 0

b. FUEL CONTRIBUTED: 0

c. SMOKE DENSITY: 0

(D) MIX TO CONSISTENCY TO ACHIEVE SELF-LEVELING.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

(A) CONDITION AND CLEANING OF SUBFLOOR: SUBFLOOR SHALL BE STRUCTURALLY SOUND. GENERAL CONTRACTOR SHALL CLEAN SUBFLOOR TO REMOVE MUD, OIL, GREASE, AND OTHER CONTAMINATING FACTORS PRIOR TO INSTALLATION OF UNDERLAYMENT.

(B) LEAK PREVENTION: FILL CRACKS AND VOIDS WITH A QUICK SETTING DRYWALL PATCHING MATERIAL WHERE LEAKAGE OF UNDERLAYMENT COULD OCCUR.

(C) PRIMING SUBFLOOR: PRIME CONCRETE SUBFLOOR USING MANUFACTURER'S APPROVED PRIMER. PRIMING INSTRUCTIONS VARY ACCORDING TO THE POROSITY OF THE CONCRETE, MULTIPLE COATS MAY BE NECESSARY. ALLOW TO DRY.

(D) EXPANSION JOINTS: ALLOW JOINTS TO CONTINUE THROUGH THE UNDERLAYMENT AT THE SAME WIDTH.

3.2 APPLICATION OF CEMENTITIOUS FLOORING

(A) GENERAL: INSTALL UNDERLAYMENT AND CURE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(B) SCHEDULING: APPLICATION OF UNDERLAYMENT SHALL NOT BEGIN UNTIL THE BUILDING IS ENCLOSED, INCLUDING ROOF, WINDOWS, DOORS, AND OTHER FENESTRATION. INSTALL AFTER DRYWALL INSTALLATION UNLESS TENANT FINISH REQUIREMENTS IDENTIFY PARTITIONING AFTER THE POUR.

(C) APPLICATION: PLACE UNDERLAYMENT 3/8 INCH MINIMUM THICKNESS OVER CONCRETE. SPREAD AND SCREED UNDERLAYMENT TO A SMOOTH SURFACE. EXCEPT AT AUTHORIZED JOINTS, PLACE UNDERLAYMENT AS CONTINUOUSLY AS POSSIBLE UNTIL APPLICATION IS COMPLETE SO THAT NO UNDERLAYMENT SLURRY IS PLACED AGAINST OTHER UNDERLAYMENT THAT HAS OBTAINED ITS INITIAL SET. FEATHER-EDGING MAY BE ACCOMPLISHED ONLY IN LOW TRAFFIC AREAS.

(D) DRYING: GENERAL CONTRACTOR SHALL PROVIDE CONTINUOUS VENTILATION AND ADEQUATE HEAT TO RAPIDLY REMOVE MOISTURE FROM THE AREA UNTIL THE UNDERLAYMENT IS DRY. GENERAL CONTRACTOR SHALL PROVIDE MECHANICAL VENTILATION IF NECESSARY. UNDER THE ABOVE CONDITIONS, FOR 3/4 INCH THICK UNDERLAYMENT, 5-7 DAYS IS USUALLY ADEQUATE DRYING TIME. TO TEST FOR DRYNESS, TAPE A 24 INCH BY 24 INCH SECTION OF PLASTIC TO THE SURFACE OF THE UNDERLAYMENT. AFTER 48-72 HOURS, IF NO CONDENSATION OCCURS, THE UNDERLAYMENT SHALL BE CONSIDERED DRY. PERFORM DRYNESS TEST 5-7 DAYS AFTER POUR.

(E) MAINTAIN TOP SURFACE LEVEL TO 1/8 INCH IN 10 FT.

3.3 PREPARATION FOR INSTALLATION OF GLUE DOWN FLOOR GOODS

(A) PRIMING: PRIME ALL AREAS THAT RECEIVE GLUE DOWN FLOOR GOODS ACCORDING TO THE UNDERLAYMENT MANUFACTURER'S SPECIFICATIONS. ANY FLOOR AREAS WHERE THE SURFACE HAS BEEN DAMAGED OR DUSTING SHALL BE CLEANED AND PRIMED REGARDLESS OF FLOOR COVERING TO BE USED. USE PRIMER APPROVED BY UNDERLAYMENT MANUFACTURER TO PRIME THE UNDERLAYMENT PRIOR TO INSTALLATION OF GLUE DOWN FLOOR GOODS. WHERE FLOOR GOODS MANUFACTURERS REQUIRE SPECIAL ADHESIVE OR INSTALLATION SYSTEMS, THEIR REQUIREMENTS SUPERSEDE THESE RECOMMENDATIONS.

(B) FLOOR GOODS PROCEDURES: SEE THE GYP-CRETE CORPORATION'S "PROCEDURES FOR ATTACHING FINISHED FLOOR GOODS TO GYP-CRETE UNDERLAYMENTS" BROCHURE FOR GUIDELINES FOR INSTALLING FINISHED FLOOR GOODS. THIS PROCEDURE IS NOT A WARRANTY AND IS TO BE USED AS A GUIDELINE ONLY.

3.4 FIELD QUALITY CONTROL

(A) CONTRACTOR SHALL APPOINT, EMPLOY, AND PAY FOR SERVICES OF AN INDEPENDENT FIRM(S) TO PERFORM INSPECTION AND TESTING, AS DEFINED IN SECTION 01001.

(B) TESTS WILL INCLUDE THE FOLLOWING:

1. SLUMP TEST: UNDERLAYMENT MIX SHALL BE TESTED FOR SLUMP AS IT'S BEING PUMPED USING A 2 INCH BY 4 INCH CYLINDER RESULTING IN A PATTY SIZE OF 8 INCHES PLUS OR MINUS 1 INCH DIAMETER.

2. FIELD SAMPLES: AT LEAST ONE SET OF 3 MOLDED CUBE SAMPLES SHALL BE TAKEN FROM EACH DAY'S POUR DURING THE DURA-CAP APPLICATION. CUBES SHALL BE TESTED AS RECOMMENDED BY THE MANUFACTURER IN ACCORDANCE WITH ASTM C 472. TEST RESULTS SHALL BE AVAILABLE TO ARCHITECT AND/OR CONTRACTOR UPON REQUEST FROM APPLICATOR.

3.5 PROTECTION

(A) PROTECTION FROM HEAVY LOADS: DURING CONSTRUCTION, PLACE TEMPORARY WOOD PLANKING OVER UNDERLAYMENT WHEREVER IT WILL BE SUBJECT TO HEAVY WHEELED OR CONCENTRATED LOADS.

3.6 CLEANING

(A) CLEAN ADJACENT FINISH SURFACES AND EQUIPMENT OF EXCESS UNDERLAYMENT AND OTHER CONSTRUCTION DEBRIS PRIOR TO SUBSTANTIAL COMPLETION.

END OF SECTION

SECTION 04 05 11 - MORTAR AND MASONRY GROUT

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) MORTAR FOR MASONRY.

(B) GROUT FOR MASONRY.

1.2 RELATED REQUIREMENTS

(A) SECTION 04 20 00 - UNIT MASONRY: INSTALLATION OF MORTAR AND GROUT.

(B) SECTION 04 43 13 - STONE MASONRY VENEER: INSTALLATION OF MORTAR.

(C) SECTION 04 72 00 - CAST STONE MASONRY: INSTALLATION OF MORTAR.

(D) SECTION 08 12 13 - HOLLOW METAL FRAMES: PRODUCTS AND EXECUTION FOR GROUTING STEEL DOOR FRAMES INSTALLED IN MASONRY.

1.3 REFERENCE STANDARDS

(A) TMS 402/602 - BUILDING CODE REQUIREMENTS AND SPECIFICATION FOR MASONRY STRUCTURES; 2016.

(B) ASTM C91/C91M - STANDARD SPECIFICATION FOR MASONRY CEMENT; 2012.

(C) ASTM C94/C94M - STANDARD SPECIFICATION FOR READY-MIXED CONCRETE; 2017A.

(D) ASTM C150/C150M - STANDARD SPECIFICATION FOR PORTLAND CEMENT; 2017.

(E) ASTM C207 - STANDARD SPECIFICATION FOR HYDRATED LIME FOR MASONRY PURPOSES; 2006 (REAPPROVED 2011).

(F) ASTM C270 - STANDARD SPECIFICATION FOR MORTAR FOR UNIT MASONRY; 2014A.

(G) ASTM C387/C387M - STANDARD SPECIFICATION FOR PACKAGED, DRY, COMBINED MATERIALS FOR CONCRETE AND HIGH STRENGTH MORTAR; 2015.

(H) ASTM C404 - STANDARD SPECIFICATION FOR AGGREGATES FOR MASONRY GROUT; 2011.

(I) ASTM C476 - STANDARD SPECIFICATION FOR GROUT FOR MASONRY; 2016.

(J) ASTM C780 - STANDARD TEST METHOD FOR PRECONSTRUCTION AND CONSTRUCTION EVALUATION OF MORTARS FOR PLAIN AND REINFORCED UNIT MASONRY; 2017.

(K) ASTM C979/C979M - STANDARD SPECIFICATION FOR PIGMENTS FOR INTEGRALLY COLORED CONCRETE; 2016.

(L) ASTM C1019 - STANDARD TEST METHOD FOR SAMPLING AND TESTING GROUT; 2016.

(M) ASTM C1072 - STANDARD TEST METHOD FOR MEASUREMENT OF MASONRY FLEXURAL BOND STRENGTH; 2013, WITH EDITORIAL REVISION (2014).

(N) ASTM C1142 - STANDARD SPECIFICATION FOR EXTENDED LIFE MORTAR FOR UNIT MASONRY; 1995 (REAPPROVED 2013).

(O) ASTM C1148 - STANDARD TEST METHOD FOR MEASURING THE DRYING SHRINKAGE OF MASONRY MORTAR; 1992A (REAPPROVED 2014).

(P) ASTM C1314 - STANDARD TEST METHOD FOR COMPRESSIVE STRENGTH OF MASONRY PRISMS; 2016.

(Q) ASTM E514/E514M - STANDARD TEST METHOD FOR WATER PENETRATION AND LEAKAGE THROUGH MASONRY; 2014A.

(R) ASTM E518/E518M - STANDARD TEST METHODS FOR FLEXURAL BOND STRENGTH OF MASONRY; 2015.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: INCLUDE DESIGN MIX AND INDICATE WHETHER THE PROPORTION OR PROPERTY SPECIFICATION OF ASTM C270 IS TO BE USED. ALSO INCLUDE REQUIRED ENVIRONMENTAL CONDITIONS AND ADMIXTURE LIMITATIONS.

(C) SAMPLES: SUBMIT TWO SAMPLES OF MORTAR, ILLUSTRATING MORTAR COLOR AND COLOR RANGE.

(D) REPORTS: SUBMIT REPORTS ON MORTAR INDICATING COMPLIANCE OF MORTAR TO PROPERTY REQUIREMENTS OF ASTM C270 AND TEST AND EVALUATION REPORTS PER ASTM C780.

(E) REPORTS: SUBMIT REPORTS ON GROUT INDICATING COMPLIANCE OF COMPONENT GROUT MATERIALS TO REQUIREMENTS OF ASTM C476 AND TEST AND EVALUATION REPORTS TO REQUIREMENTS OF ASTM C1019.

(F) MANUFACTURER'S CERTIFICATE: CERTIFY THAT PRODUCTS MEET OR EXCEED SPECIFIED REQUIREMENTS.

(G) MANUFACTURER'S INSTALLATION INSTRUCTIONS: SUBMIT PACKAGED DRY MORTAR MANUFACTURER'S INSTALLATION INSTRUCTIONS.

(H) DESIGN MIXTURES: FOR EACH GROUT MIXTURE TO CONFORM TO ASTM C 476.

(I) TESTING AGENT: SUBMIT TESTING AGENT'S CERTICATION DOCUMENTATION.

1.5 QUALITY ASSURANCE

(A) COMPLY WITH PROVISIONS OF TMS 402/602, EXCEPT WHERE EXCEEDED BY REQUIREMENTS OF THE CONTRACT DOCUMENTS.

1. MAINTAIN ONE COPY OF EACH DOCUMENT ON PROJECT SITE.

1.6 DELIVERY, STORAGE, AND HANDLING

(A) MAINTAIN PACKAGED MATERIALS CLEAN, DRY, AND PROTECTED AGAINST DAMPNESS, FREEZING, AND FOREIGN MATTER.

1.7 FIELD CONDITIONS

(A) COLD AND HOT WEATHER REQUIREMENTS: COMPLY WITH REQUIREMENTS OF TMS 402/602 OR APPLICABLE BUILDING CODE, WHICHEVER IS MORE STRINGENT.

(B) MAINTAIN MATERIALS AND SURROUNDING AIR TEMPERATURE TO MINIMUM 40 DEGREES F PRIOR TO, DURING, AND 48 HOURS AFTER COMPLETION OF MASONRY WORK.

(C) MAINTAIN MATERIALS AND SURROUNDING AIR TEMPERATURE TO MAXIMUM 90 DEGREES F PRIOR TO, DURING, AND 48 HOURS AFTER COMPLETION OF MASONRY WORK.

PART 2 PRODUCTS

2.1 MORTAR AND GROUT APPLICATIONS

(A) AT CONTRACTOR'S OPTION, MORTAR AND GROUT MAY BE FIELD-MIXED FROM PACKAGED DRY MATERIALS, MADE FROM FACTORY PREMIXED DRY MATERIALS WITH ADDITION OF WATER ONLY, OR READY-MIXED.

(B) USE ONLY FACTORY PREMIXED PACKAGED DRY MATERIALS FOR MORTAR AND GROUT, WITH ADDITION OF WATER ONLY AT PROJECT SITE.

1. EXCEPTION: IF A SPECIFIED MIX DESIGN IS NOT AVAILABLE IN A PREMIXED DRY PACKAGE, PROVIDE EQUIVALENT MIX DESIGN USING STANDARD NON-PREMIXED MATERIALS.

(C) MORTAR COLOR: NATURAL GRAY UNLESS OTHERWISE INDICATED.

(D) MORTAR MIX DESIGNS: ASTM C270, PROPERTY SPECIFICATION.

1. MASONRY BELOW GRADE AND IN CONTACT WITH EARTH: TYPE S.

2. EXTERIOR MASONRY VENEER: TYPE N.

3. EXTERIOR CAVITY WALLS: TYPE S MORTAR WITH TYPE N POINTING MORTAR.

4. EXTERIOR, NON-LOADBEARING MASONRY: TYPE N.

5. INTERIOR, LOADBEARING MASONRY: TYPE N.

6. INTERIOR, NON-LOADBEARING MASONRY: TYPE O.

2.2 MATERIALS

(A) PACKAGED DRY MATERIAL FOR MORTAR FOR UNIT MASONRY: PREMIXED PORTLAND CEMENT, HYDRATED LIME, AND SAND; COMPLYING WITH ASTM C387/C387M AND CAPABLE OF PRODUCING

MORTAR OF THE SPECIFIED STRENGTH IN ACCORDANCE WITH ASTM C270 WITH THE ADDITION OF WATER ONLY.

1. TYPE: TYPE N AND S.

2. COLOR: STANDARD GRAY.

3. WATER REPELLENT MORTAR FOR USE WITH WATER REPELLENT MASONRY UNITS.

4. MANUFACTURERS:

   a. AMERIMIX, AN OLDCASTLE BRAND; AMX 400: WWW.AMERIMIX.COM/#SLE.

   b. AMERIMIX, AN OLDCASTLE BRAND; AMX 410: WWW.AMERIMIX.COM/#SLE.

   c. SUBSTITUTIONS: OR APPROVED EQUAL.

   d. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS

(B) PACKAGED DRY MATERIAL FOR MORTAR FOR UNIT MASONRY: PREMIXED MASONRY CEMENT AND MASON'S SAND; COMPLYING WITH ASTM C387/C387M AND CAPABLE OF PRODUCING MORTAR OF THE SPECIFIED STRENGTH IN ACCORDANCE WITH ASTM C270 WITH THE ADDITION OF WATER ONLY.

1. TYPE: TYPE N AND TYPE S.

2. COLOR: STANDARD GRAY.

3. WATER REPELLENT MORTAR FOR USE WITH WATER REPELLENT MASONRY UNITS.

4. MANUFACTURERS:

   a. AMERIMIX, AN OLDCASTLE BRAND; AMX 500: WWW.AMERIMIX.COM/#SLE.

   b. AMERIMIX, AN OLDCASTLE BRAND; AMX 510: WWW.AMERIMIX.COM/#SLE.

   c. THE QUIKRETE COMPANIES; QUICKRETE

   d. SUBSTITUTIONS: OR APPROVED EQUAL.

   e. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(C) PACKAGED DRY MATERIAL FOR GROUT FOR MASONRY: PREMIXED CEMENTITIOUS MATERIALS AND DRIED AGGREGATES; CAPABLE OF PRODUCING GROUT OF THE SPECIFIED STRENGTH IN ACCORDANCE WITH ASTM C476 WITH THE ADDITION OF WATER ONLY.

1. TYPE: FINE AND COURSE.

2. MANUFACTURERS:

   a. AMERIMIX, AN OLDCASTLE BRAND; AMX 600: WWW.AMERIMIX.COM/#SLE.

   b. SUBSTITUTIONS: OR APPROVED EQUAL..

   c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(D) WATER: CLEAN AND POTABLE.

2.3 MORTAR MIXING

(A) READY MIXED MORTAR: ASTM C1142, TYPE EQUIVALENT TO THAT SPECIFIED ACCORDING TO ASTM C270.

(B) THOROUGHLY MIX MORTAR INGREDIENTS USING MECHANICAL BATCH MIXER, IN ACCORDANCE WITH ASTM C270 AND IN QUANTITIES NEEDED FOR IMMEDIATE USE.

(C) MAINTAIN SAND UNIFORMLY DAMP IMMEDIATELY BEFORE THE MIXING PROCESS.

(D) DO NOT USE ANTI-FREEZE COMPOUNDS TO LOWER THE FREEZING POINT OF MORTAR.

(E) IF WATER IS LOST BY EVAPORATION, RE-TEMPER ONLY WITHIN TWO HOURS OF MIXING.

2.4 GROUT MIXING

(A) MIX GROUT IN ACCORDANCE WITH ASTM C94/C94M.

(B) THOROUGHLY MIX GROUT INGREDIENTS IN QUANTITIES NEEDED FOR IMMEDIATE USE IN ACCORDANCE WITH ASTM C476 FOR FINE AND COARSE GROUT.

(C) ADD ADMIXTURES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS; MIX UNIFORMLY.

(D) DO NOT USE ANTI-FREEZE COMPOUNDS TO LOWER THE FREEZING POINT OF GROUT.

2.5 PRECONSTRUCTION TESTING

(A) TESTING WILL BE CONDUCTED BY AN INDEPENDENT TEST AGENCY, IN ACCORDANCE WITH PROVISIONS OF SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) MORTAR MIXES: TEST MORTARS PREBATCHED BY WEIGHT IN ACCORDANCE WITH ASTM C780 RECOMMENDATIONS FOR PRECONSTRUCTION TESTING.

1. TEST RESULTS WILL BE USED TO ESTABLISH OPTIMUM MORTAR PROPORTIONS AND ESTABLISH QUALITY CONTROL VALUES FOR CONSTRUCTION TESTING.

(C) GROUT MIXES: TEST GROUT BATCHES IN ACCORDANCE WITH ASTM C1019 PROCEDURES.

1. TEST RESULTS WILL BE USED TO ESTABLISH OPTIMUM GROUT PROPORTIONS AND ESTABLISH QUALITY CONTROL VALUES FOR CONSTRUCTION TESTING.

PART 3 EXECUTION

3.1 PREPARATION

(A) APPLY BONDING AGENT TO EXISTING CONCRETE SURFACES.

3.2 INSTALLATION

(A) INSTALL MORTAR AND GROUT TO REQUIREMENTS OF SECTION(S) IN WHICH MASONRY IS SPECIFIED.

3.3 FIELD QUALITY CONTROL

(A) AN INDEPENDENT TESTING AGENCY WILL PERFORM FIELD TESTS, IN ACCORDANCE WITH PROVISIONS OF SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) TEST AND EVALUATE MORTAR IN ACCORDANCE WITH ASTM C780 PROCEDURES.

1. TEST WITH SAME FREQUENCY AS SPECIFIED FOR MASONRY UNITS.

(C) TEST AND EVALUATE GROUT IN ACCORDANCE WITH ASTM C1019 PROCEDURES.

1. TEST WITH SAME FREQUENCY AS SPECIFIED FOR MASONRY UNITS.

2. TEST FREQUENCY: ONE (1) TEST FOR EACH TYPE OF GROUT AND EACH 5,000 SQUARE FEET OF WALL AREA..

a. PROVIDE A MINIMIMUM OF THREE (3) TEST.

(D) PRISM TESTS: TEST MASONRY AND MORTAR PANELS FOR COMPRESSIVE STRENGTH IN ACCORDANCE WITH ASTM C1314, AND FOR FLEXURAL BOND STRENGTH IN ACCORDANCE WITH ASTM C1072 OR ASTM E518/E518M; PERFORM TESTS AND EVALUATE RESULTS AS SPECIFIED IN INDIVIDUAL MASONRY SECTIONS.

(E) THE CONTRACTOR SHALL FOLLOW AND IMPLEMENT THE SPECIAL INSPECTIONS AND QUALITY ASSURANCE PLANS AS INDICTED ON THE CONTRACT DRAWINGS.

END OF SECTION

SECTION 04 20 00 - UNIT MASONRY

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) CONCRETE BLOCK.

(B) COMMON BRICK.

(C) MORTAR AND GROUT.

(D) REINFORCEMENT AND ANCHORAGE.

(E) FLASHINGS.

(F) LINTELS.

(G) ACCESSORIES.

1.2 RELATED REQUIREMENTS

(A) SECTION 04 05 11 - MORTAR AND MASONRY GROUT.

(B) SECTION 07 21 00 - THERMAL INSULATION: INSULATION FOR CAVITY SPACES.

(C) SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM: THROUGH-WALL MASONRY FLASHINGS.

(D) SECTION 07 84 00 - FIRESTOPPING: FIRESTOPPING AT PENETRATIONS OF FIRE-RATED MASONRY AND AT TOP OF FIRE-RATED WALLS.

(E) SECTION 07 92 00 - JOINT SEALANTS: BACKING ROD AND SEALANT CONTROL AND EXPANSION JOINTS.

(F) SECTION 09 91 00 - PAINTING AND COATING: PAINT FINISH FOR INTERIOR CMU WALLS.

1.3 REFERENCE STANDARDS

(A) TMS 402/602 - BUILDING CODE REQUIREMENTS AND SPECIFICATION FOR MASONRY STRUCTURES; 2016.

(B) ASTM A153/A153M - STANDARD SPECIFICATION FOR ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE; 2016A.

(C) ASTM A615/A615M - STANDARD SPECIFICATION FOR DEFORMED AND PLAIN CARBON-STEEL BARS FOR CONCRETE REINFORCEMENT; 2016.

(D) ASTM A641/A641M - STANDARD SPECIFICATION FOR ZINC-COATED (GALVANIZED) CARBON STEEL WIRE; 2009A (REAPPROVED 2014).

(E) ASTM A653/A653M - STANDARD SPECIFICATION FOR STEEL SHEET, ZINC-COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT-DIP PROCESS; 2015, WITH EDITORIAL REVISION (2016).

(F) ASTM A1064/A1064M - STANDARD SPECIFICATION FOR CARBON-STEEL WIRE AND WELDED WIRE REINFORCEMENT, PLAIN AND DEFORMED, FOR CONCRETE; 2017.

(G) ASTM C67/C67M - STANDARD TEST METHODS FOR SAMPLING AND TESTING BRICK AND STRUCTURAL CLAY TILE; 2018.

(H) ASTM C67 - STANDARD TEST METHODS FOR SAMPLING AND TESTING BRICK AND STRUCTURAL CLAY TILE; 2017.

(I) ASTM C90 - STANDARD SPECIFICATION FOR LOADBEARING CONCRETE MASONRY UNITS; 2016A.

(J) ASTM C207 - STANDARD SPECIFICATION FOR HYDRATED LIME FOR MASONRY PURPOSES; 2006 (REAPPROVED 2011).

(K) ASTM C216 - STANDARD SPECIFICATION FOR FACING BRICK (SOLID MASONRY UNITS MADE FROM CLAY OR SHALE); 2017A.

(L) ASTM C270 - STANDARD SPECIFICATION FOR MORTAR FOR UNIT MASONRY; 2014A.

(M) ASTM C404 - STANDARD SPECIFICATION FOR AGGREGATES FOR MASONRY GROUT; 2011.

(N) ASTM C476 - STANDARD SPECIFICATION FOR GROUT FOR MASONRY; 2016.

(O) ASTM C1714/C1714M - STANDARD SPECIFICATION FOR PREBLENDED DRY MORTAR MIX FOR UNIT MASONRY; 2016.

(P) BIA TECHNICAL NOTES NO. 7 - WATER PENETRATION RESISTANCE – DESIGN AND DETAILING; 2005.

(Q) TMS 402/602 - BUILDING CODE REQUIREMENTS AND SPECIFICATION FOR MASONRY STRUCTURES; 2016.

(R) UL (FRD) - FIRE RESISTANCE DIRECTORY; CURRENT EDITION.

1.4 ADMINISTRATIVE REQUIREMENTS

(A) PREINSTALLATION MEETING: CONVENE A PREINSTALLATION MEETING ONE WEEK BEFORE STARTING WORK OF THIS SECTION; REQUIRE ATTENDANCE BY ALL RELEVANT INSTALLERS.

1.5 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: PROVIDE DATA FOR MASONRY UNITS, FABRICATED WIRE REINFORCEMENT, MORTAR, AND MASONRY ACCESSORIES.

(C) SAMPLES: SUBMIT FOUR SAMPLES OF DECORATIVE BLOCK UNITS TO ILLUSTRATE COLOR, TEXTURE, AND EXTREMES OF COLOR RANGE.

(D) MANUFACTURER'S CERTIFICATE: CERTIFY THAT MASONRY UNITS MEET OR EXCEED SPECIFIED REQUIREMENTS.

1.6 QUALITY ASSURANCE

(A) COMPLY WITH PROVISIONS OF TMS 402/602, EXCEPT WHERE EXCEEDED BY REQUIREMENTS OF THE CONTRACT DOCUMENTS.

(B) FIRE RATED ASSEMBLIES: COMPLY WITH APPLICABLE CODE FOR UL (FRD) ASSEMBLY NO. U937.

(C) MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE TYPE OF PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM THREE YEARS OF DOCUMENTED EXPERIENCE.

(D) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING WORK OF THE TYPE SPECIFIED AND WITH AT LEAST THREE YEARS OF DOCUMENTED EXPERIENCE.

(E) SPECIAL INSPECTIONS AND QUALITY ASSURANCE- THE CONSTRCUTION MANAGER AND TRADE CONTRACTOR SHALLFOLLOW THE SPACIAL INSPECTION AND QUALITY ASSURANCE INDICTED IN THE 2012 INTERNATIONAL BUILDING CODE, AND THE DRAWINGS.

1.7 MOCK-UP

(A) CONSTRUCT A MASONRY WALL AS A MOCK-UP PANEL SIZED 8 FEET LONG BY 6 FEET HIGH; INCLUDE MORTAR, ACCESSORIES, STRUCTURAL BACKUP, AND FLASHINGS (WITH LAP JOINT, CORNER, AND END DAM) IN MOCK-UP.

(B) MOCK-UP MAY REMAIN AS PART OF THE WORK WITH PERMISSION OF ARCHITECT.

1.8 PRE-INSTALLATION MEETING

(A) CONVENE ONE WEEK BEFORE STARING WORK OF THIS SECTION.

1.9 DELIVERY, STORAGE, AND HANDLING

(A) DELIVER, HANDLE, AND STORE MASONRY UNITS BY MEANS THAT WILL PREVENT MECHANICAL DAMAGE AND CONTAMINATION BY OTHER MATERIALS.

(B) HANDLE AND STORE CERAMIC GLAZED MASONRY UNITS IN PROTECTIVE CARTONS OR TRAYS. DO NOT REMOVE FROM PROTECTIVE PACKAGING UNTIL READY FOR INSTALLATION.

(C) CONTRACTOR SHALL SUFFICIENTLY EXAMINE ALLOF THESE MATERIAL BEFORE ALLOWING THEM TO BE STORED ON SITE. IF DEFECTIVE, DAMAGED, OR NOT IBN COMPLIANCE WITH GRADING SPECIFIED, HE SHALL PROMPLY REJECT THEM AND ORDER REPLACEMENTS.

(D) MASONRY MATERIAL MUST BE STORED ON SITE SO AS TO NOT BE IN CONTACT WITH EARTH. FACE BRICK AND CONCRETE BLOCK MUST BE COVERED WITH CANVAS, WATERPROOF BUILDING PAPER OR PLASTIC, SO AS TO NOT ALLOW MATERIAL TO ABSORB MOISTURE PROIR TO BEING LAID IN WALLS.

(E) THE TOP OR OTHER OPEN SURFACES OF THE WALLS AND PIERS SHALL BE PROTECTED WITH BOARDS AT ALL TIMES WHEN WORK IS NOT IN PROGRESS AND SHALL ALSO BE COVERED WITH CANVAS DURING STORMY OR DAMP WEATHER AND IN CASE OF DELAY. ALSO PROPERLY PROTECT WITH BOARDS, EXPOSED CORNERS AND ANGLES OF FACE OTER BRICK WORK DURING CONSTRUCTION.

1.10 ENVIRONMENTAL REQUIREMENTS

(A) COLD AND HOT WEATHER REQUIREMENTS: COMPLY WITH REQUIREMENTS OF ACI 530.1/ASCE 6/TMS 60-2 OR APPLICABLE BULDING CODE, WHICHEVER IS MORE STRINGENT.

PART 2 PRODUCTS

2.1 MORTAR AND GROUT MATERIALS

(A) MORTAR AND GROUT: AS SPECIFIED IN SECTION 04 05 11.

(B) HYDRATED LIME: ASTM C207, TYPE S.

(C) GROUT AGGREGATE: ASTM C404.

(D) WATER: CLEAN AND POTABLE.

(E) ACCELERATING ADMIXTURE: NONCHLORIDE TYPE FOR USE IN COLD WEATHER.

(F) INTEGRAL WATER REPELLENT ADMIXTURE FOR MORTAR: POLYMERIC LIQUID ADMIXTURE ADDED TO MORTAR AT THE TIME OF MANUFACTURE.

1. USE ONLY IN COMBINATION WITH MASONRY UNITS MANUFACTURED WITH INTEGRAL WATER REPELLENT ADMIXTURE.

2. USE ONLY WATER REPELLENT ADMIXTURE FOR MORTAR FROM THE SAME MANUFACTURER AS WATER REPELLENT ADMIXTURE IN MASONRY UNITS.

3. MEET OR EXCEED PERFORMANCE SPECIFIED FOR WATER REPELLENT ADMIXTURE USED IN MASONRY UNITS.

(G) PACKAGED DRY MATERIAL FOR MORTAR FOR UNIT MASONRY: PREMIXED MASONRY CEMENT AND MASON'S SAND; COMPLYING WITH ASTM C1714/C1714M AND CAPABLE OF PRODUCING MORTAR OF THE SPECIFIED STRENGTH IN ACCORDANCE WITH ASTM C270 WITH THE ADDITION OF WATER ONLY.

1. COLOR: STANDARD GRAY.

2. WATER-REPELLENT MORTAR FOR USE WITH WATER-REPELLENT MASONRY UNITS.

3. MANUFACTURERS:

a. AMERIMIX, AN OLDCASTLE BRAND; AMX 500: WWW.AMERIMIX.COM/#SLE.

b. THE QUIKRETE COMPANIES; QUIKRETE® MASON MIX: WWW.QUIKRETE.COM/#SLE.

2.2 REINFORCEMENT AND ANCHORAGE

(A) MANUFACTURERS:

1. BLOK-LOK LIMITED; WWW.BLOK-LOK.COM/#SLE.

2. HOHMANN & BARNARD, INC; X-SEAL ANCHOR: WWW.H-B.COM/#SLE.

3. WIRE-BOND; WWW.WIREBOND.COM/#SLE.

4. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) REINFORCING STEEL: ASTM A615/A615M, GRADE 460 (640,000 PSI), DEFORMED BILLET BARS; GALVANIZED.

(C) SINGLE WYTHE JOINT REINFORCEMENT: TRUSS OR LADDER TYPE; ASTM A1064/A1064M STEEL WIRE, MILL GALVANIZED TO ASTM A641/A641M, CLASS 3; 0.1483 INCH SIDE RODS WITH 0.1483 INCH CROSS RODS; WIDTH AS REQUIRED TO PROVIDE NOT MORE THAN 1 INCH AND NOT LESS THAN 1/2 INCH OF MORTAR COVERAGE ON EACH EXPOSURE.

(D) ADJUSTABLE MULTIPLE WYTHE JOINT REINFORCEMENT: TRUSS TYPE WITH ADJUSTABLE TIES OR TABS SPACED AT 16 IN ON CENTER AND FABRICATED WITH MOISTURE DRIP; ASTM A1064/A1064M STEEL WIRE, HOT DIP GALVANIZED AFTER FABRICATION TO ASTM A153/153M, CLASS B; 0.1875 INCH SIDE RODS WITH 0.1483 INCH CROSS RODS AND ADJUSTABLE COMPONENTS OF 0.1875 INCH WIRE; WIDTH OF COMPONENTS AS REQUIRED TO PROVIDE NOT MORE THAN 1 INCH AND NOT LESS THAN 1/2 INCH OF MORTAR COVERAGE FROM EACH MASONRY FACE.

1. VERTICAL ADJUSTMENT: NOT LESS THAN 2 INCHES.

2. SEISMIC FEATURE: PROVIDE LIP, HOOK, OR CLIP ON EXTENDED LEG OF WALL TIES TO ENGAGE OR ENCLOSE NOT LESS THAN ONE CONTINUOUS HORIZONTAL JOINT REINFORCEMENT WIRE OF 0.1483 INCH DIAMETER.

3. INSULATION CLIPS: PROVIDE CLIPS AT TABS OR TIES DESIGNED TO SECURE INSULATION AGAINST OUTER FACE OF INNER WYTHE OF MASONRY.

4. EQUAL TO SERIES 700 TRUSS ADJUSTABLE TAB" AS MANUFACTURERED BY WIRE-BOND OR OTHERS AS APPROVED BY ACHITECT.

5. FURNISH WITH PREFAB CORNERS AND TEES"

(E) STRAP ANCHORS: BENT STEEL SHAPES, 1-1/2 INCH WIDTH, 0.105 INCH THICK, 24 INCH LENGTH, WITH 1-1/2 INCH LONG, 90 DEGREE BEND AT EACH END TO FORM A U OR Z SHAPE OR WITH CROSS PINS, HOT DIP GALVANIZED TO ASTM A153/A153M, CLASS B.

(F) FLEXIBLE ANCHORS: 2-PIECE ANCHORS THAT PERMIT DIFFERENTIAL MOVEMENT BETWEEN MASONRY AND BUILDING FRAME, SIZED TO PROVIDE NOT LESS THAN 5/8 INCH OF MORTAR COVERAGE FROM MASONRY FACE.

(G) RESIDENTIAL WALL TIES: CORRUGATED FORMED SHEET METAL, 7/8 INCH WIDE BY 0.05 INCH THICK, HOT DIP GALVANIZED TO ASTM A 153/A 153M, CLASS B, SIZED TO EXTEND AT LEAST 1-1/2 INCHES INTO THE VENEER WITH AT LEAST 5/8 INCH OF MORTAR COVERAGE FROM MASONRY FACE.

(H) TWO-PIECE WALL TIES: FORMED STEEL WIRE, 0.1875 INCH THICK, ADJUSTABLE, EYE AND PINTLE TYPE, HOT DIP GALVANIZED TO ASTM A 153/A 153M, CLASS B, SIZED TO PROVIDE NOT LESS THAN 5/8 INCH OF MORTAR COVERAGE FROM MASONRY FACE AND TO ALLOW VERTICAL ADJUSTMENT OF UP TO 1-1/4 IN.

2.3 FLASHINGS

(A) METAL FLASHING MATERIALS: COPPER, AS SPECIFIED IN SECTION 07 62 00.

(B) COPPER/POLYMER FABRIC FLASHING: 5 OZ/SQ FT COPPER SHEET LAMINATED BETWEEN TWO SHEETS OF POLYMER OR FIBERGLASS FABRIC.

1. MANUFACTURERS:

a. ADVANCED BUILDING PRODUCTS, INC.; COPPER SEALTITE 2000: WWW.ADVANCEDBUILDINGPRODUCTS.COM/#SLE.

(C) FLASHING SEALANT/ADHESIVES: SILICONE, POLYURETHANE, OR SILYL-TERMINATED POLYETHER/POLYURETHANE OR OTHER TYPE REQUIRED OR RECOMMENDED BY FLASHING MANUFACTURER; TYPE CAPABLE OF ADHERING TO TYPE OF FLASHING USED.

1. MANUFACTURERS, MODIFIED POLYETHER PRODUCTS:

a. MORTAR NET SOLUTIONS; WWW.MORTARNET.COM/#SLE.

b. YORK MANUFACTURING, INC; UNIVERSEAL US-100 LIQUID TAPE: WWW.YORKMFG.COM/#SLE.

c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.4 MORTAR AND GROUT MIXING

(A) MORTAR FOR UNIT MASONRY: ASTM C270, USING THE PROPORTION SPECIFICATION.

1. MASONRY BELOW GRADE AND IN CONTACT WITH EARTH: TYPE S.

2. EXTERIOR, LOADBEARING MASONRY: TYPE S.

3. EXTERIOR, NON-LOADBEARING MASONRY: TYPE N.

4. INTERIOR, LOADBEARING MASONRY: TYPE S.

5. INTERIOR, NON-LOADBEARING MASONRY: TYPE O.

(B) GROUT: ASTM C476; CONSISTENCY REQUIRED TO FILL COMPLETELY VOLUMES INDICATED FOR GROUTING; FINE GROUT FOR SPACES WITH SMALLEST HORIZONTAL DIMENSION OF 2 INCHES OR LESS; COARSE GROUT FOR SPACES WITH SMALLEST HORIZONTAL DIMENSION GREATER THAN 2 INCHES.

(C) ADMIXTURES: ADD TO MIXTURE AT MANUFACTURER'S RECOMMENDED RATE AND IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS; MIX UNIFORMLY.

(D) MIXING: USE MECHANICAL BATCH MIXER AND COMPLY WITH REFERENCED STANDARDS.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY THAT FIELD CONDITIONS ARE ACCEPTABLE AND ARE READY TO RECEIVE MASONRY.

(B) VERIFY THAT RELATED ITEMS PROVIDED UNDER OTHER SECTIONS ARE PROPERLY SIZED AND LOCATED.

(C) VERIFY THAT BUILT-IN ITEMS ARE IN PROPER LOCATION, AND READY FOR ROUGHING INTO MASONRY WORK.

3.2 PREPARATION

(A) DIRECT AND COORDINATE PLACEMENT OF METAL ANCHORS SUPPLIED FOR INSTALLATION UNDER OTHER SECTIONS.

(B) PROVIDE TEMPORARY BRACING DURING INSTALLATION OF MASONRY WORK. MAINTAIN IN PLACE UNTIL BUILDING STRUCTURE PROVIDES PERMANENT BRACING.

3.3 COLD AND HOT WEATHER REQUIREMENTS

(A) COMPLY WITH REQUIREMENTS OF TMS 402/602 OR APPLICABLE BUILDING CODE, WHICHEVER IS MORE STRINGENT.

(B) MAINTAIN MATERIALS AND SURROUNDING AIR TEMPERATURE TO MINIMUM 40 DEGREES F PRIOR TO, DURING, AND 48 HOURS AFTER COMPLETION OF MASONRY WORK.

(C) MAINTAIN MATERIALS AND SURROUNDING AIR TEMPERATURE TO MAXIMUM 90 DEGREES F PRIOR TO, DURING, AND 48 HOURS AFTER COMPLETION OF MASONRY WORK.

3.4 COURSING

(A) ESTABLISH LINES, LEVELS, AND COURSING INDICATED. PROTECT FROM DISPLACEMENT.

(B) MAINTAIN MASONRY COURSES TO UNIFORM DIMENSION. FORM VERTICAL AND HORIZONTAL JOINTS OF UNIFORM THICKNESS.

(C) BRICK UNITS:

1. BOND: RUNNING.

2. COURSING: THREE UNITS AND THREE MORTAR JOINTS TO EQUAL 8 INCHES.

3. MORTAR JOINTS: CONCAVE.

3.5 PLACING AND BONDING

(A) LAY SOLID MASONRY UNITS IN FULL BED OF MORTAR, WITH FULL HEAD JOINTS, UNIFORMLY JOINTED WITH OTHER WORK.

(B) LAY HOLLOW MASONRY UNITS WITH FACE SHELL BEDDING ON HEAD AND BED JOINTS.

(C) BUTTERING CORNERS OF JOINTS OR EXCESSIVE FURROWING OF MORTAR JOINTS IS NOT PERMITTED.

(D) REMOVE EXCESS MORTAR AND MORTAR SMEARS AS WORK PROGRESSES.

(E) REMOVE EXCESS MORTAR WITH WATER REPELLENT ADMIXTURE PROMPTLY. DO NOT USE ACIDS, SANDBLASTING OR HIGH PRESSURE CLEANING METHODS.

(F) INTERLOCK INTERSECTIONS AND EXTERNAL CORNERS, EXCEPT FOR UNITS LAID IN STACK BOND.

(G) DO NOT SHIFT OR TAP MASONRY UNITS AFTER MORTAR HAS ACHIEVED INITIAL SET. WHERE ADJUSTMENT MUST BE MADE, REMOVE MORTAR AND REPLACE.

(H) PERFORM JOB SITE CUTTING OF MASONRY UNITS WITH PROPER TOOLS TO PROVIDE STRAIGHT, CLEAN, UNCHIPPED EDGES. PREVENT BROKEN MASONRY UNIT CORNERS OR EDGES.

(I) CUT MORTAR JOINTS FLUSH WHERE WALL TILE IS SCHEDULED OR RESILIENT BASE IS SCHEDULED.

(J) ISOLATE MASONRY PARTITIONS FROM VERTICAL STRUCTURAL FRAMING MEMBERS WITH A CONTROL JOINT AS INDICATED.

(K) ISOLATE TOP JOINT OF MASONRY PARTITIONS FROM HORIZONTAL STRUCTURAL FRAMING MEMBERS AND SLABS OR DECKS WITH COMPRESSIBLE JOINT FILLER.

3.6 REINFORCEMENT AND ANCHORAGE - GENERAL, SINGLE WYTHE MASONRY, AND CAVITY WALL MASONRY

(A) PLACE MASONRY JOINT REINFORCEMENT IN FIRST AND SECOND HORIZONTAL JOINTS ABOVE AND BELOW OPENINGS. EXTEND MINIMUM 16 INCHES EACH SIDE OF OPENING.

(B) PLACE CONTINUOUS JOINT REINFORCEMENT IN FIRST AND SECOND JOINT BELOW TOP OF WALLS.

(C) LAP JOINT REINFORCEMENT ENDS MINIMUM 6 INCHES.

(D) REINFORCE STACK BONDED UNIT JOINT CORNERS AND INTERSECTIONS WITH STRAP ANCHORS 16 INCHES ON CENTER.

(E) FASTEN ANCHORS TO STRUCTURAL FRAMING AND EMBED IN MASONRY JOINTS AS MASONRY IS LAID. UNLESS OTHERWISE INDICATED ON DRAWINGS OR CLOSER SPACING IS INDICATED UNDER SPECIFIC WALL TYPE, SPACE ANCHORS AT MAXIMUM OF 36 INCHES HORIZONTALLY AND 24 INCHES VERTICALLY.

3.7 REINFORCEMENT AND ANCHORAGE - SINGLE WYTHE MASONRY

(A) PLACE MASONRY JOINT REINFORCEMENT IN FIRST AND SECOND HORIZONTAL JOINTS ABOVE AND BELOW OPENINGS. EXTEND MINIMUM 16 INCHES EACH SIDE OF OPENING.

(B) PLACE CONTINUOUS JOINT REINFORCEMENT IN FIRST AND SECOND JOINT BELOW TOP OF WALLS.

(C) LAP JOINT REINFORCEMENT ENDS MINIMUM 6 INCHES.

(D) REINFORCE STACK BONDED UNIT JOINT CORNERS AND INTERSECTIONS WITH STRAP ANCHORS 16 INCHES ON CENTER.

3.8 REINFORCEMENT AND ANCHORAGE - MASONRY VENEER

(A) PLACE MASONRY JOINT REINFORCEMENT IN FIRST AND SECOND HORIZONTAL JOINTS ABOVE AND BELOW OPENINGS. EXTEND MINIMUM 16 INCHES EACH SIDE OF OPENING.

(B) PLACE CONTINUOUS JOINT REINFORCEMENT IN FIRST AND SECOND JOINT BELOW TOP OF WALLS.

(C) LAP JOINT REINFORCEMENT ENDS MINIMUM 6 INCHES.

(D) REINFORCE STACK BONDED UNIT JOINT CORNERS AND INTERSECTIONS WITH STRAP ANCHORS 16 INCHES ON CENTER.

3.9 REINFORCEMENT AND ANCHORAGES - CAVITY WALL MASONRY

(A) PLACE MASONRY JOINT REINFORCEMENT IN FIRST AND SECOND HORIZONTAL JOINTS ABOVE AND BELOW OPENINGS. EXTEND MINIMUM 16 INCHES EACH SIDE OF OPENINGS.

(B) PLACE CONTINUOUS JOINT REINFORCEMENT IN FIRST AND SECOND JOINT BELOW TOP OF WALLS.

(C) LAP JOINT REINFORCEMENT ENDS MINIMUM 6 INCHES.

(D) REINFORCE STACK BONDED UNIT JOINT CORNERS AND INTERSECTIONS WITH STRAP ANCHORS 16 INCHES ON CENTER.

3.10 MASONRY FLASHINGS

(A) WHETHER OR NOT SPECIFICALLY INDICATED, INSTALL MASONRY FLASHING TO DIVERT WATER TO EXTERIOR AT ALL LOCATIONS WHERE DOWNWARD FLOW OF WATER WILL BE INTERRUPTED.

1. EXTEND FLASHINGS FULL WIDTH AT SUCH INTERRUPTIONS AND AT LEAST 6 INCHES, MINIMUM, INTO ADJACENT MASONRY OR TURN UP FLASHING ENDS AT LEAST 1 INCH, MINIMUM, TO FORM WATERTIGHT PAN AT NON-MASONRY CONSTRUCTION.

2. REMOVE OR COVER PROTRUSIONS OR SHARP EDGES THAT COULD PUNCTURE FLASHINGS.

3. SEAL LAPPED ENDS AND PENETRATIONS OF FLASHING BEFORE COVERING WITH MORTAR.

(B) EXTEND METAL FLASHINGS THROUGH EXTERIOR FACE OF MASONRY AND TERMINATE IN AN ANGLED DRIP WITH HEMMED EDGE. INSTALL JOINT SEALER BELOW DRIP EDGE TO PREVENT MOISTURE MIGRATION UNDER FLASHING.

3.11 GROUTED COMPONENTS

(A) REINFORCE BOND BEAMS WITH 2, NO. 4 BARS, 1 INCH FROM BOTTOM WEB.

(B) LAP SPLICES MINIMUM 24 BAR DIAMETERS.

(C) SUPPORT AND SECURE REINFORCING BARS FROM DISPLACEMENT. MAINTAIN POSITION WITHIN 1/2 INCH OF DIMENSIONED POSITION.

(D) PLACE AND CONSOLIDATE GROUT FILL WITHOUT DISPLACING REINFORCING.

3.12 BUILT-IN WORK

(A) AS WORK PROGRESSES, INSTALL BUILT-IN METAL DOOR FRAMES AND GLAZED FRAMES AND OTHER ITEMS TO BE BUILT INTO THE WORK AND FURNISHED UNDER OTHER SECTIONS.

(B) INSTALL BUILT-IN ITEMS PLUMB, LEVEL, AND TRUE TO LINE.

(C) BED ANCHORS OF METAL DOOR AND GLAZED FRAMES IN ADJACENT MORTAR JOINTS. FILL FRAME VOIDS SOLID WITH GROUT.

1. FILL ADJACENT MASONRY CORES WITH GROUT MINIMUM 12 INCHES FROM FRAMED OPENINGS.

(D) DO NOT BUILD INTO MASONRY CONSTRUCTION ORGANIC MATERIALS THAT ARE SUBJECT TO DETERIORATION.

3.13 TOLERANCES

(A) MAXIMUM VARIATION FROM ALIGNMENT OF COLUMNS: 1/4 INCH.

(B) MAXIMUM VARIATION FROM UNIT TO ADJACENT UNIT: 1/16 INCH.

(C) MAXIMUM VARIATION FROM PLANE OF WALL: 1/4 INCH IN 10 FT AND 1/2 INCH IN 20 FT OR MORE.

(D) MAXIMUM VARIATION FROM PLUMB: 1/4 INCH PER STORY NON-CUMULATIVE; 1/2 INCH IN TWO STORIES OR MORE.

(E) MAXIMUM VARIATION FROM LEVEL COURSING: 1/8 INCH IN 3 FT AND 1/4 INCH IN 10 FT; 1/2 INCH IN 30 FT.

(F) MAXIMUM VARIATION OF MORTAR JOINT THICKNESS: HEAD JOINT, MINUS 1/4 INCH, PLUS 3/8 INCH.

(G) MAXIMUM VARIATION FROM CROSS SECTIONAL THICKNESS OF WALLS: 1/4 INCH.

3.14 CUTTING AND FITTING

(A) CUT AND FIT FOR CHASES. COORDINATE WITH OTHER SECTIONS OF WORK TO PROVIDE CORRECT SIZE, SHAPE, AND LOCATION.

(B) OBTAIN APPROVAL PRIOR TO CUTTING OR FITTING MASONRY WORK NOT INDICATED OR WHERE APPEARANCE OR STRENGTH OF MASONRY WORK MAY BE IMPAIRED.

3.15 FIELD QUALITY CONTROL

(A) AN INDEPENDENT TESTING AGENCY WILL PERFORM FIELD QUALITY CONTROL TESTS, AS SPECIFIED IN SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) MORTAR TESTS: TEST EACH TYPE OF MORTAR IN ACCORDANCE WITH ASTM C780.

1. REFER TO SECTION 04 0511- MORTAR AND MASONRY GROUT.

(C) GROUT TEST: TEST AND EVALUATE GROUT IN ACCORDANCE WITH ASTM C 1019 PROCEDURES.

1. REFER TO SECTION 04 0511- MORTAR AND MASONRY GROUT.

(D) PRISM TEST: TEST MASONRY AND MORTAR PANELS FOR COMPRESSIVE STRENGTH IN ACCORDANCE WITH ASTM C 1314 AND FOR FLEXURAL BOND STRENGTH IN ACCORDANCE WITH ASTM C 1072 OR ASTM E 518: PERFORM TESTS AND EVALUATE RESULTS.

1. UTILIZE THE ABOVE FOR LOAD BEARING WALLS IF MORTAR OR GROUT TESTS FAIL TO MEET OR EXCEED REQUIREMENTS IN SECTION 04 0511 (04065).

(E) THE CONTRCATOR SHALL FOLLOW AND IMPLEMENT THE SPECIAL INSPECTIONS AND QUALITY ASSURANCE PLANS AS INDICATED ON THE CONTRACT DRAWINGS.

3.16 CLEANING

(A) REMOVE EXCESS MORTAR AND MORTAR DROPPINGS.

(B) REPLACE DEFECTIVE MORTAR. MATCH ADJACENT WORK.

(C) CLEAN SOILED SURFACES WITH CLEANING SOLUTION.

(D) USE NON-METALLIC TOOLS IN CLEANING OPERATIONS.

3.17 PROTECTION

(A) WITHOUT DAMAGING COMPLETED WORK, PROVIDE PROTECTIVE BOARDS AT EXPOSED EXTERNAL CORNERS THAT ARE SUBJECT TO DAMAGE BY CONSTRUCTION ACTIVITIES.

END OF SECTION

SECTION 04 43 13 - STONE MASONRY VENEER

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) ANCHORED CUT STONE VENEER AT EXTERIOR WALLS.

(B) STONE VENEER AT EXTERIOR AND INTERIOR WALLS.

(C) METAL ANCHORS AND ACCESSORIES.

(D) SETTING MORTAR AND POINTING MORTAR.

1.2 RELATED REQUIREMENTS

(A) SECTION 04 05 11 - MORTAR AND MASONRY GROUT: SETTING MORTAR.

(B) SECTION 04 20 00 - UNIT MASONRY: JOINT REINFORCEMENT, TIES, AND ANCHORS.

(C) SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM: FLASHINGS.

(D) SECTION 07 92 00 - JOINT SEALANTS: SEALING JOINTS INDICATED TO BE LEFT OPEN FOR SEALANT.

1.3 REFERENCE STANDARDS

(A) ASTM A36/A36M - STANDARD SPECIFICATION FOR CARBON STRUCTURAL STEEL; 2014.

(B) ASTM A123/A123M - STANDARD SPECIFICATION FOR ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS; 2017.

(C) ASTM A580/A580M - STANDARD SPECIFICATION FOR STAINLESS STEEL WIRE; 2016.

(D) ASTM A666 - STANDARD SPECIFICATION FOR ANNEALED OR COLD-WORKED AUSTENITIC STAINLESS STEEL SHEET, STRIP, PLATE, AND FLAT BAR; 2015.

(E) ASTM C270 - STANDARD SPECIFICATION FOR MORTAR FOR UNIT MASONRY; 2014A.

(F) ASTM C503/C503M - STANDARD SPECIFICATION FOR MARBLE DIMENSION STONE; 2015.

(G) ASTM C568/C568M - STANDARD SPECIFICATION FOR LIMESTONE DIMENSION STONE; 2015.

(H) ASTM C615/C615M - STANDARD SPECIFICATION FOR GRANITE DIMENSION STONE; 2011.

(I) ILI (HB) - INDIANA LIMESTONE HANDBOOK; 2007, 22ND EDITION.

(J) TMS 402/602 - BUILDING CODE REQUIREMENTS AND SPECIFICATION FOR MASONRY STRUCTURES; 2016.

1.4 ADMINISTRATIVE REQUIREMENTS

(A) PREINSTALLATION MEETING: CONVENE ONE WEEK BEFORE STARTING WORK OF THIS SECTION.

1.5 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: PROVIDE DATA ON STONE UNITS, MORTAR, AND REINFORCEMENT.

(C) SAMPLES: SUBMIT TWO STONE SAMPLES ILLUSTRATING MINIMUM AND MAXIMUM STONE SIZES, COLOR RANGE, TEXTURE, AND MARKINGS.

(D) SAMPLES: SUBMIT MORTAR COLOR SAMPLES.

1.6 QUALITY ASSURANCE

(A) STONE FABRICATOR QUALIFICATIONS: COMPANY SPECIALIZING IN FABRICATING CUT STONE WITH MINIMUM TEN YEARS OF EXPERIENCE.

(B) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING WORK OF THE TYPE REQUIRED BY THIS SECTION, WITH MINIMUM 10 YEARS OF DOCUMENTED EXPERIENCE.

1.7 MOCK-UP

(A) CONSTRUCT STONE WALL MOCK-UP, 4 FEET LONG BY 4 FEET WIDE; INCLUDE STONE ANCHOR ACCESSORIES, CORNER CONDITION, AND TYPICAL CONTROL JOINT IN MOCK-UP.

(B) LOCATE WHERE DIRECTED.

(C) MOCK-UP MAY REMAIN AS PART OF THE WORK.

1.8 DELIVERY, STORAGE, AND HANDLING

(A) PROTECT STONE FROM DISCOLORATION DURING STORAGE ON SITE.

(B) PROVIDE VENTILATION TO PREVENT CONDENSATION FROM FORMING ON STONE.

1.9 FIELD CONDITIONS

(A) COLD WEATHER REQUIREMENTS: COMPLY WITH REQUIREMENTS OF TMS 402/602 OR APPLICABLE BUILDING CODE, WHICHEVER IS MORE STRINGENT.

(B) MAINTAIN MATERIALS AND AMBIENT AIR AT MINIMUM OF 40 DEGREES F (5 DEGREES C) PRIOR TO, DURING, AND FOR 48 HOURS AFTER COMPLETION OF WORK.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) STONE QUARRIERS:

1. SELECT STONE: WWW.SELECTSTONE.COM.

2. SUBSTITUTIONS: OR APPROVED EQUAL.

3. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) STONE MASONRY REINFORCEMENT AND ACCESSORIES - ANCHORED VENEER:

1. BLOK-LOK LIMITED: WWW.BLOK-LOK.COM/#SLE.

2. HOHMANN & BARNARD, INC: WWW.H-B.COM/#SLE.

3. SUBSTITUTIONS: OR APPORVED EQUAL.

4. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS

2.2 STONE

(A) STONE: ROUNDED RIVER ROCK, THIN VENEER; OR APPROVED EQUAL VARIETY

(B) SURFACE TEXTURE: SMOOTH AND ROUNDED

(C) COLOR: MULTI-COLOR

2.3 MORTAR

(A) SETTING MORTAR; ASTM C27C, TYPE N, AS SPECIFIED IN SCTION 04 05 11

2.4 ACCESSORIES - ANCHORED VENEER

(A) OTHER ANCHORS IN DIRECT CONTACT WITH STONE: STAINLESS STEEL, OF SIZES AND CONFIGURATIONS REQUIRED FOR SUPPORT OF STONE AND APPLICABLE SUPERIMPOSED LOADS.

(B) SETTING BUTTONS AND SHIMS: PLASTIC.

(C) FLASHINGS: AS SPECIFIED IN SECTION 07 62 00.

(D) CLEANING SOLUTION: TYPE THAT WILL NOT HARM STONE, JOINT MATERIALS, OR ADJACENT SURFACES.

2.5 STONE FABRICATION

(A) NOMINAL THICKNESS: 1.5 INCH.

(B) NOMINAL FACE SIZE: 8 BY 12 INCH.

(C) PATTERN AND COURSING: RANDOM.

(D) FABRICATE FOR 3/8 INCH BEDS AND JOINTS.

(E) BACKS: SAWN.

(F) PRE CUT STONE CORNERS

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY THAT SUPPORT WORK AND SITE CONDITIONS ARE READY TO RECEIVE WORK OF THIS SECTION.

(B) VERIFY THAT ITEMS BUILT-IN UNDER OTHER SECTIONS ARE PROPERLY LOCATED AND SIZED.

3.2 PREPARATION - ANCHORED VENEER

(A) ESTABLISH LINES, LEVELS, AND COURSING. PROTECT FROM DISTURBANCE.

(B) CLEAN STONE PRIOR TO INSTALLATION. DO NOT USE WIRE BRUSHES OR IMPLEMENTS THAT MARK OR DAMAGE EXPOSED SURFACES.

(C) CLEAN SAWN SURFACES OF RUST STAINS AND IRON PARTICLES.

3.3 INSTALLATION - ANCHORED VENEER

(A) INSTALL FLASHINGS OF LONGEST PRACTICAL LENGTH AND SEAL WATERTIGHT TO BACK-UP. LAP END JOINTS MINIMUM 6 INCHES AND SEAL WATERTIGHT.

(B) SIZE STONE UNITS TO FIT OPENING DIMENSIONS AND PERIMETER CONDITIONS.

(C) WET ABSORPTIVE STONE IN PREPARATION FOR PLACEMENT TO MINIMIZE MOISTURE SUCTION FROM MORTAR.

(D) ARRANGE STONE PATTERN TO PROVIDE COLOR UNIFORMITY AND MINIMIZE VISUAL VARIATIONS, AND PROVIDE A UNIFORM BLEND OF STONE UNIT SIZES.

(E) PROVIDE SETTING AND POINTING MORTAR IN ACCORDANCE WITH SECTION 04 05 11.

1. IF WATER IS LOST BY EVAPORATION, RE-TEMPER MORTAR ONLY WITHIN TWO HOURS AFTER MIXING.

2. AT AMBIENT AIR TEMPERATURE 80 DEGREES F AND ABOVE, USE MORTAR WITHIN TWO HOURS AFTER MIXING; AT AMBIENT AIR TEMPERATURE BELOW 50 DEGREES F, USE MORTAR WITHIN TWO-AND-ONE-HALF HOURS AFTER MIXING.

(F) FILL DOWEL HOLES IN STONE UNITS WITH MORTAR.

(G) ARRANGE STONE COURSING IN RUNNING BOND WITH CONSISTENT JOINT WIDTH.

(H) SET STONE IN FULL MORTAR SETTING BED TO FULLY SUPPORT STONE OVER BEARING SURFACE. USE SETTING BUTTONS OR SHIMS TO MAINTAIN CORRECT JOINT WIDTH.

3.4 JOINTS

(A) LEAVE THE FOLLOWING JOINTS OPEN FOR SEALANT

1. JOINTS LABELED "EXPANSION JOINT"

(B) RAKE OUT MORTAR JOINTS 5/8 TO 3/4 INCH AND BRUSH JOINTS CLEAN TO ACCOMMODATE POINTING MORTAR. FILL JOINTS WITH POINTING MORTAR.

(C) PACK MORTAR INTO JOINTS AND WORK INTO VOIDS. NEATLY TOOL SURFACE TO CONCAVE JOINT.

(D) AT JOINTS TO BE SEALED, CLEAN MORTAR OUT OF JOINT BEFORE IT SETS. BRUSH JOINTS CLEAN.

3.5 INSTALLATION - MASONRY FLASHINGS

(A) WHETHER OR NOT SPECIFICALLY INDICATED, INSTALL MASONRY FLASHING TO DIVERT WATER TO EXTERIOR AT ALL LOCATIONS WHERE DOWNWARD FLOW OF WATER WILL BE INTERRUPTED.

3.6 CLEANING

(A) REMOVE EXCESS MORTAR AS WORK PROGRESSES, AND UPON COMPLETION OF WORK.

(B) CLEAN SOILED SURFACES WITH CLEANING SOLUTION.

(C) USE NON-METALLIC TOOLS IN CLEANING OPERATIONS.

3.7 PROTECTION

(A) DURING TEMPORARY STORAGE ON SITE, AT THE END OF WORKING DAY, AND DURING RAINY WEATHER, COVER STONE WORK EXPOSED TO WEATHER WITH NON-STAINING WATERPROOF COVERINGS, SECURELY ANCHORED.

END OF SECTION

SECTION 04 72 00 - CAST STONE MASONRY

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) ARCHITECTURAL CAST STONE.

(B) UNITS REQUIRED ARE INDICATED ON DRAWINGS AS "CAST STONE".

(C) UNITS REQUIRED ARE:

1. EXTERIOR WALL UNITS, INCLUDING WALL CAPS, COPING, AND SILLS.

1.2 RELATED REQUIREMENTS

(A) SECTION 04 05 11 - MORTAR AND MASONRY GROUT: MORTAR FOR SETTING CAST STONE.

(B) SECTION 04 20 00 - UNIT MASONRY: INSTALLATION OF CAST STONE IN CONJUNCTION WITH MASONRY.

(C) SECTION 07 92 00 - JOINT SEALANTS: SEALING JOINTS INDICATED TO BE LEFT OPEN FOR SEALANT.

1.3 REFERENCE STANDARDS

(A) ACI 318 - BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY; 2014 (ERRATA 2017).

(B) ASTM A615/A615M - STANDARD SPECIFICATION FOR DEFORMED AND PLAIN CARBON-STEEL BARS FOR CONCRETE REINFORCEMENT; 2016.

(C) ASTM A767/A767M - STANDARD SPECIFICATION FOR ZINC-COATED (GALVANIZED) STEEL BARS FOR CONCRETE REINFORCEMENT; 2016.

(D) ASTM A884/A884M - STANDARD SPECIFICATION FOR EPOXY-COATED STEEL WIRE AND WELDED WIRE REINFORCEMENT; 2014.

(E) ASTM A1064/A1064M - STANDARD SPECIFICATION FOR CARBON-STEEL WIRE AND WELDED WIRE REINFORCEMENT, PLAIN AND DEFORMED, FOR CONCRETE; 2017.

(F) ASTM C33/C33M - STANDARD SPECIFICATION FOR CONCRETE AGGREGATES; 2016, WITH EDITORIAL REVISION (2016).

(G) ASTM C150/C150M - STANDARD SPECIFICATION FOR PORTLAND CEMENT; 2017.

(H) ASTM C270 - STANDARD SPECIFICATION FOR MORTAR FOR UNIT MASONRY; 2014A.

(I) ASTM C494/C494M - STANDARD SPECIFICATION FOR CHEMICAL ADMIXTURES FOR CONCRETE; 2017.

(J) ASTM C979/C979M - STANDARD SPECIFICATION FOR PIGMENTS FOR INTEGRALLY COLORED CONCRETE; 2016.

(K) ASTM C1364 - STANDARD SPECIFICATION FOR ARCHITECTURAL CAST STONE; 2017.

(L) UL 1618 - UL STANDARD FOR SAFETY WALL PROTECTORS, FLOOR PROTECTORS, AND HEARTH EXTENSIONS

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: TEST RESULTS OF CAST STONE COMPONENTS MADE PREVIOUSLY BY THE MANUFACTURER.

1. INCLUDE ONE COPY OF ASTM C1364 FOR ARCHITECT'S USE.

(C) SHOP DRAWINGS: INCLUDE ELEVATIONS, DIMENSIONS, LAYOUTS, PROFILES, CROSS SECTIONS, REINFORCEMENT, EXPOSED FACES, ARRANGEMENT OF JOINTS, ANCHORING METHODS, ANCHORS, AND PIECE NUMBERS.

(D) VERIFICATION SAMPLES: PIECES OF ACTUAL CAST STONE COMPONENTS NOT LESS THAN 6 INCHES SQUARE, ILLUSTRATING RANGE OF COLOR AND TEXTURE TO BE ANTICIPATED IN COMPONENTS FURNISHED FOR THE PROJECT.

(E) MANUFACTURER'S QUALIFICATION DATA: DOCUMENTATION SHOWING COMPLIANCE WITH SPECIFIED REQUIREMENTS.

1.5 QUALITY ASSURANCE

(A) MANUFACTURER QUALIFICATIONS:

1. A FIRM WITH A MINIMUM OF 5 YEARS EXPERIENCE PRODUCING CAST STONE OF TYPES REQUIRED FOR PROJECT.

2. CURRENT PRODUCER MEMBER OF THE CAST STONE INSTITUTE OR THE ARCHITECTURAL PRECAST ASSOCIATION.

3. MANUFACTURER'S PRODUCTION FACILITY CURRENTLY HOLDS A PLANT CERTIFICATION FROM THE CAST STONE INSTITUTE OR THE ARCHITECTURAL PRECAST ASSOCIATION.

4. ADEQUATE PLANT CAPACITY TO FURNISH QUALITY, SIZES, AND QUANTITY OF CAST STONE REQUIRED WITHOUT DELAYING PROGRESS OF THE WORK.

1.6 DELIVERY, STORAGE, AND HANDLING

(A) DELIVER CAST STONE COMPONENTS SECURED TO SHIPPING PALLETS AND PROTECTED FROM DAMAGE AND DISCOLORATION. PROTECT CORNERS FROM DAMAGE.

(B) NUMBER EACH PIECE INDIVIDUALLY TO MATCH SHOP DRAWINGS AND SCHEDULE.

(C) STORE CAST STONE COMPONENTS AND INSTALLATION MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(D) STORE CAST STONE COMPONENTS ON PALLETS WITH NONSTAINING, WATERPROOF COVERS. VENTILATE UNDER COVERS TO PREVENT CONDENSATION. PREVENT CONTACT WITH DIRT.

(E) PROTECT CAST STONE COMPONENTS DURING HANDLING AND INSTALLATION TO PREVENT CHIPPING, CRACKING, OR OTHER DAMAGE.

(F) STORE MORTAR MATERIALS WHERE CONTAMINATION CAN BE AVOIDED.

(G) SCHEDULE AND COORDINATE PRODUCTION AND DELIVERY OF CAST STONE COMPONENTS WITH UNIT MASONRY WORK TO OPTIMIZE ON-SITE INVENTORY AND TO AVOID DELAYING THE WORK.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) ARCHITECTURAL CAST STONE:

1. ARRISCRAFT, WWW.ARRISCRAFT.COM.

2. NEW CAST STONE, WWW.NEWCASTSTONE.COM.

3. SUBSTITUTIONS: OR APPROVED EQUAL.

4. SUBSTITUTIONS: 01 00 00 - GENERAL REQUIREMENTS.

2.2 ARCHITECTURAL CAST STONE

(A) CAST STONE: ARCHITECTURAL CONCRETE PRODUCT MANUFACTURED TO SIMULATE APPEARANCE OF NATURAL GRANITE, COMPLYING WITH ASTM C1364.

1. COMPRESSIVE STRENGTH: AS SPECIFIED IN ASTM C1364; CALCULATE STRENGTH OF PIECES TO BE FIELD CUT AT 80 PERCENT OF UNCUT PIECE.

2. FREEZE-THAW RESISTANCE: DEMONSTRATED BY FIELD EXPERIENCE.

3. SURFACE TEXTURE: FINE GRAINED TEXTURE, WITH NO BUGHOLES, AIR VOIDS, OR OTHER SURFACE BLEMISHES VISIBLE FROM DISTANCE OF 20 FEET.

4. REMOVE CEMENT FILM FROM EXPOSED SURFACES BEFORE PACKAGING FOR SHIPMENT.

(B) SHAPES: PROVIDE SHAPES INDICATED ON DRAWINGS.

1. VARIATION FROM ANY DIMENSION, INCLUDING BOW, CAMBER, AND TWIST: MAXIMUM OF PLUS/MINUS 1/8 INCH OR LENGTH DIVIDED BY 360, WHICHEVER IS GREATER, BUT NOT MORE THAN 1/4 INCH.

2. UNLESS OTHERWISE INDICATED ON DRAWINGS, PROVIDE:

a. WASH OR SLOPE OF 1:12 ON EXTERIOR HORIZONTAL SURFACES.

b. DRIPS ON PROJECTING COMPONENTS, WHEREVER POSSIBLE.

c. RAISED FILLETS AT BACK OF SILLS AND AT ENDS TO BE BUILT IN.

(C) REINFORCEMENT: PROVIDE REINFORCEMENT AS REQUIRED TO WITHSTAND HANDLING AND STRUCTURAL STRESSES; COMPLY WITH ACI 318.

1. PIECES MORE THAN 24 INCHES IN ANY DIMENSION: PROVIDE FULL LENGTH TWO-WAY REINFORCEMENT OF CROSS-SECTIONAL AREA NOT LESS THAN 0.25 PERCENT OF UNIT CROSS-SECTIONAL AREA.

2.3 MATERIALS

(A) PORTLAND CEMENT: ASTM C150/C150M.

1. FOR UNITS: TYPE I, WHITE OR GRAY AS REQUIRED TO MATCH ARCHITECT 'S SAMPLE.

2. FOR MORTAR: TYPE I OR II, EXCEPT TYPE III MAY BE USED IN COLD WEATHER.

(B) COARSE AGGREGATE: ASTM C33/C33M, EXCEPT FOR GRADATION; GRANITE, QUARTZ, OR LIMESTONE.

(C) FINE AGGREGATE: ASTM C33/C33M, EXCEPT FOR GRADATION; NATURAL OR MANUFACTURED SANDS.

(D) PIGMENTS: ASTM C979, INORGANIC IRON OXIDES; DO NOT USE CARBON BLACK.

(E) ADMIXTURES: ASTM C494/C494M.

(F) WATER: POTABLE.

(G) REINFORCING BARS: ASTM A615/A615M DEFORMED BARS, GALVANIZED.

1. GALVANIZED IN ACCORDANCE WITH ASTM A767/A767M, CLASS I.

(H) STEEL WELDED WIRE REINFORCEMENT: ASTM A1064/A1064M, GALVANIZED OR ASTM A884/A884M, EPOXY COATED.

(I) EMBEDDED ANCHORS, DOWELS, AND INSERTS: TYPE 304 STAINLESS STEEL, OF TYPE AND SIZE AS REQUIRED FOR CONDITIONS.

(J) MORTAR: PORTLAND CEMENT-LIME, AS SPECIFIED IN SECTION 04 05 11; DO NOT USE MASONRY CEMENT.

(K) SEALANT: AS SPECIFIED IN SECTION 07 90 05.

(L) CLEANER: GENERAL-PURPOSE CLEANER DESIGNED FOR REMOVING MORTAR AND GROUT STAINS, EFFLORESCENCE, AND OTHER CONSTRUCTION STAINS FROM NEW MASONRY SURFACES WITHOUT DISCOLORING OR DAMAGING MASONRY SURFACES; APPROVED FOR INTENDED USE BY CAST STONE MANUFACTURER AND BY CLEANER MANUFACTURER FOR USE ON CAST STONE AND ADJACENT MASONRY MATERIALS.

PART 3 EXECUTION

3.1 INSTALLATION

(A) INSTALL CAST STONE COMPONENTS IN CONJUNCTION WITH MASONRY, COMPLYING WITH REQUIREMENTS OF SECTION 04 20 00.

(B) MECHANICALLY ANCHOR CAST STONE UNITS INDICATED; SET REMAINDER IN MORTAR.

(C) SETTING:

1. DRENCH CAST STONE COMPONENTS WITH CLEAR, RUNNING WATER IMMEDIATELY BEFORE INSTALLATION.

2. SET UNITS IN A FULL BED OF MORTAR UNLESS OTHERWISE INDICATED.

3. FILL VERTICAL JOINTS WITH MORTAR.

4. FILL DOWEL HOLES AND ANCHOR SLOTS COMPLETELY WITH MORTAR OR NON-SHRINK GROUT.

3.2 CLEANING

(A) KEEP CAST STONE COMPONENTS CLEAN AS WORK PROGRESSES.

(B) CLEAN COMPLETED EXPOSED CAST STONE AFTER MORTAR IS THOROUGHLY SET AND CURED.

1. WET SURFACES WITH WATER BEFORE APPLYING CLEANER.

2. APPLY CLEANER TO CAST STONE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

3. REMOVE CLEANER PROMPTLY BY RINSING THOROUGHLY WITH CLEAR WATER.

4. DO NOT USE ACIDIC CLEANERS.

3.3 PROTECTION

(A) PROTECT COMPLETED WORK FROM DAMAGE.

(B) CLEAN, REPAIR, OR RESTORE DAMAGED OR MORTAR-SPLASHED WORK TO CONDITION OF NEW WORK.

END OF SECTION

SECTION 05 12 00 - STRUCTURAL STEEL FRAMING

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) STRUCTURAL STEEL FRAMING MEMBERS.

(B) STRUCTURAL STEEL SUPPORT MEMBERS AND STRUTS.

(C) BASE PLATES, SHEAR STUD CONNECTORS AND EXPANSION JOINT PLATES.

(D) GROUTING UNDER BASE PLATES.

1.2 RELATED REQUIREMENTS

(A) SECTION 05 31 00 - STEEL DECKING: SUPPORT FRAMING FOR SMALL OPENINGS IN DECK.

(B) SECTION 09 91 00 - PAINTING - LOW VOC:

1.3 REFERENCE STANDARDS

(A) AISC (MAN) - STEEL CONSTRUCTION MANUAL; 2017.

(B) AISC 303 - CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES; 2016.

(C) ASTM A36/A36M - STANDARD SPECIFICATION FOR CARBON STRUCTURAL STEEL; 2014.

(D) ASTM A123/A123M - STANDARD SPECIFICATION FOR ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS; 2017.

(E) ASTM A307 - STANDARD SPECIFICATION FOR CARBON STEEL BOLTS, STUDS, AND THREADED ROD 60 000 PSI TENSILE STRENGTH; 2014 (EDITORIAL 2017).

(F) ASTM A449 - STANDARD SPECIFICATION FOR HEX CAP SCREWS, BOLTS AND STUDS, STEEL, HEAT TREATED, 120/105/90 KSI MINIMUM TENSILE STRENGTH, GENERAL USE; 2014.

(G) ASTM A500/A500M - STANDARD SPECIFICATION FOR COLD-FORMED WELDED AND SEAMLESS CARBON STEEL STRUCTURAL TUBING IN ROUNDS AND SHAPES; 2013.

(H) ASTM A563 - STANDARD SPECIFICATION FOR CARBON AND ALLOY STEEL NUTS; 2015.

(I) ASTM A992/A992M - STANDARD SPECIFICATION FOR STRUCTURAL STEEL SHAPES; 2011 (REAPPROVED 2015).

(J) ASTM A1011/A1011M - STANDARD SPECIFICATION FOR STEEL, SHEET AND STRIP, HOT-ROLLED, CARBON, STRUCTURAL, HIGH-STRENGTH LOW-ALLOY, HIGH-STRENGTH LOW-ALLOY WITH IMPROVED FORMABILITY, AND ULTRA-HIGH STRENGTH; 2017.

(K) ASTM C1107/C1107M - STANDARD SPECIFICATION FOR PACKAGED DRY, HYDRAULIC-CEMENT GROUT (NONSHRINK); 2014A.

(L) ASTM E94 - STANDARD GUIDE FOR RADIOGRAPHIC EXAMINATION; 2004 (REAPPROVED 2010).

(M) ASTM E164 - STANDARD PRACTICE FOR CONTACT ULTRASONIC TESTING OF WELDMENTS; 2013.

(N) ASTM F1554 - STANDARD SPECIFICATION FOR ANCHOR BOLTS, STEEL, 36, 55, AND 105-KSI YIELD STRENGTH; 2015.

(O) AWS A2.4 - STANDARD SYMBOLS FOR WELDING, BRAZING, AND NONDESTRUCTIVE EXAMINATION; 2012.

(P) AWS D1.1/D1.1M - STRUCTURAL WELDING CODE - STEEL; 2015 (WITH MARCH 2016 ERRATA).

(Q) SUBMITTALS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(R) SHOP DRAWINGS:

1. INDICATE PROFILES, SIZES, SPACING, LOCATIONS OF STRUCTURAL MEMBERS, OPENINGS, ATTACHMENTS, AND FASTENERS.

2. CONNECTIONS NOT DETAILED.

3. INDICATE CAMBERS AND LOADS.

4. INDICATE WELDED CONNECTIONS WITH AWS A2.4 WELDING SYMBOLS. INDICATE NET WELD LENGTHS.

(S) MANUFACTURER'S MILL CERTIFICATE: CERTIFY THAT PRODUCTS MEET OR EXCEED SPECIFIED REQUIREMENTS.

(T) MILL TEST REPORTS: INDICATE STRUCTURAL STRENGTH, DESTRUCTIVE TEST ANALYSIS AND NON-DESTRUCTIVE TEST ANALYSIS.

(U) FABRICATOR TEST REPORTS: COMPLY WITH ASTM A1011/A1011M.

(V) WELDERS CERTIFICATES: CERTIFY WELDERS EMPLOYED ON THE WORK, VERIFYING AWS QUALIFICATION WITHIN THE PREVIOUS 12 MONTHS.

(W) FABRICATOR'S QUALIFICATION STATEMENT: PROVIDE DOCUMENTATION SHOWING STEEL FABRICATOR IS ACCREDITED UNDER IAS AC172.

1.4 QUALITY ASSURANCE

(A) FABRICATE STRUCTURAL STEEL MEMBERS IN ACCORDANCE WITH AISC (MAN) "STEEL CONSTRUCTION MANUAL."

(B) FABRICATOR QUALIFICATIONS: A QUALIFIED STEEL FABRICATOR THAT IS ACCREDITED BY THE INTERNATIONAL ACCREDITATION SERVICE (IAS) FABRICATOR INSPECTION PROGRAM FOR STRUCTURAL STEEL IN ACCORDANCE WITH IAS AC172.

(C) ERECTOR: COMPANY SPECIALIZING IN PERFORMING THE WORK OF THIS SECTION WITH MINIMUM 5 YEARS OF DOCUMENTED EXPERIENCE.

(D) DESIGN CONNECTIONS NOT DETAILED ON DRAWINGS UNDER DIRECT SUPERVISION OF A PROFESSIONAL STRUCTURAL ENGINEER EXPERIENCED IN DESIGN OF THIS WORK AND LICENSED IN THE STATE OF MONTANA .

PART 2 PRODUCTS

2.1 MATERIALS

(A) STEEL ANGLES AND PLATES: ASTM A36/A36M.

(B) STEEL W SHAPES AND TEES: ASTM A992/A992M.

(C) ROLLED STEEL STRUCTURAL SHAPES: ASTM A992/A992M.

(D) HIGH-STRENGTH STRUCTURAL BOLTS, NUTS, AND WASHERS: ASTM F3125/F3125M, TYPE 1, WITH MATCHING COMPATIBLE ASTM A563 OR ASTM A563M NUTS AND ASTM F436/F436M WASHERS.

(E) UNHEADED ANCHOR RODS: ASTM F1554, GRADE 36, PLAIN, WITH MATCHING ASTM A563 OR ASTM A563M NUTS AND ASTM F436/F436M TYPE 1 WASHERS.

(F) WELDING MATERIALS: AWS D1.1/D1.1M; TYPE REQUIRED FOR MATERIALS BEING WELDED.

(G) GROUT: ASTM C1107/C1107M; NON-SHRINK; PREMIXED COMPOUND CONSISTING OF NON-METALLIC AGGREGATE, CEMENT, WATER REDUCING AND PLASTICIZING AGENTS.

1. MINIMUM COMPRESSIVE STRENGTH AT 48 HOURS: 2,000 POUNDS PER SQUARE INCH.

2. MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS: 7,000 POUNDS PER SQUARE INCH.

(H) SHOP AND TOUCH-UP PRIMER: FABRICATOR'S STANDARD, COMPLYING WITH VOC LIMITATIONS OF AUTHORITIES HAVING JURISDICTION.

(I) TOUCH-UP PRIMER FOR GALVANIZED SURFACES: FABRICATOR'S STANDARD, COMPLYING WITH VOC LIMITATIONS OF AUTHORITIES HAVING JURISDICTION.

2.2 FABRICATION

(A) SHOP FABRICATE TO GREATEST EXTENT POSSIBLE.

(B) CONTINUOUSLY SEAL JOINED MEMBERS BY CONTINUOUS WELDS. GRIND EXPOSED WELDS SMOOTH.

(C) FABRICATE CONNECTIONS FOR BOLT, NUT, AND WASHER CONNECTORS.

(D) DEVELOP REQUIRED CAMBER FOR MEMBERS.

2.3 FINISH

(A) SHOP PRIME STRUCTURAL STEEL MEMBERS. DO NOT PRIME SURFACES THAT WILL BE FIREPROOFED, FIELD WELDED, IN CONTACT WITH CONCRETE, OR HIGH STRENGTH BOLTED.

(B) GALVANIZE STRUCTURAL STEEL MEMBERS TO COMPLY WITH ASTM A123/A123M. PROVIDE MINIMUM 1.7 OZ/SQ FT GALVANIZED COATING.

2.4 SOURCE QUALITY CONTROL

(A) PROVIDE SHOP TESTING AND ANALYSIS OF STRUCTURAL STEEL.

(B) HIGH-STRENGTH BOLTS: PROVIDE TESTING AND VERIFICATION OF SHOP-BOLTED CONNECTIONS IN ACCORDANCE WITH RCSC (HSBOLT) "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS", TESTING AT LEAST 20 PERCENT OF BOLTS AT EACH CONNECTION.

(C) WELDED CONNECTIONS: VISUALLY INSPECT ALL SHOP-WELDED CONNECTIONS AND TEST

(D) WELDED CONNECTIONS: VISUALLY INSPECT ALL SHOP-WELDED CONNECTIONS AND TEST AT LEAST 10 PERCENT OF WELDS USING ONE OF THE FOLLOWING:

1. ULTRASONIC ASTM E164

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY THAT CONDITIONS ARE APPROPRIATE FOR ERECTION OF STRUCTURAL STEEL AND THAT THE WORK MAY PROPERLY PROCEED.

3.2 ERECTION

(A) ERECT STRUCTURAL STEEL IN COMPLIANCE WITH AISC 303.

(B) ALLOW FOR ERECTION LOADS, AND PROVIDE SUFFICIENT TEMPORARY BRACING TO MAINTAIN STRUCTURE IN SAFE CONDITION, PLUMB, AND IN TRUE ALIGNMENT UNTIL COMPLETION OF ERECTION AND INSTALLATION OF PERMANENT BRACING.

(C) FIELD WELD COMPONENTS AND SHEAR STUDS INDICATED ON SHOP DRAWINGS.

(D) USE CARBON STEEL BOLTS ONLY FOR TEMPORARY BRACING DURING CONSTRUCTION, UNLESS OTHERWISE SPECIFICALLY PERMITTED ON DRAWINGS. INSTALL HIGH-STRENGTH BOLTS IN ACCORDANCE WITH RCSC (HSBOLT) "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS".

(E) DO NOT FIELD CUT OR ALTER STRUCTURAL MEMBERS WITHOUT APPROVAL OF ARCHITECT.

(F) AFTER ERECTION, PRIME WELDS, ABRASIONS, AND SURFACES NOT SHOP PRIMED, EXCEPT SURFACES TO BE IN CONTACT WITH CONCRETE.

(G) GROUT SOLIDLY BETWEEN COLUMN PLATES AND BEARING SURFACES, COMPLYING WITH MANUFACTURER'S INSTRUCTIONS FOR NONSHRINK GROUT. TROWEL GROUTED SURFACES SMOOTH, SPLAYING NEATLY TO 45 DEGREES.

3.3 TOLERANCES

(A) MAXIMUM VARIATION FROM PLUMB: 1/4 INCH PER STORY, NON-CUMULATIVE.

(B) MAXIMUM OFFSET FROM TRUE ALIGNMENT: 1/4 INCH.

3.4 FIELD QUALITY CONTROL

(A) AN INDEPENDENT TESTING AGENCY WILL PERFORM FIELD QUALITY CONTROL TESTS, AS SPECIFIED IN SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) WELDED CONNECTIONS: VISUALLY INSPECT ALL FIELD-WELDED CONNECTIONS AND TEST AT LEAST 25 PERCENT OF WELDS USING ONE OF THE FOLLOWING:

1. ULTRASONIC ASTM E164.

(C) BOLTED CONNECTIONS: VISUALLY INSPECT ALL BOLTED CONNECTIONS ACCORDING TO RCSC'S "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM 325 OR A 490 BOLTS"

END OF SECTION

SECTION 05 12 13 - ARCHITECTURALLY-EXPOSED STRUCTURAL STEEL FRAMING

PART 1 - GENERAL

1.1 SECTION INCLUDES

(A) ADDITIONAL REQUIREMENTS FOR STRUCTURAL STEEL MEMBERS DESIGNATED AS ARCHITECTURALLY-EXPOSED STRUCTURAL STEEL (AESS).

1.2 RELATED REQUIREMENTS

(A) SECTION 05 12 00 - STRUCTURAL STEEL FRAMING: GENERAL REQUIREMENTS FOR STRUCTURAL STEEL MEMBERS, INCLUDING AESS FRAMING SPECIFIED IN THIS SECTION.

(B) SECTION 09 91 00 - PAINTING: FINISH COAT REQUIREMENTS AND COORDINATION WITH PRIMER AND SURFACE PREPARATION SPECIFIED IN THIS SECTION.

1.3 DEFINITIONS

(A) ARCHITECTURALLY-EXPOSED STRUCTURAL STEEL: STRUCTURAL STEEL COMPLYING WITH DESIGNATED AESS CATEGORY AS DEFINED IN AISC 303.

1.4 REFERENCE STANDARDS

(A) AISC 303 - CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES; 2016.

(B) AISC 360 - SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS; 2016.

(C) ASTM A6/A6M - STANDARD SPECIFICATION FOR GENERAL REQUIREMENTS FOR ROLLED STRUCTURAL STEEL BARS, PLATES, SHAPES, AND SHEET PILING; 2017.

(D) ASTM A123/A123M - STANDARD SPECIFICATION FOR ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS; 2017.

(E) ASTM A500/A500M - STANDARD SPECIFICATION FOR COLD-FORMED WELDED AND SEAMLESS CARBON STEEL STRUCTURAL TUBING IN ROUNDS AND SHAPES; 2013.

(F) ASTM A780/A780M - STANDARD PRACTICE FOR REPAIR OF DAMAGED AND UNCOATED AREAS OF HOT-DIP GALVANIZED COATINGS; 2009 (REAPPROVED 2015).

(G) ASTM A1085/A1085M - STANDARD SPECIFICATION FOR COLD-FORMED WELDED CARBON STEEL HOLLOW STRUCTURAL SECTIONS (HSS); 2015.

(H) ASTM F3125/F3125M - STANDARD SPECIFICATION FOR HIGH STRENGTH STRUCTURAL BOLTS, STEEL AND ALLOY STEEL, HEAT TREATED, 120 KSI (830 MPA) AND 150 KSI (1040 MPA) MINIMUM TENSILE STRENGTH, INCH AND METRIC DIMENSIONS; 2015A.

(I) AWS A2.4 - STANDARD SYMBOLS FOR WELDING, BRAZING, AND NONDESTRUCTIVE EXAMINATION; 2012.

(J) AWS D1.1/D1.1M - STRUCTURAL WELDING CODE - STEEL; 2015 (WITH MARCH 2016 ERRATA).

(K) SSPC-SP 1 - SOLVENT CLEANING; 2015.

(L) SSPC-SP 6 - COMMERCIAL BLAST CLEANING; 2007.

1.5 ADMINISTRATIVE REQUIREMENTS

(A) PREINSTALLATION MEETING: SCHEDULE AND CONDUCT A PREINSTALLATION MEETING AT PROJECT SITE ONE WEEK PRIOR TO START OF WORK OF THIS SECTION; REQUIRE ATTENDANCE BY ALL AFFECTED INSTALLERS. COORDINATE REQUIREMENTS FOR SHIPPING, SPECIAL HANDLING, STORAGE, ATTACHMENT OF SAFETY CABLES AND TEMPORARY ERECTION BRACING, FINAL COATING, TOUCH-UP PAINTING, MOCK-UP COORDINATION, ARCHITECT'S OBSERVATIONS, AND OTHER REQUIREMENTS FOR AESS.

1.6 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA FOR EACH TYPE OF PRODUCT SPECIFIED. SUBMIT PAINT SYSTEMS IN ACCORDANCE WITH SECTION 09 91 00.

(C) SHOP DRAWINGS: DETAILING FOR FABRICATION OF AESS COMPONENTS.

1. PROVIDE ERECTION DOCUMENTS CLEARLY INDICATING WHICH MEMBERS ARE AESS MEMBERS AND THE AESS CATEGORY OF EACH PART.

2. INCLUDE DETAILS THAT CLEARLY IDENTIFY AESS REQUIREMENTS FOUND IN THIS SPECIFICATION. PROVIDE CONNECTIONS FOR AESS CONSISTENT WITH CONCEPTS SHOWN ON DRAWINGS.

3. INDICATE WELDS BY AWS A2.4 SYMBOLS, DISTINGUISHING BETWEEN SHOP AND FIELD WELDS, AND SHOW SIZE, LENGTH AND TYPE OF EACH WELD. IDENTIFY GRINDING, FINISH AND PROFILE OF WELDS AS DEFINED BY THE DESIGNATED AESS CATEGORY.

4. INDICATE ORIENTATION OF HOLLOW STRUCTURAL SECTION (HSS) SEAMS AND MILL MARKS (WHERE APPLICABLE).

5. INDICATE TYPE, SIZE, FINISH AND LENGTH OF BOLTS, DISTINGUISHING BETWEEN SHOP AND FIELD BOLTS. IDENTIFY HIGH-STRENGTH BOLTED SLIP-CRITICAL, DIRECT-TENSIONED SHEAR/BEARING CONNECTIONS. INDICATE ORIENTATION OF BOLT HEADS.

6. INDICATE WHICH SURFACES OR EDGES ARE EXPOSED AND WHAT CLASS OF SURFACE PREPARATION IS BEING USED.

7. INDICATE SPECIAL TOLERANCES AND ERECTION REQUIREMENTS AS NOTED ON DRAWINGS OR DEFINED BY THE DESIGNATED AESS CATEGORY.

8. INDICATE VENT OR DRAINAGE HOLES FOR HSS MEMBERS.

(D) AESS 1, AESS 2, AESS 3, AESS 4, AND AESS C SAMPLES: PROVIDE SAMPLES OF SPECIFIC AESS CHARACTERISTICS. SAMPLES MAY BE SMALL SIZE SAMPLES OR COMPONENTS OF CONVENTIONAL STRUCTURAL STEEL DEMONSTRATING SPECIFIC AESS CHARACTERISTICS, INCLUDING SURFACE PREPARATION, SHARP EDGES GROUND SMOOTH, CONTINUOUS WELD APPEARANCE, WELD SHOW THROUGH, AND FABRICATION MARK REMOVAL.

(E) QUALIFICATION DATA FOR FABRICATOR AND ERECTOR TO DEMONSTRATE THEIR CAPABILITIES AND EXPERIENCE. INCLUDE LISTS OF COMPLETED PROJECTS NAMES AND ADDRESS, NAMES AND ADDRESSES OF ARCHITECTS AND OWNERS, PHOTOGRAPHS SHOWING DETAIL OF INSTALLED AESS, AND OTHER INFORMATION SPECIFIED.

1.7 QUALITY ASSURANCE

(A) FABRICATOR QUALIFICATIONS: IN ADDITION TO THOSE QUALIFICATIONS LISTED IN SECTION 05 12 00, ENGAGE AN AISC CERTIFIED FABRICATOR, EXPERIENCED IN FABRICATING AESS SIMILAR TO THAT INDICATED FOR THIS PROJECT WITH A RECORD OF SUCCESSFUL IN-SERVICE PERFORMANCE, AS WELL AS SUFFICIENT PRODUCTION CAPACITY TO FABRICATE AESS WITHOUT DELAYING THE WORK.

(B) ERECTOR QUALIFICATIONS: IN ADDITION TO THOSE QUALIFICATIONS LISTED IN SECTION 05 12 00, ENGAGE AN AISC CERTIFIED ERECTOR, EXPERIENCED IN ERECTING AESS WORK SIMILAR IN MATERIAL, DESIGN, AND EXTENT TO THAT INDICATED FOR THIS PROJECT AND WITH A RECORD OF SUCCESSFUL IN-SERVICE PERFORMANCE.

(C) COMPLY WITH APPLICABLE PROVISIONS OF AISC 303, SECTION 10 FOR THE DESIGNATED AESS CATEGORY.

(D) OWNER TO ENGAGE A QUALITY ASSURANCE AGENCY PER REQUIREMENTS OF AISC 360, CHAPTER N AND AISC 303, SECTION 10.

(E) CONTRACTOR TO ENGAGE A QUALITY ASSURANCE AGENCY PER REQUIREMENTS OF AISC 360, CHAPTER N AND AISC 303, SECTION 10.

1.8 MOCK-UP

(A) PROVIDE MOCK-UPS FOR AESS 3, AESS 4, AND AESS C OF NATURE AND EXTENT INDICATED IN CONTRACT DOCUMENTS.

(B) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS FOR ADDITIONAL REQUIREMENTS.

(C) LOCATE MOCK-UPS IN FABRICATOR'S SHOP. MOCK-UPS TO BE FULL-SIZE UNLESS ARCHITECT APPROVES SMALLER MODELS. ALTERNATIVELY, WHEN A MOCK-UP IS NOT PRACTICAL, THE FIRST PIECE OF AN ELEMENT OR CONNECTION CAN BE USED TO DETERMINE ACCEPTABILITY.

(D) NOTIFY ARCHITECT ONE WEEK IN ADVANCE OF DATES AND TIMES WHEN MOCK-UPS WILL BE AVAILABLE FOR REVIEW.

(E) DEMONSTRATE APPLICABLE AESS CHARACTERISTICS FOR SPECIFIED CATEGORY OF AESS ON ELEMENTS AND JOINTS IN MOCK-UP.

(F) BUILD MOCK-UPS USING MEMBER SIZES AND MATERIALS INDICATED FOR FINAL WORK.

(G) MOCK-UP TO DEMONSTRATE WELD QUALITY, CONTOURING OF WELDS AT ALIGNED WALLS OF MEMBERS, SPECIFIED SURFACE PREPARATION, AND FINISH COATING.

(H) HSS MEMBERS TO EXTEND AT LEAST 6 INCHES FROM JOINT IN MOCK-UP.

(I) OBTAIN ARCHITECT92S WRITTEN APPROVAL OF MOCK-UPS BEFORE STARTING FABRICATION.

(J) RETAIN AND MAINTAIN MOCK-UPS DURING CONSTRUCTION IN AN UNDISTURBED CONDITION AS A STANDARD FOR JUDGING COMPLETED WORK.

(K) APPROVED MOCK-UPS IN AN UNDISTURBED CONDITION AT DATE OF SUBSTANTIAL COMPLETION MAY BECOME PART OF COMPLETED WORK.

1.9 DELIVERY, STORAGE, AND HANDLING

(A) HANDLE FINISHED PIECES IN ACCORDANCE WITH SECTION 10 OF AISC 303, USING NYLON-TYPE SLINGS, OR CHAINS WITH SOFTENERS, OR WIRE ROPES WITH SOFTENERS SUCH THAT THEY ARE NOT DAMAGED.

(B) STORE MATERIALS TO PERMIT EASY ACCESS FOR INSPECTION AND IDENTIFICATION. KEEP STEEL MEMBERS OFF GROUND BY USING PALLETS, PLATFORMS, OR OTHER SUPPORTS. PROTECT STEEL MEMBERS AND PACKAGED MATERIALS FROM EROSION AND DETERIORATION. USE SPECIAL CARE IN HANDLING TO PREVENT TWISTING OR WARPING OF AESS MEMBERS.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS

(A) COMPLY WITH SECTION 05 12 00, EXCEPT AS AMENDED IN THIS SECTION FOR AESTHETIC PURPOSES.

(B) COMPLY WITH AISC 303, SECTION 10 FOR SPECIFIC AESS CATEGORY DESIGNATED ON DRAWINGS.

(C) COMPLY WITH AISC 303, SECTION 10 FOR SPECIFIC AESS AS FOLLOWS:

2.2 FABRICATION

(A) FABRICATE AND ASSEMBLE AESS IN SHOP TO GREATEST EXTENT POSSIBLE. LOCATE FIELD JOINTS IN AESS ASSEMBLIES AT CONCEALED LOCATIONS OR AS APPROVED BY ARCHITECT. DETAIL AESS ASSEMBLIES TO MINIMIZE FIELD HANDLING AND EXPEDITE ERECTION.

(B) PERMISSIBLE TOLERANCES FOR MEMBER DEPTH, WIDTH, OUT OF SQUARE, AND CAMBER AND SWEEP TO BE AS SPECIFIED IN ASTM A6/A6M, ASTM A500/A500M, AND ASTM A1085/A1085M.

(C) FOR CURVED STRUCTURAL MEMBERS, WHETHER COMPOSED OF A SINGLE STANDARD STRUCTURAL SHAPE OR BUILT-UP, THE AS-FABRICATED VARIATION FROM THEORETICAL CURVATURE TO BE EQUAL TO OR LESS THAN STANDARD CAMBER AND SWEEP TOLERANCES PERMITTED FOR STRAIGHT MEMBERS IN APPLICABLE ASTM STANDARD.

(D) USE SPECIAL CARE IN HANDLING AND SHIPPING OF AESS BOTH BEFORE AND AFTER SHOP PAINTING TO MINIMIZE DAMAGE TO ANY SHOP FINISH. USE NYLON-TYPE SLINGS OR SOFTENERS WHEN USING CHAINS OR WIRE ROPE SLINGS.

(E) BOLTED CONNECTIONS:

1. MAKE IN ACCORDANCE WITH SECTION 05 12 00. PROVIDE BOLT TYPE AND FINISH AS NOTED HEREIN.

(F) WELDED CONNECTIONS:

1. COMPLY WITH AWS D1.1/D1.1M AND SECTION 05 12 00.

2. ASSEMBLE AND WELD BUILT-UP SECTIONS BY METHODS THAT WILL MAINTAIN ALIGNMENT OF MEMBERS WITHOUT WARP EXCEEDING TOLERANCES OF THIS SECTION.

(G) SURFACE PREPARATION:

1. REMOVE BLEMISHES OR UNSIGHTLY SURFACES RESULTING FROM TEMPORARY BRACES OR FIXTURES.

2. REMOVE BACKING AND RUN OUT TABS.

(H) FABRICATE AESS IN ACCORDANCE WITH CATEGORIES DEFINED IN AISC 303, AS FOLLOWS:

1. AESS 1: BASIC ELEMENTS.

2. AESS 2: FEATURE ELEMENTS VIEWED AT A DISTANCE GREATER THAN 20 FEET (FEATURE ELEMENTS NOT IN CLOSE VIEW).

3. AESS 3: FEATURE ELEMENTS VIEWED AT A DISTANCE LESS THAN 20 FEET (FEATURE ELEMENTS IN CLOSE VIEW).

4. AESS 4: SHOWCASE ELEMENTS WITH SPECIAL SURFACE AND EDGE TREATMENT BEYOND FABRICATION (SHOWCASE ELEMENTS).

2.3 PAINT SYSTEM

(A) COMPATIBILITY: ALL COMPONENTS/PROCEDURES OF AESS PAINT SYSTEM TO COMPLY WITH COATING SYSTEM SPECIFIED, SUBMITTED, AND APPROVED PER SECTIONS 09 91 00. AS A MINIMUM, IDENTIFY REQUIRED SURFACE PREPARATION, PRIMER, INTERMEDIATE COAT (IF APPLICABLE), AND FINISH COAT. PRIMER, INTERMEDIATE COATING, AND FINISH COATING TO BE FROM A SINGLE MANUFACTURER COMBINED IN A SYSTEM DOCUMENTED BY MANUFACTURER WITH ADEQUATE GUIDANCE FOR FABRICATOR TO PROCURE AND EXECUTE.

(B) PRIMER: AS SPECIFIED IN SECTIONS 09 91 00. PRIMER TO COMPLY WITH ALL FEDERAL STANDARDS FOR VOC, LEAD AND CHROMATE LEVELS.

(C) PRIMER: ORGANIC, EPOXY/ZINC RICH MEETING CLASS B SURFACE REQUIREMENTS FOR SLIP CRITICAL CONNECTIONS, AS FOUND IN AISC 360. PRIMER TO COMPLY WITH ALL FEDERAL STANDARDS FOR VOC, LEAD AND CHROMATE LEVELS.

(D) FINISH COATING: FIELD APPLY INTERMEDIATE AND TOP COATS PER SECTIONS 09 91 00.

2.4 SHOP PRIMING

(A) SURFACE PREPARATION:

1. PROVIDE SURFACE PREPARATIONS TO MEET SSPC-SP 6.

2. COORDINATE REQUIRED SURFACE PROFILE WITH APPROVED PAINT SUBMITTAL PRIOR TO BEGINNING SURFACE PREPARATION.

3. PRIOR TO BLASTING, REMOVE ANY GREASE AND OIL USING SOLVENT CLEANING TO MEET SSPC-SP 1.

4. REMOVE WELD SPATTER, SLIVERS AND SIMILAR SURFACE DISCONTINUITIES.

5. EASE SHARP CORNERS RESULTING FROM SHEARING, FLAME CUTTING OR GRINDING.

(B) SHOP PRIME STRUCTURAL STEEL MEMBERS. DO NOT PRIME SURFACES THAT WILL BE FIREPROOFED, FIELD WELDED, IN CONTACT WITH CONCRETE, OR HIGH STRENGTH BOLTED WITH SLIP-CRITICAL CONNECTIONS.

1. EXTEND PRIMING OF MEMBERS PARTIALLY EMBEDDED IN CONCRETE OR MORTAR TO A DEPTH OF 2 INCHES.

(C) PRIMING: IMMEDIATELY AFTER SURFACE PREPARATION, APPLY PRIMER ACCORDING TO MANUFACTURER92S INSTRUCTIONS TO PROVIDE A DRY FILM THICKNESS OF NOT LESS THAN 1.5 MILS. USE PRIMING METHODS THAT RESULT IN FULL COVERAGE OF JOINTS, CORNERS, EDGES, AND EXPOSED SURFACES.

1. STRIPE PAINT CORNERS, CREVICES, BOLTS, WELDS, AND SHARP EDGES.

2. APPLY TWO COATS OF SHOP PRIMER TO SURFACES THAT ARE INACCESSIBLE AFTER ASSEMBLY OR ERECTION.

2.5 GALVANIZING

(A) HOT-DIP GALVANIZED FINISH: APPLY ZINC COATING BY HOT-DIP PROCESS TO AESS INDICATED FOR GALVANIZING ACCORDING TO ASTM A123/A123M. FABRICATE SUCH THAT ALL CONNECTIONS OF ASSEMBLIES ARE MADE IN THE FIELD WITH BOLTED CONNECTIONS WHERE POSSIBLE.

2.6 MATERIALS

(A) GENERAL: MEET REQUIREMENTS OF 05 12 00 AS AMENDED BELOW.

(B) TENSION CONTROL, HIGH-STRENGTH BOLTS, NUTS, AND WASHERS: PER SECTION 05 12 00, TENSION CONTROL BOLTS. PROVIDE STANDARD CARBON STEEL FINISH ROUNDED BOLT HEADS WITH TWIST OFF BOLTS; ASTM F3125/F3125M.

2.7 SOURCE QUALITY CONTROL

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL REQUIREMENTS.

(B) STRUCTURAL REQUIREMENTS:

1. COMPLY WITH QUALITY CONTROL REQUIREMENTS PER AISC 360, CHAPTER N AND AISC 303, SECTION 10. REFER TO SECTION 05 12 00 FOR ADDITIONAL REQUIREMENTS.

2. QUALITY ASSURANCE AGENCY TO REVIEW WORK FOR COMPLIANCE WITH REQUIREMENTS OF AISC 360, CHAPTER N AND AISC 303, SECTION 10.

(C) AESS 1 AND 2 ACCEPTANCE: ARCHITECT TO OBSERVE AESS IN THE SHOP AT A VIEWING DISTANCE CONSISTENT WITH FINAL INSTALLATION AND DETERMINE ACCEPTABILITY BASED ON QUALIFICATION

DATA AND SUBMITTALS. QUALITY ASSURANCE AGENCY HAS NO RESPONSIBILITY FOR ENFORCING REQUIREMENTS RELATED TO AESTHETIC EFFECT.

(D) AESS 3,4, AND C ACCEPTANCE: ARCHITECT TO OBSERVE AESS IN THE SHOP AT A VIEWING DISTANCE CONSISTENT WITH FINAL INSTALLATION AND DETERMINE ACCEPTABILITY BASED ON APPROVED MOCK-UP. QUALITY ASSURANCE AGENCY HAS NO RESPONSIBILITY FOR ENFORCING REQUIREMENTS RELATED TO AESTHETIC EFFECT.

PART 3 - EXECUTION

3.1 EXAMINATION

(A) ERECTOR TO CHECK ALL AESS MEMBERS UPON DELIVERY FOR TWIST, KINKS, GOUGES OR OTHER IMPERFECTIONS WHICH MAY RESULT IN REJECTION OF APPEARANCE OF MEMBER. COORDINATE REMEDIAL ACTION WITH FABRICATOR PRIOR TO ERECTING STEEL.

3.2 PREPARATION

(A) PROVIDE CONNECTIONS FOR TEMPORARY SHORING, BRACING AND SUPPORTS ONLY WHERE NOTED ON APPROVED FABRICATION DOCUMENTS. TEMPORARY CONNECTIONS NOT SHOWN ARE TO BE MADE AT LOCATIONS NOT EXPOSED TO VIEW IN FINAL STRUCTURE OR AS APPROVED BY ARCHITECT.

(B) HANDLE, LIFT AND ALIGN PIECES USING NYLON STRAPS OR CHAINS WITH SOFTENERS REQUIRED TO MAINTAIN APPEARANCE OF AESS THROUGH PROCESS OF ERECTION.

3.3 ERECTION

(A) AESS 1 AND 2: BASIC ELEMENTS; FEATURE ELEMENTS NOT IN CLOSE VIEW:

1. EMPLOY SPECIAL CARE TO HANDLE AND ERECT AESS. ERECT FINISHED PIECES USING NYLON STRAPS OR CHAINS WITH SOFTENERS SUCH THAT THEY ARE NOT DAMAGED.

2. PLACE WELD TABS FOR TEMPORARY BRACING AND SAFETY CABLING AT POINTS CONCEALED FROM VIEW IN COMPLETED STRUCTURE OR WHERE APPROVED BY ARCHITECT DURING PRE-INSTALLATION MEETING. OBTAIN ARCHITECT APPROVAL OF METHODS FOR REMOVING TEMPORARY DEVICES AND FINISHING AESS MEMBERS PRIOR TO ERECTION.

3. AESS ERECTION TOLERANCES: ERECT TO STANDARD FRAME TOLERANCES FOR STRUCTURAL STEEL PER CHAPTER 7 OF AISC 303.

4. SET AESS ACCURATELY IN LOCATIONS AND TO ELEVATIONS INDICATED AND ACCORDING TO AISC 303 AND AISC 360.

5. REMOVE BLEMISHES OR UNSIGHTLY SURFACES RESULTING FROM TEMPORARY BRACES OR FIXTURES.

6. REMOVE ALL BACKING AND RUN OUT TABS.

7. WHEN TEMPORARY BRACES OR FIXTURES ARE REQUIRED TO FACILITATE ERECTION, TAKE CARE TO AVOID ANY BLEMISHES, HOLES OR UNSIGHTLY SURFACES RESULTING FROM USE OR REMOVAL OF SUCH TEMPORARY ELEMENTS.

8. BOLTED CONNECTIONS: ALIGN BOLT HEADS ON SAME SIDE OF CONNECTION AS INDICATED ON APPROVED FABRICATION OR ERECTION DOCUMENTS.

9. WELDED CONNECTIONS: COMPLY WITH AWS D1.1/D1.1M AND SECTION 05 12 00. APPEARANCE AND QUALITY OF WELDS TO BE CONSISTENT. EMPLOY METHODS THAT WILL MAINTAIN ALIGNMENT OF MEMBERS WITHOUT WARP EXCEEDING TOLERANCE OF THIS SECTION.

10. REMOVE WELD SPATTER EXPOSED TO VIEW.

11. GRIND OFF PROJECTIONS LARGER THAN 1/16 INCH AT FIELD BUTT AND PLUG WELDS.

12. CONTINUOUS WELDS: WHERE CONTINUOUS WELDING IS NOTED ON DRAWINGS, PROVIDE CONTINUOUS WELDS OF A UNIFORM SIZE AND PROFILE.

13. DO NOT ENLARGE HOLES IN MEMBERS BY BURNING OR BY USING DRIFT PINS. REAM HOLES THAT MUST BE ENLARGED TO ADMIT BOLTS. REPLACE CONNECTION PLATES THAT ARE MISALIGNED WHERE HOLES CANNOT BE ALIGNED WITH ACCEPTABLE FINAL APPEARANCE.

14. SPLICE MEMBERS ONLY WHERE INDICATED.

15. OBTAIN PERMISSION FOR ANY TORCH CUTTING OR FIELD FABRICATION FROM ARCHITECT. FINISH SECTIONS THERMALLY CUT DURING ERECTION TO A SURFACE APPEARANCE CONSISTENT WITH MOCK-UP.

(B) AESS 3: FEATURE ELEMENTS IN CLOSE VIEW:

1. ERECT TO REQUIREMENTS OF AESS 1 AND 2 AND AS FOLLOWS:

2. FIELD WELDING: WELD PROFILE, QUALITY, AND FINISH TO BE CONSISTENT WITH MOCK-UPS APPROVED PRIOR TO FABRICATION.

3. PROVIDE A CONTINUOUS APPEARANCE TO ALL WELDED JOINTS INCLUDING TACK WELDS. PROVIDE JOINT FILLER AT INTERMITTENT WELDS.

(C) AESS 4: SHOWCASE ELEMENTS:

1. ERECT TO REQUIREMENTS OF AESS 3 AND AS FOLLOWS:

2. GRIND WELDS SMOOTH.

3. MINIMIZE WELD SHOW THROUGH: AT LOCATIONS WHERE WELDING ON FAR SIDE OF AN EXPOSED CONNECTION CREATES DISTORTION, GRIND DISTORTION AND MARKING OF STEEL TO A SMOOTH PROFILE WITH ADJACENT MATERIAL.

4. FILLING OF WELD ACCESS HOLES: WHERE HOLES MUST BE CUT IN WEB AT INTERSECTION WITH FLANGES ON W SHAPES AND STRUCTURAL TEES TO PERMIT FIELD WELDING OF FLANGES, FILL HOLES WITH JOINT FILLER.

5. WHERE WELDS ARE INDICATED TO BE GROUND, CONTOURED, OR BLENDED, OVERSIZE WELDS AS REQUIRED AND GRIND TO PROVIDE A SMOOTH TRANSITION AND MATCH PROFILE ON APPROVED MOCK-UP.

3.4 FIELD QUALITY CONTROL

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL REQUIREMENTS.

(B) STRUCTURAL REQUIREMENTS:

1. COMPLY WITH QUALITY CONTROL REQUIREMENTS PER AISC 360, CHAPTER N AND AISC 303, SECTION 10. REFER TO SECTION 05 12 00 FOR ADDITIONAL REQUIREMENTS.

2. QUALITY ASSURANCE AGENCY TO REVIEW WORK FOR COMPLIANCE WITH REQUIREMENTS OF AISC 360, CHAPTER N AND AISC 303, SECTION 10.

(C) AESS 1 AND 2 ACCEPTANCE: ARCHITECT TO OBSERVE AESS IN PLACE AND DETERMINE ACCEPTABILITY BASED ON QUALIFICATION DATA AND SUBMITTALS. QUALITY ASSURANCE AGENCY HAS NO RESPONSIBILITY FOR ENFORCING REQUIREMENTS RELATED TO AESTHETIC EFFECT.

(D) AESS 3,4, AND C ACCEPTANCE: ARCHITECT TO OBSERVE AESS IN PLACE AND DETERMINE ACCEPTABILITY BASED ON QUALIFICATION DATA AND SUBMITTALS AS WELL AS ON APPROVED MOCK- UP. QUALITY ASSURANCE AGENCY HAS NO RESPONSIBILITY FOR ENFORCING REQUIREMENTS RELATED TO AESTHETIC EFFECT.

3.5 CLEANING

(A) TOUCH-UP PAINTING: COMPLETE CLEANING AND TOUCH-UP PAINTING OF FIELD WELDS, BOLTED CONNECTIONS, AND ABRADED AREAS OF SHOP PAINT TO BLEND WITH ADJACENT SURFACES OF AESS. PERFORM TOUCH-UP WORK IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND AS SPECIFIED IN SECTION 09 91 00.

(B) GALVANIZED SURFACES: CLEAN FIELD WELDS, BOLTED CONNECTIONS, AND ABRADED AREAS. REPAIR GALVANIZED SURFACES IN ACCORDANCE WITH ASTM A780/A780M.

(C) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL REQUIREMENTS.

END OF SECTION

SECTION 05 31 00 - STEEL DECKING

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) ROOF DECK.

(B) METAL FORM DECK.

(C) BEARING PLATES AND ANGLES.

1.2 RELATED REQUIREMENTS

(A) SECTION 03 30 00 - CAST-IN-PLACE CONCRETE: CONCRETE TOPPING OVER METAL DECK.

(B) SECTION 05 12 00 - STRUCTURAL STEEL FRAMING: SUPPORT FRAMING FOR OPENINGS LARGER THAN 18 INCHES AND SHEAR STUD CONNECTORS.

(C) SECTION 09 91 00 - PAINTING AND COATING: PAINTING OF EXPOSED ROOF STRUCTURE.

1.3 REFERENCE STANDARDS

(A) ASTM A36/A36M - STANDARD SPECIFICATION FOR CARBON STRUCTURAL STEEL; 2014.

(B) ASTM A123/A123M - STANDARD SPECIFICATION FOR ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS; 2017.

(C) ASTM A653/A653M - STANDARD SPECIFICATION FOR STEEL SHEET, ZINC-COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT-DIP PROCESS; 2015, WITH EDITORIAL REVISION (2016).

(D) AWS D1.1/D1.1M - STRUCTURAL WELDING CODE - STEEL; 2015 (WITH MARCH 2016 ERRATA).

(E) AWS D1.3/D1.3M - STRUCTURAL WELDING CODE - SHEET STEEL; 2008.

(F) ICC-ES AC43 - ACCEPTANCE CRITERIA FOR STEEL DECK ROOF AND FLOOR SYSTEMS; ICC EVALUATION SERVICE, INC; 2010 (R2013).

(G) SDI (DM) - PUBLICATION NO.30, DESIGN MANUAL FOR COMPOSITE DECKS, FORM DECKS, AND ROOF DECKS; 2007.

(H) SSPC-PAINT 15 - STEEL JOIST SHOP PRIMER/METAL BUILDING PRIMER; 1999 (ED. 2004).

(I) SSPC-PAINT 20 - ZINC-RICH PRIMERS (TYPE I, "INORGANIC," AND TYPE II, "ORGANIC"); 2002 (ED. 2004).

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) SHOP DRAWINGS: INDICATE DECK PLAN, SUPPORT LOCATIONS, PROJECTIONS, OPENINGS, REINFORCEMENT, PERTINENT DETAILS, AND ACCESSORIES.

(C) PRODUCT DATA: PROVIDE DECK PROFILE CHARACTERISTICS, DIMENSIONS, STRUCTURAL PROPERTIES, AND FINISHES.

(D) CERTIFICATES: CERTIFY THAT PRODUCTS FURNISHED MEET OR EXCEED SPECIFIED REQUIREMENTS.

(E) SUBMIT MANUFACTURER'S INSTALLATION INSTRUCTIONS.

(F) WELDERS CERTIFICATES: CERTIFY WELDERS EMPLOYED ON THE WORK, VERIFYING AWS QUALIFICATION WITHIN THE PREVIOUS 12 MONTHS.

1.5 QUALITY ASSURANCE

(A) DESIGN DECK LAYOUT, SPANS, FASTENING, AND JOINTS UNDER DIRECT SUPERVISION OF A PROFESSIONAL STRUCTURAL ENGINEER EXPERIENCED IN DESIGN OF THIS WORK AND LICENSED IN MONTANA.

(B) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING THE WORK OF THIS SECTION WITH MINIMUM 5 YEARS OF EXPERIENCE.

(C) SPECIAL INSPECTIONS AND QUALITY ASSURANCE: THE CONTRACTOR SHALL FOLLOW THE SPECIAL INSPECTION AND QUALITY ASSURANCE MEASURES INDICATED IN THE 2012 INTERNATIONAL BUILDING CODE, AND THE DRAWINGS.

1.6 DELIVERY, STORAGE, AND HANDLING

(A) CUT PLASTIC WRAP TO ENCOURAGE VENTILATION.

(B) SEPARATE SHEETS AND STORE DECK ON DRY WOOD SLEEPERS; SLOPE FOR POSITIVE DRAINAGE.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) STEEL DECK:

1. CANAM STEEL CORPORATION: WWW.CANAM-STEELJOISTS.WS.

2. NUCOR-VULCRAFT GROUP: WWW.VULCRAFT.COM/#SLE.

3. EPIC METALS: WWW. EPICMETALS.COM.

4. VERSA-DEK, METAL DEK GROUP, A UNIT OF CSI: WWW.METALDEK.COM

5. SUBSTITUTIONS: SEE SECTION 01 60 00 - PRODUCT REQUIREMENTS.

2.2 STEEL DECK

(A) ALL DECK TYPES: SELECT AND DESIGN METAL DECK IN ACCORDANCE WITH SDI DESIGN MANUAL.

1. CALCULATE TO STRUCTURAL WORKING STRESS DESIGN AND STRUCTURAL PROPERTIES SPECIFIED.

2. MAXIMUM VERTICAL DEFLECTION OF ROOF DECK: 1/240 OF SPAN.

(B) ROOF DECK: **"TYPE 2"** NON-COMPOSITE TYPE, FLUTED STEEL SHEET:

1. GALVANIZED STEEL SHEET: ASTM A653/A653M, STRUCTURAL STEEL (SS) GRADE 33/230, WITH G90/Z275 GALVANIZED COATING.

   a. GRADE AS REQUIRED TO MEET PERFORMANCE CRITERIA.

2. PRIMER: SHOP COAT OF MANUFACTURER'S STANDARD PRIMER PAINT OVER CLEANED AND PHOSPHATIZED SUBSTRATE.

3. STRUCTURAL PROPERTIES:

   a. SPAN DESIGN: MULTIPLE.

4. MINIMUM BASE METAL THICKNESS: 18 GAGE

5. NOMINAL HEIGHT: 1.5 INCH.

6. PROFILE: FLUTED; SDI NR.

7. FORMED SHEET WIDTH: 36 INCH.

8. SIDE JOINTS: LOCK SEAM.

9. END JOINTS: LAPPED, WELDED.

(C) METAL FORM DECK: CORRUGATED SHEET STEEL, AS INDICATED ON DRAWINGS

2.3 ACCESSORY MATERIALS

(A) BEARING PLATES AND ANGLES: ASTM A36/A36M STEEL, GALVANIZED PER ASTM A123/A123M.

(B) WELDING MATERIALS: AWS D1.1/D1.1M.

(C) FASTENERS: GALVANIZED HARDENED STEEL, SELF TAPPING.

(D) MECHANICAL FASTENERS: STEEL; HEX WASHER HEAD, SELF-DRILLING, SELF-TAPPING.

1. DESIGN REQUIREMENTS FOR SIDELAP CONNECTIONS: PROVIDE NUMBER AND TYPE OF FASTENERS THAT COMPLY WITH THE APPLICABLE REQUIREMENTS OF SDI (DM)SDI DESIGN METHOD FOR ROOF DECK AND FLOOR DECK APPLICATIONS AND ICC-ES AC43.

(E) WELD WASHERS: MILD STEEL, UNCOATED, 3/4 INCH OUTSIDE DIAMETER, 1/8 INCH THICK.

(F) SHOP AND TOUCH-UP PRIMER: SSPC-PAINT 15, COMPLYING WITH VOC LIMITATIONS OF AUTHORITIES HAVING JURISDICTION.

(G) TOUCH-UP PRIMER FOR GALVANIZED SURFACES: SSPC-PAINT 20, COMPLYING WITH VOC LIMITATIONS OF AUTHORITIES HAVING JURISDICTION.

(H) FLUTE CLOSURES: CLOSED CELL FOAM RUBBER, 1 INCH THICK; PROFILED TO FIT TIGHT TO THE DECK.

2.4 FABRICATED DECK ACCESSORIES

(A) SHEET METAL DECK ACCESSORIES: METAL CLOSURE STRIPS, WET CONCRETE STOPS, AND COVER PLATES, 22 GAGE, 0.0299 INCH THICK SHEET STEEL; OF PROFILE AND SIZE AS INDICATED; FINISHED SAME AS DECK.

(B) CANT STRIPS: FORMED SHEET STEEL, 20 GAGE, 0.0358 INCH MINIMUM THICKNESS, 45 DEGREE SLOPE, 3-1/2 INCH NOMINAL WIDTH AND HEIGHT, FLANGE FOR ATTACHMENT.

(C) ROOF SUMP PANS: FORMED SHEET STEEL, 14 GAGE, 0.0747 INCH MINIMUM THICKNESS, FLAT BOTTOM, SLOPED SIDES, RECESSED 1-1/2 INCHES BELOW ROOF DECK SURFACE, BEARING FLANGE 3 INCHES WIDE, SEALED WATERTIGHT.

(D) FLOOR DRAIN PANS: FORMED SHEET STEEL, 14 GAGE, 0.0747 INCH MINIMUM THICKNESS, FLAT BOTTOM, SLOPED SIDES, RECESSED 1-1/2 INCHES BELOW FLOOR DECK SURFACE, BEARING FLANGE 3 INCHES WIDE, SEALED WATERTIGHT.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY EXISTING CONDITIONS PRIOR TO BEGINNING WORK.

3.2 INSTALLATION

(A) ERECT METAL DECK IN ACCORDANCE WITH SDI DESIGN MANUAL AND MANUFACTURER'S INSTRUCTIONS. ALIGN AND LEVEL.

(B) ON CONCRETE AND MASONRY SURFACES PROVIDE MINIMUM 4 INCH BEARING.

(C) ON STEEL SUPPORTS PROVIDE MINIMUM 3 INCH BEARING.

(D) FASTEN DECK TO STEEL SUPPORT MEMBERS AT ENDS AND INTERMEDIATE SUPPORTS AT 12 INCHES ON CENTER MAXIMUM, PARALLEL WITH THE DECK FLUTE AND AT EACH TRANSVERSE FLUTE USING METHODS SPECIFIED.

1. WELDING: USE FUSION WELDS THROUGH WELD WASHERS.

(E) CLINCH LOCK SEAM SIDE LAPS.

(F) AT MECHANICALLY FASTENED MALE/FEMALE SIDE LAPS FASTEN AT 24 INCHES ON CENTER MAXIMUM.

(G) DRIVE MECHANICAL SIDELAP CONNECTORS COMPLETELY THROUGH ADJACENT LAPPED SHEETS; POSITIVELY ENGAGE ADJACENT SHEETS WITH MINIMUM THREE-THREAD PENETRATION.

(H) AT WELDED MALE/FEMALE SIDE LAPS WELD AT 18 INCHES ON CENTER MAXIMUM.

(I) WELD DECK IN ACCORDANCE WITH AWS D1.3/D1.3M.

(J) WHERE DECK (OTHER THAN CELLULAR DECK ELECTRICAL RACEWAY) CHANGES DIRECTION, INSTALL 6 INCH MINIMUM WIDE SHEET STEEL COVER PLATES, OF SAME THICKNESS AS DECK. FUSION WELD 12 INCHES ON CENTER MAXIMUM.

(K) AT FLOOR EDGES, INSTALL CONCRETE STOPS UPTURNED TO TOP SURFACE OF SLAB, TO CONTAIN WET CONCRETE. PROVIDE STOPS OF SUFFICIENT STRENGTH TO REMAIN STATIONARY WITHOUT DISTORTION.

(L) AT OPENINGS BETWEEN DECK AND WALLS, COLUMNS, AND OPENINGS, PROVIDE SHEET STEEL CLOSURES AND ANGLE FLASHINGS TO CLOSE OPENINGS.

(M) CLOSE OPENINGS ABOVE WALLS AND PARTITIONS PERPENDICULAR TO DECK FLUTES WITH SINGLE ROW OF FOAM CELL CLOSURES.

(N) PLACE METAL CANT STRIPS IN POSITION AND FUSION WELD.

(O) POSITION ROOF DRAIN PANS WITH FLANGE BEARING ON TOP SURFACE OF DECK. FUSION WELD AT EACH DECK FLUTE.

(P) POSITION FLOOR DRAIN PANS WITH FLANGE BEARING ON TOP SURFACE OF DECK. FUSION WELD AT EACH DECK FLUTE.

(Q) IMMEDIATELY AFTER WELDING DECK AND OTHER METAL COMPONENTS IN POSITION, COAT WELDS, BURNED AREAS, AND DAMAGED SURFACE COATING, WITH TOUCH-UP PRIMER.

END OF SECTION

SECTION 05 40 00 - COLD-FORMED METAL FRAMING

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) FORMED STEEL STUD EXTERIOR WALL AND INTERIOR WALL FRAMING.

(B) EXTERIOR WALL SHEATHING.

(C) FORMED STEEL JOIST AND PURLIN FRAMING AND BRIDGING.

1.2 RELATED REQUIREMENTS

(A) SECTION 05 31 00 - STEEL DECKING.

(B) SECTION 06 10 00 - ROUGH CARPENTRY: WOOD BLOCKING AND MISCELLANEOUS FRAMING.

(C) SECTION 07 21 00 - THERMAL INSULATION: INSULATION WITHIN FRAMING MEMBERS.

(D) SECTION 07 92 00 - JOINT SEALANTS.

(E) SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES: LIGHTWEIGHT, NON-LOAD BEARING METAL STUD FRAMING.

(F) SECTION 09 91 00 - PAINTING

1.3 REFERENCE STANDARDS

(A) AISI S100-12 - NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS; AMERICAN IRON AND STEEL INSTITUTE; 2012.

(B) ASTM A153/A153M - STANDARD SPECIFICATION FOR ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE; 2016A.

(C) ASTM A653/A653M - STANDARD SPECIFICATION FOR STEEL SHEET, ZINC-COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT-DIP PROCESS; 2015, WITH EDITORIAL REVISION (2016).

(D) ASTM C955 - STANDARD SPECIFICATION FOR LOAD-BEARING (TRANSVERSE AND AXIAL) STEEL STUDS, RUNNERS (TRACKS), AND BRACING OR BRIDGING FOR SCREW APPLICATION OF GYPSUM PANEL PRODUCTS AND METAL PLASTER BASES; 2017.

(E) ASTM C1177/C1177M - STANDARD SPECIFICATION FOR GLASS MAT GYPSUM SUBSTRATE FOR USE AS SHEATHING; 2013.

(F) SSPC-PAINT 15 - STEEL JOIST SHOP PRIMER/METAL BUILDING PRIMER; 1999 (ED. 2004).

(G) SSPC-PAINT 20 - ZINC-RICH PRIMERS (TYPE I, "INORGANIC," AND TYPE II, "ORGANIC"); 2002 (ED. 2004).

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: PROVIDE DATA ON STANDARD FRAMING MEMBERS; DESCRIBE MATERIALS AND FINISH, PRODUCT CRITERIA LIMITATIONS.

(C) PRODUCT DATA: PROVIDE MANUFACTURER'S DATA ON FACTORY-MADE FRAMING CONNECTORS, SHOWING COMPLIANCE WITH REQUIREMENTS.

1.5 QUALITY ASSURANCE

(A) DESIGNER QUALIFICATIONS: DESIGN FRAMING SYSTEM UNDER DIRECT SUPERVISION OF A PROFESSIONAL STRUCTURAL ENGINEER EXPERIENCED IN DESIGN OF THIS WORK AND LICENSED IN MONTANA.

(B) MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE TYPES OF PRODUCTS SPECIFIED IN THIS SECTION, AND WITH MINIMUM THREE YEARS OF DOCUMENTED EXPERIENCE.

(C) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING THE WORK OF THIS SECTION WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE.

1.6 PROJECT CONDITIONS

(A) VERIFY THAT FIELD MEASUREMENTS ARE AS INDICATED ON THE DRAWINGS.

(B) COORDINATE WORK OF THIS SECTION WITH THE PLACEMENT OF COMPONENTS WITHIN THE STUD FRAMING SYSTEM AS SPECIFIED IN SECTION 09 26 00.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) FRAMING CONNECTORS AND ACCESSORIES:

1. SAME MANUFACTURER AS METAL FRAMING.

2. CLARKDIETRICH BUILDING SYSTEMS

2.2 FRAMING SYSTEM

(A) PROVIDE PRIMARY AND SECONDARY FRAMING MEMBERS, BRIDGING, BRACING, PLATES, GUSSETS, CLIPS, FITTINGS, REINFORCEMENT, AND FASTENINGS AS REQUIRED TO PROVIDE A COMPLETE FRAMING SYSTEM.

(B) DESIGN REQUIREMENTS: PROVIDE COMPLETED FRAMING SYSTEM HAVING THE FOLLOWING CHARACTERISTICS:

1. DESIGN: CALCULATE STRUCTURAL CHARACTERISTICS OF COLD-FORMED STEEL FRAMING MEMBERS ACCORDING TO AISI S100-12.

2. STRUCTURAL PERFORMANCE: DESIGN, ENGINEER, FABRICATE, AND ERECT TO WITHSTAND SPECIFIED DESIGN LOADS FOR PROJECT CONDITIONS WITHIN REQUIRED LIMITS.

3. DESIGN LOADS: IN ACCORDANCE WITH APPLICABLE CODES.

4. LIVE LOAD DEFLECTION MEETING THE FOLLOWING, UNLESS OTHERWISE INDICATED: L/360

5. ABLE TO TOLERATE MOVEMENT OF COMPONENTS WITHOUT DAMAGE, FAILURE OF JOINT SEALS, UNDUE STRESS ON FASTENERS, OR OTHER DETRIMENTAL EFFECTS WHEN SUBJECT TO SEASONAL OR CYCLIC DAY/NIGHT TEMPERATURE RANGES.

6. ABLE TO ACCOMMODATE CONSTRUCTION TOLERANCES, DEFLECTION OF BUILDING STRUCTURAL MEMBERS, AND CLEARANCES OF INTENDED OPENINGS.

(C) SHOP FABRICATE FRAMING SYSTEM TO THE GREATEST EXTENT POSSIBLE.

(D) DELIVER TO SITE IN LARGEST PRACTICAL SECTIONS.

2.3 FRAMING MATERIALS

(A) STUDS AND TRACK: ASTM C955; STUDS FORMED TO CHANNEL, "C", OR "SIGMA" SHAPE WITH PUNCHED WEB; U-SHAPED TRACK IN MATCHING NOMINAL WIDTH AND COMPATIBLE HEIGHT.

1. GAGE AND DEPTH: AS INDICATED ON DRAWINGS.

2. GALVANIZED IN ACCORDANCE WITH ASTM A653/A653M, G90/Z275 COATING.

(B) JOISTS AND PURLINS: FABRICATED FROM ASTM A653/A653M STEEL SHEET, WITH G90/Z275 HOT DIPPED GALVANIZED COATING.

1. BASE METAL: STRUCTURAL STEEL (SS), GRADE 33/230.

2. GAGE AND DEPTH: AS INDICATED ON DRAWINGS.

(C) FRAMING CONNECTORS: FACTORY-MADE, FORMED STEEL SHEET.

1. MATERIAL: ASTM A653/A653M SS GRADE 33 AND 40 (MINIMUM), WITH G90/Z275 HOT DIPPED GALVANIZED COATING FOR BASE METAL THICKNESS LESS THAN 10 GAGE, 0.1345 INCH, AND FACTORY PUNCHED HOLES AND SLOTS.

2. STRUCTURAL PERFORMANCE: MAINTAIN LOAD AND MOVEMENT CAPACITY REQUIRED BY APPLICABLE CODE, WHEN EVALUATED IN ACCORDANCE WITH AISI S100-12.

3. MOVEMENT CONNECTIONS: PROVIDE MECHANICAL ANCHORAGE DEVICES THAT ACCOMMODATE MOVEMENT USING SLOTTED HOLES, SHOULDERED SCREWS OR SCREWS AND ANTI-FRICTION OR STEPPED BUSHINGS, WHILE MAINTAINING STRUCTURAL PERFORMANCE OF FRAMING. PROVIDE MOVEMENT CONNECTIONS WHERE INDICATED ON DRAWINGS.

4. FIXED CONNECTIONS: PROVIDE NON-MOVEMENT CONNECTIONS FOR TIE-DOWN TO FOUNDATION, FLOOR-TO-FLOOR TIE-DOWN, ROOF-TO-WALL TIE-DOWN, JOIST HANGERS, GUSSET PLATES, AND STIFFENERS.

2.4 WALL SHEATHING

(A) GLASS MAT FACED GYPSUM BOARD; ASTM C1177/C1177M, SQUARE LONG EDGES, 5/8 INCH THICK, TYPE X - FIRE RESISTANT.

2.5 ACCESSORIES

(A) BRACING, FURRING, BRIDGING: FORMED SHEET STEEL, THICKNESS DETERMINED FOR CONDITIONS ENCOUNTERED; FINISH TO MATCH FRAMING COMPONENTS.

(B) TOUCH-UP PRIMER FOR GALVANIZED SURFACES: SSPC-PAINT 20, TYPE I - INORGANIC, COMPLYING WITH VOC LIMITATIONS OF AUTHORITIES HAVING JURISDICTION.

(C) CONCEALED SUPPORT BRACKETS, REFERENCE SECTION 06 41 00 ARCHITECTURAL WOOD CASEWORK- HOSPITAL GRADE.

2.6 FASTENERS

(A) SELF-DRILLING, SELF-TAPPING SCREWS, BOLTS, NUTS AND WASHERS: HOT DIP GALVANIZED PER ASTM A153/A153M.

(B) ANCHORAGE DEVICES: POWDER ACTUATED.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY THAT SUBSTRATE SURFACES ARE READY TO RECEIVE WORK.

3.2 INSTALLATION OF JOISTS AND PURLINS

(A) INSTALL FRAMING COMPONENTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(B) MAKE PROVISIONS FOR ERECTION STRESSES. PROVIDE TEMPORARY ALIGNMENT AND BRACING.

(C) PLACE JOIST AND PURLINS AT SPACING INDICATED ON DRAWINGS WITH SPECIFIED FASTENERS.

(D) SET SOOIF AND/OR FASCIA FRAMING PARALLEL AND LEVEL, WITH LATERAL BRACING AND BRIDGING.

(E) LOCATE JOIST END BEARING DIRECTLY OVER LOAD BEARING STUDS OR PROVIDE LOAD DISTRIBUTING MEMBER TO TOP OF STUD TRACK.

(F) PROVIDE WEB STIFFENERS AT REACTION POINTS.

(G) TOUCH-UP FIELD WELDS AND DAMAGED GALVANIZED SURFACES WITH PRIMER.

3.3 INSTALLATION OF WALL SHEATHING

(A) INSTALL WALL SHEATHING WITH LONG DIMENSION PERPENDICULAR TO WALL STUDS, WITH ENDS OVER FIRM BEARING AND STAGGERED, USING SELF-TAPPING SCREWS.

1. PROVIDE STEEL DIAGONAL BRACING AT CORNERS WITH FOAM INSULATION OR GYPSUM BOARD WALL SHEATHING.

3.4 TOLERANCES

(A) MAXIMUM VARIATION FROM TRUE POSITION: 1/2 INCH.

(B) MAXIMUM VARIATION OF ANY MEMBER FROM PLANE: 1/4 INCH.

END OF SECTION

SECTION 05 44 00 - COLD-FORMED STEEL TRUSSES

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) LIGHT GAGE COLD-FORMED STEEL OPEN WEB FLOOR TRUSSES, AND ROOF TRUSSES.

(B) ANCHORAGES, BRACING, AND BRIDGING.

1.2 RELATED REQUIREMENTS

(A) SECTION 05 40 00 - COLD-FORMED METAL FRAMING: LIGHT GAGE STRUCTURAL METAL STUDS, JOISTS, AND RAFTERS.

(B) SECTION 06 10 00 - ROUGH CARPENTRY: FLOOR AND ROOF SHEATHING.

1.3 REFERENCE STANDARDS

(A) AISI S100-12 - NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS; AMERICAN IRON AND STEEL INSTITUTE; 2012.

(B) ASTM A653/A653M - STANDARD SPECIFICATION FOR STEEL SHEET, ZINC-COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT-DIP PROCESS; 2015, WITH EDITORIAL REVISION (2016).

(C) ASTM A780/A780M - STANDARD PRACTICE FOR REPAIR OF DAMAGED AND UNCOATED AREAS OF HOT-DIP GALVANIZED COATINGS; 2009 (REAPPROVED 2015).

(D) AWS B2.1/B2.1M - SPECIFICATION FOR WELDING PROCEDURE AND PERFORMANCE QUALIFICATION; 2014.

(E) AWS D1.1/D1.1M - STRUCTURAL WELDING CODE - STEEL; 2015 (WITH MARCH 2016 ERRATA).

(F) AWS D1.3/D1.3M - STRUCTURAL WELDING CODE - SHEET STEEL; 2008.

1.4 ADMINISTRATIVE REQUIREMENTS

(A) PRE-INSTALLATION MEETING: MEET AT PROJECT SITE PRIOR TO BEGINNING OF INSTALLATION TO REVIEW REQUIREMENTS. REQUIRE ATTENDANCE BY REPRESENTATIVES OF THE FOLLOWING:

1. TRUSS FABRICATOR.

2. TRUSS INSTALLER.

3. OTHER ENTITIES AFFECTED BY THE WORK OF THIS SECTION, INCLUDING BUT NOT LIMITED TO TRUSS SUPPORT FRAMING INSTALLER, MECHANICAL SYSTEMS INSTALLER, AND ELECTRICAL SYSTEMS INSTALLER.

1.5 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: MANUFACTURER'S DATA SHEETS ON EACH PRODUCT TO BE USED, INCLUDING:

1. SPAN CHARTS.

2. STORAGE AND HANDLING REQUIREMENTS AND RECOMMENDATIONS.

3. INSTALLATION METHODS.

(C) SHOP DRAWINGS:

1. INCLUDE DETAILED FLOOR TRUSS LAYOUT.

2. SHOW MEMBER TYPE, LOCATION, SPACING, SIZE AND GAGE, METHODS OF ATTACHMENT, AND ERECTION DETAILS. INDICATE SUPPLEMENTAL BRACING, STRAPPING, SPLICES, BRIDGING, AND ACCESSORIES.

3. INCLUDE TRUSS DESIGN DRAWINGS, SIGNED AND SEALED BY A QUALIFIED PROFESSIONAL ENGINEER REGISTERED IN KANSAS, VERIFYING ABILITY OF EACH TRUSS DESIGN TO MEET APPLICABLE CODE AND DESIGN REQUIREMENTS.

a. INCLUDE THE FOLLOWING:

1) DESIGN CRITERIA.

2) ENGINEERING ANALYSIS DEPICTING MEMBER STRESSES AND DEFLECTIONS.

3) MEMBER SIZES AND GAGES.

4) DETAILS OF CONNECTIONS AT TRUSS JOINTS.

5) TRUSS SUPPORT REACTIONS.

6) BRACING REQUIREMENTS.

(D) MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE SPECIAL PROCEDURES CONDITIONS REQUIRING SPECIAL ATTENTION.

(E) DESIGNER'S QUALIFICATION STATEMENT.

(F) FABRICATOR'S QUALIFICATION STATEMENT.

1.6 QUALITY ASSURANCE

(A) DESIGNER QUALIFICATIONS: DESIGN TRUSSES UNDER DIRECT SUPERVISION OF A PROFESSIONAL STRUCTURAL ENGINEER EXPERIENCED IN DESIGN OF THIS WORK AND LICENSED IN MONTANA.

(B) FABRICATOR QUALIFICATIONS: STEEL TRUSS FABRICATOR WITH MINIMUM 10 YEARS OF EXPERIENCE DESIGNING AND FABRICATING TRUSS SYSTEMS EQUIVALENT TO THOSE REQUIRED FOR THIS PROJECT AND LICENSED BY AN ACCEPTABLE MANUFACTURER.

(C) INSTALLER QUALIFICATIONS: EXPERIENCED INSTALLER APPROVED BY TRUSS SYSTEM FABRICATOR.

(D) WELDERS: QUALIFY WELDING PROCESSES AND WELDING OPERATORS IN ACCORDANCE WITH AWS B2.1/B2.1M.

1.7 DELIVERY, STORAGE, AND HANDLING

(A) DELIVER TRUSSES AND OTHER MATERIALS IN MANUFACTURER'S UNOPENED BUNDLES OR CONTAINERS, EACH MARKED WITH MANUFACTURER'S NAME, BRAND, TYPE, AND GRADE. EXERCISE CARE TO AVOID DAMAGE DURING UNLOADING, STORING, AND ERECTION.

(B) STORE TRUSSES ON BLOCKING, PALLETS, PLATFORMS, OR OTHER SUPPORTS, OFF THE GROUND AND IN AN UPRIGHT POSITION, SUFFICIENTLY BRACED TO AVOID DAMAGE FROM EXCESSIVE BENDING. GENTLY SLOPE STORED TRUSSES TO AVOID ACCUMULATION OF WATER ON INTERIOR OF TRUSS CHORD MEMBERS.

(C) PROTECT TRUSSES AND ACCESSORIES FROM CONTACT WITH EARTH, CORROSION, DEFORMATION, MECHANICAL DAMAGE, OR OTHER DETERIORATION WHEN STORED AT PROJECT SITE.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) COLD-FORMED STEEL TRUSSES:

1. AEGIS METAL FRAMING, A DIVISION OF MITEK INDUSTRIES

2. TRUSSTEEL DIVISION OF ALPINE ENGINEERED PRODUCTS, INC

3. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.2 TRUSS DESIGN REQUIREMENTS

(A) DESIGN: CALCULATE STRUCTURAL CHARACTERISTICS OF COLD-FORMED STEEL TRUSS MEMBERS ACCORDING TO AISI S100-12.

(B) STRUCTURAL PERFORMANCE: DESIGN, ENGINEER, FABRICATE, AND ERECT TRUSSES TO WITHSTAND SPECIFIED DESIGN LOADS FOR PROJECT CONDITIONS WITHIN REQUIRED LIMITS.

1. DESIGN LOADS: IN ACCORDANCE WITH APPLICABLE CODES.

a. FLOOR LIVE LOADS: AS INDICATED ON DRAWINGS

2. DEFLECTIONS: LIVE LOAD DEFLECTION MEETING THE FOLLOWING, UNLESS OTHERWISE INDICATED:

a. FLOORS: MAXIMUM VERTICAL DEFLECTION UNDER LIVE LOAD OF 1/480 OF SPAN.

3. DESIGN TRUSSES TO ACCOMMODATE MOVEMENT ATTRIBUTABLE TO TEMPERATURE CHANGES WITHIN A RANGE OF 120 DEGREES F WITHOUT DAMAGE OR OVERSTRESSING, SHEATHING FAILURE, UNDUE STRAIN ON FASTENERS AND ANCHORS, OR OTHER DELETERIOUS EFFECTS.

2.3 COMPONENTS

(A) TRUSSES: LIGHT GAGE STEEL ASSEMBLIES PROVIDING A COMPLETE HORIZONTAL FRAMING SYSTEM FOR LOCATIONS INDICATED, READY FOR DECK INSTALLATION.

1. TRUSS TYPE, SPAN, AND HEIGHT: AS INDICATED ON DRAWINGS.

2. CHORD AND WEB MEMBERS: FABRICATE REQUIRED SHAPES FROM COMMERCIAL QUALITY GALVANIZED STEEL SHEET COMPLYING WITH ASTM A653/A653M, WITH MINIMUM YIELD STRENGTH OF 40,000 PSI; MINIMUM G60/Z180 COATING; GAGES AS REQUIRED FOR LOAD CONDITIONS; ALL EDGES ROLLED OR CLOSED.

(B) FASTENERS: SELF-DRILLING, SELF-TAPPING SCREW FASTENERS WITH CORROSION-RESISTANT PLATED FINISH, AS RECOMMENDED BY STEEL TRUSS MANUFACTURER AND MARKED FOR EASY IDENTIFICATION.

1. WELDING: COMPLY WITH APPLICABLE PROVISIONS OF AWS D1.1/D1.1M AND AWS D1.3/D1.3M.

2. WELDING OF TRUSS MEMBERS: NOT PERMITTED.

(C) BRACING, BRIDGING, AND BLOCKING MEMBERS: FABRICATE REQUIRED SHAPES FROM COMMERCIAL QUALITY GALVANIZED STEEL SHEET COMPLYING WITH ASTM A653/A653M, WITH MINIMUM YIELD STRENGTH OF 33,000 PSI; MINIMUM G60/Z180 COATING; GAGES AS REQUIRED FOR LOAD CONDITIONS.

2.4 FABRICATION

(A) FACTORY FABRICATE COLD-FORMED STEEL TRUSSES PLUMB, SQUARE, TRUE TO LINE, AND WITH SECURE CONNECTIONS, COMPLYING WITH MANUFACTURER'S RECOMMENDATIONS AND PROJECT REQUIREMENTS.

1. FABRICATE TRUSSES USING JIG TEMPLATES.

2. CUT TRUSS MEMBERS BY SAWING, SHEARING, OR PLASMA CUTTING.

3. FASTEN MEMBERS IN FULL COMPLIANCE WITH INSTRUCTIONS OF MANUFACTURER. WIRE TYING OF FRAMING MEMBERS IS NOT PERMITTED.

(B) TOLERANCES: FABRICATE TRUSSES TO MAXIMUM ALLOWABLE TOLERANCE VARIATION FROM PLUMB, LEVEL AND TRUE LINE OF 1/8 INCH IN 10 FEET.

1. UP TO 30 FEET LONG: MAXIMUM PLUS OR MINUS 1/2 INCH FROM DESIGN LENGTH.

2. OVER 30 FEET LONG: MAXIMUM PLUS OR MINUS 3/4 INCH FROM DESIGN LENGTH.

3. UP TO 5 FEET HIGH: MAXIMUM PLUS OR MINUS 1/4 INCH FROM DESIGN HEIGHT.

4. OVER 5 FEET HIGH: MAXIMUM PLUS OR MINUS 1/2 INCH FROM DESIGN HEIGHT.

PART 3 EXECUTION

3.1 EXAMINATION

(A) EXAMINE STRUCTURE, SUBSTRATES, AND INSTALLATION CONDITIONS. NOTIFY ARCHITECT OF UNSATISFACTORY PREPARATION. DO NOT BEGIN INSTALLATION UNTIL SUBSTRATES HAVE BEEN PROPERLY PREPARED AND UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

(B) PROCEEDING WITH INSTALLATION INDICATES INSTALLER'S ACCEPTANCE OF SUBSTRATE CONDITIONS.

3.2 INSTALLATION

(A) INSTALL COLD-FORMED STEEL TRUSSES IN STRICT ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPROVED SHOP DRAWINGS, USING APPROVED FASTENING METHODS.

(B) INSTALL TEMPORARY ERECTION BRACING AND PERMANENT BRACING AND BRIDGING BEFORE APPLICATION OF ANY LOADS. ERECT TRUSSES WITH PLANE OF TRUSS WEBS VERTICAL AND PARALLEL TO EACH OTHER, ACCURATELY LOCATED AT SPACING INDICATED. ANCHOR TRUSSES SECURELY AT BEARING POINTS.

(C) ADEQUATELY DISTRIBUTE APPLIED LOADS TO AVOID EXCEEDING THE CARRYING CAPACITY OF ANY ONE JOINT, TRUSS, OR OTHER COMPONENT.

(D) EXERCISE CARE TO AVOID DAMAGING TRUSS MEMBERS DURING LIFTING AND ERECTION AND TO MINIMIZE HORIZONTAL BENDING OF TRUSSES.

(E) REMOVAL, CUTTING, OR ALTERATION OF ANY TRUSS CHORD, WEB, OR BRACING MEMBER IN THE FIELD IS PROHIBITED, UNLESS APPROVED IN ADVANCE BY ARCHITECT OR THE ENGINEER OF RECORD AND THE TRUSS MANUFACTURER.

(F) REPAIR OR REPLACE DAMAGED MEMBERS AND COMPLETE TRUSSES AS DIRECTED AND APPROVED IN WRITING BY ARCHITECT OR THE ENGINEER OF RECORD AND THE TRUSS MANUFACTURER.

(G) GALVANIZING REPAIR: TOUCH UP BARE STEEL WITH ZINC-RICH PAINT IN COMPLIANCE WITH ASTM A780/A780M.

(H) FIELD WELDING: IN ACCORDANCE WITH AWS D1.1/D1.1M AND AWS D1.3/D1.3M, AS APPLICABLE, AND AS FOLLOWS:

1. CONNECTIONS: PROVIDE FILLET, FLAT, PLUG, OR BUTT WELDS, AS INDICATED.

2. MINIMUM STEEL THICKNESS FOR WELDED CONNECTIONS, 18 GAGE, 0.0478 INCH.

(I) OPEN WEB FLOOR TRUSSES:

1. INSTALL OVER SUPPORTING FRAMING WITH MINIMUM END BEARING OF 1-1/2 INCHES.

2. REINFORCE ENDS OF TRUSSES WITH WEB STIFFENERS, END CLIPS, JOIST HANGERS, OR OTHER METHOD AS RECOMMENDED BY MANUFACTURER.

3. FRAME OPENINGS WITH BUILT-UP JOIST HANGERS WHERE INDICATED.

4. INSTALL TRUSS REINFORCEMENT AT INTERIOR SUPPORTS AS RECOMMENDED BY TRUSS MANUFACTURER.

5. INSTALL BRIDGING AT EACH END OF TRUSSES AND AT INTERVALS AS INDICATED.

6. SECURE TRUSSES TO LOAD-BEARING INTERIOR WALLS TO PREVENT LATERAL MOVEMENT OF BOTTOM FLANGE.

7. INSTALL MISCELLANEOUS FRAMING AND CONNECTIONS, INCLUDING WEB STIFFENERS, CLIP ANGLES, HOLD-DOWN ANGLES, ANCHORS, AND FASTENERS AS REQUIRED FOR A COMPLETE AND STABLE FLOOR FRAMING ASSEMBLY.

3.3 TOLERANCES

(A) INSTALL TRUSSES TO MAXIMUM ALLOWABLE TOLERANCE VARIATION FROM PLUMB, LEVEL, AND TRUE TO LINE OF 1/8 INCH IN 10 FEET.

(B) SPACE INDIVIDUAL TRUSSES NOT MORE THAN PLUS OR MINUS 1/8 INCH FROM PLAN LOCATION. CUMULATIVE ERROR IN PLACEMENT MAY NOT EXCEED MINIMUM FASTENING REQUIREMENTS OF SHEATHING OR OTHER MATERIAL FASTENED TO TRUSSES.

3.4 FIELD QUALITY CONTROL

(A) PERFORM FIELD INSPECTION AND TESTING IN ACCORDANCE WITH SECTION 01 00 0 - GENERAL REQUIREMENTS.

(B) OWNER WILL PROVIDE INSPECTION SERVICE FOR INSPECTION OF FIELD CONNECTIONS, IN ACCORDANCE WITH REQUIREMENTS OF SECTION 01 00 00 - GENERAL REQUIREMENTS.

3.5 PROTECTION

(A) PROTECT TRUSSES FROM DAMAGE BY SUBSEQUENT CONSTRUCTION ACTIVITIES.

(B) REPAIR OR REPLACE DAMAGED TRUSSES, TRUSS MEMBERS, AND BRACING MEMBERS; OBTAIN APPROVAL IN ADVANCE BY ARCHITECT OR THE ENGINEER OF RECORD AND THE TRUSS MANUFACTURER FOR ALL CUTTING, REPAIRS, AND REPLACEMENTS.

END OF SECTION

SECTION 05 51 00 - METAL STAIRS

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) STAIRS WITH CONCRETE TREADS.

(B) STRUCTURAL STEEL STAIR FRAMING AND SUPPORTS.

(C) HANDRAILS AND GUARDS.

1.2 RELATED REQUIREMENTS

(A) SECTION 03 30 00 - CAST-IN-PLACE CONCRETE: CONCRETE FILL IN STAIR PANS; MESH REINFORCEMENT FOR LANDINGS.

(B) SECTION 06 10 00 - ROUGH CARPENTRY (CONCEALED WOOD BLOCKING)

(C) SECTION 09 65 00 - RESILIENT FLOORING (TREAD AND LANDING MATERIALS)

(D) SECTION 09 91 00 - PAINTING: PAINT FINISH.

1.3 REFERENCE STANDARDS

(A) ADA STANDARDS - AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS FOR ACCESSIBLE DESIGN; 2010.

(B) AISC 201 - AISC CERTIFICATION PROGRAM FOR STRUCTURAL STEEL FABRICATORS, STANDARD FOR STEEL BUILDING STRUCTURES; 2006.

(C) ASTM A36/A36M - STANDARD SPECIFICATION FOR CARBON STRUCTURAL STEEL; 2014.

(D) ASTM A500/A500M - STANDARD SPECIFICATION FOR COLD-FORMED WELDED AND SEAMLESS CARBON STEEL STRUCTURAL TUBING IN ROUNDS AND SHAPES; 2013.

(E) ASTM A1008/A1008M - STANDARD SPECIFICATION FOR STEEL, SHEET, COLD-ROLLED, CARBON, STRUCTURAL, HIGH-STRENGTH LOW-ALLOY, HIGH-STRENGTH LOW-ALLOY WITH IMPROVED FORMABILITY, SOLUTION HARDENED, AND BAKE HARDENABLE; 2016.

(F) ASTM A1011/A1011M - STANDARD SPECIFICATION FOR STEEL, SHEET AND STRIP, HOT-ROLLED, CARBON, STRUCTURAL, HIGH-STRENGTH LOW-ALLOY, HIGH-STRENGTH LOW-ALLOY WITH IMPROVED FORMABILITY, AND ULTRA-HIGH STRENGTH; 2017.

(G) AWS A2.4 - STANDARD SYMBOLS FOR WELDING, BRAZING, AND NONDESTRUCTIVE EXAMINATION; 2012.

(H) AWS D1.1/D1.1M - STRUCTURAL WELDING CODE - STEEL; 2015 (WITH MARCH 2016 ERRATA).

(I) IAS AC172 - ACCREDITATION CRITERIA FOR FABRICATOR INSPECTION PROGRAMS FOR STRUCTURAL STEEL; INTERNATIONAL ACCREDITATION SERVICE, INC; 2017.

(J) NAAMM AMP 510 - METAL STAIRS MANUAL; 1992, FIFTH EDITION.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) SHOP DRAWINGS: INDICATE PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS, AND ACCESSORIES.

1. INDICATE WELDED CONNECTIONS USING STANDARD AWS A2.4 WELDING SYMBOLS. INDICATE NET WELD LENGTHS.

2. INCLUDE THE DESIGN ENGINEER'S SEAL AND SIGNATURE ON EACH SHEET OF SHOP DRAWINGS.

(C) WELDERS' CERTIFICATES.

1.5 QUALITY ASSURANCE

(A) STRUCTURAL DESIGNER QUALIFICATIONS: PROFESSIONAL STRUCTURAL ENGINEER EXPERIENCED IN DESIGN OF THIS WORK AND LICENSED IN MONTANA, OR PERSONNEL UNDER DIRECT SUPERVISION OF SUCH AN ENGINEER.

(B) WELDER QUALIFICATIONS: SHOW CERTIFICATION OF WELDERS EMPLOYED ON THE WORK, VERIFYING AWS QUALIFICATION WITHIN THE PREVIOUS 12 MONTHS.

(C) FABRICATOR QUALIFICATIONS:

1. A QUALIFIED STEEL FABRICATOR THAT IS CERTIFIED BY THE AMERICAN INSTITUTE FOR STEEL CONSTRUCTION (AISC) UNDER AISC 201.

2. A QUALIFIED STEEL FABRICATOR THAT IS ACCREDITED BY THE INTERNATIONAL ACCREDITATION SERVICE (IAS) FABRICATOR INSPECTION PROGRAM FOR STRUCTURAL STEEL IN ACCORDANCE WITH IAS AC172.

3. A COMPANY SPECIALIZING IN MANUFACTURING PRODUCTS SPECIFIED IN THIS SECTION, WITH NOT LESS THAN TEN YEARS OF DOCUMENTED EXPERIENCE.

PART 2 PRODUCTS

2.1 METAL STAIRS - GENERAL

(A) METAL STAIRS: PROVIDE STAIRS OF THE DESIGN SPECIFIED, COMPLETE WITH LANDING PLATFORMS, VERTICAL AND HORIZONTAL SUPPORTS, RAILINGS, AND GUARDS, FABRICATED ACCURATELY FOR ANCHORAGE TO EACH OTHER AND TO BUILDING STRUCTURE.

1. REGULATORY REQUIREMENTS: PROVIDE STAIRS AND RAILINGS COMPLYING WITH THE MOST STRINGENT REQUIREMENTS OF LOCAL, STATE, AND FEDERAL REGULATIONS; WHERE REQUIREMENTS OF THE CONTRACT DOCUMENTS EXCEED THOSE OF REGULATIONS, COMPLY WITH THE CONTRACT DOCUMENTS.

2. HANDRAILS: COMPLY WITH APPLICABLE ACCESSIBILITY REQUIREMENTS OF ADA STANDARDS.

3. DIMENSIONS: AS INDICATED ON DRAWINGS.

4. SHOP ASSEMBLE COMPONENTS; DISASSEMBLE INTO LARGEST PRACTICAL SECTIONS SUITABLE FOR TRANSPORT AND ACCESS TO SITE.

5. NO SHARP OR ROUGH AREAS ON EXPOSED TRAVEL SURFACES AND SURFACES ACCESSIBLE TO TOUCH.

6. SEPARATE DISSIMILAR METALS USING PAINT OR PERMANENT TAPE.

(B) METAL JOINTING AND FINISH QUALITY LEVELS:

1. ARCHITECTURAL: ALL JOINTS AS INCONSPICUOUS AS POSSIBLE, WHETHER WELDED OR MECHANICAL.

a. WELDED JOINTS: CONTINUOUSLY WELDED AND GROUND SMOOTH AND FLUSH.

b. MECHANICAL JOINTS: BUTTED TIGHT, FLUSH, AND HAIRLINE; CONCEALED FASTENINGS ONLY.

c. EXPOSED EDGES AND CORNERS: EASED TO SMALL UNIFORM RADIUS.

d. METAL SURFACES TO BE PAINTED: SANDED OR GROUND SMOOTH, SUITABLE FOR HIGHEST QUALITY GLOSS FINISH.

2. SERVICE: EXPOSED JOINTS TIGHT WITH FACE SURFACES ALIGNED; UNDERSIDE OF STAIR NOT COVERED BY SOFFIT IS NOT CONSIDERED EXPOSED TO VIEW.

a. WELDED JOINTS: WELDED ON BACK SIDE WHEREVER POSSIBLE.

b. WELDS EXPOSED TO VIEW: GROUND SMOOTH; NOT REQUIRED TO BE FLUSH.

c. BOLTS EXPOSED TO VIEW: COUNTERSUNK FLAT OR OVAL HEAD BOLTS; NO EXPOSED NUTS OR SCREW THREADS.

d. METAL SURFACES TO BE PAINTED: SANDED SMOOTH, SUITABLE FOR SATIN OR MATTE FINISH.

(C) FASTENERS: SAME MATERIAL OR COMPATIBLE WITH MATERIALS BEING FASTENED; TYPE CONSISTENT WITH DESIGN AND SPECIFIED QUALITY LEVEL.

(D) ANCHORS AND RELATED COMPONENTS: SAME MATERIAL AND FINISH AS ITEM TO BE ANCHORED, EXCEPT WHERE SPECIFICALLY INDICATED OTHERWISE; PROVIDE ALL ANCHORS AND FASTENERS REQUIRED.

2.2 METAL STAIRS WITH CONCRETE TREADS

(A) JOINTING AND FINISH QUALITY LEVEL: INDUSTRIAL, AS DEFINED ABOVE.

(B) RISERS: CLOSED.

(C) TREADS: METAL PAN WITH FIELD-INSTALLED CONCRETE FILL.

1. CONCRETE DEPTH: 1-1/2 INCHES, MINIMUM.

2. TREAD PAN MATERIAL: STEEL SHEET.

3. TREAD PAN THICKNESS: AS REQUIRED BY DESIGN; 14 GAGE, 0.075 INCH MINIMUM.

4. CONCRETE REINFORCEMENT: NONE.

5. CONCRETE FINISH: FOR RESILIENT FLOOR COVERING.

(D) RISERS: SAME MATERIAL AND THICKNESS AS TREAD PANS.

1. NOSING DEPTH: NOT MORE THAN 1-1/2 INCH OVERHANG.

2. NOSING RETURN: FLUSH WITH TOP OF CONCRETE FILL, NOT MORE THAN 1/2 INCH WIDE.

(E) STRINGERS: ROLLED STEEL CHANNELS.

1. STRINGER DEPTH: 10 INCHES.

2. END CLOSURE: SHEET STEEL OF SAME THICKNESS AS RISERS WELDED ACROSS ENDS.

(F) LANDINGS: SAME CONSTRUCTION AS TREADS, SUPPORTED AND REINFORCED AS REQUIRED TO ACHIEVE DESIGN LOAD CAPACITY.

(G) RAILINGS: STEEL PIPE RAILINGS.

(H) FINISH: SHOP- OR FACTORY-PRIME PAINTED.

2.3 HANDRAILS AND GUARDS

(A) WALL-MOUNTED RAILS: AS SPECIFIED IN SECTION 05 52 13.

(B) GUARDS: PIPE RAILINGS AS SPECIFIED IN SECTION 05 52 13.

2.4 MATERIALS

(A) STEEL SECTIONS: ASTM A36/A36M.

(B) UNGALVANIZED STEEL SHEET: HOT- OR COLD-ROLLED, EXCEPT USE COLD-ROLLED WHERE FINISHED WORK WILL BE EXPOSED TO VIEW.

1. HOT-ROLLED STEEL SHEET: ASTM A1011/A1011M, DESIGNATION CS (COMMERCIAL STEEL).

2. COLD-ROLLED STEEL SHEET: ASTM A1008/A1008M, DESIGNATION CS (COMMERCIAL STEEL).

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY THAT FIELD CONDITIONS ARE ACCEPTABLE AND ARE READY TO RECEIVE WORK.

3.2 PREPARATION

(A) WHEN FIELD WELDING IS REQUIRED, CLEAN AND STRIP PRIMED STEEL ITEMS TO BARE METAL.

3.3 INSTALLATION

(A) INSTALL COMPONENTS PLUMB AND LEVEL, ACCURATELY FITTED, FREE FROM DISTORTION OR DEFECTS.

(B) ALLOW FOR ERECTION LOADS, AND FOR SUFFICIENT TEMPORARY BRACING TO MAINTAIN TRUE ALIGNMENT UNTIL COMPLETION OF ERECTION AND INSTALLATION OF PERMANENT ATTACHMENTS.

(C) PROVIDE WELDED FIELD JOINTS WHERE SPECIFICALLY INDICATED ON DRAWINGS. PERFORM FIELD WELDING IN ACCORDANCE WITH AWS D1.1/D1.1M.

(D) OTHER FIELD JOINTS MAY BE EITHER WELDED OR BOLTED PROVIDED THE RESULT COMPLIES WITH THE LIMITATIONS SPECIFIED FOR JOINTING QUALITY LEVELS.

(E) OBTAIN APPROVAL PRIOR TO SITE CUTTING OR CREATING ADJUSTMENTS NOT SCHEDULED.

(F) AFTER ERECTION, PRIME WELDS, ABRASIONS, AND SURFACES NOT SHOP PRIMED OR GALVANIZED, EXCEPT SURFACES TO BE IN CONTACT WITH CONCRETE.

3.4 TOLERANCES

(A) MAXIMUM VARIATION FROM PLUMB: 1/4 INCH PER STORY, NON-CUMULATIVE.

(B) MAXIMUM OFFSET FROM TRUE ALIGNMENT: 1/4 INCH.

END OF SECTION

SECTION 05 52 13 - PIPE AND TUBE RAILINGS

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) WALL MOUNTED HANDRAILS.

(B) STAIR RAILINGS AND GUARDRAILS.

(C) FREE-STANDING RAILINGS AT STEPS.

(D) BALCONY RAILINGS AND GUARDRAILS.

1.2 RELATED REQUIREMENTS

(A) SECTION 03 30 00 - CAST-IN-PLACE CONCRETE: PLACEMENT OF ANCHORS IN CONCRETE.

(B) SECTION 04 20 00 - UNIT MASONRY: PLACEMENT OF ANCHORS IN MASONRY.

(C) SECTION 05 51 00 - METAL STAIRS: HANDRAILS OTHER THAN THOSE SPECIFIED IN THIS SECTION.

(D) SECTION 05 51 00 - METAL STAIRS: ATTACHMENT PLATES FOR HANDRAILS SPECIFIED IN THIS SECTION.

(E) SECTION 06 20 00 - FINISH CARPENTRY: WOOD HANDRAIL.

(F) SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES: PLACEMENT OF BACKING PLATES IN STUD WALL CONSTRUCTION.

(G) SECTION 09 91 00 - PAINTING: PAINT FINISH

1.3 REFERENCE STANDARDS

(A) ADA STANDARDS - AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS FOR ACCESSIBLE DESIGN; 2010.

(B) ASTM E985 - STANDARD SPECIFICATION FOR PERMANENT METAL RAILING SYSTEMS AND RAILS FOR BUILDINGS; 2000 (REAPPROVED 2006).

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) SHOP DRAWINGS: INDICATE PROFILES, SIZES, CONNECTION ATTACHMENTS, ANCHORAGE, SIZE AND TYPE OF FASTENERS, AND ACCESSORIES.

(C) SAMPLES: SUBMIT TWO, 6" INCH LONG SAMPLES OF HANDRAIL. SUBMIT TWO SAMPLES OF ELBOW, WALL BRACKET, AND END STOP

1.5 QUALITY ASSURANCE

(A) STRUCTURAL DESIGNER QUALIFICATIONS: PROFESSIONAL STRUCTURAL ENGINEER EXPERIENCED IN DESIGN OF THIS WORK AND LICENSED IN MONTANA, OR PERSONNEL UNDER DIRECT SUPERVISION OF SUCH AN ENGINEER.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) HANDRAILS, RAILINGS, AND METAL CABLE FILING.

1. ATLANTIS RAIL SYSTEMS: SPECTRUM SYSTEM: PRE-ENGINEERED COMPONENT-BASED, HORIZONTAL CABLE INFILL, STAINLESS STEEL SQUARE POSTS, AND WOOD HANDRAIL.

2. SUBSTITUTIONS: OR APPROVED EQUAL.

3. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS

2.2 RAILINGS - GENERAL REQUIREMENTS

(A) DESIGN, FABRICATE, AND TEST RAILING ASSEMBLIES IN ACCORDANCE WITH THE MOST STRINGENT REQUIREMENTS OF ASTM E985 AND APPLICABLE LOCAL CODE.

(B) ALLOW FOR EXPANSION AND CONTRACTION OF MEMBERS AND BUILDING MOVEMENT WITHOUT DAMAGE TO CONNECTIONS OR MEMBERS.

(C) DIMENSIONS: SEE DRAWINGS FOR CONFIGURATIONS AND HEIGHTS.

(D) PROVIDE ANCHORS AND OTHER COMPONENTS AS REQUIRED TO ATTACH TO STRUCTURE, MADE OF SAME MATERIALS AS RAILING COMPONENTS UNLESS OTHERWISE INDICATED; WHERE EXPOSED FASTENERS ARE UNAVOIDABLE PROVIDE FLUSH COUNTERSUNK FASTENERS.

(E) PROVIDE SLIP-ON NON-WELD MECHANICAL FITTINGS TO JOIN LENGTHS, SEAL OPEN ENDS, AND CONCEAL EXPOSED MOUNTING BOLTS AND NUTS, INCLUDING BUT NOT LIMITED TO ELBOWS, T-SHAPES, SPLICE CONNECTORS, FLANGES, ESCUTCHEONS, AND WALL BRACKETS.

(F) MATERIALS:

1. STAINLESS STEEL STRUCTURAL TUBING: ASTM A 554, TYPE 316 MINIMUM TENSILE STRENGTH 70,000 PSI; 2" SQUARE.

2. WIRE ROPE: ASTM A 492, TYPE 316 STAINLESS STEEL WIRE; 5/32" DIAMETER.

3. WOOD HANDRAIL COMPONENTS: AS SPECIFIED IN SECTION 06 20 00 FINISH CARPENTRY

2.3 FABRICATION

(A) ACCURATELY FORM COMPONENTS TO SUIT SPECIFIC PROJECT CONDITIONS AND FOR PROPER CONNECTION TO BUILDING STRUCTURE.

(B) FIT AND SHOP ASSEMBLE COMPONENTS IN LARGEST PRACTICAL SIZES FOR DELIVERY TO SITE.

(C) FABRICATE COMPONENTS WITH JOINTS TIGHTLY FITTED AND SECURED. PROVIDE SPIGOTS AND SLEEVES TO ACCOMMODATE SITE ASSEMBLY AND INSTALLATION.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY THAT FIELD CONDITIONS ARE ACCEPTABLE AND ARE READY TO RECEIVE WORK.

3.2 PREPARATION

(A) TAKE FIELD MEASUREMENTS PRIOR TO PREPARATION OF SHOP DRAWINGS AND FABRICATION TO ENSURE FITTING OR WORK.

(B) PREPARE SURFACES USING THE METHODS RECOMMENDED BY THE MANUFACTURER FOR ACHIEVING THE BEST RESUTS FOR THE SUBSTRATE UNDER THE PROJECT CONDITIONS.

3.3 INSTALLATION

(A) INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(B) INSTALL COMPONENTS PLUMB AND LEVEL, ACCURATELY FITTED, FREE FROM DISTORTION OR DEFECTS, WITH TIGHT JOINTS. ENSURE THAT WIRE ROPES ARE PARALLEL TO EACH OTHER, FREE OF KINKS, SAGS OR OTHER DEFECTS, AND CLEAN.

(C) ANCHOR RAILINGS SECURELY TO STRUCTURE.

(D) PROVIDE OWNER WITH MAINTENANCE DOCUMENTATION, INCLUDING HOW TO PROPERLY ADJUST TENSION ON CABLES.

END OF SECTION

SECTION 06 10 00 - ROUGH CARPENTRY

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) SHEATHING.

(B) SUBFLOORING.

(C) UNDERLAYMENT.

(D) PRESERVATIVE TREATED WOOD MATERIALS.

(E) FIRE RETARDANT TREATED WOOD MATERIALS.

(F) MISCELLANEOUS FRAMING AND SHEATHING.

(G) COMMUNICATIONS AND ELECTRICAL ROOM MOUNTING BOARDS.

(H) CONCEALED WOOD BLOCKING, NAILERS, AND SUPPORTS.

(I) MISCELLANEOUS WOOD NAILERS, FURRING, AND GROUNDS.

(J) ROOF SHEATHING WITH FACTORY APPLIED ROOFING UNDERLAYMENT.

1.2 RELATED REQUIREMENTS

(A) SECTION 03 30 00 - CAST-IN-PLACE CONCRETE: SETTING ANCHORS IN CONCRETE.

(B) SECTION 06 15 00 - WOOD DECKING.

(C) SECTION 06 18 00 - GLUED-LAMINATED CONSTRUCTION.

(D) SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM: SILL FLASHINGS.

(E) SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES: GYPSUM-BASED SHEATHING.

1.3 REFERENCE STANDARDS

(A) ANSI A208.1 - AMERICAN NATIONAL STANDARD FOR PARTICLEBOARD; 2009.

(B) AWC (WFCM) - WOOD FRAME CONSTRUCTION MANUAL FOR ONE- AND TWO-FAMILY DWELLINGS; 2015.

(C) ASTM A153/A153M - STANDARD SPECIFICATION FOR ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE; 2016A.

(D) ASTM A653/A653M - STANDARD SPECIFICATION FOR STEEL SHEET, ZINC-COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT-DIP PROCESS; 2015, WITH EDITORIAL REVISION (2016).

(E) ASTM C177 - STANDARD TEST METHOD FOR STEADY-STATE HEAT FLUX MEASUREMENTS AND THERMAL TRANSMISSION PROPERTIES BY MEANS OF THE GUARDED-HOT-PLATE APPARATUS; 2013.

(F) ASTM C208 - STANDARD SPECIFICATION FOR CELLULOSIC FIBER INSULATING BOARD; 2012.

(G) ASTM C578 - STANDARD SPECIFICATION FOR RIGID, CELLULAR POLYSTYRENE THERMAL INSULATION; 2017A.

(H) ASTM C1177/C1177M - STANDARD SPECIFICATION FOR GLASS MAT GYPSUM SUBSTRATE FOR USE AS SHEATHING; 2013.

(I) ASTM C1289 - STANDARD SPECIFICATION FOR FACED RIGID CELLULAR POLYISOCYANURATE THERMAL INSULATION BOARD; 2017.

(J) ASTM C1396/C1396M - STANDARD SPECIFICATION FOR GYPSUM BOARD; 2017.

(K) ASTM D2898 - STANDARD TEST METHODS FOR ACCELERATED WEATHERING OF FIRE-RETARDANT-TREATED WOOD FOR FIRE TESTING; 2010 (REAPPROVED 2017).

(L) ASTM D3273 - STANDARD TEST METHOD FOR RESISTANCE TO GROWTH OF MOLD ON THE SURFACE OF INTERIOR COATINGS IN AN ENVIRONMENTAL CHAMBER; 2016.

(M) ASTM E2178 - STANDARD TEST METHOD FOR AIR PERMEANCE OF BUILDING MATERIALS; 2013.

(N) ASTM E2357 - STANDARD TEST METHOD FOR DETERMINING AIR LEAKAGE OF AIR BARRIER ASSEMBLIES; 2017.

(O) ASTM E84 - STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS; 2017.

(P) ASTM E96/E96M - STANDARD TEST METHODS FOR WATER VAPOR TRANSMISSION OF MATERIALS; 2016.

(Q) ASTM G21 - STANDARD PRACTICE FOR DETERMINING RESISTANCE OF SYNTHETIC POLYMERIC MATERIALS TO FUNGI; 2015.

(R) AWPA U1 - USE CATEGORY SYSTEM: USER SPECIFICATION FOR TREATED WOOD; 2017.

(S) ICC (IBC) - INTERNATIONAL BUILDING CODE; 2015.

(T) ICC (IECC) - INTERNATIONAL ENERGY CONSERVATION CODE; 2012.

(U) ICC-ES AC38 - ACCEPTANCE CRITERIA FOR WATER-RESISTIVE BARRIERS; ICC EVALUATION SERVICE, INC; 2013.

(V) ICC-ES AC310 - WATER-RESISTIVE MEMBRANES FACTORY-BONDED TO WOOD-BASED STRUCTURAL SHEATHING, USED AS WATER-RESISTIVE BARRIERS; 2015.

(W) ICC-ES AC380 - ACCEPTANCE CRITERIA FOR TERMITE PHYSICAL BARRIER SYSTEMS; 2014 (EDITORIALLY REVISED 2017).

(X) PS 1 - STRUCTURAL PLYWOOD; 2009.

(Y) PS 2 - PERFORMANCE STANDARD FOR WOOD-BASED STRUCTURAL-USE PANELS; 2010.

(Z) RIS (GR) - STANDARD SPECIFICATIONS FOR GRADES OF CALIFORNIA REDWOOD LUMBER; 2000.

(AA) SPIB (GR) - GRADING RULES; 2014.

(AB) WCLIB (GR) - STANDARD GRADING RULES FOR WEST COAST LUMBER NO. 17; 2004, AND SUPPLEMENTS.

(AC) WWPA G-5 - WESTERN LUMBER GRADING RULES; 2011.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: PROVIDE TECHNICAL DATA ON INSULATED SHEATHING, WOOD PRESERVATIVE MATERIALS, AND APPLICATION INSTRUCTIONS.

(C) ABAA FIELD QUALITY CONTROL SUBMITTALS: SUBMIT THIRD-PARTY REPORTS OF TESTING AND INSPECTION REQUIRED BY ABAA QAP.

(D) MANUFACTURER'S CERTIFICATE: CERTIFY THAT WOOD PRODUCTS SUPPLIED FOR ROUGH CARPENTRY MEET OR EXCEED SPECIFIED REQUIREMENTS.

(E) ABAA MANUFACTURER QUALIFICATION: SUBMIT DOCUMENTATION OF CURRENT EVALUATION OF PROPOSED MANUFACTURER AND MATERIALS.

(F) ABAA INSTALLER QUALIFICATION: SUBMIT DOCUMENTATION OF CURRENT CONTRACTOR ACCREDITATION AND CURRENT INSTALLER CERTIFICATION. KEEP COPIES OF ALL CONTRACTOR ACCREDITATION AND INSTALLER CERTIFICATION ON SITE DURING AND AFTER INSTALLATION. PRESENT ON-SITE DOCUMENTATION UPON REQUEST.

(G) WARRANTY: SUBMIT MANUFACTURER WARRANTY AND ENSURE THAT FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER.

1.5 QUALITY ASSURANCE

(A) AIR BARRIER ASSOCIATION OF AMERICA (ABAA) QUALITY ASSURANCE PROGRAM (QAP); WWW.AIRBARRIER.ORG/

1. INSTALLER QUALIFICATION: USE ACCREDITED CONTRACTOR, CERTIFIED INSTALLERS, EVALUATED MATERIALS, AND THIRD-PARTY FIELD QUALITY CONTROL AUDIT.

2. MANUFACTURER QUALIFICATION: USE EVALUATED MATERIALS FROM A SINGLE MANUFACTURER REGULARLY ENGAGED IN AIR BARRIER MATERIAL MANUFACTURE. USE SECONDARY MATERIALS APPROVED IN WRITING BY PRIMARY MATERIAL MANUFACTURER.

(B) AIR BARRIER ASSOCIATION OF AMERICA (ABAA) EVALUATED MATERIALS PROGRAM (EAP); WWW.AIRBARRIER.ORG/#SLE: USE EVALUATED MATERIALS FROM A SINGLE MANUFACTURER REGULARLY ENGAGED IN AIR BARRIER MATERIAL MANUFACTURE. USE SECONDARY MATERIALS APPROVED IN WRITING BY PRIMARY MATERIAL MANUFACTURER.

1.6 DELIVERY, STORAGE, AND HANDLING

(A) GENERAL: COVER WOOD PRODUCTS TO PROTECT AGAINST MOISTURE. SUPPORT STACKED PRODUCTS TO PREVENT DEFORMATION AND TO ALLOW AIR CIRCULATION.

(B) FIRE RETARDANT TREATED WOOD: PREVENT EXPOSURE TO PRECIPITATION DURING SHIPPING, STORAGE, OR INSTALLATION.

1.7 WARRANTY

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL WARRANTY REQUIREMENTS.

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

(A) LUMBER FABRICATED FROM OLD GROWTH TIMBER IS NOT PERMITTED.

2.2 DIMENSION LUMBER FOR CONCEALED APPLICATIONS

(A) GRADING AGENCY: SOUTHERN PINE INSPECTION BUREAU, INC; SPIB (GR).

(B) GRADING AGENCY: REDWOOD INSPECTION SERVICE; RIS (GR).

(C) GRADING AGENCY: WEST COAST LUMBER INSPECTION BUREAU; WCLIB (GR).

(D) GRADING AGENCY: WESTERN WOOD PRODUCTS ASSOCIATION; WWPA G-5.

(E) SIZES: NOMINAL SIZES AS INDICATED ON DRAWINGS, S4S.

(F) MOISTURE CONTENT: KILN-DRY OR MC15.

(G) STUD FRAMING (2 BY 2 THROUGH 2 BY 6):

1. SPECIES: DOUGLAS FIR-LARCH.

2. SPECIES: LUMBER OF OTHER SPECIES OF GRADES IS ACCEPTABLE PROVIDED STRUCTURAL AND APPEARANCE CHARACTERISTICS ARE EQUIVALENT TO OR BETTER THAN PRODUCTS SPECIFIED.

a. GRADE: NO. 2.

(H) MISCELLANEOUS FRAMING, BLOCKING, NAILERS, GROUNDS, AND FURRING:

1. LUMBER: S4S, NO. 2 OR STANDARD GRADE.

2. BOARDS: STANDARD OR NO. 3.

2.3 CONSTRUCTION PANELS

(A) SUBFLOOR/UNDERLAYMENT COMBINATION: ANY PS 2 TYPE, RATED SINGLE FLOOR.

1. BOND CLASSIFICATION: EXTERIOR.

2. SPAN RATING: 48.

3. PERFORMANCE CATEGORY: 3/4 PERF CAT.

(B) ROOF SHEATHING: ANY PS 2 TYPE, RATED STRUCTURAL I SHEATHING.

1. BOND CLASSIFICATION: EXTERIOR.

2. SPAN RATING: 60.

3. PERFORMANCE CATEGORY: 3/4 PERF CAT.

(C) WALL SHEATHING: ANY PS 2 TYPE.

1. BOND CLASSIFICATION: EXTERIOR.

2. GRADE: SHEATHING.

3. SPAN RATING: 24.

4. PERFORMANCE CATEGORY: 5/16 PERF CAT.

5. EDGE PROFILE: SQUARE EDGE.

(D) COMMUNICATIONS AND ELECTRICAL ROOM MOUNTING BOARDS: PS 1 A-D PLYWOOD, OR MEDIUM DENSITY FIBERBOARD; 3/4 INCH THICK; FLAME SPREAD INDEX OF 25 OR LESS, SMOKE DEVELOPED INDEX OF 450 OR LESS, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

(E) OTHER APPLICATIONS:

1. PLYWOOD CONCEALED FROM VIEW BUT LOCATED WITHIN EXTERIOR ENCLOSURE: PS 1, C-C PLUGGED OR BETTER, EXTERIOR GRADE.

2. PLYWOOD EXPOSED TO VIEW BUT NOT EXPOSED TO WEATHER: PS 1, A-D, OR BETTER.

3. OTHER LOCATIONS: PS 1, C-D PLUGGED OR BETTER.

2.4 ACCESSORIES

(A) FASTENERS AND ANCHORS:

1. METAL AND FINISH: HOT-DIPPED GALVANIZED STEEL COMPLYING WITH ASTM A153/A153M FOR HIGH HUMIDITY AND PRESERVATIVE-TREATED WOOD LOCATIONS, UNFINISHED STEEL ELSEWHERE.

2. DRYWALL SCREWS: BUGLE HEAD, HARDENED STEEL, POWER DRIVEN TYPE, LENGTH THREE TIMES THICKNESS OF SHEATHING.

3. ANCHORS: TOGGLE BOLT TYPE FOR ANCHORAGE TO HOLLOW MASONRY.

(B) DIE-STAMPED CONNECTORS: HOT DIPPED GALVANIZED STEEL, SIZED TO SUIT FRAMING CONDITIONS.

1. FOR CONTACT WITH PRESERVATIVE TREATED WOOD IN EXPOSED LOCATIONS, PROVIDE MINIMUM G185 GALVANIZING COMPLYING WITH ASTM A653/A653M.

(C) JOIST HANGERS: HOT DIPPED GALVANIZED STEEL, SIZED TO SUIT FRAMING CONDITIONS.

1. FOR CONTACT WITH PRESERVATIVE TREATED WOOD IN EXPOSED LOCATIONS, PROVIDE MINIMUM G185 GALVANIZING COMPLYING WITH ASTM A653/A653M.

(D) SILL GASKET ON TOP OF FOUNDATION WALL: 1/4 INCH THICK, PLATE WIDTH, CLOSED CELL PLASTIC FOAM FROM CONTINUOUS ROLLS.

(E) TERMITE-RESISTANT SILL PLATE BARRIER: SELF-ADHESIVE, FILM-BACKED BARRIER WITH RELEASE SHEET; ADHERES TO CONCRETE SUBSTRATES AND BLOCKS TERMITE ACCESS.

1. THICKNESS: 68 MILS (0.068 INCH).

2. TERMITE RESISTANCE: 100 PERCENT WHEN TESTED IN ACCORDANCE WITH ICC-ES AC380.

3. WATER VAPOR PERMEANCE: 0.035 PERM, MAXIMUM, WHEN TESTED IN ACCORDANCE WITH ASTM E96/E96M.

4. MANUFACTURERS:

a. POLYGUARD BARRIER SYSTEMS, INC, A DIVISION OF POLYGUARD PRODUCTS, INC; TERM SILL PLATE BARRIER: WWW.POLYGUARDBARRIERS.COM/#SLE.

b. SUBSTITUTIONS: OR APPROVED EQUAL.

c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

(F) TERMITE-RESISTANT SILL FLASHING: SELF-ADHESIVE MEMBRANE; POLYETHYLENE FILM BONDED TO SEALANT.

1. THICKNESS: 40 MILS (0.040 INCH).

2. TERMITE RESISTANCE: 100 PERCENT WHEN TESTED IN ACCORDANCE WITH ICC-ES AC380.

3. WATER VAPOR PERMEANCE: 0.035 PERM, MAXIMUM, WHEN TESTED IN ACCORDANCE WITH ASTM E96/E96M.

4. MANUFACTURERS:

a. POLYGUARD BARRIER SYSTEMS, INC, A DIVISION OF POLYGUARD PRODUCTS, INC; TERM FLASHING BARRIER: WWW.POLYGUARDBARRIERS.COM/#SLE.

b. SUBSTITUTIONS: OR APPROVED EQUAL.

c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(G) SILL FLASHING: AS SPECIFIED IN SECTION 07 62 00.

(H) SUBFLOOR ADHESIVES: WATERPROOF, AIR CURE TYPE, CARTRIDGE DISPENSED; ADHESIVES DESIGNED FOR SUBFLOOR APPLICATIONS AND COMPLYING WITH EITHER ASTM C557 OR ASTM D3498.

1. MANUFACTURERS:

a. FRANKLIN INTERNATIONAL, INC; TITEBOND PROVANTAGE WEATHERPROOF SUBFLOOR ADHESIVE: WWW.TITEBOND.COM/#SLE.

b. HUBER ENGINEERED WOODS, LLC; ADVANTECH SUBFLOOR ADHESIVE: WWW.HUBERWOOD.COM/#SLE.

c. LIQUID NAILS, A BRAND OF PPG ARCHITECTURAL COATINGS; LN-902 SUBFLOOR AND DECK CONSTRUCTION ADHESIVE, 10 OZ: WWW.LIQUIDNAILS.COM/#SLE.

d. SUBSTITUTIONS: OR APPROVED EQUAL.

e. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(I) CONSTRUCTION ADHESIVES: ADHESIVES COMPLYING WITH ASTM C557 OR ASTM D3498.

1. MANUFACTURERS:

a. FRANKLIN INTERNATIONAL, INC; TITEBOND FAST SET POLYURETHANE CONSTRUCTION ADHESIVE: WWW.TITEBOND.COM/#SLE.

b. SUBSTITUTIONS: OR APPROVED EQUAL.

c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(J) WATER-RESISTIVE BARRIER: PLASTIC SHEET COMPLYING WITH ICC-ES AC38.

(K) BUILDING PAPER: WATER RESISTANT KRAFT PAPER.

(L) TERMITE SHIELD: GALVANIZED SHEET STEEL

2.5 FACTORY WOOD TREATMENT

(A) TREATED LUMBER AND PLYWOOD: COMPLY WITH REQUIREMENTS OF AWPA U1 - USE CATEGORY SYSTEM FOR WOOD TREATMENTS DETERMINED BY USE CATEGORIES, EXPECTED SERVICE CONDITIONS, AND SPECIFIC APPLICATIONS.

1. FIRE-RETARDANT TREATED WOOD: MARK EACH PIECE OF WOOD WITH PRODUCER'S STAMP INDICATING COMPLIANCE WITH SPECIFIED REQUIREMENTS.

2. PRESERVATIVE-TREATED WOOD: PROVIDE LUMBER AND PLYWOOD MARKED OR STAMPED BY AN ALSC-ACCREDITED TESTING AGENCY, CERTIFYING LEVEL AND TYPE OF TREATMENT IN ACCORDANCE WITH AWPA STANDARDS.

(B) FIRE RETARDANT TREATMENT:

1. MANUFACTURERS:

a. LONZA GROUP: WWW.WOLMANIZEDWOOD.COM/#SLE.

b. HOOVER TREATED WOOD PRODUCTS, INC: WWW.FRTW.COM/#SLE.

c. KOPPERS, INC: WWW.KOPPERSPERFORMANCECHEMICALS.COM/#SLE.

d. VIANCE, LLC; D-BLAZE: WWW.TREATEDWOOD.COM/#SLE.

e. SUBSTITUTIONS: OR APPROVED EQUAL.

f. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2. EXTERIOR TYPE: AWPA U1, CATEGORY UCFB, COMMODITY SPECIFICATION H, CHEMICALLY TREATED AND PRESSURE IMPREGNATED; CAPABLE OF PROVIDING A MAXIMUM FLAME SPREAD INDEX OF 25 WHEN TESTED IN ACCORDANCE WITH ASTM E84, WITH NO EVIDENCE OF SIGNIFICANT COMBUSTION WHEN TEST IS EXTENDED FOR AN ADDITIONAL 20 MINUTES BOTH BEFORE AND AFTER ACCELERATED WEATHERING TEST PERFORMED IN ACCORDANCE WITH ASTM D2898.

    a. KILN DRY WOOD AFTER TREATMENT TO A MAXIMUM MOISTURE CONTENT OF 19 PERCENT FOR LUMBER AND 15 PERCENT FOR PLYWOOD.

    b. TREAT ALL EXTERIOR ROUGH CARPENTRY ITEMS.

    c. TREAT EXPOSED EXTERIOR ROUGH CARPENTRY ITEMS, INCLUDING STAIRWAYS, BALCONIES, AND COVERED WALKWAYS

    d. DO NOT USE TREATED WOOD IN DIRECT CONTACT WITH THE GROUND.

3. INTERIOR TYPE A: AWPA U1, USE CATEGORY UCFA, COMMODITY SPECIFICATION H, LOW TEMPERATURE (LOW HYGROSCOPIC) TYPE, CHEMICALLY TREATED AND PRESSURE IMPREGNATED; CAPABLE OF PROVIDING A MAXIMUM FLAME SPREAD INDEX OF 25 WHEN TESTED IN ACCORDANCE WITH ASTM E84, WITH NO EVIDENCE OF SIGNIFICANT COMBUSTION WHEN TEST IS EXTENDED FOR AN ADDITIONAL 20 MINUTES.

    a. KILN DRY WOOD AFTER TREATMENT TO A MAXIMUM MOISTURE CONTENT OF 19 PERCENT FOR LUMBER AND 15 PERCENT FOR PLYWOOD.

    b. ALL INTERIOR ROUGH CARPENTRY ITEMS ARE TO BE FIRE RETARDANT TREATED.

    c. TREAT ROUGH CARPENTRY ITEMS AS INDICATED .

    d. DO NOT USE TREATED WOOD IN APPLICATIONS EXPOSED TO WEATHER OR WHERE THE WOOD MAY BECOME WET.

(C) PRESERVATIVE TREATMENT:

1. MANUFACTURERS:

    a. LONZA GROUP: WWW.WOLMANIZEDWOOD.COM/#SLE.

    b. KOPPERS PERFORMANCE CHEMICALS, INC: WWW.KOPPERSPERFORMANCECHEMICALS.COM/#SLE.

    c. VIANCE, LLC; PRESERVE ACQ: WWW.TREATEDWOOD.COM/#SLE.

    d. SUBSTITUTIONS: OR APPROVED EQUAL.

    e. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2. PRESERVATIVE PRESSURE TREATMENT OF LUMBER ABOVE GRADE: AWPA U1, USE CATEGORY UC3B, COMMODITY SPECIFICATION A USING WATERBORNE PRESERVATIVE TO 0.25 LB/CU FT RETENTION.

    a. KILN DRY LUMBER AFTER TREATMENT TO MAXIMUM MOISTURE CONTENT OF 19 PERCENT.

b. TREAT LUMBER EXPOSED TO WEATHER.

c. TREAT LUMBER IN CONTACT WITH ROOFING, FLASHING, OR WATERPROOFING.

d. TREAT LUMBER IN CONTACT WITH MASONRY OR CONCRETE.

e. TREAT LUMBER LESS THAN 18 INCHES ABOVE GRADE.

f. TREAT LUMBER IN OTHER LOCATIONS AS INDICATED.

3. PRESERVATIVE PRESSURE TREATMENT OF PLYWOOD ABOVE GRADE: AWPA U1, USE CATEGORY UC2 AND UC3B, COMMODITY SPECIFICATION F USING WATERBORNE PRESERVATIVE.

a. KILN DRY PLYWOOD AFTER TREATMENT TO MAXIMUM MOISTURE CONTENT OF 19 PERCENT.

b. TREAT PLYWOOD IN CONTACT WITH ROOFING, FLASHING, OR WATERPROOFING.

c. TREAT PLYWOOD IN CONTACT WITH MASONRY OR CONCRETE.

d. TREAT PLYWOOD LESS THAN 18 INCHES ABOVE GRADE.

e. TREAT PLYWOOD IN OTHER LOCATIONS AS INDICATED.

4. PRESERVATIVE PRESSURE TREATMENT OF LUMBER IN CONTACT WITH SOIL: AWPA U1, USE CATEGORY UC4A, COMMODITY SPECIFICATION A USING WATERBORNE PRESERVATIVE.

a. PRESERVATIVE FOR FIELD APPLICATION TO CUT SURFACES: AS RECOMMENDED BY MANUFACTURER OF FACTORY TREATMENT CHEMICALS FOR BRUSH-APPLICATION IN THE FIELD.

b. RESTRICTIONS: DO NOT USE LUMBER OR PLYWOOD TREATED WITH CHROMATED COPPER ARSENATE (CCA) IN EXPOSED EXTERIOR APPLICATIONS SUBJECT TO LEACHING.

PART 3 EXECUTION

3.1 PREPARATION

(A) WHERE WOOD FRAMING BEARS ON CEMENTITIOUS FOUNDATIONS, INSTALL FULL WIDTH SILL FLASHING CONTINUOUS OVER TOP OF FOUNDATION, LAP ENDS OF FLASHING MINIMUM OF 4 INCHES AND SEAL.

(B) INSTALL SILL GASKET UNDER SILL PLATE OF FRAMED WALLS BEARING ON FOUNDATIONS; PUNCTURE GASKET CLEANLY TO FIT TIGHTLY AROUND PROTRUDING ANCHOR BOLTS.

(C) COORDINATE INSTALLATION OF ROUGH CARPENTRY MEMBERS SPECIFIED IN OTHER SECTIONS.

3.2 INSTALLATION - GENERAL

(A) SELECT MATERIAL SIZES TO MINIMIZE WASTE.

(B) REUSE SCRAP TO THE GREATEST EXTENT POSSIBLE; CLEARLY SEPARATE SCRAP FOR USE ON SITE AS ACCESSORY COMPONENTS, INCLUDING: SHIMS, BRACING, AND BLOCKING.

(C) WHERE TREATED WOOD IS USED ON INTERIOR, PROVIDE TEMPORARY VENTILATION DURING AND IMMEDIATELY AFTER INSTALLATION SUFFICIENT TO REMOVE INDOOR AIR CONTAMINANTS.

3.3 FRAMING INSTALLATION

(A) SET STRUCTURAL MEMBERS LEVEL, PLUMB, AND TRUE TO LINE. DISCARD PIECES WITH DEFECTS THAT WOULD LOWER REQUIRED STRENGTH OR RESULT IN UNACCEPTABLE APPEARANCE OF EXPOSED MEMBERS.

(B) MAKE PROVISIONS FOR TEMPORARY CONSTRUCTION LOADS, AND PROVIDE TEMPORARY BRACING SUFFICIENT TO MAINTAIN STRUCTURE IN TRUE ALIGNMENT AND SAFE CONDITION UNTIL COMPLETION OF ERECTION AND INSTALLATION OF PERMANENT BRACING.

(C) INSTALL STRUCTURAL MEMBERS FULL LENGTH WITHOUT SPLICES UNLESS OTHERWISE SPECIFICALLY DETAILED.

(D) COMPLY WITH MEMBER SIZES, SPACING, AND CONFIGURATIONS INDICATED, AND FASTENER SIZE AND SPACING INDICATED, BUT NOT LESS THAN REQUIRED BY APPLICABLE CODES AND AWC (WFCM) WOOD FRAME CONSTRUCTION MANUAL.

(E) INSTALL HORIZONTAL SPANNING MEMBERS WITH CROWN EDGE UP AND NOT LESS THAN 1-1/2 INCHES OF BEARING AT EACH END.

(F) CONSTRUCT DOUBLE JOIST HEADERS AT FLOOR AND CEILING OPENINGS AND UNDER WALL STUD PARTITIONS THAT ARE PARALLEL TO FLOOR JOISTS; USE METAL JOIST HANGERS UNLESS OTHERWISE DETAILED.

(G) PROVIDE BRIDGING AT JOISTS IN EXCESS OF 8 FEET SPAN AS DETAILED. FIT SOLID BLOCKING AT ENDS OF MEMBERS.

(H) FRAME WALL OPENINGS WITH TWO OR MORE STUDS AT EACH JAMB; SUPPORT HEADERS ON CRIPPLE STUDS.

(I) ADVANCED FRAMING TECHNIQUES FOR LEED V4 FOR HOMES CREDIT:

1. IN EXTERIOR WALLS AND COMMON WALLS:

   a. INSTALL NO MORE THAN ONE HORIZONTAL 2X TOP PLATE ON WALLS BY ALIGNING STUDS WITH JOISTS AND ROOF RAFTERS.

   b. PLACE WINDOW AND DOOR HEADERS IN THE RIM JOIST.

   c. INSTALL RAISED (DIRECTLY BENEATH THE TOP PLATE), SINGLE-PLY HEADERS NOT MORE THAN 2 INCHES NOMINAL THICKNESS IN A 2X4 WALL OR 4 INCHES NOMINAL THICKNESS IN A 2X6 WALL, IN ACCORDANCE WITH INTERNATIONAL RESIDENTIAL CODE 2012.

   d. INSTALL STRUCTURAL INSULATED PANELS (SIPS) FOR WALLS.

2. FOR INTERIOR AND EXTERIOR WALLS:

   a. SIZE HEADERS FOR ACTUAL LOADS.

   b. USE LADDER BLOCKING OR DRYWALL CLIPS.

c. USE TWO-STUD CORNERS OR CALIFORNIA CORNERS.

3. SPACE INTERIOR WALL STUDS GREATER THAN 16 INCHES O.C..

4. SPACE FLOOR JOISTS GREATER THAN 16 INCHES O.C. OR SIPS.

5. SPACE ROOF RAFTERS GREATER THAN 16 INCHES O.C. OR SIPS.

3.4 BLOCKING, NAILERS, AND SUPPORTS

(A) PROVIDE FRAMING AND BLOCKING MEMBERS AS INDICATED OR AS REQUIRED TO SUPPORT FINISHES, FIXTURES, SPECIALTY ITEMS, AND TRIM.

(B) IN FRAMED ASSEMBLIES THAT HAVE CONCEALED SPACES, PROVIDE SOLID WOOD FIREBLOCKING AS REQUIRED BY APPLICABLE LOCAL CODE, TO CLOSE CONCEALED DRAFT OPENINGS BETWEEN FLOORS AND BETWEEN TOP STORY AND ROOF/ATTIC SPACE; OTHER MATERIAL ACCEPTABLE TO CODE AUTHORITIES MAY BE USED IN LIEU OF SOLID WOOD BLOCKING.

(C) IN METAL STUD WALLS, PROVIDE CONTINUOUS BLOCKING AROUND DOOR AND WINDOW OPENINGS FOR ANCHORAGE OF FRAMES, SECURELY ATTACHED TO STUD FRAMING.

(D) IN WALLS, PROVIDE BLOCKING ATTACHED TO STUDS AS BACKING AND SUPPORT FOR WALL-MOUNTED ITEMS, UNLESS ITEM CAN BE SECURELY FASTENED TO TWO OR MORE STUDS OR OTHER METHOD OF SUPPORT IS EXPLICITLY INDICATED.

(E) WHERE CEILING-MOUNTING IS INDICATED, PROVIDE BLOCKING AND SUPPLEMENTARY SUPPORTS ABOVE CEILING, UNLESS OTHER METHOD OF SUPPORT IS EXPLICITLY INDICATED.

(F) PROVIDE THE FOLLOWING SPECIFIC NON-STRUCTURAL FRAMING AND BLOCKING:

1. CABINETS AND SHELF SUPPORTS.

2. WALL BRACKETS.

3. HANDRAILS.

4. GRAB BARS.

5. TOWEL AND BATH ACCESSORIES.

6. WALL-MOUNTED DOOR STOPS.

7. WALL-MOUNTED TELEVISION

8. WALL PANELING AND TRIM.

9. JOINTS OF RIGID WALL COVERINGS THAT OCCUR BETWEEN STUDS.

10. SUBSTITUTIONS: OR APPROVED EQUAL.

11. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

3.5 ROOF-RELATED CARPENTRY

(A) COORDINATE INSTALLATION OF ROOFING CARPENTRY WITH DECK CONSTRUCTION, FRAMING OF ROOF OPENINGS, AND ROOFING ASSEMBLY INSTALLATION.

(B) PROVIDE WOOD CURB AT ALL ROOF OPENINGS EXCEPT WHERE PREFABRICATED CURBS ARE SPECIFIED AND WHERE SPECIFICALLY INDICATED OTHERWISE. FORM CORNERS BY ALTERNATING LAPPING SIDE MEMBERS.

3.6 INSTALLATION OF CONSTRUCTION PANELS

(A) SUBFLOORING/UNDERLAYMENT COMBINATION: GLUE AND NAIL TO FRAMING; STAPLES ARE NOT PERMITTED.

(B) SUBFLOORING: GLUE AND NAIL TO FRAMING; STAPLES ARE NOT PERMITTED.

(C) UNDERLAYMENT: SECURE TO SUBFLOORING WITH NAILS AND GLUE.

1. AT LOCATIONS WHERE RESILIENT FLOORING WILL BE INSTALLED, FILL AND SAND SPLITS, GAPS, AND ROUGH AREAS.

2. PLACE BUILDING PAPER BETWEEN FLOOR UNDERLAYMENT AND SUBFLOORING.

(D) ROOF SHEATHING: SECURE PANELS WITH LONG DIMENSION PERPENDICULAR TO FRAMING MEMBERS, WITH ENDS STAGGERED AND OVER FIRM BEARING.

1. AT LONG EDGES USE SHEATHING CLIPS WHERE JOINTS OCCUR BETWEEN ROOF FRAMING MEMBERS.

2. SCREW PANELS TO FRAMING; STAPLES ARE NOT PERMITTED.

(E) WALL SHEATHING: SECURE WITH LONG DIMENSION PERPENDICULAR TO WALL STUDS, WITH ENDS OVER FIRM BEARING AND STAGGERED, USING NAILS, SCREWS, OR STAPLES.

1. USE PLYWOOD OR OTHER ACCEPTABLE STRUCTURAL PANELS AT BUILDING CORNERS, FOR NOT LESS THAN 96 INCHES, MEASURED HORIZONTALLY.

2. PLACE WATER-RESISTIVE BARRIER HORIZONTALLY OVER WALL SHEATHING, WEATHER LAPPING EDGES AND ENDS.

(F) COMMUNICATIONS AND ELECTRICAL ROOM MOUNTING BOARDS: SECURE WITH SCREWS TO STUDS WITH EDGES OVER FIRM BEARING; SPACE FASTENERS AT MAXIMUM 24 INCHES ON CENTER ON ALL EDGES AND INTO STUDS IN FIELD OF BOARD.

1. AT FIRE-RATED WALLS, INSTALL BOARD OVER WALL BOARD INDICATED AS PART OF THE FIRE-RATED ASSEMBLY.

2. WHERE BOARDS ARE INDICATED AS FULL FLOOR-TO-CEILING HEIGHT, INSTALL WITH LONG EDGE OF BOARD PARALLEL TO STUDS.

3. INSTALL ADJACENT BOARDS WITHOUT GAPS.

4. SIZE AND LOCATION: AS INDICATED ON DRAWINGS.

(G) WALL SHEATHING AND ROOF SHEATHING WITH LAMINATED WATER-RESISTIVE BARRIER AND AIR BARRIER: SECURE TO STUDS AS RECOMMENDED BY MANUFACTURER.

1. INSTALL WITH LAMINATED WATER-RESISTIVE AND AIR BARRIER ON EXTERIOR SIDE OF SHEATHING.

2. DO NOT BRIDGE BUILDING EXPANSION JOINTS; CUT AND SPACE EDGES OF PANELS TO MATCH SPACING OF STRUCTURAL SUPPORT ELEMENTS.

3. USE ONLY MECHANICALLY ATTACHED AND DRAINABLE EIFS AND EXTERIOR INSULATION WITH WALL SHEATHING WITH LAMINATED WATER-RESISTIVE AND AIR BARRIER.

4. APPLY MANUFACTURER'S STANDARD SEAM TAPE TO JOINTS BETWEEN SHEATHING PANELS. USE TAPE GUN OR HARD RUBBER ROLLER AS RECOMMENDED BY MANUFACTURER.

3.7 SITE APPLIED WOOD TREATMENT

(A) APPLY PRESERVATIVE TREATMENT COMPATIBLE WITH FACTORY APPLIED TREATMENT AT SITE-SAWN CUTS, COMPLYING WITH MANUFACTURER'S INSTRUCTIONS.

(B) ALLOW PRESERVATIVE TO DRY PRIOR TO ERECTING MEMBERS.

3.8 TOLERANCES

(A) FRAMING MEMBERS: 1/4 INCH FROM TRUE POSITION, MAXIMUM.

(B) SURFACE FLATNESS OF FLOOR: 1/8 INCH IN 10 FEET MAXIMUM, AND 1/4 INCH IN 30 FEET MAXIMUM.

(C) VARIATION FROM PLANE (OTHER THAN FLOORS): 1/4 INCH IN 10 FEET MAXIMUM, AND 1/4 INCH IN 30 FEET MAXIMUM.

3.9 FIELD QUALITY CONTROL

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL REQUIREMENTS

(B) COORDINATION OF ABAA TESTS AND INSPECTIONS:

1. PROVIDE TESTING AND INSPECTION REQUIRED BY ABAA QAP.

2. NOTIFY IN ABAA WRITING OF SCHEDULE FOR AIR BARRIER WORK. ALLOW ADEQUATE TIME FOR TESTING AND INSPECTION.

3. COOPERATE WITH ABAA TESTING AGENCY.

4. ALLOW ACCESS TO AIR BARRIER WORK AREAS AND STAGING.

5. DO NOT COVER AIR BARRIER WORK UNTIL TESTED, INSPECTED, AND ACCEPTED.

3.10 CLEANING

(A) WASTE DISPOSAL: COMPLY WITH THE REQUIREMENTS OF SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) DO NOT LEAVE ANY WOOD, SHAVINGS, SAWDUST, ETC. ON THE GROUND OR BURIED IN FILL.

(C) PREVENT SAWDUST AND WOOD SHAVINGS FROM ENTERING THE STORM DRAINAGE SYSTEM.

END OF SECTION

SECTION 06 15 00 - WOOD DECKING

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) SOFTWOOD LUMBER STRUCTURAL WOOD DECKING.

(B) PLYWOOD STRUCTURAL WOOD DECKING.

(C) GLUED LAMINATED STRUCTURAL WOOD DECKING.

(D) FIRE RETARDANT TREATMENT OF WOOD.

(E) PRESERVATIVE TREATMENT OF WOOD.

1.2 RELATED REQUIREMENTS

(A) SECTION 09 91 00 - PAINTING

1.3 REFERENCE STANDARDS

(A) AITC 109 - STANDARD FOR PRESERVATIVE TREATMENT OF STRUCTURAL GLUED LAMINATED TIMBER; 2007.

(B) AITC 110 - STANDARD APPEARANCE GRADES FOR STRUCTURAL GLUED LAMINATED TIMBER; 2001.

(C) AITC 111 - RECOMMENDED PRACTICE FOR PROTECTION OF STRUCTURAL GLUED LAMINATED TIMBER DURING TRANSIT, STORAGE AND ERECTION; 2005.

(D) AITC 112 - STANDARD FOR TONGUE-AND-GROOVE HEAVY TIMBER ROOF DECKING; 1993 AND ERRATA.

(E) AITC 113 - STANDARD FOR DIMENSIONS OF STRUCTURAL GLUED LAMINATED TIMBER; 2010.

(F) AITC A190.1 - AMERICAN NATIONAL STANDARD FOR WOOD PRODUCTS - STRUCTURAL GLUED LAMINATED TIMBER; 2007.

(G) ANSI A208.1 - AMERICAN NATIONAL STANDARD FOR PARTICLEBOARD; 2009.

(H) ASTM D143 - STANDARD TEST METHODS FOR SMALL CLEAR SPECIMENS OF TIMBER; 2014.

(I) ASTM D198 - STANDARD TEST METHODS OF STATIC TESTS OF LUMBER IN STRUCTURAL SIZES; 2015.

(J) ASTM D1761 - STANDARD TEST METHODS FOR MECHANICAL FASTENERS IN WOOD; 2012.

(K) ASTM D2559 - STANDARD SPECIFICATION FOR ADHESIVES FOR BONDED STRUCTURAL WOOD PRODUCTS FOR USE UNDER EXTERIOR EXPOSURE CONDITIONS; 2012A, WITH EDITORIAL REVISION (2016).

(L) ASTM D2898 - STANDARD TEST METHODS FOR ACCELERATED WEATHERING OF FIRE-RETARDANT-TREATED WOOD FOR FIRE TESTING; 2010 (REAPPROVED 2017).

(M) ASTM E84 - STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS; 2017.

(N) AWPA U1 - USE CATEGORY SYSTEM: USER SPECIFICATION FOR TREATED WOOD; 2017.

(O) NELMA (SGR) - STANDARD GRADING RULES FOR NORTHEASTERN LUMBER; 2013.

(P) NLGA (SGRNL) - STANDARD GRADING RULES FOR CANADIAN LUMBER; 2014.

(Q) PS 1 - STRUCTURAL PLYWOOD; 2009.

(R) PS 20 - AMERICAN SOFTWOOD LUMBER STANDARD; 2015.

(S) RIS (GR) - STANDARD SPECIFICATIONS FOR GRADES OF CALIFORNIA REDWOOD LUMBER; 2000.

(T) SPIB (GR) - GRADING RULES; 2014.

(U) WCLIB (GR) - STANDARD GRADING RULES FOR WEST COAST LUMBER NO. 17; 2004, AND SUPPLEMENTS.

(V) WWPA G-5 - WESTERN LUMBER GRADING RULES; 2011.

(W) UL (FRD) - FIRE RESISTANCE DIRECTORY; CURRENT EDITION.

1.4 SYSTEM DESCRIPTION

(A) DESIGN FLOOR LIVE AND DEAD LOAD: AS INDICATED ON DRAWINGS

(B) DESIGN ROOF LIVE AND DEAD LOAD: AS INDICATED ON DRAWINGS.

1.5 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: PROVIDE TECHNICAL DATA ON WOOD PRESERVATIVE MATERIALS.

(C) SHOP DRAWINGS: INDICATE DECK FRAMING SYSTEM, LOADS AND CAMBERS, BEARING DETAILS, AND FRAMED OPENINGS.

1. INCLUDE THE DESIGN ENGINEER'S SEAL AND SIGNATURE ON EACH SHEET OF SHOP DRAWINGS.

(D) SAMPLES OF WOOD DECK EXPOSED TO VIEW: SUBMIT TWO SAMPLES, 6 INCH IN SIZE ILLUSTRATING WOOD GRAIN, STAIN, AND FINISH.

(E) DESIGNER'S QUALIFICATION STATEMENT.

(F) MANUFACTURER'S QUALIFICATION STATEMENT.

(G) INSTALLER'S QUALIFICATION STATEMENT.

1.6 QUALITY ASSURANCE

(A) DESIGNER QUALIFICATIONS: PERFORM DESIGN UNDER DIRECT SUPERVISION OF A PROFESSIONAL ENGINEER EXPERIENCED IN DESIGN OF THIS TYPE OF WORK AND LICENSED IN MONTANA.

(B) MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH AT LEAST THREE YEARS OF DOCUMENTED EXPERIENCE AND CERTIFIED BY AITC.

(C) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING WORK OF THE TYPE SPECIFIED IN THIS SECTION, WITH AT LEAST THREE YEARS OF DOCUMENTED EXPERIENCE.

1.7 DELIVERY, STORAGE, AND HANDLING

(A) PROTECT GLUE LAMINATED MEMBERS IN ACCORDANCE WITH AITC 111 REQUIREMENTS FOR UNWRAPPED MATERIAL.

(B) FIRE RETARDANT TREATED WOOD: PREVENT EXPOSURE TO PRECIPITATION DURING SHIPPING, STORAGE, OR INSTALLATION.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) PLYWOOD DECKING:

1. BOISE CASCADE COMPANY: WWW.BC.COM/#SLE.

2. GEORGIA-PACIFIC LLC: WWW.BUILDGP.COM/#SLE.

3. WEYERHAEUSER COMPANY: WWW.WEYERHAEUSER.COM/#SLE.

4. SUBSTITUTIONS: OR APPROVED EQUAL

5. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) GLUED LAMINATED DECKING:

1. DISDERO LUMBER COMPANY: WWW.LOCKDECK.COM

2. SUBSTITUTIONS: OR APPROVED EQUAL

3. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.2 WOOD MATERIALS

(A) WOOD FABRICATED FROM OLD GROWTH TIMBER IS NOT PERMITTED.

(B) PROVIDE SUSTAINABLY HARVESTED WOOD; SEE SECTION 01 60 00 - PRODUCT REQUIREMENTS FOR REQUIREMENTS.

(C) PROVIDE WOOD HARVESTED WITHIN A 500 MILE RADIUS OF THE PROJECT SITE.

2.3 REGULATORY REQUIREMENTS:

(A) COMPLY WITH APPLICABLE CODE FOR FIRE RETARDANT REQUIREMENTS.

(B) MARKING: MARK EACH PIECE WITH PRODUCER'S STAMP INDICATING COMPLIANCE WITH SPECIFIED REQUIREMENTS; FOR PIECES EXPOSED TO VIEW IN COMPLETED CONSTRUCTION, SUBMIT MANUFACTURER'S CERTIFICATE CERTIFYING THAT PRODUCTS COMPLY WITH SPECIFIED REQUIREMENTS IN LIEU OF GRADE STAMPING.

(C) LUMBER DECKING: FABRICATED TO AITC 112.

1. SPECIES: CLEAR WHITE PINE

2. SIZE: BY 6 INCHES, NOMINAL.

3. PATTERN: AITC STANDARD BEVELED V-JOINT WITH SINGLE TONGUE AND GROOVE.

4. MOISTURE CONTENT: 19 PERCENT, MAXIMUM.

(D) PLYWOOD DECKING: PS 1 VENEER PLYWOOD; APA RATED SHEATHING, SPAN RATING 48/24; EXTERIOR GRADE;1 A INTERIOR VENEER APPEARANCE GRADE; SANDED.

(E) GLUED LAMINATED DECKING: SOFTWOOD LUMBER OF ANY SPECIES FABRICATED TO COMPLY WITH AITC A190.1 AND AITC 113, LAMINATED WITH ADHESIVE TESTED ACCORDING TO ASTM D2559 FOR WET SERVICE; BEVELED EDGES, SINGLE TONGUE.

1. APPEARANCE: FABRICATE TO AITC 110 INDUSTRIAL GRADE.

2. DESIGNED FOR THE FOLLOWING MINIMUM VALUES:

a. BENDING (FB): 1500 PSI

b. HORIZONTAL SHEAR (FV): 150 PSI

c. MODULUS OF ELASTICITY (E): 1,800,000 PSI

3. AFTER END TRIMMING, SEAL WITH PENETRATING SEALER.

2.4 ACCESSORIES

(A) FASTENERS AND ANCHORS:

1. FASTENER TYPE AND FINISH: HOT-DIPPED GALVANIZED STEEL FOR HIGH HUMIDITY AND PRESERVATIVE-TREATED WOOD LOCATIONS, UNFINISHED STEEL ELSEWHERE.

2. SCREWS: BUGLE HEAD, HARDENED STEEL, POWER DRIVEN TYPE, LENGTH THREE TIMES THICKNESS OF DECKING.

(B) ADHESIVE: WATERPROOF, AIR CURE TYPE, CARTRIDGE DISPENSED.

(C) SEALER: MANUFACTURER'S STANDARD, FACTORY-APPLIED SEALER, TRANSPARENT WOOD SEALER

2.5 WOOD TREATMENT

(A) FACTORY-TREATED LUMBER AND PLYWOOD: COMPLY WITH REQUIREMENTS OF AWPA U1 - USE CATEGORY SYSTEM FOR WOOD TREATMENTS DETERMINED BY USE CATEGORIES, EXPECTED SERVICE CONDITIONS, AND SPECIFIC APPLICATIONS.

(B) FIRE RETARDANT TREATMENT:

1. MANUFACTURERS:

a. HOOVER TREATED WOOD PRODUCTS, INC; WWW.FRTW.COM/#SLE.

b. LONZA GROUP; WWW.WOLMANIZEDWOOD.COM/#SLE.

c. KOPPERS, INC; HTTP://WWW.KOPPERSPERFORMANCECHEMICALS.COM/#SLE.

d. OSMOSE UTILITIES SERVICES, INC; WWW.OSMOSE.COM/#SLE.

e. VIANCE, LLC; D-BLAZE: WWW.TREATEDWOOD.COM/#SLE.

f. SUBSTITUTIONS: OR APPROVED EQUAL.

g. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2. EXTERIOR TYPE: AWPA U1, USE CATEGORY UCFB, COMMODITY SPECIFICATION H, CHEMICALLY TREATED AND PRESSURE IMPREGNATED; WITH MAXIMUM FLAME SPREAD INDEX OF 25 WHEN TESTED IN ACCORDANCE WITH ASTM E84 AND WITH NO EVIDENCE OF SIGNIFICANT COMBUSTION WHEN TEST IS EXTENDED FOR AN ADDITIONAL 20 MINUTES BOTH BEFORE AND AFTER ACCELERATED WEATHERING TEST PERFORMED IN ACCORDANCE WITH ASTM D2898.

a. KILN DRY WOOD AFTER TREATMENT TO A MAXIMUM MOISTURE CONTENT OF 19 PERCENT FOR LUMBER AND 15 PERCENT FOR PLYWOOD.

3. INTERIOR TYPE A: AWPA U1, USE CATEGORY UCFA, COMMODITY SPECIFICATION H, LOW TEMPERATURE (LOW HYGROSCOPIC) TYPE, CHEMICALLY TREATED AND PRESSURE IMPREGNATED; MAXIMUM FLAME SPREAD INDEX OF 25 WHEN TESTED IN ACCORDANCE WITH ASTM E84 AND WITH NO EVIDENCE OF SIGNIFICANT COMBUSTION WHEN TEST IS EXTENDED FOR AN ADDITIONAL 20 MINUTES.

a. KILN DRY WOOD AFTER TREATMENT TO A MAXIMUM MOISTURE CONTENT OF 19 PERCENT FOR LUMBER AND 15 PERCENT FOR PLYWOOD.

b. DO NOT USE TYPE A TREATED WOOD IN APPLICATIONS EXPOSED TO WEATHER OR WHERE THE WOOD MAY BECOME WET.

4. MARKING: MARK EACH PIECE OF WOOD WITH PRODUCER'S STAMP INDICATING COMPLIANCE WITH SPECIFIED REQUIREMENTS.

(C) PRESERVATIVE PRESSURE TREATMENT:

1. MANUFACTURERS:

a. LONZA GROUP; WWW.WOLMANIZEDWOOD.COM/#SLE.

b. OSMOSE UTILITIES SERVICES, INC; WWW.OSMOSE.COM/#SLE.

c. VIANCE, LLC; ECOLIFE: WWW.TREATEDWOOD.COM/#SLE.

d. SUBSTITUTIONS: OR APPROVED EQUAL

e. SUBSTITUTIONS: SEE SECTION 01 60 00 - PRODUCT REQUIREMENTS.

2. PRESERVATIVE PRESSURE TREATMENT OF LUMBER DECKING: AWPA U1, USE CATEGORY UC3B, COMMODITY SPECIFICATION A USING WATERBORNE PRESERVATIVE TO 0.25 LB/CU FT RETENTION.

   a. KILN DRY LUMBER AFTER TREATMENT TO MAXIMUM MOISTURE CONTENT OF 19 PERCENT.

3. PRESERVATIVE PRESSURE TREATMENT OF GLUED LAMINATED DECKING: AITC 109 USING WATERBORNE PRESERVATIVE TO 0.25 LB/CU FT RETENTION.

   a. KILN DRY LUMBER AFTER TREATMENT AND BEFORE LAMINATION TO MAXIMUM MOISTURE CONTENT OF 19 PERCENT.

4. PRESERVATIVE PRESSURE TREATMENT OF PLYWOOD DECKING: AWPA U1, USE CATEGORY UC2 AND UC3B, COMMODITY SPECIFICATION F USING WATERBORNE PRESERVATIVE TO 0.25 LB/CU FT RETENTION.

   a. KILN DRY PLYWOOD AFTER TREATMENT TO MAXIMUM MOISTURE CONTENT OF 18 PERCENT.

5. MARKING: MARK EACH PIECE WITH STAMP OF AN ALSC-ACCREDITED TESTING AGENCY, CERTIFYING LEVEL AND TYPE OF TREATMENT IN ACCORDANCE WITH AWPA STANDARDS.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY THAT SUPPORT FRAMING IS READY TO RECEIVE DECKING.

3.2 PREPARATION

(A) COORDINATE PLACEMENT OF BEARING ITEMS.

3.3 SITE APPLIED WOOD TREATMENT

(A) APPLY PRESERVATIVE TREATMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(B) BRUSH APPLY ONE COATS OF PRESERVATIVE TREATMENT ON WOOD IN CONTACT WITH CEMENTITIOUS MATERIALS. TREAT SITE-SAWN CUTS.

(C) ALLOW PRESERVATIVE TO DRY PRIOR TO ERECTING MEMBERS.

3.4 INSTALLATION - PLYWOOD DECKING

(A) INSTALL DECKING PERPENDICULAR TO FRAMING MEMBERS WITH ENDS STAGGERED OVER FIRM BEARING. ON SLOPED SURFACES, LAY DECKING WITH TONGUE UPWARD.

(B) ENGAGE PLYWOOD TONGUE AND GROOVE EDGES.

(C) ALLOW EXPANSION SPACE AT EDGES AND ENDS.

(D) ATTACH DECKING WITH ADHESIVE AND SCREWS.

(E) USE SHEATHING CLIPS AT UNSUPPORTED EDGES OF PLYWOOD BETWEEN SUPPORTING FRAMING MEMBERS.

(F) CUT DECKING TO ACCOMMODATE ROOF DRAIN AND FLANGE.

3.5 INSTALLATION - BOARD DECKING

(A) INSTALL DECKING PERPENDICULAR TO FRAMING MEMBERS, WITH ENDS STAGGERED OVER FIRM BEARING. ON SLOPED SURFACES, LAY DECKING WITH TONGUE UPWARD.

(B) FIT BUTT END DECK JOINTS OCCURRING BETWEEN SUPPORT MEMBERS WITH METAL SPLINES TO MAINTAIN TIGHT, ALIGNED JOINTS.

(C) ENGAGE DECKING TONGUE AND GROOVE EDGES.

(D) SECURE WITH FASTENERS. SIDE SPIKE PLANKS TOGETHER, THROUGH PRE-DRILLED HOLES.

(E) SECURE WITH MANUFACTURER'S PROPRIETARY FASTENER SYSTEM.

(F) MAINTAIN DECKING JOINT SPACE OF 1/16 INCH MAXIMUM.

(G) CUT DECKING TO ACCOMMODATE ROOF DRAIN AND FLANGE.

3.6 TOLERANCES

(A) SURFACE FLATNESS OF DECKING WITHOUT LOAD: 1/4 INCH IN 10 FEET MAXIMUM, AND 1/2 INCH IN 30 FEET MAXIMUM.

END OF SECTION

SECTION 06 18 00 - GLUED-LAMINATED CONSTRUCTION

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) GLUE LAMINATED WOOD BEAMS AND PURLINS.

(B) PRESERVATIVE TREATMENT OF WOOD.

(C) FIRE RETARDANT TREATMENT OF WOOD.

(D) STEEL HARDWARE AND ATTACHMENT BRACKETS.

1.2 RELATED REQUIREMENTS

(A) SECTION 09 91 00 - PAINTING - FIELD FINISHING

1.3 PRICE AND PAYMENT PROCEDURES

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL UNIT PRICE REQUIREMENTS.

(B) GLUE LAMINATED STRUCTURAL COLUMN MEMBERS: BY THE UNIT. INCLUDES UNIT MEMBER SHOP FINISHED, CONNECTORS AND BRACKETS, PLACED AND ANCHORED.

(C) CONNECTIONS: BY THE POUND. INCLUDES FABRICATION, FINISHING, AND INSTALLATION.

1.4 REFERENCE STANDARDS

(A) AITC 117 - STANDARD SPECIFICATIONS FOR STRUCTURAL GLUED LAMINATED TIMBER OF SOFTWOOD SPECIES; 2010.

(B) AITC A190.1 - AMERICAN NATIONAL STANDARD FOR WOOD PRODUCTS - STRUCTURAL GLUED LAMINATED TIMBER; 2007.

(C) ASTM A36/A36M - STANDARD SPECIFICATION FOR CARBON STRUCTURAL STEEL; 2014.

(D) ASTM A123/A123M - STANDARD SPECIFICATION FOR ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS; 2017.

(E) ASTM A153/A153M - STANDARD SPECIFICATION FOR ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE; 2016A.

(F) ASTM A563 - STANDARD SPECIFICATION FOR CARBON AND ALLOY STEEL NUTS; 2015.

(G) ASTM A563M - STANDARD SPECIFICATION FOR CARBON AND ALLOY STEEL NUTS (METRIC); 2007 (REAPPROVED 2013).

(H) ASTM A666 - STANDARD SPECIFICATION FOR ANNEALED OR COLD-WORKED AUSTENITIC STAINLESS STEEL SHEET, STRIP, PLATE, AND FLAT BAR; 2015.

(I) ASTM D2559 - STANDARD SPECIFICATION FOR ADHESIVES FOR BONDED STRUCTURAL WOOD PRODUCTS FOR USE UNDER EXTERIOR EXPOSURE CONDITIONS; 2012A, WITH EDITORIAL REVISION (2016).

(J) ASTM D2898 - STANDARD TEST METHODS FOR ACCELERATED WEATHERING OF FIRE-RETARDANT-TREATED WOOD FOR FIRE TESTING; 2010 (REAPPROVED 2017).

(K) ASTM E84 - STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS; 2017.

(L) ASTM F3125/F3125M - STANDARD SPECIFICATION FOR HIGH STRENGTH STRUCTURAL BOLTS, STEEL AND ALLOY STEEL, HEAT TREATED, 120 KSI (830 MPA) AND 150 KSI (1040 MPA) MINIMUM TENSILE STRENGTH, INCH AND METRIC DIMENSIONS; 2015A.

(M) AWPA U1 - USE CATEGORY SYSTEM: USER SPECIFICATION FOR TREATED WOOD; 2017.

(N) AWS D1.1/D1.1M - STRUCTURAL WELDING CODE - STEEL; 2015 (WITH MARCH 2016 ERRATA).

(O) FM (AG) - FM APPROVAL GUIDE; CURRENT EDITION.

(P) ITS (DIR) - DIRECTORY OF LISTED PRODUCTS; CURRENT EDITION.

(Q) RIS (GR) - STANDARD SPECIFICATIONS FOR GRADES OF CALIFORNIA REDWOOD LUMBER; 2000.

(R) SPIB (GR) - GRADING RULES; 2014.

(S) UL (DIR) - ONLINE CERTIFICATIONS DIRECTORY; CURRENT LISTINGS AT DATABASE.UL.COM.

(T) UL (FRD) - FIRE RESISTANCE DIRECTORY; CURRENT EDITION.

(U) WCLIB (GR) - STANDARD GRADING RULES FOR WEST COAST LUMBER NO. 17; 2004, AND SUPPLEMENTS.

(V) WWPA G-5 - WESTERN LUMBER GRADING RULES; 2011.

1.5 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: PROVIDE TECHNICAL DATA ON WOOD PRESERVATIVE MATERIALS, APPLICATION TECHNIQUE AND RESULTANT PERFORMANCE INFORMATION.

(C) SHOP DRAWINGS: INDICATE FRAMING SYSTEM, SIZES AND SPACING OF MEMBERS, LOADS AND CAMBERS, BEARING AND ANCHOR DETAILS, BRIDGING AND BRACINGFRAMED OPENINGS.

1. SUBMIT DESIGN CALCULATIONS SIGNED AND SEALED BY DESIGN ENGINEER.

(D) DESIGNER'S QUALIFICATION STATEMENT.

(E) MANUFACTURER'S QUALIFICATION STATEMENT.

(F) ERECTOR'S QUALIFICATION STATEMENT.

1.6 QUALITY ASSURANCE

(A) DESIGNER QUALIFICATIONS: DESIGN STRUCTURAL MEMBERS UNDER DIRECT SUPERVISION OF A PROFESSIONAL STRUCTURAL ENGINEER EXPERIENCED IN DESIGN OF THIS WORK AND LICENSED IN MONTANA.

(B) MANUFACTURER/FABRICATOR QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURE OF GLUE LAMINATED STRUCTURAL UNITS WITH THREE YEARS OF DOCUMENTED EXPERIENCE, AND CERTIFIED BY AITC IN ACCORDANCE WITH AITC A190.1.

(C) ERECTOR QUALIFICATIONS: COMPANY SPECIALIZING IN ERECTION OF PRODUCTS OF THE TYPE SPECIFIED WITH THREE YEARS DOCUMENTED EXPERIENCE, AND APPROVED BY MANUFACTURER.

1.7 DELIVERY, STORAGE, AND HANDLING

(A) PROTECT MEMBERS TO AITC REQUIREMENTS FOR NOT WRAPPED.

(B) LEAVE INDIVIDUAL WRAPPING IN PLACE UNTIL FINISHING OCCURS.

(C) FIRE RETARDANT TREATED WOOD: PREVENT EXPOSURE TO PRECIPITATION DURING SHIPPING, STORAGE, OR INSTALLATION.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) GLUED-LAMINATED STRUCTURAL UNITS:

1. SENTINEL STRUCTURES, INC
2. WESTERN WOOD STRUCTURES, INC
3. SUBSTITUTIONS: OR APPROVED EQUAL
4. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.2 GLUED-LAMINATED UNITS

(A) GLUED-LAMINATED UNITS: FABRICATE IN ACCORDANCE WITH AITC 117 INDUSTRIAL GRADE.

1. VERIFY DIMENSIONS AND SITE CONDITIONS PRIOR TO FABRICATION.
2. CUT AND FIT MEMBERS ACCURATELY TO LENGTH TO ACHIEVE TIGHT JOINT FIT.
3. FABRICATE MEMBER WITH CAMBER BUILT IN.
4. DO NOT SPLICE OR JOIN MEMBERS IN LOCATIONS OTHER THAN THOSE INDICATED WITHOUT PERMISSION.
5. FABRICATE STEEL HARDWARE AND CONNECTIONS WITH JOINTS NEATLY FITTED, WELDED, AND GROUND SMOOTH.

6. WELDING: PERFORM WELDING IN ACCORDANCE WITH AWS D1.1/D1.1M.

7. AFTER END TRIMMING, SEAL WITH PENETRATING SEALER IN ACCORDANCE WITH AITC REQUIREMENTS.

(B) PERFORMANCE CRITERIA:

1. COMPLY WITH APPLICABLE CODE FOR LOADS, SEISMIC ZONING, AND OTHER LOAD CRITERIA.

2. DESIGN ROOF LIVE AND DEAD LOAD: AS INDICATED ON DRAWINGS.

2.3 MATERIALS

(A) LUMBER: SOFTWOOD LUMBER COMPLYING WITH RIS (GR) GRADING RULES WITH 12 PERCENT MAXIMUM MOISTURE CONTENT BEFORE FABRICATION. DESIGN FOR THE FOLLOWING VALUES:

1. BENDING (FB): 1,600 PSI

2. COMPRESSION PARALLEL TO GRAIN (FC): 1,550 PSI

3. MODULUS OF ELASTICITY (E): 1,400,000 PSI

4. LUMBER FABRICATED FROM OLD GROWTH TIMBER IS NOT PERMITTED.

5. PROVIDE SUSTAINABLY HARVESTED LUMBER, CERTIFIED OR LABELED AS SPECIFIED IN SECTION 01 60 00.

6. PROVIDE LUMBER HARVESTED WITHIN A 500 MILE RADIUS OF THE PROJECT SITE.

(B) STEEL CONNECTIONS AND BRACKETS: ASTM A36/A36M WELDABLE QUALITY, GALVANIZE PER ASTM A123/A123M.

(C) STEEL CONNECTIONS AND BRACKETS: ASTM A666, TYPE 304 STAINLESS STEEL.

(D) ANCHOR BOLTS: ASTM F3125/F3125M, TYPE 1 HEAVY HEX HIGH STRENGTH BOLTS AND ASTM A563 (ASTM A563M) NUTS; HOT-DIP GALVANIZED TO MEET REQUIREMENTS OF ASTM A153/A153M, MATCHING WASHERS.

(E) LAMINATING ADHESIVE: TESTED FOR WET/EXTERIOR SERVICE IN ACCORDANCE WITH ASTM D2559.

(F) WOOD SEALER: MANUFACTURER'S STANDARD, FACTORY-APPLIED SEALER, TRANSPARENT WOOD SEALER.

(G) BEARING PLATE ANCHORS: EXPANSION SHIELD AND LAG BOLT TYPE FOR ANCHORAGE TO SOLID MASONRY OR CONCRETE.

(H) METAL PRIMER: MANUFACTURER'S STANDARD, FACTORY-APPLIED PRIMER.

(I) SHELF, COUNTERTOP, AND WORKSTATION BRACKETS:

1. MATERIAL: STEEL.

2. FINISH: MANUFACTURER'S STANDARD, FACTORY-APPLIED PRIMER.

3. FINISH: MANUFACTURER'S STANDARD, FACTORY-APPLIED, TEXTURED POWDER COAT.

4. FINISH: BRUSHED; WITH CLEAR, FACTORY-APPLIED COATING.

5. COLOR: SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD RANGE.

6. COLOR: BLACK.

7. PRODUCTS:

   a. A&M HARDWARE, INC ; STANDARD BRACKETS: HTTP://WWW.AANDMHARDWARE.COM/#SLE.

   b. A&M HARDWARE, INC ; STAINLESS STEEL STANDARD BRACKETS: HTTP://WWW.AANDMHARDWARE.COM/#SLE.

   c. A&M HARDWARE, INC ; ALUMINUM STANDARD BRACKETS: HTTP://WWW.AANDMHARDWARE.COM/#SLE.

   d. SUBSTITUTIONS: OR APPROVED EQUAL

   e. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.4 WOOD TREATMENT

(A) FACTORY-TREATED LUMBER: COMPLY WITH REQUIREMENTS OF AWPA U1 - USE CATEGORY SYSTEM FOR PRESSURE IMPREGNATED WOOD TREATMENTS DETERMINED BY USE CATEGORIES, EXPECTED SERVICE CONDITIONS, AND SPECIFIC APPLICATIONS.

(B) FIRE RETARDANT TREATMENT:

1. MANUFACTURERS:

   a. HOOVER TREATED WOOD PRODUCTS, INC: WWW.FRTW.COM/#SLE.

   b. LONZA GROUP: WWW.WOLMANIZEDWOOD.COM/#SLE.

   c. KOPPERS, INC: HTTP://WWW.KOPPERSPERFORMANCECHEMICALS.COM/#SLE.

   d. OSMOSE UTILITIES SERVICES, INC: WWW.OSMOSE.COM/#SLE.

   e. SUBSTITUTIONS: OR APPROVED EQUAL

   f. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2. EXTERIOR TYPE: AWPA U1 USE CATEGORY UCFB, COMMODITY SPECIFICATION H, CHEMICALLY TREATED AND PRESSURE IMPREGNATED; MAXIMUM FLAME SPREAD INDEX OF 25 WHEN TESTED IN ACCORDANCE WITH ASTM E84 AND WITH NO EVIDENCE OF SIGNIFICANT COMBUSTION WHEN TEST IS EXTENDED FOR AN ADDITIONAL 30 MINUTES BOTH BEFORE AND AFTER ACCELERATED WEATHERING TEST PERFORMED IN ACCORDANCE WITH ASTM D2898.

   a. KILN DRY WOOD AFTER TREATMENT TO A MAXIMUM MOISTURE CONTENT OF 19 PERCENT PRIOR TO LAMINATION.

3. INTERIOR TYPE A: AWPA U1, USE CATEGORY UCFA, COMMODITY SPECIFICATION H, LOW TEMPERATURE (LOW HYGROSCOPIC) TYPE, CHEMICALLY TREATED AND PRESSURE IMPREGNATED; MAXIMUM FLAME SPREAD INDEX OF 25 WHEN TESTED IN ACCORDANCE WITH ASTM E84 AND WITH NO EVIDENCE OF SIGNIFICANT COMBUSTION WHEN TEST IS EXTENDED FOR AN ADDITIONAL 20 MINUTES.

    a. KILN DRY WOOD AFTER TREATMENT TO A MAXIMUM MOISTURE CONTENT OF 19 PERCENT PRIOR TO LAMINATION.

    b. DO NOT USE TREATED WOOD IN APPLICATIONS EXPOSED TO WEATHER OR WHERE THE WOOD MAY BECOME WET.

4. MARKING: MARK EACH PIECE OF WOOD WITH PRODUCER'S STAMP INDICATING COMPLIANCE WITH SPECIFIED REQUIREMENTS.

(C) PRESERVATIVE PRESSURE TREATMENT:

1. MANUFACTURERS:

    a. LONZA GROUP: WWW.WOLMANIZEDWOOD.COM/#SLE.

    b. OSMOSE UTILITIES SERVICES, INC: WWW.OSMOSE.COM/#SLE.

    c. VIANCE, LLC: WWW.TREATEDWOOD.COM/#SLE.

    d. SUBSTITUTIONS: OR APPROVED EQUAL

    e. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2. PRESERVATIVE PRESSURE TREATMENT OF GLUED-LAMINATED STRUCTURAL UNITS: AWPA U1, USE CATEGORY UC3B, COMMODITY SPECIFICATION F USING WATERBORNE PRESERVATIVE TO 0.25 LB/CU FT RETENTION.

    a. KILN DRY LUMBER AFTER TREATMENT AND BEFORE LAMINATION TO MAXIMUM MOISTURE CONTENT OF 19 PERCENT.

3. MARKING: MARKED EACH PIECE WITH STAMP OF AN ALSC-ACCREDITED TESTING AGENCY, CERTIFYING LEVEL AND TYPE OF TREATMENT IN ACCORDANCE WITH AWPA STANDARDS.

(D) SHOP TREAT WOOD MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

2.5 FABRICATION

(A) FABRICATE GLUE LAMINATED STRUCTURAL MEMBERS IN ACCORDANCE WITH AITC INDUSTRIAL GRADE.

(B) WELDING: PERFORM WELDING IN ACCORDANCE WITH AWS D1.1/D1.1M.

(C) VERIFY DIMENSIONS AND SITE CONDITIONS PRIOR TO FABRICATION.

(D) CUT AND FIT MEMBERS ACCURATELY TO LENGTH TO ACHIEVE TIGHT JOINT FIT.

(E) FABRICATE MEMBER WITH CAMBER BUILT IN.

(F) DO NOT SPLICE OR JOIN MEMBERS IN LOCATIONS OTHER THAN THOSE INDICATED WITHOUT PERMISSION.

(G) FABRICATE STEEL HARDWARE AND CONNECTIONS WITH JOINTS NEATLY FITTED, WELDED, AND GROUND SMOOTH.

(H) AFTER END TRIMMING, SEAL WITH PENETRATING SEALER IN ACCORDANCE WITH AITC REQUIREMENTS.

(I) FIELD FINISHING OF MEMBERS: SPECIFIED IN SECTION 09 91 00.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY THAT SUPPORTS ARE READY TO RECEIVE UNITS.

(B) VERIFY SUFFICIENT END BEARING AREA.

3.2 PREPARATION

(A) COORDINATE PLACEMENT OF BEARING ITEMS.

3.3 ERECTION

(A) LIFT MEMBERS USING PROTECTIVE STRAPS TO PREVENT VISIBLE DAMAGE.

(B) SET STRUCTURAL MEMBERS LEVEL AND PLUMB, IN CORRECT POSITIONS OR SLOPED WHERE INDICATED.

(C) PROVIDE TEMPORARY BRACING AND ANCHORAGE TO HOLD MEMBERS IN PLACE UNTIL PERMANENTLY SECURED.

(D) FIT MEMBERS TOGETHER ACCURATELY WITHOUT TRIMMING, CUTTING, SPLICING, OR OTHER UNAUTHORIZED MODIFICATION.

(E) SWAB AND SEAL THE INTERIOR WOOD SURFACES OF FIELD DRILLED HOLES IN MEMBERS WITH PRIMER.

(F) FIELD FINISHING: SPECIFIED IN SECTION 09 91 00.

3.4 TOLERANCES

(A) FRAMING MEMBERS: 1/2 INCH MAXIMUM FROM TRUE POSITION.

END OF SECTION

SECTION 06 20 00 - FINISH CARPENTRY

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) FINISH CARPENTRY ITEMS.

(B) WOOD CASINGS AND MOLDINGS.

(C) HARDWARE AND ATTACHMENT ACCESSORIES.

1.2 RELATED REQUIREMENTS

(A) SECTION 06 10 00 - ROUGH CARPENTRY: SUPPORT FRAMING, GROUNDS, AND CONCEALED BLOCKING.

(B) SECTION 08 14 16 - FLUSH WOOD DOORS.

(C) SECTION 12 35 30 - RESIDENTIAL CASEWORK: SHOP FABRICATED CABINET WORK.

1.3 REFERENCE STANDARDS

(A) 16 CFR 1201 - SAFETY STANDARD FOR ARCHITECTURAL GLAZING MATERIALS; CURRENT EDITION.

(B) ANSI A135.4 - AMERICAN NATIONAL STANDARD FOR BASIC HARDBOARD; 2012.

(C) ANSI A208.1 - AMERICAN NATIONAL STANDARD FOR PARTICLEBOARD; 2009.

(D) ANSI Z97.1 - AMERICAN NATIONAL STANDARD FOR SAFETY GLAZING MATERIALS USED IN BUILDINGS - SAFETY PERFORMANCE SPECIFICATIONS AND METHODS OF TEST; 2015.

(E) ASTM C1036 - STANDARD SPECIFICATION FOR FLAT GLASS; 2016.

(F) ASTM C1048 - STANDARD SPECIFICATION FOR HEAT-STRENGTHENED AND FULLY TEMPERED FLAT GLASS; 2012.

(G) ASTM E84 - STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS; 2017.

(H) AWI (QCP) - QUALITY CERTIFICATION PROGRAM; CURRENT EDITION AT WWW.AWIQCP.ORG.

(I) AWI/AWMAC/WI (AWS) - ARCHITECTURAL WOODWORK STANDARDS; 2014.

(J) AWMAC (GIS) - GUARANTEE AND INSPECTION SERVICES PROGRAM; CURRENT EDITION AT WWW.AWMAC.COM/GIS.PHP.

(K) AWMAC/WI (NAAWS) - NORTH AMERICAN ARCHITECTURAL WOODWORK STANDARDS, U.S. VERSION 3.0; 2016.

(L) AWPA U1 - USE CATEGORY SYSTEM: USER SPECIFICATION FOR TREATED WOOD; 2017.

(M) NEMA LD 3 - HIGH-PRESSURE DECORATIVE LAMINATES; 2005.

(N) NHLA G-101 - RULES FOR THE MEASUREMENT & INSPECTION OF HARDWOOD & CYPRESS; 2011.

(O) PS 1 - STRUCTURAL PLYWOOD; 2009.

(P) PS 20 - AMERICAN SOFTWOOD LUMBER STANDARD; 2015.

(Q) WI (CCP) - CERTIFIED COMPLIANCE PROGRAM (CCP); CURRENT EDITION AT WWW.WOODWORKINSTITUTE.COM.

(R) WI (CSIP) - CERTIFIED SEISMIC INSTALLATION PROGRAM (CSIP); CURRENT EDITION AT WWW.WOODWORKINSTITUTE.COM.

(S) WI (MCP) - MONITORED COMPLIANCE PROGRAM (MCP); CURRENT EDITION AT WWW.WOODWORKINSTITUTE.COM.

1.4 ADMINISTRATIVE REQUIREMENTS

(A) COORDINATE THE WORK WITH PLUMBING ROUGH-IN, ELECTRICAL ROUGH-IN, AND INSTALLATION OF ASSOCIATED AND ADJACENT COMPONENTS.

(B) SEQUENCE INSTALLATION TO ENSURE UTILITY CONNECTIONS ARE ACHIEVED IN AN ORDERLY AND EXPEDITIOUS MANNER.

1.5 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS FOR SUBMITTAL PROCEDURES.

(B) SHOP DRAWINGS: INDICATE MATERIALS, COMPONENT PROFILES, FASTENING METHODS, JOINTING DETAILS, AND ACCESSORIES.

1. SCALE OF DRAWINGS: 1-1/2 INCH TO 1 FOOT, MINIMUM.

2. PROVIDE THE INFORMATION REQUIRED BY AWI/AWMAC/WI (AWS) OR AWMAC/WI (NAAWS).

3. INCLUDE CERTIFICATION PROGRAM LABEL.

(C) SAMPLES: SUBMIT TWO SAMPLES OF FINISH PLYWOOD, 6 BY 6 INCH IN SIZE ILLUSTRATING WOOD GRAIN AND SPECIFIED FINISH.

(D) SAMPLES: SUBMIT TWO SAMPLES OF WOOD TRIM 12 INCH LONG.

(E) CERTIFICATE: SUBMIT LABELS AND CERTIFICATES REQUIRED BY QUALITY ASSURANCE AND QUALITY CONTROL PROGRAMS.

1.6 QUALITY ASSURANCE

(A) FABRICATOR QUALIFICATIONS: COMPANY SPECIALIZING IN FABRICATING THE PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM FIVE YEARS OF DOCUMENTED EXPERIENCE.

1. COMPANY WITH AT LEAST ONE PROJECT WITHIN THE PAST 5 YEARS WITH VALUE OF WOODWORK WITHIN 20 PERCENT OF COST OF WOODWORK FOR THIS PROJECT.

2. ACCREDITED PARTICIPANT IN THE SPECIFIED CERTIFICATION PROGRAM PRIOR TO THE COMMENCEMENT OF FABRICATION AND THROUGHOUT THE DURATION OF THE PROJECT.

3. SINGLE SOURCE RESPONSIBILITY: PROVIDE AND INSTALL THIS WORK FROM SINGLE FABRICATOR.

(B) QUALITY CERTIFICATION:

1. COMPLY WITH AWI (QCP) WOODWORK ASSOCIATION QUALITY CERTIFICATION SERVICE/PROGRAM IN ACCORDANCE WITH REQUIREMENTS FOR WORK SPECIFIED IN THIS SECTION: WWW.AWIQCP.ORG/#SLE.

1.7 DELIVERY, STORAGE, AND HANDLING

(A) PROTECT WORK FROM MOISTURE DAMAGE.

PART 2 PRODUCTS

2.1 FINISH CARPENTRY ITEMS

(A) QUALITY STANDARD: CUSTOM GRADE, IN ACCORDANCE WITH AWI/AWMAC/WI (AWS) OR AWMAC/WI (NAAWS), UNLESS NOTED OTHERWISE.

(B) INTERIOR WOODWORK ITEMS:

1. MOLDINGS, BASES, CASINGS, AND MISCELLANEOUS TRIM: CLEAR WHITE PINE; PREPARE FOR FINISH.

2. STAIRS, BALUSTRADES, AND HANDRAILS: CLEAR PINE; PREPARE FOR FINISH.

2.2 WOOD-BASED COMPONENTS

(A) WOOD FABRICATED FROM OLD GROWTH TIMBER IS NOT PERMITTED.

2.3 LUMBER MATERIALS

(A) HARDWOOD LUMBER: PINE SPECIES, QUARTER SAWN, MAXIMUM MOISTURE CONTENT OF 6 PERCENT; WITH VERTICAL GRAIN, OF QUALITY SUITABLE FOR TRANSPARENT FINISH.

1. GRADING: IN ACCORDANCE WITH NHLA G-101 GRADING RULES; WWW.NHLA.ORG.

2.4 SHEET MATERIALS

(A) SOFTWOOD PLYWOOD, NOT EXPOSED TO VIEW: ANY FACE SPECIES, MEDIUM DENSITY FIBERBOARD CORE; PS 1 GRADE A-B, GLUE TYPE AS RECOMMENDED FOR APPLICATION.

(B) PREFINISHED PANELING: PINE FACE SPECIES, QUARTER CUT; 3/4" INCH THICK, FINISHED AS GLOSS.

(C) PARTICLEBOARD: ANSI A208.1; COMPOSED OF WOOD CHIPS, SAWDUST, OR FLAKES OF MEDIUM DENSITY, MADE WITH WATERPROOF RESIN BINDERS; OF GRADE TO SUIT APPLICATION; SANDED FACES.

2.5 PLASTIC LAMINATE MATERIALS

(A) PLASTIC LAMINATE: NEMA LD 3, HGS; COLOR AS SELECTED BY ARCHITECT.

(B) LOW PRESSURE LAMINATE: MELAMINE; WHITE COLOR AND MATTE SURFACE TEXTURE.

(C) LAMINATE BACKING SHEET: NEMA LD 3, BKL; UNDECORATED PLASTIC LAMINATE.

(D) LAMINATE ADHESIVE: TYPE RECOMMENDED BY LAMINATE MANUFACTURER TO SUIT APPLICATION; NOT CONTAINING FORMALDEHYDE OR OTHER VOLATILE ORGANIC COMPOUNDS.

2.6 FASTENINGS

(A) ADHESIVE FOR PURPOSES OTHER THAN LAMINATE INSTALLATION: SUITABLE FOR THE PURPOSE; NOT CONTAINING FORMALDEHYDE OR OTHER VOLATILE ORGANIC COMPOUNDS.

(B) FASTENERS: OF SIZE AND TYPE TO SUIT APPLICATION; BLACK FINISH IN CONCEALED LOCATIONS AND BRONZE FINISH IN EXPOSED LOCATIONS.

(C) CONCEALED JOINT FASTENERS: THREADED STEEL.

2.7 ACCESSORIES

(A) LUMBER FOR SHIMMING AND BLOCKING: SOFTWOOD LUMBER.

(B) PLASTIC EDGE TRIM: EXTRUDED FLAT SHAPED; SMOOTH FINISH; SELF LOCKING SERRATED TONGUE; OF WIDTH TO MATCH COMPONENT THICKNESS; COLOR AS SELECTED.

(C) CELLULAR PVC TRIM AND MOLDINGS: EXTRUDED, EXPANDED PVC; UV-RESISTANT, HEAT-STABILIZED, AND RIGID MATERIAL; FOR EXTERIOR USE ONLY.

1. DENSITY: 31 POUNDS PER CUBIC FOOT, MINIMUM.

2. FLAME SPREAD: ASTM E84, 75, MAXIMUM.

3. MANUFACTURERS:

a. AZEK BUILDING PRODUCTS, INC; TRADITIONAL TRIM: WWW.AZEK.COM/#SLE.

b. FYPON LLC; WWW.FYPON.COM/#SLE.

c. VI-LUX BUILDING PRODUCTS INC; WWW.VI-LUX.COM/#SLE.

d. SUBSTITUTIONS: OR APPROVED EQUAL.

e. SUBSTITUTIONS: SEE SECTION 01 60 00 - PRODUCT REQUIREMENTS.

(D) PRIMER: ALKYD PRIMER SEALER.

(E) WOOD FILLER: SOLVENT BASE, TINTED TO MATCH SURFACE FINISH COLOR.

2.8 WOOD TREATMENT

(A) FIRE RETARDANT TREATMENT (FR-S TYPE): CHEMICALLY TREATED AND PRESSURE IMPREGNATED; CAPABLE OF PROVIDING FLAME SPREAD INDEX OF 25, MAXIMUM, AND SMOKE DEVELOPED INDEX OF 450, MAXIMUM, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

(B) WOOD PRESERVATIVE BY PRESSURE TREATMENT (PT TYPE): PROVIDE AWPA U1 TREATMENT USING WATERBORNE PRESERVATIVE WITH 0.25 PERCENT RETAINAGE.

(C) WOOD PRESERVATIVE (SURFACE APPLICATION): CLEAR

(D) SHOP PRESSURE TREAT WOOD MATERIALS REQUIRING FIRE RATING TO CONCEALED WOOD BLOCKING.

(E) PROVIDE IDENTIFICATION ON FIRE RETARDANT TREATED MATERIAL.

(F) DELIVER FIRE RETARDANT TREATED MATERIALS CUT TO REQUIRED SIZES. MINIMIZE FIELD CUTTING.

(G) REDRY WOOD AFTER PRESSURE TREATMENT TO MAXIMUM 19 PERCENT MOISTURE CONTENT.

2.9 FABRICATION

(A) SHOP ASSEMBLE WORK FOR DELIVERY TO SITE, PERMITTING PASSAGE THROUGH BUILDING OPENINGS.

(B) FIT EXPOSED SHEET MATERIAL EDGES WITH 3/8 INCH MATCHING HARDWOOD EDGING. USE ONE PIECE FOR FULL LENGTH ONLY.

(C) CAP EXPOSED PLASTIC LAMINATE FINISH EDGES WITH 3MM EDGEBANDING.

(D) SHOP PREPARE AND IDENTIFY COMPONENTS FOR BOOK MATCH GRAIN MATCHING DURING SITE ERECTION.

(E) WHEN NECESSARY TO CUT AND FIT ON SITE, PROVIDE MATERIALS WITH AMPLE ALLOWANCE FOR CUTTING. PROVIDE TRIM FOR SCRIBING AND SITE CUTTING.

(F) APPLY PLASTIC LAMINATE FINISH IN FULL UNINTERRUPTED SHEETS CONSISTENT WITH MANUFACTURED SIZES. FIT CORNERS AND JOINTS HAIRLINE; SECURE WITH CONCEALED FASTENERS. SLIGHTLY BEVEL ARISES. LOCATE COUNTER BUTT JOINTS MINIMUM 2 FEET FROM SINK CUT-OUTS.

(G) APPLY LAMINATE BACKING SHEET TO REVERSE FACE OF PLASTIC LAMINATE FINISHED SURFACES.

2.10 SHOP FINISHING

(A) SAND WORK SMOOTH AND SET EXPOSED NAILS AND SCREWS.

(B) APPLY WOOD FILLER IN EXPOSED NAIL AND SCREW INDENTATIONS.

(C) ON ITEMS TO RECEIVE TRANSPARENT FINISHES, USE WOOD FILLER THAT MATCHES SURROUNDING SURFACES AND IS OF TYPE RECOMMENDED FOR THE APPLICABLE FINISH.

(D) FINISH WORK IN ACCORDANCE WITH AWI/AWMAC/WI (AWS) OR AWMAC/WI (NAAWS), SECTION 5 - FINISHING FOR GRADE SPECIFIED AND AS FOLLOWS:

1. TRANSPARENT:

    a. SYSTEM - 1, LACQUER, NITROCELLULOSE.

    b. STAIN: AS SELECTED BY ARCHITECT.

    c. SHEEN: FLAT.

(E) STAIN, SEAL, AND VARNISH EXPOSED TO VIEW SURFACES. BRUSH APPLY ONLY.

(F) SEAL INTERNAL SURFACES AND SEMI-CONCEALED SURFACES. BRUSH APPLY ONLY.

(G) PRIME PAINT SURFACES IN CONTACT WITH CEMENTITIOUS MATERIALS.

(H) BACK PRIME WOODWORK ITEMS TO BE FIELD FINISHED, PRIOR TO INSTALLATION.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY ADEQUACY OF BACKING AND SUPPORT FRAMING.

3.2 INSTALLATION

(A) INSTALL WORK IN ACCORDANCE WITH AWI/AWMAC/WI (AWS) OR AWMAC/WI (NAAWS) REQUIREMENTS FOR GRADE INDICATED.

(B) SET AND SECURE MATERIALS AND COMPONENTS IN PLACE, PLUMB AND LEVEL.

(C) CAREFULLY SCRIBE WORK ABUTTING OTHER COMPONENTS, WITH MAXIMUM GAPS OF 1/32 INCH. DO NOT USE ADDITIONAL OVERLAY TRIM TO CONCEAL LARGER GAPS.

(D) INSTALL HARDWARE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

3.3 SITE APPLIED WOOD TREATMENT

(A) APPLY PRESERVATIVE TREATMENT IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(B) BRUSH APPLY ONE COATS OF PRESERVATIVE TREATMENT ON WOOD IN CONTACT WITH CEMENTITIOUS MATERIALS. TREAT SITE-SAWN CUTS.

(C) ALLOW PRESERVATIVE TO DRY PRIOR TO ERECTING MEMBERS.

3.4 PREPARATION FOR SITE FINISHING

(A) SET EXPOSED FASTENERS. APPLY WOOD FILLER IN EXPOSED FASTENER INDENTATIONS. SAND WORK SMOOTH.

(B) BEFORE INSTALLATION, PRIME PAINT SURFACES OF ITEMS OR ASSEMBLIES TO BE IN CONTACT WITH CEMENTITIOUS MATERIALS.

3.5 TOLERANCES

(A) MAXIMUM VARIATION FROM TRUE POSITION: 1/16 INCH.

(B) MAXIMUM OFFSET FROM TRUE ALIGNMENT WITH ABUTTING MATERIALS: 1/32 INCH.

END OF SECTION

SECTION 07 11 13 - BITUMINOUS DAMPPROOFING

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) BITUMINOUS DAMPPROOFING.

1.2 RELATED REQUIREMENTS

1.3 REFERENCE STANDARDS

(A) ASTM D41/D41M - STANDARD SPECIFICATION FOR ASPHALT PRIMER USED IN ROOFING, DAMPPROOFING, AND WATERPROOFING; 2011 (REAPPROVED 2016).

(B) ASTM D1187/D1187M - STANDARD SPECIFICATION FOR ASPHALT-BASE EMULSIONS FOR USE AS PROTECTIVE COATINGS FOR METAL; 1997 (REAPPROVED 2011).

(C) ASTM D1227 - STANDARD SPECIFICATION FOR EMULSIFIED ASPHALT USED AS A PROTECTIVE COATING FOR ROOFING; 2013.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: PROVIDE PROPERTIES OF PRIMER, BITUMEN, AND MASTICS.

(C) MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE SPECIAL PROCEDURES AND PERIMETER CONDITIONS REQUIRING SPECIAL ATTENTION.

1.5 QUALITY ASSURANCE

(A) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING THE WORK OF THIS SECTION WITH AT LEAST THREE YEARS OF DOCUMENTED EXPERIENCE.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) OTHER ACCEPTABLE BITUMINOUS DAMPPROOFING MANUFACTURERS:

1. W. R. MEADOWS, INC: WWW.WRMEADOWS.COM/#SLE.

2. SUBSTITUTIONS: OR APPROVED EQUAL.

3. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

2.2 BITUMINOUS DAMPPROOFING

(A) BITUMINOUS DAMPPROOFING: COLD-APPLIED WATER-BASED EMULSION; ASPHALT WITH MINERAL COLLOID OR CHEMICAL EMULSIFYING AGENT; WITH OR WITHOUT FIBER REINFORCEMENT; ASBESTOS-FREE; SUITABLE FOR APPLICATION ON VERTICAL AND HORIZONTAL SURFACES.

1. COMPOSITION - VERTICAL APPLICATION: ASTM D1227 TYPE III OR ASTM D1187/D1187M TYPE I.
2. COMPOSITION - HORIZONTAL AND LOW-SLOPE APPLICATION: ASTM D1227 TYPE II OR III.
3. VOC CONTENT: NOT MORE THAN PERMITTED BY LOCAL, STATE, AND FEDERAL REGULATIONS.
4. APPLIED THICKNESS: 1/16 INCH, MINIMUM, WET FILM.
5. PRODUCTS:

(B) PRIMERS, MASTICS, AND RELATED MATERIALS: TYPE AS RECOMMENDED BY DAMPPROOFING MANUFACTURER.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY EXISTING CONDITIONS ARE ACCEPTABLE PRIOR TO STARTING THIS WORK.

(B) VERIFY SUBSTRATE SURFACES ARE DURABLE, FREE OF MATTER DETRIMENTAL TO ADHESION OR APPLICATION OF DAMPPROOFING SYSTEM.

(C) VERIFY THAT ITEMS PENETRATING SURFACES TO RECEIVE DAMPPROOFING ARE SECURELY INSTALLED.

3.2 PREPARATION

(A) PROTECT ADJACENT SURFACES NOT DESIGNATED TO RECEIVE DAMPPROOFING.

(B) CLEAN AND PREPARE SURFACES TO RECEIVE DAMPPROOFING IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(C) DO NOT APPLY DAMPPROOFING TO SURFACES UNACCEPTABLE TO MANUFACTURER.

(D) APPLY MASTIC TO SEAL PENETRATIONS, SMALL CRACKS, OR MINOR HONEYCOMBS IN SUBSTRATE.

3.3 APPLICATION

(A) APPLY BITUMEN WITH MOP.

(B) SEAL ITEMS WATERTIGHT WITH MASTIC, THAT PROJECT THROUGH DAMPPROOFING SURFACE.

END OF SECTION

SECTION 07 21 00 - THERMAL INSULATION

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) BOARD INSULATION AND INTEGRAL VAPOR RETARDER AT CAVITY WALL CONSTRUCTION, PERIMETER FOUNDATION WALL, UNDERSIDE OF FLOOR SLABS, OVER ROOF DECK, OVER ROOF SHEATHING, EXTERIOR WALL BEHIND [_____] WALL FINISH, AND INTERIOR WALL WITH FACER PROVIDING EXPOSED FINISH.

(B) BATT INSULATION AND VAPOR RETARDER IN EXTERIOR WALL, CEILING, AND ROOF CONSTRUCTION.

(C) ACOUSTIC (SOUND) BATTS IN INTERIOR STEEL STUD AND GYPSUM BOARD PARTITIONS.

1.2 RELATED REQUIREMENTS

(A) SECTION 03 30 00 - CAST-IN-PLACE CONCRETE: FIELD-APPLIED TERMITICIDE FOR CONCRETE SLABS AND FOUNDATIONS.

(B) SECTION 07 84 00 - FIRESTOPPING: INSULATION AS PART OF FIRE-RATED THROUGH-PENETRATION ASSEMBLIES.

(C) SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES: ACOUSTIC INSULATION INSIDE WALLS AND PARTITIONS.

1.3 REFERENCE STANDARDS

(A) ASTM C578 - STANDARD SPECIFICATION FOR RIGID, CELLULAR POLYSTYRENE THERMAL INSULATION; 2017A.

(B) ASTM C665 - STANDARD SPECIFICATION FOR MINERAL-FIBER BLANKET THERMAL INSULATION FOR LIGHT FRAME CONSTRUCTION AND MANUFACTURED HOUSING; 2017.

(C) ASTM E84 - STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS; 2017.

(D) ASTM E136 - STANDARD TEST METHOD FOR BEHAVIOR OF MATERIALS IN A VERTICAL TUBE FURNACE AT 750 DEGREES C; 2016A.

(E) ICC-ES AC239 - ACCEPTANCE CRITERIA FOR TERMITE-RESISTANT FOAM PLASTIC; 2008.

(F) NFPA 285 - STANDARD FIRE TEST METHOD FOR EVALUATION OF FIRE PROPAGATION CHARACTERISTICS OF EXTERIOR NON-LOAD-BEARING WALL ASSEMBLIES CONTAINING COMBUSTIBLE COMPONENTS; 2012.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: PROVIDE DATA ON PRODUCT CHARACTERISTICS, PERFORMANCE CRITERIA, AND PRODUCT LIMITATIONS.

(C) MANUFACTURER'S CERTIFICATE: CERTIFY THAT PRODUCTS MEET OR EXCEED SPECIFIED REQUIREMENTS.

(D) MANUFACTURER'S INSTALLATION INSTRUCTIONS: INCLUDE INFORMATION ON SPECIAL ENVIRONMENTAL CONDITIONS REQUIRED FOR INSTALLATION AND INSTALLATION TECHNIQUES.

1.5 FIELD CONDITIONS

(A) DO NOT INSTALL INSULATION ADHESIVES WHEN TEMPERATURE OR WEATHER CONDITIONS ARE DETRIMENTAL TO SUCCESSFUL INSTALLATION.

1.6 COORDINATION

(A) COORDINATE THE WORK WITH SECTION 07 2500 FOR INSTALLATION OF VAPOR RETARDER AND SECTION 07 2500 FOR INSTALLATION OF THE AIR SEAL MATERIALS.

PART 2 PRODUCTS

2.1 APPLICATIONS

(A) INSULATION UNDER CONCRETE SLABS: EXTRUDED POLYSTYRENE (XPS) BOARD.

(B) INSULATION AT PERIMETER OF FOUNDATION: EXTRUDED POLYSTYRENE (XPS) BOARD.

(C) INSULATION INSIDE MASONRY CAVITY WALLS: EXTRUDED POLYSTYRENE (XPS) CARBON BLACK BOARD.

(D) INSULATION IN METAL FRAMED WALLS: BATT INSULATION WITH INTEGRAL VAPOR RETARDER.

2.2 FOAM BOARD INSULATION MATERIALS

(A) EXPANDED POLYSTYRENE (EPS) BOARD INSULATION:(FOR USE IN CAVITY WALL CONSTRUCTION): ASTM C578, TYPE IV; WITH THE FOLLOWING CHARACTERISTICS:

1. FLAME SPREAD INDEX (FSI): CLASS A - 0 TO 25, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

2. SMOKE DEVELOPED INDEX (SDI): 450 OR LESS, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

3. COMPLIES WITH FIRE RESISTANCE REQUIREMENTS SHOWN ON THE DRAWINGS AS PART OF AN EXTERIOR NON-LOAD-BEARING EXTERIOR WALL ASSEMBLY WHEN TESTED IN ACCORDANCE WITH NFPA 285.

4. BOARD SIZE: 16 BY 96 INCH.

5. BOARD THICKNESS: AS INDICATED IN DRAWINGS

6. BOARD EDGES: SQUARE.

7. COMPRESSIVE RESISTANCE: 25 PSI.

8. THERMAL RESISTANCE: R-VALUE OF 12 PER 1 INCH AT 75 DEGREES F MEAN TEMPERATURE OR AS INDICATED IN DRAWINGS

(B) TERMITE-RESISTANT EXPANDED POLYSTYRENE (EPS) BOARD INSULATION: (FOR USE AT FOUNDATION PERIMETER AND BELOW SLABS): COMPLIES WITH ASTM C578 WITH THE FOLLOWING CHARACTERISTICS:

1. TERMITE RESISTANCE: COMPLY WITH ICC-ES AC239.

2. FLAME SPREAD INDEX (FSI): CLASS A - 0 TO 25, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

3. SMOKE DEVELOPED INDEX (SDI): 450 OR LESS, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

4. BOARD SIZE: 24 BY 96 INCH.

5. BOARD THICKNESS: AS INDICATED IN DRAWINGS.

6. THERMAL RESISTANCE: R-VALUE OF 11, OR AS INDICATED IN DRAWINGS.

7. BOARD EDGES: SQUARE.

8. MANUFACTURERS:

   a. DOW CHEMICAL: WWW.DOW.COM; PRODUCT: STRYROFOAM BRAND SM INSULATION._____.

   b. SUBSTITUTIONS: OR APPROVED EQUAL

   c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(C) EXTRUDED POLYSTYRENE (XPS) CAVITY WALL INSULATION BOARD: COMPLIES WITH ASTM C578, AND MANUFACTURED USING CARBON BLACK TECHNOLOGY.

1. FLAME SPREAD INDEX (FSI): CLASS A - 0 TO 25, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

2. SMOKE DEVELOPED INDEX (SDI): 450 OR LESS, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

3. TYPE AND THERMAL RESISTANCE, R-VALUE: TYPE IV, 5.0 (0.88), MINIMUM, PER 1 INCH THICKNESS AT 75 DEGREES F MEAN TEMPERATURE.

4. BOARD SIZE: 15-3/4 INCH BY 96 INCH.

5. BOARD THICKNESS: AS INDICATED IN DRAWINGS

6. BOARD EDGES: SQUARE.

2.3 BATT INSULATION MATERIALS

(A) GLASS FIBER BATT INSULATION: FLEXIBLE PREFORMED BATT OR BLANKET, COMPLYING WITH ASTM C665; FRICTION FIT.

1. FLAME SPREAD INDEX: 75 OR LESS, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

2. SMOKE DEVELOPED INDEX: 450 OR LESS, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

3. COMBUSTIBILITY: NON-COMBUSTIBLE, WHEN TESTED IN ACCORDANCE WITH ASTM E136, EXCEPT FOR FACING, IF ANY.

4. FORMALDEHYDE CONTENT: ZERO.

5. THERMAL RESISTANCE: AS INDICATED IN DRAWINGS

6. THICKNESS: 3.5 INCH OR AS INDICATED IN DRAWINGS

7. FACING: ALUMINUM FOIL, FLAME SPREAD 25 RATED; ONE SIDE.

8. MANUFACTURERS:

   a. CERTAINTEED CORPORATION: WWW.CERTAINTEED.COM/#SLE.

   b. JOHNS MANVILLE: WWW.JM.COM/#SLE.

   c. OWENS CORNING CORPORATION; ECOTOUCH PINK FIBERGLAS INSULATION: WWW.OCBUILDINGSPEC.COM/#SLE.

   d. SUBSTITUTIONS: OR APPROVED EQUAL

   e. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.4 ACCESSORIES

(A) TAPE: BRIGHT ALUMINUM SELF-ADHERING TYPE, MESH REINFORCED, 2 INCH WIDE.

(B) TAPE JOINTS OF RIGID INSULATION IN ACCORDANCE WITH ROOFING AND INSULATION MANUFACTURERS' INSTRUCTIONS.

(C) INSULATION FASTENERS: IMPALING CLIP OF UNFINISHED STEEL WITH WASHER RETAINER AND CLIPS, TO BE ADHERED TO SURFACE TO RECEIVE INSULATION, LENGTH TO SUIT INSULATION THICKNESS AND SUBSTRATE, CAPABLE OF SECURELY AND RIGIDLY FASTENING INSULATION IN PLACE.

(D) ADHESIVE: TYPE RECOMMENDED BY INSULATION MANUFACTURER FOR APPLICATION.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY THAT SUBSTRATE, ADJACENT MATERIALS, AND INSULATION MATERIALS ARE DRY AND THAT SUBSTRATES ARE READY TO RECEIVE INSULATION.

(B) VERIFY SUBSTRATE SURFACES ARE FLAT, FREE OF HONEYCOMB, FINS, IRREGULARITIES, OR MATERIALS OR SUBSTANCES THAT MAY IMPEDE ADHESIVE BOND.

3.2 BOARD INSTALLATION AT FOUNDATION PERIMETER

(A) ADHERE A 6 INCH WIDE STRIP OF POLYETHYLENE SHEET OVER CONSTRUCTION, CONTROL, AND EXPANSION JOINTS WITH DOUBLE BEADS OF ADHESIVE EACH SIDE OF JOINT.

   1. TAPE SEAL JOINTS.

   2. EXTEND SHEET FULL HEIGHT OF JOINT.

(B) APPLY ADHESIVE TO BACK OF BOARDS:

(C) INSTALL BOARDS HORIZONTALLY ON FOUNDATION PERIMETER.

1. PLACE BOARDS TO MAXIMIZE ADHESIVE CONTACT.

2. INSTALL IN RUNNING BOND PATTERN.

3. BUTT EDGES AND ENDS TIGHTLY TO ADJACENT BOARDS AND TO PROTRUSIONS.

(D) EXTEND BOARDS OVER EXPANSION JOINTS, UNBONDED TO FOUNDATION ON ONE SIDE OF JOINT.

(E) CUT AND FIT INSULATION TIGHTLY TO PROTRUSIONS OR INTERRUPTIONS TO THE INSULATION PLANE.

(F) IMMEDIATELY FOLLOWING APPLICATION OF BOARD INSULATION, PLACE PROTECTIVE BOARDS OVER EXPOSED INSULATION SURFACES.

3.3 BOARD INSTALLATION AT CAVITY WALLS

(A) SECURE IMPALE FASTENERS TO SUBSTRATE AT FOLLOWING FREQUENCY:

1. SIX (6) PER INSULATION BOARD.

(B) ADHERE A 6 INCH WIDE STRIP OF POLYETHYLENE SHEET OVER EXPANSION JOINTS WITH DOUBLE BEADS OF ADHESIVE EACH SIDE OF JOINT.

1. TAPE SEAL JOINTS BETWEEN SHEETS.

2. EXTEND SHEET FULL HEIGHT OF JOINT.

(C) APPLY ADHESIVE TO BACK OF BOARDS:

(D) INSTALL BOARDS TO FIT SNUGLY BETWEEN WALL TIES.

(E) INSTALL BOARDS HORIZONTALLY ON WALLS.

1. INSTALL IN RUNNING BOND PATTERN.

2. PLACE IMPALE FASTENER LOCKING DISCS.

(F) CUT AND FIT INSULATION TIGHTLY TO PROTRUSIONS OR INTERRUPTIONS TO THE INSULATION PLANE.

3.4 BOARD INSTALLATION UNDER CONCRETE SLABS

(A) PLACE INSULATION UNDER SLABS ON GRADE AFTER BASE FOR SLAB HAS BEEN COMPACTED.

(B) CUT AND FIT INSULATION TIGHTLY TO PROTRUSIONS OR INTERRUPTIONS TO THE INSULATION PLANE.

(C) PREVENT INSULATION FROM BEING DISPLACED OR DAMAGED WHILE PLACING VAPOR RETARDER AND PLACING SLAB.

3.5 BATT INSTALLATION

(A) INSTALL INSULATION AND VAPOR RETARDER IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(B) INSTALL IN EXTERIOR WALL AND ROOF SPACES WITHOUT GAPS OR VOIDS. DO NOT COMPRESS INSULATION.

(C) TRIM INSULATION NEATLY TO FIT SPACES. INSULATE MISCELLANEOUS GAPS AND VOIDS.

(D) FIT INSULATION TIGHTLY IN CAVITIES AND TIGHTLY TO EXTERIOR SIDE OF MECHANICAL AND ELECTRICAL SERVICES WITHIN THE PLANE OF THE INSULATION.

3.6 FIELD QUALITY CONTROL

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL REQUIREMENTS.

3.7 PROTECTION

(A) DO NOT PERMIT INSTALLED INSULATION TO BE DAMAGED PRIOR TO ITS CONCEALMENT.

END OF SECTION

SECTION 07 26 00 - VAPOR RETARDERS

PART 1 - GENERAL

1.1 SECTION CONTAINS

(A) FURNISH VAPOR RETARDER UNDER ALL INTERIOR CONCRETE SLABS ON GRADE.

(B) PROVIDE SHEET AND SEALANT MATERIALS TO FORM CONTINUOUS VAPOR BARRIER IN ALL STEEL STUD EXTERIOR WALLS FROM FLOOR TO ROOF DECK.

(C) PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, AND MISCELLANEOUS ACCESSORIES FOR A COMPLETE INSTALLATION.

(D) RELATED SECTIONS:

1. SECTION 03 30 00: CONCRETE

1.2 SYSTEM DESCRIPTION

(A) SYSTEM SHALL PREVENT MOISTURE MIGRATION THROUGH CONCRETE FLOOR SLAB AND EXTERIOR WALLS INTO BUILDING INTERIOR, BOTH IN LIQUID FORM AND VAPOR IN CONJUNCTION WITH MATERIALS IN SECTION 07 21 00.

1.3 SUBMITTALS

(A) PROVIDE MANUFACTURER'S LITERATURE AND RECOMMENDED INSTALLATION PROCEDURES.

(B) PROVIDE 12" X 12" SAMPLES OF EACH TYPE OF VAPOR RETARDER(S)/ BARRIERS FOR APPROVAL BY ARCHITECT.

1.4 QUALITY ASSURANCE

(A) PERFORM WORK IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

PART 2 - PRODUCTS

2.1 UNDER SLAB VAPOR BARRIER

(A) MANUFACTURERS:

1. STEGO INDUSTRIES, LLC

2. OTHERS AS APPROVED BY ARCHITECT.

(B) VAPOR BARRIER SHALL BE EQUAL TO "VAPOR BARRIER - 15 MIL CLASS A" AS MANUFACTURED BY STEGO INDUSTRIES, LLC; OR OTHERS AS APPROVED BY ARCHITECT; AND SHALL CONFORM TO THE FOLLOWING:

1. CONSTRUCTION SHALL BE A TOUGH, FLEXIBLE MEMBRANE MINIMUM 15 MIL THICKNESS POLYOLEFIN GEOMEMBRANE.

2. PERM RATING: 0.01 MAXIMUM (ASTM E-96, PROCEDURE A).

3. WATER VAPOR TRANSMISSION RATE: PER ASTM E-96 - 0.006 WTVR OR LOWER.

4. WATER VAPOR BARRIER: MEETS CLASS A PER ASTM E 1745.

2.2 EXTERIOR WALL VAPOR RETARDER

(A) SHEET VAPOR BARRIER: "TYVEK" BUILDING WRAP AS MANUFACTURED BY DU PONT FIBERS FOR ABOVE GRADE APPLICATIONS. INSTALL AT EXTERIOR WALLS WITH BRICK VENEER.

(B) SHEET VAPOR BARRIER: BLACK OR TRANSLUCENT POLYETHYLENE FILM FOR ABOVE GRADE APPLICATIONS; 6 MILS (.006") THICK.

2.3 ROOFING VAPOR BARRIER

(A) VAPOR RETARDER UNDER SINGLE-PLY ROOFING SHALL BE AS APPROVED AND FURNISHED BY ROOFING MANUFACTURER.

2.4 ACCESSORIES

(A) SPLICE TAPE: PRESSURE SENSITIVE TAPE AS RECOMMENDED BY MANUFACTURER FOR USE AT ALL JOINTS.

(B) SEALANT: AS RECOMMENDED BY VAPOR BARRIER AND/OR VAPOR RETARDER MANUFACTURER FOR, USE AT ALL PENETRATIONS.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

(A) VERIFY THAT SUBGRADE MATERIALS ARE IN PLACE AND PROPERLY COMPACTED, AND ALL BELOW SLAB PLUMBING AND ELECTRICAL ROUGH-IN IS COMPLETE.

(B) SUB-GRADE SHALL BE GRADED, LEVELED, AND TAMPED FIRM, SUPPORTING WORKMEN WITHOUT LEAVING DEPRESSIONS.

(C) DO NOT APPLY VAPOR BARRIER OVER DAMP OR FROZEN SURFACES.

(D) COORDINATE WITH WORK OF OTHER AFFECTED SECTIONS.

(E) CLEAN AND PRIME SUBSTRATE SURFACES TO RECEIVE SEALANTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

3.2 INSTALLATION - BELOW SLAB VAPOR RETARDER

(A) INSTALL VAPOR RETARDER IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(B) CONFORM TO DRAWING DETAILS.

(C) INSTALL VAPOR BARRIER WITH MINIMUM 6" SIDE AND HEAD LAPS. ALL JOINTS SHALL BE SEALED WITH SPLICE TAPE AS SUPPLIED OR APPROVED BY THE MANUFACTURER.

(D) SEAL ALL PIPING AND/OR CONDUIT PENETRATIONS UTILIZING PIPE BOOTS FROM VAPOR BARRIER MATERIAL, PRESSURE SENSITIVE SPLICE TAPE AND / OR MASTIC PER MANUFACTURER'S INSTRUCTIONS.

(E) REPAIR SMALL PUNCTURES AND/OR TEARS WITH SPLICE TAPE AND/OR SEALANT AS RECOMMENDED BY MANUFACTURER. REPLACE LARGE AREAS WHICH HAVE BECOME DAMAGED WITH NEW VAPOR BARRIER MATERIAL.

(F) PROTECT VAPOR BARRIER FROM DAMAGE DURING THE PLACING OF REINFORCING STEEL, CONCRETE POURING AND OTHER SUBSEQUENT CONSTRUCTION ACTIVITIES.

(G) MAINTAIN VAPOR BARRIER SURFACE FREE FROM CONSTRUCTION DEBRIS PRIOR TO POURING CONCRETE.

3.3 INSTALLATION - EXTERIOR WALL VAPOR RETARDER

(A) UNFACED FIBERGLASS BATT INSULATION SHALL BE INSTALLED PRIOR TO INSTALLATION OF SHEET VAPOR BARRIER.

(B) SECURE SHEET VAPOR BARRIER TO STEEL STUDS TEMPORARILY WITH ADHESIVE OR TAPE. INSTALL GYPSUM WALL BOARD COVER TO PERMANENTLY SECURE VAPOR BARRIER. LAP VAPOR BARRIER OVER FLOOR AND ROOF 2" MINIMUM.

(C) LAP JOINTS A MINIMUM OF 6" AND TAPE.

(D) SEAL ALL EXPOSED EDGES OF VAPOR BARRIER TO SURROUNDING SURFACES.

3.4 INSTALLATION - EXTERIOR WALL AIR/VAPOR RETARDER

(A) APPLY AIR AND VAPOR BARRIER AT HEADER AND SILL CONDITIONS PER MANUFACTURER'S RECOMMENDATIONS.

(B) APPLY AIR AND VAPOR BARRIER OVER EXTERIOR SHEATHING ON STEEL STUDS USING MECHANICAL FASTENERS AND TAPE PER MANUFACTURER'S RECOMMENDATIONS.

(C) LAP JOINTS A MINIMUM OF 3" AND TAPE.

(D) SEAL ALL EXPOSED EDGES OF VAPOR BARRIER TO SURROUNDING SURFACES.

3.5 INSTALLATION - ROOFING VAPOR BARRIER

(A) INSTALL VAPOR BARRIER UNDER. ROOF MEMBRANE AS RECOMMENDED BY ROOFING MANUFACTURER.

END OF SECTION

SECTION 07 27 26 - FLUID APPLIED MEMBRANE AIR BARRIER

PART 1 - GENERAL

1.1 SECTION INCLUDES

(A) SURFACE PREPARATION.

(B) APPLICATION OF LIQUID APPLIED VAPOR PERMEABLE AIR BARRIER.

(C) APPLICATION OF MATERIALS TO PROVIDE BRIDGE AND SEAL AIR LEAKAGE PATHWAYS IN

1. WALL AND ROOF CONNECTIONS AND PENETRATIONS.
2. CONNECTIONS TO FOUNDATION WALLS.
3. WALLS, WINDOWS, CURTAIN WALLS, STOREFRONTS, LOUVERS OR DOORS
4. EXPANSION AND CONTROL JOINTS.
5. MASONRY TIES.
6. ALL OTHER PENETRATIONS THROUGH THE WALL ASSEMBLY.

1.2 RELATED SECTIONS

(A) SECTION 07 21 00 - THERMAL INSULATION.

(B) SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM

(C) SECTION 07 84 00 - FIRESTOPPING.

(D) SECTION 07 92 00 - JOINT SEALANTS.

(E) SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES

(F) SECTION 08 43 13 - ALUMINUM-FRAMED STOREFRONTS

(G) SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES

1.3 REFERENCES

(A) ASTM D412 - STANDARD TEST METHODS FOR VULCANIZED RUBBER AND THERMOPLASTIC ELASTOMERS-TENSION.

(B) ASTM E84 - STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS.

(C) ASTM E96 (METHOD B) - STANDARD TEST METHODS FOR WATER VAPOR TRANSMISSION OF MATERIALS.

(D) ASTM E283 - STANDARD TEST METHOD FOR DETERMINING THE RATE OF AIR LEAKAGE THROUGH EXTERIOR WINDOWS, CURTAIN WALLS, AND DOORS UNDER SPECIFIED PRESSURE DIFFERENCES ACROSS THE SPECIMEN.

(E) ASTM E783 - STANDARD TEST METHOD FOR FIELD MEASUREMENT OF AIR LEAKAGE THROUGH INSTALLED EXTERIOR WINDOWS AND DOORS.

(F) ASTM E1105 - STANDARD TEST METHOD FOR FIELD DETERMINATION OF WATER PENETRATION OF INSTALLED EXTERIOR WINDOWS, SKYLIGHTS, DOORS, AND CURTAIN WALLS BY UNIFORM OR CYCLIC STATIC AIR PRESSURE DIFFERENCE.

(G) ASTM E2178 - STANDARD TEST METHOD FOR AIR PERMEANCE OF BUILDING MATERIALS.

(H) ASTM E2357 - STANDARD TEST METHOD FOR DETERMINING AIR LEAKAGE OF AIR BARRIER ASSEMBLIES.

1.4 SUBMITTALS

(A) COMPLY WITH SECTION 01 00 00 - GENERAL REQUIREMENTS FOR SUBMITTAL PROCEDURES.

(B) SUBMIT MANUFACTURER'S PRODUCT DATA AND APPLICATION INSTRUCTIONS.

1.5 QUALITY ASSURANCE

(A) INSTALLER QUALIFICATIONS:

1. USE AN EXPERIENCED INSTALLER AND ADEQUATE NUMBER OF SKILLED PERSONNEL WHO ARE THOROUGHLY TRAINED AND EXPERIENCED IN THE APPLICATION OF THE AIR BARRIER.

a. AIR BARRIER INSTALLER PERFORMING WORK SHALL BE APPROVED BY AIR BARRIER

1) MEMBRANE MANUFACTURER.

(B) OBTAIN AIR BARRIER MATERIALS FROM A SINGLE MANUFACTURER REGULARLY ENGAGED IN MANUFACTURING THE PRODUCT.

(C) PROVIDE PRODUCTS WHICH COMPLY WITH ALL STATE AND LOCAL REGULATIONS CONTROLLING USE OF VOLATILE ORGANIC COMPOUNDS (VOCS).

1.6 PRECONSTRUCTION MEETING

(A) PRECONSTRUCTION MEETING: CONVENE ONE (1) WEEK PRIOR TO COMMENCING WORK OF THIS SECTION,

1.7 MOCK-UPS

(A) PRIOR TO INSTALLATION OF AIR BARRIER, APPLY AIR BARRIER AS FOLLOWS TO VERIFY DETAILS UNDER SHOP DRAWING SUBMITTALS AND TO DEMONSTRATE TIE-INS WITH ADJOINING CONSTRUCTION, AND OTHER TERMINATION CONDITIONS, AS WELL AS QUALITIES OF MATERIALS AND EXECUTION.

(B) APPLY AIR BARRIER IN FIELD-CONSTRUCTED MOCK-UPS OF ASSEMBLIES SPECIFIED IN SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES.

(C) CONSTRUCT TYPICAL EXTERIOR WALL PANEL, 8 FEET LONG BY 8 FEET WIDE, INCORPORATING BACK-UP WALL, CLADDING, WINDOW AND DOORFRAME AND SILL, INSULATION, FLASHING, ILLUSTRATING MATERIALS INTERFACE AND SEALS.

(D) TEST MOCK-UP IN ACCORDANCE WITH ASTM E783 AND ASTM E1105 FOR AIR AND WATER INFILTRATION.

(E) DO NOT COVER ANY INSTALLED AIR BARRIER MEMBRANE UNLESS IT HAS BEEN INSPECTED, TESTED AND APPROVED.

1.8 DELIVERY, STORAGE, AND HANDLING

(A) DELIVER MATERIALS TO SITE IN MANUFACTURER'S ORIGINAL, UNOPENED CONTAINERS AND PACKAGING, WITH LABELS CLEARLY IDENTIFYING PRODUCT NAME AND MANUFACTURER.

(B) STORE MATERIALS IN A CLEAN DRY AREA IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(C) STORE AT TEMPERATURES AT OR ABOVE 40OF (4OC), FREE FROM CONTACT WITH COLD OR FROZEN SURFACES.

(D) PROTECT MATERIALS DURING HANDLING AND APPLICATION TO PREVENT DAMAGE OR CONTAMINATION.

1.9 ENVIRONMENTAL REQUIREMENTS

(A) PRODUCT NOT INTENDED FOR USES SUBJECT TO ABUSE OR PERMANENT EXPOSURE TO THE ELEMENTS.

(B) DO NOT PROCEED WITH PRODUCT APPLICATION IF RAINFALL IS FORECAST OR IMMINENT WITHIN 12 HOURS.

(C) DO NOT APPLY MEMBRANE WHEN AIR OR SURFACE TEMPERATURES ARE BELOW 40OF (4OC).

(D) DO NOT APPLY WHEN AIR, MATERIAL AND SURFACE TEMPERATURES ARE EXPECTED TO FALL BELOW 32° F (0° C) WITHIN 24 HOURS OF COMPLETED APPLICATION.

PART 2 PRODUCTS

2.1 MANUFACTURER

(A) W.R. MEADOWS, INC., PO BOX 338, HAMPSHIRE, ILLINOIS 60140-0338. (800) 342-5976. (847) 683-4500. FAX (847) 683-4544. WEB SITE WWW.WRMEADOWS.COM.

(B) OTHERS AS APPROVED BY ARCHITECT

2.2 MATERIALS

(A) LIQUID AIR BARRIER SYSTEM: ONE COMPONENT, POLYMER MODIFIED, COLD APPLIED LIQUID VAPOR PERMEABLE AIR BARRIER MEMBRANE.

(B) PERFORMANCE BASED SPECIFICATION: AIR BARRIER MEMBRANE SHALL BE WATER-BASED, THAT CURES TO FORM A TOUGH, SEAMLESS, ELASTOMERIC MEMBRANE HAVING THE FOLLOWING CHARACTERISTICS:

(C) AIR PERMEABILITY ASTM E2357: < 0.04 CFM / FT2 @ 75 PA (1.57 LBS / FT2).

(D) AIR PERMEABILITY ASTM E2178: < 0.004 CFM / FT2 @ 75 PA (1.57 LBS / FT2).

(E) WATER VAPOR PERMEANCE ASTM E96: 12 PERMS.

1. ELONGATION ASTM D412: 1000 %.

a. FLEXIBILITY AT -20OC ASTM C836 2" MANDREL: PASS.

b. FLAME SPREAD AND SMOKE DEVELOPMENT, ASTM E84: CLASS A.

c. PROPRIETARY BASED SPECIFICATION: AIR-SHIELD LMP BY W.R. MEADOWS.

2.3 ACCESSORIES

(A) FLASHING AND TRANSITION MEMBRANE: SELF-ADHESIVE POLYMERIC SHEET MEMBRANE HAVING A THICKNESS OF 40 MILS (1 MM).

1. AIR-SHIELD THRU-WALL FLASHING BY W. R. MEADOWS.

(B) DETAILING COMPOUND: SINGLE COMPONENT JOINT FILLER FOR EXTERIOR SHEATHING PANELS.

1. AIR SHIELD JOINT FILLER BY W.R. MEADOWS.

a. LIQUID FLASHING: FLUID APPLIED, SINGLE COMPONENT, FLASHING MEMBRANE FOR ROUGH OPENINGS.

2. AIR SHIELD LIQUID FLASHING BY W.R. MEADOWS.

a. JOINT TAPE: SELF-ADHESIVE POLYMERIC MEMBRANE FOR JOINTS OF PLYWOOD AND ORIENTED STRAND BOARD (OSB).

3. AIR SHIELD BY W.R. MEADOWS.

(C) PRIMER:

1. TEMPERATURES ABOVE 40OF (4OC): WATER BASED PRIMER

2. MEL-PRIME™ W/B WATER BASE PRIMER BY W. R. MEADOWS.

3. TEMPERATURES BELOW 30OF (-1OC): SOLVENT BASED PRIMER.

a. MEL-PRIME VOC COMPLIANT SOLVENT-BASE PRIMER OR STANDARD SOLVENT-BASE PRIMER BY W. R. MEADOWS.

(D) POINTING MASTIC: MASTIC FOR SEALING PENETRATIONS AND TERMINATIONS OF MEMBRANE.

1. POINTING MASTIC BY W.R. MEADOWS.

(E) CONCRETE REPAIR MATERIALS: GENERAL PURPOSE PATCHING MATERIALS.

1. MEADOW-PATCH™ 5 AND 20 CONCRETE REPAIR MORTARS BY W.R. MEADOWS.

PART 3 EXECUTION

3.1 EXAMINATION

(A) EXAMINE SURFACES TO RECEIVE MEMBRANE. NOTIFY ARCHITECT IF SURFACES ARE NOT ACCEPTABLE. DO NOT BEGIN SURFACE PREPARATION OR APPLICATION UNTIL UNACCEPTABLE CONDITIONS HAVE BEEN CORRECTED.

3.2 SURFACE PREPARATION

(A) PROTECT ADJACENT SURFACES NOT DESIGNATED TO RECEIVE AIR BARRIER.

(B) CLEAN AND PREPARE SURFACES TO RECEIVE AIR BARRIER MEMBRANE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(C) DO NOT APPLY MEMBRANE TO SURFACES UNACCEPTABLE TO MANUFACTURER.

(D) CONCRETE SURFACES MUST BE CLEAN, FREE OF STANDING WATER, ICE, SNOW, FROST, DUST, DIRT, OIL, CURING COMPOUNDS OR ANY OTHER FOREIGN MATERIAL THAT COULD PREVENT PROPER ADHESION OF THE MEMBRANE.

(E) PATCH ALL HOLES AND VOIDS AND SMOOTH OUT ANY SURFACE MISALIGNMENTS.

(F) PATCH ALL CRACKS, PROTRUSIONS, SMALL VOIDS, OFFSETS, DETAILS, IRREGULARITIES AND SMALL DEFORMITIES WITH CEMENTITIOUS PATCHING MORTAR AT LEAST TWO HOURS BEFORE APPLICATION.

(G) ENSURE JOINTS BETWEEN DISSIMILAR BUILDING MATERIALS ARE SEALED WITH A STRIP OF SELF-ADHESIVE MEMBRANE 6" (150 MM) WIDE, CENTERED OVER THE JOINT.

(H) EXTERIOR SHEATHING PANELS:

1. INSTALL AND FASTEN EXTERIOR SHEATHING PANELS ACCORDING TO THE SHEATHING MANUFACTURER'S INSTRUCTIONS.

2. TREAT ALL COUNTERSUNK AND REMOVED FASTENERS WITH JOINT FILLER OR LIQUID FLASHING MATERIAL.

3. INSPECT THE JOINT TO ENSURE THAT ALL AREAS TO RECEIVE JOINT TREATMENT ARE CLEAN, DRY, SMOOTH, AND FREE FROM ALL BOND-BREAKING CONTAMINANTS.

   a. REMOVE AND REPLACE ANY DAMAGED STRUCTURAL WALL COMPONENTS.

4. JOINT TREATMENT USING JOINT FILLER

   a. FILL JOINT AREA WITH JOINT FILLER USING A SPREADER TOOL OR 3" PUTTY KNIFE.

   b. EXTEND THE JOINT FILLER BEYOND THE JOINT LINE 3" ONTO FACE OF EXTERIOR SHEATHING.

c. FULLY EMBED 3" WIDE REINFORCING FABRIC INTO THE WET JOINT FILLER, CENTERED OVER THE JOINT.

d. RUN THE SPREADER TOOL OR PUTTY KNIFE OVER THE EMBEDDED REINFORCING FABRIC TO REMOVE ANY AIR BUBBLES.

5. JOINT TREATMENT USING LIQUID FLASHING

a. FILL JOINT WITH LIQUID FLASHING CREATING A 1" BAND OVER THE JOINT AREA.

b. DO NOT STRIKE FLUSH WITH THE SHEATHING SURFACE.

c. PLYWOOD AND ORIENTED STRAND BOARD (OSB):

d. INSTALL AND FASTEN BOARDS ACCORDING TO BOARD MANUFACTURER.

e. APPLY SELF-ADHESIVE MEMBRANE OVER ALL JOINTS.

3.3 APPLICATION OF AIR BARRIER SYSTEM

(A) TRANSITION MEMBRANE

1. PRIME SURFACES TO BE COVERED IN ONE WORKING DAY WITH APPLICABLE PRIMER.

2. APPLY TRANSITION MEMBRANE WITH A MINIMUM OVERLAP OF 3" (75MM) ONTO PRIMED SURFACE AT ALL JOINTS, COLUMNS, BEAMS AND DISSIMILAR MATERIALS.

3. ROLL MEMBRANE FIRMLY INTO PLACE.

a. ENSURE MEMBRANE IS FULLY ADHERED AND REMOVE ALL WRINKLES AND FISH MOUTHS

1) OVERLAP SUBSEQUENT COURSES OF MEMBRANE A MINIMUM OF 2" (50 MM) AND ENSURE JOINTS ARE FULLY ADHERED.

4. SEAL TOP EDGE OF TRANSITION MEMBRANE WITH POINTING MASTIC.

(B) ROUGH OPENING TRANSITION MEMBRANE

1. SELF-ADHESIVE TRANSITION MEMBRANE.

a. PRIME THE AREA TO BE DETAILED USING ADHESIVE RECOMMENDED BY THE MEMBRANE MANUFACTURER ACCORDING TO THE SUBSTRATE.

b. PRE-CUT THE SELF-ADHESIVE MEMBRANE FOR EACH AREA OF THE ROUGH OPENING TO ENSURE EASE OF HANDLING.

c. APPLY THE FIRST PRE-CUT STRIP AT THE BASE OF THE ROUGH OPENING BY REMOVING THE RELEASE PAPER AND ROLLING FIRMLY INTO PLACE, ENSURING THAT THERE IS A MINIMUM OF 3" (75MM) OF MEMBRANE EXTENDING ONTO THE WALL AND A MINIMUM OF 3" (75MM) OF MEMBRANE EXTENDING INTO THE ROUGH OPENING.

d. REPEAT THIS PROCEDURE FOR THE VERTICAL AREAS OF THE ROUGH OPENING AND THE HEADER PORTION OF THE OPENING.

e. ENSURE ALL EDGE OVERLAPS ARE A MINIMUM OF 2" (50MM) AND END TO END OVERLAPS ARE 4" (100 MM").

f. SEAL ALL TERMINATIONS WITH MASTIC RECOMMENDED BY MEMBRANE MANUFACTURER.

1) FLUID APPLIED TRANSITION MEMBRANE USING VAPOR PERMEABLE MEMBRANE

g. APPLY A COAT OF PRIMER ON THE RAW EDGES OF EXTERIOR GYPSUM BOARD.

1) APPLY A MINIMUM OF 30 WET MIL COAT OF THE AIR BARRIER MEMBRANE EXTENDING A MINIMUM OF 3" (75MM) ONTO THE WALL.

2) APPLY A MINIMUM OF 30 WET MIL COAT OF THE AIR BARRIER MEMBRANE EXTENDING INTO THE ROUGH OPENING A MINIMUM OF 3" (75MM).

3) EMBED A LAYER OF 6" (150MM) REINFORCING FABRIC INTO THIS FIRST COAT.

4) COMPLETELY COVER THE GLASS MESH WITH A SECOND COAT OF THE AIR BARRIER MEMBRANE AT 30 WET MILS WHILE THE FIRST COAT IS STILL WET, AGAIN EXTENDING 3" ONTO THE WALL AND 3" INTO THE ROUGH OPENING.

5) FOLLOW THIS SAME PROCEDURE FOR CONCRETE OR CONCRETE MASONRY WITHOUT USING THE MESH TAPE ENSURING A 60 WET MIL THICKNESS IS ACHIEVED.

2. FLUID APPLIED TRANSITION MEMBRANE USING LIQUID FLASHING MEMBRANE

a. APPLY A COAT OF PRIMER ON THE RAW EDGES OF EXTERIOR GYPSUM BOARD.

b. TREATMENT OF JOINTS OR CRACKS LARGER THAN ¼" (6.35MM) AND LESS THAN ½" (12.7MM).

1) PREFILL ANY JOINTS OR CRACKS WITH THE LIQUID FLASHING MATERIAL.

2) APPLY A GENEROUS BEAD OF MATERIAL OVER THE JOINT.

3) PRESS, AND SPREAD LIQUID FLASHING INTO THE JOINT.

3. ALLOW MATERIAL TO SKIN OVER PRIOR TO FULL APPLICATION OF LIQUID FLASHING INTO THE ROUGH OPENING.

a. TREATMENT OF JOINTS OR CRACKS LARGER THAN ½" (12.7MM)

1) INSTALL BACKER ROD INTO THE JOINT TO CONTROL DEPTH OF LIQUID FLASHING MATERIAL.

2) APPLY A GENEROUS BEAD OF MATERIAL OVER AND INTO THE JOINT.

3) PRESS, AND SPREAD LIQUID FLASHING INTO THE JOINT.

4) SMOOTH OUT USING A SPREADER TOOL OR PUTTY KNIFE

5) ALLOW MATERIAL TO CURE PRIOR TO FULL APPLICATION OF LIQUID FLASHING INTO THE ROUGH OPENING.

(a) APPLY A BEAD OF LIQUID FLASHING IN THE ROUGH OPENING STARTING AT THE TOP AND CONTINUING AROUND THE ROUGH OPENING.

(b) SPREAD THE MATERIAL USING A SPREADER TOOL OR PUTTY KNIFE ACROSS THE ROUGH OPENING SURFACE.

(c) TEST THE MATERIAL THICKNESS USING A WET MIL GAUGE TO ENSURE THAT IT HAS A THICKNESS OF 12-15 MILS.

(d) APPLY A GENEROUS BEAD OF LIQUID FLASHING MATERIAL TO THE VERTICAL SURFACE AROUND THE ROUGH OPENING AND SPREAD THIS MATERIAL 4" - 6" (100 - 152 MM) ONTO THE VERTICAL SURFACE WITH A SPREADER TOOL OR PUTTY KNIFE.

b. TEST THE THICKNESS TO ENSURE THE MATERIAL HAS A THICKNESS OF 12-15 MILS.

c. ALLOW LIQUID FLASHING MATERIAL TO DRY BEFORE INSTALLING ANY WINDOWS, DOORS, WALL ASSEMBLY, AND FULL AIR BARRIER MATERIAL.

(C) THROUGH WALL FLASHING

1. PRIME SURFACES TO BE COVERED IN ONE WORKING DAY WITH APPLICABLE ADHESIVE.

2. REMOVE RELEASE PAPER PRIOR TO APPLICATION.

3. APPLY THOUGH WALL FLASHING AT BASED OF MASONRY WALLS AS INDICATED ON DRAWINGS.

a. RECESS THROUGH WALL FLASHING 1/2" (13 MM) FROM THE FACE OF THE MASONRY.

b. APPLY A BEAD OF POINTING MASTIC IF THROUGH WALL FLASHING IS NOT EMBEDDED INTO MASONRY.

c. AIR BARRIER MEMBRANE

d. APPLY AIR BARRIER MEMBRANE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

4. THOROUGHLY MECHANICALLY MIX MEMBRANE PRIOR TO APPLICATION.

a. APPLY MEMBRANE BY SPRAY OR ROLLER AT A MINIMUM COVERAGE RATE OF 25 FT2/U.S. GAL (0.61 M2/L) PROVIDING A THICKNESS OF 60 WET MILS IN TWO COATS.

b. FREQUENTLY INSPECT SURFACE AREA WITH A WET MIL GAUGE TO ENSURE CONSISTENT THICKNESS.

c. WORK MATERIAL INTO ANY FLUTED RIB FORMING INDENTATIONS.

d. CURED THICKNESS OF MEMBRANE SHOULD BE 30 MILS DRY.

e. ALLOW 48 HOURS FOR FULL CURE OF THE MEMBRANE.

3.4 PROTECTION

(A) COVER AIR BARRIER MEMBRANE AS SOON AS POSSIBLE, SINCE IT IS NOT DESIGNED FOR PERMANENT EXPOSURE.

END OF SECTION

SECTION 07 41 13 - METAL ROOF PANELS

PART 1 GENERAL

1.1 SUMMARY

(A) METAL PANEL ROOFING, INCLUDING ALL COMPONENTS SPECIFIED.

(B) DISPOSAL OF DEMOLITION DEBRIS AND CONSTRUCTION WASTE IS THE RESPONSIBILITY OF CONTRACTOR. PERFORM DISPOSAL IN MANNER COMPLYING WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL REGULATIONS.

(C) COMPLY WITH THE PUBLISHED RECOMMENDATIONS AND INSTRUCTIONS OF THE ROOFING MEMBRANE MANUFACTURER, AT HTTP://MANUAL.FSBP.COM.

(D) COMMENCEMENT OF WORK BY THE CONTRACTOR SHALL CONSTITUTE ACKNOWLEDGEMENT BY THE CONTRACTOR THAT THIS SPECIFICATION CAN BE SATISFACTORILY EXECUTED, UNDER THE PROJECT CONDITIONS AND WITH ALL NECESSARY PREREQUISITES FOR WARRANTY ACCEPTANCE BY ROOFING MEMBRANE MANUFACTURER. NO MODIFICATION OF THE CONTRACT SUM WILL BE MADE FOR FAILURE TO ADEQUATELY EXAMINE THE CONTRACT DOCUMENTS OR THE PROJECT CONDITIONS.

1.2 RELATED REQUIREMENTS

(A) SECTION 05 31 00 - STEEL DECKING: STEEL DECK, 22 GAGE, 0.0299 INCH MINIMUM BASE METAL THICKNESS.

(B) SECTION 06 10 00 - ROUGH CARPENTRY:

(C) SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM: FORMED METAL FLASHING AND TRIM ITEMS ASSOCIATED WITH NON-METAL ROOFING.

1.3 REFERENCE STANDARDS

(A) ANSI FM 4474: STANDARD FOR EVALUATING THE SIMULATED WIND UPLIFT RESISTANCE OF ROOF ASSEMBLIES.

(B) ASCE 7 - MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES; 2016.

(C) ASTM B209 - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE; 2014.

(D) ASTM B209M - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE (METRIC); 2014.

(E) ASTM B370 - STANDARD SPECIFICATION FOR COPPER SHEET AND STRIP FOR BUILDING CONSTRUCTION; 2012.

(F) ASTM C177 - STANDARD TEST METHOD FOR STEADY-STATE HEAT FLUX MEASUREMENTS AND THERMAL TRANSMISSION PROPERTIES BY MEANS OF THE GUARDED-HOT-PLATE APPARATUS; 2013.

(G) ASTM C1177/C1177M - STANDARD SPECIFICATION FOR GLASS MAT GYPSUM SUBSTRATE FOR USE AS SHEATHING; 2013.

(H) ASTM C1289 - STANDARD SPECIFICATION FOR FACED RIGID CELLULAR POLYISOCYANURATE THERMAL INSULATION BOARD; 2017.

(I) ASTM D3273 - STANDARD TEST METHOD FOR RESISTANCE TO GROWTH OF MOLD ON THE SURFACE OF INTERIOR COATINGS IN AN ENVIRONMENTAL CHAMBER; 2016.

(J) ASTM E84 - STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS; 2017.

(K) ASTM E108 - STANDARD TEST METHODS FOR FIRE TESTS OF ROOF COVERINGS; 2017.

(L) ASTM E1592 - STANDARD TEST METHOD FOR STRUCTURAL PERFORMANCE OF SHEET METAL ROOF AND SIDING SYSTEMS BY UNIFORM STATIC AIR PRESSURE DIFFERENCE; 2005 (REAPPROVED 2017).

(M) PS 1 - STRUCTURAL PLYWOOD; 2009.

(N) UL 580 - STANDARD FOR TESTS FOR UPLIFT RESISTANCE OF ROOF ASSEMBLIES; CURRENT EDITION, INCLUDING ALL REVISIONS.

(O) UL 2218 - STANDARD FOR IMPACT RESISTANCE OF PREPARED ROOF COVERING MATERIALS; CURRENT EDITION, INCLUDING ALL REVISIONS.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: SUBMIT MANUFACTURER'S DATA SHEETS ON EACH PRODUCT TO BE INSTALLED AND MANUFACTURER'S STANDARD DETAIL DRAWINGS APPLICABLE TO THIS PROJECT.

1. INSTALLATION INSTRUCTIONS: PROVIDE MANUFACTURER'S INSTRUCTIONS TO INSTALLER, MARKED UP TO SHOW EXACTLY HOW ALL COMPONENTS WILL BE INSTALLED; WHERE INSTRUCTIONS ALLOW INSTALLATION OPTIONS, CLEARLY INDICATE WHICH OPTION WILL BE USED.

(C) MANUFACTURER'S INSTALLATION INSPECTION REPORTS: MANUFACTURER MAY, AT ITS OPTION, INSPECT THE INSTALLATION AT ANY TIME TO APPRAISE THE INSTALLING CONTACTOR OF THEIR COMPLIANCE WITH MANUFACTURER'S REQUIREMENTS. TYPICAL INSPECTIONS WILL INCLUDE:

1. PRIOR TO THE INSTALLATION OF THE METAL ROOFING PANELS TO INSPECT THE UNDERLAYMENTS. THE ROOFING CONTRACTOR IS RESPONSIBLE FOR ASSURING THAT THE SUBSTRATE IS IN SUITABLE CONDITION FOR THE INSTALLATION OF THE METAL ROOFING COMPONENTS TO THE SUBSTRATE.

2. INTERMEDIATE INSPECTIONS TO ENSURE PROPER INSTALLATION OF THE METAL ROOFING PANELS (IF REQUIRED).

3. AT FINAL COMPLETION OF ALL METAL ROOFING SYSTEM WORK.

4. SUBMIT TO OWNER, FOR THE PROJECT RECORD, A COPY OF EACH REPORT OF INSPECTION MADE.

(D) EXECUTED WARRANTY, BY AUTHORIZED COMPANY OFFICIAL.

1.5 QUALITY ASSURANCE

(A) INSTALLER QUALIFICATIONS: ROOFING INSTALLER SHALL HAVE RECEIVED TRAINING FROM METAL PANEL MANUFACTURER FOR INSTALLATION OF THE SPECIFIED ROOF PANEL SYSTEM.

1.6 DELIVERY, STORAGE AND HANDLING

(A) DELIVER PRODUCTS IN MANUFACTURER'S ORIGINAL CONTAINERS, DRY AND UNDAMAGED, WITH SEALS AND LABELS INTACT AND LEGIBLE.

(B) EXERCISE EXTREME CARE IN UNLOADING, STORING, AND INSTALLING METAL PANELS TO PREVENT BENDING, WARPING, TWISTING, AND SURFACE DAMAGE.

(C) STORE PRODUCTS ABOVE GROUND ON WELL-SUPPORTED PLATFORMS THAT PROVIDE MINIMUM OF 1:48 SLOPE. STORE UNDER WATERPROOF COVERING OR INDOORS AND PROVIDE PROPER VENTILATION OF METAL COMPONENTS TO PREVENT CONDENSATION BUILD-UP BETWEEN METAL COMPONENTS.

1.7 WARRANTY

(A) COMPLY WITH ALL WARRANTY PROCEDURES REQUIRED BY MANUFACTURER, INCLUDING NOTIFICATIONS, SCHEDULING, AND INSPECTIONS.

(B) MANUFACTURER'S WARRANTY IS IN ADDITION TO, AND NOT A LIMITATION OF, OTHER RIGHTS THE OWNER MAY HAVE UNDER THE CONTRACT DOCUMENTS.

(C) WARRANTY: LIMITED WARRANTY COVERING ROOF PANELS AND ASSOCIATED METAL COMPONENTS, ROOF SHEATHING/INSULATION AND ACCESSORIES, COVERING WEATHERTIGHTNESS, FINISH, MATERIALS, LABOR, AND WORKMANSHIP.

1. LIMIT OF LIABILITY: NO DOLLAR LIMITATION.

2. SCOPE OF COVERAGE: REPAIR LEAKS IN THE ROOFING SYSTEM CAUSED BY:

a. ORDINARY WEAR AND TEAR OF THE ELEMENTS.

b. MANUFACTURING DEFECT IN MATERIALS.

c. DEFECTIVE WORKMANSHIP USED TO INSTALL THESE MATERIALS.

d. DAMAGE DUE TO WINDS UP TO 55 MPH.

3. NOT COVERED:

a. MATERIALS NOT MADE BY METAL ROOF PANEL MANUFACTURER

b. DAMAGE DUE TO WINDS IN EXCESS OF 55 MPH.

c. DAMAGE DUE HURRICANES OR TORNADOES.

d. HAIL.

e. INTENTIONAL DAMAGE.

f. UNINTENTIONAL DAMAGE DUE TO NORMAL ROOFTOP INSPECTIONS, MAINTENANCE, OR SERVICE.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) ACCEPTABLE MANUFACTURER - METAL ROOF PANELS AND ASSOCIATED SHEET METAL COMPONENTS: ATAS INTERNATIONAL, INC. OR APPROVED EQUAL.

1. PROVIDE ALL COMPONENTS OF SYSTEM SUPPLIED OR SPECIFIED BY SAME MANUFACTURER.

2.2 ROOFING SYSTEM DESCRIPTION

(A) ROOFING SYSTEM: STANDING SEAM METAL ROOF PANELS AND OTHER COMPONENTS, TOGETHER FORMING A WATERTIGHT ASSEMBLY HAVING THE FOLLOWING CHARACTERISTICS:

1. WARRANTY: 20 YEARS.

2. PROVIDE ALL NECESSARY MEMBERS AND CONNECTIONS, WHETHER INDICATED IN THE MANUFACTURER'S STANDARD DETAIL DRAWINGS OR NOT.

3. ACCESSORIES AND THEIR FASTENERS: CAPABLE OF RESISTING THE SPECIFIED DESIGN WIND UPLIFT FORCES AND ALLOWING FOR THERMAL MOVEMENT OF THE ROOF PANEL SYSTEM, NOT RESTRICTING FREE MOVEMENT OF THE ROOF PANEL SYSTEM RESULTING FROM THERMAL FORCES EXCEPT AT DESIGNED POINTS OF ROOF PANEL FIXITY.

(B) ROOF SYSTEM COMPONENTS: IN ORDER FROM THE TOP DOWN:

1. METAL ROOFING PANELS AND TRIM.

2.3 ACCESSORY MATERIALS

(A) FASTENERS: IN STRICT ACCORDANCE WITH METAL ROOF PANEL MANUFACTURER'S REQUIREMENTS; MINIMIZE EXPOSED FASTENERS.

1. INSTALLATION CLIPS: MANUFACTURER'S STANDARD STAINLESS STEEL CLIPS FOR CONCEALED SECUREMENT OF PANELS.

2. CLIP FASTENERS: STAINLESS STEEL.

3. FASTENERS EXPOSED TO WEATHER: SEALED OR WITH SEALED WASHERS ON EXTERIOR SIDE OF COVERING TO WATERPROOF FASTENER PENETRATION; WASHER MATERIAL COMPATIBLE WITH SCREW HEAD; MINIMUM 3/8 INCH DIAMETER WASHER FOR STRUCTURAL CONNECTIONS; GASKET PORTION OF FASTENERS OR WASHERS MADE OF EPDM, NEOPRENE, OR OTHER EQUALLY DURABLE ELASTOMERIC MATERIAL.

4. FASTENERS EXPOSED TO VIEW: HEAD OF COLOR MATCHING PANEL OR COMPONENT IN WHICH INSTALLED.

(B) MOLDED CLOSURE STRIPS: NON-ABSORPTIVE CLOSED-CELL OR SOLID-CELL SYNTHETIC RUBBER OR NEOPRENE OR POLYVINYLCHLORIDE, OR METAL PRE-MOLDED TO MATCH CONFIGURATION OF THE COVERING; CONFIGURATION TO PREVENT RETENTION OF WATER.

PART 3 INSTALLATION

3.1 GENERAL

(A) INSTALL ROOFING, INSULATION, FLASHINGS, AND ACCESSORIES IN ACCORDANCE WITH ROOFING MANUFACTURER'S PUBLISHED INSTRUCTIONS AND RECOMMENDATIONS FOR THE SPECIFIED ROOFING SYSTEM. WHERE MANUFACTURER PROVIDES NO INSTRUCTIONS OR RECOMMENDATIONS, FOLLOW GOOD ROOFING PRACTICES AND INDUSTRY STANDARDS. COMPLY WITH FEDERAL, STATE, AND LOCAL REGULATIONS.

(B) OBTAIN ALL RELEVANT INSTRUCTIONS AND MAINTAIN COPIES AT PROJECT SITE FOR DURATION OF INSTALLATION PERIOD.

(C) VERIFY THAT THE SPECIFICATIONS AND DRAWING DETAILS ARE WORKABLE AND NOT IN CONFLICT WITH THE ROOFING MANUFACTURER'S RECOMMENDATIONS AND INSTRUCTIONS; START OF WORK CONSTITUTES ACCEPTABLE OF PROJECT CONDITIONS AND REQUIREMENTS.

(D) DO NOT START WORK UNTIL PRE-INSTALLATION NOTICE HAS BEEN SUBMITTED TO MANUFACTURER AS NOTIFICATION THAT THIS PROJECT REQUIRES A MANUFACTURER'S WARRANTY.

(E) PERFORM WORK USING COMPETENT AND PROPERLY EQUIPPED PERSONNEL.

(F) TEMPORARY CLOSURES, WHICH ENSURE THAT MOISTURE DOES NOT DAMAGE ANY COMPLETED SECTION OF THE NEW ROOFING SYSTEM, ARE THE RESPONSIBILITY OF THE APPLICATOR. COMPLETION OF FLASHINGS, TERMINATIONS, AND TEMPORARY CLOSURES SHALL BE COMPLETED AS REQUIRED TO PROVIDE A WATERTIGHT CONDITION.

(G) INSTALL ROOFING ONLY WHEN SURFACES ARE CLEAN, DRY, SMOOTH AND FREE OF SNOW OR ICE; DO NOT APPLY ROOFING DURING INCLEMENT WEATHER OR WHEN AMBIENT CONDITIONS WILL NOT ALLOW PROPER APPLICATION; CONSULT MANUFACTURER FOR RECOMMENDED PROCEDURES DURING COLD WEATHER. DO NOT WORK WITH SEALANTS AND ADHESIVES WHEN MATERIAL TEMPERATURE IS OUTSIDE THE RANGE OF 60 TO 80 DEGREES F.

(H) PROTECT ADJACENT CONSTRUCTION, PROPERTY, VEHICLES, AND PERSONS FROM DAMAGE RELATED TO ROOFING WORK; REPAIR OR RESTORE DAMAGE CAUSED BY ROOFING WORK.

1. PROTECT FROM SPILLS AND OVERSPRAY FROM BITUMEN, ADHESIVES, SEALANTS AND COATINGS.

2. PARTICULARLY PROTECT METAL, GLASS, PLASTIC, AND PAINTED SURFACES FROM BITUMEN, ADHESIVES, AND SEALANTS WITHIN THE RANGE OF WIND-BORNE OVERSPRAY.

3. PROTECT FINISHED AREAS OF THE ROOFING SYSTEM FROM ROOFING RELATED WORK TRAFFIC AND TRAFFIC BY OTHER TRADES.

(I) UNTIL READY FOR USE, KEEP MATERIALS IN THEIR ORIGINAL CONTAINERS AS LABELED BY THE MANUFACTURER.

(J) CONSULT MEMBRANE MANUFACTURER'S INSTRUCTIONS, CONTAINER LABELS, AND MATERIAL SAFETY DATA SHEETS (MSDS) FOR SPECIFIC SAFETY INSTRUCTIONS. KEEP ALL ADHESIVES, SEALANTS, PRIMERS AND CLEANING MATERIALS AWAY FROM ALL SOURCES OF IGNITION.

3.2 EXAMINATION

(A) EXAMINE ROOF DECK TO DETERMINE THAT IT IS SUFFICIENTLY RIGID TO SUPPORT INSTALLERS AND THEIR MECHANICAL EQUIPMENT AND THAT DEFLECTION WILL NOT STRAIN OR RUPTURE ROOF COMPONENTS OR DEFORM DECK.

(B) VERIFY THAT SURFACES AND SITE CONDITIONS ARE READY TO RECEIVE WORK. CORRECT DEFECTS IN THE SUBSTRATE BEFORE COMMENCING WITH ROOFING WORK.

(C) VERIFY THAT THE SUBSTRUCTURE INSTALLATION IS IN ACCORDANCE WITH THE APPROVED SHOP DRAWINGS AND ROOF PANEL MANUFACTURER'S REQUIREMENTS, THAT THE FASTENERS ARE CORRECT FOR THE SUBSTRATE, AND THE SUBSTRATE IS INSTALLED TO ACCOMMODATE AND SUPPORT THE APPROPRIATE CLIP SPACING AND ATTACHMENT.

(D) VERIFY THAT INSTALLED WORK OF OTHER TRADES THAT SUCH WORK IS COMPLETE TO A POINT WHERE THE ROOFING SYSTEM INSTALLATION MAY COMMENCE.

(E) VERIFY THAT ROOF OPENINGS, CURBS, PIPES, SLEEVES, DUCTS, VENTS, AND OTHER PENETRATIONS THROUGH ROOF SUBSTRATE ARE COMPLETE AND PROPERLY LOCATED.

(F) IN EVENT OF DISCREPANCY, NOTIFY ARCHITECT IN WRITING; DO NOT PROCEED WITH INSTALLATION UNTIL DISCREPANCIES HAVE BEEN RESOLVED.

3.3 ROOF PANEL INSTALLATION

(A) INSTALL THE METAL ROOF PANEL SYSTEM IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS, INSTALLATION DRAWINGS, AND APPROVED SHOP DRAWINGS, SO THAT IT IS WEATHERTIGHT AND ALLOWS FOR THERMAL MOVEMENT.

(B) LOCATE AND SPACE ALL FASTENERS IN ACCORDANCE WITH ROOF PANEL MANUFACTURER'S RECOMMENDATIONS. FOR REQUIRED EXPOSED FASTENERS, USE PROPER TORQUE SETTINGS TO OBTAIN CONTROLLED UNIFORM COMPRESSION FOR A POSITIVE SEAL WITHOUT RUPTURING THE SEALING WASHERS.

(C) DO NOT PLACE UTILITY PENETRATIONS THROUGH THE PANEL SEAMS.

(D) DO NOT ALLOW PANELS OR TRIM TO COME INTO CONTACT WITH DISSIMILAR MATERIALS (I.E. COPPER, LEAD, GRAPHITE, TREATED LUMBER, MORTAR, ETC). PROTECT FROM WATER RUN-OFF FROM THESE MATERIALS.

(E) PERFORM FIELD CUTTING OF PANELS AND RELATED SHEET METAL COMPONENTS BY MEANS OF HAND OR ELECTRIC SHEARS. AT NO TIME SHALL A HOT/FRICTION SAW BE USED.

(F) REMOVE PROTECTIVE FILM IMMEDIATELY AFTER INSTALLATION.

3.4 FLASHING AND ACCESSORIES INSTALLATION

(A) INSTALL FLASHINGS, INCLUDING LAPS, SPLICES, JOINTS, BONDING, ADHESION, AND ATTACHMENT, AS REQUIRED BY ROOF PANEL MANUFACTURER'S RECOMMENDATIONS AND DETAILS.

(B) FLASHING AT PENETRATIONS: FLASH ALL PENETRATIONS PASSING THROUGH THE MEMBRANE; MAKE FLASHING SEALS DIRECTLY TO THE PENETRATION.

1. PIPES, ROUND SUPPORTS, AND SIMILAR ITEMS: FLASH WITH SPECIFIED PRE-MOLDED PIPE FLASHINGS WHEREVER PRACTICAL.

2. WHERE PRE-MOLDED PIPE FLASHINGS ARE NOT PRACTICAL, PROVIDE FLASHING DETAIL AS RECOMMENDED BY METAL PANEL MANUFACTURER.

3.5 FIELD QUALITY CONTROL

(A) INSPECTION BY MANUFACTURER: PROVIDE FINAL INSPECTION OF THE ROOFING SYSTEM BY A TECHNICAL REPRESENTATIVE EMPLOYED BY ROOFING SYSTEM MANUFACTURER SPECIFICALLY TO INSPECT INSTALLATION FOR WARRANTY PURPOSES (I.E. NOT A SALES PERSON).

(B) PERFORM ALL CORRECTIONS NECESSARY FOR ISSUANCE OF WARRANTY.

3.6 ADJUSTING AND CLEANING

(A) REPAIR PANELS HAVING MINOR DAMAGE.

(B) REMOVE PANELS DAMAGED BEYOND REPAIR AND REPLACE WITH NEW PANELS TO MATCH ADJACENT UNDAMAGED PANELS.

(C) CLEAN EXPOSED PANEL SURFACES PROMPTLY AFTER INSTALLATION IN ACCORDANCE WITH RECOMMENDATIONS OF PANEL AND COATING MANUFACTURERS.

(D) CLEAN ALL CONTAMINANTS GENERATED BY ROOFING WORK FROM BUILDING AND SURROUNDING AREAS, INCLUDING ADHESIVES, SEALANTS, AND COATINGS.

(E) REPAIR OR REPLACE BUILDING COMPONENTS AND FINISHED SURFACES DAMAGED OR DEFACED DUE TO THE WORK OF THIS SECTION; COMPLY WITH RECOMMENDATIONS OF MANUFACTURERS OF COMPONENTS AND SURFACES.

(F) REMOVE LEFTOVER MATERIALS, TRASH, DEBRIS, EQUIPMENT FROM PROJECT SITE AND SURROUNDING AREAS.

3.7 PROTECTION

(A) WHERE CONSTRUCTION TRAFFIC MUST CONTINUE OVER FINISHED ROOF PANELS, PROVIDE DURABLE PROTECTION AND REPLACE OR REPAIR DAMAGED ROOFING TO ORIGINAL CONDITION.

END OF SECTION

SECTION 07 44 00 - FACED PANELS

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) REAR-VENTILATED RAINSCREEN SYSTEM WITH EXTERIOR FACED PANELS.

1. CONCRETE FACED INSULATED PERIMETER WALL PANELS..

1.2 REFERENCE STANDARDS

(A) ASTM INTERNATIONAL (ASTM):

1. C518 - STANDARD TEST METHOD FOR STEADY STATE HEAT FLUX MEASUREMENTS AND THERMAL TRANSMISSION PROPERTIES BY MEANS OF THE HEAT FLOW METER APPARATUS.

2. C947 - STANDARD TEST METHOD FOR FLEXURAL PROPERTIES OF THIN-SECTION GLASS-FIBER-REINFORCED CONCRETE (USING SIMPLE BEAM WITH THIRD-POINT LOADING).

3. C578 - STANDARD SPECIFICATION FOR RIGID, CELLULAR POLYSTYRENE THERMAL INSULATION.

4. D696 - STANDARD TEST METHOD FOR COEFFICIENT OF LINEAR THERMAL EXPANSION OF PLASTICS BETWEEN 30 176C AND 30 176C WITH A VITREOUS SILICA DILATOMETER.

5. D1037 - STANDARD TEST METHODS FOR EVALUATING PROPERTIES OF WOOD-BASE FIBER AND PARTICLE PANEL MATERIALS.

6. D1621 - STANDARD TEST METHOD FOR COMPRESSIVE PROPERTIES OF RIGID CELLULAR PLASTICS.

7. D2394 - STANDARD TEST METHODS FOR SIMULATED SERVICE TESTING OF WOOD AND WOOD BASE FINISH FLOORING.

8. D4716 - STANDARD TEST METHOD FOR DETERMINING THE (IN PLANE) FLOW RATE PER UNIT WIDTH AND HYDRAULIC TRANSMISSIVITY OF A GEOSYNTHETIC USING A CONSTANT HEAD.

9. E84 - STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS.

10. E96/E96M - STANDARD TEST METHODS FOR WATER VAPOR TRANSMISSION OF MATERIALS.

11. ASTM INTERNATIONAL (ASTM):

1.3 SUBMITTALS

(A) SEE SECTION 01 30 00 - ADMINISTRATIVE REQUIREMENTS FOR SUBMITTAL PROCEDURES.

1.4 DELIVERY, STORAGE, AND HANDLING

(A) PROTECT MATERIALS FROM EXPOSURE TO HARMFUL WEATHER CONDITIONS AND AT TEMPERATURE AND HUMIDITY CONDITIONS RECOMMENDED BY MANUFACTURER.

(B) STORE PANELS FLAT.

(C) DO NOT DROP PANELS.

1.5 FIELD CONDITIONS

(A) SUBSTRATE AND AMBIENT AIR TEMPERATURE IN ACCORDANCE WITH MANUFACTURER'S REQUIREMENTS.

1.6 WARRANTY

(A) MANUFACTURER'S STANDARD YEAR WARRANTY AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) BASIS OF DESIGN: CONTRACT DOCUMENTS ARE BASED ON PRODUCTS BY T. CLEAR CORPORATION, 800-544-7398, EMAIL SCONFER@TCLEAR.COM, WWW.TCLEAR.COM.

(B) SUBSTITUTIONS: APPROVED EQUAL.

2.2 MATERIALS

(A) CONCRETE FACED INSULATED PERIMETER WALL PANELS:

1. CONSTRUCTION:

a. EXTRUDED POLYSTYRENE BOARD, ASTM C578, TYPE IV, RIGID, CLOSED CELL, WITH INTEGRAL HIGH DENSITY SKIN, WITH INTEGRAL 5/16 INCH THICK LATEX-MODIFIED CONCRETE FACING.

b. BOARD SIZE: 2 X 4 FEET X [2-5/16] [3-5/16] INCHES THICK.

c. EDGES: TONGUE-AND-GROOVE SIDES, SQUARE ENDS.

d. THERMAL RESISTANCE: LONG TERM AGED R-VALUE OF 5 PER INCH, TESTED TO ASTM C518.

e. FOAM COMPRESSIVE STRENGTH: MINIMUM 35 PSI, TESTED TO ASTM D1621.

f. COMPRESSIVE STRENGTH: MINIMUM 40 PSI, TESTED TO ASTM D 1621.

g. WATER ABSORPTION: MAXIMUM 0.7 PERCENT BY VOLUME, TESTED ASTM D2842.

h. WATER VAPOR PERMEANCE: 0.8, TESTED TO ASTM E96/E96M.

i. COEFFICIENT OF LINEAL THERMAL EXPANSION: 3.5 X 10-5 INCHES PER INCH X DEGREE F, TESTED TO ASTM D696.

2. ACCESSORIES:

a. METAL CAP FLASHING: 24 GAGE GALVANIZED STEEL J-CHANNEL; 2-1/4 INCHES WIDE, 4 INCH LONG LEG AND 2-1/4 INCH SHORT LEG; PREFINISHED, COLOR TO BE SELECTED.

PART 3 EXECUTION

3.1 INSTALLATION

(A) INSTALL FACED PANEL ASSEMBLY, SUPPORTING COMPONENTS AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

END OF SECTION

SECTION 07 46 46 - FIBER-CEMENT SIDING

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) FIBER-CEMENT SIDING.

1.2 RELATED REQUIREMENTS

(A) SECTION 05 40 00 - COLD-FORMED METAL FRAMING: SIDING SUBSTRATE.

(B) SECTION 05 40 00 - COLD-FORMED METAL FRAMING: WATER-RESISTIVE BARRIER UNDER SIDING.

(C) SECTION 06 10 00 - ROUGH CARPENTRY: SIDING SUBSTRATE.

(D) SECTION 06 10 00 - ROUGH CARPENTRY: WATER-RESISTIVE BARRIER UNDER SIDING.

(E) SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES: SIDING SUBSTRATE.

(F) SECTION 09 91 00 - PAINTING: FIELD PAINTING.

1.3 REFERENCE STANDARDS

(A) ASTM A653/A653M - STANDARD SPECIFICATION FOR STEEL SHEET, ZINC-COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT-DIP PROCESS; 2015, WITH EDITORIAL REVISION (2016).

(B) ASTM B221 - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY EXTRUDED BARS, RODS, WIRE, PROFILES, AND TUBES; 2014.

(C) ASTM B221M - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY EXTRUDED BARS, RODS, WIRE, PROFILES, AND TUBES (METRIC); 2013.

(D) ASTM C1186 - STANDARD SPECIFICATION FOR FLAT FIBER CEMENT SHEETS; 2008 (REAPPROVED 2016).

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: SUBMIT MANUFACTURER'S DATA SHEETS ON EACH PRODUCT TO BE USED, INCLUDING:

1. MANUFACTURER'S REQUIREMENTS FOR RELATED MATERIALS TO BE INSTALLED BY OTHERS.

2. PREPARATION INSTRUCTIONS AND RECOMMENDATIONS.

3. STORAGE AND HANDLING REQUIREMENTS AND RECOMMENDATIONS.

4. INSTALLATION METHODS, INCLUDING NAIL PATTERNS.

(C) TEST REPORT: APPLICABLE MODEL CODE AUTHORITY EVALUATION REPORT (E.G. ICC-ES).

(D) MAINTENANCE INSTRUCTIONS: PERIODIC INSPECTION RECOMMENDATIONS AND MAINTENANCE PROCEDURES.

(E) WARRANTY: SUBMIT COPY OF MANUFACTURER'S WARRANTY, MADE OUT IN OWNER'S NAME, SHOWING THAT IT HAS BEEN REGISTERED WITH MANUFACTURER.

(F) WARRANTY DOCUMENTATION FOR INSTALLATION OF BUILDING RAINSCREEN ASSEMBLY: SUBMIT INSTALLER WARRANTY AND ENSURE THAT FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH INSTALLER.

1.5 QUALITY ASSURANCE

(A) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING WORK OF THE TYPE SPECIFIED IN THIS SECTION WITH MINIMUM THREE YEARS OF EXPERIENCE.

1.6 DELIVERY, STORAGE, AND HANDLING

(A) STORE PRODUCTS UNDER WATERPROOF COVER AND ELEVATED ABOVE GRADE, ON A FLAT SURFACE.

1.7 WARRANTY

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL WARRANTY REQUIREMENTS.

(B) CORRECT DEFECTIVE WORK WITHIN A FIVE YEAR PERIOD AFTER DATE OF SUBSTANTIAL COMPLETION.

(C) PROVIDE MULTI-YEAR MANUFACTURER WARRANTY AS INDICATED UNDER SIDING ARTICLE SUB-HEADING "WARRANTY".

(D) INSTALLATION WARRANTY FOR BUILDING RAINSCREEN ASSEMBLY: INSTALLER OF EXTERIOR RAINSCREEN ASSEMBLY (INCLUDING AIR/VAPOR BARRIER AND ATTACHMENTS, FRAMING, AND EXTERIOR PANELS) TO PROVIDE 10-YEAR WARRANTY THAT INCLUDES COVERAGE FOR DEFECTIVE MATERIALS AND/OR WORKMANSHIP. THIS WARRANTY WILL ALSO CLEARLY INCLUDE MATERIALS, LABOR, NECESSARY ACTIVITY TO ACCESS THESE AREAS, AND REMOVAL OF ANY MATERIALS TO EFFECT REPAIRS AND RESTORE TO WATERTIGHT CONDITIONS.

PART 2 PRODUCTS

2.1 FIBER-CEMENT SIDING

(A) LAP SIDING: INDIVIDUAL HORIZONTAL BOARDS MADE OF CEMENT AND CELLULOSE FIBER FORMED UNDER HIGH PRESSURE WITH INTEGRAL SURFACE TEXTURE, COMPLYING TO ASTM C1186, TYPE A, GRADE II; WITH MACHINED EDGES, FOR NAIL ATTACHMENT.

1. STYLE: STANDARD LAP STYLE.

2. TEXTURE: SMOOTH.

3. LENGTH: 12 FT, NOMINAL.

4. WIDTH (HEIGHT): 5-1/4 INCHES.

5. THICKNESS: 5/16 INCH, NOMINAL.

6. FINISH: UNFINISHED.

7. COLOR: AS INDICATED ON DRAWINGS.

8. COLOR: AS SELECTED BY ARCHITECT FROM MANUFACTURERS FULL RANGE OF AVAILABLE COLORS.

9. WARRANTY: 50 YEAR LIMITED; TRANSFERABLE.

10. MANUFACTURERS:

    a. JAMES HARDIE BUILDING PRODUCTS, INC: WWW. JAMESHARDIE.COM/#SLE.

    b. ALLURA, A DIVISION OF PLYCEM USA, INC; WWW.ALLURAUSA.COM/#SLE.

    c. NICHIHA USA, INC: WWW.NICHIHA.COM/#SLE.

    d. SUBSTITUTIONS: OR APPROVED EQUAL .

    e. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) PANEL SIDING: VERTICALLY ORIENTED PANELS MADE OF CEMENT AND CELLULOSE FIBER FORMED UNDER HIGH PRESSURE WITH INTEGRAL SURFACE TEXTURE, COMPLYING TO ASTM C1186, TYPE A, GRADE II; WITH MACHINED EDGES, FOR NAIL ATTACHMENT.

1. TEXTURE: SMOOTH.

2. LENGTH (HEIGHT): 96 INCHES, NOMINAL.

3. WIDTH: 48 INCHES.

4. THICKNESS: 5/16 INCH, NOMINAL.

5. FINISH: FACTORY APPLIED STAIN.

6. COLOR: AS INDICATED ON DRAWINGS.

7. COLOR: AS SELECTED BY ARCHITECT FROM MANUFACTURERS FULL RANGE OF AVAILABLE COLORS.

8. WARRANTY: 50 YEAR LIMITED; TRANSFERABLE.

9. MANUFACTURERS:

    a. JAMES HARDIE BUILDING PRODUCTS, INC; WWW.JAMESHARDIE.COM/#SLE.

    b. ALLURA, A DIVISION OF PLYCEM USA, INC; WWW.ALLURAUSA.COM/#SLE.

    c. NICHIHA USA, INC: WWW.NICHIHA.COM/#SLE.

    d. SUBSTITUTIONS: OR APPROVED EQUAL.

    e. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(C) SHINGLE PANELS: PANELS GIVING APPEARANCE OF MULTIPLE SHINGLES MADE OF CEMENT AND CELLULOSE FIBER FORMED UNDER HIGH PRESSURE WITH INTEGRAL SURFACE TEXTURE, COMPLYING WITH ASTM C1186, TYPE A, GRADE II; WITH MACHINED EDGES, FOR NAIL ATTACHMENT.

1. STYLE: RANDOM WIDTH, STRAIGHT EDGE.

2. TEXTURE: SMOOTH.

3. LENGTH: 48 INCHES.

4. WIDTH (HEIGHT): 7 INCHES.

5. THICKNESS: 1/4 INCH, NOMINAL.

6. FINISH: FACTORY APPLIED STAIN.

7. COLOR: AS INDICATED ON DRAWINGS.

8. COLOR: AS SELECTED BY ARCHITECT FROM MANUFACTURERS FULL RANGE OF AVAILABLE COLORS.

9. WARRANTY: 50 YEAR LIMITED; TRANSFERABLE.

10. MANUFACTURERS:

    a. JAMES HARDIE BUILDING PRODUCTS, INC: WWW.JAMESHARDIE.COM/#SLE.

    b. ALLURA, A DIVISION OF PLYCEM USA, INC; WWW.ALLURAUSA.COM/#SLE.

    c. GAF WEATHERSIDE FIBER-CEMENT SIDING; WWW.GAF.COM/#SLE.

    d. NICHIHA USA, INC: WWW.NICHIHA.COM/#SLE.

    e. SUBSTITUTIONS: OR APPROVED EQUAL.

    f. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(D) SHINGLES: INDIVIDUAL SIMULATED WOOD SHINGLES MADE OF CEMENT AND CELLULOSE FIBER FORMED UNDER HIGH PRESSURE WITH INTEGRAL SURFACE TEXTURE, COMPLYING WITH ASTM C1186, TYPE A, GRADE II; WITH MACHINED EDGES, FOR NAIL ATTACHMENT.

1. STYLE: STRAIGHT EDGED.

2. TEXTURE: SIMULATED CEDAR GRAIN.

3. LENGTH (HEIGHT): 18 INCHES, NOMINAL.

4. WIDTH: 6 INCHES, NOMINAL.

5. WIDTH: RANDOMIZED WIDTHS OF 6, 8, AND 12 INCHES, NOMINAL.

6. THICKNESS: 1/4 INCH, NOMINAL.

7. FINISH: UNFINISHED.

8. COLOR: AS INDICATED ON DRAWINGS.

9. COLOR: AS SELECTED BY ARCHITECT FROM MANUFACTURERS FULL RANGE OF AVAILABLE COLORS.

10. WARRANTY: 30 YEAR LIMITED; TRANSFERABLE.

11. MANUFACTURERS:

    a. JAMES HARDIE BUILDING PRODUCTS, INC: WWW.JAMESHARDIE.COM/#SLE.

    b. GAF WEATHERSIDE FIBER-CEMENT SIDING; WWW.GAF.COM/#SLE.

    c. SUBSTITUTIONS: OR APPROVED EQUAL.

    d. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(E) SHINGLES: INDIVIDUAL "WIDE" SHINGLES MADE OF CEMENT AND CELLULOSE FIBER FORMED UNDER HIGH PRESSURE WITH INTEGRAL SURFACE TEXTURE, COMPLYING WITH ASTM C1186, TYPE A, GRADE II; WITH MACHINED EDGES, FOR NAIL ATTACHMENT.

1. STYLE: STRAIGHT EDGED WITH LIGHT WOOD-GRAIN TEXTURE.

2. WIDTH: WIDER THAN HEIGHT; MANUFACTURER'S STANDARD.

3. HEIGHT: 12 INCHES, NOMINAL.

4. THICKNESS: 11/64 INCH.

5. FINISH: UNFINISHED.

6. COLOR: AS INDICATED ON DRAWINGS.

7. COLOR: AS SELECTED BY ARCHITECT FROM MANUFACTURERS FULL RANGE OF AVAILABLE COLORS.

8. WARRANTY: 25 YEAR LIMITED; NONTRANSFERABLE.

9. MANUFACTURERS:

    a. GAF WEATHERSIDE FIBER-CEMENT SIDING: WWW.GAF.COM/#SLE.

    b. SUBSTITUTIONS: OR APPROVED EQUAL..

    c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(F) SIMULATED MASONRY PANELS: WALL PANELS MADE OF CEMENT AND CELLULOSE FIBER FORMED UNDER HIGH PRESSURE WITH INTEGRAL SURFACE TEXTURE, COMPLYING WITH ASTM C1186, TYPE A, GRADE II; WITH SHIPLAPPED MACHINED EDGES, FOR CONCEALED CLIP ATTACHMENT.

1. STYLE: SIMULATED BRICK APPEARANCE.

2. HEIGHT: 18 INCHES.

3. WIDTH (LENGTH): 72 INCHES.

4. THICKNESS: 3/4 INCH.

5. WARRANTY: 50 YEAR LIMITED; ORIGINAL OWNER AND FIRST TRANSFEREE ONLY.

6. MANUFACTURERS:

   a. NICHIHA USA, INC: WWW.NICHIHA.COM/#SLE.

   b. SUBSTITUTIONS: OR APPROVED EQUAL..

   c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(G) SOFFIT PANELS: SMOOTH PANELS OF SAME MATERIAL AND FINISH.

(H) SOFFIT PANELS: PANELS MADE OF CEMENT AND CELLULOSE FIBER FORMED UNDER HIGH PRESSURE WITH INTEGRAL SURFACE TEXTURE, COMPLYING WITH ASTM C1186, TYPE A, GRADE II; WITH MACHINED EDGES, FOR NAIL ATTACHMENT.

1. TEXTURE: SMOOTH.

2. LENGTH: 96 INCHES, NOMINAL.

3. WIDTH: 48 INCHES.

4. THICKNESS: 5/16 INCH, NOMINAL.

5. FINISH: UNFINISHED.

6. COLOR: AS INDICATED ON DRAWINGS.

7. COLOR: AS SELECTED BY ARCHITECT FROM MANUFACTURERS FULL RANGE OF AVAILABLE COLORS.

8. MANUFACTURER: SAME AS SIDING.

(I) FACTORY FINISH: MONOCHROMIC TOPCOAT.

1. MANUFACTURERS:

   a. SHERWIN-WILLIAMS COMPANY; KEM AQUA BP SIDING PLUS: OEM.SHERWIN-WILLIAMS.COM/#SLE.

   b. SUBSTITUTIONS: OR APPROVED EQUAL..

   c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.2 ACCESSORIES

(A) FURRING STRIPS: GALVANIZED METAL CHANNELS.

(B) TRIM: SAME MATERIAL AND TEXTURE AS SIDING.

(C) FIBER CEMENT SIDING METAL TRIM: EXTRUDED ALUMINUM ALLOY 6063-T5 TEMPER.

1. DIMENSION AND LAYOUT: AS INDICATED ON DRAWINGS.

2. FINISH: CLEAR ANODIZED.

3. COLOR: ARCTIC WHITE.

4. MANUFACTURERS:

a. TAMLYN; XTREMETRIM - VERTICAL REVEALS: WWW.TAMLYN.COM/#SLE.

b. SUBSTITUTIONS: OR APPROVED EQUAL..

c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(D) FASTENERS: GALVANIZED OR CORROSION RESISTANT; LENGTH AS REQUIRED TO PENETRATE MINIMUM 1-1/4 INCH.

(E) EXTERIOR SOFFIT VENTS: ONE PIECE, PERFORATED, ASTM B221 (ASTM B221M), 6063 ALLOY, T5 TEMPER, ALUMINUM, WITH EDGE SUITABLE FOR DIRECT APPLICATION TO GYPSUM BOARD AND MANUFACTURED ESPECIALLY FOR SOFFIT APPLICATION, AND PROVIDE CONTINUOUS VENT.

(F) SEALANT: ELASTOMERIC, POLYURETHANE OR SILYL-TERMINATED POLYETHER/POLYURETHANE, AND CAPABLE OF BEING PAINTED.

(G) FINISH PAINT: LATEX HOUSE PAINT ACCEPTABLE TO SIDING MANUFACTURER; PRIMER RECOMMENDED BY PAINT MANUFACTURER.

PART 3 EXECUTION

3.1 EXAMINATION

(A) EXAMINE SUBSTRATE, CLEAN AND REPAIR AS REQUIRED TO ELIMINATE CONDITIONS THAT WOULD BE DETRIMENTAL TO PROPER INSTALLATION.

(B) VERIFY THAT WEATHER BARRIER HAS BEEN INSTALLED OVER SUBSTRATE COMPLETELY AND CORRECTLY.

(C) DO NOT BEGIN UNTIL UNACCEPTABLE CONDITIONS HAVE BEEN CORRECTED.

(D) IF SUBSTRATE PREPARATION IS RESPONSIBILITY OF ANOTHER INSTALLER, NOTIFY ARCHITECT OF UNSATISFACTORY PREPARATION BEFORE PROCEEDING.

3.2 PREPARATION

(A) INSTALL SHEET METAL FLASHING:

1. ABOVE DOOR AND WINDOW TRIM AND CASINGS.

2. ABOVE HORIZONTAL TRIM IN FIELD OF SIDING.

3.3 INSTALLATION

(A) INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS.

1. READ WARRANTY AND COMPLY WITH TERMS NECESSARY TO MAINTAIN WARRANTY COVERAGE.

2. INSTALL IN ACCORDANCE WITH CONDITIONS STATED IN MODEL CODE EVALUATION REPORT APPLICABLE TO LOCATION OF PROJECT.

3. USE TRIM DETAILS INDICATED ON DRAWINGS.

4. TOUCH UP FIELD CUT EDGES BEFORE INSTALLING.

5. PRE-DRILL NAIL HOLES IF NECESSARY TO PREVENT BREAKAGE.

(B) SIMULATED MASONRY PANELS: INSTALL WITH MANUFACTURER'S RECOMMENDED CLIPS LEAVING NO FASTENERS VISIBLE.

(C) OVER WOOD STUDS WITHOUT SHEATHING: INSTALL SIDING OVER WEATHER-RESISTIVE BARRIER, FASTENED INTO STUDS.

(D) OVER WOOD AND WOOD-COMPOSITE SHEATHING: FASTEN SIDING THROUGH SHEATHING INTO STUDS.

(E) OVER FOAM SHEATHING: READ AND COMPLY WITH SHEATHING MANUFACTURER'S RECOMMENDATIONS.

1. FOR SHEATHING OF LESS THAN 1 INCH THICKNESS, NAIL THROUGH SHEATHING INTO STUDS USING CORRESPONDINGLY LONGER NAILS.

2. FOR SHEATHING GREATER THAN 1 INCH THICKNESS, INSTALL FURRING STRIPS OVER STUDS AND FASTEN SIDING THROUGH FURRING AND INTO STUDS.

(F) OVER MASONRY WALLS: INSTALL FURRING STRIPS OF ADEQUATE THICKNESS TO ACCEPT FULL LENGTH OF NAILS AND SPACED AT 16 INCHES ON CENTER; LEAVE SPACE AT TOP AND BOTTOM OPEN; TOP MAY BE BEHIND SOFFIT; AT BOTTOM INSTALL INSECT SCREEN OVER OPENING BY WRAPPING A STRIP OF SCREEN OVER BOTTOM ENDS OF VERTICAL FURRING STRIPS.

(G) OVER STEEL STUDS: USE HOT-DIPPED GALVANIZED SELF-TAPPING SCREWS, WITH THE POINTS OF AT LEAST THREE SCREWS PENETRATING EACH STUD THE PANEL CROSSES AND AT PANEL ENDS.

(H) DIAGONAL SIDING: FOLLOW MANUFACTURER'S INSTRUCTIONS.

(I) ALLOW SPACE FOR THERMAL MOVEMENT BETWEEN BOTH ENDS OF SIDING PANELS THAT BUTT AGAINST TRIM; SEAL JOINT BETWEEN PANEL AND TRIM WITH SPECIFIED SEALANT.

(J) JOINTS IN HORIZONTAL SIDING: AVOID JOINTS IN LAP SIDING EXCEPT AT CORNERS; WHERE JOINTS ARE INEVITABLE STAGGER JOINTS BETWEEN SUCCESSIVE COURSES.

(K) JOINTS IN VERTICAL SIDING: INSTALL Z-FLASHING IN HORIZONTAL JOINTS BETWEEN SUCCESSIVE COURSES OF VERTICAL SIDING.

(L) DO NOT INSTALL SIDING LESS THAN 6 INCHES FROM SURFACE OF GROUND NOR CLOSER THAN 1 INCH TO ROOFS, PATIOS, PORCHES, AND OTHER SURFACES WHERE WATER MAY COLLECT.

(M) EXTERIOR SOFFIT VENTS: INSTALL ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS AND IN LOCATIONS INDICATED ON DRAWINGS, AND PROVIDE VENT AREA SPECIFIED.

(N) AFTER INSTALLATION, SEAL JOINTS EXCEPT LAP JOINTS OF LAP SIDING; SEAL AROUND PENETRATIONS, AND PAINT EXPOSED CUT EDGES.

(O) FINISH PAINTING: REFER TO SECTION 09 91 00.

(P) FINISH PAINTING: WITHIN ONE WEEK AFTER INSTALLATION, PAINT SIDING AND TRIM WITH ONE COAT PRIMER AND TWO COATS FINISH PAINT.

3.4 PROTECTION

(A) PROTECT INSTALLED PRODUCTS UNTIL DATE OF SUBSTANTIAL COMPLETION.

(B) TOUCH-UP, REPAIR OR REPLACE DAMAGED PRODUCTS BEFORE DATE OF SUBSTANTIAL COMPLETION.

END OF SECTION

SECTION 07 61 00 - SHEET METAL ROOFING

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) SHEET METAL ROOFING, ASSOCIATED FLASHINGS, AND UNDERLAYMENT.

(B) COUNTERFLASHINGS.

(C) SNOW GUARDS.

(D) INTEGRAL FASCIAS.

(E) SEALANTS FOR JOINTS WITHIN SHEET METAL FABRICATIONS.

1.2 REFERENCE STANDARDS

(A) AAMA 611 - VOLUNTARY SPECIFICATION FOR ANODIZED ARCHITECTURAL ALUMINUM; 2014 (2015 ERRATA).

(B) AAMA 2605 - VOLUNTARY SPECIFICATION, PERFORMANCE REQUIREMENTS AND TEST PROCEDURES FOR SUPERIOR PERFORMING ORGANIC COATINGS ON ALUMINUM EXTRUSIONS AND PANELS (WITH COIL COATING APPENDIX); 2017A.

(C) ASTM A240/A240M - STANDARD SPECIFICATION FOR CHROMIUM AND CHROMIUM-NICKEL STAINLESS STEEL PLATE, SHEET, AND STRIP FOR PRESSURE VESSELS AND FOR GENERAL APPLICATIONS; 2016.

(D) ASTM A653/A653M - STANDARD SPECIFICATION FOR STEEL SHEET, ZINC-COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT-DIP PROCESS; 2015, WITH EDITORIAL REVISION (2016).

(E) ASTM A792/A792M - STANDARD SPECIFICATION FOR STEEL SHEET, 55% ALUMINUM-ZINC ALLOY-COATED BY THE HOT-DIP PROCESS; 2010 (REAPPROVED 2015).

(F) ASTM A666 - STANDARD SPECIFICATION FOR ANNEALED OR COLD-WORKED AUSTENITIC STAINLESS STEEL SHEET, STRIP, PLATE, AND FLAT BAR; 2015.

(G) ASTM B32 - STANDARD SPECIFICATION FOR SOLDER METAL; 2008 (REAPPROVED 2014).

(H) ASTM B101 - STANDARD SPECIFICATION FOR LEAD-COATED COPPER SHEET AND STRIP FOR BUILDING CONSTRUCTION; 2012.

(I) ASTM B209 - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE; 2014.

(J) ASTM B209M - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE (METRIC); 2014.

(K) ASTM B69 - STANDARD SPECIFICATION FOR ROLLED ZINC; 2016.

(L) ASTM B749 - STANDARD SPECIFICATION FOR LEAD AND LEAD ALLOY STRIP, SHEET, AND PLATE PRODUCTS; 2014.

(M) ASTM C920 - STANDARD SPECIFICATION FOR ELASTOMERIC JOINT SEALANTS; 2014A.

(N) ASTM D226/D226M - STANDARD SPECIFICATION FOR ASPHALT-SATURATED ORGANIC FELT USED IN ROOFING AND WATERPROOFING; 2017.

(O) ASTM D1970/D1970M - STANDARD SPECIFICATION FOR SELF-ADHERING POLYMER MODIFIED BITUMINOUS SHEET MATERIALS USED AS STEEP ROOFING UNDERLAYMENT FOR ICE DAM PROTECTION; 2017.

(P) ASTM D4479/D4479M - STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS - ASBESTOS-FREE; 2007, WITH EDITORIAL REVISION (2012).

(Q) ASTM E96/E96M - STANDARD TEST METHODS FOR WATER VAPOR TRANSMISSION OF MATERIALS; 2016.

(R) ASTM E108 - STANDARD TEST METHODS FOR FIRE TESTS OF ROOF COVERINGS; 2017.

(S) ICC-ES AC188 - ACCEPTANCE CRITERIA FOR ROOF UNDERLAYMENTS; 2012, WITH EDITORIAL REVISION (2015).

(T) SMACNA (ASMM) - ARCHITECTURAL SHEET METAL MANUAL; 2012.

1.3 SUBMITTALS

(A) SEE SECTION 01 30 00 - ADMINISTRATIVE REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(C) PRODUCT DATA: PROVIDE DATA ON METAL TYPES, FINISHES, CHARACTERISTICS.

(D) SHOP DRAWINGS: INDICATE MATERIAL PROFILE, JOINTING PATTERN, JOINTING DETAILS, FASTENING METHODS, FLASHINGS, TERMINATIONS, AND INSTALLATION DETAILS.

(E) INSTALLATION SAMPLES: SUBMIT TWO SAMPLES ____BY____ INCH IN SIZE ILLUSTRATING METAL ROOFING MOUNTED ON PLYWOOD BACKING ILLUSTRATING TYPICAL SEAM.

(F) COLOR SAMPLES: SUBMIT TWO SAMPLES ____BY____ INCH IN SIZE ILLUSTRATING METAL FINISH COLOR.

1.4 QUALITY ASSURANCE

(A) PERFORM WORK IN ACCORDANCE WITH SMACNA (ASMM) REQUIREMENTS AND STANDARD DETAILS, EXCEPT AS OTHERWISE NOTED.

1. MAINTAIN ONE COPY ON PROJECT SITE.

(B) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING SHEET METAL ROOF INSTALLATIONS WITH MINIMUM ____ YEARS OF EXPERIENCE.

1.5 MOCK-UP

(A) CONSTRUCT MOCK-UP OF SHEET METAL ROOFING, 4 FEET LONG BY 4 FEET WIDE, ILLUSTRATING ASSOCIATED ATTACHMENTS, FLASHINGS, AND EAVE PROTECTION.

(B) MOCK-UP MAY REMAIN AS PART OF THE WORK.

1.6 DELIVERY, STORAGE, AND HANDLING

(A) STACK MATERIAL TO PREVENT TWISTING, BENDING, OR ABRASION, AND TO PROVIDE VENTILATION. SLOPE METAL SHEETS TO ENSURE DRAINAGE.

(B) PREVENT CONTACT WITH MATERIALS THAT COULD CAUSE DISCOLORATION OR STAINING.

1.7 WARRANTY

(A) SEE SECTINO 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL WARRANTY REQUIREMENTS.

(B) CORRECT DEFECTIVE WORK WITHIN A FIVE YEAR PERIOD AFTER DATE OF SUBSTANTIAL COMPLETION. DEFECTIVE WORK INCLUDES DEGRADATION OF METAL FINISH.

(C) PROVIDE FIVE YEAR MANUFACTURER WARRANTY FOR WIND DAMAGE. WARRANTY SHALL INCLUDE DEGRADATION OF METAL FINISH.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) SHEET METAL ROOFING MANUFACTURERS:

1. ATAS INTERNATIONAL, INC.: WWW. ATAS.COM

2. PETERSEN ALUMINUM CORPORATION: WWW.PAC-CLAD.COM/#SLE.

3. SHEFFIELD METALS INTERNATIONAL; GALVALUME: WWW.SHEFFIELDMETALS.COM/#SLE.

4. SUBSTITUTIONS: OR APPROVED EQUAL

5. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS

2.2 SHEET MATERIALS

(A) GALVANIZED STEEL SHEET: ASTM A653/A653M, WITH G90/Z275 ZINC COATING; 24 GAGE, 0.0239 INCH MINIMUM BASE METAL THICKNESS.

(B) PRE-FINISHED GALVANIZED STEEL SHEET: ASTM A653/A653M, WITH G90/Z275 ZINC COATING; 24 GAGE, 0.0239 INCH MINIMUM BASE METAL THICKNESS, SHOP PRE-COATED WITH MODIFIED SILICONE COATING; COLOR AS SELECTED.

(C) ALUMINUM-ZINC ALLOY COATED STEEL SHEET (GALVALUME): ASTM A792/A792M; AZ55 COATING DESIGNATION; 24 GAGE, 0.0239 INCH THICK.

(D) ALUMINUM SHEET: ASTM B209 (ASTM B209M), ___ ALLOY, ___ TEMPER; 20 GAGE, 0.032 INCH MINIMUM BASE METAL THICKNESS; CLEAR ANODIZED FINISH.

(E) PRE-FINISHED ALUMINUM SHEET: ASTM B209 (ASTM B209M), ___ ALLOY, ___ TEMPER; 20 GAGE, 0.032 INCH MINIMUM BASE METAL THICKNESS; PLAIN TEXTURE; SHOP PRE-COATED WITH POLYVINYLIDENE FLUORIDE (PVDF) COATING, COLOR AS SELECTED BY ARCHITECT.

2.3 FABRICATION

(A) FORM SECTIONS TRUE TO SHAPE, ACCURATE IN SIZE, SQUARE, AND FREE FROM DISTORTION OR DEFECTS.

(B) FABRICATE CLEATS OF SAME MATERIAL AS SHEET, THICKNESS TO MATCH ROOFING SHEET, AND AT LEAST ___ INCH WIDE, INTERLOCKABLE WITH SHEET.

(C) FABRICATE STARTER STRIPS, INTERLOCKABLE WITH SHEET.

(D) FORM PIECES IN LONGEST PRACTICAL LENGTHS.

(E) HEM EXPOSED EDGES ON UNDERSIDE 1/2 INCH; MITER AND SEAM CORNERS.

(F) FORM MATERIAL WITH STANDING SEAMS, EXCEPT WHERE OTHERWISE INDICATED. AT MOVING JOINTS, USE SEALED LAPPED, BAYONET-TYPE OR INTERLOCKING HOOKED SEAMS.

(G) FABRICATE CORNERS FROM ONE PIECE WITH MINIMUM 18 INCH LONG LEGS; SEAM FOR RIGIDITY, SEAL WITH SEALANT.

2.4 FINISHES

(A) CLEAR ANODIZED FINISH: AAMA 611 AA-M12C22A41 CLASS I CLEAR ANODIC COATING NOT LESS THAN 0.7 MILS THICK.

(B) COLOR ANODIZED FINISH: AAMA 611 AA-M12C22A42/44 CLASS I INTEGRALLY OR ELECTROLYTICALLY COLORED ANODIC COATING NOT LESS THAN 0.7 MILS THICK.

(C) COLOR: AS INDICATED ON DRAWINGS.

2.5 ACCESSORIES

(A) FASTENERS: GALVANIZED STEEL, WITH SOFT NEOPRENE WASHERS.

(B) UNDERLAYMENT: SYNTHETIC NON-ASPHALTIC SHEET, INTENDED BY MANUFACTURER FOR MECHANICALLY FASTENED ROOFING UNDERLAYMENT WITHOUT SEALED SEAMS.

1. TYPE: WOVEN POLYPROPYLENE WITH ANTI-SLIP POLYOLEFIN COATING ON BOTH SIDES.

2. MINIMUM REQUIREMENTS: COMPLY WITH REQUIREMENTS OF ICC-ES AC188 FOR NON-SELF-ADHESIVE SHEET.

3. SELF SEALABILITY: PASSING NAIL SEALABILITY TEST SPECIFIED IN ASTM D1970/D1970M.

4. FLAMMABILITY: MINIMUM OF CLASS A, WHEN TESTED IN ACCORDANCE WITH ASTM E108.

5. ULTRAVIOLET RESISTANCE AND WEATHERABILITY: APPROVED IN WRITING BY MANUFACTURER FOR EXPOSURE TO WEATHER FOR MINIMUM OF 12 MONTHS.

6. LOW TEMPERATURE FLEXIBILITY: PASSING TEST SPECIFIED IN ASTM D1970/D1970M.

7. FASTENERS: AS SPECIFIED BY MANUFACTURER AND BUILDING CODE QUALIFICATION REPORT OR APPROVAL, IF ANY.

8. UNDERLAYMENT PRODUCTS MUST MEET ALL REQUIREMENTS OF ROOFING MANUFACTURER TO OBTAIN THE ROOF WARRANTY. ONLY THOSE SUCH PRODUCTS WILL BE ACCEPTED.

(C) CONCEALED SEALANTS: NON-CURING BUTYL SEALANT.

(D) EXPOSED SEALANTS: ASTM C920 ELASTOMERIC SEALANT, WITH MINIMUM MOVEMENT CAPABILITY AS RECOMMENDED BY MANUFACTURER FOR SEALED SUBSTRATES; COLOR TO MATCH ADJACENT MATERIAL.

1. PRODUCTS:

a. FRANKLIN INTERNATIONAL, INC; TITEBOND WEATHERMASTER METAL ROOF SEALANT: WWW.TITEBOND.COM/#SLE.

b. SUBSTITUTIONS: OR APPROVED EQUAL.

c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

PART 3 EXECUTION

3.1 EXAMINATION

(A) INSPECT ROOF DECK TO VERIFY DECK IS CLEAN AND SMOOTH, FREE OF DEPRESSIONS, WAVES, OR PROJECTIONS, PROPERLY SLOPED TO DRAINS.

(B) VERIFY DECK IS DRY AND FREE OF SNOW OR ICE. VERIFY JOINTS IN WOOD DECK ARE SOLIDLY SUPPORTED AND FASTENED.

(C) VERIFY CORRECT PLACEMENT OF WOOD NAILERS AND INSULATION POSITIONING BETWEEN NAILERS.

(D) VERIFY ROOF OPENINGS, CURBS, PIPES, SLEEVES, DUCTS, OR VENTS THROUGH ROOF ARE SOLIDLY SET, REGLETS ARE IN PLACE, AND NAILING STRIPS LOCATED.

(E) VERIFY ROOFING TERMINATION AND BASE FLASHINGS ARE IN PLACE, SEALED, AND SECURE.

3.2 PREPARATION

(A) INSTALL STARTER AND EDGE STRIPS, AND CLEATS BEFORE STARTING INSTALLATION.

(B) INSTALL SURFACE MOUNTED REGLETS TRUE TO LINES AND LEVELS; SEAL TOP OF REGLETS WITH SEALANT AND REFER TO DRAWINGS FOR PLACEMENT OF RECESSED-TYPE REGLETS.

(C) BACK PAINT CONCEALED METAL SURFACES AND SURFACES IN CONTACT WITH DISSIMILAR METALS WITH PROTECTIVE BACKING PAINT TO A MINIMUM DRY FILM THICKNESS OF 15 MIL.

(D) PLACE EAVE EDGE METAL FLASHING TIGHT WITH FASCIA BOARDS. WEATHER LAP JOINTS 2 INCHES AND SEAL WITH PLASTIC CEMENT. SECURE FLANGE WITH NAILS.

3.3 INSTALLATION - EAVE (ICE DAM) PROTECTION

(A) APPLY EAVE PROTECTION SHEET IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(B) APPLY PLASTIC CEMENT AT RATE OF APPROXIMATELY 1-1/4 GAL/100 SQ FT OVER STARTER STRIP.

(C) STARTING FROM LOWER EDGE OF STARTER STRIP, LAY ADDITIONAL 36 INCH WIDE STRIPS OF EAVE PROTECTION SHEET IN PLASTIC CEMENT, TO PRODUCE A TWO PLY MEMBRANE. WEATHER LAP PLIES MINIMUM 19 INCHES AND NAIL IN PLACE. LAP ENDS MINIMUM 6 INCHES. STAGGER END JOINTS OF EACH CONSECUTIVE PLY.

(D) EXTEND EAVE PROTECTION SHEET UP ROOF SLOPE AT LEAST 4 FEET BEYOND EXTERIOR WALL LINE OF BUILDING.

3.4 INSTALLATION - ROOFING

(A) APPLY UNDERLAYMENT OVER ENTIRE ROOF AREA.

1. APPLY IN SINGLE LAYER LAID PERPENDICULAR TO SLOPE; WEATHER LAP EDGES 2 INCHES AND NAIL IN PLACE.

2. MINIMIZE NAIL QUANTITY.

(B) APPLY SLIP SHEET IN ONE LAYER, LAID LOOSE.

(C) CLEAT AND SEAM ALL JOINTS.

(D) USE PLASTIC CEMENT FOR JOINTS BETWEEN METAL AND BITUMEN AND FOR JOINTS BETWEEN METAL AND FELTS.

3.5 INSTALLATION - STANDING SEAM ROOFING

(A) LOCK CLEATS INTO SEAMS AND FLATTEN.

(B) STAGGER TRANSVERSE JOINTS OF ROOFING SHEETS.

(C) AT EAVES AND GABLE ENDS, TERMINATE ROOFING BY HOOKING OVER EDGE STRIP.

(D) FINISH STANDING SEAMS 1 INCH HIGH ON FLAT SURFACES

(E) BEND UP ONE SIDE EDGE 1-1/2 INCHES AND OTHER EDGE 1-3/4 INCHES.

(F) MAKE FIRST FOLD 1/4 INCH WIDE SINGLE FOLD AND SECOND FOLD 1/2 INCH WIDE, PROVIDING LOCKED PORTION OF STANDING SEAM, 5 PLIES IN THICKNESS.

(G) FOLD LOWER ENDS OF SEAMS AT EAVES OVER AT 45 DEGREE ANGLE.

(H) EXTEND VALLEY SHEET MINIMUM 6 INCHES UNDER ROOFING SHEETS.

3.6 INSTALLATION - FLASHINGS

(A) INSERT FLASHINGS INTO REGLETS TO FORM TIGHT FIT.

1. SECURE IN PLACE WITH LEAD WEDGES. PACK REMAINING SPACES WITH LEAD WOOL.

2. SEAL FLASHINGS INTO REGLETS WITH SEALANT.

(B) SECURE FLASHINGS IN PLACE USING CONCEALED FASTENERS, AND USE EXPOSED FASTENERS ONLY WHERE PERMITTED.

(C) CLEAT AND SEAM ALL JOINTS.

(D) APPLY PLASTIC CEMENT COMPOUND BETWEEN METAL FLASHINGS AND FELT FLASHINGS.

(E) FIT FLASHINGS TIGHT IN PLACE, AND MAKE CORNERS SQUARE, SURFACES TRUE AND STRAIGHT IN PLANES, AND LINES ACCURATE TO PROFILES.

(F) SEAL METAL JOINTS WATERTIGHT.

3.7 PROTECTION

(A) DO NOT PERMIT TRAFFIC OVER UNPROTECTED ROOF SURFACE.

END OF SECTION

SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) FABRICATED SHEET METAL ITEMS, INCLUDING FLASHINGS, COUNTERFLASHINGS, GUTTERS, DOWNSPOUTS, AND OTHER ITEMS INDICATED IN SCHEDULE.

(B) SEALANTS FOR JOINTS WITHIN SHEET METAL FABRICATIONS.

(C) SHEET METAL SPLASH PANS.

1.2 RELATED REQUIREMENTS

(A) SECTION 04 20 00 - UNIT MASONRY: METAL FLASHINGS EMBEDDED IN MASONRY.

(B) SECTION 06 10 00 - ROUGH CARPENTRY: WOOD NAILERS FOR SHEET METAL WORK.

(C) SECTION 07 52 00 - MODIFIED BITUMINOUS MEMBRANE ROOFING.

(D) SECTION 07 61 00 - SHEET METAL ROOFING.

(E) SECTION 07 71 23 - MANUFACTURED GUTTERS AND DOWNSPOUTS.

(F) SECTION 07 92 00 - JOINT SEALANTS: SEALING NON-LAP JOINTS BETWEEN SHEET METAL FABRICATIONS AND ADJACENT CONSTRUCTION.

1.3 REFERENCE STANDARDS

(A) AAMA 611 - VOLUNTARY SPECIFICATION FOR ANODIZED ARCHITECTURAL ALUMINUM; 2014 (2015 ERRATA).

(B) AAMA 2603 - VOLUNTARY SPECIFICATION, PERFORMANCE REQUIREMENTS AND TEST PROCEDURES FOR PIGMENTED ORGANIC COATINGS ON ALUMINUM EXTRUSIONS AND PANELS (WITH COIL COATING APPENDIX); 2017A.

(C) AAMA 2604 - VOLUNTARY SPECIFICATION, PERFORMANCE REQUIREMENTS AND TEST PROCEDURES FOR HIGH PERFORMANCE ORGANIC COATINGS ON ALUMINUM EXTRUSIONS AND PANELS (WITH COIL COATING APPENDIX); 2017A.

(D) AAMA 2605 - VOLUNTARY SPECIFICATION, PERFORMANCE REQUIREMENTS AND TEST PROCEDURES FOR SUPERIOR PERFORMING ORGANIC COATINGS ON ALUMINUM EXTRUSIONS AND PANELS (WITH COIL COATING APPENDIX); 2017A.

(E) ASTM A653/A653M - STANDARD SPECIFICATION FOR STEEL SHEET, ZINC-COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT-DIP PROCESS; 2015, WITH EDITORIAL REVISION (2016).

(F) ASTM A666 - STANDARD SPECIFICATION FOR ANNEALED OR COLD-WORKED AUSTENITIC STAINLESS STEEL SHEET, STRIP, PLATE, AND FLAT BAR; 2015.

(G) ASTM B32 - STANDARD SPECIFICATION FOR SOLDER METAL; 2008 (REAPPROVED 2014).

(H) ASTM B101 - STANDARD SPECIFICATION FOR LEAD-COATED COPPER SHEET AND STRIP FOR BUILDING CONSTRUCTION; 2012.

(I) ASTM B209 - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE; 2014.

(J) ASTM B209M - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE (METRIC); 2014.

(K) ASTM B370 - STANDARD SPECIFICATION FOR COPPER SHEET AND STRIP FOR BUILDING CONSTRUCTION; 2012.

(L) ASTM B749 - STANDARD SPECIFICATION FOR LEAD AND LEAD ALLOY STRIP, SHEET, AND PLATE PRODUCTS; 2014.

(M) ASTM C920 - STANDARD SPECIFICATION FOR ELASTOMERIC JOINT SEALANTS; 2014A.

(N) ASTM D226/D226M - STANDARD SPECIFICATION FOR ASPHALT-SATURATED ORGANIC FELT USED IN ROOFING AND WATERPROOFING; 2017.

(O) ASTM D2178/D2178M - STANDARD SPECIFICATION FOR ASPHALT GLASS FELT USED IN ROOFING AND WATERPROOFING; 2015A.

(P) ASTM D4479/D4479M - STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS - ASBESTOS-FREE; 2007, WITH EDITORIAL REVISION (2012).

(Q) ASTM D4586/D4586M - STANDARD SPECIFICATION FOR ASPHALT ROOF CEMENT, ASBESTOS-FREE; 2007, WITH EDITORIAL REVISION (2012).

(R) CDA A4050 - COPPER IN ARCHITECTURE - HANDBOOK; CURRENT EDITION.

(S) SMACNA (ASMM) - ARCHITECTURAL SHEET METAL MANUAL; 2012.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) SHOP DRAWINGS: INDICATE MATERIAL PROFILE, JOINTING PATTERN, JOINTING DETAILS, FASTENING METHODS, FLASHINGS, TERMINATIONS, AND INSTALLATION DETAILS.

(C) SAMPLES: SUBMIT TWO SAMPLES 6 BY 6 INCH IN SIZE ILLUSTRATING METAL FINISH COLOR.

1.5 QUALITY ASSURANCE

(A) PERFORM WORK IN ACCORDANCE WITH SMACNA (ASMM) AND CDA A4050 REQUIREMENTS AND STANDARD DETAILS, EXCEPT AS OTHERWISE INDICATED.

1.6 DELIVERY, STORAGE, AND HANDLING

(A) STACK MATERIAL TO PREVENT TWISTING, BENDING, AND ABRASION, AND TO PROVIDE VENTILATION. SLOPE METAL SHEETS TO ENSURE DRAINAGE.

(B) PREVENT CONTACT WITH MATERIALS THAT COULD CAUSE DISCOLORATION OR STAINING.

PART 2 PRODUCTS

2.1 SHEET MATERIALS

(A) GALVANIZED STEEL: ASTM A653/A653M, WITH G90/Z275 ZINC COATING; MINIMUM 24 GAGE, (0.0239 INCH) THICK BASE METAL.

(B) PRE-FINISHED GALVANIZED STEEL: ASTM A653/A653M, WITH G90/Z275 ZINC COATING; MINIMUM 24 GAGE, (0.0239) INCH THICK BASE METAL, SHOP PRE-COATED ONE SIDE WITH "KYNAR 500" OR SIMILAR FLOUROCABON PVDF COATING.

1. MODIFIED SILICONE POLYESTER COATING: PIGMENTED ORGANIC COATING SYSTEM, AAMA 2603; BAKED ENAMEL FINISH SYSTEM.

2. PVDF (POLYVINYLIDENE FLUORIDE) COATING: SUPERIOR PERFORMANCE ORGANIC FINISH, AAMA 2605; MULTIPLE COAT, THERMALLY CURED FLUOROPOLYMER FINISH SYSTEM.

2.2 FABRICATION

(A) FORM SECTIONS TRUE TO SHAPE, ACCURATE IN SIZE, SQUARE, AND FREE FROM DISTORTION OR DEFECTS.

(B) FABRICATE CLEATS OF SAME MATERIAL AS SHEET, MINIMUM ____ INCHES WIDE, INTERLOCKING WITH SHEET.

(C) FORM PIECES IN LONGEST POSSIBLE LENGTHS.

(D) HEM EXPOSED EDGES ON UNDERSIDE 1/2 INCH;(13MM) MITER AND SEAM CORNERS.

(E) FORM MATERIAL WITH FLAT LOCK SEAMS, EXCEPT WHERE OTHERWISE INDICATED; AT MOVING JOINTS, USE SEALED LAPPED, BAYONET-TYPE OR INTERLOCKING HOOKED SEAMS.

(F) FABRICATE CORNERS FROM ONE PIECE WITH MINIMUM 18 INCH (450MM) LONG LEGS; SEAM FOR RIGIDITY, SEAL WITH SEALANT.

(G) FABRICATE VERTICAL FACES WITH BOTTOM EDGE FORMED OUTWARD 1/4 INCH AND HEMMED TO FORM DRIP.

(H) FABRICATE FLASHINGS TO ALLOW TOE TO EXTEND 2 INCHES (50MM) OVER ROOFING GRAVEL. RETURN AND BRAKE EDGES.

2.3 ACCESSORIES

(A) FASTENERS: GALVANIZED STEEL, WITH SOFT NEOPRENE WASHERS.

(B) UNDERLAYMENT: ASTM D226/D226M, ORGANIC ROOFING FELT, TYPE I (NO. 15).

(C) SLIP SHEET: ROSIN SIZED BUILDING PAPER.

(D) PROTECTIVE BACKING PAINT: ZINC MOLYBDATE ALKYD.

(E) CONCEALED SEALANTS: NON-CURING BUTYL SEALANT.

(F) EXPOSED SEALANTS: ASTM C920; ELASTOMERIC SEALANT, WITH MINIMUM MOVEMENT CAPABILITY AS RECOMMENDED BY MANUFACTURER FOR SUBSTRATES TO BE SEALED; COLOR TO MATCH ADJACENT MATERIAL.

(G) PLASTIC CEMENT: ASTM D4586/D4586M, TYPE I.

(H) REGLETS: SURFACE MOUNTED TYPE, GALVANIZED STEEL.

(I) SOLDER: ASTM B32; SN50 (50/50) TYPE.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY ROOF OPENINGS, CURBS, PIPES, SLEEVES, DUCTS, AND VENTS THROUGH ROOF ARE SOLIDLY SET, REGLETS IN PLACE, AND NAILING STRIPS LOCATED.

(B) VERIFY ROOFING TERMINATION AND BASE FLASHINGS ARE IN PLACE, SEALED, AND SECURE.

3.2 PREPARATION

(A) INSTALL STARTER AND EDGE STRIPS, AND CLEATS BEFORE STARTING INSTALLATION.

(B) INSTALL SURFACE MOUNTED REGLETS TRUE TO LINES AND LEVELS, AND SEAL TOP OF REGLETS WITH SEALANT.

(C) BACK PAINT CONCEALED METAL SURFACES WITH PROTECTIVE BACKING PAINT TO A MINIMUM DRY FILM THICKNESS OF 15 MIL.

3.3 INSTALLATION

(A) SECURE FLASHINGS IN PLACE USING CONCEALED FASTENERS, AND USE EXPOSED FASTENERS ONLY WHERE PERMITTED..

(B) APPLY PLASTIC CEMENT COMPOUND BETWEEN METAL FLASHINGS AND FELT FLASHINGS.

(C) FIT FLASHINGS TIGHT IN PLACE; MAKE CORNERS SQUARE, SURFACES TRUE AND STRAIGHT IN PLANES, AND LINES ACCURATE TO PROFILES.

(D) SEAL METAL JOINTS WATERTIGHT.

(E) SOLDER METAL JOINTS FOR FULL METAL SURFACE CONTACT, AND AFTER SOLDERING WASH METAL CLEAN WITH NEUTRALIZING SOLUTION AND RINSE WITH WATER.

(F) INSTALL SNOW GUARDS ____ INCH UP SLOPE FROM EAVES AND VALLEYS.

3.4 FIELD QUALITY CONTROL

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR FIELD INSPECTION REQUIREMENTS.

(B) INSPECTION WILL INVOLVE SURVEILLANCE OF WORK DURING INSTALLATION TO ASCERTAIN COMPLIANCE WITH SPECIFIED REQUIREMENTS.

END OF SECTION

SECTION 07 71 23 - MANUFACTURED GUTTERS AND DOWNSPOUTS

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) PRE-FINISHED ALUMINUM GUTTERS AND DOWNSPOUTS.

(B) PRECAST CONCRETE SPLASH PADS.

(C) SHEET METAL SPLASH PANS.

1.2 RELATED REQUIREMENTS

(A) SECTION 07 61 00 - SHEET METAL ROOFING.

(B) SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM.

(C) SECTION 09 91 00 - PAINTING: FIELD PAINTING OF METAL SURFACES.

1.3 REFERENCE STANDARDS

(A) AAMA 611 - VOLUNTARY SPECIFICATION FOR ANODIZED ARCHITECTURAL ALUMINUM; 2014 (2015 ERRATA).

(B) AAMA 2603 - VOLUNTARY SPECIFICATION, PERFORMANCE REQUIREMENTS AND TEST PROCEDURES FOR PIGMENTED ORGANIC COATINGS ON ALUMINUM EXTRUSIONS AND PANELS (WITH COIL COATING APPENDIX); 2017A.

(C) AAMA 2604 - VOLUNTARY SPECIFICATION, PERFORMANCE REQUIREMENTS AND TEST PROCEDURES FOR HIGH PERFORMANCE ORGANIC COATINGS ON ALUMINUM EXTRUSIONS AND PANELS (WITH COIL COATING APPENDIX); 2017A.

(D) AAMA 2605 - VOLUNTARY SPECIFICATION, PERFORMANCE REQUIREMENTS AND TEST PROCEDURES FOR SUPERIOR PERFORMING ORGANIC COATINGS ON ALUMINUM EXTRUSIONS AND PANELS (WITH COIL COATING APPENDIX); 2017A.

(E) ASTM A653/A653M - STANDARD SPECIFICATION FOR STEEL SHEET, ZINC-COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT-DIP PROCESS; 2015, WITH EDITORIAL REVISION (2016).

(F) ASTM A666 - STANDARD SPECIFICATION FOR ANNEALED OR COLD-WORKED AUSTENITIC STAINLESS STEEL SHEET, STRIP, PLATE, AND FLAT BAR; 2015.

(G) ASTM B32 - STANDARD SPECIFICATION FOR SOLDER METAL; 2008 (REAPPROVED 2014).

(H) ASTM B209 - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE; 2014.

(I) ASTM B209M - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE (METRIC); 2014.

(J) ASTM B370 - STANDARD SPECIFICATION FOR COPPER SHEET AND STRIP FOR BUILDING CONSTRUCTION; 2012.

(K) ASTM D2665 - STANDARD SPECIFICATION FOR POLY(VINYL CHLORIDE) (PVC) PLASTIC DRAIN, WASTE, AND VENT PIPE AND FITTINGS; 2014.

(L) ASTM D4479/D4479M - STANDARD SPECIFICATION FOR ASPHALT ROOF COATINGS - ASBESTOS-FREE; 2007, WITH EDITORIAL REVISION (2012).

(M) CDA A4050 - COPPER IN ARCHITECTURE - HANDBOOK; CURRENT EDITION.

(N) SMACNA (ASMM) - ARCHITECTURAL SHEET METAL MANUAL; 2012.

1.4 ADMINISTRATIVE REQUIREMENTS

(A) COMPLY WITH SMACNA (ASMM) FOR SIZING COMPONENTS FOR RAINFALL INTENSITY DETERMINED BY A STORM OCCURRENCE OF 1 IN 5 YEARS.

(B) COMPLY WITH APPLICABLE CODE FOR SIZE AND METHOD OF RAIN WATER DISCHARGE.

(C) MAINTAIN ONE COPY OF EACH DOCUMENT ON SITE.

1.5 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: PROVIDE DATA ON PREFABRICATED COMPONENTS.

(C) SHOP DRAWINGS: INDICATE LOCATIONS, CONFIGURATIONS, JOINTING METHODS, FASTENING METHODS, LOCATIONS, AND INSTALLATION DETAILS.

(D) SAMPLES: SUBMIT TWO SAMPLES, 6" INCH LONG ILLUSTRATING COMPONENT DESIGN, FINISH, COLOR, AND CONFIGURATION.

1.6 DELIVERY, STORAGE, AND HANDLING

(A) STACK MATERIAL TO PREVENT TWISTING, BENDING, OR ABRASION, AND TO PROVIDE VENTILATION. SLOPE TO DRAIN.

(B) PREVENT CONTACT WITH MATERIALS THAT COULD CAUSE DISCOLORATION, STAINING, OR DAMAGE.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) GUTTERS AND DOWNSPOUTS:

1. ATAS INTERNATIONAL, INC; WATER CONTROL SYSTEM: WWW.ATAS.COM/#SLE.

2. CHENEY FLASHING COMPANY: WWW.CHENEYFLASHING.COM/#SLE.

3. DREXEL METALS INC; 7 INCH BOX GUTTER: WWW.DREXMET.COM/#SLE.

4. OMG ROOFING PRODUCTS: WWW.OMGROOFING.COM/#SLE.

5. SAF PERIMETER SYSTEMS, A DIVISION OF SOUTHERN ALUMINUM FINISHING COMPANY, INC: WWW.SAF.COM/PERSYS/#SLE.

6. SUBSTITUTIONS: OR APPROVED EQUAL..

7. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) SCUPPER AND COLLECTORS:

1. ATAS INTERNATIONAL, INC; SCUPPERS AND COLLECTOR BOXES: WWW.ATAS.COM/#SLE.

2. SUBSTITUTIONS: OR APPROVED EQUAL..

3. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.2 MATERIALS

(A) POLYVINYL CHLORIDE (PVC): ASTM D2665, VIRGIN VINYL, SDR 35 PIPE AND FITTINGS, HIGH IMPACT TYPE, COLORFAST; COLOR TO BE SELECTED BY ARCHITECT.

(B) GALVANIZED STEEL SHEET: ASTM A653/A653M, WITH G90/Z275 ZINC COATING; MINIMUM 0.02 INCH THICK BASE METAL.

(C) PRE-FINISHED GALVANIZED STEEL SHEET: ASTM A653/A653M, WITH G90/Z275 ZINC COATING; MINIMUM 0.02 INCH THICK BASE METAL.

1. FINISH: SHOP PRE-COATED WITH MODIFIED SILICONE COATING.

2. COLOR: TO BE SELECTED BY ARCHITECT.

(D) ALUMINUM SHEET: ASTM B209 (ASTM B209M); 0.032 INCH THICK.

1. FINISH: MILL.

2. COLOR: CLEAR.

(E) PRE-FINISHED ALUMINUM SHEET: ASTM B209 (ASTM B209M); 0.032 INCH THICK.

1. FINISH: PLAIN, SHOP PRE-COATED WITH MODIFIED SILICONE COATING.

2. COLOR: TO BE SELECTED BY ARCHITECT.

(F) STAINLESS STEEL: ASTM A666 TYPE 304, SOFT TEMPER, 0.015 INCH THICK; SMOOTH NO. 4 FINISH.

(G) COPPER: ASTM B370, COLD ROLLED 0.22 INCH THICK; NATURAL FINISH.

(H) PRIMER: ZINC MOLYBDATE TYPE.

(I) PROTECTIVE BACKING PAINT: ZINC MOLYBDATE ALKYD.

(J) SOLDER: ASTM B32; SN50 (50/50) TYPE.

(K) PRIMER AND SOLVENT FOR POLYVINYL CHLORIDE (PVC): AS RECOMMENDED BY MANUFACTURER.

2.3 COMPONENTS

(A) GUTTERS: CDA RECTANGULAR STYLE PROFILE.

(B) GUTTERS: POLYVINYL CHLORIDE (PVC); RECTANGULAR PROFILE:

(C) DOWNSPOUTS: CDA RECTANGULAR PROFILE.

(D) DOWNSPOUTS: POLYVINYL CHLORIDE (PVC); RECTANGULAR PROFILE:

(E) CONNECTORS: FURNISH REQUIRED CONNECTOR PIECES FOR PVC (POLYVINYL CHLORIDE) COMPONENTS.

(F) ANCHORS AND SUPPORTS: PROFILED TO SUIT GUTTERS AND DOWNSPOUTS.

1. ANCHORING DEVICES: IN ACCORDANCE WITH CDA REQUIREMENTS.

2. GUTTER SUPPORTS: BRACKETS.

3. DOWNSPOUT SUPPORTS: BRACKETS.

(G) FASTENERS: GALVANIZED STEEL, WITH SOFT NEOPRENE WASHERS.

2.4 ACCESSORIES

(A) SPLASH PANS: SAME METAL TYPE AS DOWNSPOUTS, FORMED TO 12 X 36 INCHES SIZE; ROLLED SIDES 4" INCH HIGH FOR INVERTED PAN PLACEMENT.

(B) SPLASH PADS: PRECAST CONCRETE TYPE, SIZE AND PROFILES INDICATED; MINIMUM 3000 PSI AT 28 DAYS, WITH MINIMUM 5 PERCENT AIR ENTRAINMENT.

(C) SPLASH PADS: POLYVINYL CHLORIDE (PVC); SIZE AND PROFILES INDICATED:

(D) DOWNSPOUT BOOTS: CAST IRON; ASTM A48.

1. MANUFACTURERS:

a. DOWNSPOUTBOOTS.COM, A DIVISION OF J. R. HOE & SONS: WWW.DOWNSPOUTBOOTS.COM/#SLE.

b. SUBSTITUTIONS: OR APPROVED EQUAL..

c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.5 FABRICATION

(A) FORM GUTTERS AND DOWNSPOUTS OF PROFILES AND SIZE INDICATED.

(B) FABRICATE WITH REQUIRED CONNECTION PIECES.

(C) FORM SECTIONS SQUARE, TRUE, AND ACCURATE IN SIZE, IN MAXIMUM POSSIBLE LENGTHS, FREE OF DISTORTION OR DEFECTS DETRIMENTAL TO APPEARANCE OR PERFORMANCE. ALLOW FOR EXPANSION AT JOINTS.

(D) HEM EXPOSED EDGES OF METAL.

(E) TIN EDGES OF COPPER SHEET TO BE SOLDERED. SOLDER SHOP FORMED METAL JOINTS. AFTER SOLDERING, REMOVE FLUX. WIPE AND WASH SOLDER JOINTS CLEAN. WEATHER SEAL JOINTS.

(F) FABRICATE GUTTER AND DOWNSPOUT ACCESSORIES; SEAL WATERTIGHT.

2.6 FINISHES

(A) CLASS I CLEAR ANODIZED FINISH: AAMA 611 AA-M12C22A41; CLEAR ANODIC COATING NOT LESS THAN 0.7 MILS THICK.

(B) CLASS II CLEAR ANODIZED FINISH: AAMA 611 AA-M12C22A31; CLEAR ANODIC COATING NOT LESS THAN 0.4 MILS THICK.

(C) CLASS I COLOR ANODIZED FINISH: AAMA 611 AA-M12C22A42; INTEGRALLY COLORED ANODIC COATING NOT LESS THAN 0.7 MILS THICK.

(D) CLASS II COLOR ANODIZED FINISH: AAMA 611 AA-M12C22A41; INTEGRALLY COLORED ANODIC COATING NOT LESS THAN 0.4 MILS THICK.

(E) MODIFIED SILICONE POLYESTER COATING: BAKED ENAMEL SYSTEM COMPLYING WITH AAMA 2603.

(F) FLUOROPOLYMER COATING: HIGH PERFORMANCE ORGANIC FINISH, AAMA 2604; MULTIPLE COAT, THERMALLY CURED FLUOROPOLYMER FINISH SYSTEM; COLOR AS INDICATED.

(G) PRIMER COAT: FINISH CONCEALED SIDE OF METAL SHEETS WITH PRIMER COMPATIBLE WITH FINISH SYSTEM, AS RECOMMENDED BY FINISH SYSTEM MANUFACTURER.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY EXISTING CONDITIONS BEFORE STARTING WORK.

(B) VERIFY THAT SURFACES ARE READY TO RECEIVE WORK.

3.2 PREPARATION

(A) PAINT CONCEALED METAL SURFACES AND SURFACES IN CONTACT WITH DISSIMILAR METALS WITH PROTECTIVE BACKING PAINT TO A MINIMUM DRY FILM THICKNESS OF 15 MIL.

3.3 INSTALLATION

(A) INSTALL GUTTERS, DOWNSPOUTS, AND ACCESSORIES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(B) SHEET METAL: JOIN LENGTHS WITH FORMED SEAMS SEALED WATERTIGHT. FLASH AND SEAL GUTTERS TO DOWNSPOUTS AND ACCESSORIES.

(C) PVC: SOLVENT-WELD LENGTHS AND CONNECTION PIECES TO FORM WATERTIGHT JOINTS. SOLVENT-WELD GUTTERS TO DOWNSPOUTS AND ACCESSORIES.

(D) SOLDER METAL JOINTS FOR FULL METAL SURFACE CONTACT. AFTER SOLDERING, WASH METAL CLEAN WITH NEUTRALIZING SOLUTION AND RINSE WITH WATER.

(E) CONNECT DOWNSPOUTS TO DOWNSPOUT BOOTS AT 12 INCHES ABOVE GRADE. GROUT CONNECTION WATERTIGHT.

(F) CONNECT DOWNSPOUTS TO STORM SEWER SYSTEM. GROUT CONNECTION WATERTIGHT.

(G) SET SPLASH PANS UNDER DOWNSPOUTS.

END OF SECTION

SECTION 07 84 00 - FIRESTOPPING

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) FIRESTOPPING SYSTEMS.

(B) FIRESTOPPING OF ALL JOINTS AND PENETRATIONS IN FIRE RESISTANCE RATED AND SMOKE RESISTANT ASSEMBLIES, WHETHER INDICATED ON DRAWINGS OR NOT, AND OTHER OPENINGS INDICATED.

1.2 RELATED REQUIREMENTS

(A) SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES: GYPSUM WALLBOARD FIREPROOFING.

1.3 REFERENCE STANDARDS

(A) ASTM E119 - STANDARD TEST METHODS FOR FIRE TESTS OF BUILDING CONSTRUCTION AND MATERIALS; 2016A.

(B) ASTM E814 - STANDARD TEST METHOD FOR FIRE TESTS OF PENETRATION FIRESTOP SYSTEMS; 2013A (REAPPROVED 2017).

(C) ASTM E1966 - STANDARD TEST METHOD FOR FIRE-RESISTIVE JOINT SYSTEMS; 2015.

(D) ASTM E2174 - STANDARD PRACTICE FOR ON-SITE INSPECTION OF INSTALLED FIRESTOPS; 2014B.

(E) ASTM E2393 - STANDARD PRACTICE FOR ON-SITE INSPECTION OF INSTALLED FIRE RESISTIVE JOINT SYSTEMS AND PERIMETER FIRE BARRIERS; 2010A (REAPPROVED 2015).

(F) ASTM E2307 - STANDARD TEST METHOD FOR DETERMINING FIRE RESISTANCE OF PERIMETER FIRE BARRIERS USING INTERMEDIATE-SCALE, MULTI-STORY TEST APPARATUS; 2015B, WITH EDITORIAL REVISION (2016).

(G) ASTM E2837 - STANDARD TEST METHOD FOR DETERMINING THE FIRE RESISTANCE OF CONTINUITY HEAD-OF-WALL JOINT SYSTEMS INSTALLED BETWEEN RATED WALL ASSEMBLIES AND NONRATED HORIZONTAL ASSEMBLIES; 2013 (REAPPROVED 2017).

(H) ASTM G21 - STANDARD PRACTICE FOR DETERMINING RESISTANCE OF SYNTHETIC POLYMERIC MATERIALS TO FUNGI; 2015.

(I) ITS (DIR) - DIRECTORY OF LISTED PRODUCTS; CURRENT EDITION.

(J) FM 4991 - APPROVAL STANDARD FOR FIRESTOP CONTRACTORS; 2013.

(K) FM (AG) - FM APPROVAL GUIDE; CURRENT EDITION.

(L) SCAQMD 1168 - SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE NO.1168; CURRENT EDITION.

(M) UL 1479 - STANDARD FOR FIRE TESTS OF PENETRATION FIRESTOPS; CURRENT EDITION, INCLUDING ALL REVISIONS.

(N) UL 2079 - STANDARD FOR TESTS FOR FIRE RESISTANCE OF BUILDING JOINT SYSTEMS; CURRENT EDITION, INCLUDING ALL REVISIONS.

(O) UL (DIR) - ONLINE CERTIFICATIONS DIRECTORY; CURRENT LISTINGS AT DATABASE.UL.COM.

(P) UL (FRD) - FIRE RESISTANCE DIRECTORY; CURRENT EDITION.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) SCHEDULE OF FIRESTOPPING: LIST EACH TYPE OF PENETRATION.

(C) PRODUCT DATA: PROVIDE DATA ON PRODUCT CHARACTERISTICS, PERFORMANCE RATINGS, AND LIMITATIONS.

(D) MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE PREPARATION AND INSTALLATION INSTRUCTIONS.

(E) MANUFACTURER'S CERTIFICATE: CERTIFY THAT PRODUCTS MEET OR EXCEED SPECIFIED REQUIREMENTS.

(F) CERTIFICATE FROM AUTHORITY HAVING JURISDICTION INDICATING APPROVAL OF MATERIALS USED.

(G) INSTALLER QUALIFICATION: SUBMIT QUALIFICATION STATEMENTS FOR INSTALLING MECHANICS.

1.5 QUALITY ASSURANCE

(A) FIRE TESTING: PROVIDE FIRESTOPPING ASSEMBLIES OF DESIGNS THAT PROVIDE THE SPECIFIED FIRE RATINGS WHEN TESTED IN ACCORDANCE WITH METHODS INDICATED AND ASTM E119.

1. LISTING IN UL (FRD) WILL BE CONSIDERED AS CONSTITUTING AN ACCEPTABLE TEST REPORT.

2. VALID EVALUATION REPORT PUBLISHED BY ICC EVALUATION SERVICE, INC. (ICC-ES) AT WWW.ICC-ES.ORG WILL BE CONSIDERED AS CONSTITUTING AN ACCEPTABLE TEST REPORT.

3. SUBMISSION OF ACTUAL TEST REPORTS IS REQUIRED FOR ASSEMBLIES FOR WHICH NONE OF THE ABOVE SUBSTANTIATION EXISTS.

(B) MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE.

(C) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING THE WORK OF THIS SECTION AND:

1. TRAINED BY MANUFACTURER.

2. APPROVED BY FACTORY MUTUAL RESEARCH CORPORATION UNDER FM 4991, OR MEETING ANY TWO OF THE FOLLOWING REQUIREMENTS:

3. VERIFICATION OF MINIMUM THREE YEARS DOCUMENTED EXPERIENCE INSTALLING WORK OF THIS TYPE.

4. VERIFICATION OF AT LEAST FIVE SATISFACTORILY COMPLETED PROJECTS OF COMPARABLE SIZE AND TYPE.

5. LICENSED BY LOCAL AUTHORITIES HAVING JURISDICTION (AHJ).

1.6 FIELD CONDITIONS

(A) COMPLY WITH FIRESTOPPING MANUFACTURER'S RECOMMENDATIONS FOR TEMPERATURE AND CONDITIONS DURING AND AFTER INSTALLATION; MAINTAIN MINIMUM TEMPERATURE BEFORE, DURING, AND FOR THREE DAYS AFTER INSTALLATION OF MATERIALS.

(B) PROVIDE VENTILATION IN AREAS WHERE SOLVENT-CURED MATERIALS ARE BEING INSTALLED.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) FIRESTOPPING MANUFACTURERS:

1. 3M FIRE PROTECTION PRODUCTS; _____: WWW.3M.COM/FIRESTOP/#SLE.

2. A/D FIRE PROTECTION SYSTEMS INC: WWW.ADFIRE.COM/#SLE.

3. HILTI, INC: PRODUCT CP 601 S ELASTIC FIRESTOP SEALANT: WWW.US.HILTI.COM/#SLE.

4. NELSON FIRESTOP PRODUCTS; _____: WWW.NELSONFIRESTOP.COM/#SLE.

5. SPECIFIED TECHNOLOGIES INC; PRODUCT SPECSEAL SERIES SIL SILICONE FIRESTOP SEALANT:: WWW.STIFIRESTOP.COM/#SLE.

6. TREMCO COMMERCIAL SEALANTS & WATERPROOFING; TREMSTOP ACRYLIC: WWW.TREMCOSEALANTS.COM/#SLE.

7. SUBSTITUTIONS: OR APPROVED EQUAL.

8. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.2 MATERIALS

(A) FIRESTOPPING MATERIALS: ANY MATERIALS MEETING REQUIREMENTS, FOAM, CAULK OR PUTTY.

(B) VOLATILE ORGANIC COMPOUND (VOC) CONTENT: PROVIDE PRODUCTS HAVING VOC CONTENT LOWER THAN THAT REQUIRED BY SCAQMD 1168.

(C) MOLD AND MILDEW RESISTANCE: PROVIDE FIRESTOPPPING MATERIALS WITH MOLD AND MILDEW RESISTANCE RATING OF ZERO(0) IN ACCORDANCE WITH ASTM G21.

(D) PRIMERS, SLEEVES, FORMS, INSULATION, PACKING, STUFFING, AND ACCESSORIES: PROVIDE TYPE OF MATERIALS AS REQUIRED FOR TESTED FIRESTOPPING ASSEMBLY.

(E) FIRE RATINGS: REFER TO DRAWINGS FOR REQUIRED SYSTEMS AND RATINGS.

2.3 FIRESTOPPING ASSEMBLY REQUIREMENTS

(A) PERIMETER FIRE CONTAINMENT FIRESTOPPING: USE SYSTEM THAT HAS BEEN TESTED ACCORDING TO ASTM E2307 TO HAVE FIRE RESISTANCE F RATING EQUAL TO REQUIRED FIRE RATING OF FLOOR ASSEMBLY.

1. MOVEMENT: PROVIDE SYSTEMS THAT HAVE BEEN TESTED TO SHOW MOVEMENT CAPABILITY AS INDICATED.

2. TEMPERATURE RISE: PROVIDE SYSTEMS THAT HAVE BEEN TESTED TO SHOW T RATING AS INDICATED.

3. AIR LEAKAGE: PROVIDE SYSTEMS THAT HAVE BEEN TESTED TO SHOW L RATING AS INDICATED.

4. WHERE FLOOR ASSEMBLY IS NOT REQUIRED TO HAVE A FIRE RATING, PROVIDE SYSTEMS THAT HAVE BEEN TESTED TO SHOW L RATING AS INDICATED.

(B) HEAD-OF-WALL JOINT SYSTEM FIRESTOPPING AT JOINTS BETWEEN FIRE-RATED WALL ASSEMBLIES AND NON-RATED HORIZONTAL ASSEMBLIES: USE SYSTEM THAT HAS BEEN TESTED ACCORDING TO ASTM E2837 TO HAVE FIRE RESISTANCE F RATING EQUAL TO REQUIRED FIRE RATING OF FLOOR OR WALL, WHICHEVER IS GREATER.

1. MOVEMENT: PROVIDE SYSTEMS THAT HAVE BEEN TESTED TO SHOW MOVEMENT CAPABILITY AS INDICATED.

(C) FLOOR-TO-FLOOR, WALL-TO-WALL, AND WALL-TO-FLOOR JOINTS, EXCEPT PERIMETER, WHERE BOTH ARE FIRE-RATED: USE SYSTEM THAT HAS BEEN TESTED ACCORDING TO ASTM E1966 OR UL 2079 TO HAVE FIRE RESISTANCE F RATING EQUAL TO REQUIRED FIRE RATING OF THE ASSEMBLY IN WHICH THE JOINT OCCURS.

1. MOVEMENT: PROVIDE SYSTEMS THAT HAVE BEEN TESTED TO SHOW MOVEMENT CAPABILITY AS INDICATED.

2. AIR LEAKAGE: PROVIDE SYSTEMS THAT HAVE BEEN TESTED TO SHOW L RATING AS INDICATED.

3. WATERTIGHTNESS: PROVIDE SYSTEMS THAT HAVE BEEN TESTED TO SHOW W RATING AS INDICATED.

4. LISTING BY FM (AG), ITS (DIR), UL (DIR), OR UL (FRD) IN THEIR CERTIFICATION DIRECTORIES WILL BE CONSIDERED EVIDENCE OF SUCCESSFUL TESTING.

(D) THROUGH PENETRATION FIRESTOPPING: USE SYSTEM THAT HAS BEEN TESTED ACCORDING TO ASTM E814 TO HAVE FIRE RESISTANCE F RATING EQUAL TO REQUIRED FIRE RATING OF PENETRATED ASSEMBLY.

1. TEMPERATURE RISE: PROVIDE SYSTEMS THAT HAVE BEEN TESTED TO SHOW T RATING AS INDICATED.

2. AIR LEAKAGE: PROVIDE SYSTEMS THAT HAVE BEEN TESTED TO SHOW L RATING AS INDICATED.

3. WATERTIGHTNESS: PROVIDE SYSTEMS THAT HAVE BEEN TESTED TO SHOW W RATING AS INDICATED.

4. LISTING BY FM (AG), ITS (DIR), UL (DIR), OR UL (FRD) IN THEIR CERTIFICATION DIRECTORIES WILL BE CONSIDERED EVIDENCE OF SUCCESSFUL TESTING.

2.4 FIRESTOPPING FOR PERIMETER CONTAINMENT

(A) PERIMETER JOINT SYSTEMS THAT HAVE NOT BEEN TESTED FOR MOVEMENT CAPABILITIES (STATIC):

1. 2 HOUR CONSTRUCTION: UL SYSTEM CW-S-0002; SPECIFIED TECHNOLOGIES INC. AS200 ELASTOMERIC SPRAY.

2. 2 HOUR CONSTRUCTION: UL SYSTEM CW-S-0002; SPECIFIED TECHNOLOGIES INC. FAST TACK FIRESTOP SPRAY.

3. 2 HOUR CONSTRUCTION: UL SYSTEM CW-S-0003; SPECIFIED TECHNOLOGIES INC. FAST TACK FIRESTOP SPRAY.

4. 2 HOUR CONSTRUCTION: UL SYSTEM CW-S-0007; SPECIFIED TECHNOLOGIES INC. SPEEDFLEX TTG TRACK TOP GASKET.

(B) PERIMETER JOINT SYSTEMS THAT HAVE MOVEMENT CAPABILITIES (DYNAMIC):

1. 2 HOUR CONSTRUCTION: UL SYSTEM CW-D-1004; SPECIFIED TECHNOLOGIES INC. AS200 ELASTOMERIC SPRAY.

2. 2 HOUR CONSTRUCTION: UL SYSTEM CW-D-1004; SPECIFIED TECHNOLOGIES INC. FAST TACK FIRESTOP SPRAY.

3. 2 HOUR CONSTRUCTION: UL SYSTEM CW-D-1011; SPECIFIED TECHNOLOGIES INC. FAST TACK FIRESTOP SPRAY.

4. 2 HOUR CONSTRUCTION: UL SYSTEM CW-D-2042; SPECIFIED TECHNOLOGIES INC. FAST TACK FIRESTOP SPRAY.

2.5 FIRESTOPPING FOR FLOOR-TO-FLOOR, WALL-TO-FLOOR, AND WALL-TO-WALL JOINTS

(A) CONCRETE AND CONCRETE MASONRY WALLS AND FLOORS:

1. FLOOR TO FLOOR JOINTS:

a. 2 HOUR CONSTRUCTION: UL SYSTEM FF-D-1013; HILTI CFS-SP WB FIRESTOP JOINT SPRAY AND CP 672.

b. 2 HOUR CONSTRUCTION: UL SYSTEM FF-D-1085; TREMCO, TREMSTOP ACRYLIC FIRESTOP SEALANT.

2. CONCRETE/CONCRETE MASONRY WALL TO WALL JOINT SYSTEMS THAT HAVE MOVEMENT CAPABILITIES (DYNAMIC):

a. 2 HOUR CONSTRUCTION: UL SYSTEM WW-D-1077; TREMCO, TREMSTOP ACRYLIC FIRESTOP SEALANT.

b. 2 HOUR CONSTRUCTION: UL SYSTEM WW-D-0017; HILTI CFS-SP WB FIRESTOP JOINT SPRAY AND CP 672.

c. 2 HOUR CONSTRUCTION: UL SYSTEM WW-D-0032; HILTI CP 606 FLEXIBLE FIRESTOP SEALANT.

(B) GYPSUM BOARD WALLS:

1. WALL TO WALL JOINTS THAT HAVE NOT BEEN TESTED FOR MOVEMENT CAPABILITIES (STATIC):

a. 2 HOUR CONSTRUCTION: UL SYSTEM WW-S-0063; SPECIFIED TECHNOLOGIES INC. SPEEDFLEX TTG TRACK TOP GASKET.

b. 1 HOUR CONSTRUCTION: UL SYSTEM WW-S-0063; SPECIFIED TECHNOLOGIES INC. SPEEDFLEX TTG TRACK TOP GASKET.

2. WALL TO WALL JOINTS THAT HAVE MOVEMENT CAPABILITIES (DYNAMIC):

a. 2 HOUR CONSTRUCTION: UL SYSTEM WW-D-0180; SPECIFIED TECHNOLOGIES INC. SPEEDFLEX TTG TRACK TOP GASKET.

b. 2 HOUR CONSTRUCTION: UL SYSTEM WW-D-0067; HILTI CP 606 FLEXIBLE FIRESTOP SEALANT.

c. 1 HOUR CONSTRUCTION: UL SYSTEM WW-D-0067; HILTI CP 606 FLEXIBLE FIRESTOP SEALANT.

2.6 FIRESTOPPING FOR FLOOR-TO-WALL JOINTS

(A) FLOOR-TO-WALL JOINT SYSTEM THAT HAVE MOVEMENT CAPABILITIES (DYNAMIC):

1. 2 HOUR CONSTRUCTION: UL SYSTEM FW-D-1069; TREMCO, TREMSTOP ACRYLIC FIRESTOP SEALANT.

2.7 FIRESTOPPING PENETRATIONS THROUGH CONCRETE AND CONCRETE MASONRY CONSTRUCTION

(A) BLANK OPENINGS:

1. IN FLOORS OR WALLS:

a. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-0090; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

b. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-0015; SPECIFIED TECHNOLOGIES INC. SSM MORTAR.

c. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-0116; SPECIFIED TECHNOLOGIES INC. COMPOSITE SHEET.

d. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-0136; SPECIFIED TECHNOLOGIES INC. SSM MORTAR.

(B) PENETRATIONS THROUGH FLOORS OR WALLS BY:

1. MULTIPLE PENETRATIONS IN LARGE OPENINGS:

a. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-8143; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

b. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-8035; SPECIFIED TECHNOLOGIES INC. SSM MORTAR.

c. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-8055; SPECIFIED TECHNOLOGIES INC. SSP FIRESTOP PUTTY.

d. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-8093; SPECIFIED TECHNOLOGIES INC. SSB INTUMESCENT FIRESTOP PILLOWS.

e. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-8114; SPECIFIED TECHNOLOGIES INC. SSM MORTAR.

f. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-8115; SPECIFIED TECHNOLOGIES INC. SSM MORTAR.

g. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-8181; SPECIFIED TECHNOLOGIES INC. COMPOSITE SHEET.

h. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-8220; SPECIFIED TECHNOLOGIES INC. SSM MORTAR.

2. BATHTUB DRAINS:

a. UP TO 3 HOUR CONSTRUCTION: UL SYSTEM F-A-1037, F-A-1038, F-A-2094, OR F-A-2095; HILTI CP 681 TUB BOX KIT.

3. UNINSULATED METALLIC PIPE, CONDUIT, AND TUBING:

a. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-1090; SPECIFIED TECHNOLOGIES INC. SSP FIRESTOP PUTTY.

b. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-1198; SPECIFIED TECHNOLOGIES INC. SIL SILICONE SEALANT.

c. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-1226; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

d. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-1240; SPECIFIED TECHNOLOGIES INC. LC ENDOTHERMIC FIRESTOP SEALANT.

e. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-1425; HILTI CFS-S SIL GG FIRESTOP SILICONE SEALANT GUN-GRADE.

4. UNINSULATED NON-METALLIC PIPE, CONDUIT, AND TUBING:

a. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-2167; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

b. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-2109; HILTI CP 643N/644 FIRESTOP COLLAR.

c. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-2106; SPECIFIED TECHNOLOGIES INC. SSW WRAP STRIPS.

d. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-2282; SPECIFIED TECHNOLOGIES INC. SSW WRAP STRIPS.

e. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-2297; SPECIFIED TECHNOLOGIES INC. SSC COLLARS.

f. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-2297; SPECIFIED TECHNOLOGIES INC. SSW WRAP STRIPS.

g. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-2298; SPECIFIED TECHNOLOGIES INC. LCC INTUMESCENT FIRESTOP COLLARS.

h. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-2588; SPECIFIED TECHNOLOGIES INC. RTC RANGE-TAKING COLLAR.

i. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-2772; SPECIFIED TECHNOLOGIES INC. SSW WRAP STRIPS.

j. 2 HOUR CONSTRUCTION: UL SYSTEM C-BJ-2021; HILTI CP 643N FIRESTOP COLLAR.

5. ELECTRICAL CABLES NOT IN CONDUIT:

a. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-3213; SPECIFIED TECHNOLOGIES INC. LCC INTUMESCENT FIRESTOP COLLARS.

b. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-3213; SPECIFIED TECHNOLOGIES INC. SSC COLLARS.

c. 2 HOUR CONSTRUCTION: UL SYSTEM W-J-3046; SPECIFIED TECHNOLOGIES INC. SSP FIRESTOP PUTTY.

d. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-3154; SPECIFIED TECHNOLOGIES INC. SSP FIRESTOP PUTTY.

e. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-3216; HILTI CFS-PL FIRESTOP PLUG.

f. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-3283; HILTI CP653 SPEED SLEEVE.

g. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-3283; HILTI CP653 SPEED SLEEVE.

h. 2 HOUR CONSTRUCTION: UL SYSTEM W-J-3198; HILTI CFS-SL RK RETROFIT SLEEVE KIT FOR EXISTING CABLES.

i. 2 HOUR CONSTRUCTION: UL SYSTEM W-J-3199; HILTI CFS-SL SK FIRESTOP SLEEVE KIT.

6. CABLE TRAYS WITH ELECTRICAL CABLES:

a. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-4094; HILTI CFS-BL FIRESTOP BLOCK.

7. ELECTRICAL BUSWAYS:

8. INSULATED PIPES:

   a. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-5048; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT, CP 606 FLEXIBLE FIRESTOP SEALANT, CP 601S ELASTOMERIC FIRESTOP SEALANT, CP 604 SELF-LEVELING FIRESTOP SEALANT OR CFS-S SIL GG FIRESTOP SILICONE SEALANT GUN-GRADE.

   b. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-5087; SPECIFIED TECHNOLOGIES INC. SSS INTUMESCENT FIRESTOP SEALANT.

   c. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-5091; HILTI FS-ONE IMAX INTUMESCENT FIRESTOP SEALANT.

   d. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-5138; SPECIFIED TECHNOLOGIES INC. LCI INTUMESCENT FIRESTOP SEALANT.

   e. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-5313; SPECIFIED TECHNOLOGIES INC. LC ENDOTHERMIC FIRESTOP SEALANT.

9. HVAC DUCTS, UNINSULATED:

   a. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-7111; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

(C) PENETRATIONS THROUGH FLOORS BY:

1. MULTIPLE PENETRATIONS IN LARGE OPENINGS:

   a. 2 HOUR CONSTRUCTION: UL SYSTEM F-A-8012; HILTI CFS-S SIL GG FIRESTOP SILICONE SEALANT GUN-GRADE OR CFS-S SIL SL FIRESTOP SILICONE SEALANT SELF-LEVELING.

2. UNINSULATED METALLIC PIPE, CONDUIT, AND TUBING:

   a. 2 HOUR CONSTRUCTION: UL SYSTEM F-A-1016; HILTI CP 680-P/M CAST-IN DEVICE.

   b. 2 HOUR CONSTRUCTION: UL SYSTEM F-A-1110; SPECIFIED TECHNOLOGIES INC. CID CAST-IN DEVICES.

   c. 2 HOUR CONSTRUCTION: UL SYSTEM F-A-1129; SPECIFIED TECHNOLOGIES INC. CLOSET FLANGE FIRESTOP GASKET.

3. UNINSULATED NON-METALLIC PIPE, CONDUIT, AND TUBING:

   a. 2 HOUR CONSTRUCTION: UL SYSTEM F-A-2065; HILTI CP 680-P CAST-IN DEVICE.

   b. 2 HOUR CONSTRUCTION: UL SYSTEM F-A-2213; HILTI CFS-DID DROP-IN DEVICE.

   c. 2 HOUR CONSTRUCTION: UL SYSTEM F-A-2053; HILTI CP 680-P CAST-IN DEVICE.

   d. 2 HOUR CONSTRUCTION: UL SYSTEM F-A-2216; SPECIFIED TECHNOLOGIES INC. CLOSET FLANGE FIRESTOP GASKET.

   e. 2 HOUR CONSTRUCTION: UL SYSTEM F-A-2246; SPECIFIED TECHNOLOGIES INC. CID CAST-IN DEVICES.

4. ELECTRICAL CABLES NOT IN CONDUIT:

   a. 2 HOUR CONSTRUCTION: UL SYSTEM F-A-3033; HILTI CP 680-P/M CAST-IN DEVICE.

   b. 2 HOUR CONSTRUCTION: UL SYSTEM F-A-3032; SPECIFIED TECHNOLOGIES INC. READY SPLIT SLEEVE.

   c. 2 HOUR CONSTRUCTION: UL SYSTEM F-A-3058; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 44 FIRE-RATED PATHWAY.

5. ELECTRICAL BUSWAYS:

   a. 2 HOUR CONSTRUCTION: UL SYSTEM F-A-6002; HILTI CP 604 SELF-LEVELING FIRESTOP SEALANT.

6. INSULATED PIPES:

   a. 2 HOUR CONSTRUCTION: UL SYSTEM F-A-5015; HILTI CP 680-P/M CAST-IN DEVICE.

   b. 2 HOUR CONSTRUCTION: UL SYSTEM F-A-5017; HILTI CP 680-P/M CAST-IN DEVICE.

   c. 2 HOUR CONSTRUCTION: UL SYSTEM F-A-5041; SPECIFIED TECHNOLOGIES INC. CID CAST-IN DEVICES.

   d. 2 HOUR CONSTRUCTION: UL SYSTEM F-A-5045; SPECIFIED TECHNOLOGIES INC. CID CAST-IN DEVICES.

(D) PENETRATIONS THROUGH WALLS BY:

1. UNINSULATED METALLIC PIPE, CONDUIT, AND TUBING:

   a. 2 HOUR CONSTRUCTION: UL SYSTEM W-J-1067; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

   b. 1 HOUR CONSTRUCTION: UL SYSTEM W-J-1067; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

2. ELECTRICAL CABLES NOT IN CONDUIT:

   a. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-3095; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

   b. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-3216; HILTI CFS-PL FIRESTOP PLUG.

   c. 2 HOUR CONSTRUCTION: UL SYSTEM W-J-3090; SPECIFIED TECHNOLOGIES INC. SSP FIRESTOP PUTTY.

   d. 2 HOUR CONSTRUCTION: UL SYSTEM W-J-3098; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 33 FIRE-RATED PATHWAY.

   e. 2 HOUR CONSTRUCTION: UL SYSTEM W-J-3130; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 22 FIRE-RATED PATHWAY.

f. 2 HOUR CONSTRUCTION: UL SYSTEM W-J-3138; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 33 FIRE-RATED PATHWAY.

g. 2 HOUR CONSTRUCTION: UL SYSTEM W-J-3141; SPECIFIED TECHNOLOGIES INC. READY-SLEEVE.

h. 2 HOUR CONSTRUCTION: UL SYSTEM W-J-3156; SPECIFIED TECHNOLOGIES INC. READY SPLIT SLEEVE.

i. 2 HOUR CONSTRUCTION: UL SYSTEM W-J-3158; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 44 FIRE-RATED PATHWAY.

j. 2 HOUR CONSTRUCTION: UL SYSTEM W-J-3180; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 44 FIRE-RATED PATHWAY.

k. 2 HOUR CONSTRUCTION: UL SYSTEM W-J-3182; SPECIFIED TECHNOLOGIES INC. READY SPLIT SLEEVE.

l. 2 HOUR CONSTRUCTION: UL SYSTEM W-J-3182; SPECIFIED TECHNOLOGIES INC. READY-SLEEVE.

3. INSULATED PIPES:

a. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-5090; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

b. 2 HOUR CONSTRUCTION: UL SYSTEM C-AJ-5091; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

c. 1 HOUR CONSTRUCTION: UL SYSTEM C-AJ-5090; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

d. 1 HOUR CONSTRUCTION: UL SYSTEM C-AJ-5091; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

4. HVAC DUCTS, UNINSULATED:

a. 2 HOUR CONSTRUCTION: UL SYSTEM W-J-7092; SPECIFIED TECHNOLOGIES INC. FYREFLANGE HVAC FIRESTOP ANGLE.

b. 2 HOUR CONSTRUCTION: UL SYSTEM W-J-7109; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT OR CP 606 FLEXIBLE FIRESTOP SEALANT.

5. HVAC DUCTS, INSULATED:

a. 2 HOUR CONSTRUCTION: UL SYSTEM W-J-7112; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

2.8 FIRESTOPPING PENETRATIONS THROUGH FRAMED FLOORS

(A) METALLIC PIPE, CONDUIT, AND TUBING PENETRATIONS IN FRAMED FLOORS:

1. 1 HOUR CONSTRUCTION: UL SYSTEM F-C-1053; SPECIFIED TECHNOLOGIES INC. WF300 INTUMESCENT FIRESTOP CAULK (FOR WOOD FRAME CONSTRUCTION).

2. 1 HOUR CONSTRUCTION: UL SYSTEM F-C-1162; SPECIFIED TECHNOLOGIES INC. CLOSET FLANGE FIRESTOP GASKET.

(B) NON-METALLIC PIPE, CONDUIT OR TUBING IN FRAMED FLOORS:

1. 2 HOUR CONSTRUCTION: UL SYSTEM F-C-2020; SPECIFIED TECHNOLOGIES INC. LCC INTUMESCENT FIRESTOP COLLARS.

2. 2 HOUR CONSTRUCTION: UL SYSTEM F-C-2020; SPECIFIED TECHNOLOGIES INC. SSC COLLARS.

3. 2 HOUR CONSTRUCTION: UL SYSTEM F-C-2348; SPECIFIED TECHNOLOGIES INC. RTC RANGE-TAKING COLLAR.

4. 2 HOUR CONSTRUCTION: UL SYSTEM F-C-2402; SPECIFIED TECHNOLOGIES INC. CLOSET FLANGE FIRESTOP GASKET.

5. 1 HOUR CONSTRUCTION: UL SYSTEM F-C-2014; SPECIFIED TECHNOLOGIES INC. WF300 INTUMESCENT FIRESTOP CAULK (FOR WOOD FRAME CONSTRUCTION).

6. 1 HOUR CONSTRUCTION: UL SYSTEM F-C-2020; SPECIFIED TECHNOLOGIES INC. LCC INTUMESCENT FIRESTOP COLLARS.

7. 1 HOUR CONSTRUCTION: UL SYSTEM F-C-2020; SPECIFIED TECHNOLOGIES INC. SSC COLLARS.

8. 1 HOUR CONSTRUCTION: UL SYSTEM F-C-2348; SPECIFIED TECHNOLOGIES INC. RTC RANGE-TAKING COLLAR.

9. 1 HOUR CONSTRUCTION: UL SYSTEM F-C-2402; SPECIFIED TECHNOLOGIES INC. CLOSET FLANGE FIRESTOP GASKET.

(C) ELECTRICAL CABLE IN FRAMED FLOORS:

1. 1 HOUR CONSTRUCTION: UL SYSTEM F-C-3010; SPECIFIED TECHNOLOGIES INC. WF300 INTUMESCENT FIRESTOP CAULK (FOR WOOD FRAME CONSTRUCTION).

(D) INSULATED PIPE IN FRAMED FLOORS:

1. 1 HOUR CONSTRUCTION: UL SYSTEM F-C-5043; SPECIFIED TECHNOLOGIES INC. WF300 INTUMESCENT FIRESTOP CAULK (FOR WOOD FRAME CONSTRUCTION).

2.9 FIRESTOPPING PENETRATIONS THROUGH GYPSUM BOARD WALLS

(A) BLANK OPENINGS:

1. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-0020; SPECIFIED TECHNOLOGIES INC. COMPOSITE SHEET.

2. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-0032; SPECIFIED TECHNOLOGIES INC. FP INTUMESCENT FIRESTOP PLUG.

3. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-0038; SPECIFIED TECHNOLOGIES INC. FP INTUMESCENT FIRESTOP PLUG.

4. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3334; HILTI CP 653 SPEED SLEEVE.

5. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-0020; SPECIFIED TECHNOLOGIES INC. COMPOSITE SHEET.

6. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-0032; SPECIFIED TECHNOLOGIES INC. FP INTUMESCENT FIRESTOP PLUG.

7. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-0038; SPECIFIED TECHNOLOGIES INC. FP INTUMESCENT FIRESTOP PLUG.

8. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3334; HILTI CP 653 SPEED SLEEVE.

(B) PENETRATIONS BY:

1. MULTIPLE PENETRATIONS IN LARGE OPENINGS:

   a. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-1408; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

   b. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-8013; HILTI CFS-BL FIRESTOP BLOCK.

   c. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-8025; SPECIFIED TECHNOLOGIES INC. LCI INTUMESCENT FIRESTOP SEALANT.

   d. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-8050; SPECIFIED TECHNOLOGIES INC. SSB INTUMESCENT FIRESTOP PILLOWS.

   e. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-8071; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

   f. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-8073; SPECIFIED TECHNOLOGIES INC. COMPOSITE SHEET.

   g. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-8079; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

   h. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-1408; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

   i. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-8013; HILTI CFS-BL FIRESTOP BLOCK.

   j. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-8025; SPECIFIED TECHNOLOGIES INC. LCI INTUMESCENT FIRESTOP SEALANT.

   k. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-8050; SPECIFIED TECHNOLOGIES INC. SSB INTUMESCENT FIRESTOP PILLOWS.

   l. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-8071; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

   m. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-8073; SPECIFIED TECHNOLOGIES INC. COMPOSITE SHEET.

   n. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-8079; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

2. UNINSULATED METALLIC PIPE, CONDUIT, AND TUBING:

   a. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-1033; SPECIFIED TECHNOLOGIES INC. SIL SILICONE SEALANT.

   b. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-1042; SPECIFIED TECHNOLOGIES INC. WF300 INTUMESCENT FIRESTOP CAULK (FOR WOOD FRAME CONSTRUCTION).

   c. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-1049; SPECIFIED TECHNOLOGIES INC. SSS INTUMESCENT FIRESTOP SEALANT.

   d. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-1090; SPECIFIED TECHNOLOGIES INC. LC ENDOTHERMIC FIRESTOP SEALANT.

   e. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-1054; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

   f. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-1164; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

   g. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-1222; SPECIFIED TECHNOLOGIES INC. LCI INTUMESCENT FIRESTOP SEALANT.

   h. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-1477; SPECIFIED TECHNOLOGIES INC. EZ FIRESTOP GROMMET.

   i. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-1506; HILTI CFS-D FIRESTOP CABLE DISC.

   j. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-1042; SPECIFIED TECHNOLOGIES INC. WF300 INTUMESCENT FIRESTOP CAULK (FOR WOOD FRAME CONSTRUCTION).

   k. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-1049; SPECIFIED TECHNOLOGIES INC. SSS INTUMESCENT FIRESTOP SEALANT.

   l. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-1054; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

   m. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-1090; SPECIFIED TECHNOLOGIES INC. LC ENDOTHERMIC FIRESTOP SEALANT.

   n. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-1164; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

   o. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-1222; SPECIFIED TECHNOLOGIES INC. LCI INTUMESCENT FIRESTOP SEALANT.

   p. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-1477; SPECIFIED TECHNOLOGIES INC. EZ FIRESTOP GROMMET.

   q. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-1506; HILTI CFS-D FIRESTOP CABLE DISC.

3. UNINSULATED NON-METALLIC PIPE, CONDUIT, AND TUBING:

a. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-2048; SPECIFIED TECHNOLOGIES INC. SSW WRAP STRIPS.

b. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-2074; SPECIFIED TECHNOLOGIES INC. SSC COLLARS.

c. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-2078; HILTI CP 643N/644 FIRESTOP COLLAR.

d. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-2128; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

e. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-2237; SPECIFIED TECHNOLOGIES INC. LCC INTUMESCENT FIRESTOP COLLARS.

f. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-2241; SPECIFIED TECHNOLOGIES INC. WF300 INTUMESCENT FIRESTOP CAULK (FOR WOOD FRAME CONSTRUCTION).

g. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-2243; SPECIFIED TECHNOLOGIES INC. SSW WRAP STRIPS.

h. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-2493; SPECIFIED TECHNOLOGIES INC. RTC RANGE-TAKING COLLAR.

i. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-2048; SPECIFIED TECHNOLOGIES INC. SSW WRAP STRIPS.

j. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-2074; SPECIFIED TECHNOLOGIES INC. SSC COLLARS.

k. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-2078; HILTI CP 643N/644 FIRESTOP COLLAR.

l. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-2128; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

m. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-2237; SPECIFIED TECHNOLOGIES INC. LCC INTUMESCENT FIRESTOP COLLARS.

n. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-2241; SPECIFIED TECHNOLOGIES INC. WF300 INTUMESCENT FIRESTOP CAULK (FOR WOOD FRAME CONSTRUCTION).

o. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-2243; SPECIFIED TECHNOLOGIES INC. SSW WRAP STRIPS.

p. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-2493; SPECIFIED TECHNOLOGIES INC. RTC RANGE-TAKING COLLAR.

4. ELECTRICAL CABLES NOT IN CONDUIT:

a. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3024; SPECIFIED TECHNOLOGIES INC. SSP FIRESTOP PUTTY.

b. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3065; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT, CP 606 FLEXIBLE FIRESTOP SEALANT, CD 601S ELASTOMERIC FIRESTOP SEALANT, OR CP 618 FIRESTOP PUTTY STICK.

c. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3076; SPECIFIED TECHNOLOGIES INC. SSS INTUMESCENT FIRESTOP SEALANT.

d. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3084; SPECIFIED TECHNOLOGIES INC. SSB INTUMESCENT FIRESTOP PILLOWS.

e. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3135; SPECIFIED TECHNOLOGIES INC. SSP FIRESTOP PUTTY.

f. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3169; SPECIFIED TECHNOLOGIES INC. LCI INTUMESCENT FIRESTOP SEALANT.

g. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3218; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 33 FIRE-RATED PATHWAY.

h. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3255; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 22 FIRE-RATED PATHWAY.

i. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3256; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 22 FIRE-RATED PATHWAY.

j. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3265; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 33 FIRE-RATED PATHWAY.

k. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3303; SPECIFIED TECHNOLOGIES INC. READY SPLIT SLEEVE.

l. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3306; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 44 FIRE-RATED PATHWAY.

m. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3334; HILTI CP 653 SPEED SLEEVE.

n. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3350; SPECIFIED TECHNOLOGIES INC. LC ENDOTHERMIC FIRESTOP SEALANT.

o. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3357; SPECIFIED TECHNOLOGIES INC. FP INTUMESCENT FIRESTOP PLUG.

p. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3358; SPECIFIED TECHNOLOGIES INC. READY SPLIT SLEEVE.

q. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3358; SPECIFIED TECHNOLOGIES INC. READY-SLEEVE.

r. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3369; SPECIFIED TECHNOLOGIES INC. EZ FIRESTOP GROMMET.

s. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3370; SPECIFIED TECHNOLOGIES INC. EZ FIRESTOP GROMMET.

t. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3374; SPECIFIED TECHNOLOGIES INC. FP INTUMESCENT FIRESTOP PLUG.

u. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3376; SPECIFIED TECHNOLOGIES INC. READY-SLEEVE.

v. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3377; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 22 FIRE-RATED PATHWAY.

w. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3377; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 33 FIRE-RATED PATHWAY.

x. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3378; SPECIFIED TECHNOLOGIES INC. EZ FIRESTOP GROMMET.

y. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3379; SPECIFIED TECHNOLOGIES INC. EZ FIRESTOP GROMMET.

z. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3390; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 44 FIRE-RATED PATHWAY.

aa. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3393; HILTI CFS-SL RK RETROFIT SLEEVE KIT FOR EXISTING CABLES.

ab. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3395; HILTI CP653 SPEED SLEEVE.

ac. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-3414; HILTI CFS-D FIRESTOP CABLE DISC.

ad. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3024; SPECIFIED TECHNOLOGIES INC. SSP FIRESTOP PUTTY.

ae. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3065; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT, CP 606 FLEXIBLE FIRESTOP SEALANT, CD 601S ELASTOMERIC FIRESTOP SEALANT, OR CP 618 FIRESTOP PUTTY STICK.

af. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3076; SPECIFIED TECHNOLOGIES INC. SSS INTUMESCENT FIRESTOP SEALANT.

ag. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3084; SPECIFIED TECHNOLOGIES INC. SSB INTUMESCENT FIRESTOP PILLOWS.

ah. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3135; SPECIFIED TECHNOLOGIES INC. SSP FIRESTOP PUTTY.

ai. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3169; SPECIFIED TECHNOLOGIES INC. LCI INTUMESCENT FIRESTOP SEALANT.

aj. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3218; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 33 FIRE-RATED PATHWAY.

ak. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3255; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 22 FIRE-RATED PATHWAY.

al. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3256; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 22 FIRE-RATED PATHWAY.

am. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3265; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 33 FIRE-RATED PATHWAY.

an. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3303; SPECIFIED TECHNOLOGIES INC. READY SPLIT SLEEVE.

ao. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3306; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 44 FIRE-RATED PATHWAY.

ap. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3334; HILTI CP 653 SPEED SLEEVE.

aq. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3350; SPECIFIED TECHNOLOGIES INC. LC ENDOTHERMIC FIRESTOP SEALANT.

ar. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3357; SPECIFIED TECHNOLOGIES INC. FP INTUMESCENT FIRESTOP PLUG.

as. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3358; SPECIFIED TECHNOLOGIES INC. READY SPLIT SLEEVE.

at. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3358; SPECIFIED TECHNOLOGIES INC. READY-SLEEVE.

au. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3369; SPECIFIED TECHNOLOGIES INC. EZ FIRESTOP GROMMET.

av. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3370; SPECIFIED TECHNOLOGIES INC. EZ FIRESTOP GROMMET.

aw. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3374; SPECIFIED TECHNOLOGIES INC. FP INTUMESCENT FIRESTOP PLUG.

ax. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3376; SPECIFIED TECHNOLOGIES INC. READY-SLEEVE.

ay. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3377; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 22 FIRE-RATED PATHWAY.

b`. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3377; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 33 FIRE-RATED PATHWAY.

ba. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3378; SPECIFIED TECHNOLOGIES INC. EZ FIRESTOP GROMMET.

bb. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3379; SPECIFIED TECHNOLOGIES INC. EZ FIRESTOP GROMMET.

bc. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3390; SPECIFIED TECHNOLOGIES INC. EZ-PATH SERIES 44 FIRE-RATED PATHWAY.

bd. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3393; HILTI CFS-SL RK RETROFIT SLEEVE KIT FOR EXISTING CABLES.

be. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-3414; HILTI CFS-D FIRESTOP CABLE DISC.

5. CABLE TRAYS WITH ELECTRICAL CABLES:

    a. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-4008; SPECIFIED TECHNOLOGIES INC. SSB INTUMESCENT FIRESTOP PILLOWS.

    b. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-4011; HILTI CFS-BL FIRESTOP BLOCK.

    c. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-4060; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

    d. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-4008; SPECIFIED TECHNOLOGIES INC. SSB INTUMESCENT FIRESTOP PILLOWS.

    e. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-4011; HILTI CFS-BL FIRESTOP BLOCK.

    f. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-4060; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

6. INSULATED PIPES:

    a. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-5014; SPECIFIED TECHNOLOGIES INC. SSS INTUMESCENT FIRESTOP SEALANT.

    b. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-5028; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

    c. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-5029; HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT.

    d. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-5121; SPECIFIED TECHNOLOGIES INC. LCI INTUMESCENT FIRESTOP SEALANT.

    e. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-5273; SPECIFIED TECHNOLOGIES INC. LC ENDOTHERMIC FIRESTOP SEALANT.

    f. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-5298; SPECIFIED TECHNOLOGIES INC. WF300 INTUMESCENT FIRESTOP CAULK (FOR WOOD FRAME CONSTRUCTION).

    g. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-5014; SPECIFIED TECHNOLOGIES INC. SSS INTUMESCENT FIRESTOP SEALANT.

    h. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-5028; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

    i. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-5029; HILTI FS-ONE INTUMESCENT FIRESTOP SEALANT.

    j. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-5121; SPECIFIED TECHNOLOGIES INC. LCI INTUMESCENT FIRESTOP SEALANT.

    k. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-5273; SPECIFIED TECHNOLOGIES INC. LC ENDOTHERMIC FIRESTOP SEALANT.

l. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-5298; SPECIFIED TECHNOLOGIES INC. WF300 INTUMESCENT FIRESTOP CAULK (FOR WOOD FRAME CONSTRUCTION).

7. HVAC DUCTS, INSULATED:

a. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-7156; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

b. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-7164; SPECIFIED TECHNOLOGIES INC. FYREFLANGE HVAC FIRESTOP ANGLE.

c. 2 HOUR CONSTRUCTION: UL SYSTEM W-L-7238; SPECIFIED TECHNOLOGIES INC. FYREFLANGE HVAC FIRESTOP ANGLE.

d. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-7164; SPECIFIED TECHNOLOGIES INC. FYREFLANGE HVAC FIRESTOP ANGLE.

e. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-7238; SPECIFIED TECHNOLOGIES INC. FYREFLANGE HVAC FIRESTOP ANGLE.

f. 1 HOUR CONSTRUCTION: UL SYSTEM W-L-7156; HILTI FS-ONE MAX INTUMESCENT FIRESTOP SEALANT.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY OPENINGS ARE READY TO RECEIVE THE WORK OF THIS SECTION.

3.2 PREPARATION

(A) CLEAN SUBSTRATE SURFACES OF DIRT, DUST, GREASE, OIL, LOOSE MATERIAL, OR OTHER MATERIALS THAT COULD ADVERSELY AFFECT BOND OF FIRESTOPPING MATERIAL.

(B) REMOVE INCOMPATIBLE MATERIALS THAT COULD ADVERSELY AFFECT BOND.

(C) INSTALL BACKING MATERIALS TO PREVENT LIQUID MATERIAL FROM LEAKAGE.

3.3 INSTALLATION

(A) INSTALL MATERIALS IN MANNER DESCRIBED IN FIRE TEST REPORT AND IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS, COMPLETELY CLOSING OPENINGS.

(B) DO NOT COVER INSTALLED FIRESTOPPING UNTIL INSPECTED BY AUTHORITIES HAVING JURISDICTION.

(C) INSTALL LABELING REQUIRED BY CODE.

3.4 FIELD QUALITY CONTROL

(A) INDEPENDENT TESTING AGENCY: INSPECTION AGENCY EMPLOYED AND PAID BY OWNER, WILL EXAMINE PENETRATION FIRESTOPPING IN ACCORDANCE WITH ASTM E2174, AND ASTM E2393.

(B) REPAIR OR REPLACE PENETRATION FIRESTOPPING AND JOINTS AT LOCATIONS WHERE INSPECTION RESULTS INDICATE FIRESTOPPING OR JOINTS DO NOT MEET SPECIFIED REQUIREMENTS.

3.5 CLEANING

(A) CLEAN ADJACENT SURFACES OF FIRESTOPPING MATERIALS.

3.6 PROTECTION

(A) PROTECT ADJACENT SURFACES FROM DAMAGE BY MATERIAL INSTALLATION.

END OF SECTION

SECTION 07 92 00 - JOINT SEALANTS

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) NONSAG GUNNABLE JOINT SEALANTS.

(B) SELF-LEVELING POURABLE JOINT SEALANTS.

(C) JOINT BACKINGS AND ACCESSORIES.

1.2 RELATED REQUIREMENTS

(A) SECTION 07 84 00 - FIRESTOPPING: FIRESTOPPING SEALANTS.

(B) SECTION 08 71 00 - DOOR HARDWARE: SETTING EXTERIOR DOOR THRESHOLDS IN SEALANT.

(C) SECTION 08 80 00 - GLAZING: GLAZING SEALANTS AND ACCESSORIES.

(D) SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES: SEALING ACOUSTICAL AND SOUND-RATED WALLS AND CEILINGS.

(E) SECTION 09 30 00 - TILING: SEALANT BETWEEN TILE AND PLUMBING FIXTURES AND AT JUNCTIONS WITH OTHER MATERIALS AND CHANGES IN PLANE.

1.3 REFERENCE STANDARDS

(A) ASTM C661 - STANDARD TEST METHOD FOR INDENTATION HARDNESS OF ELASTOMERIC-TYPE SEALANTS BY MEANS OF A DUROMETER; 2015.

(B) ASTM C794 - STANDARD TEST METHOD FOR ADHESION-IN-PEEL OF ELASTOMERIC JOINT SEALANTS; 2015A.

(C) ASTM C834 - STANDARD SPECIFICATION FOR LATEX SEALANTS; 2017.

(D) ASTM C919 - STANDARD PRACTICE FOR USE OF SEALANTS IN ACOUSTICAL APPLICATIONS; 2012 (REAPPROVED 2017).

(E) ASTM C920 - STANDARD SPECIFICATION FOR ELASTOMERIC JOINT SEALANTS; 2014A.

(F) ASTM C1087 - STANDARD TEST METHOD FOR DETERMINING COMPATIBILITY OF LIQUID-APPLIED SEALANTS WITH ACCESSORIES USED IN STRUCTURAL GLAZING SYSTEMS; 2016.

(G) ASTM C1193 - STANDARD GUIDE FOR USE OF JOINT SEALANTS; 2016.

(H) ASTM C1248 - STANDARD TEST METHOD FOR STAINING OF POROUS SUBSTRATE BY JOINT SEALANTS; 2008 (REAPPROVED 2012).

(I) ASTM C1311 - STANDARD SPECIFICATION FOR SOLVENT RELEASE SEALANTS; 2014.

(J) ASTM C1330 - STANDARD SPECIFICATION FOR CYLINDRICAL SEALANT BACKING FOR USE WITH COLD LIQUID-APPLIED SEALANTS; 2002 (REAPPROVED 2013).

(K) ASTM C1521 - STANDARD PRACTICE FOR EVALUATING ADHESION OF INSTALLED WEATHERPROOFING SEALANT JOINTS; 2013.

(L) ASTM D2240 - STANDARD TEST METHOD FOR RUBBER PROPERTY--DUROMETER HARDNESS; 2015.

(M) ASTM D412 - STANDARD TEST METHODS FOR VULCANIZED RUBBER AND THERMOPLASTIC ELASTOMERS--TENSION; 2016.

(N) SCAQMD 1168 - SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT RULE NO.1168; CURRENT EDITION.

(O) SWRI (VAL) - SWR INSTITUTE VALIDATED PRODUCTS DIRECTORY; CURRENT LISTINGS AT WWW.SWRIONLINE.ORG.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA FOR SEALANTS: SUBMIT MANUFACTURER'S TECHNICAL DATA SHEETS FOR EACH PRODUCT TO BE USED, THAT INCLUDES THE FOLLOWING.

1. PHYSICAL CHARACTERISTICS, INCLUDING MOVEMENT CAPABILITY, VOC CONTENT, HARDNESS, CURE TIME, AND COLOR AVAILABILITY.

2. LIST OF BACKING MATERIALS APPROVED FOR USE WITH THE SPECIFIC PRODUCT.

3. SUBSTRATES THAT PRODUCT IS KNOWN TO SATISFACTORILY ADHERE TO AND WITH WHICH IT IS COMPATIBLE.

4. SUBSTRATES THE PRODUCT SHOULD NOT BE USED ON.

5. SUBSTRATES FOR WHICH USE OF PRIMER IS REQUIRED.

6. SUBSTRATES FOR WHICH LABORATORY ADHESION AND/OR COMPATIBILITY TESTING IS REQUIRED.

7. INSTALLATION INSTRUCTIONS, INCLUDING PRECAUTIONS, LIMITATIONS, AND RECOMMENDED BACKING MATERIALS AND TOOLS.

8. SAMPLE PRODUCT WARRANTY.

9. CERTIFICATION BY MANUFACTURER INDICATING THAT PRODUCT COMPLIES WITH SPECIFICATION REQUIREMENTS.

10. SWRI VALIDATION: PROVIDE CURRENTLY AVAILABLE SEALANT PRODUCT VALIDATIONS AS LISTED BY SWRI (VAL) FOR SPECIFIED SEALANTS.

(C) PRODUCT DATA FOR ACCESSORY PRODUCTS: SUBMIT MANUFACTURER'S TECHNICAL DATA SHEET FOR EACH PRODUCT TO BE USED, INCLUDING PHYSICAL CHARACTERISTICS, INSTALLATION INSTRUCTIONS, AND RECOMMENDED TOOLS.

(D) COLOR CARDS FOR SELECTION: WHERE SEALANT COLOR IS NOT SPECIFIED, SUBMIT MANUFACTURER'S COLOR CARDS SHOWING STANDARD COLORS AVAILABLE FOR SELECTION.

(E) SAMPLES FOR VERIFICATION: WHERE CUSTOM SEALANT COLOR IS SPECIFIED, OBTAIN DIRECTIONS FROM ARCHITECT AND SUBMIT AT LEAST TWO PHYSICAL SAMPLES FOR VERIFICATION OF COLOR OF EACH REQUIRED SEALANT.

(F) PRECONSTRUCTION LABORATORY TEST REPORTS: SUBMIT AT LEAST FOUR WEEKS PRIOR TO START OF INSTALLATION.

(G) INSTALLATION PLAN: SUBMIT AT LEAST FOUR WEEKS PRIOR TO START OF INSTALLATION.

(H) PREINSTALLATION FIELD ADHESION TEST PLAN: SUBMIT AT LEAST TWO WEEKS PRIOR TO START OF INSTALLATION.

(I) FIELD QUALITY CONTROL PLAN: SUBMIT AT LEAST TWO WEEKS PRIOR TO START OF INSTALLATION.

(J) FIELD QUALITY CONTROL LOG: SUBMIT FILLED OUT LOG FOR EACH LENGTH OR INSTANCE OF SEALANT INSTALLED, WITHIN 10 DAYS AFTER COMPLETION OF INSPECTIONS/TESTS; INCLUDE BAGGED TEST SAMPLES AND PHOTOGRAPHIC RECORDS, IF ANY.

1.5 QUALITY ASSURANCE

(A) MAINTAIN ONE COPY OF EACH REFERENCED DOCUMENT COVERING INSTALLATION REQUIREMENTS ON SITE.

(B) MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE.

(C) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING THE WORK OF THIS SECTION AND WITH AT LEAST THREE YEARS OF DOCUMENTED EXPERIENCE.

(D) PRECONSTRUCTION LABORATORY TESTING: ARRANGE FOR SEALANT MANUFACTURER(S) TO TEST EACH COMBINATION OF SEALANT, SUBSTRATE, BACKING, AND ACCESSORIES.

1. ADHESION TESTING: IN ACCORDANCE WITH ASTM C794.

2. COMPATIBILITY TESTING: IN ACCORDANCE WITH ASTM C1087.

3. STAIN TESTING: IN ACCORDANCE WITH ASTM C1248; REQUIRED ONLY FOR STONE SUBSTRATES.

4. ALLOW SUFFICIENT TIME FOR TESTING TO AVOID DELAYING THE WORK.

5. DELIVER TO MANUFACTURER SUFFICIENT SAMPLES FOR TESTING.

6. REPORT MANUFACTURER'S RECOMMENDED CORRECTIVE MEASURES, IF ANY, INCLUDING PRIMERS OR TECHNIQUES NOT INDICATED IN PRODUCT DATA SUBMITTALS.

7. TESTING IS NOT REQUIRED IF SEALANT MANUFACTURER PROVIDES DATA SHOWING PREVIOUS TESTING, NOT OLDER THAN 24 MONTHS, THAT SHOWS SATISFACTORY ADHESION, LACK OF STAINING, AND COMPATIBILITY.

(E) INSTALLATION PLAN: INCLUDE SCHEDULE OF SEALED JOINTS, INCLUDING THE FOLLOWING.

1. JOINT WIDTH INDICATED IN CONTRACT DOCUMENTS.

2. JOINT DEPTH INDICATED IN CONTRACT DOCUMENTS; TO FACE OF BACKING MATERIAL AT CENTERLINE OF JOINT.

3. METHOD TO BE USED TO PROTECT ADJACENT SURFACES FROM SEALANT DROPPINGS AND SMEARS, WITH ACKNOWLEDGEMENT THAT SOME SURFACES CANNOT BE CLEANED TO LIKE-NEW CONDITION AND THEREFORE PREVENTION IS IMPERATIVE.

4. APPROXIMATE DATE OF INSTALLATION, FOR EVALUATION OF THERMAL MOVEMENT INFLUENCE.

5. INSTALLATION LOG FORM: INCLUDE THE FOLLOWING DATA FIELDS, WITH KNOWN INFORMATION FILLED OUT.

    a. UNIQUE IDENTIFICATION OF EACH LENGTH OR INSTANCE OF SEALANT INSTALLED.

    b. LOCATION ON PROJECT.

    c. SUBSTRATES.

    d. SEALANT USED.

    e. STATED MOVEMENT CAPABILITY OF SEALANT.

    f. PRIMER TO BE USED, OR INDICATE AS "NO PRIMER" USED.

    g. SIZE AND ACTUAL BACKING MATERIAL USED.

    h. DATE OF INSTALLATION.

    i. NAME OF INSTALLER.

    j. ACTUAL JOINT WIDTH; PROVIDE SPACE TO INDICATE MAXIMUM AND MINIMUM WIDTH.

    k. ACTUAL JOINT DEPTH TO FACE OF BACKING MATERIAL AT CENTERLINE OF JOINT.

    l. AIR TEMPERATURE.

(F) PREINSTALLATION FIELD ADHESION TEST PLAN: INCLUDE DESTRUCTIVE FIELD ADHESION TESTING OF ONE SAMPLE OF EACH COMBINATION OF SEALANT TYPE AND SUBSTRATE, EXCEPT INTERIOR ACRYLIC LATEX SEALANTS, AND INCLUDE THE FOLLOWING FOR EACH TESTED SAMPLE.

1. IDENTIFICATION OF TESTING AGENCY.

2. NAME(S) OF SEALANT MANUFACTURERS' FIELD REPRESENTATIVES WHO WILL BE OBSERVING

3. PREINSTALLATION FIELD ADHESION TEST LOG FORM: INCLUDE THE FOLLOWING DATA FIELDS, WITH KNOWN INFORMATION FILLED OUT.

    a. SUBSTRATE; IF MORE THAN ONE TYPE OF SUBSTRATE IS INVOLVED IN A SINGLE JOINT, PROVIDE TWO ENTRIES ON FORM, FOR TESTING EACH SEALANT SUBSTRATE SIDE SEPARATELY.

    b. TEST DATE.

    c. LOCATION ON PROJECT.

d. SEALANT USED.

e. STATED MOVEMENT CAPABILITY OF SEALANT.

f. TEST METHOD USED.

g. DATE OF INSTALLATION OF FIELD SAMPLE TO BE TESTED.

h. DATE OF TEST.

i. COPY OF TEST METHOD DOCUMENTS.

j. AGE OF SEALANT UPON DATE OF TESTING.

k. TEST RESULTS, MODELED AFTER THE SAMPLE FORM IN THE TEST METHOD DOCUMENT.

l. INDICATE USE OF PHOTOGRAPHIC RECORD OF TEST.

1.6 WARRANTY

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL WARRANTY REQUIREMENTS.

(B) CORRECT DEFECTIVE WORK WITHIN A FIVE YEAR PERIOD AFTER DATE OF SUBSTANTIAL COMPLETION.

(C) WARRANTY: INCLUDE COVERAGE FOR INSTALLED SEALANTS AND ACCESSORIES THAT FAIL TO ACHIEVE WATERTIGHT SEAL , EXHIBIT LOSS OF ADHESION OR COHESION, OR DO NOT CURE.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) NON-SAG SEALANTS: PERMITS APPLICATION IN JOINTS ON VERTICAL SURFACES WITHOUT SAGGING OR SLUMPING.

1. ADHESIVES TECHNOLOGY CORPORATION: WWW.ATCEPOXY.COM/#SLE.

2. BOSTIK INC: WWW.BOSTIK-US.COM/#SLE.

3. DOW CHEMICAL COMPANY: CONSUMER.DOW.COM/EN-US/INDUSTRY/IND-BUILDING-CONSTRUCTION.HTML/#SLE.

4. FORTIFIBER BUILDING SYSTEMS GROUP: WWW.FORTIFIBER.COM/#SLE.

5. FRANKLIN INTERNATIONAL, INC: WWW.TITEBOND.COM/#SLE.

6. HILTI, INC: WWW.US.HILTI.COM/#SLE.

7. MASTER BUILDERS SOLUTIONS BY BASF: WWW.MASTER-BUILDERS-SOLUTIONS.BASF.US/EN-US/#SLE.

8. MOMENTIVE PERFORMANCE MATERIALS, INC (FORMERLY GE SILICONES): WWW.MOMENTIVE.COM/#SLE.

9. PECORA CORPORATION: WWW.PECORA.COM/#SLE.

10. QUIKRETE COMPANIES: WWW.QUIKRETE.COM/#SLE.

11. SHERWIN-WILLIAMS COMPANY: WWW.SHERWIN-WILLIAMS.COM/#SLE.

12. SIKA CORPORATION: WWW.USA-SIKA.COM/#SLE.

13. SPECIFIED TECHNOLOGIES INC: WWW.STIFIRESTOP.COM/#SLE.

14. TREMCO COMMERCIAL SEALANTS & WATERPROOFING: WWW.TREMCOSEALANTS.COM/#SLE.

15. W.R. MEADOWS, INC: WWW.WRMEADOWS.COM/#SLE.

16. SUBSTITUTIONS: OR APPROVED EQUAL.

17. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) SELF-LEVELING SEALANTS: POURABLE OR SELF-LEVELING SEALANT THAT HAS SUFFICIENT FLOW TO FORM A SMOOTH, LEVEL SURFACE WHEN APPLIED IN A HORIZONTAL JOINT.

1. ADHESIVES TECHNOLOGY CORPORATION: WWW.ATCEPOXY.COM/#SLE.

2. BOSTIK INC: WWW.BOSTIK-US.COM/#SLE.

3. DAYTON SUPERIOR CORPORATION: WWW.DAYTONSUPERIOR.COM/#SLE.

4. DOW CHEMICAL COMPANY:
CONSUMER.DOW.COM/EN-US/INDUSTRY/IND-BUILDING-CONSTRUCTION.HTML/#SLE.

5. MASTER BUILDERS SOLUTIONS BY BASF:
WWW.MASTER-BUILDERS-SOLUTIONS.BASF.US/EN-US/#SLE.

6. PECORA CORPORATION: WWW.PECORA.COM/#SLE.

7. QUIKRETE COMPANIES: WWW.QUIKRETE.COM/#SLE.

8. SHERWIN-WILLIAMS COMPANY: WWW.SHERWIN-WILLIAMS.COM/#SLE.

9. SIKA CORPORATION: WWW.USA-SIKA.COM/#SLE.

10. TREMCO COMMERCIAL SEALANTS & WATERPROOFING: WWW.TREMCOSEALANTS.COM/#SLE.

11. W.R. MEADOWS, INC: WWW.WRMEADOWS.COM/#SLE.

12. SUBSTITUTIONS: OR APPROVED EQUAL.

13. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.2 JOINT SEALANT APPLICATIONS

(A) SCOPE:

1. EXTERIOR JOINTS: SEAL OPEN JOINTS, WHETHER OR NOT THE JOINT IS INDICATED ON DRAWINGS, UNLESS SPECIFICALLY INDICATED NOT TO BE SEALED. EXTERIOR JOINTS TO BE SEALED INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING ITEMS.

    a. WALL EXPANSION AND CONTROL JOINTS.

    b. JOINTS BETWEEN DOOR, WINDOW, AND OTHER FRAMES AND ADJACENT CONSTRUCTION.

    c. JOINTS BETWEEN DIFFERENT EXPOSED MATERIALS.

    d. OPENINGS BELOW LEDGE ANGLES IN MASONRY.

    e. OTHER JOINTS INDICATED BELOW.

2. INTERIOR JOINTS: DO NOT SEAL INTERIOR JOINTS UNLESS SPECIFICALLY INDICATED TO BE SEALED. INTERIOR JOINTS TO BE SEALED INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING ITEMS.

    a. JOINTS BETWEEN DOOR, WINDOW, AND OTHER FRAMES AND ADJACENT CONSTRUCTION.

    b. IN SOUND-RATED WALL AND CEILING ASSEMBLIES, GAPS AT ELECTRICAL OUTLETS, WIRING DEVICES, PIPING, AND OTHER OPENINGS; BETWEEN WALL/CEILING AND OTHER CONSTRUCTION; AND OTHER FLANKING SOUND PATHS.

        1) EXCEPTION: SUCH GAPS AND OPENINGS IN GYPSUM BOARD AND PLASTER FINISHED STUD WALLS AND SUSPENDED CEILINGS.

        2) EXCEPTION: THROUGH-PENETRATIONS IN SOUND-RATED ASSEMBLIES THAT ARE ALSO FIRE-RATED ASSEMBLIES.

    c. OTHER JOINTS INDICATED BELOW.

3. DO NOT SEAL THE FOLLOWING TYPES OF JOINTS.

    a. INTENTIONAL WEEPHOLES IN MASONRY.

    b. JOINTS INDICATED TO BE TREATED WITH MANUFACTURED EXPANSION JOINT COVER OR SOME OTHER TYPE OF SEALING DEVICE.

    c. JOINTS WHERE SEALANT IS SPECIFIED TO BE PROVIDED BY MANUFACTURER OF PRODUCT TO BE SEALED.

    d. JOINTS WHERE INSTALLATION OF SEALANT IS SPECIFIED IN ANOTHER SECTION.

    e. JOINTS BETWEEN SUSPENDED PANEL CEILINGS/GRID AND WALLS.

(B) INTERIOR WET AREAS: BATHROOMS, RESTROOMS, KITCHENS, AND FOOD SERVICE AREAS; FIXTURES IN WET AREAS INCLUDE PLUMBING FIXTURES, FOOD SERVICE EQUIPMENT, COUNTERTOPS, CABINETS, AND OTHER SIMILAR ITEMS.

(C) SOUND-RATED ASSEMBLIES: WALLS AND CEILINGS IDENTIFIED AS "STC-RATED", "SOUND-RATED", OR "ACOUSTICAL".

(D) AREAS WHERE TAMPER-RESISTANCE IS REQUIRED: AS INDICATED ON DRAWINGS.

2.3 JOINT SEALANTS - GENERAL

(A) SEALANTS AND PRIMERS: PROVIDE PRODUCTS WITH LEVELS OF VOLATILE ORGANIC COMPOUND (VOC) CONTENT AS INDICATED IN SECTION 01 61 16.

(B) COLORS: AS INDICATED ON DRAWINGS.

2.4 NONSAG JOINT SEALANTS

(A) TYPE ___ - NON-STAINING SILICONE SEALANT: ASTM C920, GRADE NS, USES M AND A; NOT EXPECTED TO WITHSTAND CONTINUOUS WATER IMMERSION OR TRAFFIC.

1. MOVEMENT CAPABILITY: PLUS AND MINUS 50 PERCENT, MINIMUM.

2. NON-STAINING TO POROUS STONE: NON-STAINING TO LIGHT-COLORED NATURAL STONE WHEN TESTED IN ACCORDANCE WITH ASTM C1248.

3. DIRT PICK-UP: REDUCED DIRT PICK-UP COMPARED TO OTHER SILICONE SEALANTS.

4. HARDNESS RANGE: 15 TO 35, SHORE A, WHEN TESTED IN ACCORDANCE WITH ASTM C661.

5. COLOR: TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD RANGE.

6. CURE TYPE: SINGLE-COMPONENT , NATURAL MOISTURE CURING.

7. SERVICE TEMPERATURE RANGE: MINUS 20 TO 180 DEGREES F.

8. MANUFACTURERS:

a. DOW CHEMICAL COMPANY; DOWSIL 756 SMS BUILDING SEALANT: CONSUMER.DOW.COM/EN-US/INDUSTRY/IND-BUILDING-CONSTRUCTION.HTML/#SLE.

b. DOW CHEMICAL COMPANY; DOWSIL 790 SILICONE BUILDING SEALANT: CONSUMER.DOW.COM/EN-US/INDUSTRY/IND-BUILDING-CONSTRUCTION.HTML/#SLE.

c. DOW CHEMICAL COMPANY; DOWSIL 791 SILICONE WEATHERPROOFING SEALANT: CONSUMER.DOW.COM/EN-US/INDUSTRY/IND-BUILDING-CONSTRUCTION.HTML/#SLE.

d. DOW CHEMICAL COMPANY; DOWSIL 795 SILICONE BUILDING SEALANT: CONSUMER.DOW.COM/EN-US/INDUSTRY/IND-BUILDING-CONSTRUCTION.HTML/#SLE.

e. SIKA CORPORATION; SIKASIL WS-290: WWW.USA-SIKA.COM/#SLE.

f. SIKA CORPORATION; SIKASIL WS-295: WWW.USA-SIKA.COM/#SLE.

g. SIKA CORPORATION; SIKASIL 728NS: WWW.USA-SIKA.COM/#SLE.

h. TREMCO COMMERCIAL SEALANTS & WATERPROOFING; SPECTREM 1: WWW.TREMCOSEALANTS.COM/#SLE.

i. TREMCO COMMERCIAL SEALANTS & WATERPROOFING; SPECTREM 2: WWW.TREMCOSEALANTS.COM/#SLE.

j. TREMCO COMMERCIAL SEALANTS & WATERPROOFING; SPECTREM 3: WWW.TREMCOSEALANTS.COM/#SLE.

k. TREMCO COMMERCIAL SEALANTS & WATERPROOFING; SPECTREM 4-TS: WWW.TREMCOSEALANTS.COM/#SLE.

l. TREMCO COMMERCIAL SEALANTS & WATERPROOFING; TREMSIL 200: WWW.TREMCOSEALANTS.COM/#SLE.

m. TREMCO COMMERCIAL SEALANTS & WATERPROOFING; TREMSIL 400: WWW.TREMCOSEALANTS.COM/#SLE.

n. SUBSTITUTIONS: OR APPROVED EQUAL.

o. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS

(B) TYPE ___ - MILDEW-RESISTANT SILICONE SEALANT: ASTM C920, GRADE NS, USES M AND A; SINGLE COMPONENT, MILDEW RESISTANT; NOT EXPECTED TO WITHSTAND CONTINUOUS WATER IMMERSION OR TRAFFIC.

1. COLOR: WHITE.

2. MANUFACTURERS:

a. PECORA CORPORATION; PECORA 898 NST (NON-STAINING TECHNOLOGY): WWW.PECORA.COM/#SLE.

b. SUBSITITUTIONS: OR APPROVED EQUAL.

c. SUBSITITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS

(C) TYPE ___ - POLYMER SEALANT: ASTM C920; SINGLE COMPONENT, CURED SEALANT IS PAINTABLE AND MOLD/MILDEW RESISTANT, LOW ODOR AND VOC, AND ULTRAVIOLET (UV) RESISTANT.

1. ADHERES TO WET SURFACES.

2. COLOR: WHITE.

3. MANUFACTURERS:

a. DAP PRODUCTS INC; DYNAFLEX 800 SEALANT: WWW.DAPSPECLINE.COM/#SLE.

b. SUBSTITUTIONS: OR APPROVED EQUAL

c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS

(D) TYPE ___ - ACRYLIC EMULSION LATEX: WATER-BASED; ASTM C834, SINGLE COMPONENT, NON-STAINING, NON-BLEEDING, NON-SAGGING; NOT INTENDED FOR EXTERIOR USE.

1. COLOR: STANDARD COLORS MATCHING FINISHED SURFACES.

2. COLOR: TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD RANGE.

3. GRADE: ASTM C834; GRADE MINUS 18 DEGREES C (0 DEGREES F).

4. MANUFACTURERS:

   a. FRANKLIN INTERNATIONAL, INC; TITEBOND GREENCHOICE ACOUSTICAL SMOKE & SOUND SEALANT: WWW.TITEBOND.COM/#SLE.

   b. HILTI, INC; CP 506 SMOKE AND ACOUSTICAL SEALANT: WWW.US.HILTI.COM/#SLE.

   c. HILTI, INC; CP 572 SMOKE AND ACOUSTICAL SPRAY SEALANT: WWW.US.HILTI.COM/#SLE.

   d. SHERWIN-WILLIAMS COMPANY; WHITE LIGHTNING 3006 SILICONIZED ACRYLIC LATEX CAULK: WWW.SHERWIN-WILLIAMS.COM/#SLE.

   e. SHERWIN-WILLIAMS COMPANY; 850A ACRYLIC LATEX CAULK: WWW.SHERWIN-WILLIAMS.COM/#SLE.

   f. SHERWIN-WILLIAMS COMPANY; 950A SILICONIZED ACRYLIC LATEX CAULK: WWW.SHERWIN-WILLIAMS.COM/#SLE.

   g. SHERWIN-WILLIAMS COMPANY; BOLT QUICKDRY SILICONIZED ACRYLIC LATEX CAULK: WWW.SHERWIN-WILLIAMS.COM/#SLE.

   h. SHERWIN-WILLIAMS COMPANY; POWERHOUSE SILICONIZED ACRYLIC LATEX SEALANT: WWW.SHERWIN-WILLIAMS.COM/#SLE.

   i. SPECIFIED TECHNOLOGIES INC; SMOKE N' SOUND ACOUSTICAL SEALANT: WWW.STIFIRESTOP.COM/#SLE.

   j. TOP GUN, A BRAND OF PPG ARCHITECTURAL COATINGS; TOP GUN 200: WWW.PPGPAINTS.COM/#SLE.

   k. TREMCO COMMERCIAL SEALANTS & WATERPROOFING; TREMFLEX 834: WWW.TREMCOSEALANTS.COM/#SLE.

   l. TREMCO COMMERCIAL SEALANTS & WATERPROOFING; TREMSTOP SMOKE AND SOUND: WWW.TREMCOSEALANTS.COM/#SLE.

   m. TREMCO COMMERCIAL SEALANTS & WATERPROOFING; TREMSTOP SMOKE AND SOUND SPRAY: WWW.TREMCOSEALANTS.COM/#SLE.

   n. SUBSTITUTIONS: OR APPROVED EQUAL

   o. SUBSITIUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS

2.5 SELF-LEVELING SEALANTS

(A) TYPE ____ - SELF-LEVELING SILICONE SEALANT: ASTM C920, GRADE P, USES M AND A; SINGLE OR MULTICOMPONENT, EXPLICITLY APPROVED BY MANUFACTURER FOR TRAFFIC EXPOSURE WHEN RECESSED BELOW TRAFFIC SURFACE; NOT EXPECTED TO WITHSTAND CONTINUOUS WATER IMMERSION.

   1. MOVEMENT CAPABILITY: PLUS 100 PERCENT, MINUS 50 PERCENT, MINIMUM.

   2. HARDNESS RANGE: 0 TO 15, SHORE A, WHEN TESTED IN ACCORDANCE WITH ASTM C661.

3. COLOR: TO BE SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD RANGE.

4. SERVICE TEMPERATURE RANGE: MINUS 40 TO 180 DEGREES F.

5. MANUFACTURERS:

   a. SIKA CORPORATION; SIKASIL 728RCS: WWW.USA-SIKA.COM/#SLE.

   b. SIKA CORPORATION; SIKASIL 728SL: WWW.USA-SIKA.COM/#SLE.

   c. TREMCO COMMERCIAL SEALANTS & WATERPROOFING; SPECTREM 900SL: WWW.TREMCOSEALANTS.COM/#SLE.

   d. SUBSTITUTIONS: OR APPROVED EQUAL.

   e. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS

(B) TYPE ___ - FLEXIBLE POLYURETHANE FOAM: SINGLE-COMPONENT, GUN GRADE, AND LOW-EXPANDING.

1. COLOR: WHITE.

2. MANUFACTURERS:

   a. DAP PRODUCTS INC; DRAFTSTOP 812 FOAM: WWW.DAPSPECLINE.COM/#SLE.

   b. TREMCO COMMERCIAL SEALANTS & WATERPROOFING; EXOAIR FLEX FOAM: WWW.TREMCOSEALANTS.COM/#SLE.

   c. SUBSTITUTIONS: OR APPROVED EQUAL.

   d. SUBSITITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.6 ACCESSORIES

(A) BACKER ROD: CYLINDRICAL CELLULAR FOAM ROD WITH SURFACE THAT SEALANT WILL NOT ADHERE TO, COMPATIBLE WITH SPECIFIC SEALANT USED, AND RECOMMENDED BY BACKING AND SEALANT MANUFACTURERS FOR SPECIFIC APPLICATION.

1. OPEN CELL: 40 TO 50 PERCENT LARGER IN DIAMETER THAN JOINT WIDTH.

2. CLOSED CELL AND BI-CELLULAR: 25 TO 33 PERCENT LARGER IN DIAMETER THAN JOINT WIDTH.

3. MANUFACTURERS:

   a. NOMACO, INC; HBR: WWW.NOMACO.COM/#SLE.

   b. SUBSTITUTIONS: OR APPROVED EQUAL

   c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS

(B) BACKING TAPE: SELF-ADHESIVE POLYETHYLENE TAPE WITH SURFACE THAT SEALANT WILL NOT ADHERE TO AND RECOMMENDED BY TAPE AND SEALANT MANUFACTURERS FOR SPECIFIC APPLICATION.

(C) MASKING TAPE: SELF-ADHESIVE, NONABSORBENT, NON-STAINING, REMOVABLE WITHOUT ADHESIVE RESIDUE, AND COMPATIBLE WITH SURFACES ADJACENT TO JOINTS AND SEALANTS.

(D) JOINT CLEANER: NON-CORROSIVE AND NON-STAINING TYPE, TYPE RECOMMENDED BY SEALANT MANUFACTURER; COMPATIBLE WITH JOINT FORMING MATERIALS.

(E) PRIMERS: TYPE RECOMMENDED BY SEALANT MANUFACTURER TO SUIT APPLICATION; NON-STAINING.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY THAT JOINTS ARE READY TO RECEIVE WORK.

(B) VERIFY THAT BACKING MATERIALS ARE COMPATIBLE WITH SEALANTS.

(C) VERIFY THAT BACKER RODS ARE OF THE CORRECT SIZE.

(D) PREINSTALLATION ADHESION TESTING: INSTALL A SAMPLE FOR EACH TEST LOCATION INDICATED IN THE TEST PLAN.

1. TEST EACH SAMPLE AS SPECIFIED IN PART 1 UNDER QUALITY ASSURANCE ARTICLE.

2. ARRANGE FOR SEALANT MANUFACTURER'S TECHNICAL REPRESENTATIVE TO BE PRESENT DURING TESTS.

3. RECORD EACH TEST ON PREINSTALLATION ADHESION TEST LOG AS INDICATED.

4. IF ANY SAMPLE FAILS, REVIEW PRODUCTS AND INSTALLATION PROCEDURES, CONSULT MANUFACTURER, OR TAKE WHATEVER OTHER MEASURES ARE NECESSARY TO ENSURE ADHESION; RE-TEST IN A DIFFERENT LOCATION; IF UNABLE TO OBTAIN SATISFACTORY ADHESION, REPORT TO ARCHITECT.

5. AFTER COMPLETION OF TESTS, REMOVE REMAINING SAMPLE MATERIAL AND PREPARE JOINT FOR NEW SEALANT INSTALLATION.

3.2 PREPARATION

(A) REMOVE LOOSE MATERIALS AND FOREIGN MATTER THAT COULD IMPAIR ADHESION OF SEALANT.

(B) CLEAN JOINTS, AND PRIME AS NECESSARY, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(C) PERFORM PREPARATION IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND ASTM C1193.

(D) MASK ELEMENTS AND SURFACES ADJACENT TO JOINTS FROM DAMAGE AND DISFIGUREMENT DUE TO SEALANT WORK; BE AWARE THAT SEALANT DRIPS AND SMEARS MAY NOT BE COMPLETELY REMOVABLE.

(E) CONCRETE FLOOR JOINTS THAT WILL BE EXPOSED IN COMPLETED WORK: TEST JOINT FILLER IN INCONSPICUOUS AREA TO VERIFY THAT IT DOES NOT STAIN OR DISCOLOR SLAB.

3.3 INSTALLATION

(A) PERFORM WORK IN ACCORDANCE WITH SEALANT MANUFACTURER'S REQUIREMENTS FOR PREPARATION OF SURFACES AND MATERIAL INSTALLATION INSTRUCTIONS.

(B) PERFORM INSTALLATION IN ACCORDANCE WITH ASTM C1193.

(C) PERFORM ACOUSTICAL SEALANT APPLICATION WORK IN ACCORDANCE WITH ASTM C919.

(D) MEASURE JOINT DIMENSIONS AND SIZE JOINT BACKERS TO ACHIEVE WIDTH-TO-DEPTH RATIO, NECK DIMENSION, AND SURFACE BOND AREA AS RECOMMENDED BY MANUFACTURER, EXCEPT WHERE SPECIFIC DIMENSIONS ARE INDICATED.

(E) MEASURE JOINT DIMENSIONS AND SIZE JOINT BACKERS TO ACHIEVE THE FOLLOWING, UNLESS OTHERWISE INDICATED:

1. WIDTH/DEPTH RATIO OF 2:1.

2. NECK DIMENSION NO GREATER THAN 1/3 OF THE JOINT WIDTH.

3. SURFACE BOND AREA ON EACH SIDE NOT LESS THAN 75 PERCENT OF JOINT WIDTH.

(F) INSTALL BOND BREAKER BACKING TAPE WHERE BACKER ROD CANNOT BE USED.

(G) INSTALL SEALANT FREE OF AIR POCKETS, FOREIGN EMBEDDED MATTER, RIDGES, AND SAGS, AND WITHOUT GETTING SEALANT ON ADJACENT SURFACES.

(H) DO NOT INSTALL SEALANT WHEN AMBIENT TEMPERATURE IS OUTSIDE MANUFACTURER'S RECOMMENDED TEMPERATURE RANGE, OR WILL BE OUTSIDE THAT RANGE DURING THE ENTIRE CURING PERIOD, UNLESS MANUFACTURER'S APPROVAL IS OBTAINED AND INSTRUCTIONS ARE FOLLOWED.

(I) NONSAG SEALANTS: TOOL SURFACE CONCAVE, UNLESS OTHERWISE INDICATED; REMOVE MASKING TAPE IMMEDIATELY AFTER TOOLING SEALANT SURFACE.

(J) CONCRETE FLOOR JOINT FILLER: AFTER FULL CURE, SHAVE JOINT FILLER FLUSH WITH TOP OF CONCRETE SLAB.

3.4 FIELD QUALITY CONTROL

(A) PERFORM FIELD QUALITY CONTROL INSPECTION/TESTING AS SPECIFIED IN PART 1 UNDER QUALITY ASSURANCE ARTICLE.

(B) NON-DESTRUCTIVE ADHESION TESTING: IF THERE ARE ANY FAILURES IN FIRST 100 LINEAR FEET, NOTIFY ARCHITECT IMMEDIATELY.

(C) REMOVE AND REPLACE FAILED PORTIONS OF SEALANTS USING SAME MATERIALS AND PROCEDURES AS INDICATED FOR ORIGINAL INSTALLATION.

(D) REPAIR DESTRUCTIVE TEST LOCATION DAMAGE IMMEDIATELY AFTER EVALUATION AND RECORDING OF RESULTS.

3.5 POST-OCCUPANCY

(A) POST-OCCUPANCY INSPECTION: PERFORM VISUAL INSPECTION OF ENTIRE LENGTH OF PROJECT SEALANT JOINTS AT A TIME THAT JOINTS HAVE OPENED TO THEIR GREATEST WIDTH; I.E. AT LOW TEMPERATURE IN THERMAL CYCLE. REPORT FAILURES IMMEDIATELY AND REPAIR.

END OF SECTION

SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) NON-FIRE-RATED HOLLOW METAL DOORS AND FRAMES.

(B) HOLLOW METAL FRAMES FOR WOOD DOORS.

(C) FIRE-RATED HOLLOW METAL DOORS AND FRAMES.

(D) THERMALLY INSULATED HOLLOW METAL DOORS WITH FRAMES.

(E) SOUND-RATED HOLLOW METAL DOORS AND FRAMES.

(F) HOLLOW METAL BORROWED LITES GLAZING FRAMES.

(G) ACCESSORIES, INCLUDING GLAZING, LOUVERS, AND MATCHING PANELS.

1.2 RELATED REQUIREMENTS

(A) SECTION 08 71 00 - DOOR HARDWARE.

(B) SECTION 08 80 00 - GLAZING: GLASS FOR DOORS AND BORROWED LITES.

(C) SECTION 09 91 00 PAINTING: FIELD PAINTING OF DOORS AND FRAMES.

1.3 ABBREVIATIONS AND ACRONYMS

(A) ANSI: AMERICAN NATIONAL STANDARDS INSTITUTE.

(B) ASCE: AMERICAN SOCIETY OF CIVIL ENGINEERS.

(C) HMMA: HOLLOW METAL MANUFACTURERS ASSOCIATION.

(D) NAAMM: NATIONAL ASSOCIATION OF ARCHITECTURAL METAL MANUFACTURERS.

(E) NFPA: NATIONAL FIRE PROTECTION ASSOCIATION.

(F) SDI: STEEL DOOR INSTITUTE.

(G) UL: UNDERWRITERS LABORATORIES.

1.4 REFERENCE STANDARDS

(A) ANSI/SDI A250.3 - TEST PROCEDURE AND ACCEPTANCE CRITERIA FOR FACTORY APPLIED FINISH COATINGS FOR STEEL DOORS AND FRAMES; 2007 (R2011).

(B) ANSI/SDI A250.4 - TEST PROCEDURE AND ACCEPTANCE CRITERIA FOR PHYSICAL ENDURANCE FOR STEEL DOORS, FRAMES AND FRAME ANCHORS; 2011.

(C) ANSI/SDI A250.6 - RECOMMENDED PRACTICE FOR HARDWARE REINFORCING ON STANDARD STEEL DOORS AND FRAMES; 2003 (R2009).

(D) ANSI/SDI A250.8 - SPECIFICATIONS FOR STANDARD STEEL DOORS AND FRAMES (SDI-100); 2014.

(E) ANSI/SDI A250.10 - TEST PROCEDURE AND ACCEPTANCE CRITERIA FOR PRIME PAINTED STEEL SURFACES FOR STEEL DOORS AND FRAMES; 2011.

(F) ASCE 7 - MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES; 2016.

(G) ASTM A480/A480M - STANDARD SPECIFICATION FOR GENERAL REQUIREMENTS FOR FLAT-ROLLED STAINLESS AND HEAT-RESISTING STEEL PLATE, SHEET, AND STRIP; 2016B.

(H) ASTM A653/A653M - STANDARD SPECIFICATION FOR STEEL SHEET, ZINC-COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT-DIP PROCESS; 2015, WITH EDITORIAL REVISION (2016).

(I) ASTM A666 - STANDARD SPECIFICATION FOR ANNEALED OR COLD-WORKED AUSTENITIC STAINLESS STEEL SHEET, STRIP, PLATE, AND FLAT BAR; 2015.

(J) ASTM E84 - STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS; 2017.

(K) ASTM E90 - STANDARD TEST METHOD FOR LABORATORY MEASUREMENT OF AIRBORNE SOUND TRANSMISSION LOSS OF BUILDING PARTITIONS AND ELEMENTS; 2009 (REAPPROVED 2016).

(L) ASTM E330/E330M - STANDARD TEST METHOD FOR STRUCTURAL PERFORMANCE OF EXTERIOR WINDOWS, DOORS, SKYLIGHTS AND CURTAIN WALLS BY UNIFORM STATIC AIR PRESSURE DIFFERENCE; 2014.

(M) ASTM E413 - CLASSIFICATION FOR RATING SOUND INSULATION; 2016.

(N) ASTM E1332 - STANDARD CLASSIFICATION FOR RATING OUTDOOR-INDOOR SOUND ATTENUATION; 2016.

(O) ASTM F1450 - STANDARD TEST METHODS FOR HOLLOW METAL SWINGING DOOR ASSEMBLIES FOR DETENTION AND CORRECTIONAL FACILITIES; 2012A.

(P) BHMA A156.115 - AMERICAN NATIONAL STANDARD FOR HARDWARE PREPARATION IN STEEL DOORS AND STEEL FRAMES; 2014.

(Q) FBC TAS 201 - IMPACT TEST PROCEDURES; TESTING APPLICATION STANDARD; 1994.

(R) FBC TAS 202 - CRITERIA FOR TESTING IMPACT AND NON-IMPACT RESISTANT BUILDING ENVELOPE COMPONENTS USING UNIFORM STATIC AIR PRESSURE; TESTING APPLICATION STANDARD; 1994.

(S) FBC TAS 203 - CRITERIA FOR TESTING PRODUCTS SUBJECT TO CYCLIC WIND PRESSURE LOADING; TESTING APPLICATION STANDARD; 1994.

(T) FEMA P-320 - TAKING SHELTER FROM THE STORM: BUILDING A SAFE ROOM FOR YOUR HOME OR SMALL BUSINESS; 2014.

(U) FEMA P-361 - SAFE ROOMS FOR TORNADOES AND HURRICANES: GUIDANCE FOR COMMUNITY AND RESIDENTIAL SAFE ROOMS; 2015.

(V) FLA (PAD) - FLORIDA BUILDING CODE ONLINE - PRODUCT APPROVAL DIRECTORY; DATABASE AT WWW.FLORIDABUILDING.ORG.

(W) ICC 500 - ICC/NSSA STANDARD FOR THE DESIGN AND CONSTRUCTION OF STORM SHELTERS; NATIONAL STORM SHELTER ASSOCIATION; 2014.

(X) ITS (DIR) - DIRECTORY OF LISTED PRODUCTS; CURRENT EDITION.

(Y) MIAMI (APD) - APPROVED PRODUCTS DIRECTORY; MIAMI-DADE COUNTY; DATABASE AT WWW.MIAMIDADE.GOV/BUILDING/PC-SEARCH_APP.ASP.

(Z) NAAMM HMMA 805 - RECOMMENDED SELECTION AND USAGE GUIDE FOR HOLLOW METAL DOORS AND FRAMES; 2012.

(AA) NAAMM HMMA 840 - GUIDE SPECIFICATIONS FOR INSTALLATION AND STORAGE OF HOLLOW METAL DOORS AND FRAMES; 2007.

(AB) NAAMM HMMA 850 - FIRE-PROTECTION AND SMOKE CONTROL RATED HOLLOW METAL DOOR AND FRAME PRODUCTS; 2014.

(AC) NAAMM HMMA 860 - GUIDE SPECIFICATIONS FOR HOLLOW METAL DOORS AND FRAMES; 2013.

(AD) NAAMM HMMA 861 - GUIDE SPECIFICATIONS FOR COMMERCIAL HOLLOW METAL DOORS AND FRAMES; 2006.

(AE) NAAMM HMMA 862 - GUIDE SPECIFICATIONS FOR COMMERCIAL SECURITY HOLLOW METAL DOORS AND FRAMES; 2013.

(AF) NAAMM HMMA 863 - GUIDE SPECIFICATIONS FOR DETENTION SECURITY HOLLOW METAL DOORS AND FRAMES; 2014.

(AG) NAAMM HMMA 865 - GUIDE SPECIFICATIONS FOR SOUND CONTROL HOLLOW METAL DOORS AND FRAMES; 2013.

(AH) NAAMM HMMA 866 - GUIDE SPECIFICATIONS FOR STAINLESS STEEL HOLLOW METAL DOORS AND FRAMES; 2012.

(AI) NAAMM HMMA 867 - GUIDE SPECIFICATIONS FOR COMMERCIAL LAMINATED CORE HOLLOW METAL DOORS AND FRAMES; 2006.

(AJ) NFPA 80 - STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVES; 2016.

(AK) NFPA 105 - STANDARD FOR SMOKE DOOR ASSEMBLIES AND OTHER OPENING PROTECTIVES; 2016.

(AL) NFPA 252 - STANDARD METHODS OF FIRE TESTS OF DOOR ASSEMBLIES; 2012.

(AM) SDI 117 - MANUFACTURING TOLERANCES FOR STANDARD STEEL DOORS AND FRAMES; 2013.

(AN) UFC 4-010-01 - DOD MINIMUM ANTITERRORISM STANDARDS FOR BUILDINGS; 2012.

(AO) UL (DIR) - ONLINE CERTIFICATIONS DIRECTORY; CURRENT LISTINGS AT DATABASE.UL.COM.

(AP) UL 10B - STANDARD FOR FIRE TESTS OF DOOR ASSEMBLIES; CURRENT EDITION, INCLUDING ALL REVISIONS.

(AQ) UL 10C - STANDARD FOR POSITIVE PRESSURE FIRE TESTS OF DOOR ASSEMBLIES; CURRENT EDITION, INCLUDING ALL REVISIONS.

(AR) UL 752 - STANDARD FOR BULLET-RESISTING EQUIPMENT; CURRENT EDITION, INCLUDING ALL REVISIONS.

(AS) UL 1784 - STANDARD FOR AIR LEAKAGE TESTS OF DOOR ASSEMBLIES; CURRENT EDITION, INCLUDING ALL REVISIONS.

1.5 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: MATERIALS AND DETAILS OF DESIGN AND CONSTRUCTION, HARDWARE LOCATIONS, REINFORCEMENT TYPE AND LOCATIONS, ANCHORAGE AND FASTENING METHODS, AND FINISHES; AND ONE COPY OF REFERENCED STANDARDS/GUIDELINES.

(C) SHOP DRAWINGS: DETAILS OF EACH OPENING, SHOWING ELEVATIONS, GLAZING, FRAME PROFILES, AND ANY INDICATED FINISH REQUIREMENTS.

(D) INSTALLATION INSTRUCTIONS: MANUFACTURER'S PUBLISHED INSTRUCTIONS, INCLUDING ANY SPECIAL INSTALLATION INSTRUCTIONS RELATING TO THIS PROJECT.

(E) MANUFACTURER'S CERTIFICATE: CERTIFICATION THAT PRODUCTS MEET OR EXCEED SPECIFIED REQUIREMENTS.

(F) MANUFACTURER'S QUALIFICATION STATEMENT.

(G) INSTALLER'S QUALIFICATION STATEMENT.

1.6 QUALITY ASSURANCE

(A) MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING PRODUCTS SPECIFIED IN THIS SECTION, WITH NOT LESS THAN THREE YEARS DOCUMENTED EXPERIENCE.

(B) MANUFACTURER QUALIFICATIONS: PROVIDE HOLLOW METAL DOORS AND FRAMES FROM SDI CERTIFIED MANUFACTURER: WWW.STEELDOOR.ORG/SDICERTIFIED.PHP.

(C) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING WORK OF THE TYPE SPECIFIED AND WITH AT LEAST THREE YEARS OF DOCUMENTED EXPERIENCE.

(D) MAINTAIN AT PROJECT SITE COPIES OF REFERENCE STANDARDS RELATING TO INSTALLATION OF PRODUCTS SPECIFIED.

1.7 DELIVERY, STORAGE, AND HANDLING

(A) COMPLY WITH NAAMM HMMA 840 OR ANSI/SDI A250.8 (SDI-100) IN ACCORDANCE WITH SPECIFIED REQUIREMENTS.

(B) PROTECT WITH RESILIENT PACKAGING; AVOID HUMIDITY BUILD-UP UNDER COVERINGS; PREVENT CORROSION AND ADVERSE EFFECTS ON FACTORY APPLIED PAINTED FINISH.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) HOLLOW METAL DOORS AND FRAMES:

1. CECO DOOR, AN ASSA ABLOY GROUP COMPANY: WWW.ASSAABLOYDSS.COM/#SLE.

2. CURRIES, AN ASSA ABLOY GROUP COMPANY: WWW.ASSAABLOYDSS.COM/#SLE.

3. FLEMING DOOR PRODUCTS, AN ASSA ABLOY GROUP COMPANY: WWW.ASSAABLOYDSS.COM/#SLE.

4. MESKER, DORMAKABA GROUP; FDJ SERIES DRYWALL FRAMES: WWW.MESKEROPENINGSGROUP.COM/#SLE.

5. REPUBLIC DOORS, AN ALLEGION BRAND: WWW.REPUBLICDOOR.COM/#SLE.

6. STEELCRAFT, AN ALLEGION BRAND: WWW.ALLEGION.COM/#SLE.

7. SUBSTITUTIONS: OR APPROVED EQUAL.

8. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) SOUND-RATED HOLLOW METAL DOORS AND FRAMES:

1. OVERLY DOOR COMPANY: WWW.OVERLY.COM/#SLE.

2. SUBSTITUTIONS: OR APPROVED EQUAL.

3. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.2 HOLLOW METAL DOORS

(A) DOOR FINISH: FACTORY PRIMED AND FIELD FINISHED.

(B) EXTERIOR DOORS: THERMALLY INSULATED.

1. BASED ON SDI STANDARDS: ANSI/SDI A250.8 (SDI-100).

a. LEVEL 1 - STANDARD-DUTY.

b. PHYSICAL PERFORMANCE LEVEL C, 250,000 CYCLES; IN ACCORDANCE WITH ANSI/SDI A250.4.

c. MODEL 1 - FULL FLUSH.

d. DOOR FACE METAL THICKNESS: 20 GAGE, 0.032 INCH, MINIMUM.

e. ZINC COATING: A60/ZF180 GALVANNEALED COATING; ASTM A653/A653M.

2. BASED ON NAAMM HMMA CUSTOM GUIDELINES:

a. COMPLY WITH GUIDELINES OF NAAMM HMMA 860 FOR HOLLOW METAL DOORS AND FRAMES.

b. PERFORMANCE LEVEL 1 - LIGHT DUTY, IN ACCORDANCE WITH NAAMM HMMA 805.

c. PHYSICAL PERFORMANCE LEVEL C, 250,000 CYCLES; IN ACCORDANCE WITH ANSI/SDI A250.4.

d. DOOR FACE METAL THICKNESS: 20 GAGE, 0.032 INCH, MINIMUM.

e. ZINC COATING: G90/Z275 GALVANIZED COATING; ASTM A653/A653M.

3. DOOR CORE MATERIAL: VERTICAL STEEL STIFFENERS WITH FIBERGLASS BATTS.

a. FOAM PLASTIC INSULATION: MANUFACTURER'S STANDARD BOARD INSULATION WITH MAXIMUM FLAME SPREAD INDEX (FSI) OF 75, AND MAXIMUM SMOKE DEVELOPED INDEX (SDI) OF 450 IN ACCORDANCE WITH ASTM E84, AND COMPLETELY ENCLOSED WITHIN INTERIOR OF DOOR.

4. DOOR THERMAL RESISTANCE: R-VALUE OF 11.

5. DOOR THICKNESS: 1-3/4 INCH, NOMINAL.

6. TOP CLOSURES FOR OUTSWINGING DOORS: FLUSH WITH TOP OF FACES AND EDGES.

7. DOOR FACE SHEETS: FLUSH.

8. WEATHERSTRIPPING: REFER TO SECTION 08 71 00.

9. DOOR FINISH: FACTORY FINISHED.

(C) INTERIOR DOORS, NON-FIRE RATED:

1. BASED ON SDI STANDARDS: ANSI/SDI A250.8 (SDI-100).

a. LEVEL 1 - STANDARD-DUTY.

b. PHYSICAL PERFORMANCE LEVEL C, 250,000 CYCLES; IN ACCORDANCE WITH ANSI/SDI A250.4.

c. MODEL 1 - FULL FLUSH.

d. DOOR FACE METAL THICKNESS: 20 GAGE, 0.032 INCH, MINIMUM.

e. ZINC COATING: A60/ZF180 GALVANNEALED COATING; ASTM A653/A653M.

2. BASED ON NAAMM HMMA CUSTOM GUIDELINES:

    a. COMPLY WITH GUIDELINES OF NAAMM HMMA 860 FOR HOLLOW METAL DOORS AND FRAMES.

    b. PERFORMANCE LEVEL 1 - LIGHT DUTY, IN ACCORDANCE WITH NAAMM HMMA 805.

    c. PHYSICAL PERFORMANCE LEVEL C, 250,000 CYCLES; IN ACCORDANCE WITH ANSI/SDI A250.4.

    d. DOOR FACE METAL THICKNESS: 20 GAGE, 0.032 INCH, MINIMUM.

3. DOOR CORE MATERIAL: MANUFACTURERS STANDARD CORE MATERIAL/CONSTRUCTION AND IN COMPLIANCE WITH REQUIREMENTS.

4. DOOR THICKNESS: 1-3/4 INCH, NOMINAL.

5. DOOR FINISH: FACTORY PRIMED AND FIELD FINISHED.

(D) FIRE-RATED DOORS:

1. BASED ON SDI STANDARDS: ANSI/SDI A250.8 (SDI-100).

    a. LEVEL 1 - STANDARD-DUTY.

    b. PHYSICAL PERFORMANCE LEVEL C, 250,000 CYCLES; IN ACCORDANCE WITH ANSI/SDI A250.4.

    c. MODEL 1 - FULL FLUSH.

    d. DOOR FACE METAL THICKNESS: 20 GAGE, 0.032 INCH, MINIMUM.

    e. ZINC COATING: A60/ZF180 GALVANNEALED COATING; ASTM A653/A653M.

2. BASED ON NAAMM HMMA CUSTOM GUIDELINES: COMPLY WITH NAAMM HMMA 850 REQUIREMENTS FOR FIRE-RATED DOORS.

    a. COMPLY WITH GUIDELINES OF NAAMM HMMA 860 FOR HOLLOW METAL DOORS AND FRAMES.

    b. PERFORMANCE LEVEL 1 - LIGHT DUTY, IN ACCORDANCE WITH NAAMM HMMA 805.

    c. PHYSICAL PERFORMANCE LEVEL C, 250,000 CYCLES; IN ACCORDANCE WITH ANSI/SDI A250.4.

    d. DOOR FACE METAL THICKNESS: 20 GAGE, 0.032 INCH, MINIMUM.

    e. ZINC COATING: G90/Z275 GALVANIZED COATING; ASTM A653/A653M.

3. FIRE RATING: AS INDICATED ON DOOR SCHEDULE, TESTED IN ACCORDANCE WITH UL 10C AND NFPA 252 ("POSITIVE PRESSURE FIRE TESTS").

4. TEMPERATURE-RISE RATING (TRR) ACROSS DOOR THICKNESS: IN ACCORDANCE WITH LOCAL BUILDING CODE AND AUTHORITIES HAVING JURISDICTION.

5. PROVIDE UNITS LISTED AND LABELED BY UL (DIR) OR ITS (DIR).

    a. ATTACH FIRE RATING LABEL TO EACH FIRE RATED UNIT.

6. SMOKE AND DRAFT CONTROL DOORS (INDICATED WITH LETTER "S" ON DRAWINGS AND/OR DOOR SCHEDULE): SELF-CLOSING OR AUTOMATIC CLOSING DOORS IN ACCORDANCE WITH NFPA 80 AND NFPA 105, WITH FIRE-RESISTANCE-RATED WALL CONSTRUCTION RATED THE SAME OR GREATER THAN THE FIRE-RATED DOORS, AND THE FOLLOWING;

    a. MAXIMUM AIR LEAKAGE: 3.0 CFM/SQ FT OF DOOR OPENING AT 0.10 INCH W.G. PRESSURE, WHEN TESTED IN ACCORDANCE WITH UL 1784 AT BOTH AMBIENT AND ELEVATED TEMPERATURES.

    b. GASKETING: PROVIDE GASKETING OR EDGE SEALING AS NECESSARY TO ACHIEVE LEAKAGE LIMIT.

    c. LABEL: INCLUDE THE "S" LABEL ON FIRE-RATING LABEL OF DOOR.

7. DOOR CORE MATERIAL: MANUFACTURERS STANDARD CORE MATERIAL/CONSTRUCTION IN COMPLIANCE WITH REQUIREMENTS.

8. DOOR THICKNESS: 1-3/4 INCH, NOMINAL.

9. DOOR FACE SHEETS: FLUSH.

10. DOOR FINISH: FACTORY PRIMED AND FIELD FINISHED.

2.3 <u>HOLLOW METAL FRAMES</u>

(A) COMPLY WITH STANDARDS AND/OR CUSTOM GUIDELINES AS INDICATED FOR CORRESPONDING DOOR IN ACCORDANCE WITH APPLICABLE DOOR FRAME REQUIREMENTS.

(B) FRAME FINISH: FACTORY PRIMED AND FIELD FINISHED.

(C) EXTERIOR DOOR FRAMES: FULL PROFILE/CONTINUOUSLY WELDED TYPE.

    1. GALVANIZING: COMPONENTS HOT-DIPPED ZINC-IRON ALLOY-COATED (GALVANNEALED) IN ACCORDANCE WITH ASTM A653/A653M, WITH A40/ZF120 COATING.

    2. FRAME METAL THICKNESS: 16 GAGE, 0.053 INCH, MINIMUM.

    3. FRAME FINISH: FACTORY PRIMED AND FIELD FINISHED.

(D) INTERIOR DOOR FRAMES, NON-FIRE RATED: FULL PROFILE/CONTINUOUSLY WELDED TYPE.

    1. FRAME METAL THICKNESS: 16 GAGE, 0.053 INCH, MINIMUM.

    2. FRAME FINISH: FACTORY PRIMED AND FIELD FINISHED.

(E) DOOR FRAMES, FIRE-RATED: FULL PROFILE/CONTINUOUSLY WELDED TYPE.

1. FIRE RATING: SAME AS DOOR, LABELED.

2. FRAME METAL THICKNESS: 16 GAGE, 0.053 INCH, MINIMUM.

3. FRAME FINISH: FACTORY PRIMED AND FIELD FINISHED.

(F) FRAMES FOR WOOD DOORS: COMPLY WITH FRAME REQUIREMENTS IN ACCORDANCE WITH CORRESPONDING DOOR.

(G) BORROWED LITES GLAZING FRAMES: CONSTRUCTION AND FACE DIMENSIONS TO MATCH DOOR FRAMES, AND AS INDICATED ON DRAWINGS.

(H) TRANSOM BARS: FIXED, OF PROFILE SAME AS JAMB AND HEAD.

(I) PROVIDE MORTAR GUARD BOXES FOR HARDWARE CUT-OUTS IN FRAMES TO BE INSTALLED IN MASONRY OR TO BE GROUTED.

(J) FRAMES IN MASONRY WALLS: SIZE TO SUIT MASONRY COURSING WITH HEAD MEMBER 4 INCH HIGH TO FILL OPENING WITHOUT CUTTING MASONRY UNITS.

(K) FRAMES WIDER THAN 48 INCHES: REINFORCE WITH STEEL CHANNEL FITTED TIGHTLY INTO FRAME HEAD, FLUSH WITH TOP.

2.4 FINISHES

(A) PRIMER: RUST-INHIBITING, COMPLYING WITH ANSI/SDI A250.10, DOOR MANUFACTURER'S STANDARD.

(B) BITUMINOUS COATING: ASPHALT EMULSION OR OTHER HIGH-BUILD, WATER-RESISTANT, RESILIENT COATING.

2.5 ACCESSORIES

(A) GLAZING: AS SPECIFIED IN SECTION 08 80 00, FACTORY INSTALLED.

(B) REMOVABLE STOPS: ROLLED STEEL BAR

(C) ASTRAGALS FOR DOUBLE DOORS: SPECIFIED IN SECTION 08 71 00.

1. EXTERIOR DOORS: STEEL

2. FIRE-RATED DOORS: STEEL, SHAPE AS REQUIRED FOR FIRE RATING.

(D) SILENCERS: RESILIENT RUBBER, FITTED INTO DRILLED HOLE; PROVIDE THREE ON STRIKE SIDE OF SINGLE DOOR, THREE ON CENTER MULLION OF PAIRS, AND TWO ON HEAD OF PAIRS WITHOUT CENTER MULLIONS.

(E) TEMPORARY FRAME SPREADERS: PROVIDE FOR FACTORY- OR SHOP-ASSEMBLED FRAMES.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY EXISTING CONDITIONS BEFORE STARTING WORK.

(B) VERIFY THAT OPENING SIZES AND TOLERANCES ARE ACCEPTABLE.

(C) VERIFY THAT FINISHED WALLS ARE IN PLANE TO ENSURE PROPER DOOR ALIGNMENT.

3.2 PREPARATION

(A) COAT INSIDE OF FRAMES TO BE INSTALLED IN MASONRY OR TO BE GROUTED, WITH BITUMINOUS COATING, PRIOR TO INSTALLATION.

3.3 INSTALLATION

(A) INSTALL DOORS AND FRAMES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RELATED REQUIREMENTS OF SPECIFIED DOOR AND FRAME STANDARDS OR CUSTOM GUIDELINES INDICATED.

(B) INSTALL FIRE RATED UNITS IN ACCORDANCE WITH NFPA 80.

(C) COORDINATE FRAME ANCHOR PLACEMENT WITH WALL CONSTRUCTION.

(D) INSTALL DOOR HARDWARE AS SPECIFIED IN SECTION 08 71 00.

1. COMPLY WITH RECOMMENDED PRACTICE FOR HARDWARE PLACEMENT OF DOORS AND FRAMES IN ACCORDANCE WITH ANSI/SDI A250.6 OR NAAMM HMMA 861.

(E) COMPLY WITH GLAZING INSTALLATION REQUIREMENTS OF SECTION 08 80 00.

(F) COORDINATE INSTALLATION OF ELECTRICAL CONNECTIONS TO ELECTRICAL HARDWARE ITEMS.

(G) TOUCH UP DAMAGED FACTORY FINISHES.

3.4 TOLERANCES

(A) CLEARANCES BETWEEN DOOR AND FRAME: COMPLY WITH RELATED REQUIREMENTS OF SPECIFIED FRAME STANDARDS OR CUSTOM GUIDELINES INDICATED IN ACCORDANCE WITH SDI 117 OR NAAMM HMMA 861.

(B) MAXIMUM DIAGONAL DISTORTION: 1/16 INCH MEASURED WITH STRAIGHT EDGE, CORNER TO CORNER.

3.5 ADJUSTING

(A) ADJUST FOR SMOOTH AND BALANCED DOOR MOVEMENT.

3.6 SCHEDULE

(A) REFER TO DOOR AND FRAME SCHEDULE ON THE DRAWINGS.

END OF SECTION

SECTION 08 14 16 - FLUSH WOOD DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) FLUSH WOOD DOORS; FLUSH AND FLUSH GLAZED CONFIGURATION; FIRE-RATED AND NON-RATED.

(B) TRANSOM PANELS.

1.2 RELATED REQUIREMENTS

(A) SECTION 06 20 00 - FINISH CARPENTRY: WOOD DOOR FRAMES.

(B) SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES.

(C) SECTION 08 71 00 - DOOR HARDWARE.

(D) SECTION 08 80 00 - GLAZING.

(E) SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES: BULLET-RESISTANT SHEATHING AND WALLBOARD FOR BULLET-RESISTANT PARTITIONS AND WALLS.

(F) SECTION 09 91 00 - PAINTING: FIELD FINISHING OF DOORS.

1.3 REFERENCE STANDARDS

(A) 16 CFR 1201 - SAFETY STANDARD FOR ARCHITECTURAL GLAZING MATERIALS; CURRENT EDITION.

(B) ANSI A135.4 - AMERICAN NATIONAL STANDARD FOR BASIC HARDBOARD; 2012.

(C) ANSI A208.1 - AMERICAN NATIONAL STANDARD FOR PARTICLEBOARD; 2009.

(D) ASTM C1048 - STANDARD SPECIFICATION FOR HEAT-STRENGTHENED AND FULLY TEMPERED FLAT GLASS; 2012.

(E) ASTM C1172 - STANDARD SPECIFICATION FOR LAMINATED ARCHITECTURAL FLAT GLASS; 2014.

(F) ASTM E90 - STANDARD TEST METHOD FOR LABORATORY MEASUREMENT OF AIRBORNE SOUND TRANSMISSION LOSS OF BUILDING PARTITIONS AND ELEMENTS; 2009 (REAPPROVED 2016).

(G) ASTM E413 - CLASSIFICATION FOR RATING SOUND INSULATION; 2016.

(H) ASTM E2112 - STANDARD PRACTICE FOR INSTALLATION OF EXTERIOR WINDOWS, DOORS AND SKYLIGHTS; 2007 (REAPPROVED 2016).

(I) AWI (QCP) - QUALITY CERTIFICATION PROGRAM; CURRENT EDITION AT WWW.AWIQCP.ORG.

(J) AWI/AWMAC/WI (AWS) - ARCHITECTURAL WOODWORK STANDARDS; 2014.

(K) AWMAC (GIS) - GUARANTEE AND INSPECTION SERVICES PROGRAM; CURRENT EDITION AT WWW.AWMAC.COM/GIS.PHP.

(L) AWMAC/WI (NAAWS) - NORTH AMERICAN ARCHITECTURAL WOODWORK STANDARDS, U.S. VERSION 3.0; 2016.

(M) FM (AG) - FM APPROVAL GUIDE; CURRENT EDITION.

(N) ICC (IBC) - INTERNATIONAL BUILDING CODE; 2015.

(O) ITS (DIR) - DIRECTORY OF LISTED PRODUCTS; CURRENT EDITION.

(P) NEMA LD 3 - HIGH-PRESSURE DECORATIVE LAMINATES; 2005.

(Q) NFPA 80 - STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVES; 2016.

(R) NFPA 105 - STANDARD FOR SMOKE DOOR ASSEMBLIES AND OTHER OPENING PROTECTIVES; 2016.

(S) NFPA 252 - STANDARD METHODS OF FIRE TESTS OF DOOR ASSEMBLIES; 2012.

(T) UL (DIR) - ONLINE CERTIFICATIONS DIRECTORY; CURRENT LISTINGS AT DATABASE.UL.COM.

(U) UL 10B - STANDARD FOR FIRE TESTS OF DOOR ASSEMBLIES; CURRENT EDITION, INCLUDING ALL REVISIONS.

(V) UL 10C - STANDARD FOR POSITIVE PRESSURE FIRE TESTS OF DOOR ASSEMBLIES; CURRENT EDITION, INCLUDING ALL REVISIONS.

(W) UL 752 - STANDARD FOR BULLET-RESISTING EQUIPMENT; CURRENT EDITION, INCLUDING ALL REVISIONS.

(X) UL 1784 - STANDARD FOR AIR LEAKAGE TESTS OF DOOR ASSEMBLIES; CURRENT EDITION, INCLUDING ALL REVISIONS.

(Y) WDMA I.S. 1A - INTERIOR ARCHITECTURAL WOOD FLUSH DOORS; 2013.

(Z) WI (CCP) - CERTIFIED COMPLIANCE PROGRAM (CCP); CURRENT EDITION AT WWW.WOODWORKINSTITUTE.COM.

(AA) WI (CSIP) - CERTIFIED SEISMIC INSTALLATION PROGRAM (CSIP); CURRENT EDITION AT WWW.WOODWORKINSTITUTE.COM.

(AB) WI (MCP) - MONITORED COMPLIANCE PROGRAM (MCP); CURRENT EDITION AT WWW.WOODWORKINSTITUTE.COM.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: INDICATE DOOR CORE MATERIALS AND CONSTRUCTION; VENEER SPECIES, TYPE AND CHARACTERISTICS.

(C) SHOP DRAWINGS: SHOW DOORS AND FRAMES, ELEVATIONS, SIZES, TYPES, SWINGS, UNDERCUTS, BEVELING, BLOCKING FOR HARDWARE, FACTORY MACHINING, FACTORY FINISHING, CUTOUTS FOR GLAZING AND OTHER DETAILS.

1. PROVIDE INFORMATION AS REQUIRED BY AWI/AWMAC/WI (AWS) OR AWMAC/WI (NAAWS).

2. INCLUDE CERTIFICATION PROGRAM LABEL.

(D) SAMPLES: SUBMIT TWO SAMPLES OF DOOR CONSTRUCTION, 12 BY 12 INCH IN SIZE CUT FROM TOP CORNER OF DOOR.

(E) SAMPLES: SUBMIT TWO SAMPLES OF DOOR VENEER, 6 BY 6 INCH IN SIZE ILLUSTRATING WOOD GRAIN, STAIN COLOR, AND SHEEN.

(F) TEST REPORTS: SHOW COMPLIANCE WITH SPECIFIED REQUIREMENTS FOR THE FOLLOWING:

1. SOUND-RETARDANT DOORS AND FRAMES; SEALED PANEL TESTS ARE NOT ACCEPTABLE.

(G) MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE SPECIAL INSTALLATION INSTRUCTIONS.

(H) SPECIMEN WARRANTY.

(I) WARRANTY, EXECUTED IN OWNER'S NAME.

1.5 QUALITY ASSURANCE

(A) MAINTAIN ONE COPY OF THE SPECIFIED DOOR QUALITY STANDARD ON SITE FOR REVIEW DURING INSTALLATION AND FINISHING.

(B) MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION, WITH NOT LESS THAN THREE YEARS OF DOCUMENTED EXPERIENCE.

1. COMPANY WITH AT LEAST ONE PROJECT WITHIN THE PAST 5 YEARS WITH VALUE OF WOODWORK WITHIN 20 PERCENT OF COST OF WOODWORK FOR THIS PROJECT.

2. ACCREDITED PARTICIPANT IN THE SPECIFIED CERTIFICATION PROGRAM PRIOR TO THE COMMENCEMENT OF FABRICATION AND THROUGHOUT THE DURATION OF THE PROJECT.

(C) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING WORK OF THE TYPE SPECIFIED IN THIS SECTION, WITH NOT LESS THAN THREE YEARS OF DOCUMENTED EXPERIENCE.

(D) QUALITY CERTIFICATION:

1. COMPLY WITH AWI (QCP) WOODWORK ASSOCIATION QUALITY CERTIFICATION SERVICE/PROGRAM IN ACCORDANCE WITH REQUIREMENTS FOR WORK SPECIFIED IN THIS SECTION: WWW.AWIQCP.ORG/#SLE.

2. COMPLY WITH AWMAC (GIS) WOODWORK ASSOCIATION QUALITY CERTIFICATION SERVICE/PROGRAM IN ACCORDANCE WITH REQUIREMENTS FOR WORK SPECIFIED IN THIS SECTION: WWW.AWMAC.COM/#SLE.

3. COMPLY WITH WI (CCP) WOODWORK ASSOCIATION QUALITY CERTIFICATION SERVICE/PROGRAM IN ACCORDANCE WITH REQUIREMENTS FOR WORK SPECIFIED IN THIS SECTION: WWW.WOODWORKINSTITUTE.COM/#SLE.

4. PROVIDE LABELS OR CERTIFICATES INDICATING THAT THE INSTALLED WORK COMPLIES WITH AWI/AWMAC/WI (AWS) OR AWMAC/WI (NAAWS) REQUIREMENTS FOR GRADE OR GRADES SPECIFIED.

5. PROVIDE DESIGNATED LABELS ON SHOP DRAWINGS AS REQUIRED BY CERTIFICATION PROGRAM.

6. PROVIDE DESIGNATED LABELS ON INSTALLED PRODUCTS AS REQUIRED BY CERTIFICATION PROGRAM.

7. SUBMIT CERTIFICATIONS UPON COMPLETION OF INSTALLATION THAT VERIFIES THIS WORK IS IN COMPLIANCE WITH SPECIFIED REQUIREMENTS.

1.6 DELIVERY, STORAGE, AND HANDLING

(A) PACKAGE, DELIVER AND STORE DOORS IN ACCORDANCE WITH SPECIFIED QUALITY STANDARD.

(B) ACCEPT DOORS ON SITE IN MANUFACTURER'S PACKAGING. INSPECT FOR DAMAGE.

(C) PROTECT DOORS WITH RESILIENT PACKAGING SEALED WITH HEAT SHRUNK PLASTIC. DO NOT STORE IN DAMP OR WET AREAS; OR IN AREAS WHERE SUNLIGHT MIGHT BLEACH VENEER. SEAL TOP AND BOTTOM EDGES WITH TINTED SEALER IF STORED MORE THAN ONE WEEK. BREAK SEAL ON SITE TO PERMIT VENTILATION.

1.7 WARRANTY

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL WARRANTY REQUIREMENTS.

(B) INTERIOR DOORS: PROVIDE MANUFACTURER'S WARRANTY FOR THE LIFE OF THE INSTALLATION.

(C) INCLUDE COVERAGE FOR DELAMINATION OF VENEER, WARPING BEYOND SPECIFIED INSTALLATION TOLERANCES, DEFECTIVE MATERIALS, AND TELEGRAPHING CORE CONSTRUCTION.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) WOOD VENEER FACED DOORS:

1. EGGERS INDUSTRIES: WWW.EGGERSINDUSTRIES.COM.

2. VT INDUSTRIES, INC.: WWW.VTINDUSTRIES.COM _____.

3. SUBSTITUTIONS: OR APPROVED EQUAL

4. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.2 DOORS AND PANELS

(A) DOORS: REFER TO DRAWINGS FOR LOCATIONS AND ADDITIONAL REQUIREMENTS.

1. QUALITY STANDARD: CUSTOM GRADE, HEAVY DUTY PERFORMANCE, IN ACCORDANCE WITH AWI/AWMAC/WI (AWS) OR AWMAC/WI (NAAWS), UNLESS NOTED OTHERWISE.

2. WOOD VENEER FACED DOORS: 5-PLY UNLESS OTHERWISE INDICATED.

(B) INTERIOR DOORS: 1-3/4 INCHES THICK UNLESS OTHERWISE INDICATED; FLUSH CONSTRUCTION.

1. PROVIDE SOLID CORE DOORS AT EACH LOCATION.

2. FIRE RATED DOORS: TESTED TO RATINGS INDICATED ON DRAWINGS IN ACCORDANCE WITH UL 10C - POSITIVE PRESSURE; UNDERWRITERS LABORATORIES INC (UL) OR INTERTEK/WARNOCK HERSEY (WHI) LABELED WITHOUT ANY VISIBLE SEALS WHEN DOOR IS OPEN.

3. WOOD VENEER FACING FOR FIELD TRANSPARENT FINISH AS INDICATED ON DRAWINGS.

(C) TRANSOM PANELS: SAME CONSTRUCTION AND FINISH AS DOOR; SAME PERFORMANCE RATING AS DOOR.

2.3 DOOR AND PANEL CORES

(A) NON-RATED SOLID CORE AND 20 MINUTE RATED DOORS: TYPE PARTICLEBOARD CORE (PC), PLIES AND FACES AS INDICATED.

(B) FIRE-RATED DOORS: MINERAL CORE TYPE, WITH FIRE RESISTANT COMPOSITE CORE (FD), PLIES AND FACES AS INDICATED ABOVE; WITH CORE BLOCKING AS REQUIRED TO PROVIDE ADEQUATE ANCHORAGE OF HARDWARE WITHOUT THROUGH-BOLTING.

(C) HOLLOW CORE DOORS: TYPE - STANDARD (FSHC); PLIES AND FACES AS INDICATED ABOVE.

2.4 DOOR FACINGS

(A) VENEER FACING FOR TRANSPARENT FINISH: PINE, VENEER GRADE IN ACCORDANCE WITH QUALITY STANDARD INDICATED, PLAIN SLICED (FLAT CUT), WITH BOOK MATCH BETWEEN LEAVES OF VENEER, RUNNING MATCH OF SPLICED VENEER LEAVES ASSEMBLED ON DOOR OR PANEL FACE.

1. VERTICAL EDGES: SAME SPECIES AS FACE VENEER.

2. "RUNNING MATCH" EACH PAIR OF DOORS AND DOORS IN CLOSE PROXIMITY TO EACH OTHER.

3. "PAIR MATCH" EACH PAIR OF DOORS; "SET MATCH" PAIRS OF DOORS WITHIN 10 FEET OF EACH OTHER WHEN DOORS ARE CLOSED.

4. TRANSOMS: CONTINUOUS MATCH TO DOORS.

(B) FACING ADHESIVE: TYPE I - WATERPROOF.

2.5 DOOR CONSTRUCTION

(A) FABRICATE DOORS IN ACCORDANCE WITH DOOR QUALITY STANDARD SPECIFIED.

(B) CORES CONSTRUCTED WITH STILES AND RAILS:

1. PROVIDE SOLID BLOCKS AT LOCK EDGE FOR HARDWARE REINFORCEMENT.

2. PROVIDE SOLID BLOCKING FOR OTHER THROUGHBOLTED HARDWARE.

(C) WHERE SUPPLEMENTARY PROTECTIVE EDGE TRIM IS REQUIRED, INSTALL TRIM AFTER VENEER FACING HAS BEEN APPLIED FULL-WIDTH.

(D) AT EXTERIOR DOORS, PROVIDE ALUMINUM FLASHING AT THE TOP AND BOTTOM RAIL AND THE SILL OF GLAZED OPENINGS FOR FULL THICKNESS AND WIDTH OF DOOR.

(E) GLAZED OPENINGS: NON-REMOVABLE STOPS ON NON-SECURE SIDE; SIZES AND CONFIGURATIONS AS INDICATED ON DRAWINGS.

(F) FACTORY MACHINE DOORS FOR HARDWARE OTHER THAN SURFACE-MOUNTED HARDWARE, IN ACCORDANCE WITH HARDWARE REQUIREMENTS AND DIMENSIONS.

(G) FACTORY FIT DOORS FOR FRAME OPENING DIMENSIONS IDENTIFIED ON SHOP DRAWINGS, WITH EDGE CLEARANCES IN ACCORDANCE WITH SPECIFIED QUALITY STANDARD.

(H) CUT AND CONFIGURE EXTERIOR DOOR EDGE TO RECEIVE RECESSED WEATHERSTRIPPING DEVICES.

(I) PROVIDE EDGE CLEARANCES IN ACCORDANCE WITH THE QUALITY STANDARD SPECIFIED.

2.6 ACCESSORIES

(A) HOLLOW METAL DOOR FRAMES: AS SPECIFIED IN SECTION 08 11 13.

(B) GLAZED OPENINGS:

1. HEAT-STRENGTHENED AND FULLY TEMPERED GLASS: ASTM C1048.

2. FIRE-PROTECTION-RATED GLASS: SAFETY CERTIFICATION, 16 CFR 1201, CATEGORY II.

3. GLAZING: SEALED INSULATING UNITS, 1 INCH THICK, MADE OF 1/4 INCH GLASS.

4. GLAZING: SINGLE VISION UNITS, 1/4 INCH THICK GLASS.

5. TINT: CLEAR.

6. COATING: LOW-E TYPE, ON NO. 2 SURFACE.

(C) GLAZING: AS SPECIFIED IN SECTION 08 80 00.

(D) GLAZING STOPS: WOOD, OF SAME SPECIES AS DOOR FACING, BUTTED CORNERS; PREPARED FOR COUNTERSINK STYLE TAMPER PROOF SCREWS.

(E) ASTRAGALS FOR NON-RATED DOUBLE DOORS: STEEL, T SHAPED, OVERLAPPING AND RECESSED AT FACE EDGE.

(F) ASTRAGALS FOR FIRE-RATED DOUBLE DOORS: STEEL, T SHAPED, OVERLAPPING AND RECESSED AT FACE EDGE, SPECIFICALLY FOR DOUBLE DOORS.

(G) DOOR HARDWARE: AS SPECIFIED IN SECTION 08 71 00.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY EXISTING CONDITIONS BEFORE STARTING WORK.

(B) VERIFY THAT OPENING SIZES AND TOLERANCES ARE ACCEPTABLE.

(C) DO NOT INSTALL DOORS IN FRAME OPENINGS THAT ARE NOT PLUMB OR ARE OUT-OF-TOLERANCE FOR SIZE OR ALIGNMENT.

3.2 INSTALLATION

(A) INSTALL DOORS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND SPECIFIED QUALITY STANDARD.

1. INSTALL FIRE-RATED DOORS IN ACCORDANCE WITH NFPA 80 REQUIREMENTS.

2. INSTALL SMOKE AND DRAFT CONTROL DOORS IN ACCORDANCE WITH NFPA 105 REQUIREMENTS.

3. INSTALL EXTERIOR DOORS IN ACCORDANCE WITH ASTM E2112.

(B) FIELD-FINISHED DOORS: TRIMMING TO FIT IS ACCEPTABLE.

1. ADJUST WIDTH OF NON-RATED DOORS BY CUTTING EQUALLY ON BOTH JAMB EDGES.

2. TRIM MAXIMUM OF 3/4 INCH OFF BOTTOM EDGES.

3. TRIM FIRE-RATED DOORS IN STRICT COMPLIANCE WITH FIRE RATING LIMITATIONS.

(C) USE MACHINE TOOLS TO CUT OR DRILL FOR HARDWARE.

(D) COORDINATE INSTALLATION OF DOORS WITH INSTALLATION OF FRAMES AND HARDWARE.

(E) INSTALL DOOR LOUVERS PLUMB AND LEVEL.

3.3 TOLERANCES

(A) CONFORM TO SPECIFIED QUALITY STANDARD FOR FIT AND CLEARANCE TOLERANCES.

(B) CONFORM TO SPECIFIED QUALITY STANDARD FOR TELEGRAPHING, WARP, AND SQUARENESS.

3.4 ADJUSTING

(A) ADJUST DOORS FOR SMOOTH AND BALANCED DOOR MOVEMENT.

(B) ADJUST CLOSERS FOR FULL CLOSURE.

3.5 SCHEDULE

(A) SEE DRAWINGS

END OF SECTION

SECTION 08 14 33 - STILE AND RAIL WOOD DOORS

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) WOOD DOORS, STILE AND RAIL DESIGN; FIRE RATED AND NON-FIRE RATED.

1.2 RELATED REQUIREMENTS

(A) SECTION 06 20 00 - FINISH CARPENTRY: WOOD DOOR FRAMES.

(B) SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES.

(C) SECTION 08 71 00 - DOOR HARDWARE.

(D) SECTION 08 80 00 - GLAZING.

(E) SECTION 09 91 00 - PAINTING: FIELD FINISHING

1.3 REFERENCE STANDARDS

(A) AWI (QCP) - QUALITY CERTIFICATION PROGRAM; CURRENT EDITION AT WWW.AWIQCP.ORG.

(B) AWI/AWMAC/WI (AWS) - ARCHITECTURAL WOODWORK STANDARDS; 2014.

(C) AWMAC (GIS) - GUARANTEE AND INSPECTION SERVICES PROGRAM; CURRENT EDITION AT WWW.AWMAC.COM/GIS.PHP.

(D) AWMAC/WI (NAAWS) - NORTH AMERICAN ARCHITECTURAL WOODWORK STANDARDS, U.S. VERSION 3.0; 2016.

(E) ICC (IBC) - INTERNATIONAL BUILDING CODE; 2015.

(F) ITS (DIR) - DIRECTORY OF LISTED PRODUCTS; CURRENT EDITION.

(G) NFPA 80 - STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVES; 2016.

(H) NFPA 105 - STANDARD FOR SMOKE DOOR ASSEMBLIES AND OTHER OPENING PROTECTIVES; 2016.

(I) NFPA 252 - STANDARD METHODS OF FIRE TESTS OF DOOR ASSEMBLIES; 2012.

(J) UL (DIR) - ONLINE CERTIFICATIONS DIRECTORY; CURRENT LISTINGS AT DATABASE.UL.COM.

(K) UL 10B - STANDARD FOR FIRE TESTS OF DOOR ASSEMBLIES; CURRENT EDITION, INCLUDING ALL REVISIONS.

(L) UL 10C - STANDARD FOR POSITIVE PRESSURE FIRE TESTS OF DOOR ASSEMBLIES; CURRENT EDITION, INCLUDING ALL REVISIONS.

(M) UL 1784 - STANDARD FOR AIR LEAKAGE TESTS OF DOOR ASSEMBLIES; CURRENT EDITION, INCLUDING ALL REVISIONS.

(N) WDMA I.S. 6A - INTERIOR ARCHITECTURAL WOOD STILE AND RAIL DOORS; 2013.

(O) WI (CCP) - CERTIFIED COMPLIANCE PROGRAM (CCP); CURRENT EDITION AT WWW.WOODWORKINSTITUTE.COM.

(P) WI (CSIP) - CERTIFIED SEISMIC INSTALLATION PROGRAM (CSIP); CURRENT EDITION AT WWW.WOODWORKINSTITUTE.COM.

(Q) WI (MCP) - MONITORED COMPLIANCE PROGRAM (MCP); CURRENT EDITION AT WWW.WOODWORKINSTITUTE.COM.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: INDICATE STILE AND RAIL CORE MATERIALS AND CONSTRUCTION; VENEER SPECIES, TYPE AND CHARACTERISTICS.

(C) SPECIMEN WARRANTY.

(D) SHOP DRAWINGS: ILLUSTRATE DOOR OPENING CRITERIA, ELEVATIONS, SIZES, TYPES, SWINGS, UNDERCUTS REQUIRED, SPECIAL BEVELING, SPECIAL BLOCKING FOR HARDWARE, FACTORY MACHINING CRITERIA, FACTORY FINISHING CRITERIA, IDENTIFY CUTOUTS FOR GLAZING.

(E) SAMPLES: SUBMIT TWO SAMPLES OF DOOR CONSTRUCTION, 12 X 12 INCH IN SIZE CUT FROM TOP CORNER OF DOOR.

(F) SAMPLES: SUBMIT TWO SAMPLES OF DOOR VENEER, 6 X 6 INCH IN SIZE ILLUSTRATING WOOD GRAIN, STAIN COLOR, AND SHEEN.

(G) CERTIFICATE: SUBMIT LABELS AND CERTIFICATES REQUIRED BY QUALITY ASSURANCE AND QUALITY CONTROL PROGRAMS.

(H) MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE SPECIAL INSTALLATION INSTRUCTIONS.

(I) MANUFACTURER'S QUALIFICATION STATEMENT.

(J) INSTALLER'S QUALIFICATION STATEMENT.

(K) WARRANTY, EXECUTED IN OWNER'S NAME.

1.5 QUALITY ASSURANCE

(A) MAINTAIN ONE COPY OF SPECIFIED DOOR QUALITY STANDARD ON SITE FOR REVIEW DURING INSTALLATION AND FINISHING.

(B) MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION, WITH NOT LESS THAN THREE YEARS OF DOCUMENTED EXPERIENCE.

1. COMPANY WITH AT LEAST ONE PROJECT WITHIN THE PAST 5 YEARS WITH VALUE OF WOODWORK WITHIN 20 PERCENT OF COST OF WOODWORK FOR THIS PROJECT.

2. ACCREDITED PARTICIPANT IN THE SPECIFIED CERTIFICATION PROGRAM PRIOR TO THE COMMENCEMENT OF FABRICATION AND THROUGHOUT THE DURATION OF THE PROJECT.

(C) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING WORK OF THE TYPE SPECIFIED IN THIS SECTION, WITH NOT LESS THAN THREE YEARS OF DOCUMENTED EXPERIENCE.

(D) QUALITY CERTIFICATION:

1. COMPLY WITH AWI (QCP) WOODWORK ASSOCIATION QUALITY CERTIFICATION SERVICE/PROGRAM IN ACCORDANCE WITH REQUIREMENTS FOR WORK SPECIFIED IN THIS SECTION: WWW.AWIQCP.ORG/#SLE.

2. COMPLY WITH AWMAC (GIS) WOODWORK ASSOCIATION QUALITY CERTIFICATION SERVICE/PROGRAM IN ACCORDANCE WITH REQUIREMENTS FOR WORK SPECIFIED IN THIS SECTION: WWW.AWMAC.COM/#SLE.

3. COMPLY WITH WI (CCP) WOODWORK ASSOCIATION QUALITY CERTIFICATION SERVICE/PROGRAM IN ACCORDANCE WITH REQUIREMENTS FOR WORK SPECIFIED IN THIS SECTION: WWW.WOODWORKINSTITUTE.COM/#SLE.

4. PROVIDE LABELS OR CERTIFICATES INDICATING THAT THE INSTALLED WORK COMPLIES WITH AWI/AWMAC/WI (AWS) OR AWMAC/WI (NAAWS) REQUIREMENTS FOR GRADE OR GRADES SPECIFIED.

5. PROVIDE DESIGNATED LABELS ON SHOP DRAWINGS AS REQUIRED BY CERTIFICATION PROGRAM.

6. PROVIDE DESIGNATED LABELS ON INSTALLED PRODUCTS AS REQUIRED BY CERTIFICATION PROGRAM.

7. SUBMIT CERTIFICATIONS UPON COMPLETION OF INSTALLATION THAT VERIFIES THIS WORK IS IN COMPLIANCE WITH SPECIFIED REQUIREMENTS.

1.6 DELIVERY, STORAGE, AND HANDLING

(A) PACKAGE, DELIVER, AND STORE DOORS IN ACCORDANCE WITH QUALITY STANDARD SPECIFIED.

(B) PROTECT DOORS WITH RESILIENT PACKAGING SEALED WITH HEAT SHRUNK PLASTIC. DO NOT STORE IN DAMP OR WET AREAS; OR IN AREAS WHERE SUNLIGHT MIGHT BLEACH VENEER. SEAL TOP AND BOTTOM EDGES WITH TINTED SEALER IF STORED MORE THAN ONE WEEK. BREAK SEAL ON SITE TO PERMIT VENTILATION.

1.7 WARRANTY

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL WARRANTY REQUIREMENTS.

(B) INTERIOR DOORS: PROVIDE MANUFACTURER'S WARRANTY FOR THE LIFE OF THE INSTALLATION.

(C) INCLUDE COVERAGE FOR DELAMINATION OF VENEER, WARPING BEYOND SPECIFIED INSTALLATION TOLERANCES, DEFECTIVE MATERIALS, AND TELEGRAPHING CORE CONSTRUCTION.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) STILE AND RAIL WOOD DOORS:

1. EGGERS INDUSTRIES; ____: WWW.EGGERSINDUSTRIES.COM/#SLE.

2. VT INDUSTRIES, INC; ____: WWW.VTINDUSTRIES.COM/#SLE.

3. SUBSTITUTIONS: OR APPROVED EQUAL.

4. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.2 DOORS

(A) QUALITY STANDARD: CUSTOM GRADE, HEAVY DUTY PERFORMANCE, IN ACCORDANCE WITH AWI/AWMAC/WI (AWS) OR AWMAC/WI (NAAWS), UNLESS OTHERWISE INDICATED.

(B) QUALITY STANDARD: CUSTOM GRADE, HEAVY DUTY PERFORMANCE, IN ACCORDANCE WITH WDMA I.S. 6A.

(C) EXTERIOR DOORS: 1-3/4 INCHES THICK UNLESS OTHERWISE INDICATED; SOLID LUMBER CONSTRUCTION; MORTISE AND TENON JOINTS; WATER REPELLENT TREATED. TRANSPARENT FINISH AS INDICATED ON DRAWINGS.

(D) INTERIOR DOORS: 1-3/8 INCHES THICK UNLESS OTHERWISE INDICATED; SOLID LUMBER CONSTRUCTION; MORTISE AND TENON JOINTS. TRANSPARENT OR OPAQUE FINISH AS INDICATED ON DRAWINGS.

(E) WOOD VENEER FACING WITH FACTORY TRANSPARENT FINISH AS INDICATED ON DRAWINGS.

2.3 DOOR AND PANEL FACINGS

(A) VENEER FACING FOR TRANSPARENT FINISH: PINE, VENEER GRADE IN ACCORDANCE WITH QUALITY STANDARD INDICATED, PLAIN SLICED (FLAT CUT), WITH BOOK MATCH BETWEEN LEAVES OF VENEER, RUNNING MATCH OF SPLICED VENEER LEAVES ASSEMBLED ON DOOR OR PANEL FACE.

1. TRANSOM PANELS: CONTINUOUS MATCH TO DOOR.

2. PAIRS: PAIR MATCH EACH PAIR; SET MATCH PAIRS WITHIN 10 FEET OF EACH OTHER WHEN DOORS ARE CLOSED.

(B) MATERIALS FOR OPAQUE FINISHES: HARDBOARD FACES.

(C) ADHESIVE: TYPE I - WATERPROOF.

2.4 DOOR CONSTRUCTION

(A) ASTRAGALS FOR DOUBLE DOORS: WOOD SHAPED, OVERLAPPING AND RECESSED AT FACE EDGE, SPECIFICALLY FOR DOUBLE DOORS.

(B) VERTICAL EXPOSED EDGE OF STILES: OF SAME SPECIES AS VENEER FACING.

(C) FIT DOOR EDGE TRIM TO EDGE OF STILES AFTER APPLYING VENEER FACING.

(D) BOND EDGE BANDING TO CORES.

(E) PANELS: FLAT.

(F) AT EXTERIOR DOORS, PROVIDE ALUMINUM FLASHING AT THE TOP AND BOTTOM RAIL FOR FULL THICKNESS AND WIDTH OF DOOR.

(G) FACTORY MACHINE DOORS FOR FINISH HARDWARE IN ACCORDANCE WITH HARDWARE REQUIREMENTS AND DIMENSIONS. DO NOT MACHINE FOR SURFACE HARDWARE.

(H) FACTORY FIT DOORS FOR FRAME OPENING DIMENSIONS IDENTIFIED ON SHOP DRAWINGS, WITH EDGE CLEARANCES IN ACCORDANCE WITH SPECIFIED QUALITY STANDARD.

1. EXCEPTION: DOORS TO BE FIELD FINISHED.

(I) GLAZED OPENINGS: NON-REMOVABLE STOPS ON NON-SECURE SIDE; SIZES AND CONFIGURATIONS AS INDICATED ON DRAWINGS.

(J) FACTORY INSTALL GLAZING IN DOORS IN COMPLIANCE WITH QUALITY STANDARDS SPECIFIED, USING MANUFACTURER'S STANDARD ELASTOMERIC GLAZING SEALANT.

(K) CUT AND CONFIGURE EXTERIOR DOOR EDGE TO RECEIVE RECESSED WEATHERSTRIPPING DEVICES. PROVIDE EDGE CLEARANCES IN ACCORDANCE WITH REFERENCED QUALITY STANDARDS.

(L) FIRE RATED DOORS: MINERAL CORE TYPE, WITH FIRE RESISTANT COMPOSITE CORE (FD), PLIES AND FACES AS INDICATED ABOVE; WITH CORE BLOCKING AS REQUIRED TO PROVIDE ADEQUATE ANCHORAGE OF HARDWARE WITHOUT THROUGH-BOLTING.

(M) FIRE RATED DOORS: TESTED TO RATINGS INDICATED ON DRAWINGS IN ACCORDANCE WITH NFPA 252 OR UL 10B - NEGATIVE (NEUTRAL) PRESSURE; LISTED IN UL (DIR) OR ITS (DIR) AND WITHOUT ANY VISIBLE SEALS WHEN DOOR IS OPEN.

(N) SMOKE AND DRAFT CONTROL DOORS (INDICATED AS "S" ON DRAWINGS): IN ADDITION TO REQUIRED FIRE RATING, PROVIDE STILE AND RAIL DOOR ASSEMBLIES TESTED IN ACCORDANCE WITH UL 1784 WITH MAXIMUM AIR LEAKAGE OF 3.0 CFM PER SQ FT OF DOOR OPENING AT 0.10 INCH W.G. PRESSURE AT BOTH AMBIENT AND ELEVATED TEMPERATURES FOR "S" LABEL; IF NECESSARY, PROVIDE ADDITIONAL GASKETING OR EDGE SEALING.

(O) SMOKE AND DRAFT CONTROL DOORS (INDICATED AS "S" ON DRAWINGS): IN ADDITION TO REQUIRED FIRE RATING, PROVIDE STILE AND RAIL DOOR ASSEMBLIES IN COMPLIANCE WITH WDMA I.S. 6A REQUIREMENTS FOR "S" LABEL; IF NECESSARY, PROVIDE ADDITIONAL GASKETING OR EDGE SEALING.

2.5 FACTORY FINISHING

(A) FINISH WORK IN ACCORDANCE WITH AWI/AWMAC/WI (AWS) OR AWMAC/WI (NAAWS), SECTION 5 - FINISHING FOR GRADE SPECIFIED AND AS FOLLOWS:

1. TRANSPARENT:

(B) FACTORY FINISH DOORS IN ACCORDANCE WITH APPROVED SAMPLE.

(C) SEAL DOOR TOP EDGE WITH COLOR SEALER TO MATCH DOOR FACING.

2.6 ACCESSORIES

(A) WOOD DOOR FRAMES: AS SPECIFIED IN SECTION 06 20 00.

(B) HOLLOW METAL DOOR FRAMES: AS SPECIFIED IN SECTION 08 11 13.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY EXISTING CONDITIONS BEFORE STARTING WORK.

(B) VERIFY THAT OPENING SIZES AND TOLERANCES ARE ACCEPTABLE.

(C) DO NOT INSTALL DOORS IN FRAME OPENINGS THAT ARE NOT PLUMB OR ARE OUT OF TOLERANCE FOR SIZE OR ALIGNMENT.

3.2 INSTALLATION

(A) INSTALL DOORS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND SPECIFIED QUALITY STANDARDS.

1. INSTALL FIRE-RATED DOORS IN ACCORDANCE WITH NFPA 80 REQUIREMENTS.

2. INSTALL SMOKE AND DRAFT CONTROL DOORS IN ACCORDANCE WITH NFPA 105 REQUIREMENTS.

(B) FACTORY-FINISHED DOORS: DO NOT FIELD CUT OR TRIM; IF FIT OR CLEARANCE IS NOT CORRECT, REPLACE DOOR.

(C) FIELD-FINISHED DOORS: TRIMMING TO FIT IS ACCEPTABLE.

1. ADJUST WIDTH OF NON-RATED DOORS BY CUTTING EQUALLY ON BOTH JAMB EDGES.

2. TRIM DOOR HEIGHT BY CUTTING BOTTOM EDGES TO A MAXIMUM OF 3/4 INCH.

3. TRIM FIRE-RATED DOORS IN STRICT COMPLIANCE WITH FIRE RATING LIMITATIONS.

(D) MACHINE CUT FOR HARDWARE.

(E) COORDINATE INSTALLATION OF DOORS WITH INSTALLATION OF FRAMES AND HARDWARE.

3.3 TOLERANCES

(A) CONFORM TO SPECIFIED QUALITY STANDARD FOR FIT, CLEARANCE, AND JOINERY TOLERANCES.

(B) MAXIMUM WIDTH DISTORTION (CUP): 1/8 INCH MEASURED WITH STRAIGHT EDGE OR TAUT STRING, EDGE TO EDGE, OVER AN IMAGINARY 36 BY 84 INCH SURFACE AREA.

3.4 ADJUSTING

(A) ADJUST DOORS FOR SMOOTH AND BALANCED DOOR MOVEMENT.

(B) ADJUST CLOSERS FOR FULL CLOSURE.

END OF SECTION

SECTION 08 31 00 - ACCESS DOORS AND PANELS

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) WALL ACCESS DOOR AND FRAME UNITS.

(B) CEILING ACCESS DOOR AND FRAME UNITS.

(C) WALL AND CEILING ACCESS DOOR AND FRAME UNITS.

1.2 RELATED REQUIREMENTS

(A) SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES: OPENINGS IN PARTITIONS.

(B) SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES: OPENINGS IN CEILINGS.

(C) SECTION 09 91 00 - PAINTING: FIELD PAINT FINISH.

(D) DIVISION 23 - MECHANICAL

(E) DIVISION 26 - ELECTRICAL

1.3 REFERENCE STANDARDS

(A) ABA STANDARDS FOR ACCESSIBLE DESIGN

(B) ASTM A36/A36M - STANDARD SPECIFICATION FOR CARBON STRUCTURAL STEEL; 2014.

(C) ASTM A240/A240M - STANDARD SPECIFICATION FOR CHROMIUM AND CHROMIUM-NICKEL STAINLESS STEEL PLATE, SHEET, AND STRIP FOR PRESSURE VESSELS AND FOR GENERAL APPLICATIONS; 2016.

(D) ASTM A276/A276M - STANDARD SPECIFICATION FOR STAINLESS STEEL BARS AND SHAPES; 2017.

(E) ASTM A500/A500M - STANDARD SPECIFICATION FOR COLD-FORMED WELDED AND SEAMLESS CARBON STEEL STRUCTURAL TUBING IN ROUNDS AND SHAPES; 2013.

(F) ASTM A513/A513M - STANDARD SPECIFICATION FOR ELECTRIC-RESISTANCE-WELDED CARBON AND ALLOY STEEL MECHANICAL TUBING; 2015.

(G) ASTM A1008/A1008M - STANDARD SPECIFICATION FOR STEEL, SHEET, COLD-ROLLED, CARBON, STRUCTURAL, HIGH-STRENGTH LOW-ALLOY, HIGH-STRENGTH LOW-ALLOY WITH IMPROVED FORMABILITY, SOLUTION HARDENED, AND BAKE HARDENABLE; 2016.

(H) ASTM A1011/A1011M - STANDARD SPECIFICATION FOR STEEL, SHEET AND STRIP, HOT-ROLLED, CARBON, STRUCTURAL, HIGH-STRENGTH LOW-ALLOY, HIGH-STRENGTH LOW-ALLOY WITH IMPROVED FORMABILITY, AND ULTRA-HIGH STRENGTH; 2017.

(I) ASTM B26/B26M - STANDARD SPECIFICATION FOR ALUMINUM-ALLOY SAND CASTINGS; 2014, WITH EDITORIAL REVISION (2015).

(J) ASTM B209 - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE; 2014.

(K) ASTM B209M - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE (METRIC); 2014.

(L) ASTM B211 - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY ROLLED OR COLD FINISHED BAR, ROD, AND WIRE; 2012.

(M) ASTM B211M - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY ROLLED OR COLD-FINISHED BAR, ROD, AND WIRE (METRIC); 2012.

(N) FM (AG) - FM APPROVAL GUIDE; CURRENT EDITION.

(O) ITS (DIR) - DIRECTORY OF LISTED PRODUCTS; CURRENT EDITION.

(P) UL (FRD) - FIRE RESISTANCE DIRECTORY; CURRENT EDITION.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: PROVIDE SIZES, TYPES, FINISHES, HARDWARE, SCHEDULED LOCATIONS, AND DETAILS OF ADJOINING WORK.

(C) SHOP DRAWINGS: INDICATE EXACT POSITION OF EACH ACCESS DOOR AND/OR PANEL UNIT.

(D) MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE INSTALLATION REQUIREMENTS.

(E) PROJECT RECORD DOCUMENTS: RECORD ACTUAL LOCATIONS OF EACH ACCESS UNIT.

1.5 QUALITY ASSURANCE

(A) MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM THREE YEARS DOCUMENTED EXPERIENCE.

(B) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING WORK OF THE TYPE SPECIFIED AND WITH AT LEAST THREE YEARS DOCUMENTED EXPERIENCE.

PART 2 PRODUCTS

2.1 ACCESS DOORS AND PANELS ASSEMBLIES

(A) WALL-MOUNTED UNITS:

1. LOCATION: AS INDICATED ON DRAWINGS, OR AS REQUIRED TO ACCESS CONCEALED VALVES..

2. MATERIAL: STEEL.

3. SIZE: AS INDICATED ON DRAWINGS OR AS REQUIRED FOR FUNCTIONAL ACCESS.

4. DOOR/PANEL: HINGED, STANDARD DUTY, WITH TOOL-OPERATED SPRING OR CAM LOCK AND NO HANDLE.

5. WALL MOUNTING CRITERIA: PROVIDE SURFACE-MOUNTED FACE FRAME AND DOOR SURFACE FLUSH WITH FRAME SURFACE.

(B) FIRE-RATED WALL-MOUNTED UNITS:

1. LOCATION: AS INDICATED ON DRAWINGS.

2. WALL FIRE-RATING: AS INDICATED ON DRAWINGS.

3. MATERIAL: STEEL.

4. SIZE: AS INDICATED ON DRAWINGS OR AS REQUIRED FOR FUNCTIONAL ACCESS

5. DOOR/PANEL: INSULATED DOUBLE-SURFACE PANEL, WITH TOOL-OPERATED SPRING OR CAM LOCK AND NO HANDLE.

(C) FIRE-RATED CEILING-MOUNTED UNITS:

1. LOCATION: AS INDICATED ON DRAWINGS. ALL CEILING MOUNTED UNITS TO BE FIRE-RATED AND INSULATED..

2. CEILING FIRE-RATING: AS INDICATED ON DRAWINGS.

3. MATERIAL: STEEL.

4. SIZE: AS INDICATED ON DRAWINGS OR AS REQUIRED FOR FUNCTIONAL AREAS.

5. DOOR/PANEL: HINGED, STANDARD DUTY, WITH TOOL-OPERATED SPRING OR CAM LOCK AND NO HANDLE.

2.2 <u>WALL AND CEILING MOUNTED UNITS</u>

(A) MANUFACTURERS:

1. ACTIVAR CONSTRUCTION PRODUCTS GROUP - JL INDUSTRIES; TMW SERIES OR FDW SERIES FOR FIRE RATED & INSULATED PANELS.: WWW.ACTIVARCPG.COM/#SLE.

2. SUBSTITUTIONS: OR APPROVED EQUAL..

3. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS

(B) WALL AND CEILING MOUNTED UNITS: FACTORY FABRICATED DOOR AND FRAME, FULLY ASSEMBLED UNITS WITH CORNER JOINTS WELDED, FILLED AND GROUND FLUSH; SQUARE AND WITHOUT RACK OR WARP; COORDINATE REQUIREMENTS WITH TYPE OF INSTALLATION ASSEMBLY BEING USED FOR EACH UNIT.

1. MATERIAL: STEEL.

2. STYLE: CONCEALED FRAME.

a. GYPSUM BOARD MOUNTING CRITERIA: USE DRYWALL BEAD TYPE FRAME.

3. DOOR STYLE: SINGLE THICKNESS WITH ROLLED OR TURNED IN EDGES.

4. FRAMES: 16 GAGE, 0.0598 INCH, MINIMUM THICKNESS WITH CONTINUOUS CONCEALED HINGE.

5. SINGLE STEEL SHEET DOOR PANELS: 1/16 INCH, MINIMUM THICKNESS.

6. INSULATION: NON-COMBUSTIBLE MINERAL WOOL OR GLASS FIBER.

7. UNITS IN FIRE-RATED ASSEMBLIES: FIRE RATING AS REQUIRED BY APPLICABLE CODE FOR FIRE-RATED ASSEMBLY THAT ACCESS DOORS ARE BEING INSTALLED.

    a. PROVIDE PRODUCTS LISTED BY ITS (DIR) OR UL (FRD) AS SUITABLE FOR PURPOSE INDICATED.

    b. PROVIDE CERTIFICATE OF COMPLIANCE FROM AUTHORITIES HAVING JURISDICTION INDICATING APPROVAL OF FIRE RATED DOORS.

8. STEEL FINISH: PRIMED.

9. DOOR/PANEL SIZE: AS INDICATED ON DRAWINGS OR AS REQUIRED FOR FUNCTIONAL ACCESS.

10. HARDWARE:

    a. HARDWARE FOR FIRE-RATED UNITS: AS REQUIRED FOR LISTING.

    b. HINGES FOR NON-FIRE-RATED UNITS: CONCEALED, CONSTANT FORCE CLOSURE SPRING TYPE.

    c. HANDLE: NO HANDLE.

    d. LATCH/LOCK: SCREW DRIVER SLOT FOR QUARTER TURN CAM LATCH.

    e. NUMBER OF LOCKS/LATCHES REQUIRED: AS RECOMMENDED BY MANUFACTURER FOR SIZE OF UNIT.

    f. INSIDE LATCH RELEASE: MECHANISM THAT ALLOWS DOOR/PANEL TO BE OPENED FROM INSIDE.

    g. GASKETING: EXTRUDED NEOPRENE, AROUND PERIMETER OF DOOR PANEL.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY THAT ROUGH OPENINGS ARE CORRECTLY SIZED AND LOCATED.

(B) BEGIN INSTALLATION ONLY AFTER SUBSTRATES HAVE BEEN PROPERLY PREPARED, AND IF THE RESPONSIBILITY OF ANOTHER INSTALLER, NOTIFY ARCHITECT OF UNSATISFACTORY PREPARATION BEFORE PROCEEDING.

3.2 PREPARATION

(A) CLEAN SURFACES THOROUGHLY PRIOR TO PROCEEDING WITH THIS WORK.

(B) PREPARE SURFACES USING METHODS RECOMMENDED BY MANUFACTURER FOR APPLICABLE SUBSTRATES IN ACCORDANCE WITH PROJECT CONDITIONS.

3.3 INSTALLATION

(A) INSTALL UNITS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(B) INSTALL FRAMES PLUMB AND LEVEL IN OPENINGS, AND SECURE UNITS RIGIDLY IN PLACE.

(C) POSITION UNITS TO PROVIDE CONVENIENT ACCESS TO CONCEALED EQUIPMENT WHEN NECESSARY.

(D) PROVIDE OWNER WITH KWYS TO ANY LOCKABLE ACCESS DOORS AND PANELS.

END OF SECTION

SECTION 08 43 13 - ALUMINUM-FRAMED STOREFRONTS

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) INFILL PANELS OF METAL AND GLASS.

(B) ALUMINUM DOORS AND FRAMES.

(C) WEATHERSTRIPPING.

(D) DOOR HARDWARE.

1.2 RELATED REQUIREMENTS

(A) SECTION 05 12 00 - STRUCTURAL STEEL FRAMING: STEEL ATTACHMENT MEMBERS.

(B) SECTION 07 84 00 - FIRESTOPPING: FIRESTOP AT SYSTEM JUNCTION WITH STRUCTURE.

(C) SECTION 07 92 00 - JOINT SEALANTS: SEALING JOINTS BETWEEN FRAMES AND ADJACENT CONSTRUCTION.

(D) SECTION 08 71 00 - DOOR HARDWARE: HARDWARE ITEMS OTHER THAN SPECIFIED IN THIS SECTION.

(E) SECTION 08 80 00 - GLAZING: GLASS AND GLAZING ACCESSORIES.

(F) SECTION 09 91 00 - PAINTING.

(G) SECTION 12 24 00 - WINDOW SHADES: ATTACHMENTS TO FRAMING MEMBERS.

1.3 REFERENCE STANDARDS

(A) AAMA CW-10 - CARE AND HANDLING OF ARCHITECTURAL ALUMINUM FROM SHOP TO SITE; 2015.

(B) AAMA 501.2 - QUALITY ASSURANCE AND DIAGNOSTIC WATER LEAKAGE FIELD CHECK OF INSTALLED STOREFRONTS, CURTAIN WALLS, AND SLOPED GLAZING SYSTEMS; 2015.

(C) AAMA 503 - VOLUNTARY SPECIFICATION FOR FIELD TESTING OF NEWLY INSTALLED STOREFRONTS, CURTAIN WALLS AND SLOPED GLAZING SYSTEMS; 2014.

(D) AAMA 609 & 610 - CLEANING AND MAINTENANCE GUIDE FOR ARCHITECTURALLY FINISHED ALUMINUM (COMBINED DOCUMENT); 2015.

(E) AAMA 611 - VOLUNTARY SPECIFICATION FOR ANODIZED ARCHITECTURAL ALUMINUM; 2014 (2015 ERRATA).

(F) AAMA 612 - VOLUNTARY SPECIFICATION, PERFORMANCE REQUIREMENTS, AND TEST PROCEDURES FOR COMBINED COATINGS OF ANODIC OXIDE AND TRANSPARENT ORGANIC COATINGS ON ARCHITECTURAL ALUMINUM; 2017A.

(G) AAMA 1503 - VOLUNTARY TEST METHOD FOR THERMAL TRANSMITTANCE AND CONDENSATION RESISTANCE OF WINDOWS, DOORS AND GLAZED WALL SECTIONS; 2009.

(H) AAMA 2603 - VOLUNTARY SPECIFICATION, PERFORMANCE REQUIREMENTS AND TEST PROCEDURES FOR PIGMENTED ORGANIC COATINGS ON ALUMINUM EXTRUSIONS AND PANELS (WITH COIL COATING APPENDIX); 2017A.

(I) AAMA 2604 - VOLUNTARY SPECIFICATION, PERFORMANCE REQUIREMENTS AND TEST PROCEDURES FOR HIGH PERFORMANCE ORGANIC COATINGS ON ALUMINUM EXTRUSIONS AND PANELS (WITH COIL COATING APPENDIX); 2017A.

(J) AAMA 2605 - VOLUNTARY SPECIFICATION, PERFORMANCE REQUIREMENTS AND TEST PROCEDURES FOR SUPERIOR PERFORMING ORGANIC COATINGS ON ALUMINUM EXTRUSIONS AND PANELS (WITH COIL COATING APPENDIX); 2017A.

(K) ASCE 7 - MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES; 2016.

(L) ASTM A36/A36M - STANDARD SPECIFICATION FOR CARBON STRUCTURAL STEEL; 2014.

(M) ASTM A123/A123M - STANDARD SPECIFICATION FOR ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS; 2017.

(N) ASTM B209 - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE; 2014.

(O) ASTM B209M - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE (METRIC); 2014.

(P) ASTM B221 - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY EXTRUDED BARS, RODS, WIRE, PROFILES, AND TUBES; 2014.

(Q) ASTM B221M - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY EXTRUDED BARS, RODS, WIRE, PROFILES, AND TUBES (METRIC); 2013.

(R) ASTM E283 - STANDARD TEST METHOD FOR DETERMINING THE RATE OF AIR LEAKAGE THROUGH EXTERIOR WINDOWS, CURTAIN WALLS, AND DOORS UNDER SPECIFIED PRESSURE DIFFERENCES ACROSS THE SPECIMEN; 2004 (REAPPROVED 2012).

(S) ASTM E330/E330M - STANDARD TEST METHOD FOR STRUCTURAL PERFORMANCE OF EXTERIOR WINDOWS, DOORS, SKYLIGHTS AND CURTAIN WALLS BY UNIFORM STATIC AIR PRESSURE DIFFERENCE; 2014.

(T) ASTM E331 - STANDARD TEST METHOD FOR WATER PENETRATION OF EXTERIOR WINDOWS, SKYLIGHTS, DOORS, AND CURTAIN WALLS BY UNIFORM STATIC AIR PRESSURE DIFFERENCE; 2000 (REAPPROVED 2016).

(U) ASTM E783 - STANDARD TEST METHOD FOR FIELD MEASUREMENT OF AIR LEAKAGE THROUGH INSTALLED EXTERIOR WINDOWS AND DOORS; 2002 (REAPPROVED 2010).

(V) ASTM E1105 - STANDARD TEST METHOD FOR FIELD DETERMINATION OF WATER PENETRATION OF INSTALLED EXTERIOR WINDOWS, SKYLIGHTS, DOORS, AND CURTAIN WALLS, BY UNIFORM OR CYCLIC STATIC AIR PRESSURE DIFFERENCE; 2015.

(W) ASTM E1996 - STANDARD SPECIFICATION FOR PERFORMANCE OF EXTERIOR WINDOWS, CURTAIN WALLS, DOORS, AND IMPACT PROTECTIVE SYSTEMS IMPACTED BY WINDBORNE DEBRIS IN HURRICANES; 2017.

(X) FLA (PAD) - FLORIDA BUILDING CODE ONLINE - PRODUCT APPROVAL DIRECTORY; DATABASE AT WWW.FLORIDABUILDING.ORG.

(Y) MIAMI (APD) - APPROVED PRODUCTS DIRECTORY; MIAMI-DADE COUNTY; DATABASE AT WWW.MIAMIDADE.GOV/BUILDING/PC-SEARCH_APP.ASP.

(Z) SSPC-PAINT 20 - ZINC-RICH PRIMERS (TYPE I, "INORGANIC," AND TYPE II, "ORGANIC"); 2002 (ED. 2004).

1.4 ADMINISTRATIVE REQUIREMENTS

(A) COORDINATE WITH INSTALLATION OF OTHER COMPONENTS THAT COMPRISE THE EXTERIOR ENCLOSURE.

(B) PREINSTALLATION MEETING: CONDUCT A PREINSTALLATION MEETING ONE WEEK BEFORE STARTING WORK OF THIS SECTION; REQUIRE ATTENDANCE BY ALL AFFECTED INSTALLERS.

1.5 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: PROVIDE COMPONENT DIMENSIONS, DESCRIBE COMPONENTS WITHIN ASSEMBLY, ANCHORAGE AND FASTENERS, GLASS AND INFILL, DOOR HARDWARE, AND INTERNAL DRAINAGE DETAILS.

(C) SHOP DRAWINGS: INDICATE SYSTEM DIMENSIONS, FRAMED OPENING REQUIREMENTS AND TOLERANCES, AFFECTED RELATED WORK, EXPANSION AND CONTRACTION JOINT LOCATION AND DETAILS, AND FIELD WELDING REQUIRED.

1. INCLUDE DESIGN ENGINEER'S STAMP OR SEAL ON SHOP DRAWINGS FOR ATTACHMENTS AND ANCHORS.

(D) SAMPLES: SUBMIT TWO SAMPLES 6 BY 6 INCHES IN SIZE ILLUSTRATING FINISHED ALUMINUM SURFACE, GLASS, GLAZING MATERIALS.

(E) MANUFACTURER'S CERTIFICATE: CERTIFY THAT THE PRODUCTS SUPPLIED MEET OR EXCEED THE SPECIFIED REQUIREMENTS.

(F) DESIGN DATA: PROVIDE FRAMING MEMBER STRUCTURAL AND PHYSICAL CHARACTERISTICS, ENGINEERING CALCULATIONS, AND DIMENSIONAL LIMITATIONS.

(G) HARDWARE SCHEDULE: COMPLETE ITEMIZATION OF EACH ITEM OF HARDWARE TO BE PROVIDED FOR EACH DOOR, CROSS-REFERENCED TO DOOR IDENTIFICATION NUMBERS IN CONTRACT DOCUMENTS.

(H) FIELD QUALITY CONTROL SUBMITTALS: REPORT OF FIELD TESTING FOR WATER PENETRATION AND AIR LEAKAGE.

(I) DESIGNER'S QUALIFICATION STATEMENT.

(J) MANUFACTURER'S QUALIFICATION STATEMENT.

(K) INSTALLER'S QUALIFICATION STATEMENT.

(L) WARRANTY: SUBMIT MANUFACTURER WARRANTY AND ENSURE FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER.

1.6 QUALITY ASSURANCE

(A) DESIGNER QUALIFICATIONS: DESIGN STRUCTURAL SUPPORT FRAMING COMPONENTS UNDER DIRECT SUPERVISION OF A PROFESSIONAL STRUCTURAL ENGINEER EXPERIENCED IN DESIGN OF THIS WORK AND LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED,

(B) MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING WORK OF TYPE SPECIFIED AND WITH AT LEAST THREE YEARS OF DOCUMENTED EXPERIENCE.

(C) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING WORK OF TYPE SPECIFIED AND WITH AT LEAST THREE YEARS OF DOCUMENTED EXPERIENCE.

1.7 DELIVERY, STORAGE, AND HANDLING

(A) HANDLE PRODUCTS OF THIS SECTION IN ACCORDANCE WITH AAMA CW-10.

(B) PROTECT FINISHED ALUMINUM SURFACES WITH WRAPPING. DO NOT USE ADHESIVE PAPERS OR SPRAYED COATINGS THAT BOND TO ALUMINUM WHEN EXPOSED TO SUNLIGHT OR WEATHER.

1.8 FIELD CONDITIONS

(A) DO NOT INSTALL SEALANTS WHEN AMBIENT TEMPERATURE IS LESS THAN 40 DEGREES F. MAINTAIN THIS MINIMUM TEMPERATURE DURING AND 48 HOURS AFTER INSTALLATION.

1.9 WARRANTY

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL WARRANTY REQUIREMENTS.

(B) CORRECT DEFECTIVE WORK WITHIN A FIVE YEAR PERIOD AFTER DATE OF SUBSTANTIAL COMPLETION.

(C) PROVIDE FIVE YEAR MANUFACTURER WARRANTY AGAINST FAILURE OF GLASS SEAL ON INSULATING GLASS UNITS, INCLUDING INTERPANE DUSTING OR MISTING. INCLUDE PROVISION FOR REPLACEMENT OF FAILED UNITS.

(D) PROVIDE FIVE YEAR MANUFACTURER WARRANTY AGAINST EXCESSIVE DEGRADATION OF EXTERIOR FINISH. INCLUDE PROVISION FOR REPLACEMENT OF UNITS WITH EXCESSIVE FADING, CHALKING, OR FLAKING.

PART 2 PRODUCTS

2.1 BASIS OF DESIGN -- FRAMING FOR INSULATING GLAZING

(A) FRONT-SET STYLE, THERMALLY-BROKEN:

1. BASIS OF DESIGN: EFCO CORPORATION; SERIES 406, THERMAL STOREFRONT FRAMING: WWW.EFCOCORP.COM/#SLE.

2. VERTICAL MULLION DIMENSIONS: 2 INCHES WIDE BY 4-1/2 INCHES DEEP.

(B) OTHER MANUFACTURERS: PROVIDE EITHER THE PRODUCT IDENTIFIED AS "BASIS OF DESIGN" OR AN EQUIVALENT PRODUCT OF ONE OF THE MANUFACTURERS LISTED BELOW:

1. CORAL ARCHITECTURAL PRODUCTS, A DIVISION OF CORAL INDUSTRIES, INC: WWW.CORALAP.COM/#SLE.

2. C.R. LAURENCE COMPANY, INC; U.S. ALUMINUM: WWW.CRL-ARCH.COM/#SLE.

3. PITTCO ARCHITECTURAL METALS INC: WWW.PITTCOMETALS.COM/#SLE.

4. TRULITE GLASS & ALUMINUM SOLUTIONS, LLC: WWW.TRULITE.COM/#SLE.

5. YKK AP AMERICA INC: WWW.YKKAP.COM/#SLE.

6. SUBSTITUTIONS: OR APPROVED EQUAL..

(C) SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.2 BASIS OF DESIGN -- SWINGING DOORS

(A) OTHER MANUFACTURERS: PROVIDE EITHER THE PRODUCT IDENTIFIED AS "BASIS OF DESIGN" OR AN EQUIVALENT PRODUCT OF ONE OF THE MANUFACTURERS LISTED BELOW:

1. CORAL ARCHITECTURAL PRODUCTS, A DIVISION OF CORAL INDUSTRIES, INC: WWW.CORALAP.COM/#SLE.

2. C.R. LAURENCE COMPANY, INC; U.S. ALUMINUM: WWW.CRL-ARCH.COM/#SLE.

3. PITTCO ARCHITECTURAL METALS INC: WWW.PITTCOMETALS.COM/#SLE.

4. TRULITE GLASS & ALUMINUM SOLUTIONS, LLC: WWW.TRULITE.COM/#SLE.

5. YKK AP AMERICA INC: WWW.YKKAP.COM/#SLE.

6. SUBSTITUTIONS: OR APPROVED EQUAL..

(B) SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.3 MATERIALS

(A) EXTRUDED ALUMINUM: ASTM B221 (ASTM B221M).

(B) SHEET ALUMINUM: ASTM B209 (ASTM B209M).

(C) STRUCTURAL STEEL SECTIONS: ASTM A36/A36M; GALVANIZED IN ACCORDANCE WITH REQUIREMENTS OF ASTM A123/A123M.

(D) STRUCTURAL STEEL SECTIONS: ASTM A36/A36M; SHOP PRIMED.

(E) STRUCTURAL SUPPORTING ANCHORS: SEE SECTION 05 12 00.

(F) STRUCTURAL SUPPORTING ANCHORS ATTACHED TO STRUCTURAL STEEL: DESIGN FOR BOLTED ATTACHMENT.

(G) STRUCTURAL SUPPORTING ANCHORS ATTACHED TO REINFORCED CONCRETE MEMBERS: DESIGN FOR WELDED ATTACHMENT TO WELD PLATES EMBEDDED IN CONCRETE.

(H) FASTENERS: STAINLESS STEEL.

(I) EXPOSED FLASHINGS: ALUMINUM SHEET, 20 GAGE, 0.032 INCH MINIMUM THICKNESS; FINISH TO MATCH FRAMING MEMBERS.

(J) CONCEALED FLASHINGS: GALVANIZED STEEL, 26 GAGE, 0.0179 INCH MINIMUM BASE METAL THICKNESS.

(K) CONCEALED FLASHINGS: STAINLESS STEEL, 26 GAGE, 0.0187 INCH MINIMUM THICKNESS.

(L) CONCEALED FLASHINGS: SHEET ALUMINUM, 26 GAGE, 0.017 INCH MINIMUM THICKNESS.

(M) SILL FLASHING SEALANT: ELASTOMERIC, SILICONE OR POLYURETHANE, COMPATIBLE WITH FLASHING MATERIAL.

(N) SEALANT FOR SETTING THRESHOLDS: NON-CURING BUTYL TYPE.

(O) GLAZING GASKETS: TYPE TO SUIT APPLICATION TO ACHIEVE WEATHER, MOISTURE, AND AIR INFILTRATION REQUIREMENTS.

(P) GLAZING ACCESSORIES: AS SPECIFIED IN SECTION 08 80 00.

(Q) TOUCH-UP PRIMER FOR GALVANIZED STEEL SURFACES: SSPC-PAINT 20, ZINC RICH.

2.4 FINISHES

(A) CLASS I NATURAL ANODIZED FINISH: AAMA 611 AA-M12C22A41 CLEAR ANODIC COATING NOT LESS THAN 0.7 MILS THICK.

(B) CLASS II NATURAL ANODIZED FINISH: AAMA 611 AA-M12C22A31 CLEAR ANODIC COATING NOT LESS THAN 0.4 MILS THICK.

(C) PIGMENTED ORGANIC COATINGS: AAMA 2603; POLYESTER OR ACRYLIC BAKED ENAMEL FINISH.

(D) COLOR: AS SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD RANGE.

(E) TOUCH-UP MATERIALS: AS RECOMMENDED BY COATING MANUFACTURER FOR FIELD APPLICATION.

2.5 HARDWARE

(A) FOR EACH DOOR, INCLUDE WEATHERSTRIPPING, SILL SWEEP STRIP, AND THRESHOLD.

(B) OTHER DOOR HARDWARE: AS SPECIFIED IN SECTION 08 71 00.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY DIMENSIONS, TOLERANCES, AND METHOD OF ATTACHMENT WITH OTHER WORK.

(B) VERIFY THAT WALL OPENINGS AND ADJOINING AIR AND VAPOR SEAL MATERIALS ARE READY TO RECEIVE WORK OF THIS SECTION.

3.2 INSTALLATION

(A) INSTALL WALL SYSTEM IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(B) ATTACH TO STRUCTURE TO PERMIT SUFFICIENT ADJUSTMENT TO ACCOMMODATE CONSTRUCTION TOLERANCES AND OTHER IRREGULARITIES.

(C) PROVIDE ALIGNMENT ATTACHMENTS AND SHIMS TO PERMANENTLY FASTEN SYSTEM TO BUILDING STRUCTURE.

(D) ALIGN ASSEMBLY PLUMB AND LEVEL, FREE OF WARP OR TWIST. MAINTAIN ASSEMBLY DIMENSIONAL TOLERANCES, ALIGNING WITH ADJACENT WORK.

(E) PROVIDE THERMAL ISOLATION WHERE COMPONENTS PENETRATE OR DISRUPT BUILDING INSULATION.

(F) INSTALL SILL FLASHINGS. TURN UP ENDS AND EDGES; SEAL TO ADJACENT WORK TO FORM WATER TIGHT DAM.

(G) WHERE FASTENERS PENETRATE SILL FLASHINGS, MAKE WATERTIGHT BY SEATING AND SEALING FASTENER HEADS TO SILL FLASHING.

(H) PACK FIBROUS INSULATION IN SHIM SPACES AT PERIMETER OF ASSEMBLY TO MAINTAIN CONTINUITY OF THERMAL BARRIER.

(I) SET THRESHOLDS IN BED OF SEALANT AND SECURE.

(J) INSTALL HARDWARE USING TEMPLATES PROVIDED.

1. SEE SECTION 08 71 00 FOR HARDWARE INSTALLATION REQUIREMENTS.

(K) INSTALL GLASS AND INFILL PANELS IN ACCORDANCE WITH SECTION 08 80 00, USING GLAZING METHOD REQUIRED TO ACHIEVE PERFORMANCE CRITERIA.

(L) TOUCH-UP MINOR DAMAGE TO FACTORY APPLIED FINISH; REPLACE COMPONENTS THAT CANNOT BE SATISFACTORILY REPAIRED.

3.3 TOLERANCES

(A) MAXIMUM VARIATION FROM PLUMB: 0.06 INCH PER 3 FEET NON-CUMULATIVE OR 0.06 INCH PER 10 FEET, WHICHEVER IS LESS.

(B) MAXIMUM MISALIGNMENT OF TWO ADJOINING MEMBERS ABUTTING IN PLANE: 1/32 INCH.

3.4 FIELD QUALITY CONTROL

(A) PROVIDE SERVICES OF STOREFRONT MANUFACTURER'S FIELD REPRESENTATIVE TO OBSERVE FOR PROPER INSTALLATION OF SYSTEM AND SUBMIT REPORT.

(B) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR INDEPENDENT FIELD TESTING AND INSPECTION REQUIREMENTS, AND REQUIREMENTS FOR MONITORING QUALITY OF SPECIFIED PRODUCT INSTALLATIONS.

3.5 CLEANING

(A) REMOVE PROTECTIVE MATERIAL FROM PRE-FINISHED ALUMINUM SURFACES.

(B) WASH DOWN SURFACES WITH A SOLUTION OF MILD DETERGENT IN WARM WATER, APPLIED WITH SOFT, CLEAN WIPING CLOTHS, AND TAKE CARE TO REMOVE DIRT FROM CORNERS AND TO WIPE SURFACES CLEAN.

(C) UPON COMPLETION OF INSTALLATION, THOROUGHLY CLEAN ALUMINUM SURFACES IN ACCORDANCE WITH AAMA 609 & 610.

3.6 PROTECTION

(A) PROTECT INSTALLED PRODUCTS FROM DAMAGE UNTIL DATE OF SUBSTANTIAL COMPLETION.

END OF SECTION

SECTION 08 51 13 - ALUMINUM WINDOWS

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) EXTRUDED ALUMINUM WINDOWS WITH FIXED SASH, OPERATING SASH, AND INFILL PANELS.

(B) FACTORY GLAZING.

(C) OPERATING HARDWARE.

(D) INSECT SCREENS.

1.2 RELATED REQUIREMENTS

(A) SECTION 06 10 00 - ROUGH CARPENTRY: ROUGH OPENING FRAMING.

(B) SECTION 06 10 00 - ROUGH CARPENTRY: WOOD PERIMETER SHIMS.

(C) SECTION 07 92 00 - JOINT SEALANTS: SEALING JOINTS BETWEEN WINDOW FRAMES AND ADJACENT CONSTRUCTION.

(D) SECTION 08 80 00 - GLAZING.

1.3 REFERENCE STANDARDS

(A) AAMA/WDMA/CSA 101/I.S.2/A440 - NORTH AMERICAN FENESTRATION STANDARD/SPECIFICATION FOR WINDOWS, DOORS, AND SKYLIGHTS; 2017.

(B) AAMA CW-10 - CARE AND HANDLING OF ARCHITECTURAL ALUMINUM FROM SHOP TO SITE; 2015.

(C) AAMA 502 - VOLUNTARY SPECIFICATION FOR FIELD TESTING OF NEWLY INSTALLED FENESTRATION PRODUCTS; 2012.

(D) AAMA 609 & 610 - CLEANING AND MAINTENANCE GUIDE FOR ARCHITECTURALLY FINISHED ALUMINUM (COMBINED DOCUMENT); 2015.

(E) AAMA 611 - VOLUNTARY SPECIFICATION FOR ANODIZED ARCHITECTURAL ALUMINUM; 2014 (2015 ERRATA).

(F) AAMA 612 - VOLUNTARY SPECIFICATION, PERFORMANCE REQUIREMENTS, AND TEST PROCEDURES FOR COMBINED COATINGS OF ANODIC OXIDE AND TRANSPARENT ORGANIC COATINGS ON ARCHITECTURAL ALUMINUM; 2017A.

(G) AAMA 1503 - VOLUNTARY TEST METHOD FOR THERMAL TRANSMITTANCE AND CONDENSATION RESISTANCE OF WINDOWS, DOORS AND GLAZED WALL SECTIONS; 2009.

(H) AAMA 2603 - VOLUNTARY SPECIFICATION, PERFORMANCE REQUIREMENTS AND TEST PROCEDURES FOR PIGMENTED ORGANIC COATINGS ON ALUMINUM EXTRUSIONS AND PANELS (WITH COIL COATING APPENDIX); 2017A.

(I) AAMA 2604 - VOLUNTARY SPECIFICATION, PERFORMANCE REQUIREMENTS AND TEST PROCEDURES FOR HIGH PERFORMANCE ORGANIC COATINGS ON ALUMINUM EXTRUSIONS AND PANELS (WITH COIL COATING APPENDIX); 2017A.

(J) AAMA 2605 - VOLUNTARY SPECIFICATION, PERFORMANCE REQUIREMENTS AND TEST PROCEDURES FOR SUPERIOR PERFORMING ORGANIC COATINGS ON ALUMINUM EXTRUSIONS AND PANELS (WITH COIL COATING APPENDIX); 2017A.

(K) ASCE 7 - MINIMUM DESIGN LOADS AND ASSOCIATED CRITERIA FOR BUILDINGS AND OTHER STRUCTURES; 2016.

(L) ASHRAE STD 90.1 I-P - ENERGY STANDARD FOR BUILDINGS EXCEPT LOW-RISE RESIDENTIAL BUILDINGS; 2013, INCLUDING ALL AMENDMENTS AND ERRATA.

(M) ASTM A123/A123M - STANDARD SPECIFICATION FOR ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS; 2017.

(N) ASTM B209 - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE; 2014.

(O) ASTM B209M - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE (METRIC); 2014.

(P) ASTM B221 - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY EXTRUDED BARS, RODS, WIRE, PROFILES, AND TUBES; 2014.

(Q) ASTM B221M - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY EXTRUDED BARS, RODS, WIRE, PROFILES, AND TUBES (METRIC); 2013.

(R) ASTM E90 - STANDARD TEST METHOD FOR LABORATORY MEASUREMENT OF AIRBORNE SOUND TRANSMISSION LOSS OF BUILDING PARTITIONS AND ELEMENTS; 2009 (REAPPROVED 2016).

(S) ASTM E283 - STANDARD TEST METHOD FOR DETERMINING THE RATE OF AIR LEAKAGE THROUGH EXTERIOR WINDOWS, CURTAIN WALLS, AND DOORS UNDER SPECIFIED PRESSURE DIFFERENCES ACROSS THE SPECIMEN; 2004 (REAPPROVED 2012).

(T) ASTM E331 - STANDARD TEST METHOD FOR WATER PENETRATION OF EXTERIOR WINDOWS, SKYLIGHTS, DOORS, AND CURTAIN WALLS BY UNIFORM STATIC AIR PRESSURE DIFFERENCE; 2000 (REAPPROVED 2016).

(U) ASTM E783 - STANDARD TEST METHOD FOR FIELD MEASUREMENT OF AIR LEAKAGE THROUGH INSTALLED EXTERIOR WINDOWS AND DOORS; 2002 (REAPPROVED 2010).

(V) ASTM E1105 - STANDARD TEST METHOD FOR FIELD DETERMINATION OF WATER PENETRATION OF INSTALLED EXTERIOR WINDOWS, SKYLIGHTS, DOORS, AND CURTAIN WALLS, BY UNIFORM OR CYCLIC STATIC AIR PRESSURE DIFFERENCE; 2015.

(W) ASTM E1332 - STANDARD CLASSIFICATION FOR RATING OUTDOOR-INDOOR SOUND ATTENUATION; 2016.

(X) ASTM E1996 - STANDARD SPECIFICATION FOR PERFORMANCE OF EXTERIOR WINDOWS, CURTAIN WALLS, DOORS, AND IMPACT PROTECTIVE SYSTEMS IMPACTED BY WINDBORNE DEBRIS IN HURRICANES; 2017.

(Y) ASTM E2112 - STANDARD PRACTICE FOR INSTALLATION OF EXTERIOR WINDOWS, DOORS AND SKYLIGHTS; 2007 (REAPPROVED 2016).

(Z) ASTM F588 - STANDARD TEST METHODS FOR MEASURING THE FORCED ENTRY RESISTANCE OF WINDOW ASSEMBLIES, EXCLUDING GLAZING IMPACT; 2014.

(AA) FLA (PAD) - FLORIDA BUILDING CODE ONLINE - PRODUCT APPROVAL DIRECTORY; DATABASE AT WWW.FLORIDABUILDING.ORG.

(AB) MIAMI (APD) - APPROVED PRODUCTS DIRECTORY; MIAMI-DADE COUNTY; DATABASE AT WWW.MIAMIDADE.GOV/BUILDING/PC-SEARCH_APP.ASP.

(AC) SSPC-PAINT 20 - ZINC-RICH PRIMERS (TYPE I, "INORGANIC," AND TYPE II, "ORGANIC"); 2002 (ED. 2004).

1.4 ADMINISTRATIVE REQUIREMENTS

(A) PREINSTALLATION MEETING: CONVENE ONE WEEK BEFORE STARTING WORK OF THIS SECTION.

1.5 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) SHOP DRAWINGS: INDICATE OPENING DIMENSIONS, ELEVATIONS OF DIFFERENT TYPES, FRAMED OPENING TOLERANCES, METHOD FOR ACHIEVING AIR AND VAPOR BARRIER SEAL TO ADJACENT CONSTRUCTION, ANCHORAGE LOCATIONS, HARDWARE, OPERATORS, AND INSTALLATION REQUIREMENTS.

(C) SAMPLES: SUBMIT TWO SAMPLES, 12 BY 12 INCH IN SIZE ILLUSTRATING TYPICAL CORNER CONSTRUCTION, ACCESSORIES, AND FINISHES.

(D) SUBMIT TWO SAMPLES OF OPERATING HARDWARE.

(E) GRADE SUBSTANTIATION: PRIOR TO SUBMITTING SHOP DRAWINGS OR STARTING FABRICATION, SUBMIT ONE OF THE FOLLOWING SHOWING COMPLIANCE WITH SPECIFIED GRADE:

1. EVIDENCE OF AAMA CERTIFICATION.

2. EVIDENCE OF WDMA CERTIFICATION.

3. EVIDENCE OF CSA CERTIFICATION.

4. TEST REPORT(S) BY INDEPENDENT TESTING AGENCY ITEMIZING COMPLIANCE AND ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

(F) TEST REPORTS: PRIOR TO SUBMITTING SHOP DRAWINGS OR STARTING FABRICATION, SUBMIT TEST REPORT(S) BY INDEPENDENT TESTING AGENCY SHOWING COMPLIANCE WITH PERFORMANCE REQUIREMENTS IN EXCESS OF THOSE PRESCRIBED BY SPECIFIED GRADE.

(G) MANUFACTURER'S INSTALLATION INSTRUCTIONS: INCLUDE COMPLETE PREPARATION, INSTALLATION, AND CLEANING REQUIREMENTS.

(H) FIELD QUALITY CONTROL SUBMITTALS: REPORT OF FIELD TESTING FOR WATER PENETRATION AND AIR LEAKAGE.

(I) MANUFACTURER'S QUALIFICATION STATEMENT.

(J) INSTALLER'S QUALIFICATION STATEMENT.

(K) WARRANTY: SUBMIT MANUFACTURER WARRANTY AND ENSURE THAT FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER.

1.6 QUALITY ASSURANCE

(A) MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM THREE YEARS OF DOCUMENTED EXPERIENCE.

(B) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING WORK OF TYPE SPECIFIED AND WITH AT LEAST THREE YEARS OF DOCUMENTED EXPERIENCE.

1.7 DELIVERY, STORAGE, AND HANDLING

(A) COMPLY WITH REQUIREMENTS OF AAMA CW-10.

(B) PROTECT FINISHED SURFACES WITH WRAPPING PAPER OR STRIPPABLE COATING DURING INSTALLATION. DO NOT USE ADHESIVE PAPERS OR SPRAYED COATINGS THAT BOND TO SUBSTRATE WHEN EXPOSED TO SUNLIGHT OR WEATHER.

1.8 FIELD CONDITIONS

(A) DO NOT INSTALL SEALANTS WHEN AMBIENT TEMPERATURE IS LESS THAN 40 DEGREES F.

(B) MAINTAIN THIS MINIMUM TEMPERATURE DURING AND 24 HOURS AFTER INSTALLATION OF SEALANTS.

1.9 WARRANTY

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL WARRANTY REQUIREMENTS.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) ALUMINUM WINDOWS:

1. PEERLESS PRODUCTS, INC: WWW.PEERLESSPRODUCTS.COM/#SLE.
2. TRACO: WWW.TRACO.COM/#SLE.
3. KAWNEER. WWW.KAWNEER.COM
4. SUBSTITUTIONS: OR APPROVED EQUAL.
5. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS

2.2 WINDOWS

(A) ALUMINUM WINDOWS: EXTRUDED ALUMINUM FRAME AND SASH, FACTORY FABRICATED, FACTORY FINISHED, WITH OPERATING HARDWARE, RELATED FLASHINGS, AND ANCHORAGE AND ATTACHMENT DEVICES.

1. FRAME DEPTH: 3-1/2 INCHES.

2. FABRICATION: JOINTS AND CORNERS FLUSH, HAIRLINE, AND WEATHERPROOF, ACCURATELY FITTED AND SECURED; PREPARED TO RECEIVE ANCHORS; FASTENERS AND ATTACHMENTS CONCEALED FROM VIEW; REINFORCED AS REQUIRED FOR OPERATING HARDWARE AND IMPOSED LOADS.

3. PERIMETER CLEARANCE: MINIMIZE SPACE BETWEEN FRAMING MEMBERS AND ADJACENT CONSTRUCTION WHILE ALLOWING EXPECTED MOVEMENT.

4. MOVEMENT: ACCOMMODATE MOVEMENT BETWEEN WINDOW AND PERIMETER FRAMING AND DEFLECTION OF LINTEL, WITHOUT DAMAGE TO COMPONENTS OR DETERIORATION OF SEALS.

5. SYSTEM INTERNAL DRAINAGE: DRAIN TO THE EXTERIOR BY MEANS OF A WEEP DRAINAGE NETWORK ANY WATER ENTERING JOINTS, CONDENSATION OCCURRING IN GLAZING CHANNEL, AND MIGRATING MOISTURE OCCURRING WITHIN SYSTEM.

(B) FIXED, NON-OPERABLE TYPE:

1. CONSTRUCTION: THERMALLY BROKEN.

2. GLAZING: DOUBLE; GRAY TINTED; LOW-E.

3. EXTERIOR FINISH: CLASS I NATURAL ANODIZED.

4. INTERIOR FINISH: CLASS I NATURAL ANODIZED.

(C) HORIZONTAL SLIDING TYPE:

1. CONSTRUCTION: THERMALLY BROKEN.

2. PROVIDE SCREENS.

3. GLAZING: SINGLE; CLEAR; TRANSPARENT.

4. EXTERIOR FINISH: CLASS I NATURAL ANODIZED.

5. INTERIOR FINISH: CLASS I NATURAL ANODIZED.

(D) DOUBLE-HUNG TYPE:

1. CONSTRUCTION: THERMALLY BROKEN.

2. PROVIDE SCREENS.

3. GLAZING: SINGLE; CLEAR; TRANSPARENT.

4. EXTERIOR FINISH: CLASS I NATURAL ANODIZED.

5. INTERIOR FINISH: CLASS I NATURAL ANODIZED.

2.3 PERFORMANCE REQUIREMENTS

(A) GRADE: AAMA/WDMA/CSA 101/I.S.2/A440 REQUIREMENTS FOR SPECIFIC WINDOW TYPE:

1. PERFORMANCE CLASS (PC): R.

(B) DESIGN PRESSURE (DP): IN ACCORDANCE WITH APPLICABLE CODES.

(C) MEMBER DEFLECTION: LIMIT MEMBER DEFLECTION TO FLEXURE LIMIT OF GLASS IN ANY DIRECTION, WITH FULL RECOVERY OF GLAZING MATERIALS.

(D) WATER LEAKAGE: NO UNCONTROLLED LEAKAGE ON INTERIOR FACE WHEN TESTED IN ACCORDANCE WITH ASTM E331 AT DIFFERENTIAL PRESSURE OF 12.11 PSF.

(E) AIR LEAKAGE: MAXIMUM OF 0.1 CU FT/MIN SQ FT PER UNIT AREA OF OUTSIDE FRAME DIMENSION, WITH 6.27 PSF DIFFERENTIAL PRESSURE WHEN TESTED IN ACCORDANCE WITH ASTM E283.

(F) CONDENSATION RESISTANCE FACTOR OF FRAME: 50, MEASURED IN ACCORDANCE WITH AAMA 1503.

(G) OVERALL THERMAL TRANSMITTANCE (U-VALUE): 0.35, MAXIMUM, INCLUDING GLAZING, MEASURED ON WINDOW SIZES REQUIRED FOR THIS PROJECT.

(H) FENESTRATION ASSEMBLY THERMAL TRANSMITTANCE (U-VALUE): COMPLY WITH ASHRAE STD 90.1 I-P FOR BUILDING ENVELOPE REQUIREMENTS FOR APPLICABLE CLIMATE ZONE.

(I) FORCED ENTRY RESISTANCE: TESTED TO COMPLY WITH ASTM F588 REQUIREMENTS FOR PERFORMANCE LEVEL OF GRADE 10 FOR SPECIFIC WINDOW STYLE REQUIRED.

(J) ACOUSTIC PERFORMANCE: MINIMUM OUTDOOR-INDOOR TRANSMISSION CLASS (OITC) RATING OF 34, WHEN TESTED IN ACCORDANCE WITH ASTM E90 AND ASTM E1332.

2.4 MATERIALS

(A) EXTRUDED ALUMINUM: ASTM B221 (ASTM B221M), 6063 ALLOY, T6 TEMPER.

(B) SHEET ALUMINUM: ASTM B209 (ASTM B209M), 5005 ALLOY, H12 OR H14 TEMPER.

(C) CONCEALED STEEL ITEMS: PROFILED TO SUIT MULLION SECTIONS; GALVANIZED IN ACCORDANCE WITH ASTM A123/A123M.

2.5 HARDWARE

(A) SASH LOCK: LEVER HANDLE WITH CAM LOCK.

(B) PROJECTING SASH ARMS: CADMIUM PLATED STEEL, FRICTION PIVOT JOINTS WITH NYLON BEARINGS, REMOVABLE PIVOT CLIPS FOR CLEANING.

(C) LIMIT STOPS: RESILIENT RUBBER.

2.6 FINISHES

(A) CLASS I NATURAL ANODIZED FINISH: AAMA 611 AA-M12C22A41 CLEAR ANODIC COATING NOT LESS THAN 0.7 MILS THICK.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY THAT WALL OPENINGS AND ADJOINING AIR AND VAPOR SEAL MATERIALS ARE READY TO RECEIVE ALUMINUM WINDOWS.

3.2 INSTALLATION

(A) INSTALL WINDOWS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(B) INSTALL WINDOW ASSEMBLY IN ACCORDANCE WITH AAMA/WDMA/CSA 101/I.S.2/A440.

(C) INSTALL WINDOWS IN ACCORDANCE WITH ASTM E2112.

(D) ATTACH WINDOW FRAME AND SHIMS TO PERIMETER OPENING TO ACCOMMODATE CONSTRUCTION TOLERANCES AND OTHER IRREGULARITIES.

(E) ALIGN WINDOW PLUMB AND LEVEL, FREE OF WARP OR TWIST. MAINTAIN DIMENSIONAL TOLERANCES AND ALIGNMENT WITH ADJACENT WORK.

(F) INSTALL SILL AND SILL END ANGLES.

(G) SET SILL MEMBERS AND SILL FLASHING IN CONTINUOUS BEAD OF SEALANT.

(H) PROVIDE THERMAL ISOLATION WHERE COMPONENTS PENETRATE OR DISRUPT BUILDING INSULATION. PACK FIBROUS INSULATION IN SHIM SPACES AT PERIMETER OF ASSEMBLY TO MAINTAIN CONTINUITY OF THERMAL BARRIER.

(I) INSTALL OPERATING HARDWARE NOT PRE-INSTALLED BY MANUFACTURER.

(J) INSTALL GLASS AND INFILL PANELS IN ACCORDANCE WITH REQUIREMENTS SPECIFIED IN SECTION 08 80 00.

3.3 TOLERANCES

(A) MAXIMUM VARIATION FROM LEVEL OR PLUMB: 1/16 INCHES EVERY 3 FT NON-CUMULATIVE OR 1/8 INCHES PER 10 FT, WHICHEVER IS LESS.

3.4 FIELD QUALITY CONTROL

(A) PROVIDE SERVICES OF ALUMINUM WINDOW MANUFACTURER'S FIELD REPRESENTATIVE TO OBSERVE FOR PROPER INSTALLATION OF SYSTEM AND SUBMIT REPORT.

(B) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR INDEPENDENT FIELD TESTING AND INSPECTION REQUIREMENTS, AND REQUIREMENTS FOR MONITORING QUALITY OR SPECIFIED PRODUCT INSTALLATIONS.

(C) REPAIR OR REPLACE FENESTRATION COMPONENTS THAT HAVE FAILED DESIGNATED FIELD TESTING, AND RETEST TO VERIFY PERFORMANCE COMPLIES WITH SPECIFIED REQUIREMENTS.

3.5 ADJUSTING

(A) ADJUST HARDWARE FOR SMOOTH OPERATION AND SECURE WEATHERTIGHT CLOSURE.

3.6 CLEANING

(A) REFER TO SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL REQUIREMENTS.

(B) REMOVE PROTECTIVE MATERIAL FROM FACTORY FINISHED ALUMINUM SURFACES.

(C) WASH SURFACES BY METHOD RECOMMENDED AND ACCEPTABLE TO WINDOW MANUFACTURER; RINSE AND WIPE SURFACES CLEAN.

(D) UPON COMPLETION OF INSTALLATION, THOROUGHLY CLEAN ALUMINUM SURFACES IN ACCORDANCE WITH AAMA 609 & 610.

(E) REMOVE EXCESS GLAZING SEALANT BY MODERATE USE OF MINERAL SPIRITS OR OTHER SOLVENT ACCEPTABLE TO SEALANT AND WINDOW MANUFACTURER.

END OF SECTION

SECTION 08 71 00 - DOOR HARDWARE

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) HARDWARE FOR WOOD, ALUMINUM, AND HOLLOW METAL DOORS.

(B) HARDWARE FOR FIRE-RATED DOORS.

(C) ELECTRICALLY OPERATED AND CONTROLLED HARDWARE.

(D) LOCK CYLINDERS FOR DOORS THAT HARDWARE IS SPECIFIED IN OTHER SECTIONS.

(E) THRESHOLDS.

(F) WEATHERSTRIPPING AND GASKETING.

(G) GATE LOCKS.

1.2 RELATED REQUIREMENTS

(A) SECTION 06 20 00 - FINISH CARPENTRY: WOOD DOOR FRAMES.

(B) SECTION 07 92 00 - JOINT SEALANTS: SEALANTS FOR SETTING EXTERIOR DOOR THRESHOLDS.

(C) SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES.

(D) SECTION 08 14 16 - FLUSH WOOD DOORS.

(E) SECTION 08 14 33 - STILE AND RAIL WOOD DOORS.

(F) SECTION 08 43 13 - ALUMINUM-FRAMED STOREFRONTS: DOOR HARDWARE, EXCEPT AS NOTED IN SECTION.

(G) SECTION 10 14 00 - SIGNAGE: ADDITIONAL SIGNAGE REQUIREMENTS.

1.3 REFERENCE STANDARDS

(A) ADA STANDARDS - AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS FOR ACCESSIBLE DESIGN; 2010.

(B) BHMA (CPD) - CERTIFIED PRODUCTS DIRECTORY; 2016.

(C) BHMA A156.3 - AMERICAN NATIONAL STANDARD FOR EXIT DEVICES; 2014.

(D) BHMA A156.7 - AMERICAN NATIONAL STANDARD FOR TEMPLATE HINGE DIMENSIONS; 2014.

(E) BHMA A156.8 - AMERICAN NATIONAL STANDARD FOR DOOR CONTROLS - OVERHEAD STOPS AND HOLDERS; 2010.

(F) BHMA A156.12 - AMERICAN NATIONAL STANDARD FOR INTERCONNECTED LOCKS; 2013.

(G) BHMA A156.14 - AMERICAN NATIONAL STANDARD FOR SLIDING AND FOLDING DOOR HARDWARE; 2013.

(H) BHMA A156.15 - AMERICAN NATIONAL STANDARD FOR RELEASE DEVICES - CLOSER HOLDER, ELECTROMAGNETIC AND ELECTROMECHANICAL; 2011.

(I) BHMA A156.16 - AMERICAN NATIONAL STANDARD FOR AUXILIARY HARDWARE; 2013.

(J) BHMA A156.17 - AMERICAN NATIONAL STANDARD FOR SELF CLOSING HINGES & PIVOTS; 2014.

(K) BHMA A156.18 - AMERICAN NATIONAL STANDARD FOR MATERIALS AND FINISHES; 2012.

(L) BHMA A156.20 - AMERICAN NATIONAL STANDARD FOR STRAP AND TEE HINGES, AND HASPS; 2006 (REAFFIRMED 2012).

(M) BHMA A156.23 - AMERICAN NATIONAL STANDARD FOR ELECTROMAGNETIC LOCKS; 2010.

(N) BHMA A156.26 - AMERICAN NATIONAL STANDARD FOR CONTINUOUS HINGES; 2012.

(O) BHMA A156.36 - AMERICAN NATIONAL STANDARD FOR AUXILIARY LOCKS; 2014.

(P) BHMA A156.115 - AMERICAN NATIONAL STANDARD FOR HARDWARE PREPARATION IN STEEL DOORS AND STEEL FRAMES; 2014.

(Q) BHMA A156.115W - HARDWARE PREPARATION IN WOOD DOORS WITH WOOD OR STEEL FRAMES; 2006.

(R) DHI (H&S) - SEQUENCE AND FORMAT FOR THE HARDWARE SCHEDULE; 1996.

(S) DHI (LOCS) - RECOMMENDED LOCATIONS FOR ARCHITECTURAL HARDWARE FOR STANDARD STEEL DOORS AND FRAMES; 2004.

(T) DHI WDHS.3 - RECOMMENDED LOCATIONS FOR ARCHITECTURAL HARDWARE FOR FLUSH WOOD DOORS; 1993; ALSO IN WDHS-1/WDHS-5 SERIES, 1996.

(U) ICC A117.1 - ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES; 2017.

(V) ITS (DIR) - DIRECTORY OF LISTED PRODUCTS; CURRENT EDITION.

(W) NEMA LD 3 - HIGH-PRESSURE DECORATIVE LAMINATES; 2005.

(X) NFPA 70 - NATIONAL ELECTRICAL CODE; MOST RECENT EDITION ADOPTED BY AUTHORITY HAVING JURISDICTION, INCLUDING ALL APPLICABLE AMENDMENTS AND SUPPLEMENTS.

(Y) NFPA 80 - STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVES; 2016.

(Z) NFPA 101 - LIFE SAFETY CODE; 2015.

(AA) NFPA 105 - STANDARD FOR SMOKE DOOR ASSEMBLIES AND OTHER OPENING PROTECTIVES; 2016.

(AB) NFPA 252 - STANDARD METHODS OF FIRE TESTS OF DOOR ASSEMBLIES; 2012.

(AC) UL (DIR) - ONLINE CERTIFICATIONS DIRECTORY; CURRENT LISTINGS AT DATABASE.UL.COM.

(AD) UL 10C - STANDARD FOR POSITIVE PRESSURE FIRE TESTS OF DOOR ASSEMBLIES; CURRENT EDITION, INCLUDING ALL REVISIONS.

(AE) UL 1784 - STANDARD FOR AIR LEAKAGE TESTS OF DOOR ASSEMBLIES; CURRENT EDITION, INCLUDING ALL REVISIONS.

1.4 ADMINISTRATIVE REQUIREMENTS

(A) COORDINATE THE MANUFACTURE, FABRICATION, AND INSTALLATION OF PRODUCTS THAT DOOR HARDWARE IS INSTALLED ON.

(B) SEQUENCE INSTALLATION TO ENSURE UTILITY CONNECTIONS ARE ACHIEVED IN AN ORDERLY AND EXPEDITIOUS MANNER.

(C) PREINSTALLATION MEETING: CONVENE A PREINSTALLATION MEETING ONE WEEK PRIOR TO COMMENCING WORK OF THIS SECTION; ATTENDANCE IS REQUIRED BY AFFECTED INSTALLERS AND THE FOLLOWING:

1. INSTALLER'S ARCHITECTURAL HARDWARE CONSULTANT (AHC).

2. HARDWARE INSTALLER.

3. OWNER'S SECURITY CONSULTANT.

(D) FURNISH TEMPLATES FOR DOOR AND FRAME PREPARATION TO MANUFACTURERS AND FABRICATORS OF PRODUCTS REQUIRING INTERNAL REINFORCEMENT FOR DOOR HARDWARE.

(E) KEYING REQUIREMENTS MEETING:

1. SCHEDULE MEETING AT PROJECT SITE PRIOR TO CONTRACTOR OCCUPANCY.

2. ATTENDANCE REQUIRED:

a. CONTRACTOR.

b. OWNER.

c. INSTALLER'S ARCHITECTURAL HARDWARE CONSULTANT (AHC).

d. HARDWARE INSTALLER.

e. OWNER'S SECURITY CONSULTANT.

3. AGENDA:

a. ESTABLISH KEYING REQUIREMENTS.

b. VERIFY LOCKSETS AND LOCKING HARDWARE ARE FUNCTIONALLY CORRECT FOR PROJECT REQUIREMENTS.

c. VERIFY THAT KEYING AND PROGRAMMING COMPLIES WITH PROJECT REQUIREMENTS.

d. ESTABLISH KEYING SUBMITTAL SCHEDULE AND UPDATE REQUIREMENTS.

4. INCORPORATE "KEYING REQUIREMENTS MEETING" DECISIONS INTO KEYING SUBMITTAL UPON REVIEW OF DOOR HARDWARE KEYING SYSTEM INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING:

    a. ACCESS CONTROL REQUIREMENTS.

    b. KEY CONTROL SYSTEM REQUIREMENTS.

    c. SCHEMATIC DIAGRAM OF PRELIMINARY KEY SYSTEM.

    d. FLOW OF TRAFFIC AND EXTENT OF SECURITY REQUIRED.

5. RECORD MINUTES AND DISTRIBUTE COPIES WITHIN TWO DAYS AFTER MEETING TO PARTICIPANTS, WITH TWO COPIES TO ARCHITECT, OWNER, PARTICIPANTS, AND THOSE AFFECTED BY DECISIONS MADE.

6. DELIVER ESTABLISHED KEYING REQUIREMENTS TO MANUFACTURERS.

1.5 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: MANUFACTURER'S CATALOG LITERATURE FOR EACH TYPE OF HARDWARE, MARKED TO CLEARLY SHOW PRODUCTS TO BE FURNISHED FOR THIS PROJECT, AND INCLUDES CONSTRUCTION DETAILS, MATERIAL DESCRIPTIONS, FINISHES, AND DIMENSIONS AND PROFILES OF INDIVIDUAL COMPONENTS.

(C) SHOP DRAWINGS - DOOR HARDWARE SCHEDULE: SUBMIT DETAILED LISTING THAT INCLUDES EACH ITEM OF HARDWARE TO BE INSTALLED ON EACH DOOR. USE DOOR NUMBERING SCHEME AS INCLUDED IN CONTRACT DOCUMENTS.

    1. PREPARED BY OR UNDER SUPERVISION OF ARCHITECTURAL HARDWARE CONSULTANT (AHC).

    2. CONFORM TO DHI (H&S) USING DOOR NUMBERS AND HARDWARE SET NUMBERS AS INDICATED IN CONSTRUCTION DOCUMENTS.

    3. LIST GROUPS AND SUFFIXES IN PROPER SEQUENCE.

    4. PROVIDE COMPLETE DESCRIPTION FOR EACH DOOR LISTED.

    5. INCLUDE ACCOUNT OF ABBREVIATIONS AND SYMBOLS USED IN SCHEDULE.

(D) SHOP DRAWINGS - ELECTRIFIED DOOR HARDWARE: SUBMIT DIAGRAMS FOR POWER, SIGNAL, AND CONTROL WIRING FOR ELECTRIFIED DOOR HARDWARE THAT INCLUDE DETAILS OF INTERFACE WITH BUILDING SAFETY AND SECURITY SYSTEMS. PROVIDE ELEVATIONS AND DIAGRAMS FOR EACH ELECTRIFIED DOOR OPENING AS FOLLOWS:

    1. PREPARED BY OR UNDER SUPERVISION OF ARCHITECTURAL HARDWARE CONSULTANT (AHC) AND ELECTRIFIED HARDWARE CONSULTANT (EHC).

    2. ELEVATIONS: SUBMIT FRONT AND BACK ELEVATIONS OF EACH DOOR OPENING SHOWING ELECTRIFIED DEVICES WITH CONNECTIONS INSTALLED AND AN OPERATIONS NARRATIVE DESCRIBING HOW OPENING OPERATES FROM EITHER SIDE AT ANY GIVEN TIME.

3. DIAGRAMS: SUBMIT POINT-TO-POINT WIRING DIAGRAM THAT SHOWS EACH DEVICE IN DOOR OPENING SYSTEM WITH RELATED COLORED WIRE CONNECTIONS TO EACH DEVICE.

(E) SAMPLES FOR VERIFICATION:

1. SUBMIT MINIMUM SIZE OF 2 BY 4 INCH FOR SHEET SAMPLES, AND MINIMUM LENGTH OF 4 INCH FOR OTHER PRODUCTS.

2. SUBMIT ONE (1) SAMPLE OF HINGE, LATCHSET, LOCKSET, AND CLOSER ILLUSTRATING STYLE, COLOR, AND FINISH.

3. SUBMIT PRODUCT DESCRIPTION WITH SAMPLES.

(F) MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE SPECIAL PROCEDURES AND PERIMETER CONDITIONS REQUIRING SPECIAL ATTENTION.

(G) MAINTENANCE DATA: INCLUDE DATA ON OPERATING HARDWARE, LUBRICATION REQUIREMENTS, AND INSPECTION PROCEDURES RELATED TO PREVENTATIVE MAINTENANCE.

1. SUBMIT MANUFACTURER'S PARTS LISTS AND TEMPLATES.

2. BITTING LIST: LIST OF COMBINATIONS AS FURNISHED.

(H) KEYING SCHEDULE:

1. SUBMIT THREE (3) COPIES OF KEYING SCHEDULE IN COMPLIANCE WITH REQUIREMENTS ESTABLISHED DURING KEYING REQUIREMENTS MEETING UNLESS OTHERWISE INDICATED.

(I) WARRANTY: SUBMIT MANUFACTURER'S WARRANTY AND ENSURE THAT FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER.

(J) PROJECT RECORD DOCUMENTS: RECORD ACTUAL LOCATIONS OF CONCEALED EQUIPMENT, SERVICES, AND CONDUIT.

(K) MAINTENANCE MATERIALS AND TOOLS: FURNISH THE FOLLOWING FOR OWNER'S USE IN MAINTENANCE OF PROJECT.

1. SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL PROVISIONS.

2. TOOLS: ONE SET OF EACH SPECIAL WRENCH OR TOOL APPLICABLE FOR EACH DIFFERENT OR SPECIAL HARDWARE COMPONENT, WHETHER SUPPLIED BY HARDWARE COMPONENT MANUFACTURER OR NOT.

1.6 QUALITY ASSURANCE

(A) STANDARDS FOR FIRE-RATED DOORS: MAINTAIN ONE COPY OF EACH REFERENCED STANDARD ON SITE, FOR USE BY ARCHITECT AND CONTRACTOR.

(B) MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM FIVE YEARS OF DOCUMENTED EXPERIENCE.

(C) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING WORK OF THE TYPE SPECIFIED FOR COMMERCIAL DOOR HARDWARE WITH AT LEAST FIVE YEARS OF DOCUMENTED EXPERIENCE.

(D) SUPPLIER QUALIFICATIONS: COMPANY WITH CERTIFIED ARCHITECTURAL HARDWARE CONSULTANT (AHC) AND ELECTRIFIED HARDWARE CONSULTANT (EHC) TO ASSIST IN WORK OF THIS SECTION.

1.7 DELIVERY, STORAGE, AND HANDLING

(A) PACKAGE HARDWARE ITEMS INDIVIDUALLY; LABEL AND IDENTIFY EACH PACKAGE WITH DOOR OPENING CODE TO MATCH DOOR HARDWARE SCHEDULE.

1.8 WARRANTY

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL WARRANTY REQUIREMENTS.

(B) WARRANTY AGAINST DEFECTS IN MATERIAL AND WORKMANSHIP FOR PERIOD INDICATED, FROM DATE OF SUBSTANTIAL COMPLETION.

1. CLOSERS: FIVE YEARS, MINIMUM.

2. EXIT DEVICES: THREE YEARS, MINIMUM.

3. LOCKSETS AND CYLINDERS: THREE YEARS, MINIMUM.

4. OTHER HARDWARE: TWO YEARS, MINIMUM.

PART 2 PRODUCTS

2.1 DESIGN AND PERFORMANCE CRITERIA

(A) PROVIDE SPECIFIED DOOR HARDWARE AS REQUIRED TO MAKE DOORS FULLY FUNCTIONAL, COMPLIANT WITH APPLICABLE CODES, AND SECURE TO EXTENT INDICATED.

(B) PROVIDE INDIVIDUAL ITEMS OF SINGLE TYPE, OF SAME MODEL, AND BY SAME MANUFACTURER.

(C) PROVIDE DOOR HARDWARE PRODUCTS THAT COMPLY WITH THE FOLLOWING REQUIREMENTS:

1. APPLICABLE PROVISIONS OF FEDERAL, STATE, AND LOCAL CODES.

2. ACCESSIBILITY: ADA STANDARDS AND ICC A117.1.

3. APPLICABLE PROVISIONS OF NFPA 101.

4. FIRE-RATED DOORS: NFPA 80, LISTED AND LABELED BY QUALIFIED TESTING AGENCY FOR FIRE PROTECTION RATINGS INDICATED, BASED ON TESTING AT POSITIVE PRESSURE IN ACCORDANCE WITH NFPA 252 OR UL 10C.

5. HARDWARE ON FIRE-RATED DOORS: LISTED AND CLASSIFIED BY UL (DIR), ITS (DIR), OR TESTING FIRM ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.

6. HARDWARE FOR SMOKE AND DRAFT CONTROL DOORS (INDICATED AS "S" ON DRAWINGS): PROVIDE DOOR HARDWARE THAT COMPLIES WITH LOCAL CODES, AND REQUIREMENTS OF ASSEMBLIES TESTED IN ACCORDANCE WITH UL 1784.

a. AIR LEAKAGE RATE: TESTED IN ACCORDANCE WITH UL 1784, WITH AIR LEAKAGE RATE NOT TO EXCEED 3.0 CFM/SF OF DOOR OPENING AT 0.10 INCH OF WATER FOR BOTH AMBIENT AND ELEVATED TEMPERATURE TESTS.

7. LISTED AND CERTIFIED COMPLIANT WITH SPECIFIED STANDARDS BY BHMA (CPD).

8. AUXILIARY HARDWARE: BHMA A156.16.

9. STRAPS AND TEE HINGES: BHMA A156.20.

10. HARDWARE PREPARATION FOR STEEL DOORS AND STEEL FRAMES: BHMA A156.115.

11. HARDWARE PREPARATION FOR WOOD DOORS WITH WOOD OR STEEL FRAMES: BHMA A156.115W.

12. PRODUCTS REQUIRING ELECTRICAL CONNECTION: LISTED AND CLASSIFIED BY UL (DIR) AS SUITABLE FOR THE PURPOSE SPECIFIED.

(D) ELECTRICALLY OPERATED AND/OR CONTROLLED HARDWARE: PROVIDE NECESSARY POWER SUPPLIES, POWER TRANSFER HINGES, RELAYS, AND INTERFACES AS REQUIRED FOR PROPER OPERATION; PROVIDE WIRING BETWEEN HARDWARE AND CONTROL COMPONENTS AND TO BUILDING POWER CONNECTION IN COMPLIANCE WITH NFPA 70.

1. REFER TO SECTION 28 10 00 FOR ADDITIONAL ACCESS CONTROL SYSTEM REQUIREMENTS.

(E) LOCK FUNCTION: PROVIDE LOCK AND LATCH FUNCTION NUMBERS AND DESCRIPTIONS OF MANUFACTURER'S SERIES. REFER TO SECTION 08 06 71 FOR LISTING OF HARDWARE SETS.

(F) FASTENERS:

1. PROVIDE FASTENERS OF PROPER TYPE, SIZE, QUANTITY, AND FINISH THAT COMPLY WITH COMMERCIALLY RECOGNIZED STANDARDS FOR PROPOSED APPLICATIONS.

a. ALUMINUM FASTENERS ARE NOT PERMITTED.

b. PROVIDE PHILLIPS FLAT-HEAD SCREWS WITH HEADS FINISHED TO MATCH DOOR SURFACE HARDWARE UNLESS OTHERWISE INDICATED.

2. PROVIDE MACHINE SCREWS FOR ATTACHMENT TO REINFORCED HOLLOW METAL AND ALUMINUM FRAMES.

a. SELF-DRILLING (TEK) TYPE SCREWS ARE NOT PERMITTED.

3. PROVIDE STAINLESS STEEL MACHINE SCREWS AND LEAD EXPANSION SHIELDS FOR CONCRETE AND MASONRY SUBSTRATES.

4. PROVIDE WALL GRIP INSERTS FOR HOLLOW WALL CONSTRUCTION.

5. PROVIDE SPACERS OR SEX BOLTS WITH SLEEVES FOR THROUGH BOLTING OF HOLLOW METAL DOORS AND FRAMES.

6. FIRE-RATED APPLICATIONS: COMPLY WITH NFPA 80.

a. PROVIDE WOOD OR MACHINE SCREWS FOR HINGES MORTISED TO DOORS OR FRAMES, STRIKE PLATES TO FRAMES, AND CLOSERS TO DOORS AND FRAMES.

b. PROVIDE STEEL THROUGH BOLTS FOR ATTACHMENT OF SURFACE MOUNTED CLOSERS, HINGES, OR EXIT DEVICES TO DOOR PANELS UNLESS PROPER DOOR BLOCKING IS PROVIDED.

7. CONCEALED FASTENERS: DO NOT USE THROUGH OR SEX BOLT TYPE FASTENERS ON DOOR PANEL SIDES INDICATED AS CONCEALED FASTENER LOCATIONS, UNLESS OTHERWISE INDICATED.

2.2 HINGES

(A) MANUFACTURERS:

1. DORMA DOOR CONTROLS

2. NATIONAL GUARD: WWW.NGP.COM

3. PRECISION

4. STANLEY, DORMAKABA GROUP: WWW.STANLEYHARDWAREFORDOORS.COM/#SLE.

5. TRIMCO

6. SUBSTITUTIONS: OR APPROVED EQUAL.

7. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.3 FIRE DEPARTMENT LOCK BOX

(A) MANUFACTURERS:

1. KNOX COMPANY; KNOX-BOX RAPID ENTRY SYSTEM: WWW.KNOXBOX.COM/#SLE.

2. SUBSTITUTIONS: OR APPROVED EQUAL.

3. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) FIRE DEPARTMENT LOCK BOX:

1. HEAVY-DUTY, SURFACE MOUNTED, SOLID STAINLESS-STEEL BOX WITH HINGED DOOR AND INTERIOR GASKET SEAL; SINGLE DRILL RESISTANT LOCK WITH DUST COVERS AND TAMPER ALARM.

2. CAPACITY: HOLDS 10 KEYS.

3. FINISH: MANUFACTURER'S STANDARD DARK BRONZE.

2.4 FINISHES

(A) FINISHES: IDENTIFIED IN DOOR HARDWARE SCHEDULE.

(B) FINISHES: PROVIDE DOOR HARDWARE OF SAME FINISH, UNLESS OTHERWISE INDICATED.

1. PRIMARY FINISH: 625; BRIGHT CHROMIUM PLATED OVER NICKEL, WITH BRASS OR BRONZE BASE MATERIAL (FORMER US EQUIVALENT US26); BHMA A156.18.

2. SECONDARY FINISH: 626; SATIN CHROMIUM PLATED OVER NICKEL, WITH BRASS OR BRONZE BASE MATERIAL (FORMER US EQUIVALENT US26D); BHMA A156.18.

   a. USE SECONDARY FINISH IN KITCHENS, BATHROOMS, AND OTHER SPACES CONTAINING CHROME OR STAINLESS STEEL FINISHED APPLIANCES, FITTINGS, AND EQUIPMENT; PROVIDE PRIMARY FINISH ON ONE SIDE OF DOOR AND SECONDARY FINISH ON OTHER SIDE IF NECESSARY.

3. EXCEPTIONS:

   a. WHERE BASE MATERIAL METAL IS SPECIFIED TO BE DIFFERENT, PROVIDE FINISH THAT IS AN EQUIVALENT APPEARANCE IN ACCORDANCE WITH BHMA A156.18.

   b. HINGES FOR FIRE-RATED DOORS: STEEL BASE MATERIAL WITH PAINTED FINISH, IN COMPLIANCE WITH NFPA 80.

   c. DOOR CLOSER COVERS AND ARMS: COLOR AS SELECTED BY ARCHITECT FROM MANUFACTURER'S STANDARD COLORS UNLESS OTHERWISE INDICATED.

   d. ALUMINUM SURFACE TRIM AND GASKET HOUSINGS: ANODIZED TO MATCH DOOR PANEL FINISH, NOT OTHER HARDWARE, UNLESS OTHERWISE INDICATED.

   e. HARDWARE FOR ALUMINUM STOREFRONT DOORS: FINISHED TO MATCH DOOR PANEL FINISH, EXCEPT AT HAND CONTACT SURFACES PROVIDE STAINLESS STEEL WITH SATIN FINISH, UNLESS OTHERWISE INDICATED.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY THAT DOORS AND FRAMES ARE READY TO RECEIVE THIS WORK; LABELED, FIRE-RATED DOORS AND FRAMES ARE PROPERLY INSTALLED, AND DIMENSIONS ARE AS INDICATED ON SHOP DRAWINGS.

(B) VERIFY THAT ELECTRIC POWER IS AVAILABLE TO POWER OPERATED DEVICES AND OF CORRECT CHARACTERISTICS.

3.2 INSTALLATION

(A) INSTALL HARDWARE IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPLICABLE CODES.

(B) INSTALL HARDWARE ON FIRE-RATED DOORS AND FRAMES IN ACCORDANCE WITH APPLICABLE CODES AND NFPA 80.

(C) INSTALL HARDWARE FOR SMOKE AND DRAFT CONTROL DOORS IN ACCORDANCE WITH NFPA 105.

(D) USE TEMPLATES PROVIDED BY HARDWARE ITEM MANUFACTURER.

(E) DO NOT INSTALL SURFACE MOUNTED ITEMS UNTIL APPLICATION OF FINISHES TO SUBSTRATE ARE FULLY COMPLETED.

(F) DOOR HARDWARE MOUNTING HEIGHTS: DISTANCE FROM FINISHED FLOOR TO CENTER LINE OF HARDWARE ITEM. AS INDICATED IN FOLLOWING LIST; UNLESS NOTED OTHERWISE IN DOOR HARDWARE SCHEDULE OR ON DRAWINGS.

1. FOR STEEL DOORS AND FRAMES: INSTALL IN COMPLIANCE WITH DHI (LOCS) RECOMMENDATIONS.

2. FOR STEEL DOORS AND FRAMES: REFER TO SECTION 08 11 13.

3. FOR STEEL DOOR FRAMES: REFER TO SECTION 08 12 13.

4. FOR ALUMINUM-FRAMED STOREFRONT DOORS AND FRAMES: REFER TO SECTION 08 43 13.

5. FOR WOOD DOORS: INSTALL IN COMPLIANCE WITH DHI WDHS.3 RECOMMENDATIONS.

6. FLUSH WOOD DOORS: REFER TO SECTION 08 14 16.

7. STILE AND RAIL WOOD DOORS: REFER TO SECTION 08 14 33.

8. MOUNTING HEIGHTS IN COMPLIANCE WITH ADA STANDARDS:

a. LOCKSETS: 40-5/16 INCH.

b. PUSH PLATES/PULL BARS: 42 INCH.

c. DEADLOCKS (DEADBOLTS): 48 INCH.

d. EXIT DEVICES: 40-5/16 INCH.

e. DOOR VIEWER: 43 INCH; STANDARD HEIGHT 60 INCH.

(G) SET EXTERIOR DOOR THRESHOLDS WITH FULL-WIDTH BEAD OF ELASTOMERIC SEALANT AT EACH POINT OF CONTACT WITH FLOOR PROVIDING A CONTINUOUS WEATHER SEAL; ANCHOR THRESHOLDS WITH STAINLESS STEEL COUNTERSUNK SCREWS.

1. REFER TO SECTION 07 92 00 FOR ADDITIONAL REQUIREMENTS.

3.3 FIELD QUALITY CONTROL

(A) PERFORM FIELD INSPECTION AND TESTING UNDER PROVISIONS OF SECTION 01 40 00 - QUALITY REQUIREMENTS.

(B) PROVIDE AN ARCHITECTURAL HARDWARE CONSULTANT (AHC) TO INSPECT INSTALLATION AND CERTIFY THAT HARDWARE AND INSTALLATION HAS BEEN FURNISHED AND INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND AS SPECIFIED.

3.4 ADJUSTING

(A) ADJUST WORK UNDER PROVISIONS OF SECTION 01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS.

(B) ADJUST HARDWARE FOR SMOOTH OPERATION.

(C) ADJUST GASKETING FOR COMPLETE, CONTINUOUS SEAL; REPLACE IF UNABLE TO MAKE COMPLETE SEAL.

3.5 CLEANING

(A) CLEAN FINISHED HARDWARE IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AFTER FINAL ADJUSTMENTS HAVE BEEN MADE.

(B) CLEAN ADJACENT SURFACES SOILED BY HARDWARE INSTALLATION.

(C) REPLACE ITEMS THAT CANNOT BE CLEANED TO MANUFACTURER'S LEVEL OF FINISH QUALITY AT NO ADDITIONAL COST.

(D) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL REQUIREMENTS.

3.6 PROTECTION

(A) PROTECT FINISHED WORK UNDER PROVISIONS OF SECTION 01 70 00 - EXECUTION AND CLOSEOUT REQUIREMENTS.

(B) DO NOT PERMIT ADJACENT WORK TO DAMAGE HARDWARE OR FINISH.

3.7 HARDWARE SET

(A) MANUFACTURER LIST

CODE	NAME
BY	BY OTHERS
DM	DORMA DOOR CONTROLS
NA	NATIONAL GUARD
PR	PRECISION
ST	STANLEY
TR	TRIMCO

(B) FINISH LIST

CODE	DESCRIPTION
DB	DARK BRONZE ANODIZED
613	OXIDIZED SATIN BRONZE, OIL RUBBED
630	SATIN STAINLESS STEEL
695	DARK BRONZE PAINTED
BRN	BROWN
613E	DARK OXIDIZED SATIN BRONZE - EQUIVALENT
GREY	GREY
US10A	ANTIQUE BRONZE LACQUERED (STEEL HINGES)
US10BL	DARK OXIDIZED BRONZE, CLEAR COATED

(C) OPTION LIST

CODE	DESCRIPTION
DA	ADJUSTABLE DELAYED ACTION
LB	LESS BOTTOM ROD
LB	LESS BOTTOM ROD (LABELLED DEVICES)
MLR	MOTORIZED LATCH RETRACTION
NRP	NON REMOVEABLE PIN STD/HEAVY WT HINGE
LM/MS	LATCH & TOUCHBAR MONITOR
EPT PREP	EPT PREP (FULL MORTISE)
1/4-20 SSMS/EA	STAINLESS MACHINE SCREWS/EXPANSION ANC.

(D) HARDWARE SCHEDULE

1. SET #01 - UNIT ENTRY W/CARD READER

   a. DOORS: A101A, A102A, A103A, A104A, A105A, A106A, A107A, A201A, A202A, A203A, A204A, A205A, A206A, A207A

1)	3 HINGES	FBB179 4 1/2 X 4 1/2	US10BL	ST
	1 LOCKSET	C553D LCC	613	DM
	1 ELECTRIC STRIKE	ES72 24V	630	DM
	1 CLOSER	8916 AF89P DA	695	DM
	1 KICK PLATE	K6000 8" X 2"LDW	BRN	TR
	1 WALL BUMPER	1270WV	613E	TR
	1 DOOR VIEWER	976U-CAP	613	TR
	1 CARD READER	BY SECURITY VENDOR		BY
	1 POWER SUPPLY	BY SECURITY VENDOR		BY
	GASKETING	2525B		NA

2. SET #02 - UNIT BEDROOM/BATHROOM

   a. DOORS: A101E, A101G, A102E, A102G, A103E, A103G, A104E, A104G, A105J, A105M, A105R, A105U, A106E, A106G, A106K, A106L, A107E, A107G, A107K, A107L, A201E, A201G, A202E, A202G, A203E, A203G, A204E, A204G, A205J, A205M, A205R, A205U, A206E, A206G, A206K, A206L, A207E, A207G, A207K, A207L, C203

1)	3 HINGES	FBB179 4 1/2 X 4 1/2	US10BL	ST
2)	1 PRIVACY SET	C540 LCC	613	DM
3)	1 WALL BUMPER	1270WV	613E	TR
4)	3 DOOR SILENCERS	1229A	GREY	TR

3. SET #03 - UNIT W/D

a. DOORS: A102D, A103D, A104D, A201D, A202D, A203D, A204D

1)	3 HINGES	FBB179 4 1/2 X 4 1/2	US10BL	ST
2)	1 SINGLE DUMMY	C501 LCC	613	DM
3)	1 OVERHEAD HOLDER	700 H SERIES	695	DM
4)	1 ROLLER LATCH	1554	613E	TR
5)	3 DOOR SILENCERS	1229A	GREY	TR

4. SET #04 - UNIT CLOSET PAIR

a. DOORS: A101C, A101F, A102C, A102F, A102H, A103C, A103F, A103H, A104C, A104F, A104H, A105H, A105L, A105P, A105T, A106B, A106F, A106H, A106J, A107B, A107F, A107H, A107J, A201C, A201F, A201H, A202C, A202F, A202H, A203C, A203F, A203H, A204C, A204F, A204H, A205H, A205L, A205P, A205T, A206B, A206F, A206H, A206J, A207B, A207F, A207H, A207J

6 HINGES	FBB179 4 1/2 X 4 1/2	US10BL	ST
2 SINGLE DUMMY	C501 LCC	613	DM
2 OVERHEAD HOLDER	700 H SERIES	695	DM
2 ROLLER LATCH	1554	613E	TR
2DOOR SILENCERS	1229A	GREY	TR

5. SET #05 - UNIT PASSAGE

a. DOORS: A105B, A105C, A105E, A205B, A205C, A205E

1)	3 HINGES	FBB179 4 1/2 X 4 1/2	US10BL	ST
	1 PASSAGE SET	C510 LCC	613	DM
	1 WALL BUMPER	1270WV	613E	TR
	3 DOOR SILENCERS	1229A	GREY	TR

6. SET #06 - UNIT BALCONY W/CARD READER

a. DOORS: A105F

1)	3HINGES	FBB179 4 1/2 X 4 1/2	US10BL	ST
2)	1 LOCKSET	C553D LCC	613	DM
3)	1 ELECTRIC STRIKE	ES72 24V	630	DM
4)	1 WALL BUMPER	1270WV	613E	TR

5)	1 CARD READER	BY SECURITY VENDOR		BY
6)	1 POWER SUPPLY	BY SECURITY VENDOR		BY
7)	3 DOOR SILENCERS	1229A	GREY	TR

7. SET #07 - UNIT BEDROOM W/CARD READER

a. DOORS: A105G, A105K, A105N, A105S, A205G, A205K, A205N, A205S

1)	3 HINGES	FBB179 4 1/2 X 4 1/2	US10BL	ST
2)	1 LOCKSET	C553D LCC	613	DM
3)	1 ELECTRIC STRIKE	ES72 24V	630	DM
4)	1 WALL BUMPER	1270WV	613E	TR
5)	1 CARD READER	BY SECURITY VENDOR		BY
6)	1 POWER SUPPLY	BY SECURITY VENDOR		BY
7)	DOOR SILENCERS	1229A	GREY	TR

8. SET #10 - INTERIOR PASSAGE

a. DOORS: C105, C106, C109, C201

1)	3 HINGES	FBB179 4 1/2 X 4 1/2	US10BL	ST
2)	1 PRIVACY SET	C540 LCC 613	DM	
3)	1 CLOSER	8916 AF89P DA	695	DM
4)	1 KICK PLATE	K6000 8" X 2"LDW	BRN	TR
5)	1 WALL BUMPER	1270WV	613E	TR
6)	3 DOOR SILENCERS	1229A	GREY	TR

9. SET #11 - INTERIOR PUBLIC TOILET

a. DOORS: C103

1)	3 HINGES	FBB179 4 1/2 X 4 1/2	US10BL	ST
2)	1 PRIVACY SET	C540 LCC	613	DM
3)	1 CLOSER	8916 AF89P DA	695	DM
4)	1 KICK PLATE	K6000 8" X 2"LDW	BRN	TR
5)	1 WALL BUMPER	1270WV 613E	TR	

6)	3 DOOR SILENCERS	1229A	GREY	TR

10. SET #12 - INTERIOR OFFICE

a. DOORS: C205

1)	3 HINGES	FBB179 4 1/2 X 4 1/2	US10BL	ST
2)	1 LOCKSET	C553D LCC 613	DM	
3)	1 CLOSER	8916 AF89P DA	695	DM
4)	1 WALL BUMPER	1270WV	613E	TR
5)	3 DOOR SILENCERS	1229A	GREY	TR

11. SET #13 - INTERIOR STORAGE

a. DOORS: A101H, A102J, A103J, A104J, A105V, A106M, A107M, A201J, A202J, A203J, A204J, A205V, A206M, A207M, C102, C104, C206

1)	3 HINGES	FBB179 4 1/2 X 4 1/2	US10BL	ST
2)	1 LOCKSET	C580D LCC 613	DM	
3)	1 CLOSER	8916 AF89P DA	695	DM
4)	1 WALL BUMPER	1270WV	613E	TR
5)	3 DOOR SILENCERS	1229A	GREY	TR

12. SET #14 - INTERIOR CORRIDOR PAIR

a. DOORS: A109A, A209

1)	6 HINGES	FBB179 4 1/2 X 4 1/2	US10BL	ST
2)	2 SVR EXIT DEVICE	F9400 X YC23 LB	613	DM
3)	2 MAGNETIC HOLDER	EM 504-24120	695	DM
4)	2 CLOSER	8916 AF89P DA	695	DM
5)	1 GASKETING	2525B		NA
6)	2 ASTRAGAL SMOKE SEAL	5070 B		NA

13. SET #15 - INTERIOR STAIR

a. DOORS: A109A, A209

1)	3 HINGES	FBB179 4 1/2 X 4 1/2	US10BL	ST
2)	1 EXIT DEVICE	F9300A X YC23	613	DM

3)	1 CLOSER	8916 AF89P DA	695	DM
4)	1 WALL BUMPER	1270WV	613E	TR
5)	1 GASKETING	2525B		NA

14. SET #20 - EXTERIOR VESTIBULE W/CARD READER

    a. DOORS: C100A

1)	2 CONTINUOUS HINGE	662UHD UL EPT PREP	DB	ST
2)	1 CVR EXIT DEVICE	9600 X ZP02 LM/MS	695	DM
3)	1 CVR EXIT DEVICE	9600 X ZP03 LM/MS MLR	695	DM
4)	2 CLOSER	8916 S-DS	695	DM
5)	1 CARD READER	BY SECURITY VENDOR		BY
6)	2 POWER TRANSFER	EPT-12C		PR
7)	1 POWER SUPPLY	BY SECURITY VENDOR		BY
8)	2 DOOR SWEEP	200 NDKB		NA
9)	1SADDLE THRESHOLD	424 DKB 1/4-20 SSMS/EA		NA

    b. NOTE: WEATHERSTRIP BY DOOR/FRAME SUPPLIER.

15. SET #21 - INTERIOR VESTIBULE W/CARD READER

    a. DOORS: C100B

1)	2 CONTINUOUS HINGE	662UHD UL EPT PREP	DB	ST
2)	1 CVR EXIT DEVICE	9600 X ZP02 LB LM/MS	613	DM
3)	2 CVR EXIT DEVICE	9600 X ZP03 LB LM/MS MLR	613	DM
4)	2 CLOSER	8916 S-DS	695	DM
5)	CARD READER	BY SECURITY VENDOR		BY
6)	POWER TRANSFER	EPT-12C		PR
7)	POWER SUPPLY	BY SECURITY VENDOR		BY
8)	DOOR SWEEP	200 NDKB		NA
9)	SADDLE THRESHOLD	424 DKB 1/4-20 SSMS/EA		NA

    b. NOTE: WEATHERSTRIP BY DOOR/FRAME SUPPLIER.

16. SET #22 - EXTERIOR MECH

    a. DOORS: C110

1)	3 HW HINGES	FBB168 4 1/2 X 4 1/2 NRP	US10A	ST
2)	1 LOCKSET	C553D LCC	613	DM
3)	1 CLOSER	8916 S-DST	695	DM
4)	1 KICK PLATE	K6000 8" X 2"LDW	BRN	TR
5)	1 DRIP CAP	16 DKB FATT		NA
6)	1 GASKETING	161 SDKB FATT		NA
7)	1 DOOR SWEEP	C699DKB		NA
8)	1 SADDLE THRESHOLD	425 DKB 1/4-20 SSMS/EA		NA
9)	3 DOOR SILENCERS	1229A	GREY	TR

17. SET #23 - EXTERIOR ELECT

    a. DOORS: C111

1)	3 HW HINGES	FBB168 4 1/2 X 4 1/2 NRP	US10A	ST
2)	1 EXIT DEVICE	9300A X YC09	695	DM
3)	1 CLOSER	8916 S-DST	695	DM
4)	1 DRIP CAP	16 DKB FATT		NA
5)	1 GASKETING	161 SDKB FATT		NA
6)	1 DOOR SWEEP	C699DKB		NA
7)	1 SADDLE THRESHOLD	425 DKB 1/4-20 SSMS/EA		NA

18. SET #24 - EXTERIOR EXIT W/CARD READER

    a. DOORS: A109B, C108, C207

1)	4 HW HINGES	FBB168 4 1/2 X 4 1/2 NRP	US10A	ST
2)	1 EXIT DEVICE	9300A X YC09	695	DM
3)	1 CLOSER	8916 S-DS	695	DM
4)	1 DRIP CAP	16 DKB FATT		NA
5)	1 GASKETING	161 SDKB FATT		NA

6)	1 DOOR SWEEP	C699DKB		NA
7)	1 SADDLE THRESHOLD	425 DKB 1/4-20 SSMS/EA		NA
8)	3 DOOR SILENCERS	1229A	GREY	TR

19. SET #25 - BALCONY

a. DOORS: A205F

1)	4 HW HINGES	FBB168 4 1/2 X 4 1/2 NRP	US10A	ST
2)	1 LOCKSET	C553D LCC	613	DM
3)	1 FLOOR STOP	1201	613E	TR
4)	1 DRIP CAP	16 DKB FATT		NA
5)	1 GASKETING	161 SDKB FATT		NA
6)	1 DOOR SWEEP	C699DKB		NA
7)	1 SADDLE THRESHOLD	425 DKB 1/4-20 SSMS/EA		NA

END OF SECTION

SECTION 08 80 00 - GLAZING

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) INSULATING GLASS UNITS.

(B) GLAZING UNITS.

(C) GLAZING COMPOUNDS AND ACCESSORIES.

1.2 RELATED REQUIREMENTS

(A) SECTION 07 92 00 - JOINT SEALANTS: SEALANTS FOR OTHER THAN GLAZING PURPOSES.

(B) SECTION 08 11 13 - HOLLOW METAL DOORS AND FRAMES: GLAZED LITES IN DOORS AND BORROWED LITES.

(C) SECTION 08 14 16 - FLUSH WOOD DOORS: GLAZED LITES IN DOORS.

(D) SECTION 08 43 13 - ALUMINUM-FRAMED STOREFRONTS: GLAZING FURNISHED AS PART OF STOREFRONT ASSEMBLY.

(E) SECTION 08 51 13 - ALUMINUM WINDOWS: GLAZING FURNISHED BY WINDOW MANUFACTURER.

(F) SECTION 10 28 00 - TOILET, BATH, AND LAUNDRY ACCESSORIES: MIRRORS.

1.3 REFERENCE STANDARDS

(A) 16 CFR 1201 - SAFETY STANDARD FOR ARCHITECTURAL GLAZING MATERIALS; CURRENT EDITION.

(B) ANSI Z97.1 - AMERICAN NATIONAL STANDARD FOR SAFETY GLAZING MATERIALS USED IN BUILDINGS - SAFETY PERFORMANCE SPECIFICATIONS AND METHODS OF TEST; 2015.

(C) ASTM C864 - STANDARD SPECIFICATION FOR DENSE ELASTOMERIC COMPRESSION SEAL GASKETS, SETTING BLOCKS, AND SPACERS; 2005 (REAPPROVED 2015).

(D) ASTM C920 - STANDARD SPECIFICATION FOR ELASTOMERIC JOINT SEALANTS; 2014A.

(E) ASTM C1036 - STANDARD SPECIFICATION FOR FLAT GLASS; 2016.

(F) ASTM C1048 - STANDARD SPECIFICATION FOR HEAT-STRENGTHENED AND FULLY TEMPERED FLAT GLASS; 2012.

(G) ASTM C1172 - STANDARD SPECIFICATION FOR LAMINATED ARCHITECTURAL FLAT GLASS; 2014.

(H) ASTM C1193 - STANDARD GUIDE FOR USE OF JOINT SEALANTS; 2016.

(I) ASTM E1300 - STANDARD PRACTICE FOR DETERMINING LOAD RESISTANCE OF GLASS IN BUILDINGS; 2016.

(J) GANA (GM) - GANA GLAZING MANUAL; 2009.

(K) GANA (SM) - GANA SEALANT MANUAL; 2008.

(L) GANA (LGRM) - LAMINATED GLAZING REFERENCE MANUAL; 2009.

(M) ICC (IBC) - INTERNATIONAL BUILDING CODE; 2015.

(N) IGMA TM-3000 - NORTH AMERICAN GLAZING GUIDELINES FOR SEALED INSULATING GLASS UNITS FOR COMMERCIAL & RESIDENTIAL USE; 1990 (2004).

(O) NFRC 100 - PROCEDURE FOR DETERMINING FENESTRATION PRODUCT U-FACTORS; 2014.

(P) NFRC 200 - PROCEDURE FOR DETERMINING FENESTRATION PRODUCT SOLAR HEAT GAIN COEFFICIENT AND VISIBLE TRANSMITTANCE AT NORMAL INCIDENCE; 2014.

(Q) NFRC 300 - TEST METHOD FOR DETERMINING THE SOLAR OPTICAL PROPERTIES OF GLAZING MATERIALS AND SYSTEMS; 2014.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA ON GLAZING COMPOUNDS AND ACCESSORIES: PROVIDE CHEMICAL, FUNCTIONAL, AND ENVIRONMENTAL CHARACTERISTICS, LIMITATIONS, SPECIAL APPLICATION REQUIREMENTS, AND IDENTIFY AVAILABLE COLORS.

(C) SAMPLES: SUBMIT TWO SAMPLES 12 BY 12 INCH IN SIZE OF GLASS UNITS.

(D) CERTIFICATE: CERTIFY THAT PRODUCTS OF THIS SECTION MEET OR EXCEED SPECIFIED REQUIREMENTS.

(E) WARRANTY DOCUMENTATION: SUBMIT MANUFACTURER WARRANTY AND ENSURE THAT FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER.

1.5 QUALITY ASSURANCE

(A) PERFORM WORK IN ACCORDANCE WITH GANA (GM), GANA (SM), GANA (LGRM), AND IGMA TM-3000 FOR GLAZING INSTALLATION METHODS. MAINTAIN ONE COPY ON SITE.

(B) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING WORK OF THE TYPE SPECIFIED AND WITH AT LEAST THREE YEARS DOCUMENTED EXPERIENCE.

1.6 FIELD CONDITIONS

(A) DO NOT INSTALL GLAZING WHEN AMBIENT TEMPERATURE IS LESS THAN 40 DEGREES F.

(B) MAINTAIN MINIMUM AMBIENT TEMPERATURE BEFORE, DURING AND 24 HOURS AFTER INSTALLATION OF GLAZING COMPOUNDS.

1.7 WARRANTY

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL WARRANTY REQUIREMENTS.

(B) INSULATING GLASS UNITS: PROVIDE A FIVE (5) YEAR MANUFACTURER WARRANTY TO INCLUDE COVERAGE FOR SEAL FAILURE, INTERPANE DUSTING OR MISTING, INCLUDING PROVIDING PRODUCTS TO REPLACE FAILED UNITS.

(C) LAMINATED GLASS: PROVIDE A FIVE (5) YEAR MANUFACTURER WARRANTY TO INCLUDE COVERAGE FOR DELAMINATION, INCLUDING PROVIDING PRODUCTS TO REPLACE FAILED UNITS.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) FLOAT GLASS MANUFACTURERS:

1. CARDINAL GLASS INDUSTRIES: WWW.CARDINALCORP.COM/#SLE.

2. GUARDIAN GLASS, LLC: WWW.GUARDIANGLASS.COM/#SLE.

3. PILKINGTON NORTH AMERICA INC: WWW.PILKINGTON.COM/NA/#SLE.

4. VITRO ARCHITECTURAL GLASS (FORMERLY PPG GLASS): WWW.VITROGLAZINGS.COM/#SLE.

5. SUBSTITUTIONS: OR APPROVED EQUAL.

6. SUBSTITUTIONS: REFER TO SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.2 PERFORMANCE REQUIREMENTS - EXTERIOR GLAZING ASSEMBLIES

(A) PROVIDE TYPE AND THICKNESS OF EXTERIOR GLAZING ASSEMBLIES TO SUPPORT ASSEMBLY DEAD LOADS, AND TO WITHSTAND LIVE LOADS CAUSED BY POSITIVE AND NEGATIVE WIND PRESSURE ACTING NORMAL TO PLANE OF GLASS.

1. COMPLY WITH ASTM E1300 FOR DESIGN LOAD RESISTANCE OF GLASS TYPE, THICKNESS, DIMENSIONS, AND MAXIMUM LATERAL DEFLECTION OF SUPPORTED GLASS.

2. PROVIDE GLASS EDGE SUPPORT SYSTEM SUFFICIENTLY STIFF TO LIMIT THE LATERAL DEFLECTION OF SUPPORTED GLASS EDGES TO LESS THAN 1/175 OF THEIR LENGTHS UNDER SPECIFIED DESIGN LOAD.

3. GLASS THICKNESSES LISTED ARE MINIMUM.

(B) VAPOR RETARDER AND AIR BARRIER SEALS: PROVIDE COMPLETED ASSEMBLIES THAT MAINTAIN CONTINUITY OF BUILDING ENCLOSURE VAPOR RETARDER AND AIR BARRIER.

1. IN CONJUNCTION WITH VAPOR RETARDER AND JOINT SEALER MATERIALS DESCRIBED IN OTHER SECTIONS.

(C) THERMAL AND OPTICAL PERFORMANCE: PROVIDE EXTERIOR GLAZING PRODUCTS WITH PERFORMANCE PROPERTIES AS INDICATED. PERFORMANCE PROPERTIES ARE IN ACCORDANCE WITH MANUFACTURER'S PUBLISHED DATA AS DETERMINED WITH THE FOLLOWING PROCEDURES AND/OR TEST METHODS:

1. CENTER OF GLASS U-VALUE: COMPLY WITH NFRC 100 USING LAWRENCE BERKELEY NATIONAL LABORATORY (LBNL) WINDOW 6.3 COMPUTER PROGRAM.

2. CENTER OF GLASS SOLAR HEAT GAIN COEFFICIENT (SHGC): COMPLY WITH NFRC 200 USING LAWRENCE BERKELEY NATIONAL LABORATORY (LBNL) WINDOW 6.3 COMPUTER PROGRAM.

3. SOLAR OPTICAL PROPERTIES: COMPLY WITH NFRC 300 TEST METHOD.

2.3 GLASS MATERIALS

(A) FLOAT GLASS: PROVIDE FLOAT GLASS BASED GLAZING UNLESS NOTED OTHERWISE.

1. FULLY TEMPERED SAFETY GLASS: COMPLIES WITH ANSI Z97.1 AND 16 CFR 1201 CRITERIA.

(B) LAMINATED GLASS: FLOAT GLASS LAMINATED IN ACCORDANCE WITH ASTM C1172.

1. LAMINATED SAFETY GLASS: COMPLIES WITH ANSI Z97.1 AND 16 CFR 1201 TEST REQUIREMENTS FOR CATEGORY II.

2. POLYVINYL BUTYRAL (PVB) INTERLAYER: 0.030 INCH THICK, MINIMUM.

2.4 ACCESSORIES

(A) SETTING BLOCKS: SILICONE, WITH 80 TO 90 SHORE A DUROMETER HARDNESS; ASTM C864 OPTION II. LENGTH OF 0.1 INCH FOR EACH SQUARE FOOT OF GLAZING OR MINIMUM 4 INCH BY WIDTH OF GLAZING RABBET SPACE MINUS 1/16 INCH BY HEIGHT TO SUIT GLAZING METHOD AND PANE WEIGHT AND AREA.

(B) SPACER SHIMS: NEOPRENE, 50 TO 60 SHORE A DUROMETER HARDNESS; ASTM C864 OPTION II. CONTINUOUS BY ONE HALF THE HEIGHT OF THE GLAZING STOP BY THICKNESS TO SUIT APPLICATION, SELF ADHESIVE ON ONE FACE.

(C) GLAZING TAPE, BACK BEDDING MASTIC TYPE: PREFORMED, BUTYL-BASED, 100 PERCENT SOLIDS COMPOUND WITH INTEGRAL RESILIENT SPACER ROD APPLICABLE TO APPLICATION INDICATED; 5 TO 30 CURED SHORE A DUROMETER HARDNESS; COILED ON RELEASE PAPER; BLACK COLOR.

1. WIDTH: AS REQUIRED FOR APPLICATION.

2. THICKNESS: AS REQUIRED FOR APPLICATION.

3. MANUFACTURERS:

a. PECORA CORPORATION: WWW.PECORA.COM/#SLE.

b. TREMCO GLOBAL SEALANTS: WWW.TREMCOSEALANTS.COM/#SLE.

(D) GLAZING TAPE: CLOSED CELL POLYVINYL CHLORIDE (PVC) FOAM, COILED ON RELEASE PAPER OVER ADHESIVE ON TWO SIDES, MAXIMUM WATER ABSORPTION BY VOLUME OF 2 PERCENT, DESIGNED FOR COMPRESSION OF 25 PERCENT TO EFFECT AN AIR BARRIER AND VAPOR RETARDER SEAL.

1. MANUFACTURERS:

a. PECORA CORPORATION: WWW.PECORA.COM/#SLE.

(E) GLAZING CLIPS: MANUFACTURER'S STANDARD TYPE.

PART 3 EXECUTION

3.1 PREPARATION

(A) CLEAN CONTACT SURFACES WITH APPROPRIATE SOLVENT AND WIPE DRY WITHIN MAXIMUM OF 24 HOURS BEFORE GLAZING. REMOVE COATINGS THAT ARE NOT TIGHTLY BONDED TO SUBSTRATES.

(B) SEAL POROUS GLAZING CHANNELS OR RECESSES WITH SUBSTRATE COMPATIBLE PRIMER OR SEALER.

(C) PRIME SURFACES SCHEDULED TO RECEIVE SEALANT WHERE REQUIRED FOR PROPER SEALANT ADHESION.

3.2 INSTALLATION, GENERAL

(A) INSTALL GLAZING IN COMPLIANCE WITH WRITTEN INSTRUCTIONS OF GLASS, GASKETS, AND OTHER GLAZING MATERIAL MANUFACTURERS, UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED, INCLUDING THOSE IN GLAZING REFERENCED STANDARDS.

(B) INSTALL GLAZING SEALANTS IN ACCORDANCE WITH ASTM C1193, GANA (SM), AND MANUFACTURER'S INSTRUCTIONS.

(C) DO NOT EXCEED EDGE PRESSURES AROUND PERIMETER OF GLASS LITES AS STIPULATED BY GLASS MANUFACTURER.

(D) SET GLASS LITES OF SYSTEM WITH UNIFORM PATTERN, DRAW, BOW, AND SIMILAR CHARACTERISTICS.

(E) SET GLASS LITES IN PROPER ORIENTATION SO THAT COATINGS FACE EXTERIOR OR INTERIOR AS INDICATED.

(F) PREVENT GLASS FROM CONTACT WITH ANY CONTAMINATING SUBSTANCES THAT MAY BE THE RESULT OF CONSTRUCTION OPERATIONS SUCH AS, AND NOT LIMITED TO THE FOLLOWING; WELD SPLATTER, FIRE-SAFING, PLASTERING, MORTAR DROPPINGS, ETC.

3.3 PROTECTION

(A) AFTER INSTALLATION, MARK PANE WITH AN 'X' BY USING REMOVABLE PLASTIC TAPE OR PASTE; DO NOT MARK HEAT ABSORBING OR REFLECTIVE GLASS UNITS.

(B) REMOVE AND REPLACE GLASS THAT IS DAMAGED DURING CONSTRUCTION PERIOD PRIOR TO DATE OF SUBSTANTIAL COMPLETION.

END OF SECTION

SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) PERFORMANCE CRITERIA FOR GYPSUM BOARD ASSEMBLIES.

(B) METAL STUD WALL FRAMING.

(C) METAL CHANNEL CEILING FRAMING.

(D) ACOUSTIC INSULATION.

(E) GYPSUM SHEATHING.

(F) CEMENTITIOUS BACKING BOARD.

(G) GYPSUM WALLBOARD.

(H) JOINT TREATMENT AND ACCESSORIES.

(I) PREDECORATED GYPSUM BOARD.

(J) WATER-RESISTIVE BARRIER OVER EXTERIOR WALL SHEATHING.

1.2 RELATED REQUIREMENTS

(A) SECTION 06 10 00 - ROUGH CARPENTRY: BUILDING FRAMING AND SHEATHING.

(B) SECTION 06 10 00 - ROUGH CARPENTRY: WOOD BLOCKING PRODUCT AND EXECUTION REQUIREMENTS.

(C) SECTION 07 21 00 - THERMAL INSULATION: ACOUSTIC INSULATION.

(D) SECTION 07 84 00 - FIRESTOPPING: TOP-OF-WALL ASSEMBLIES AT FIRE RATED WALLS.

(E) SECTION 07 92 00 - JOINT SEALANTS: SEALING ACOUSTICAL GAPS IN CONSTRUCTION OTHER THAN GYPSUM BOARD OR PLASTER WORK.

(F) SECTION 09 22 16 - NON-STRUCTURAL METAL FRAMING.

(G) SECTION 09 30 00 - TILING: TILE BACKING BOARD.

1.3 REFERENCE STANDARDS

(A) AISI S100-12 - NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS; AMERICAN IRON AND STEEL INSTITUTE; 2012.

(B) ANSI A108.11 - AMERICAN NATIONAL STANDARD SPECIFICATIONS FOR INTERIOR INSTALLATION OF CEMENTITIOUS BACKER UNITS; 2010 (REAFFIRMED 2016).

(C) ANSI A118.9 - AMERICAN NATIONAL STANDARD SPECIFICATIONS FOR TEST METHODS AND SPECIFICATIONS FOR CEMENTITIOUS BACKER UNITS; 1999 (REAFFIRMED 2016).

(D) ASTM A36/A36M - STANDARD SPECIFICATION FOR CARBON STRUCTURAL STEEL; 2014.

(E) ASTM A653/A653M - STANDARD SPECIFICATION FOR STEEL SHEET, ZINC-COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT-DIP PROCESS; 2015, WITH EDITORIAL REVISION (2016).

(F) ASTM A1003/A1003M - STANDARD SPECIFICATION FOR STEEL SHEET, CARBON, METALLIC- AND NONMETALLIC-COATED FOR COLD-FORMED FRAMING MEMBERS; 2015.

(G) ASTM B221 - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY EXTRUDED BARS, RODS, WIRE, PROFILES, AND TUBES; 2014.

(H) ASTM C208 - STANDARD SPECIFICATION FOR CELLULOSIC FIBER INSULATING BOARD; 2012.

(I) ASTM C475/C475M - STANDARD SPECIFICATION FOR JOINT COMPOUND AND JOINT TAPE FOR FINISHING GYPSUM BOARD; 2015.

(J) ASTM C514 - STANDARD SPECIFICATION FOR NAILS FOR THE APPLICATION OF GYPSUM BOARD; 2004 (REAPPROVED 2014).

(K) ASTM C645 - STANDARD SPECIFICATION FOR NONSTRUCTURAL STEEL FRAMING MEMBERS; 2014, WITH EDITORIAL REVISION (2015).

(L) ASTM C665 - STANDARD SPECIFICATION FOR MINERAL-FIBER BLANKET THERMAL INSULATION FOR LIGHT FRAME CONSTRUCTION AND MANUFACTURED HOUSING; 2017.

(M) ASTM C754 - STANDARD SPECIFICATION FOR INSTALLATION OF STEEL FRAMING MEMBERS TO RECEIVE SCREW-ATTACHED GYPSUM PANEL PRODUCTS; 2017.

(N) ASTM C840 - STANDARD SPECIFICATION FOR APPLICATION AND FINISHING OF GYPSUM BOARD; 2017A.

(O) ASTM C954 - STANDARD SPECIFICATION FOR STEEL DRILL SCREWS FOR THE APPLICATION OF GYPSUM PANEL PRODUCTS OR METAL PLASTER BASES TO STEEL STUDS FROM 0.033 IN. (0.84 MM) TO 0.112 IN. (2.84 MM) IN THICKNESS; 2015.

(P) ASTM C1002 - STANDARD SPECIFICATION FOR STEEL SELF-PIERCING TAPPING SCREWS FOR APPLICATION OF GYPSUM PANEL PRODUCTS OR METAL PLASTER BASES TO WOOD STUDS OR STEEL STUDS; 2016.

(Q) ASTM C1047 - STANDARD SPECIFICATION FOR ACCESSORIES FOR GYPSUM WALLBOARD AND GYPSUM VENEER BASE; 2014A.

(R) ASTM C1177/C1177M - STANDARD SPECIFICATION FOR GLASS MAT GYPSUM SUBSTRATE FOR USE AS SHEATHING; 2013.

(S) ASTM C1178/C1178M - STANDARD SPECIFICATION FOR COATED GLASS MAT WATER-RESISTANT GYPSUM BACKING PANEL; 2013.

(T) ASTM C1278/C1278M - STANDARD SPECIFICATION FOR FIBER-REINFORCED GYPSUM PANEL; 2017.

(U) ASTM C1280 - STANDARD SPECIFICATION FOR APPLICATION OF EXTERIOR GYPSUM PANEL PRODUCTS FOR USE AS SHEATHING; 2013A.

(V) ASTM C1288 - STANDARD SPECIFICATION FOR DISCRETE NON-ASBESTOS FIBER-CEMENT INTERIOR SUBSTRATE SHEETS; 2017.

(W) ASTM C1325 - STANDARD SPECIFICATION FOR NON-ASBESTOS FIBER-MAT REINFORCED CEMENTITIOUS BACKER UNITS; 2017A.

(X) ASTM C1396/C1396M - STANDARD SPECIFICATION FOR GYPSUM BOARD; 2017.

(Y) ASTM C1658/C1658M - STANDARD SPECIFICATION FOR GLASS MAT GYPSUM PANELS; 2013.

(Z) ASTM D3273 - STANDARD TEST METHOD FOR RESISTANCE TO GROWTH OF MOLD ON THE SURFACE OF INTERIOR COATINGS IN AN ENVIRONMENTAL CHAMBER; 2016.

(AA) ASTM E84 - STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS; 2017.

(AB) ASTM E90 - STANDARD TEST METHOD FOR LABORATORY MEASUREMENT OF AIRBORNE SOUND TRANSMISSION LOSS OF BUILDING PARTITIONS AND ELEMENTS; 2009 (REAPPROVED 2016).

(AC) ASTM E119 - STANDARD TEST METHODS FOR FIRE TESTS OF BUILDING CONSTRUCTION AND MATERIALS; 2016A.

(AD) ASTM E413 - CLASSIFICATION FOR RATING SOUND INSULATION; 2016.

(AE) ASTM G21 - STANDARD PRACTICE FOR DETERMINING RESISTANCE OF SYNTHETIC POLYMERIC MATERIALS TO FUNGI; 2015.

(AF) GA-216 - APPLICATION AND FINISHING OF GYPSUM BOARD; 2016.

(AG) GA-224 - INSTALLATION OF PREDECORATED GYPSUM BOARD; GYPSUM ASSOCIATION; 2008.

(AH) GA-226 - APPLICATION OF GYPSUM BOARD TO FORM CURVED SURFACES; GYPSUM ASSOCIATION; 2016.

(AI) GA-600 - FIRE RESISTANCE DESIGN MANUAL; 2015.

(AJ) ICC (IBC) - INTERNATIONAL BUILDING CODE; 2015.

(AK) ICC-ES AC38 - ACCEPTANCE CRITERIA FOR WATER-RESISTIVE BARRIERS; ICC EVALUATION SERVICE, INC; 2013.

(AL) ISO 16000-23 - INDOOR AIR – PART 23: PERFORMANCE TEST FOR EVALUATING THE REDUCTION OF FORMALDEHYDE CONCENTRATIONS BY SORPTIVE BUILDING MATERIALS; 2009.

(AM) UL (FRD) - FIRE RESISTANCE DIRECTORY; CURRENT EDITION.

(AN) UL 325 - STANDARD FOR DOOR, DRAPERY, GATE, LOUVER, AND WINDOW OPERATORS AND SYSTEMS; CURRENT EDITION, INCLUDING ALL REVISIONS.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) SHOP DRAWINGS: INDICATE SPECIAL DETAILS ASSOCIATED WITH FIREPROOFING AND ACOUSTIC SEALS.

(C) PRODUCT DATA: PROVIDE DATA ON METAL FRAMING, GYPSUM BOARD, GLASS MAT FACED GYPSUM BOARD, ACCESSORIES, AND JOINT FINISHING SYSTEM.

(D) PRODUCT DATA: PROVIDE MANUFACTURER'S DATA ON PARTITION HEAD TO STRUCTURE CONNECTORS, SHOWING COMPLIANCE WITH REQUIREMENTS.

(E) TEST REPORTS: FOR STUD FRAMING PRODUCTS THAT DO NOT COMPLY WITH ASTM C645 OR ASTM C754, PROVIDE INDEPENDENT LABORATORY REPORTS SHOWING MAXIMUM STUD HEIGHTS AT REQUIRED SPACINGS AND DEFLECTIONS.

1.5 QUALITY ASSURANCE

(A) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING GYPSUM BOARD INSTALLATION AND FINISHING, WITH MINIMUM 5 YEARS OF EXPERIENCE.

(B) COPIES OF DOCUMENTS AT SITE: MAINTAIN AT THE PROJECT SITE A COPY OF EACH REFERENCED DOCUMENT THAT PRESCRIBES EXECUTION REQUIREMENTS.

PART 2 PRODUCTS

2.1 GYPSUM BOARD ASSEMBLIES

(A) PROVIDE COMPLETED ASSEMBLIES COMPLYING WITH ASTM C840 AND GA-216.

1. SEE PART 3 FOR FINISHING REQUIREMENTS.

(B) INTERIOR PARTITIONS, INDICATED AS ACOUSTIC: PROVIDE COMPLETED ASSEMBLIES WITH THE FOLLOWING CHARACTERISTICS:

1. ACOUSTIC ATTENUATION: STC OF 50-54 CALCULATED IN ACCORDANCE WITH ASTM E413, BASED ON TESTS CONDUCTED IN ACCORDANCE WITH ASTM E90.

(C) SHAFT WALLS AT HVAC SHAFTS: PROVIDE COMPLETED ASSEMBLIES WITH THE FOLLOWING CHARACTERISTICS:

1. AIR PRESSURE WITHIN SHAFT: SUSTAINED LOADS OF 5 LBF/SQ FT WITH MAXIMUM MID-SPAN DEFLECTION OF L/240.

2. ACOUSTIC ATTENUATION: STC OF 35-39 CALCULATED IN ACCORDANCE WITH ASTM E413, BASED ON TESTS CONDUCTED IN ACCORDANCE WITH ASTM E90.

(D) SHAFT WALLS AT ELEVATOR SHAFTS: PROVIDE COMPLETED ASSEMBLIES WITH THE FOLLOWING CHARACTERISTICS:

1. AIR PRESSURE WITHIN SHAFT: INTERMITTENT LOADS OF 5 LBF/SQ FT WITH MAXIMUM MID-SPAN DEFLECTION OF L/240.

2. ACOUSTIC ATTENUATION: STC OF 35-39 CALCULATED IN ACCORDANCE WITH ASTM E413, BASED ON TESTS CONDUCTED IN ACCORDANCE WITH ASTM E90.

(E) FIRE RATED ASSEMBLIES: PROVIDE COMPLETED ASSEMBLIES WITH THE FOLLOWING CHARACTERISTICS:

1. ICC IBC ITEM NUMBERS: COMPLY WITH APPLICABLE REQUIREMENTS OF ICC IBC FOR THE PARTICULAR ASSEMBLY.

2. GYPSUM ASSOCIATION FILE NUMBERS: COMPLY WITH REQUIREMENTS OF GA-600 FOR THE PARTICULAR ASSEMBLY.

3. UL ASSEMBLY NUMBERS: PROVIDE CONSTRUCTION EQUIVALENT TO THAT LISTED FOR THE PARTICULAR ASSEMBLY IN THE CURRENT UL (FRD).

2.2 METAL FRAMING MATERIALS

(A) MANUFACTURERS - METAL FRAMING, CONNECTORS, AND ACCESSORIES:

1. CLARKWESTERN DIETRICH BUILDING SYSTEMS LLC: WWW.CLARKDIETRICH.COM/#SLE.

2. MARINO: WWW.MARINOWARE.COM/#SLE.

3. SUBSTITUTIONS: OR APPROVED EQUAL.

4. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) NON-LOADBEARING FRAMING SYSTEM COMPONENTS: ASTM C645; GALVANIZED SHEET STEEL, OF SIZE AND PROPERTIES NECESSARY TO COMPLY WITH ASTM C754 FOR THE SPACING INDICATED, WITH MAXIMUM DEFLECTION OF WALL FRAMING OF L/120 AT 5 PSF.

1. STUDS: "C" SHAPED WITH FLAT OR FORMED WEBS WITH KNURLED FACES.

2. RUNNERS: U SHAPED, SIZED TO MATCH STUDS.

3. CEILING CHANNELS: C-SHAPED, 1 1/2 INCH.

4. FURRING: HAT-SHAPED SECTIONS, MINIMUM DEPTH OF 7/8 INCH.

5. RESILIENT FURRING CHANNELS: SINGLE OR DOUBLE LEG CONFIGURATION; 1/2 INCH CHANNEL DEPTH.

a. PRODUCTS:

1) PHILLIPS MANUFACTURING CO; RC-2 RESILIENT SOUND CHANNEL: WWW.PHILLIPSMFG.COM/#SLE.

2) SUBSTITUTIONS: OR APPROVED EQUAL.

3) SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(C) SHAFT WALL STUDS AND ACCESSORIES: ASTM C645; GALVANIZED SHEET STEEL, OF SIZE AND PROPERTIES NECESSARY TO COMPLY WITH ASTM C754 AND SPECIFIED PERFORMANCE REQUIREMENTS.

1. PRODUCTS:

a. SAME MANUFACTURER AS OTHER FRAMING MATERIALS.

(D) AREA SEPARATION WALL STUDS AND ACCESSORIES: ASTM C645; GALVANIZED SHEET STEEL, OF SIZE AND PROPERTIES NECESSARY TO COMPLY WITH SPECIFIED PERFORMANCE REQUIREMENTS.

1. PRODUCTS:

a. PHILLIPS MANUFACTURING CO; HEMMED H-STUD: WWW.PHILLIPSMFG.COM/#SLE.

b. SUBSTITUTIONS: OR APPROVED EQUAL.

c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(E) CEILING HANGERS: TYPE AND SIZE AS SPECIFIED IN ASTM C754 FOR SPACING REQUIRED.

(F) PARTITION HEAD TO STRUCTURE CONNECTIONS: PROVIDE MECHANICAL ANCHORAGE DEVICES THAT ACCOMMODATE DEFLECTION USING SLOTTED HOLES, SCREWS AND ANTI-FRICTION BUSHINGS, PREVENTING ROTATION OF STUDS WHILE MAINTAINING STRUCTURAL PERFORMANCE OF PARTITION.

1. STRUCTURAL PERFORMANCE: MAINTAIN LATERAL LOAD RESISTANCE AND VERTICAL MOVEMENT CAPACITY REQUIRED BY APPLICABLE CODE, WHEN EVALUATED IN ACCORDANCE WITH AISI S100-12.

2. MATERIAL: ASTM A653/A653M STEEL SHEET, SS GRADE 50/340, WITH G60/Z180 HOT DIPPED GALVANIZED COATING.

3. PROVIDE COMPONENTS UL-LISTED FOR USE IN UL-LISTED FIRE-RATED HEAD OF PARTITION JOINT SYSTEMS INDICATED ON DRAWINGS.

4. DEFLECTION AND FIRESTOP TRACK:

a. PROVIDE MECHANICAL ANCHORAGE DEVICES AS DESCRIBED ABOVE THAT ACCOMMODATE DEFLECTION WHILE MAINTAINING THE FIRE-RATING OF THE WALL ASSEMBLY.

5. PROVIDE TOP TRACK PREASSEMBLED WITH CONNECTION DEVICES SPACED TO FIT STUD SPACING INDICATED ON DRAWINGS; MINIMUM TRACK LENGTH OF 12 FEET.

(G) PREFORMED TOP TRACK FIRESTOP SEAL:

1. PROVIDE COMPONENTS UL-LISTED FOR USE IN UL-LISTED FIRE-RATED HEAD OF PARTITION JOINT SYSTEMS SPECIFIED IN SECTION 07 84 00.

(H) NON-LOADBEARING FRAMING ACCESSORIES:

1. CEILING HANGERS: TYPE AND SIZE AS SPECIFIED IN ASTM C754 FOR SPACING REQUIRED.

2. PARTIAL HEIGHT WALL FRAMING SUPPORT: PROVIDES STUD REINFORCEMENT AND ANCHORED CONNECTION TO FLOOR.

a. MATERIALS: ASTM A36/A36M FORMED SHEET STEEL SUPPORT MEMBER WITH FACTORY-WELDED ASTM A1003/A1003M STEEL PLATE BASE.

b. HEIGHT: 35-3/4 INCHES.

c. PRODUCTS:

1) CLARKDIETRICH; PONY WALL (PW): WWW.CLARKDIETRICH.COM/#SLE.

2) SUBSTITUTIONS: OR APPROVED EQUAL.

3) SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

3. FRAMING CONNECTORS: ASTM A653/A653M G90 GALVANIZED STEEL CLIPS; SECURES COLD ROLLED CHANNEL TO WALL STUDS FOR LATERAL BRACING.

a. PRODUCTS:

1) CLARKDIETRICH; FASTBRIDGE CLIP (FB33): WWW.CLARKDIETRICH.COM/#SLE.

2) SUBSTITUTIONS: OR APPROVED EQUAL.

3) SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS

4. FLEXIBLE WOOD BACKING: FIRE-RETARDANT TREATED WOOD WITH SHEET STEEL CONNECTORS.

a. PRODUCTS:

1) CLARKDIETRICH; DANBACK: WWW.CLARKDIETRICH.COM/#SLE.

2) SUBSTITUTIONS: OR APPROVED EQUAL.

3) SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.3 BOARD MATERIALS

(A) MANUFACTURERS - GYPSUM-BASED BOARD:

1. AMERICAN GYPSUM COMPANY: WWW.AMERICANGYPSUM.COM/#SLE.

2. CERTAINTEED CORPORATION: WWW.CERTAINTEED.COM/#SLE.

3. CONTINENTAL BUILDING PRODUCTS: WWW.CONTINENTAL-BP.COM/#SLE.

4. GEORGIA-PACIFIC GYPSUM: WWW.GPGYPSUM.COM/#SLE.

5. NATIONAL GYPSUM COMPANY: WWW.NATIONALGYPSUM.COM/#SLE.

6. PABCO GYPSUM: WWW.PABCOGYPSUM.COM/#SLE.

7. USG CORPORATION: WWW.USG.COM/#SLE.

8. SUBSTITUTIONS: OR APPROVED EQUAL.

9. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) GYPSUM WALLBOARD: PAPER-FACED GYPSUM PANELS AS DEFINED IN ASTM C1396/C1396M; SIZES TO MINIMIZE JOINTS IN PLACE; ENDS SQUARE CUT.

1. APPLICATION: USE FOR VERTICAL SURFACES AND CEILINGS, UNLESS OTHERWISE INDICATED.
2. MOLD RESISTANCE: SCORE OF 10, WHEN TESTED IN ACCORDANCE WITH ASTM D3273.
    a. MOLD-RESISTANT BOARD IS REQUIRED WHENEVER BOARD IS BEING INSTALLED BEFORE THE BUILDING IS ENCLOSED AND CONDITIONED.
    b. MOLD RESISTANT BOARD IS REQUIRED AT ALL LOCATIONS.
3. THICKNESS:
    a. VERTICAL SURFACES: 5/8 INCH.
    b. CEILINGS: 5/8 INCH.
    c. MULTI-LAYER ASSEMBLIES: THICKNESSES AS INDICATED ON DRAWINGS.
4. PAPER-FACED PRODUCTS:
    a. AMERICAN GYPSUM COMPANY; LIGHTROC GYPSUM WALLBOARD.
    b. AMERICAN GYPSUM COMPANY; FIREBLOC TYPE X GYPSUM WALLBOARD.
    c. AMERICAN GYPSUM COMPANY; FIREBLOC TYPE C GYPSUM WALLBOARD.
    d. CONTINENTAL BUILDING PRODUCTS; FIRECHECK TYPE C.
    e. CONTINENTAL BUILDING PRODUCTS; FIRECHECK TYPE X.
    f. CONTINENTAL BUILDING PRODUCTS; LIFTLITE.
    g. CONTINENTAL BUILDING PRODUCTS; LIFTLITE FIRECHECK 30.
    h. CONTINENTAL BUILDING PRODUCTS; REGULAR DRYWALL.
    i. GEORGIA-PACIFIC GYPSUM; TOUGHROCK.
    j. GEORGIA-PACIFIC GYPSUM; TOUGHROCK FIREGUARD X.
    k. GEORGIA-PACIFIC GYPSUM; TOUGHROCK FIREGUARD C.
    l. NATIONAL GYPSUM COMPANY; GOLD BOND BRAND FIRE-SHIELD GYPSUM BOARD.
    m. NATIONAL GYPSUM COMPANY; GOLD BOND 3/4" ULTRA-SHIELD FS GYPSUM BOARD.
    n. SUBSTITUTIONS: OR APPROVED EQUAL..
    o. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..
5. MOLD RESISTANT PAPER FACED PRODUCTS:
    a. AMERICAN GYPSUM COMPANY; M-BLOC.
    b. AMERICAN GYPSUM COMPANY; M-BLOC TYPE X.

c. AMERICAN GYPSUM COMPANY; M-BLOC TYPE C.

d. CONTINENTAL BUILDING PRODUCTS; MOLD DEFENSE.

e. CONTINENTAL BUILDING PRODUCTS; MOLD DEFENSE TYPE X.

f. GEORGIA-PACIFIC GYPSUM; TOUGHROCK MOLD-GUARD.

g. GEORGIA-PACIFIC GYPSUM; TOUGHROCK FIREGUARD X MOLD-GUARD.

h. NATIONAL GYPSUM COMPANY; GOLD BOND XP GYPSUM BOARD.

i. NATIONAL GYPSUM COMPANY; GOLD BOND 3/4" ULTRA-SHIELD FS XP GYPSUM BOARD.

j. SUBSTITUTIONS: OR APPROVED EQUAL.

k. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(C) BACKING BOARD FOR WET AREAS: ONE OF THE FOLLOWING PRODUCTS:

1. APPLICATION: SURFACES BEHIND TILE IN WET AREAS INCLUDING TUB AND SHOWER SURROUNDS AND SHOWER CEILINGS.

2. MOLD RESISTANCE: SCORE OF 10, WHEN TESTED IN ACCORDANCE WITH ASTM D3273.

3. ANSI CEMENT-BASED BOARD: NON-GYPSUM-BASED; AGGREGATED PORTLAND CEMENT PANELS WITH GLASS FIBER MESH EMBEDDED IN FRONT AND BACK SURFACES COMPLYING WITH ANSI A118.9 OR ASTM C1325.

   a. THICKNESS: 5/8 INCH.

   b. PRODUCTS:

      1) CUSTOM BUILDING PRODUCTS: WWW.CUSTOMBUILDINGPRODUCTS.COM/#SLE.

      2) NATIONAL GYPSUM COMPANY; PERMABASE CEMENT BOARD: WWW.NATIONALGYPSUM.COM/#SLE.

      3) USG CORPORATION: WWW.USG.COM/#SLE.

      4) SUBSTITUTIONS: OR APPROVED EQUAL.

      5) SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

4. ASTM CEMENT-BASED BOARD: NON-GYPSUM-BASED, CEMENTITIOUS BOARD COMPLYING WITH ASTM C1288.

   a. THICKNESS: 1/2 INCH.

   b. PRODUCTS:

      1) JAMES HARDIE BUILDING PRODUCTS, INC: WWW.JAMESHARDIE.COM/#SLE.

      2) SUBSTITUTIONS: OR APPROVED EQUAL..

3) SUBSTITUTIONS: SEE SECITON 01 00 00 - GENERAL REQUIREMENTS,.

5. GLASS MAT FACED BOARD: COATED GLASS MAT WATER-RESISTANT GYPSUM BACKING PANEL AS DEFINED IN ASTM C1178/C1178M.

a. REGULAR TYPE: THICKNESS 1/2 INCH.

b. FIRE RESISTANT TYPE: TYPE X CORE, THICKNESS 5/8 INCH.

c. PRODUCTS:

1) GEORGIA-PACIFIC GYPSUM; DENSSHIELD TILE BACKER.

2) NATIONAL GYPSUM COMPANY; GOLD BOND EXP TILE BACKER.

3) SUBSTITUTIONS: OR APPROVED EQUAL..

4) SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

(D) BACKING BOARD FOR NON-WET AREAS: WATER-RESISTANT GYPSUM BACKING BOARD AS DEFINED IN ASTM C1396/C1396M; SIZES TO MINIMUM JOINTS IN PLACE; ENDS SQUARE CUT.

1. APPLICATION: VERTICAL SURFACES BEHIND THINSET TILE, EXCEPT IN WET AREAS.

2. MOLD RESISTANCE: SCORE OF 10, WHEN TESTED IN ACCORDANCE WITH ASTM D3273.

3. AT ASSEMBLIES INDICATED WITH FIRE-RATING: USE TYPE REQUIRED BY INDICATED TESTED ASSEMBLY; IF NO TESTED ASSEMBLY IS INDICATED, USE TYPE X BOARD, UL OR WH LISTED.

4. TYPE: REGULAR AND TYPE X, IN LOCATIONS INDICATED.

5. TYPE X THICKNESS: 5/8 INCH.

6. TYPE C THICKNESS: 1/2 INCH.

7. REGULAR BOARD THICKNESS: 1/2 INCH.

8. EDGES: TAPERED.

9. PRODUCTS:

a. AMERICAN GYPSUM COMPANY; M-BLOC.

b. AMERICAN GYPSUM COMPANY; M-BLOC TYPE X.

c. GEORGIA-PACIFIC GYPSUM; TOUGHROCK MOLD-GUARD GYPSUM BOARD.

d. GEORGIA-PACIFIC GYPSUM; DENSARMOR PLUS.

e. NATIONAL GYPSUM COMPANY; GOLD BOND XP GYPSUM BOARD.

f. SUBSTITUTIONS: OR APPROVED EQUAL..

g. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

(E) CEILING BOARD: SPECIAL SAG RESISTANT GYPSUM CEILING BOARD AS DEFINED IN ASTM C1396/C1396M; SIZES TO MINIMIZE JOINTS IN PLACE; ENDS SQUARE CUT.

1. APPLICATION: CEILINGS, UNLESS OTHERWISE INDICATED.
2. THICKNESS: 5/8 INCH.
3. EDGES: TAPERED.
4. PRODUCTS:
   a. CONTINENTAL BUILDING PRODUCTS; SAGCHECK.
   b. GEORGIA-PACIFIC GYPSUM; TOUGHROCK SPAN 24 CEILING BOARD.
   c. SUBSTITUTIONS: OR APPROVED EQUAL..
   d. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

(F) EXTERIOR SHEATHING BOARD: AS SPECIFIED IN SECTION 06 10 00.

(G) EXTERIOR SHEATHING BOARD: SIZES TO MINIMIZE JOINTS IN PLACE; ENDS SQUARE CUT.

1. APPLICATION: EXTERIOR SHEATHING, UNLESS OTHERWISE INDICATED.
2. MOLD RESISTANCE: SCORE OF 10, WHEN TESTED IN ACCORDANCE WITH ASTM D3273.
3. FUNGAL RESISTANCE: NO FUNGAL GROWTH WHEN TESTED IN ACCORDANCE WITH ASTM G21.
4. GLASS MAT FACED SHEATHING: GLASS MAT FACED GYPSUM SUBSTRATE AS DEFINED IN ASTM C1177/C1177M.
5. PAPER-FACED SHEATHING: GYPSUM SHEATHING BOARD AS DEFINED IN ASTM C1396/C1396M, MOISTURE RESISTANT TYPE WITH WATER REPELLENT PAPER FACES.
6. AT ASSEMBLIES INDICATED WITH FIRE-RATING: USE TYPE REQUIRED BY INDICATED TESTED ASSEMBLY; IF NO TESTED ASSEMBLY IS INDICATED, USE TYPE X BOARD, UL OR WH LISTED.
7. CORE TYPE: REGULAR.
8. CORE TYPE: REGULAR AND TYPE X, AS INDICATED.
9. TYPE X THICKNESS: 5/8 INCH.
10. REGULAR BOARD THICKNESS: 1/2 INCH.
11. EDGES: SQUARE.
12. GLASS MAT FACED PRODUCTS:
    a. AMERICAN GYPSUM COMPANY; M-GLASS EXTERIOR SHEATHING TYPE X.
    b. AMERICAN GYPSUM COMPANY; M-GLASS EXTERIOR SHEATHING.

c. CONTINENTAL BUILDING PRODUCTS; WEATHER DEFENSE PLATINUM EXTERIOR SHEATHING.

d. CONTINENTAL BUILDING PRODUCTS; WEATHER DEFENSE PLATINUM SHEATHING TYPE X.

e. GEORGIA-PACIFIC GYPSUM; DENSGLASS SHEATHING.

f. GEORGIA-PACIFIC GYPSUM; DENSGLASS FIREGUARD SHEATHING.

g. NATIONAL GYPSUM COMPANY; GOLD BOND EXP SHEATHING.

h. SUBSTITUTIONS: OR APPROVED EQUAL.

i. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

13. PAPER-FACED PRODUCTS:

a. AMERICAN GYPSUM COMPANY; EXTERIOR GYPSUM SHEATHING.

b. CERTAINTEED CORPORATION; TYPE X SHEATHING TREATED CORE.

c. SUBSTITUTIONS: OR APPROVED EQUAL..

d. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

14. MAGNESIUM OXIDE PRODUCTS:

a. EXTREMEGREEN BUILDING PRODUCTS, LLC; EXTREMEGREENAE EXTERIOR SHEATHING.

b. SUBSTITUTIONS: OR APPROVED EQUAL..

c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

(H) EXTERIOR SOFFIT BOARD: EXTERIOR GYPSUM SOFFIT BOARD AS DEFINED IN ASTM C1396/C1396M; SIZES TO MINIMIZE JOINTS IN PLACE; ENDS SQUARE CUT.

1. APPLICATION: CEILINGS AND SOFFITS IN PROTECTED EXTERIOR AREAS, UNLESS OTHERWISE INDICATED.

2. AT ASSEMBLIES INDICATED WITH FIRE-RATING: USE TYPE REQUIRED BY INDICATED TESTED ASSEMBLY; IF NO TESTED ASSEMBLY IS INDICATED, USE TYPE X.

3. TYPES: REGULAR AND TYPE X, IN LOCATIONS INDICATED.

4. TYPE X THICKNESS: 5/8 INCH.

5. TYPE C THICKNESS: 5/8 INCH.

6. REGULAR TYPE THICKNESS: 1/2 INCH.

7. EDGES: TAPERED.

8. PRODUCTS:

a. AMERICAN GYPSUM COMPANY; EXTERIOR SOFFIT GYPSUM WALLBOARD TYPE X.

b. CONTINENTAL BUILDING PRODUCTS; SOFFITBOARD.

c. CONTINENTAL BUILDING PRODUCTS; SOFFITBOARD TYPE C.

d. CONTINENTAL BUILDING PRODUCTS; SOFFITBOARD TYPE X.

e. GEORGIA-PACIFIC GYPSUM; TOUGHROCK FIREGUARD C SOFFIT BOARD.

f. SUBSTITUTIONS: OR APPROVED EQUAL..

g. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.4 ACCESSORIES

(A) ACOUSTIC INSULATION: ASTM C665; PREFORMED GLASS FIBER, FRICTION FIT TYPE, UNFACED. THICKNESS: 3 5/8 INCH.

(B) ACOUSTIC INSULATION: AS SPECIFIED IN SECTION 07 21 00.

(C) ACOUSTICAL SHIELDING: RECYCLED ETHYLENE VINYL ACETATE (EVA) SHEET MEMBRANE; APPLIED BETWEEN STUDS AND GYPSUM BOARD.

1. SOUND TRANSMISSION CLASS (STC): MINIMUM OF 25, CALCULATED IN ACCORDANCE WITH ASTM E413, BASED ON TESTS CONDUCTED IN ACCORDANCE WITH ASTM E90.

2. FIRE RESISTANCE: WHERE FIRE RATING IS SPECIFIED FOR THE WALL IN WHICH THE ACOUSTICAL SHIELDING MEMBRANE IS MOUNTED, PROVIDE ASSEMBLIES THAT HAVE BEEN TESTED IN ACCORDANCE WITH ASTM E119 FOR THE SAME RATING AS THE WALL.

3. PRODUCTS:

a. BLUE RIDGE FIBERBOARD, A W.R. MEADOWS COMPANY; SOUNDSTOP SOUND-ABATE: WWW.WRMEADOWS.COM/#SLE.

b. SUBSTITUTIONS: OR APPROVED EQUAL..

c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

(D) ACOUSTICAL SHIELDING: RECYCLED ETHYLENE VINYL ACETATE (EVA) SHEET MEMBRANE WITH FIBERGLASS FACER; APPLIED OVER GYPSUM BOARD.

1. SURFACE BURNING CHARACTERISTICS: PROVIDE ASSEMBLIES WITH FLAME SPREAD INDEX OF 25 OR LESS AND SMOKE DEVELOPED INDEX OF 450 OR LESS, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

2. PRODUCTS:

a. BLUE RIDGE FIBERBOARD, A W.R. MEADOWS COMPANY; SOUNDSTOP RENOVATION: WWW.WRMEADOWS.COM/#SLE.

b. SUBSTITUTIONS: OR APPROVED EQUAL..

c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

(E) ACOUSTIC SEALANT: ACRYLIC EMULSION LATEX OR WATER-BASED ELASTOMERIC SEALANT; DO NOT USE SOLVENT-BASED NON-CURING BUTYL SEALANT.

1. PRODUCTS:

   a. FRANKLIN INTERNATIONAL, INC; TITEBOND GREENCHOICE PROFESSIONAL ACOUSTICAL SMOKE AND SOUND SEALANT: WWW.TITEBOND.COM/#SLE.

   b. LIQUID NAILS, A BRAND OF PPG ARCHITECTURAL COATINGS; AS-825 ACOUSTICAL SOUND SEALANT: WWW.LIQUIDNAILS.COM/#SLE.

   c. SUBSTITUTION: OR APPROVED EQUAL..

   d. SUBSTITUTION: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

(F) WATER-RESISTIVE BARRIER: AS SPECIFIED IN SECTION 07 25 00.

(G) FINISHING ACCESSORIES: ASTM C1047, GALVANIZED STEEL OR ROLLED ZINC, UNLESS NOTED OTHERWISE.

1. TYPES: AS DETAILED OR REQUIRED FOR FINISHED APPEARANCE.

2. SPECIAL SHAPES: IN ADDITION TO CONVENTIONAL CORNER BEAD AND CONTROL JOINTS, PROVIDE U-BEAD AT EXPOSED PANEL EDGES.

3. PRODUCTS:

   a. SAME MANUFACTURER AS FRAMING MATERIALS.

   b. PHILLIPS MANUFACTURING CO: WWW.PHILLIPSMFG.COM/#SLE.

   c. TRIM-TEX, INC: WWW.TRIM-TEX.COM/#SLE.

   d. SUBSTITUTIONS: OR APPROVED EQUAL..

   e. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

(H) BEADS, JOINT ACCESSORIES, AND OTHER TRIM: ASTM C1047, RIGID PLASTIC, GALVANIZED STEEL, OR ROLLED ZINC, UNLESS NOTED OTHERWISE.

1. RIGID CORNER BEADS: LOW PROFILE, FOR 90 DEGREE OUTSIDE CORNERS.

   a. PRODUCTS:

      1) PHILLIPS MANUFACTURING CO; EVERLAST CORNER BEAD: WWW.PHILLIPSMFG.COM/#SLE.

      2) TRIM-TEX, INC: WWW.TRIM-TEX.COM/#SLE.

      3) SUBSTITUTIONS: OR APPROVED EQUAL..

      4) SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

2. SPLAYED CORNER BEADS WITH PAPER FACE: ____ DEGREE OUTSIDE CORNER.

a. PRODUCTS:

1) PHILLIPS MANUFACTURING CO; EVERLAST CORNER BEAD: WWW.PHILLIPSMFG.COM/#SLE..

2) TRIM-TEX, INC; _____: WWW.TRIM-TEX.COM/#SLE..

3) SUBSTITUTIONS: OR APPROVED EQUAL.

4) SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

3. L-TRIM WITH TEAR-AWAY STRIP: SIZED TO FIT 1/2 INCH THICK GYPSUM WALLBOARD.

a. PRODUCTS:

1) PHILLIPS MANUFACTURING CO; GRIPSTIK L-TEAR: WWW.PHILLIPSMFG.COM/#SLE.

2) SUBSTITUTIONS: OR APPROVED EQUAL.

3) SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(I) JOINT MATERIALS: ASTM C475/C475M AND AS RECOMMENDED BY GYPSUM BOARD MANUFACTURER FOR PROJECT CONDITIONS.

1. TAPE: 2 INCH WIDE, COATED GLASS FIBER TAPE FOR JOINTS AND CORNERS, EXCEPT AS OTHERWISE INDICATED.

2. READY-MIXED VINYL-BASED JOINT COMPOUND.

3. CHEMICAL HARDENING TYPE COMPOUND.

4. PRODUCTS:

a. CONTINENTAL BUILDING PRODUCTS: WWW.CONTINENTAL-BP.COM/#SLE.

b. SUBSTITUTIONS: OR APPROVED EQUAL.

c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(J) SCREWS FOR FASTENING OF GYPSUM PANEL PRODUCTS TO COLD-FORMED STEEL STUDS LESS THAN 0.033 INCH IN THICKNESS AND WOOD MEMBERS: ASTM C1002; SELF-PIERCING TAPPING SCREWS, CORROSION RESISTANT.

(K) SCREWS FOR FASTENING OF GYPSUM PANEL PRODUCTS TO STEEL MEMBERS FROM 0.033 TO 0.112 INCH IN THICKNESS: ASTM C954; STEEL DRILL SCREWS, CORROSION RESISTANT.

(L) ANCHORAGE TO SUBSTRATE: TIE WIRE, NAILS, SCREWS, AND OTHER METAL SUPPORTS, OF TYPE AND SIZE TO SUIT APPLICATION; TO RIGIDLY SECURE MATERIALS IN PLACE.

(M) EXTERIOR SOFFIT VENTS: ONE PIECE, PERFORATED, ASTM B221 6063 T5 ALLOY ALUMINUM, WITH EDGE SUITABLE FOR DIRECT APPLICATION TO GYPSUM BOARD AND MANUFACTURED ESPECIALLY FOR SOFFIT APPLICATION. PROVIDE CONTINUOUS VENT.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY THAT PROJECT CONDITIONS ARE APPROPRIATE FOR WORK OF THIS SECTION TO COMMENCE.

3.2 SHAFT WALL INSTALLATION

(A) SHAFT WALL FRAMING: INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS.

1. INSTALL STUDS AT SPACING REQUIRED TO MEET PERFORMANCE REQUIREMENTS.

(B) SHAFT WALL LINER: CUT PANELS TO ACCURATE DIMENSION AND INSTALL SEQUENTIALLY BETWEEN SPECIAL FRICTION STUDS.

3.3 FRAMING INSTALLATION

(A) METAL FRAMING: INSTALL IN ACCORDANCE WITH ASTM C754 AND MANUFACTURER'S INSTRUCTIONS.

(B) SUSPENDED CEILINGS AND SOFFITS: SPACE FRAMING AND FURRING MEMBERS AS INDICATED.

1. LEVEL CEILING SYSTEM TO A TOLERANCE OF 1/1200.

2. LATERALLY BRACE ENTIRE SUSPENSION SYSTEM.

3. INSTALL BRACING AS REQUIRED AT EXTERIOR LOCATIONS TO RESIST WIND UPLIFT.

(C) STUDS: SPACE STUDS AT 16 INCHES ON CENTER.

1. EXTEND PARTITION FRAMING TO STRUCTURE WHERE INDICATED AND TO CEILING IN OTHER LOCATIONS.

2. PARTITIONS TERMINATING AT CEILING: ATTACH CEILING RUNNER SECURELY TO CEILING TRACK IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(D) OPENINGS: REINFORCE OPENINGS AS REQUIRED FOR WEIGHT OF DOORS OR OPERABLE PANELS, USING NOT LESS THAN DOUBLE STUDS AT JAMBS.

(E) STANDARD WALL FURRING: INSTALL AT CONCRETE WALLS SCHEDULED TO RECEIVE GYPSUM BOARD, NOT MORE THAN 4 INCHES FROM FLOOR AND CEILING LINES AND ABUTTING WALLS. SECURE IN PLACE ON ALTERNATE CHANNEL FLANGES AT MAXIMUM 24 INCHES ON CENTER.

(F) ACOUSTIC FURRING: INSTALL RESILIENT CHANNELS AT MAXIMUM 24 INCHES ON CENTER. LOCATE JOINTS OVER FRAMING MEMBERS.

(G) FURRING FOR FIRE RATINGS: INSTALL AS REQUIRED FOR FIRE RESISTANCE RATINGS INDICATED AND TO GA-600 REQUIREMENTS.

(H) BLOCKING: INSTALL WOOD BLOCKING FOR SUPPORT OF:

1. FRAMED OPENINGS.
2. WALL MOUNTED CABINETS.
3. PLUMBING FIXTURES.
4. TOILET PARTITIONS.
5. TOILET ACCESSORIES.
6. WALL MOUNTED DOOR HARDWARE.
7. ARTWORK

3.4 ACOUSTIC ACCESSORIES INSTALLATION

(A) ACOUSTIC INSULATION: PLACE TIGHTLY WITHIN SPACES, AROUND CUT OPENINGS, BEHIND AND AROUND ELECTRICAL AND MECHANICAL ITEMS WITHIN PARTITIONS, AND TIGHT TO ITEMS PASSING THROUGH PARTITIONS.

(B) ACOUSTIC SEALANT: INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

1. PLACE ONE BEAD CONTINUOUSLY ON SUBSTRATE BEFORE INSTALLATION OF PERIMETER FRAMING MEMBERS.
2. PLACE CONTINUOUS BEAD AT PERIMETER OF EACH LAYER OF GYPSUM BOARD.
3. SEAL AROUND ALL PENETRATIONS BY CONDUIT, PIPE, DUCTS, AND ROUGH-IN BOXES, EXCEPT WHERE FIRESTOPPING IS PROVIDED.

(C) ACOUSTICAL SHIELDING: INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS FOR APPLICATION OVER GYPSUM BOARD.

3.5 BOARD INSTALLATION

(A) COMPLY WITH ASTM C840, GA-216, AND MANUFACTURER'S INSTRUCTIONS. INSTALL TO MINIMIZE BUTT END JOINTS, ESPECIALLY IN HIGHLY VISIBLE LOCATIONS.

(B) SINGLE-LAYER NON-RATED: INSTALL GYPSUM BOARD IN MOST ECONOMICAL DIRECTION, WITH ENDS AND EDGES OCCURRING OVER FIRM BEARING.

1. EXCEPTION: TAPERED EDGES TO RECEIVE JOINT TREATMENT AT RIGHT ANGLES TO FRAMING.

(C) FIRE-RATED CONSTRUCTION: INSTALL GYPSUM BOARD IN STRICT COMPLIANCE WITH REQUIREMENTS OF ASSEMBLY LISTING.

(D) EXPOSED GYPSUM BOARD IN INTERIOR WET AREAS: SEAL JOINTS, CUT EDGES, AND HOLES WITH WATER-RESISTANT SEALANT.

(E) EXTERIOR SHEATHING: COMPLY WITH ASTM C1280. INSTALL SHEATHING VERTICALLY, WITH EDGES BUTTED TIGHT AND ENDS OCCURRING OVER FIRM BEARING.

1. SEAL JOINTS, CUT EDGES, AND HOLES WITH WATER-RESISTANT SEALANT.

2. PAPER-FACED SHEATHING: IMMEDIATELY AFTER INSTALLATION, PROTECT FROM WEATHER BY APPLICATION OF WATER-RESISTIVE BARRIER.

(F) EXTERIOR SOFFITS: INSTALL EXTERIOR SOFFIT BOARD PERPENDICULAR TO FRAMING, WITH STAGGERED END JOINTS OVER FRAMING MEMBERS OR OTHER SOLID BACKING.

1. SEAL JOINTS, CUT EDGES, AND HOLES WITH WATER RESISTANT SEALANT.

(G) CEMENTITIOUS BACKING BOARD: INSTALL OVER STEEL FRAMING MEMBERS AND PLYWOOD SUBSTRATE WHERE INDICATED, IN ACCORDANCE WITH ANSI A108.11 AND MANUFACTURER'S INSTRUCTIONS.

(H) INSTALLATION ON METAL FRAMING: USE SCREWS FOR ATTACHMENT OF GYPSUM BOARD EXCEPT FACE LAYER OF NON-RATED DOUBLE-LAYER ASSEMBLIES, WHICH MAY BE INSTALLED BY MEANS OF ADHESIVE LAMINATION.

3.6 INSTALLATION OF TRIM AND ACCESSORIES

(A) CONTROL JOINTS: PLACE CONTROL JOINTS CONSISTENT WITH LINES OF BUILDING SPACES AND AS INDICATED.

1. NOT MORE THAN 30 FEET APART ON WALLS AND CEILINGS OVER 50 FEET LONG.

2. AT EXTERIOR SOFFITS, NOT MORE THAN 30 FEET APART IN BOTH DIRECTIONS.

(B) CORNER BEADS: INSTALL AT EXTERNAL CORNERS, USING LONGEST PRACTICAL LENGTHS.

(C) EDGE TRIM: INSTALL AT LOCATIONS WHERE GYPSUM BOARD ABUTS DISSIMILAR MATERIALS.

(D) MOISTURE GUARD TRIM: INSTALL ON BOTTOM EDGE OF GYPSUM BOARD ACCORDING TO MANUFACTURER'S INSTRUCTIONS AND IN LOCATIONS INDICATED ON DRAWINGS.

(E) EXTERIOR SOFFIT VENTS: INSTALL ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS AND IN LOCATIONS INDICATED ON DRAWINGS. PROVIDE VENT AREA SPECIFIED.

3.7 JOINT TREATMENT

(A) GLASS MAT FACED GYPSUM BOARD AND EXTERIOR GLASS MAT FACED SHEATHING: USE FIBERGLASS JOINT TAPE, BEDDED AND FINISHED WITH CHEMICAL HARDENING TYPE JOINT COMPOUND.

(B) PAPER FACED GYPSUM BOARD: USE PAPER JOINT TAPE, BEDDED WITH READY-MIXED VINYL-BASED JOINT COMPOUND AND FINISHED WITH READY-MIXED VINYL-BASED JOINT COMPOUND.

(C) FINISH GYPSUM BOARD IN ACCORDANCE WITH LEVELS DEFINED IN ASTM C840, AS FOLLOWS:

1. LEVEL 4: WALLS AND CEILINGS TO RECEIVE PAINT FINISH OR WALL COVERINGS, UNLESS OTHERWISE INDICATED.

2. LEVEL 2: IN UTILITY AREAS, BEHIND CABINETRY, AND ON BACKING BOARD TO RECEIVE TILE FINISH.

(D) TAPE, FILL, AND SAND EXPOSED JOINTS, EDGES, AND CORNERS TO PRODUCE SMOOTH SURFACE READY TO RECEIVE FINISHES.

(E) FILL AND FINISH JOINTS AND CORNERS OF CEMENTITIOUS BACKING BOARD AS RECOMMENDED BY MANUFACTURER.

3.8 PREDECORATED GYPSUM BOARD INSTALLATION

(A) ERECT PREDECORATED GYPSUM BOARD IN ACCORDANCE WITH GA-224 AND MANUFACTURER'S INSTRUCTIONS.

3.9 TOLERANCES

(A) MAXIMUM VARIATION OF FINISHED GYPSUM BOARD SURFACE FROM TRUE FLATNESS: 1/8 INCH IN 10 FEET IN ANY DIRECTION.

END OF SECTION

SECTION 09 22 16 - NON-STRUCTURAL METAL FRAMING

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) METAL PARTITION, CEILING, AND SOFFIT FRAMING.

(B) FRAMING ACCESSORIES.

1.2 RELATED REQUIREMENTS

(A) SECTION 05 40 00 - COLD-FORMED METAL FRAMING: STRUCTURAL LOAD BEARING METAL STUD FRAMING AND EXTERIOR WALL STUD FRAMING.

(B) SECTION 05 40 00 - COLD-FORMED METAL FRAMING: EXECUTION REQUIREMENTS FOR ANCHORS FOR ATTACHING WORK OF THIS SECTION.

(C) SECTION 05 51 00 - METAL STAIRS: EXECUTION REQUIREMENTS FOR ANCHORS FOR ATTACHING WORK OF THIS SECTION.

(D) SECTION 06 10 00 - ROUGH CARPENTRY: WOOD BLOCKING WITHIN STUD FRAMING.

(E) SECTION 06 10 00 - ROUGH CARPENTRY: WALL SHEATHING.

(F) SECTION 07 21 00 - THERMAL INSULATION: ACOUSTIC INSULATION.

(G) SECTION 07 62 00 - SHEET METAL FLASHING AND TRIM: HEAD AND SILL FLASHINGS

(H) SECTION 07 84 00 - FIRESTOPPING: SEALING TOP-OF-WALL ASSEMBLIES AT FIRE RATED WALLS.

(I) SECTION 07 92 00 - JOINT SEALANTS: SEALING ACOUSTICAL GAPS IN CONSTRUCTION OTHER THAN GYPSUM BOARD OR PLASTER WORK.

(J) SECTION 08 31 00 - ACCESS DOORS AND PANELS.

(K) SECTION 08 51 13 - ALUMINUM WINDOWS: PRODUCT REQUIREMENTS FOR WINDOW ANCHORS.

(L) SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES: METAL STUDS FOR GYPSUM BOARD PARTITION FRAMING.

(M) SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES: EXECUTION REQUIREMENTS FOR ANCHORS FOR ATTACHING WORK OF THIS SECTION.

1.3 REFERENCE STANDARDS

(A) AISI S100-12 - NORTH AMERICAN SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS; AMERICAN IRON AND STEEL INSTITUTE; 2012.

(B) ASTM A36/A36M - STANDARD SPECIFICATION FOR CARBON STRUCTURAL STEEL; 2014.

(C) ASTM A653/A653M - STANDARD SPECIFICATION FOR STEEL SHEET, ZINC-COATED (GALVANIZED) OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT-DIP PROCESS; 2015, WITH EDITORIAL REVISION (2016).

(D) ASTM A1003/A1003M - STANDARD SPECIFICATION FOR STEEL SHEET, CARBON, METALLIC- AND NONMETALLIC-COATED FOR COLD-FORMED FRAMING MEMBERS; 2015.

(E) ASTM C645 - STANDARD SPECIFICATION FOR NONSTRUCTURAL STEEL FRAMING MEMBERS; 2014, WITH EDITORIAL REVISION (2015).

(F) ASTM C665 - STANDARD SPECIFICATION FOR MINERAL-FIBER BLANKET THERMAL INSULATION FOR LIGHT FRAME CONSTRUCTION AND MANUFACTURED HOUSING; 2017.

(G) ASTM C754 - STANDARD SPECIFICATION FOR INSTALLATION OF STEEL FRAMING MEMBERS TO RECEIVE SCREW-ATTACHED GYPSUM PANEL PRODUCTS; 2017.

(H) ASTM C1002 - STANDARD SPECIFICATION FOR STEEL SELF-PIERCING TAPPING SCREWS FOR APPLICATION OF GYPSUM PANEL PRODUCTS OR METAL PLASTER BASES TO WOOD STUDS OR STEEL STUDS; 2016.

(I) ASTM E84 - STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS; 2017.

(J) ASTM E90 - STANDARD TEST METHOD FOR LABORATORY MEASUREMENT OF AIRBORNE SOUND TRANSMISSION LOSS OF BUILDING PARTITIONS AND ELEMENTS; 2009 (REAPPROVED 2016).

(K) ASTM E413 - CLASSIFICATION FOR RATING SOUND INSULATION; 2016.

(L) SSPC-PAINT 20 - ZINC-RICH PRIMERS (TYPE I, "INORGANIC," AND TYPE II, "ORGANIC"); 2002 (ED. 2004).

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) SHOP DRAWINGS:

1. INDICATE PREFABRICATED WORK, COMPONENT DETAILS, STUD LAYOUT, FRAMED OPENINGS, ANCHORAGE TO STRUCTURE, ACOUSTIC DETAILS, TYPE AND LOCATION OF FASTENERS, ACCESSORIES, AND ITEMS OF OTHER RELATED WORK.

2. DESCRIBE METHOD FOR SECURING STUDS TO TRACKS, SPLICING, AND FOR BLOCKING AND REINFORCEMENT OF FRAMING CONNECTIONS.

(C) PRODUCT DATA: PROVIDE DATA DESCRIBING FRAMING MEMBER MATERIALS AND FINISH, PRODUCT CRITERIA, LOAD CHARTS, AND LIMITATIONS.

(D) PRODUCT DATA: PROVIDE MANUFACTURER'S DATA ON PARTITION HEAD TO STRUCTURE CONNECTORS, SHOWING COMPLIANCE WITH REQUIREMENTS.

(E) MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE SPECIAL PROCEDURES AND PERIMETER CONDITIONS REQUIRING SPECIAL ATTENTION.

(F) SUSTAINABLE DESIGN SUBMITTAL: DOCUMENTATION OF RECYCLED CONTENT AND LOCATION OF MANUFACTURE.

1.5 QUALITY ASSURANCE

(A) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING THE WORK OF THIS SECTION WITH MINIMUM FIVE YEARS DOCUMENTED EXPERIENCE AND APPROVED BY MANUFACTURER.

1.6 MOCK-UP

(A) PROVIDE MOCK-UP OF STUD WALL, CEILING, AND SOFFIT FRAMING INCLUDING INSULATION, SHEATHING, WINDOW FRAME, AND DOOR FRAME AND FINISH SPECIFIED IN OTHER SECTIONS. COORDINATE WITH INSTALLATION OF ASSOCIATED WORK SPECIFIED IN OTHER SECTIONS.

1. MOCK-UP MAY REMAIN AS PART OF THE WORK.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) METAL FRAMING, CONNECTORS, AND ACCESSORIES:

1. CLARKDIETRICH: WWW.CLARKDIETRICH.COM/#SLE.

2. SIMPSON STRONG TIE: WWW.STRONGTIE.COM/#SLE.

3. SUBSTITUTIONS: OR APPROVED EQUAL..

4. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

2.2 FRAMING MATERIALS

(A) FIRE RATED ASSEMBLIES: COMPLY WITH APPLICABLE CODE AND AS FOLLOWS:

1. FIRE RATED PARTITIONS: AS INDICATED IN DRAWINGS

2. FIRE RATED CEILING AND SOFFITS: AS INDICATED IN DRAWINGS.

(B) LOADBEARING STUDS: AS SPECIFIED IN SECTION 05 40 00.

(C) NON-LOADBEARING FRAMING SYSTEM COMPONENTS: ASTM C645; GALVANIZED SHEET STEEL, OF SIZE AND PROPERTIES NECESSARY TO COMPLY WITH ASTM C754 FOR THE SPACING INDICATED, WITH MAXIMUM DEFLECTION OF WALL FRAMING OF L/240 AT 5 PSF.

1. STUDS: C SHAPED WITH FLAT OR FORMED WEBS WITH KNURLED FACES.

2. RUNNERS: U SHAPED, SIZED TO MATCH STUDS.

3. CEILING CHANNELS: C SHAPED.

4. FURRING: HAT-SHAPED SECTIONS, MINIMUM DEPTH OF 7/8" INCH.

5. RESILIENT FURRING CHANNELS: SINGLE LEG CONFIGURATION; 1/2 INCH CHANNEL DEPTH.

    a. PRODUCTS:

        1) CLARKDIETRICH; RC DELUXE RESILIENT CHANNEL: WWW.CLARKDIETRICH.COM/#SLE.

        2) SUBSTITUTIONS: OR APPROVED EQUAL..

        3) SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

(D) PARTITION HEAD TO STRUCTURE CONNECTIONS: PROVIDE TRACK FASTENED TO STRUCTURE WITH LEGS OF SUFFICIENT LENGTH TO ACCOMMODATE DEFLECTION, FOR FRICTION FIT OF STUDS CUT SHORT AND BRACED WITH CONTINUOUS BRIDGING ON BOTH SIDES.

(E) PARTITION HEAD TO STRUCTURE CONNECTIONS: PROVIDE MECHANICAL ANCHORAGE DEVICES THAT ACCOMMODATE DEFLECTION USING SLOTTED HOLES, SCREWS AND ANTI-FRICTION BUSHINGS, PREVENTING ROTATION OF STUDS WHILE MAINTAINING STRUCTURAL PERFORMANCE OF PARTITION.

1. STRUCTURAL PERFORMANCE: MAINTAIN LATERAL LOAD RESISTANCE AND VERTICAL MOVEMENT CAPACITY REQUIRED BY APPLICABLE CODE, WHEN EVALUATED IN ACCORDANCE WITH AISI S100-12.

2. MATERIAL: ASTM A653/A653M STEEL SHEET, SS GRADE 50, WITH G60/Z180 HOT DIPPED GALVANIZED COATING.

3. PROVIDE COMPONENTS UL-LISTED FOR USE IN UL-LISTED FIRE-RATED HEAD OF PARTITION JOINT SYSTEMS INDICATED ON DRAWINGS.

4. PROVIDE TOP TRACK PREASSEMBLED WITH CONNECTION DEVICES SPACED TO FIT STUD SPACING INDICATED ON DRAWINGS; MINIMUM TRACK LENGTH OF 12 FEET.

(F) DEFLECTION AND FIRESTOP TRACK: INTUMESCENT STRIP FACTORY-APPLIED TO TRACK FLANGES EXPANDS WHEN EXPOSED TO HEAT OR FLAMES TO PROVIDE A PERIMETER JOINT SEAL.

1. PRODUCTS:

    a. CLARKDIETRICH; BLAZEFRAME FIRESTOP DEFLECTION TRACK: WWW.CLARKDIETRICH.COM/#SLE.

    b. SUBSTITUTIONS: OR APPROVED EQUAL.

    c. SUBSTITUTIONS: 01 00 00 - GENERAL REQUIREMENTS..

(G) PREFORMED TOP TRACK FIRESTOP SEAL:

1. PROVIDE COMPONENTS UL-LISTED FOR USE IN UL-LISTED FIRE-RATED HEAD OF PARTITION JOINT SYSTEMS INDICATED ON DRAWINGS.

2. PRODUCTS:

    a. HILTI, INC; TOP TRACK SEAL CFS TTS: WWW.US.HILTI.COM/#SLE.

b. SPECIFIED TECHNOLOGIES INC; SPEEDFLEX TTG TRACK TOP GASKET: WWW.STFIRESTOP.COM/#SLE.

c. SUBSTITUTIONS: OR APPROVED EQUAL.

d. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

(H) NON-LOADBEARING FRAMING ACCESSORIES:

1. CEILING HANGERS: TYPE AND SIZE AS SPECIFIED IN ASTM C754 FOR SPACING REQUIRED.

2. SOUND ISOLATION CLIPS: MOLDED RUBBER ISOLATOR AND STEEL CLIP, FASTENS DIRECTLY TO FRAMING OR STRUCTURE TO PROVIDE ACOUSTICAL SEPARATION IN GYPSUM BOARD WALLS AND CEILINGS.

   a. PRODUCTS:

      1) PLITEQ, INC; GENIECLIP RST: WWW.PLITEQ.COM/#SLE.

      2) SUBSTITUTIONS: OR APPROVED EQUAL..

      3) SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

3. PARTIAL HEIGHT WALL FRAMING SUPPORT: PROVIDES STUD REINFORCEMENT AND ANCHORED CONNECTION TO FLOOR.

   a. MATERIALS: ASTM A36/A36M FORMED SHEET STEEL SUPPORT MEMBER WITH FACTORY-WELDED ASTM A1003/A1003M STEEL PLATE BASE.

   b. HEIGHT: 35-3/4 INCHES OR AS REQUIRED IN DRAWINGS.

   c. PRODUCTS:

      1) CLARKDIETRICH; PONY WALL (PW): WWW.CLARKDIETRICH.COM/#SLE.

      2) SUBSTITUTIONS: OR APPROVED EQUAL..

      3) SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

4. FRAMING CONNECTORS: ASTM A653/A653M G90 GALVANIZED STEEL CLIPS; SECURES COLD ROLLED CHANNEL TO WALL STUDS FOR LATERAL BRACING.

   a. PRODUCTS:

      1) CLARKDIETRICH; FASTBRIDGE CLIP (FB33): WWW.CLARKDIETRICH.COM/#SLE.

      2) SUBSTITUTIONS: OR APPROVED EQUAL..

      3) SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

5. FLEXIBLE WOOD BACKING: FIRE-RETARDANT TREATED WOOD WITH SHEET STEEL CONNECTORS.

   a. PRODUCTS:

1) CLARKDIETRICH; DANBACK: WWW.CLARKDIETRICH.COM/#SLE.

2) SUBSTITUTIONS: OR APPROVED EQUAL..

3) SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

6. SHEET METAL BACKING: 0.036 INCH THICK, GALVANIZED.

7. FASTENERS: ASTM C1002 SELF-PIERCING TAPPING SCREWS.

8. ANCHORAGE DEVICES: POWDER ACTUATED.

9. ACOUSTIC INSULATION: ASTM C665; PREFORMED GLASS FIBER, FRICTION FIT TYPE, UNFACED. THICKNESS AS INDICATED IN DRAWINGS.

10. ACOUSTIC INSULATION: AS SPECIFIED IN SECTION 07 21 00.

11. ACOUSTIC SEALANT: ACRYLIC EMULSION LATEX OR WATER-BASED ELASTOMERIC SEALANT; DO NOT USE SOLVENT-BASED NON-CURING BUTYL SEALANT.

12. TOUCH-UP PRIMER FOR GALVANIZED SURFACES: SSPC-PAINT 20, TYPE I - INORGANIC.

(I) SOUND ISOLATION TAPE: ELASTOMERIC FOAM TAPE FOR SOUND DECOUPLING.

1. SURFACE BURNING CHARACTERISTICS: PROVIDE ASSEMBLIES WITH FLAME SPREAD INDEX OF 75 OR LESS AND SMOKE DEVELOPED INDEX OF 450 OR LESS, WHEN TESTED IN ACCORDANCE WITH ASTM E84.

2. TAPE THICKNESS: 1/4 INCH.

3. PRODUCTS:

a. ARMACELL LLC; ARMASOUND MTD: WWW.ARMACELL.US/#SLE.

b. SUBSTITUTIONS: OR APPROVED EQUAL..

c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY EXISTING CONDITIONS BEFORE STARTING WORK.

(B) VERIFY THAT ROUGH-IN UTILITIES ARE IN PROPER LOCATION.

3.2 INSTALLATION OF STUD FRAMING

(A) COMPLY WITH REQUIREMENTS OF ASTM C754.

(B) EXTEND PARTITION FRAMING TO STRUCTURE WHERE INDICATED AND TO CEILING IN OTHER LOCATIONS.

(C) PARTITIONS TERMINATING AT CEILING: ATTACH CEILING RUNNER SECURELY TO CEILING TRACK IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(D) PARTITIONS TERMINATING AT STRUCTURE: ATTACH EXTENDED LEG TOP RUNNER TO STRUCTURE, MAINTAIN CLEARANCE BETWEEN TOP OF STUDS AND STRUCTURE, AND BRACE BOTH FLANGES OF STUDS AS INDICATED.

(E) PARTITIONS TERMINATING AT STRUCTURE: ATTACH TOP RUNNER TO STRUCTURE, MAINTAIN CLEARANCE BETWEEN TOP OF STUDS AND STRUCTURE, AND CONNECT STUDS TO TRACK USING SPECIFIED MECHANICAL DEVICES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS; VERIFY FREE MOVEMENT OF TOP OF STUD CONNECTIONS; DO NOT LEAVE STUDS UNATTACHED TO TRACK.

(F) ALIGN AND SECURE TOP AND BOTTOM RUNNERS AT 24 INCHES ON CENTER.

(G) AT PARTITIONS INDICATED WITH AN ACOUSTIC RATING:

1. PROVIDE COMPONENTS AND INSTALL AS REQUIRED TO PRODUCE STC RATING AS INDICATED IN DRAWINGS, BASED ON PUBLISHED TESTS BY MANUFACTURER CONDUCTED IN ACCORDANCE WITH ASTM E90 WITH STC RATING CALCULATED IN ACCORDANCE WITH ASTM E413.

2. PLACE ONE BEAD OF ACOUSTIC SEALANT BETWEEN RUNNERS AND SUBSTRATE, STUDS AND ADJACENT CONSTRUCTION.

3. PLACE ONE BEAD OF ACOUSTIC SEALANT BETWEEN STUDS AND ADJACENT VERTICAL SURFACES.

4. SOUND ISOLATION TAPE: APPLY TO VERTICAL STUDS AND TOP AND BOTTOM TRACKS/RUNNERS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(H) FIT RUNNERS UNDER AND ABOVE OPENINGS; SECURE INTERMEDIATE STUDS TO SAME SPACING AS WALL STUDS.

(I) INSTALL STUDS VERTICALLY AT SPACING INDICATED ON DRAWINGS.

(J) ALIGN STUD WEB OPENINGS HORIZONTALLY.

(K) SECURE STUDS TO TRACKS USING CRIMPING METHOD. DO NOT WELD.

(L) STUD SPLICING IS NOT PERMISSIBLE.

(M) FABRICATE CORNERS USING A MINIMUM OF THREE STUDS.

(N) DOUBLE STUD AT WALL OPENINGS, DOOR AND WINDOW JAMBS, NOT MORE THAN 2 INCHES FROM EACH SIDE OF OPENINGS.

(O) BRACE STUD FRAMING SYSTEM RIGID.

(P) COORDINATE ERECTION OF STUDS WITH REQUIREMENTS OF DOOR FRAMES; INSTALL SUPPORTS AND ATTACHMENTS.

(Q) COORDINATE INSTALLATION OF BUCKS, ANCHORS, AND BLOCKING WITH ELECTRICAL, MECHANICAL, AND OTHER WORK TO BE PLACED WITHIN OR BEHIND STUD FRAMING.

(R) BLOCKING: USE WOOD BLOCKING SECURED TO STUDS. PROVIDE BLOCKING FOR SUPPORT OF PLUMBING FIXTURES, TOILET PARTITIONS, WALL CABINETS, TOILET ACCESSORIES, HARDWARE, OPENING FRAMES, AND AND OTHER ITEMS AS INDICATED IN DRAWINGS.

(S) SOUND ISOLATION CLIPS: MECHANICALLY ATTACH TO FRAMING OR STRUCTURE WITH FASTENERS RECOMMENDED BY CLIP MANUFACTURER. INSTALL AT SPACING INDICATED ON DRAWINGS.

3.3 CEILING AND SOFFIT FRAMING

(A) COMPLY WITH REQUIREMENTS OF ASTM C754.

(B) INSTALL FURRING AFTER WORK ABOVE CEILING OR SOFFIT IS COMPLETE. COORDINATE THE LOCATION OF HANGERS WITH OTHER WORK.

(C) INSTALL FURRING INDEPENDENT OF WALLS, COLUMNS, AND ABOVE-CEILING WORK.

(D) SECURELY ANCHOR HANGERS TO STRUCTURAL MEMBERS OR EMBED IN STRUCTURAL SLAB. SPACE HANGERS AS REQUIRED TO LIMIT DEFLECTION TO CRITERIA INDICATED. USE RIGID HANGERS AT EXTERIOR SOFFITS.

(E) SPACE MAIN CARRYING CHANNELS AT MAXIMUM 72 INCH ON CENTER, AND NOT MORE THAN 6 INCHES FROM WALL SURFACES. LAP SPLICE SECURELY.

(F) SECURELY FIX CARRYING CHANNELS TO HANGERS TO PREVENT TURNING OR TWISTING AND TO TRANSMIT FULL LOAD TO HANGERS.

(G) PLACE FURRING CHANNELS PERPENDICULAR TO CARRYING CHANNELS, NOT MORE THAN 2 INCHES FROM PERIMETER WALLS, AND RIGIDLY SECURE. LAP SPLICES SECURELY.

(H) REINFORCE OPENINGS IN SUSPENSION SYSTEM THAT INTERRUPT MAIN CARRYING CHANNELS OR FURRING CHANNELS WITH LATERAL CHANNEL BRACING. EXTEND BRACING MINIMUM 24 INCHES PAST EACH OPENING.

(I) LATERALLY BRACE SUSPENSION SYSTEM.

3.4 TOLERANCES

(A) MAXIMUM VARIATION FROM TRUE POSITION: 1/8 INCH IN 10 FEET.

(B) MAXIMUM VARIATION FROM PLUMB: 1/8 INCH IN 10 FEET.

END OF SECTION

SECTION 09 30 00 - TILING

PART 1 - GENERAL

1.1 SECTION INCLUDES

(A) TILE AND ACCESSORIES:

1. GLAZED PORCELAIN
2. SETTING MATERIALS
3. GROUTS
4. SEALANTS
5. TRIM AND ACCESSORIES

(B) PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, AND MISCELLANEOUS ACCESSORIES FOR A COMPLETE INSTALLATION.

1.2 REFERENCES

(A) AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI):

1. ANSI A108.10 - SPECIFICATIONS FOR INSTALLATION OF GROUT IN TILEWORK.
2. ANSI A108.11 - AMERICAN NATIONAL STANDARD SPECIFICATIONS FOR INTERIOR INSTALLATION OF CEMENTITIOUS BACKER UNITS; 2010 (REAFFIRMED 2016).
3. ANSI A108.19 – INSTALLATION STANDARD FOR GAUGED PORCELAIN TILE.
4. ANSI A118.3 - CHEMICAL-RESISTANT, WATER-CLEANABLE, TILE-SETTING AND -GROUTING EPOXY AND WATER-CLEANABLE TILE-SETTING EPOXY ADHESIVE.
5. ANSI A118.4 – MODIFIED DRY SET CEMENT MORTAR.
6. ANSI A118.5 - CHEMICAL-RESISTANT FURAN MORTAR AND GROUT.
7. ANSI A118.7 - HIGH PERFORMANCE CEMENT GROUTS.
8. ANSI A118.9 - TEST METHODS AND SPECIFICATIONS FOR CEMENTITIOUS BACKER UNITS.
9. ANSI A118.10 - LOAD BEARING, BONDED, WATERPROOF MEMBRANES FOR THINSET CERAMIC TILE AND DIMENSIONAL STONE.
10. ANSI A118.11 - EXTERIOR GRADE PLYWOOD (EGP) LATEX-PORTLAND CEMENT MORTAR.
11. ANSI 118.12 – HIGH PERFORMANCE CRACK ISOLATION MEMBRANES FOR THIN-SET CERAMIC TILE AND DIMENSION STONE INSTALLATION.
12. ANSI 118.13 – BONDED SOUND REDUCTION MEMBRANES FOR THIN-SET CERAMIC TILE INSTALLATION.

13. ANSI 118.15 – IMPROVED MODIFIED DRY-SET CEMENT MORTAR. MIX WITH LIQUID LATEX ADDITIVE. INSTALL AT THE FOLLOWING: EXTERIOR APPLICATIONS, SUBMERGED APPLICATIONS, DARK TILE IN SOUTH FACING GLAZING WHICH WILL EXPERIENCE LARGE THERMAL EXPANSION, OR OTHER HIGH-PERFORMANCE APPLICATIONS.

14. ANSI A 137.3 – SPECIFICATIONS FOR PORCELAIN TILE.

15. TCNA (HB) – HANDBOOK FOR CERAMIC, GLASS AND STONE TILE INSTALLATION; 2017.

(B) ASTM INTERNATIONAL (ASTM)

1. ASTM C 1028 - STANDARD TEST METHOD FOR DETERMINING THE STATIC COEFFICIENT OF FRICTION OR CERAMIC TILE AND OTHER LIKE SURFACES BY THE HORIZONTAL DYNAMOMETER PULL METER METHOD.

2. ASTM D 4397 - STANDARD SPECIFICATION FOR POLYETHYLENE SHEETING FOR CONSTRUCTION, INDUSTRIAL, AND AGRICULTURAL APPLICATIONS.

(C) TILE COUNCIL OF NORTH AMERICA (TCNA): TCNA 2016 HANDBOOK FOR CERAMIC, GLASS, AND STONE TILE INSTALLATION.

(D) ISO 13007 STANDARDS FOR CERAMIC TILES, GROUTS AND ADHESIVES.

1.3 PERFORMANCE REQUIREMENTS

(A) STATIC COEFFICIENT OF FRICTION: TILE ON WALKWAY SURFACES SHALL BE PROVIDED WITH THE FOLLOWING VALUES AS DETERMINED BY TESTING IN CONFORMANCE WITH ASTM C 1028.

(B) LEVEL SURFACES: MINIMUM OF 0.6 (WET).

1. STEP TREADS: MINIMUM OF 0.6 (WET).

2. RAMP SURFACES: MINIMUM OF 0.8 (WET)

(C) ANSI A326.3 - AMERICAN NATIONAL STANDARD TEST METHOD FOR MEASUREING DYNAMIC COEFFICIENT OF FRICTION OF HARD SURFACE FLOORING MATERIALS.

1. ANSI A137.1 SPECIFICATIONS FOR CERAMIC TILE, DCOF ACUTEST

2. LEVEL SURFACES: MINIMUM OF 0.42 (WET).

1.4 SUBMITTALS

(A) PRODUCT DATA: FOR EACH PRODUCT, SUBMIT MATERIAL SPECIFICATIONS, CHARACTERISTICS, AND INSTRUCTIONS FOR PREPARATION, USING MORTAR BED, SEALANTS, WATERPROOF MEMBRANES, CEMENTITOUS BOND COAT, GROUTS, TILE PRODUCTS, ALL OTHER MISCELLANEOUS PRODUCTS AND ACCESSORIES.

(B) TILE SAMPLES: SUBMIT TWO EACH OF ACTUAL TILE SIZE(S), ILLUSTRATING PATTERN, COLOR VARIATIONS, AND GROUT JOINT SIZE VARIATIONS. SUBMIT SAMPLES FOR EACH COLOR SELECTED BY ARCHITECT IN THE COLOR SCHEDULE KEY.

(C) GROUT SAMPLES: SUBMIT TWO EACH OF EACH COLOR SPECIFIED IN THE COLOR SCHEDULE KEY OR COLOR CHARTS FOR SELECTION OF GROUT.

(D) MAINTENANCE INSTRUCTIONS: INCLUDE RECOMMENDED CLEANING METHODS, CLEANING MATERIALS, STAIN REMOVAL METHODS, POLISHES AND WAXES.

(E) PROVIDE SHOP DRAWINGS INDICATING LOCATIONS OF MOVEMENT JOINTS "EJ171" PER (TCNA) TILE COUNCIL OF AMERICA.

1. LOCATION AND FREQUENCY OF MOVEMENT JOINTS

   a. INTERIOR: 20'-25' IN EACH DIRECTION.

   b. INTERIOR TILE WORK EXPOSED TO DIRECT SUNLIGHT OR MOISTURE: 8'-12' IN EACH DIRECTION.

   c. ABOVE GROUND CONCRETE SLAB SUBSTRATE: 8'-12' IN EACH DIRECTION.

   d. PERIMETER JOINTS: MOVEMENT JOINTS ARE REQUIRED WHERE TILEWORK ABUTS RESTRINING SURFACES SUCH AS PERIMETER WALLS, DISSIMILAR FLOORS, CURBS, COLUMNS, PIPES, CEILINGS AND WHERE CHANGES OCCUR IN BACKING MATERIALS BUT NOT AT DRAIN STRAINERS.

   e. EXTERIOR: 8' TO 12' IN EACH DIRECTION.

   f. REFER TO STRUCTURAL ENGINEER DRAWINGS IN CONSTRUCTION DOCUMENT DRAWING SET FOR THE LOCATIONS OF CONSTRUCTION/COLD JOINTS, EXPANSION JOINTS, ISOLATIONS JOINTS AND ACOUSTICAL JOINT.

   g. REFER TO ARCHITECTURAL FLOOR PLAN OR FLOOR FINISH PLAN IN THE CONSTRUCTION DOCUMENT DRAWING SET FOR THE LOCATION OF CONTRACTION/CONTROL JOINTS.

   h. CONTRACTOR SHOULD REVIEW ARCHITECT'S MOVEMENT JOINT LOCATIONS AND DETAILS AND ADVISE ARCHITECT IF CHANGES NEED TO OCCUR FOR BEST RESULTS FOR TILE APPLICATION(S).

2. JOINT WIDTH

   a. INTERIOR FOR CERAMIC MOSAIC TILE AND GLAZED WALL TILE: PREFERRED NOT LESS THAN ¼" BUT NEVER LESS THAN 1/8".

   b. JOINTS IN TILE AND SETTING MATERIALS SHALL NEVER BE LESS THAN THE WIDTH OF THE SAW-CUT CONTROL JOINT WIDTH.

   c. JOINTS THROUGH TILEWORK DIRECTLY OVER STRUCTURAL JOINTS MUST NEVER BE NARROWER THAN THE STRUCTURAL JOINT.

   d. EXTERIOR TILE: MINIMUM 3/8" FOR JOINTS 8' ON CENTER, MINIMUM ½" FOR JOINTS 12' ON CENTER. MINIMUM WIDTHS MUST BE INCREASED 1/16" FOR EACH 15 DEGREE FAHENHEIT TILE SURFACE TEMPERATURE CHANGE GREATER THAN 100 DEGREE FAHENHEIT BETWEEN SUMMERS HIGH AND WINTER LOW.

1.5 QUALITY ASSURANCE

(A) INSTALLER: FIRM WITH NOT LESS THAN FIVE (5) YEARS OF COMMERCIAL FLOORING EXPERIENCE, SIMILAR TO WORK DESCRIBED IN THIS SECTION.

(B) PERFORM WORK IN ACCORDANCE WITH LATEST VERSION OF TCNA (TILE COUNCIL OF NORTH AMERICA, INC.), ANSI (AMERICAN NATIONAL STANDARD SPECIFICATIONS) AND ISO 13007 STANDARD FOR THE INSTALLATION OF TILE AND/OR STONE.

(C) SINGLE SOURCE RESPONSIBILITY: MAPEI CORPORATION IS THE BASIS OF THE SPECIFICATION. MAPEI CORPORATION SHALL PROVIDE COMMERCIAL SYSTEM LIFETIME WARRANTY FOR TILE INSTALLATION, WHEN A MAPEI CORP. PRODUCTS FROM EACH LAYER ARE INSTALLED (MODIFIED MORTOR BED, WATERPROOFING, MORTARS AND GROUT) AND THE FOLLOWING APPLY.

1. SHOWER AND WET AREAS WALLS AND FLOOR:

a. TCNA 2016 – ENVIROMENTAL EXPOSURE CLASSIFICATIONS, COM3 (COMMERCIAL WET).

b. TCNA B421C-16 SHOWER RECEPTOR FOR FLOOR, COM3 (COMMERCIAL WET).

c. TCNA B420-16 SHOWER RECEPTOR FOR WALLS, (COM3 COMMERCIAL WET).

(D) SINGLE SOURCE RESPONSIBILITY: MAPEI CORPORATION IS THE BASIS OF THE SPECIFICATION. MAPEI CORPORATION SHALL PROVIDE COMMERCIAL SYSTEM LIFETIME WARRANTY FOR TILE AND STONE INSTALLATION, WHEN A MAPEI CORP. PRODUCTS FROM EACH LAYER ARE INSTALLED (MODIFIED MORTOR BED, MORTARS AND GROUT) AND FOLLOWING APPLY.

1. NON-WET FLOOR AND WALL TILE INSTALLATIONS.

a. TCNA 2016 – EVIROMENTAL EXPOSURE CLASSIFICATIONS, COM1 (COMMERCIAL DRY).

b. TCNA 2016 – EVIROMENTAL EXPOSURE CLASSIFICATIONS, COM2 (COMMERCIAL LIMITED WET EXPOSURE).

(E) IF SUB-CONTRACTOR/INSTALLER CHOSES TO SUBSTITUTE PRODUCTS FROM A MANUFACTURER OTHER THAN MAPEI CORP. PRODUCTS AS SPECIFIED, IT IS THE RESPONSIBILITY OF THE SUB-CONTRACTOR/INSTALLER TO PROVIDE ALL PRODUCT DATA NECESSARY FOR COMPARISON. ALL PRODUCTS SUBSTITUTED MUST BE FROM A SINGLE SOURCE MANUFACTURER, THE MANUFACTURER MUST PROVIDE A COMMERICIAL SYSTEM LIFETIME WARRANTY FOR ALL TCNA ENVIROMENTAL EXPOSURE CLASSIFICATIONS LISTED FOR THE PROJECT AND ANY SUBSTITUTIONS MUST BE SENT TO ARCHITECT FOR APPROVAL PRIOR TO THE BID.

(F) PRE-INSTALLATION MEETINGS: COORDINATE A PRE-INSTALLATION MEETING WITH ARCHITECT AT THE JOBSITE PRIOR TO THE INSTALLATION START DATE.

1.6 DELIVERY, STORAGE AND HANDLING

(A) DELIVER AND STORE MATERIALS ON SITE AT LEAST 24 HOURS BEFORE WORK BEGINS. PROVIDE HEATED AND DRY STORAGE FACILITIES ON SITE.

(B) PREVENT DAMAGE OR CONTAMINATION TO MATERIALS BY WATER, FREEZING, OVERHEATING, FOREIGN MATTER OR OTHER CAUSES.

(C) STORE TILE AND SETTING MATERIALS ON ELEVATED PLATFORMS, UNDER COVER AND IN A DRY LOCATION.

1.7 ENVIRONMENTAL REQUIREMENTS

(A) MAINTAIN ENVIRONMENTAL CONDITIONS AND PROTECT WORK DURING AND AFTER INSTALLATION TO COMPLY WITH REFERENCED STANDARDS AND MANUFACTURER'S PRINTED RECOMMENDATIONS.

(B) VENT TEMPORARY HEATERS TO EXTERIOR TO PREVENT DAMAGE TO TILEWORK FROM CARBON DIOXIDE BUILD-UP.

(C) DO NOT INSTALL ADHESIVES IN AN UNVENTILATED ENVIRONMENT.

1.8 EXTRA MATERIALS:

(A) PROVIDE AN ADDITIONAL 5% OVERAGE FOR EACH TYPE SPECIFIED (TYPE, SIZE AND COLOR) IN COLOR SCHEDULE KEY.

(B) STORE IN OWNER'S FACILITY AS DIRECTED BY OWNER AND/OR ARCHITECT IN CLEARLY MARKED BOXES WITH TILE DESIGNATION PER THE COLOR SCHEDULE KEY.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

(A) MAPEI CORPORATION, U.S.A. (BASIS FOR SPECIFICATION)

1144 E. NEWPORT CENTER DR.

DEERFIELD BEACH, FL 33442; PHONE: 954-246-8888

REPRESENTATIVE: BOB DIENSTBACH,

PHONE: 314-484-5300, EMAIL: RDIENSTBACH@MAPEI.COM

(B) SCHLUTER SYSTEMS, INC. (BASIS FOR SPECIFICATION)

PHONE: 888-472-4588

(C) REFERENCE COLOR SCHEDULE KEY IN THE CONSTRUCTION DOCUMENT DRAWINGS FOR TILE PRODUCT SELECTION.

(D) SUBSTITUTIONS: OR APPROVED EQUAL

(E) SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS

2.2 TILE

(A) ANSI A118 STANDARDS FOR TILE INSTALLATION MATERIALS: PROVIDE MATERIALS COMPLYING WITH ANSI A108.02, ANSI STANDARDS REFERENCED IN OTHER PART 2 ARTICLES, ANSI STANDARDS REFERENCED BY TCNA INSTALLATION METHODS SPECIFIED IN TILE INSTALLATION SCHEDULES AND OTHER REQUIREMENTS SPECIFIED.

(B) ISO 13007 STANDARDS FOR CERAMIC TILES, GROUTS AND ADHESIVES: PROVIDE MATERIALS COMPLYING WITH ISO 13007 STANDARDS.

(C) FACTORY BLENDING: FOR TILE EXHIBITING COLOR VARIATIONS WITHIN RANGES, BLEND TILE IN FACTORY AND PACKAGE SO TILE UNITS TAKEN FROM ONE PACKAGE SHOW SAME RANGE IN COLORS AS THOSE TAKEN FROM OTHER PACKAGES AND MATCH APPROVED SAMPLES.

(D) MOUNTING: FOR FACTORY-MOUNTED TILE, PROVIDE BACK OR EDGE MOUNTED TILE ASSEMBLIES AS STANDARD WITH MANUFACTURER UNLESS OTHERWISE INDICATED.

(E) FACTORY APPLIED TEMPORARY PROTECTIVE COATINGS: WHERE INDICATED UNDER TILE TYPE, PROTECT EXPOSED SURFACES OF TILE AGAINST ADHERENCE OF MORTAR AND GROUT BY PRE-COATING WITH A CONTINUOUS FILM OF PETROLEUM PARAFFIN WAX APPLIED HOT. DO NOT COAT UNEXPOSED TILE SURFACES.

2.3 CRACK FILLER

(A) FILL CRACKS, HOLES AND DEPRESSIONS IN CONCRETE SUBSTRATES FOR TILE FLOORS WITH TROWELABLE PATCHING COMPOUND OR SELF LEVELING UNDERLAYMENT SPECIFICALLY RECOMMENDED BY TILE-SETTING MATERIAL MANUFACTURER. FOR TILES LARGER THAN 15 INCHES, FLATTEN FLOOR TO WITHIN 1/8 INCH IN 10 FEET PRIOR TO INSTALLING TILE. FOR TILES LESS THAN 15 INCHES FLATTEN FLOOR TO WITHIN ¼ INCH IN 10 FEET PRIOR TO INSTALLING TILE.

1. TROWEL GRADE PATCH EQUAL TO MAPEI CORP., "MAPECEM QUICKPATCH".

2. SELF LEVELING UNDERLAYMENT EQUAL TO MAPEI CORP., "ULTRAPLAN EASY".

2.4 CRACK ISOLATION MEMBRANE

(A) INSTALL CRACK ISOLATION MEMBRANE WITH THINSET TILE INSTALLATION COMPLYING WITH ANSI A118.12 HIGH PERFORMANCE. INCLUDE REINFORCEMENT AND ACCESSORIES AS RECOMMENDED BY MANUFACTURE FOR THE APPLICATION.

1. PREMIXED, LIQUID-RUBBER, QUICK-DRYING MEMBRANE, EQUAL TO MAPEI CORP., "MAPELASTIC CI".

2. SHEET MEMBRANE EQUAL TO MAPEI CORP., "MAPEGUARD 2".

a. PRIMER EQUAL TO MAPEI CORP., "SM FAST".

2.5 WATERPROOF MEMBRANE

(A) INSTALL WATERPROOF MEMBRANES UNDER THINSET TILE INSTALLATIONS COMPLYING WITH ANSI A118.10, TCNA B421C-16 SHOWER/WET AREA FLOOR AND TCNA B420-16 FOR SHOWER/WET AREA WALLS. INCLUDE REINFORCEMENT AND ACCESSORIES AS RECOMMENDED BY MANUFACTURE FOR THE APPLICATION.

1. FLUID-APPLIED MEMBRANE: PREMIXED, ADVANCED LIQUID-RUBBER, QUICK-DRYING WATERPROOFING AND CRACK-ISOLATION MEMBRANE, EQUAL TO MAPEI CORP., "MAPELASTIC AQUADEFENSE".

2. INCONJUNCTION WITH FLUID-APPLIED WATERPROOFING MEMBRANE USE MAPEI CORP., "REINFORCING FABRIC" AND/OR MAPEI CORP., "MAPEBAND" WATERPROOFING MEMBRANES AT CORNERS, COVES, DRAINS, EXPANSION AND MOVEMENT JOINTS.

(B) DO NOT USE WHERE EXCESSIVE SUBSTRATE MOISTURE AND/OR WHERE NEGATIVE HYDROSTATIC PRESSURE EXISTS. MAXIMUM ALLOWABLE MOISTURE IS 8 LBS PER 1,000 SQ. FT. PER 24 HOURS PER ASTM F1869 OR UP TO 85% RELATIVE HUMIDITY AS MEASURED WITH MOISTURE PROBES.

(C) CONCRETE SUBSTRATES SHOULD HAVE A CONCRETE SURFACE PROFILE OF #2 PER THE INTERNATIONAL CONCRETE REPAIR INSTITUTE (ICRI). MECHANICALLY CLEAN AND PROFILE BY DIAMOND-CUP GRINDING OR OTHER ENGINEER-APPROVED METHOD.

(D) SUBSTRATE AND ROOM TEMPERATURES ABOVE 50 DEGREE FAHRENHEIT TO 100 DEGREE FAHRENHEIT DURING AND AT LEAST 24 HOURS AFTER APPLICATION PER ANSI A108.02.2.2.

(E) REFER TO ARCHITECTURAL DETAIL FOR SHOWER AND/OR WET AREAS.

(F) MEMBRANES MUST BE PROTECTED TO PREVENT PUNCTURES RESULTING FROM TRAFFIC ON THE MEBRANE BEFORE THE TILE IS INSTALLED.

(G) PERFORM FLOOD TESTING PER ASTM D5957, ALLOW WATERPROOF MEMBRANES TO CURE PER MAPEI CORPORATION INSTRUCTIONS.

2.6 MORTAR MATERIALS

(A) MORTAR BED

1. FACTORY BLENDED, CEMENT-BASED, POLYMER-MODIFIED THICK-BED AND RENDER MORTAR COMPLYING WITH ANSI A108.1, EQUAL TO MAPEI CORP., "MODIFIED MORTAR BED".

a. APPLICATIONS: INTERIOR FLOOR INSTALLATION AT SHOWER AND /OR WET AREA(S). REFER TO ACHITECTURAL DETAILS IN CONSTRUCTION DOCUMENT SET.

b. INSTALL WIRE REINFORCEMENT IN AREAS GREATER THAN 65 SQUARE FEET.

(B) SETTING MATERIALS

1. ISO 13007 PERFORMANCE REQUIREMENTS FOR ADHESIVES (MORTARS OR MORTAR ADHESIVES).

a. PERFORMANCE REQUIREMENTS FOR ADHESIVES CEMENTITOUS MORTARS (THIN-SET).

1) C1 – NORMAL: TENSILE BOND STRENGTH OF GREATER THAN OR EQUAL TO 72.5 PSI.

2) C2 – IMPROVED: TENSILE BOND STRENGTH OF GREATER THAN OR EQUAL TO 145 PSI.

b. PERFORMANCE CHARACTERISTICS FOR ADHESIVES

1) F – FAST SETTING/FAST DRYING

2) T – THIXOTROPIC (NON-SLIP/NON-SAG)

3) S1 – NORMAL DEFORMITY GREATER THAN OR EQUAL TO 0.1" AND 0.2".

4) S2 – IMPROVED DEFORMITY GREATER THAN OR EQUAL TO 0.2".

5) P1 – NORMAL PLYWOOD ADHESION BOND STRENGTH.

6) P2 – IMPROVED PLYWOOD ADHESION BOND STRENGTH.

2. LARGE AND HEAVY TILE MORTAR FOR USE WITH THINSET INSTALLATION METHOD, SINGLE COMPONENT POLYMER-MODIFIED DRYSET MORTAR COMPYING WITH ANSI A118.4, ANSI A118.11 AND ISO 13007 C2TES1P1, EQUAL TO MAPEI CORP., "ULTRAFLEX LFT".

    a. APPLICATIONS: INTERIOR FLOOR AND WALL TILE INSTALLATIONS INCLUDING LARGE FORMAT TILE OVER 15 INCHES ON ANY SIDE.

3. MODIFIED MORTAR FOR USE WITH TILE LESS THAN 15 INCHES, PREMIUM GRADE SINGLE COMPONENT, HIGH PERFORMANCE, POLYMER-MODIFIED MORTAR COMPLYING WITH ANSI A118.4E, ANSI A118.11 AND ANSI A118.15E, ISO 13007 C2ES1P1, EQUAL TO MAPEI CORP., "ULTRAFLEX 3".

    a. APPLICATIONS: INTERIOR FLOOR AND WALL TILE INSTALLATIONS WITH TILE LESS THAN 15 INCHES ON ANY SIDE.

4. FAST SETTING MORTAR FOR USE WITH THINSET INSTALLATION METHOD OF LARGE AND HEAVY TILE: LATEX MODIFIED HYDRAULIC CEMENT MORTAR; TWO-COMPONENT SYSTEM, OF HYDRAULIC MORTAR AND FLEXIBLE LIQUID POLYMER ADDITIVE COMPYING WITH ANSI A118.4, ANSI A118.15 AND ISO 13007 C2FS2P2, EQUAL TO MAPEI CORP., "GRANIRAPID SYSTEM".

    a. PRODUCT IS READY FOR LIGHT TRAFFIC AFTER APPROXIMATELY 3 HOURS AND COMPLETELY CURERD IN 24 HOURS. IT IS RESISTANT TO IMIPACT, VIBRATATION, TEMPERATURE CHANGES, AGING AND MILD CLEANING CHEMICALS.

5. THINSET MODIFIED DRY-SET MORTAR: LIGHTWEIGHT SINGLE-COMPONENT, POLYMER-MODIFIED MORTAR FOR MEDIUM-BED AND NONSAG LARGE AND HEAVY TILE APPLICATIONS COMPLYING WITH ANSI 118.4TE, ANSI 118.11, ANSI 138.1 AND ISO 13007 C2TES1P1, EQUAL TO MAPEI CORP., "ULTRALITE MORTAR PRO".

    a. APPLICATIONS: INTERIOR FLOOR AND WALL TILE INSTALLATIONS.

2.7 <u>SUBSURFACE TOLERANCES PER ANSI A108.2.</u>

(A) SUBSURFACE TOLERANCES FOR MORTAR BED METHOD.

1. FOR CERAMIC AND STONE TILE INSTALLATIONS AND SELF-LEVELING METHODS: MAXIMUM ALLOWABLE VARIATION IN THE INSTALLATION SUBSTRATE ¼" IN 10 FT.

(B) SUBSURFACE TOLANCES FOR THIN-BED METHOD.

1. TILES WITH ALL EDGES SHORTER THAN 15", MAXIMUM ALLOWABLE VARIATION ARE ¼" IN 10 FT. FROM THE REQUIRED PLANE WITH NO MORE THAN 1/16" VARIATION IN 12" WHEN MEASURED FROM THE HIGH POINTS IN THE SURFACE.

2. TILES WITH AT LEAST ONE EDGE 15" IN LENGTH OR LONGER, MAXIMUM ALLOWABLE VARIATION ARE 1/8" IN 10 FT. FROM THE REQUIRED PLANE, WITH NO MORE THAN 1/16" VARIATION IN 24" WHEN MEASURED FROM THE HIGH PONTS IN THE SURFACE.

3. THIN-BED STONE TILE INSTALLATIONS; MAXIMUM ALLOWABLE VARIATION IN THE TILE SUBSTRATE SHALL BE 1/8" IN 10 FT.

(C) SUBSURFACE TOLERANCES FOR MORTAR BED METHOD.

1. WHEN THIN-BED MORTAR WITH THIN-TILES WITH ANY EDGE GREATER THAN 15" IS SPECIFIED AND THE SUB-FLOOR IS NOT COMPLIANT WITH FLATNESS, PROVIDE THE FOLLOWING:

    a. A RECESSED SUBSTRATE AND A MORTAR BED (THICK-SET) INSTALLATION METHOD TO MINIMIZE LIPPAGE THAT RESULTS WHEN A THIN-BED IS SPECIFIED WITH LARGE TILE.

(D) SUB-CONTRACTOR SHALL SUBMIT AT THE TIME OF BID AN ALLOWANCE FOR ANY NECESSARY FLOOR PREPARATION TO BRING THE FLOOR INTO TOLERANCE FOR TILE.

2.8 ADHESIVES AND PRIMERS

(A) A "BOND COAT" IS DIFFERENT FROM A "MORTAR BOND COAT" AS SPECIFIED IN THE TCNA INSTALLATION METHODS. THIS BOND COAT ACTS AS A BONDING AGENT TO EXISTING CONCRETE, THEREBY INCREASING THE ADHESION OF THE SETTING OR LEVELING MORTAR.

(B) MODIFIED DRY-SET MORTAR FOR USE WITH TILE LESS THAN 15 INCHES, PREMIUM GRADE SINGLE COMPONENT, HIGH PERFORMANCE, POLYMER-MODIFIED MORTAR COMPLYING WITH ANSI A118.4E, ANSI A118.11 AND ANSI A118.15E, ISO 13007 C2ES1P1, EQUAL TO MAPEI CORP., "ULTRAFLEX 3"

1. APPLICATIONS:

    a. ON STRUCTURAL CONCRETE SLAB AND WITH INTERIOR FLOOR TILE INSTALLATIONS WITH TILE LESS THAN 15 INCHES ON ANY SIDE.

    b. CLEAR GLASS WITH OPAQUE COLOR BACKING – MPAEI CORP., "ULTRAFLEX 3, COLOR: WHITE.

    c. WHERE CALLED FOR BY (TCNA) TILE COUNCIL OF NORTH AMERICA.

(C) FLEXIBLE TILE MORTAR, MAPEI CORP., "KERALASTIC", COLOR: P10 BRIGHT WHITE, PREMIUM HIGH-PERFORMANCE, TWO-PART SYSTEM, FLEXIBLE ACRYLIC LATEX ADDITIVE TO BE USED WITH MAPEI CORP., "GRANIRAPID" SYSTEM MORTAR, COMPLYING WITH ANSI A118.4E, ANSI A118.11 AND ANSI A118.15E.

1. APPLICATIONS:

    a. TRANSLUCENT STAINED GLASS.

(D) CHEMICAL CURE RESILIENT HIGH-BOND ADHESIVE: WHITE, FLEXIBLE, TWO-COMPONENT URETHANE ADHESIVE, COMPLYING WITH ISO 13007 R2, MAPEI CORP., "PLANICRETE W".

1. APPLICATIONS: FOR USE WITH INTERIOR NON-VITREOUS, SEMI-VITREOUS, VITREOUS AND IMPERVIOUS MOSAIC WALL TILES OVER NON-POROUS AND METAL SUBSTRATES. DO NOT USE AT SHOWERS AND POOLS.

2.9 GROUT RELEASE

(A) TEMPORARY COATING APPLIED TO ABSORBENT AND TEXTURED HIGH DCOF TILES TO ELIMINATE RISK OF GROUT HAZE RESIDUE, EQUAL TO MAPEI CORP., "ULTRACARE GROUT RELEASE".

2.10 GROUT MATERIALS

(A) SINGLE COMPONENT GROUT: READY TO USE COLOR-COATED QUARTZ AGGREGATE, NON-POROUS COMPOSITION ASSISTS TO PREVENT WATER-BASED STAINS, GROUT JOINTS FROM 1/16" TO ½", NO SEALER REQUIRED, MAINTAINS COLOR CONSISTANCY AND STAIN RESISTANCE COMPLYING WITH ANSI A118.3 AND A118.6, EQUAL TO MAPEI CORP., "FLEXCOLOR CQ".

1. APPLICATIONS:

a. COM1 INTERIOR WALLS.

b. COM1 INTERIOR FLOOR(S), NON-TOILET AREAS.

(B) PREMIUM EPOXY GROUT AND MORTAR: 100% SOLIDS EPOXY GROUT AND MORTAR WITH COLOR-COATED QUARTZ, NON-SAGGING/NONSLUMPING IN JOINTS UP TO 3/8" IN WIDTH, WATER CLEANABLE, HIGH STAIN RESISTANCE, NO SEALER REQUIRED, COMPLYING WITH ANSI A118.3 AND ISO 13007 RG CLASSIFICATION R2/RG, EQUAL TO MAPEI CORP., "KERAPOXY CQ".

1. APPLICATIONS: INTERIOR FLOOR AND WALL TILE INSTALLATIONS OF MOISTURE SENSITIVE MATERIALS THAT MAY CUP OR CURL WHEN USING WATER ADDITIVE MORTARS.

2. APPLICATIONS FOR INTERIOR FLOOR AND WALL TILE INSTALLATIONS AT THE FOLLOWING AREAS:

a. COMMERCIAL COM2 AND COM3 INSTALLATIONS AT SHOWER AND/OR WET AREA(S) ON FLOORS AND WALLS. REFER TO ARCHITECTURAL DETAILS IN CONSTRUCTION DOCUMENT SET.

b. COMMERCIAL COM 1 FLOORS AT RESTROOMS (NON-SHOWER AND/OR NON-WET AERAS).

3. NO SEALER REQUIRED.

(C) INDUSTRIAL-GRADE EPOXY GROUT: 100% SOLIDS EPOXY GROUT WITH COLOR-COATED QUARTZ, NON-SSHRINKING, NON-SAGGING, FAST-CURING, EFFLORESCENCE-FREE, WATER CLEANABLE, RESISTANT TO CHEMICALS, STAINS AND HIGH TEMPERATURES, GROUTJOINTS FROM 1/8 TO 5/8" IN WIDTH, COMPLYING WITH ANSI A118.3 (EXCEEDS), ANSI A118.5 (EXCEEDS) AND ISO 13007 RG CLASSIFICATION, EQUAL TO MAPEI CORP., "KERAPOXY IEG CQ".

1. APPLICATIONS: COMMERICAL COM3 INSTALLATIONS AT INTERIOR FLOOR AND WALL TILE AT WET AREA(S) OF KITCHEN, SERVING AREA(S) AND/OR DINING AREA(S).

2. APPLICATIONS: INTERIOR FLOOR AND WALL TILE INSTALLATIONS AS INDICATED IN THE COLOR SCHEDULE KEY.

(D) TRANSLUCENT SPECIALTY GROUT: READY TO USE TRANSLUCENT GROUT WITH RECYCLED GLASS BEAD AGGREGATE, COLOR CONSISTENCY, GROUT JOINTS FROM 1/16" TO ½"IN WIDTH, COMPLYING WITH ANSI 118.3 AND 118.6, EQUAL TO MAPEI CORP., "FLEXCOLOR 3D".

1. APPLICATIONS: COMMERICAL COM1 AND COM2 INSTALLATIONS OF INTERIOR WALL GLASS AND/OR METALIC TILE INSTALLATIONS.

2. REMOVE ANY GROUT RESIDUE FROM GLASS AND/OR METALLIC TILE WITH MAPEI CORP. "ULTRACARE" GROUT RELEASE AS RECOMMENDED BY MANUFACTURE.

2.11 GROUT JOINT SIZE AND PATTERNS:

(A) GROUT JOINT SIZE SHALL BE IN ACCORDANCE WITH ANSI A108.02 SECTION 4.3.8 FOR CERAMIC TILE. THE ACTUAL GROUT JOINT SIZE SHALL BE AT LEAST THREE TIMES THE ACTUAL VARIATION OF FACIAL DIMENSIONS OF THE TILE SUPPLIED. IT WILL NOT BE ACCEPTABLE FOR A GROUT JOINT TO BE LESS THAN 1/16".

(B) RUNNING BOND/BRICK JOINT PATTERN SHALL BE IN ACCORDANCE WITH ANSI A108 SECTION 4.3.8.1 FOR CERAMIC TILE. FOR RUNNING BOND/BRICK JOINT PATTERN UTILITZING TILE (SQUARE OR RECTANGULAR) WITH ANY SIDE GREATER THAN 15", THE GROUT JOINT SHALL BE, ON AVERAGE, A MINIMUM OF 1/8" WIDE FOR RECTIFIED TILES AND, ON AVERAGE, A MINIMUM OF 3/16" WIDE FOR CALIBRATED (NONRECTIFIED) TILES. THE GROUT JOINT WIDTH SHALL BE INCREASED OVER THE MINIMUM REQUIREMENT BY THE AMOUNT OF EDGE WARPAGE ON THE LONGEST EDGE OF THE ACTUAL TILES BEING INSTALLED.

(C) RUNNING BOND/BRICK JOINT OFFSET PATTERN SHALL BE IN ACCORDANCE WITH ANSI A108.02 SECTION 4.3.8.2 FOR CERAMIC TILE. FOR RUNNING BOND/BRICK JOINT OFFSET PATTERN UTILIZING TILES (SQUARE OR RECTANGULAR) WHERE THE SIDE BEING OFFSET IS GREATER THAN 18" (NOMINAL DIMENSION), THE RUNNING BOND OFFSET WIL BE A MAXIMUM OF 33% UNLESS OTHERWISE SPECIFIED BY THE TILE MANUFACTURER. IF AN OFFSET GREATER THAN 33% IS SPECIFIED, SPECIFIER AND OWNER MUST APPROVE MOCK-UP AND LIPPAGE.

2.12 ACCESSORIES

(A) SHOWER WALLS AND CEILING: COATED GLASS MAT WATER-RESISTANT BACKER BOARD EQUAL TO GEORGIA PACIFIC, "DENSSHIELD" AS SPECIFIED IN SECTION 09 21 16 GYPSUM BOARD SYSTEM AND ARCHITECTURAL DRAWINGS.

(B) NON-WET WALLS AT TOILET ROOMS WITH SHOWERS: MOISTURE RESISTANT GYPSUM BOARD AND/OR TYPE "X" FIRE RATED MOISTURE RESISTANT GYPSUM BOARD AS SPECIFIED IN SECTION 09 21 16 GYPSUM BOARD SYSTEM AND ARCHITECTURAL DRAWINGS.

(C) NON-WET WALLS: GYPSUM WALL BOARD AS SPECIFIED IN SECTION 09 21 16 GYPSUM BOARD SYSTEM AND ARCHITECTURAL DRAWINGS.

(D) SEALANT: 100% SILICONE SEALANT FORMULATED FOR HEAVY TRAFFIC AND EXPANSION/MOVEMENT JOINTS FOR USE ON MULTIPLE SUBSTRATES COMPLYING WITH ASTM C920, TYPE S, GRADE NS, CLASS 25, USE T, NT, I, M, G, A AND O AND CONFORM TO C794 ADHESION PROPERTIES EQUAL TO MAPEI CORP., "MAPESIL T" FLEXIBLE SEALANT OR GE SCS1700 SANITARY WITH COLOR TO MATCH GROUT COLOR.

1. EJ171 MOVEMENT JOINT GUIDELINES:

   a. REFER TO CONSTRUCTION DOCUMENT DRAWINGS FOR LOCATIONS AND DETAILS OF MOVEMENT JOINTS, PER TCNA EJ171 MOVEMENT JOINT GUIDELINES FOR CERAMIC, GLASS AND STONE.

   b. LOCATIONS AND FREQUENCY OF JOINTS:

      1) INTERIOR – 20' TO 25' IN EACH DIRECTION.

      2) INTERIOR TILE WORK EXPOSED TO DIRECT SUNLIGHT OR MOISTURE – 8' TO 12' IN EACH DIRECTION.

3) ABOVE GROUND CONCRETE SLAB SUBSTRATE – 8' TO 12' IN EACH DIRECTION.

4) EXTERIOR - 8' TO 12' IN EACH DIRECTION.

5) PERIMETER JOINTS – MOVEMENT JOINTS ARE REQUIRED WHERE TILEWORK ABUTS RESTRAINING SURFACES SUCH AS PERIMETER WALLS, DISSIMILAR FLOORS, CURBS, COLUMNS, PIPES, CEILINGS AND WHERE CHANGES OCCURE IN BACKING MATERIALS BUT NOT AT DRAIN STRAINERS. ALL EXPANSION, CONTROL, CONSTRUCTION, COLD, SAW-CUT, ISOLATION, CONTRACTION AND SEISMIC JOINTS IN THE STRUCTURE SHOULD CONTINUE THROUGH THE TILEWORK, INCLUDING SUCH JOINTS AT VERTICAL SURFACES. WHERE TILE PATTERN FALLS DIAGONALLY ACROSS A SAW-CUT JOINT, RELOCATION OF THE MOVEMENT JOINT IS SPECIFICALLY NOT RECOMMENDED BECAUSE OF THE REDUCED PERFORMANCE OF THE SEALANT WHEN USED IN A SAW TOOTH OR OTHER NON-LINEAR FASHION.

6) JOINT WIDTH – INTERIOR CERAMIC MOSAIC TILE AND GLAZED WALL TILE, PREFERRED NOT LESS THAN ¼" BUT NEVER LESS THAN 1/8".

7) JOINTS IN TILE AND SETTING MATERIALS SHALL NEVER BE LESS THAN THE WIDTH OF THE SAW-CUT CONTROL JOINT WIDTH.

8) JOINTS THROUGH TILEWORK DIRECTLY OVER STRUCTURAL JOINTS MUST NEVER BE NARROWER THAN THE STRUCTURAL JOINT.

9) WHERE GLASS TILE ABUTS TO OTHER DISSIMILAR MATERIAL, PROVIDE SEALANT JOINT EQUAL TO GROUT JOINT.

10) JOINT WIDTH – EXTERIOR (ALL TILE) MINIMUM 3/8" FOR JOINTS 8' ON CENTER, MINIMUM ½" FOR JOINTS 12' ON CENTER. MINIMUM WIDTHS MUST BE INCREASED 1/16" FOR EACH 15 DEGREE FAHENHEIT TILE SURFACE TEMPERATURE CHANGE GREATER THAN 100 DEGREE FAHENHEIT BETWEEN SUMMERS HIGH AND WINTER LOW.

(E) TILE CLEANER: A NEUTRAL CLEANER CAPABLE OF REMOVING SOIL AND RESIDUE WITHOUT HARMING TILE AND GROUT SURFACES, SPECIFICALLY APPROVED FOR MATERIALS AND INSTALLATIONS INDICATED BY TILE AND GROUT MANUFACTURERS. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, EQUAL TO MAPEI CORP. "ULTRACARE CONCENTRATED TILE & GROUT CLEANER", "ULTRACARE ABRASIVE SURFACE CLEANER", "ULTRACARE ACIDIC TILE & GROUT CLEANER".

(F) PREFABRICATED SUBSTRATES: INSTALL PREFABRICATED SUBSTRATE SHEET SIMILAR TO SCHLUTER SYSTEMS, "KERDI-BOARD", WHEN TILES ABUTTING TO EACH OTHER OF DISSIMILAR THICKNESSES. INSTALL PREFABRICATED SUBSTRATE SHEET BEHIND TILE OF LESSER THICKNESS SO FOR IT TO BE LEVEL AND FLUSH WITH ADJACENT TILE.

2.13 <u>EDGE PROTECTION AND TRANSITION PROFILES FOR FLOORS AND WALLS</u>

(A) REFER TO CONSTRUCTION DOCUTMENT DRAWINGS, COLOR SCHEDULE KEY AND FINISH SCHEDULE FOR CHANGE IN FLOORING AND WALL MATERIAL TYPES, PROFILE TYPE AND/OR FINISH SPECIFICALLY CALLED OUT AS SELECTED BY ARCHITECT. SCHLUTER SYSTEMS IS THE BASIS FOR SPECIFICATION.

(B) FLOORS – SLOPED TRANSITIONS COMPLIANT WITH ADA

1. SCHLUTER SYSTEMS, "RENO-U", STRAIGHT APPLICATIONS.

a. STANDARD FINISH SHALL BE SATIN COPPER ANODIZED ALUMINUM, UNLESS NOTED OTHERWISE.

b. INSTALL ONLY ADA COMPLIANT SIZE(S).

(C) WALLS:

1. SCHLUTER SYSTEMS, "RONDEC-DB", VERTICAL AND HORIZONTAL APPLICATIONS.

a. STANDARD FINISH SHALL BE SATIN COPPER ANODIZED ALUMINUM, UNLESS NOTED OTHERWISE.

2. SCHLUTER SYSTEMS, "JOLLY", STRAIGHT AND/OR RADIUS APPLICATIONS.

a. STANDARD FINISH SHALL BE SATIN COPPER ANODIZED ALUMINUM, UNLESS NOTED OTHERWISE.

3. SCHLUTER SYSTEMS, "DECO-DE", 135 DEGREE ANGLE, SQUARE RECESSED REVEAL, STRAIGHT APPLICATIONS.

a. STANDARD FINISH IN EITHER STAINLSS STEEL OR BRUSHED STAINLESS STEEL.

(D) TRANSITIONS SHALL OCCUR UNDER DOORS WHERE POSSIBLE.

PART 3 – EXECUTION

3.1 EXAMINATION AND PREPARATION

(A) FILL CRACKS, HOLES AND DEPRESSIONS IN CONCRETE SUBSTRATES FOR TILE FLOORS WITH TROWELABLE PATCHING COMPOUND OR SELF LEVELING UNDERLAYMENT SPECIFICALLY RECOMMENDED BY TILE-SETTING MATERIAL MANUFACTURER. FOR TILES LARGE THAN 15 INCHES, FLATTEN FLOOR TO WITHIN 1/8 INCH IN 10 FEET PRIOR TO INSTALLING TILE. FOR TILES LESS THAN 15 INCHES FLATTEN FLOOR TO WITHIN ¼ INCH IN 10 FEET PRIOR TO INSTALLING TILE.

1. TROWEL GRADE PATCH EQUAL TO MAPEI CORP., "MAPECEM QUICKPATCH".

2. SELF LEVELING UNDERLAYMENT EQUAL TO MAPEI CORP., "ULTRAPLAN EASY".

(B) SUBSTRATE AND ROOM TEMPERATURES ABOVE 50 DEGREE FAHRENHEIT TO 100 DEGREE FAHRENHEIT DURING AND AT LEAST 24 HOURS AFTER APPLICATION PER ANSI A108.02.2.2. TEMPERATURE OF THE SUBSTRATE SHOULD BE 60 DEGREES FARENHEIT AND RISING FOR APPLICATION OF EPOXY.

(C) SURFACES SHOULD BE PLUMB, CLEAN AND STRUCTURALLY SOUND. REMOVE ALL WAXES, DUST, SEALERS AND CURING COMPOUNDS PRIOR TO APPLICATION OF EPOXY MODIFIED MORTARS.

(D) MIX GROUT AND MORTAR PER MANUFACTURER'S INSTRUCTIONS.

3.2 INSTALLATION - MORTAR AND TILE - GENERAL

(A) COMPLY WITH THE TILE COUNCIL OF NORTH AMERICAN (TCNA) 2016 HANDBOOK FOR CERAMIC, GLASS, AND STONE TILE INSTALLATION INCLUDING ADDENDUMS. COMPLY WITH PARTS OF THE ANSI A108 SERIES "SPECIFICATIONS FOR INSTALLATION OF CERAMIC TILE" THAT ARE REFERENCED IN TCNA

INSTALLATION METHODS, SPECIFIED IN TILE INSTALLATION SCHEDULES, AND APPLY TO TYPES OF SETTING AND GROUTING MATERIALS USED.

(B) FOR THE FOLLOWING INSTALLATIONS, FOLLOW PROCEDURES IN THE ANSI A108 SERIES OF TILE INSTALLATION STANDARDS FOR PROVIDING 95 PERCENT MORTAR COVERAGE:

1. APPLY A THIN COAT OF MORTAR WITH THE FLAT EDGE OF THE TROWEL TO ACHIEVE A GOOD MECHANICAL BOND TO THE SUBSTRATE. THEN APPLY MORTAR WITH THE APPROPRIATE SIZE NOTCH TROWEL PER THE TILE MANUFACTURE RECOMMENDATION.

2. RE-COMB THE MORTAR WITH A NOTCHED TROWEL IF ANY EVIDENCE OF SKINNING OR SETTING IS EVIDENT. APPLY MORTAR TO AN AREA NO GREATER THAN CAN BE TILED IN 30-45 MINUTES. ALWAYS TEST THE BOND OF BACK-MOUNTED SHEETS OF TILE TO INSURE ADHESION OF THE FULL SHEET.

3. TILE SHOULD BE APPLIED INTO A FRESH BED OF MORTAR AND PUSHED PERPENDICULAR TO TROWEL LINES TO KNOCK DOWN TROWEL RIDGES AND ACHIEVE SPECIFIED MORTAR COVERAGE.

4. MAINTAIN A FINISHED MORTAR BED 3/32" MINIMUM AND 1 ½" MAXIMUM THICKNESS.

3.3 <u>INSTALLATION – FLOOR AND WALL AT ALL AREAS EXCEPT SHOWER AND WET AREAS</u>

(A) INSTALL TILE IN ACCORDANCE WITH TILE COUNCIL OF NORTH AMERICAN (TCNA) 2016 HANDBOOK FOR CERAMIC, GLASS, AND STONE TILE INSTALLATION INCLUDING ADDENDUMS, PER DETAIL(S) MEETING TCNA ENVIROMENTAL EXPOSURE CLASSIFICATION COM1 (COMMERCIAL DRY).

1. INSTALL MAPEI CORP., "KERAPOXY CQ" 100% EPOXY GROUT ON FLOORS AND WALLS AT THE FOLLOWING AREAS:

a. ADJACENT TO AREA(S) WITH TCNA ENVIROMENT EXPOSURE CLASSIFICATION COM1 (COMMERCIAL LIMITED WATER EXPOSURE).

(B) INSTALL TILE IN ACCORDANCE WITH TILE COUNCIL OF NORTH AMERICAN (TCNA) 2016 HANDBOOK FOR CERAMIC, GLASS, AND STONE TILE INSTALLATION INCLUDING ADDENDUMS, PER DETAIL(S) MEETING TCNA ENVIROMENTAL EXPOSURE CLASSIFICATION COM2 (COMMERCIAL LIMITED WATER EXPOSURE).

1. INSTALL MAPEI CORP., "KERAPOXY CQ" 100% EPOXY GROUT ON FLOORS AND WALLS AT THE FOLLOWING AREAS:

a. PUBLIC TOILETS.

b. STAFF TOILETS WITHOUT A SHOWER.

c. CORRIDORS.

d. BACKSPASHES.

(C) INSTALL TILE IN ACCORDANCE WITH TILE COUNCIL OF NORTH AMERICAN (TCNA) 2016 HANDBOOK FOR CERAMIC, GLASS, AND STONE TILE INSTALLATION INCLUDING ADDENDUMS, PER DETAIL(S) MEETING TCNA ENVIROMENTAL EXPOSURE CLASSIFICATION COM3 (COMMERCIAL WET).

1. INSTALL MAPEI CORP., "KERAPOXY CQ" 100% EPOXY GROUT ON FLOORS AND WALLS AT THE FOLLOWING AREAS:

a. PATIENT TOILETS AND SHOWERS.

b. STAFF TOILETS AND SHOWERS.

c. LOCKER ROOMS.

d. THERAPY POOL DECKS.

(D) INSTALL TILE IN ACCORDANCE WITH TILE COUNCIL OF NORTH AMERICAN (TCNA) 2016 HANDBOOK FOR CERAMIC, GLASS, AND STONE TILE INSTALLATION INCLUDING ADDENDUMS, PER DETAIL(S) MEETING TCNA ENVIROMENTAL EXPOSURE CLASSIFICATION COM3 (COMMERCIAL WET).

1. INSTALL MAPEI CORP., "KERAPOXY IEG CQ" 100% SOLIDS, INDUSTRIAL-GRADE EPOXY GROUT ON FLOORS AND WALLS AT THE FOLLOWING AREAS:

a. KITCHEN AREA WITH TILE.

b. KITCHEN CART WASH AREA WITH TILE.

c. SERVING LINE.

3.4 INSTALLATION GROUTING

(A) GROUT JOINT WIDTH(S) SHALL BE ACCORDING TO MANUFACTURE'S RECOMMENDATION AND TILE COUNCIL OF NORTH AMERICA (TCNA). MAKE GROUT JOINTS WATERTIGHT, WITHOUT VOIDS, CRACKS, EXCESS MORTAR OR EXCESS GROUT.

(B) GROUTING MAY BEGIN ONLY AFTER A FIRM SET HAS TAKEN PLACE. SET TIMES WILL VARY DEPENDING UPON AMBIENT, SLAB AND MATERIAL TEMPERATURES. CHECK TILE MANUFACTURER'S LITERATURE TO DETERMINE IF THE TILE IS SUITABLE FOR USE WITH COLORED GROUTS. TILES WITH HIGH ABSORPTION OR ROUGH, ABRASIVE SURFACES MAY REQUIRE SEALING WITH GROUT RELEASE PRIOR TO GROUTING TO PREVENT PERMANENT STAINING.

(C) JOINTS SHOULD BE FREE OF DEBRIS AND FOREIGN MATERIAL. RIDGES OF ADHESIVE, CEMENT OR THIN-SET SHOULD BE RAKED OUT TO AT LEAST 3/4 OF THE TILE THICKNESS IN DEPTH PRIOR TO APPLICATION OF GROUT.

(D) FLOAT GROUT JOINTS FULL USING A 45 DEGREE ANGLE TO THE EDGE OF THE TILE USING A HARD RUBBER FLOAT TO INSURE MAXIMUM FILLING OF THE JOINT. FILL JOINTS TO FULL DEPTH OF THE TILE WITH NO ENTRAPPED AIR BUBBLES. APPLY AS MUCH PRESSURE AS POSSIBLE ON THE RUBBER FLOAT WHEN CLEANING EXCESS MATERIAL FROM THE TILE FACE. THE FLOAT SHOULD BE HELD AT A 90 DEGREE ANGLE TO THE SURFACE OF THE FLOOR AND MOVED DIAGONALLY ACROSS THE TILE FACE.

(E) FINAL CLEAN-UP TO REMOVE THE RESIDUE LEFT AFTER COMPLETING THE APPLICATION PROCEDURE SHOULD COMMENCE AS SOON AS LIGHT PRESSURE WITH A STIFF, DAMP SYNTHETIC SPONGE WILL NOT PULL GROUT FROM THE JOINT. RINSE THE SPONGE OFTEN IN CLEAN, WARM WATER. IF THE GROUT DRAGS OUT OF THE JOINT, WAIT 15 MINUTES AS THE CLEAN-UP IS PREMATURE.

(F) REMOVE RESIN GROUT HAZE (EPOXY OR SINGLE-COMPONENT READY-TO-USE) AND REMAINING RESIDUE FROM THE TILE UP TO 6-8 HOURS AFTER GROUTING WITH A WHITE "SCOTCH-BRITE" PAD AND WARM WATER.

(G) CAUTION: DO NOT LET GROUT MATERIAL CURE ON THE FACE OF THE TILE AS EPOXIES ARE EXTREMELY DIFFICULT TO REMOVE. IF NECESSARY, WELL CURED EPOXY MODIFIED GROUT MAY BE

REMOVED FROM THE FACE OF THE TILE WITH WATER WASHABLE EPOXY GROUT HAZE REMOVER EQUAL TO MAPEI "ULTRACARE EPOXY GROUT HAZE REMOVER". CAUTION: FOLLOW MANUFACTURER'S DIRECTIONS FOR SAFE USE.

(H) FOR INSTALLATION OF GROUT TYPES, REFER TO 3.03 INSTALLATION - SHOWERS AND WET AREAS.

(I) FOR INSTALLATOIN OF GROUT TYPES REFERS TO 3.04 INSTALLATION – FLOOR AND WALL TILE AT ALL AREAS EXCEPT SHOWER AND WET AREAS.

3.5 INSTALLATION OF SEALANTS

(A) INSTALL MOVEMENT JOINTS PER ASTM C1193 STANDARD GUIDE FOR USE OF JOINT SEALANTS.

(B) INSTALL MOVEMENT JOINTS EJ171 PER TILE COUNCIL OF NORTH AMERICA (TCNA) 2016 HANDBOOK FOR CERAMIC, GLASS, AND STONE TILE INSTALLATION.

(C) TILE EDGES TO WHICH THE SEALANT WILL BOND MUST BE CLEAN AND DRY. SANDING OR GRINDING OF THESE EDGES IS RECOMMENDED TO OBTAIN OPTIMUM SEALANT BOND.

(D) ENSURE THAT LOCATION OF JOINTS IN TILEWORK ALIGN WITH EXISITING JOINTS IN SUBSTRATE, JOINTS IN TILEWORK SHOULD BE CONSTRUCTED DURING INSTALLATION OF MORTAR BEDS AND/OR TILE, RATHER THAN SAW-CUTTING JOINST AFTER NISTALLATION.

(E) KEEP MOVEMENT JOINT CAVITIES OPEN AND FREE OF DIRT, DEBRIS, GROUT, MORTAR AND SETTING MATERIALS.

(F) SET COMPRESSIBLE BACKUP STRIP WHEN MORTAR IS PLACED OR UTILITZE REMOVEABLE WOOD STRIP TO PROVIDE SPACE FOR BACKUP AFTER MORTAR HAS CURED.

(G) FOLLOW SEALANT MANUFACTURERE'S RECOMMENDATIONS.

3.6 PROTECTION OF FINISHED WORK

(A) FOLLOWING PERIOD OF NO TRAFFIC DURING INITIAL SET, PROTECT INSTALLED TILE WORK WITH NO STAINING KRAFT PAPER, ¾" PLYWOOD OR OSB PROTECTION OVER NON-STAINING KRAFT PAPER DURING CONSTRUCTION PERIOD TO PREVENT STAINING, DAMAGE AND WEAR. COVERING THE FLOOR WITH POLYETHYLENE OR PLYWOOD IN DIRECT CONTACT WITH THE FLOOR MAY ADVERSELY AFFECT THE CURING PROCESS OF GROUT AND LATEX/POLYMER MODIFIED PORTLAND CEMENT MORTAR.

(B) PROHIBIT FOOT AND WHEEL TRAFFIC FROM GROUTED TILED FLOORS UNTIL THEY ARE FULLY CURED, (AT LEAST SEVEN (7) DAYS AFTER GROUTING IS COMPLETED).

(C) IF RECOMMENDED BY THE TILE MANUFACTURER APPLY A COAT OF NEUTRAL PROTECTIVE CLEANER TO COMPLETED TILE FLOORS.

(D) BEFORE FINAL INSPECTION, REMOVE PROTECTIVE COVERINGS AND RINSE NEUTRAL PROTECTIVE CLEANER FROM TILE SURFACE.

END OF SECTION

SECTION 09 65 00 - RESILIENT FLOORING

PART 2 PRODUCTS

END OF SECTION

SECTION 09 68 13 - TILE CARPETING

PART 1 - GENERAL

1.1 SECTION INCLUDES

(A) FURNISH MODULAR CARPET AND ACCESSORIES WHERE SHOWN AND/OR SPECIFIED.

(B) PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, AND MISCELLANEOUS ACCESSORIES FOR A COMPLETE INSTALLATION.

1.2 SYSTEM DESCRIPTION

(A) CARPET MATERIALS: CONFORM TO APPLICABLE CODE FOR FLAME/SMOKE RATING REQUIREMENTS IN ACCORDANCE WITH ASTM E84.

1.3 SUBMITTALS

(A) SUBMITTALS WILL BE PROVIDED TO ARCHITECT WITH AMPLE TIME TO WORK IN ARCHITECT'S WORK SCHEDULE TO REVIEW THE MATERIALS, RETURN SUBMITTAL TO GENERAL CONTRACTOR AND MEET THE MANUFACTURER'S PRODUCTION LEAD TIME AND SHIPPING REQUIREMENTS.

(B) SUBMIT (3) THREE SAMPLES OF EACH PRODUCT, PRODUCT SPECIFICATIONS, ADHESIVE INFORMATION, MANUFACTURER'S INSTALLATION INSTRUCTION.

(C) SUBMIT (3) THREE SEAMING PLANS ON 30" X 42" DRAWING SHEET SIZE FOR ARCHITECT'S REVIEW AND APPROVAL PRIOR TO ORDERING PRODUCT.

(D) SUBMIT EACH TRANSITION STRIP TYPE AND COLOR FOR ARCHITECT'S REVIEW AND APPROVAL PRIOR TO ODERING PRODUCT.

1.4 MAINTENANCE MATERIALS

(A) PROVIDE AN ADDITIONAL 5% OVERAGE OF CARPETING FOR EACH COLOR AND/OR TYPE OF CARPET TILE SELECTED, TO ALLOW FOR FUTURE MAINTENANCE AND REPAIRS.

(B) STORE IN OWNER'S FACILITY AS DIRECTED BY OWNER AND/OR ARCHITECT.

(C) PROVIDE MANUFACTURER'S APPROVED MAINTENANCE INSTRUCTIONS FOR USE BY OWNER TO FACILITATE MAINTAINING CARPET IN ACCORDANCE WITH WARRANTY PROVISIONS.

1.5 QUALITY ASSURANCE

(A) INSTALLER: FIRM WITH NOT LESS THAN FIVE (5) YEARS OF COMMERCIAL CARPETING EXPERIENCE, SIMILAR TO WORK DESCRIBED IN THIS SECTION.

(B) MANUFACTURER: FIRM (CARPET MILL) WITH NOT LESS THAN FIVE (5) YEARS OF PRODUCTION EXPERIENCE WITH CARPET SIMILAR TO TYPES SPECIFIED IN THIS SECTION; AND WHOSE PUBLISHED PRODUCT LITERATURE CLEARLY INDICATES GENERAL COMPLIANCE OF PRODUCTS WITH REQUIREMENTS OF THIS SECTION.

(C) GENERAL STANDARD: "CARPET SPECIFIER'S HANDBOOK" BY THE CARPET AND RUG INSTITUTE; FOR DEFINITIONS OF TERMINOLOGY NOT OTHERWISE DEFINED HEREIN, AND FOR GENERAL RECOMMENDATIONS AND INFORMATION.

1.6 WARRANTY

(A) PROVIDE SPECIAL PROJECT WARRANTY, SIGNED BY CONTRACTOR, INSTALLER AND MANUFACTURER'S CARPET MILL, AGREEING TO REPAIR OR REPLACE DEFECTIVE MATERIALS AND/OR WORKMANSHIP OF CARPETING WORK DURING 2-YEAR WARRANTY PERIOD FOLLOWING SUBSTANTIAL COMPLETION. ATTACH COPIES OF PRODUCT WARRANTIES.

1. INCLUDE COVERAGE BY CARPET MANUFACTURER FOR PROPER ADHESION TO SUBSTRATE FOR THE LIFE OF CARPET.

2. PROVIDE MANUFACTURER'S 10 YEAR COMMERCIAL WEAR WARRANTY: ALLOW FOR NO MORE THAN 10% FACE YARN LOSS BY WEIGHT IN NORMAL USE FOR THE DURATION OF THE WARRANTY.

3. PROVIDE MANUFACTURER'S 10 YEAR WARRANTY ON 20 POUND AVERAGE TUFT BIND, (PULL-OUT).

(B) PROVIDE SAMPLE WRITTEN WARRANTY(S) AS SPECIFIED ABOVE AT TIME OF SHOP DRAWING REVIEW.

PART 2 - PRODUCTS

2.1 CARPET MATERIALS

(A) MANUFACTURERS:

1. REFER TO FINISH SCHEDULE AND COLOR SCHDULE KEY IN DRAWINGS FOR SPECIFIC PRODUCT SPECIFICATIONS AND COLOR SELECTIONS.

(B) CARPET FLAMMABILITY: ALL CARPET SHALL COMPLY WITH THE FOLLOWING:

1. RADIANT PANEL TEST:

a. TESTED RATINGS: CLASS I, CRITICAL RADIANT FLUX, MINIMUM 0.45.

2. TUNNEL TEST: PROVIDE CARPET WHICH HAS BEEN TESTED BY THE STEINER TUNNEL TEST (ASTM E84 OR NFPA 255):

a. TESTED RATINGS; CLASS A, FLAME SPREAD 0-25, SMOKE DENSITY 0-450.

3. PILL TEST (D C-FF-1):

a. TEST RATINGS: PASS

(C) CARPET CONSTRUCTION: REFER TO COLOR SCHEDULE KEY AND MANUFACTURERS SPECIFICATIONS.

2.2 ACCESSORIES

(A) SUB-FLOOR FILLER: WHITE PREMIX LATEX; TYPE RECOMMENDED BY CARPET MANUFACTURER. (NOTE: NO GYPSUM ALLOWED IN PRODUCTS).

(B) ADHESIVE: WATERPROOF, STRIPPABLE TYPE, AS RECOMMENDED AND FURNISHED BY CARPET MANUFACTURER(S), AND WHICH COMPLIES WITH FLAMMABILITY REQUIREMENTS FOR INSTALLED CARPET.

(C) EDGING AND TRANSITION STRIPS: REFER TO SECTION 09 65 00 RESILIENT FLOORING AND SECTION 09 30 00 TILING.

(D) SEAMING CEMENT: HOT-MELT SEAMING ADHESIVE OR SIMILAR PRODUCT RECOMMENDED BY CARPET MANUFACTURER, FOR TAPING SEAMS AND "BUTTERING" CUT EDGES AT BACKING TO FORM SECURE SEAMS AND PREVENT PILE LOSS AT SEAMS.

(E) MISCELLANEOUS MATERIALS: AS RECOMMENDED BY MANUFACTURERS OF CARPET AND OTHER CARPETING PRODUCTS; AND SELECTED BY INSTALLER TO MEET SPECIFIC PROJECT REQUIREMENTS.

PART 3 – EXECUTION

3.1 ENVIRONMENTAL REQUIREMENTS

(A) DO NOT INSTALL CARPETING UNTIL WET CONSTRUCTION WORK IS COMPLETED.

(B) GENERAL CONTRACTOR SHALL MAINTAIN ROOM CONDITIONS AS FOLLOWS:

1. RELATIVE HUMIDITY: BETWEEN 30 AND 50 PERCENT.

2. ROOM TEMPERATURE: MINIMUM OF 65 DEGREES F.

(C) MAINTAIN SPECIFIED ENVIRONMENTAL CONDITIONS FOR A MINIMUM OF 48 HOURS PRIOR TO START UP OF INSTALLATION, AND THROUGHOUT INSTALLATION PERIOD OF CARPET, UNTIL SUBSTANTIAL COMPLETION OF THE PROJECT AND ACCEPTANCE BY OWNER.

(D) VERIFY ENVIRONMENTAL REQUIREMENTS WITH CARPET MANUFACTURER PRIOR TO INSTALLATION.

3.2 EXAMINATION AND PREPARATION

(A) REMOVE EXISTING CARPET AND/OR OTHER FLOOR COVERINGS IN AREAS TO RECEIVE NEW CARPET DOWN TO BARE CONCRETE IN CONFORMANCE WITH CARPET MANUFACTURER'S REQUIREMENTS.

(B) VERIFY THAT SUBSTRATE SURFACES ARE SMOOTH AND FLAT WITH MAXIMUM VARIATION IN 1/4 INCH IN 10 FT AND ARE READY TO RECEIVE WORK.

1. INSTALLER MUST EXAMINE SUBSTRATES FOR CONDITIONS UNDER WHICH CARPETING IS TO BE INSTALLED AND NOTIFY GENERAL CONTRACTOR IN WRITING OF CONDITIONS DETRIMENTAL TO PROPER COMPLETION OF THE WORK. DO NOT PROCEED UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

2. INITIATION OF CARPET INSTALLATION SHALL SERVE AS ACCEPTANCE OF ENVIRONMENTAL AND SUBSTRATE CONDITIONS.

(C) FILL MINOR OR LOCAL LOW SPOTS AND OTHER DEFECTS WITH SUBFLOOR FILLER.

(D) REMOVE ANY DEBRIS, PAINT, OIL RESIDUE AND VACUUM FLOOR SURFACES PRIOR TO LAYING CARPET.

(E) DELIVER CARPETING MATERIALS IN PROTECTIVE WRAPPING, AND STORE INSIDE, PROTECTED FROM WEATHER, MOISTURE AND SOILING.

(F) MODULES SHOULD BE STORED BETWEEN 40 F AND 100 F AND MUST BE CONDITIONED TO BETWEEN 60 F AND 90 F FOR 24 HOURS PRIOR TO INSTALLATION.

(G) FLOOR TEMPERATURE SHOULD BE 60 F MINIMUM FOR PROPER ADHESIVE PERFORMANCE.

3.3 PRE-INSTALLATION CONFERENCE

(A) PRIOR TO INSTALLATION, CARPET MANUFACTURER'S FIELD REPRESENTATIVE SHALL VISIT THE JOB SITE AND REVIEW PROPER INSTALLATION AND MAINTENANCE PROCEDURES WITH GENERAL CONTRACTOR, CARPET SUB-CONTRACTOR, OWNER, AND ARCHITECT.

(B) A TEST AREA OF MINIMUM 500 SF SHALL BE LAID BY CARPET CONTRACTOR UNDER THE OBSERVATION AND DIRECTION OF MANUFACTURER'S FIELD REPRESENTATIVE.

(C) MANUFACTURER'S REPRESENTATIVE SHALL INSTRUCT CARPET CONTRACTOR'S PERSONNEL ON PROPER INSTALLATION TECHNIQUE FOR EACH CARPET TYPE TO BE USED AND SPECIFIC JOB CONDITIONS. MANUFACTURER'S REPRESENTATIVE SHALL AT A MINIMUM OBSERVE AND APPROVE THE FOLLOWING:

1. PROPER CLEANING AND PREPARATION OF SUBSTRATE.

2. GLUE SPREADING RATE, AND PROPER TROWEL SIZE AND USE.

3. OBSERVANCE OF CORRECT "OPEN TIME" TO ALLOW ADHESIVE TO DEVELOP PROPER TACK.

4. PROPER TECHNIQUE TO EMBED CARPET IN GLUE.

5. PROPER SEAMING TECHNIQUE AND PATTERN MATCH.

6. PROPER TRIMMING, CLEAN UP, AND MISCELLANEOUS INSTALLATION TECHNIQUES.

7. NOTE: ANY ITEMS WHICH ARE FOUND NOT TO BE IN COMPLIANCE WITH CARPET MANUFACTURER'S RECOMMENDATIONS SHALL BE CORRECTED PRIOR TO PROCEEDING.

(D) MANUFACTURER'S REPRESENTATIVE SHALL MAKE A WRITTEN REPORT TO ARCHITECT OF OBSERVATIONS AT TIME OF JOB-SITE VISIT AND SHALL NOTE ANY CORRECTIVE STEPS WHICH ARE REQUIRED TO BRING INSTALLATION UP TO MANUFACTURER'S STANDARDS.

(E) MANUFACTURER'S REPRESENTATIVE SHALL ALSO INSTRUCT OWNER'S REPRESENTATIVE IN PROPER CLEANING AND MAINTENANCE PROCEDURES.

3.4 MODULAR CARPET INSTALLATION

(A) APPLY CARPET AND ADHESIVE IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS.

1. INSTALLATION SHALL BE DONE SO AS TO NOT VOID CARPET MANUFACTURER'S WARRANTY(IES).

(B) PRIOR TO APPLICATION OF ANY MODULAR CARPET OR ADHESIVE PROVIDE FOR PROPER LAYOUT BY ONE OF THE FOLLOWING METHODS:

1. TWO WORKING CHALKLINES MUST BE APPLIED TO THE FLOOR TO INSURE A STRAIGHT AND SQUARE, PROPERLY ALIGNED INSTALLATION. THESE CHALKLINES MUST INTERSECT AT THE STARING POINT AND BE EXACTLY 90° TO EACH OTHER.

2. TRIANGLE METHOD: ESTABLISH A BASE CHALKLINE. USE THE LARGEST POSSIBLE MULTIPLE OF A 3-4-5 TRIANGLE TO CONSTRUCT A CHALKLINE PERPENDICULAR TO THE BASE CHALKLINE.

3. DOUBLE ARC METHOD: ESTABLISH A BASE CHALKLINE. CONSTRUCT A PERPENDICULAR BISECTOR CHALKLINE TO BASE CHALKINE BY SWINGING ARCS FROM POINTS EQUAL DISTANCE FROM THE CENTER POINT OF THE BASE CHALKLINE.

(C) VERIFY CARPET MATCH BEFORE CUTTING TO ENSURE MINIMAL VARIATION BETWEEN DYE LOTS.

(D) DOUBLE CUT CARPET, TO ALLOW INTENDED SEAM AND PATTERN MATCH. MAKE CUTS STRAIGHT, TRUE, AND UNFRAYED.

(E) FORM JOINTS STRAIGHT, NOT OVERLAPPED OR PEAKED, AND FREE OF GAPS.

1. APPLY ADHESIVE UNIFORMLY TO SUBSTRATE IN ACCORDANCE WITH MANUFACTURER INSTRUCTIONS.

2. BUTT CARPET EDGES TIGHTLY TOGETHER TO FORM JOINTS WITHOUT GAPS OR COMPRESSION.

3. COMPLY WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS FOR JOINT LOCATIONS AND DIRECTION OF CARPET. MAINTAIN UNIFORMITY OF DIRECTION AND LAY OF PILE.

4. AT DOORS, CENTER JOINTS UNDER DOORS. DO NOT PLACE SEAMS IN TRAFFIC DIRECTION AT DOORWAYS.

5. SEAMS IN CORRIDORS SHALL BE PERPENDICULAR TO TRAFFIC FLOW, (AT RIGHT ANGLES TO LONG DIMENSION OF CORRIDOR), UNLESS OTHERWISE RECOMMENDED BY MANUFACTURER.

(F) LAY CARPET TIGHT AND FLAT ON SUBFLOOR, WELL FASTENED AT EDGES, WITH A UNIFORM APPEARANCE. PROVIDE MONOLITHIC COLOR, PATTERN, AND TEXTURE MATCH WITHIN ANY ONE AREA.

1. ROLL LIGHTLY TO ELIMINATE AIR POCKETS AND ENSURE UNIFORM BOND.

2. REMOVE ADHESIVE PROMPTLY FROM FACE OF CARPET.

(G) DO NOT CHANGE RUN OF PILE IN ANY ROOM WHERE CARPET IS CONTINUOUS THROUGH A WALL OPENING INTO ANOTHER ROOM. LOCATE CHANGE OF COLOR OR PATTERN BETWEEN ROOMS, OR UNDER DOOR CENTERLINE.

(H) CUT AND FIT CARPET AROUND INTERRUPTIONS.

(I) FIT CARPET TIGHT TO INTERSECTION WITH VERTICAL SURFACES WITHOUT GAPS.

(J) WHERE WALL BASES ARE SCHEDULED, CUT CARPET TIGHT TO WALLS. FIT CARPET TIGHT TO VERTICAL INTERRUPTIONS, LEAVING NO GAPS.

(K) EXTEND CARPET UNDER OPEN-BOTTOMED OBSTRUCTIONS AND UNDER REMOVABLE FLANGES AND FURNISHINGS, AND INTO ALCOVES AND CLOSETS OF EACH SPACE.

(L) PROVIDE CUT-OUTS WHERE REQUIRED (SUCH AS FLOOR OUTLETS), BIND CUT EDGES PROPERLY WHERE NOT CONCEALED BY PROTECTIVE EDGE GUARDS OR OVERLAPPING FLANGES.

(M) INSTALL CARPET EDGE GUARD WHERE EDGE OF CARPET IS EXPOSED; ANCHOR GUARDS TO SUBSTRATE AS RECOMMENDED BY MANUFACTURER.

(N) EXPANSION JOINTS: DO NOT BRIDGE BUILDING EXPANSION JOINTS WITH CONTINUOUS CARPETING, PROVIDE FOR MOVEMENT.

(O) FIT SECTIONS OF CARPET INTO EACH SPACE PRIOR TO APPLICATION OF ADHESIVE. TRIM EDGES AND BUTTER CUTS WITH SEAMING CEMENT.

(P) PREVENT ALL TRAFFIC OVER ADHESIVE INSTALLED FLOOR FOR A MINIMUM OF 48 HOURS TO ALLOW FOR CURING OF BOND.

3.5 CLEANING

(A) REMOVE DEBRIS SORTING PIECES TO BE SAVED FROM SCRAPS TO BE DISPOSED OF. DELIVER SUCH SALVAGED CARPET TO OWNER.

(B) REMOVE EXCESS ADHESIVE FROM FLOOR, BASE, WALL AND OTHER SURFACES WITHOUT DAMAGE.

(C) CLEAN AND VACUUM CARPET SURFACES.

3.6 INSPECTION

(A) AT COMPLETION OF JOB, CARPET MANUFACTURER'S FIELD REPRESENTATIVE SHALL INSPECT ALL AREAS OF CARPET WHICH WERE INSTALLED AS A PART OF THIS CONTRACT. ITEMS WHICH NEED TO BE CORRECTED, IF ANY, SHALL BE DOCUMENTED IN WRITING AND DISTRIBUTED TO OWNER, ARCHITECT, GENERAL CONTRACTOR, AND CARPET SUBCONTRACTOR. ITEMS WHICH CANNOT BE REPAIRED SHALL BE REPLACED AT NO EXPENSE TO OWNER.

(B) A REASONABLE PERIOD OF TIME SHALL BE DESIGNATED FOR REPAIR OR REPLACEMENT OF ITEMS NEEDING CORRECTION.

(C) AFTER CORRECTIVE WORK IS COMPLETED, CARPET MANUFACTURER'S FIELD REPRESENTATIVE SHALL AGAIN INSPECT ALL AREAS OF CARPET AND SHALL NOTIFY ARCHITECT IN WRITING OF SATISFACTORY COMPLETION OF THE WORK.

END OF SECTION

SECTION 09 91 00 - PAINTING

PART 1 - GENERAL

1.1 SECTION INCLUDES

(A) SURFACE PREPARATION AND FIELD APPLICATION OF PAINTS AND COATINGS.

(B) PROVIDE COMPLETE FINISHING OF ALL SURFACES SCHEDULED FOR PAINTS AND COATINGS, AND FOR ALL OTHER UNFINISHED ITEMS REQUIRING PAINTING WHICH ARE FURNISHED UNDER THIS CONTRACT.

(C) MIX MINIMUM AMOUNTS OF PAINT AND PROVIDE FOR UP TO A 48" X 48" FIELD SAMPLE OF ALL COLORS AS SELECTED. TEST AREA(S) FOR APPLICATION WILL BE SELECTED BY ARCHITECT. ONE ADDITIONAL COLOR CHANGE SHALL BE ALLOWED IN FIELD AFTER APPLYING FIELD SAMPLE, FOR ALL COLORS, WITHOUT ADDITIONAL COST. PRIOR TO ORDERING FINAL QUANTITIES OF PAINTS, ALL FIELD SAMPLE COLORS SHALL BE APPROVED BY OWNER/ARCHITECT.

(D) ALLOW FOR DIFFERENT ROOMS TO BE PAINTED DIFFERENT COLORS.

(E) ALLOW FOR CUSTOM COLORS FOR ALL FINISH TYPES.

1. PAINT BOTH SIDES OF ALL NEW AND EXISTING HOLLOW METAL WINDOW FRAMES, VISION PANELS, DOOR FRAMES, ELEVATOR DOORS AND FRAMES, HOLLOW METAL DOORS.

2. REFERENCE FINISH SCHEDULE AND COLOR SCHEDULE KEY FOR COLOR SELECTIONS.

3. FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND ALL MISCELLANEOUS ACCESSORIES FOR A COMPLETE INSTALLATION.

4. THIS SUBCONTRACTOR SHALL EXAMINE THE SPECIFICATIONS FOR THE VARIOUS OTHER TRADES AND SHALL THOROUGHLY FAMILIARIZE HIMSELF WITH ALL THEIR PROVISIONS REGARDING THE PAINTING, AND HE SHALL UNDERSTAND THAT ALL MATERIALS INSTALLED THROUGHOUT THE WORK WHICH NECESSITATE PAINTING AND WHICH ARE LEFT UNFINISHED BY THE REQUIREMENTS OF OTHER SPECIFICATIONS SHALL BE PAINTED OR DECORATED TO COMPLETION UNDER THIS CONTRACT.

5. THE FOLLOWING ITEMS WILL BE FACTORY FINISHED OR FOR OTHER REASONS WILL REQUIRE NO PAINTING:

6. PRE-FINISHED METAL INCLUDING METAL ROOFING SYSTEM AND FASCIA.

7. ELECTRIC PANELS, HEATING AND AIR CONDITIONING EQUIPMENT IN UNFINISHED ROOMS AND EXTERIOR.

8. ACOUSTICAL CEILING PANELS.

9. PLASTIC LAMINATE SURFACES.

10. ALUMINUM.

11. PAINT EXPOSED SURFACES WHETHER OR NOT COLORS ARE DESIGNATED IN "SCHEDULES", EXCEPT WHERE NATURAL FINISH OR MATERIAL IS SPECIFICALLY NOTED AS A SURFACE NOT TO BE PAINTED. WHERE ITEMS OR SURFACES ARE NOT SPECIFICALLY MENTIONED, PAINT SAME AS

ADJACENT SIMILAR MATERIALS OR AREAS. IF COLOR OR FINISH IS NOT DESIGNATED, ARCHITECT WILL SELECT THESE FROM STANDARD COLORS AVAILABLE FOR MATERIAL SYSTEMS SPECIFIED.

12. CONCEALED SURFACES: UNLESS OTHERWISE INDICATED, PAINTING IS NOT REQUIRED ON SURFACES SUCH AS WALLS OR CEILINGS IN CONCEALED AREAS AND GENERALLY INACCESSIBLE AREAS, FOUNDATION SPACES, FURRED AREAS, UTILITY TUNNELS, PIPE SPACES, DUCT SHAFTS.

13. FINISHED METAL SURFACES: METAL SURFACES OF ANODIZED ALUMINUM STAINLESS STEEL, CHROMIUM PLATE, COPPER, BRONZE AND SIMILAR FINISHED MATERIAL WILL NOT REQUIRE FINISH PAINTING, UNLESS OTHERWISE INDICATED.

14. OPERATING PARTS AND LABELS: MOVING PARTS OF OPERATING UNITS, MECHANICAL AND ELECTRICAL PARTS, SUCH AS VALVE AND DAMPER OPERATORS, LINKAGES, SENSING DEVICES, MOTOR AND FAN SHAFTS WILL NOT REQUIRE FINISH PAINTING, UNLESS OTHERWISE INDICATED.

15. DO NOT PAINT OVER ANY CODE-REQUIRED LABELS, SUCH AS UNDERWRITERS' LABORATORIES AND FACTORY MUTUAL, OR ANY EQUIPMENT IDENTIFICATION, PERFORMANCE RATING, NAME OR NOMENCLATURE PLATES.

16. EACH COAT EXCEPT THE LAST OF ALL FINISHES ON WOOD AND/OR METAL SHALL BE SANDED.

(F) SYSTEM DESCRIPTION

1. FINISH MATERIALS: CONFORM TO APPLICABLE CODE FOR FLAME/SMOKE RATING REQUIREMENTS.

2. ALL FIELD-APPLIED FINISHES SHALL BE V.O.C. (VOLATILE ORGANIC COMPOUNDS) COMPLIANT WITH THE APPROPRIATE REGULATORY AGENCY HAVING JURISDICTION AT THE PROJECT SITE.

(G) SUBMITTALS

1. PRODUCT DATA: PROVIDE DATA ON ALL FINISHING PRODUCTS.

2. SUBMIT TWO (2) SAMPLES, 8 ½" X 5 ½" IN SIZE ILLUSTRATING COLORS, FINISH AND/OR TEXTURES OF ALL SURFACE FINISHING PRODUCTS SCHEDULED; SUBMIT TO ARCHITECT FOR APPROVAL.

3. INFORMATION SUBMITTALS:

   a. PRODUCT LIST: FOR EACH PRODUCT INDICATED, INCLUDE THE FOLLOWING:

   b. CROSS-REFERENCE TO PAINT SYSTEM AND LOCATIONS OF APPLICATION AREAS. USE SAME DESIGNATION INDICATED ON DRAWINGS AND IN SCHEDULES.

   c. QUALIFICATION DATE: FOR APPLICATOR.

(H) ENVIRONMENTAL REQUIREMENTS

1. STORE AND APPLY MATERIALS IN ENVIRONMENTAL CONDITIONS REQUIRED BY MANUFACTURER'S INSTRUCTIONS.

2. PROVIDE ADEQUATE VENTILATION AS REQUIRED BY MANUFACTURER OR LOCAL, STATE, OR FEDERAL AUTHORITIES.

3. QUALITY ASSURANCE

   a. INSTALLATIONS SHALL BE MADE BY A SUBCONTRACTOR APPROVED BY THE ARCHITECT, WITH A MINIMUM OF FIVE (5) YEARS OF EXPERIENCE IN COMMERCIAL PAINTING AND FINISHING. WORKMEN MUST BE FULLY TRAINED TO PERFORM THE WORK IN A NEAT AND WORKMANLIKE MANNER.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

(A) BASIS OF DESIGN MANUFACTURER:

1. SHERWIN-WILLIAMS

(B) MATERIALS

1. ALL MATERIALS TO BE USED MUST BE THE BEST OF THEIR RESPECTIVE KINDS AND THE FIRST QUALITY OF THE MANUFACTURER MENTIONED; OR EQUAL SUBJECT TO APPROVAL BY THE ARCHITECT. SEE SCHEDULE AT END OF THIS SECTION FOR PRE-APPROVED MATERIALS.

2. COATINGS: READY MIXED EXCEPT FIELD CATALYZED COATINGS, OF GOOD FLOW AND BRUSHING PROPERTIES, CAPABLE OF DRYING OR CURING FREE OF STREAKS OR SAGS.

3. ACCESSORY MATERIALS: STRIPPER, FILLERS, LINSEED OIL, SHELLAC, TURPENTINE, PAINT THINNERS AND OTHER MATERIALS REQUIRED TO ACHIEVE THE FINISHES SPECIFIED, SHALL BE OF HIGHEST QUALITY AND HAVE IDENTIFYING LABELS ON CONTAINERS.

   a. ALL PAINT SHALL BE DELIVERED TO SITE IN MANUFACTURER'S SEALED CONTAINERS. EACH CONTAINER SHALL BE LABELED BY MANUFACTURER; LABELS SHALL GIVE MANUFACTURER'S NAME, TYPE OF PAINT, COLOR, VOC CONTENT AND INSTRUCTIONS FOR REDUCING.

   b. THINNING SHALL BE DONE ONLY IN ACCORDANCE WITH DIRECTIONS OF MANUFACTURER. JOB MIXING OR TINTING MAY BE DONE WHEN APPROVED BY THE ARCHITECT.

(C) FINISHING MECHANICAL AND ELECTRICAL EQUIPMENT

1. ONE COAT SHERWIN WILLIAMS PROMAR ALKYD ZONE MARKING PAINT, B29 SERIES.

2. APPLY ONE COAT SHERWIN WILLIAMS KERN KROMIK UNIVERSAL PRIMER, B50 SERIES.

2.2 SCHEDULE - INTERIOR WOOD SURFACES

(A) WOOD – TRANSPARENT (SITE FINISHED): FOR USE ON WOOD DOORS SPECIFIED IN SECTION 08 21 00, AND OTHER ARCHITECTURAL WOODWORK ITEMS. ALL SYSTEMS SHALL MEET AWI PREMIUM GRADE QUALITY STANDARDS.

1. WOOD FILLER – NONE REQUIRED.

2. STAIN COAT: APPLY ONE COAT SHERWIN WILLIAMS WOODCLASSICS OIL STAIN, A49 SERIES.

3. STAIN COAT: APPLY ONE COAT SHERWIN WILLIAMS WOODCLASSICS FAST DRY SANDING SEALER, B26V43.

4. FINISH: APPLY TWO COATS SHERWIN WILLIAMS WOODCLASSICS FAST DRY SATIN VARNISH, A66 SERIES OR TWO COATS SHERWIN WILLIAMS WOOD CLASSICS POLYURETHANE SATIN VARNISH A67 SERIES.

5. FIRE PROOFING TREATMENT: FLAME CONTROL COATINGS, 4120 HYDE PARK BLVD; NIAGARA FALLS, NY/NO. 166; CLEAR SATIN FINISH FIRE RETARDANT VARNISH HAVING A CLASS "A" UL FLAME SPREAD RATING. WHEN EXPOSED TO FLAME OR HIGH HEAT, THE COATING PUFFS UP TO FORM A THICK INSULATING CELLULAR FOAM. APPLY TOP COAT NO. 167 FOR SATIN FINISH. INSTALL AT ALL WD-1 AND WD-2 LOCATIONS.

2.3 SCHEDULE - INTERIOR GYPSUM BOARD

(A) GYPSUM BOARD WALLS – LATEX FINISH:

1. APPLY ONE COAT SHERWIN WILLIAMS PREPRITE 200 LATEX PRIMER, B28W200.

2. APPLY TWO COATS SHERWIN WILLIAMS PROMAR 200 LATEX EG-SHELL, B20-2250 SERIES.

3. COLOR: AS SCHEDULED.

(B) GYPSUM BOARD CEILING – LATEX FINISH:

1. USE ONE COAT SHERWIN WILLIAMS PREPRITE 200 LATEX PRIMER, B28W200.

2. USE TWO COATS SHERWIN WILLIAMS PROMAR 200 LATEX SATIN, B30-250 SERIES.

3. COLOR: AS SCHEDULED.

(C) GYPSUM BOARD WALLS & CEILING – ACRYLIC COATING (WATERBORNE):

1. APPLY ONE COAT SHERWIN WILLIAMS PREPRITE 200 LATEX PRIMER, B28W200.

2. APPLY TWO COATS SHERWIN WILLIAMS PRO INDUSTRIAL PRECAT EPOXY K46W151.

3. COLOR: AS SCHEDULED.

END OF SECTION

SECTION 10 14 00 - SIGNAGE

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) ROOM AND DOOR SIGNS.

(B) BUILDING IDENTIFICATION SIGNS.

1.2 RELATED REQUIREMENTS

(A) SECTION 22 05 53 - IDENTIFICATION FOR PLUMBING PIPING AND EQUIPMENT.

(B) SECTION 26 05 53 - IDENTIFICATION FOR ELECTRICAL SYSTEMS.

1.3 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: MANUFACTURER'S PRINTED PRODUCT LITERATURE FOR EACH TYPE OF SIGN, INDICATING SIGN STYLES, FONT, FOREGROUND AND BACKGROUND COLORS, LOCATIONS, OVERALL DIMENSIONS OF EACH SIGN.

(C) SIGNAGE SCHEDULE: PROVIDE INFORMATION SUFFICIENT TO COMPLETELY DEFINE EACH SIGN FOR FABRICATION, INCLUDING ROOM NUMBER, ROOM NAME, OTHER TEXT TO BE APPLIED, SIGN AND LETTER SIZES, FONTS, AND COLORS.

1. WHEN ROOM NUMBERS TO APPEAR ON SIGNS DIFFER FROM THOSE ON DRAWINGS, INCLUDE THE DRAWING ROOM NUMBER ON SCHEDULE.

2. WHEN CONTENT OF SIGNS IS INDICATED TO BE DETERMINED LATER, REQUEST SUCH INFORMATION FROM OWNER AT LEAST 2 MONTHS PRIOR TO START OF FABRICATION; UPON REQUEST, SUBMIT PRELIMINARY SCHEDULE.

3. SUBMIT FOR APPROVAL BY OWNER PRIOR TO FABRICATION.

(D) SAMPLES: SUBMIT TWO SAMPLES OF EACH TYPE OF SIGN, OF SIZE SIMILAR TO THAT REQUIRED FOR PROJECT, ILLUSTRATING SIGN STYLE, FONT, AND METHOD OF ATTACHMENT.

(E) SELECTION SAMPLES: WHERE COLORS ARE NOT SPECIFIED, SUBMIT TWO SETS OF COLOR SELECTION CHARTS OR CHIPS.

(F) VERIFICATION SAMPLES: SUBMIT SAMPLES SHOWING COLORS SPECIFIED.

(G) MANUFACTURER'S INSTALLATION INSTRUCTIONS: INCLUDE INSTALLATION TEMPLATES AND ATTACHMENT DEVICES.

(H) MAINTENANCE MATERIALS: FURNISH THE FOLLOWING FOR OWNER'S USE IN MAINTENANCE OF PROJECT.

1. SEE SECTION 01 60 00 - PRODUCT REQUIREMENTS, FOR ADDITIONAL PROVISIONS.

2. CURVED SIGN MEDIA SUCTION CUPS: ONE FOR EACH 100 SIGNS; FOR REMOVING MEDIA.

1.4 QUALITY ASSURANCE

(A) MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM THREE YEARS OF DOCUMENTED EXPERIENCE.

1.5 DELIVERY, STORAGE, AND HANDLING

(A) PACKAGE SIGNS AS REQUIRED TO PREVENT DAMAGE BEFORE INSTALLATION.

(B) PACKAGE ROOM AND DOOR SIGNS IN SEQUENTIAL ORDER OF INSTALLATION, LABELED BY FLOOR.

(C) STORE TAPE ADHESIVE AT NORMAL ROOM TEMPERATURE.

1.6 FIELD CONDITIONS

(A) DO NOT INSTALL TAPE ADHESIVE WHEN AMBIENT TEMPERATURE IS LOWER THAN RECOMMENDED BY MANUFACTURER.

(B) MAINTAIN THIS MINIMUM TEMPERATURE DURING AND AFTER INSTALLATION OF SIGNS.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) FLAT SIGNS:

1. INPRO; SANTA CRUZ STANDARD SIGN DESIGN: WWW.INPROCORP.COM/#SLE.

2. SUBSTITUTIONS: OR APPROVED EQUAL.

3. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) DIMENSIONAL LETTER SIGNS:

1. COSCO INDUSTRIES: WWW.COSCOARCHITECTURALSIGNS.COM/#SLE.

2. SUBSTITUTIONS: OR APPROVED EQUAL.

3. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS..

2.2 SIGNAGE APPLICATIONS

(A) ACCESSIBILITY COMPLIANCE: SIGNS ARE REQUIRED TO COMPLY WITH ABA STANDARDS AND ICC A117.1, UNLESS OTHERWISE INDICATED; IN THE EVENT OF CONFLICTING REQUIREMENTS, COMPLY WITH THE MOST COMPREHENSIVE AND SPECIFIC REQUIREMENTS.

(B) ROOM AND DOOR SIGNS: REFERENCE SIGNAGE PLAN FOR SIGN LOCATIONS.

1. SIGN TYPE: FLAT SIGNS WITH ENGRAVED PANEL MEDIA AS SPECIFIED.

2. PROVIDE "TACTILE" SIGNAGE, WITH LETTERS RAISED MINIMUM 1/32 INCH AND GRADE II BRAILLE.

3. CHARACTER HEIGHT: 1 INCH.

4. SIGN HEIGHT: 2 INCHES, UNLESS OTHERWISE INDICATED.

5. OFFICE DOORS: IDENTIFY WITH ROOM NUMBERS TO BE DETERMINED LATER, NOT THE NUMBERS INDICATED ON DRAWINGS.

6. SERVICE ROOMS: IDENTIFY WITH ROOM NAMES AND NUMBERS TO BE DETERMINED LATER, NOT THOSE INDICATED ON DRAWINGS.

7. REST ROOMS: IDENTIFY WITH PICTOGRAMS, THE NAMES "MEN" AND "WOMEN", ROOM NUMBERS TO BE DETERMINED LATER, AND BRAILLE.

(C) BUILDING IDENTIFICATION SIGNS:

1. USE INDIVIDUAL METAL LETTERS.

2. MOUNT ON OUTSIDE WALL IN LOCATION INDICATED ON DRAWINGS.

2.3 SIGN TYPES

(A) FLAT SIGNS: SIGNAGE MEDIA WITHOUT FRAME.

1. EDGES: SQUARE.

2. CORNERS: SQUARE.

3. WALL MOUNTING OF ONE-SIDED SIGNS: TAPE ADHESIVE.

(B) COLOR AND FONT: UNLESS OTHERWISE INDICATED:

1. CHARACTER FONT: HELVETICA, ARIAL, OR OTHER SANS SERIF FONT.

2. CHARACTER CASE: UPPER CASE ONLY.

3. BACKGROUND COLOR: TBD.

4. CHARACTER COLOR: CONTRASTING COLOR.

2.4 TACTILE SIGNAGE MEDIA

(A) ENGRAVED PANELS: LAMINATED COLORED PLASTIC; ENGRAVED THROUGH FACE TO EXPOSE CORE AS BACKGROUND COLOR:

1. TOTAL THICKNESS: 1/16 INCH.

2.5 DIMENSIONAL LETTERS

(A) METAL LETTERS:

1. METAL: STAINLESS STEEL WITH ENAMEL FINISH.

2. METAL THICKNESS: 3 INCH MINIMUM.

3. LETTER HEIGHT: REFERENCE DRAWINGS.

4. TEXT AND TYPEFACE:

   a. CHARACTER FONT: HELVETICA, ARIAL, OR OTHER SANS SERIF FONT.

   b. CHARACTER CASE: UPPER CASE ONLY.

2.6 ACCESSORIES

(A) CONCEALED SCREWS: STAINLESS STEEL, GALVANIZED STEEL, CHROME PLATED, OR OTHER NON-CORRODING METAL.

(B) TAPE ADHESIVE: DOUBLE SIDED TAPE, PERMANENT ADHESIVE.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY THAT SUBSTRATE SURFACES ARE READY TO RECEIVE WORK.

3.2 INSTALLATION

(A) INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(B) INSTALL NEATLY, WITH HORIZONTAL EDGES LEVEL.

(C) PROTECT FROM DAMAGE UNTIL SUBSTANTIAL COMPLETION; REPAIR OR REPLACE DAMAGED ITEMS.

END OF SECTION

SECTION 10 28 00 - TOILET AND BATH ACCESSORIES

PART 1 - GENERAL

1.1 SECTION INCLUDES

(A) TOILET AND WASHROOM ACCESSORIES.

(B) UTILITY ROOM ACCESSORIES

(C) PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, AND MISCELLANEOUS ACCESSORIES FOR A COMPLETE INSTALLATION.

1.2 REFERENCE STANDARDS

(A) ADA STANDARDS - AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS FOR ACCESSIBLE DESIGN; 2010.

(B) ASTM A269/A269M - STANDARD SPECIFICATION FOR SEAMLESS AND WELDED AUSTENITIC STAINLESS STEEL TUBING FOR GENERAL SERVICE; 2015A.

(C) ASTM B456 - STANDARD SPECIFICATION FOR ELECTRODEPOSITED COATINGS OF COPPER PLUS NICKEL PLUS CHROMIUM AND NICKEL PLUS CHROMIUM; 2017.

(D) ASTM C1036 - STANDARD SPECIFICATION FOR FLAT GLASS; 2016.

(E) ASTM C1503 - STANDARD SPECIFICATION FOR SILVERED FLAT GLASS MIRROR; 2008 (REAPPROVED 2013).

1.3 SUBMITTALS

(A) PRODUCT DATA: PROVIDE DATA ON ACCESSORIES DESCRIBING SIZE, FINISH, DETAILS OF FUNCTION, ATTACHMENT METHODS.

(B) SAMPLES: FURNISH SAMPLES ON REQUEST OF ARCHITECT.

(C) SHOP DRAWINGS: PROVIDE SHOP DRAWINGS SHOWING DIMENSION, CONSTRUCTION, MOUNTING DETAILS, AND ALL ACCESSORIES AS SPECIFIED. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHTS.

PART 2 - PRODUCTS

2.1 MATERIALS

(A) MANUFACTURERS:

1. BOBRICK WASHROOM EQUIPMENT, INC. (BASIS FOR SPEC.)

2. AMERICAN SPECIALTIES, INC.

3. BRADLEY CORP.

4. GAMCO

5. GEORGIA PACIFIC

6. OTHERS AS APPROVED BY ARCHITECT.

(B) SHEET STEEL: ANSI/ASTM A366.

(C) STAINLESS STEEL SHEET: ASTM A167, TYPE 304.

(D) TUBING: ASTM A269 STAINLESS STEEL.

(E) ADHESIVE: CONTACT TYPE, WATERPROOF.

(F) FASTENERS, SCREWS, AND BOLTS: HOT-DIPPED GALVANIZED STEEL, TAMPER-PROOF TYPE WHERE EXPOSED.

(G) MIRROR UNITS SHALL CONSIST OF 1/4" THICK MIRROR GLASS, TYPE I, CLASS 1, QUALITY Q2, CONFORMING TO FS DD-G-451, WITH SILVERING, COPPER COATING, AND PROTECTIVE ORGANIC COATING COMPLYING WITH FS DD-M-411. STAINLESS STEEL FRAMING, AISI TYPE 302/304, WITH POLISHED NO. 4 FINISH, BACKING SHEET OF GALVANIZED STEEL SHEET (ASTM A 527, G60), AND GALVANIZED STEEL MOUNTING DEVICES (ASTM A 386) HOT-DIP GALVANIZED AFTER FABRICATION. SIZE AS SHOWN ON PLAN.

(H) PROVIDE SYSTEM OF MOUNTING MIRROR UNITS WHICH WILL PERMIT RIGID, TAMPERPROOF AND THEFT-PROOF INSTALLATION, AS FOLLOWS:

1. ONE-PIECE GALVANIZED STEEL WALL HANGER DEVICE WITH SPRING ACTION LOCKING MECHANISM TO HOLD MIRROR UNIT IN POSITION WITH NO EXPOSED SCREWS OR BOLTS.

2. OR AT CONTRACTOR'S OPTION:

3. HEAVY-DUTY WALL BRACKETS OF GALVANIZED STEEL EQUIPPED WITH CONCEALED LOCKING DEVICES REQUIRING SPECIAL TOOL TO REMOVE.

(I) SUPPLY TWO (2) KEYS FOR EACH LOCKING ACCESSORY TO OWNER. KEY ALL ACCESSORIES ALIKE.

(J) FURNISH CABINETS AND ANCHORING DEVICES WHICH MUST BE SET IN CONCRETE OR BUILT INTO MASONRY; COORDINATE DELIVERY WITH OTHER WORK TO AVOID DELAY. COORDINATE ACCESSORY LOCATIONS WITH OTHER WORK TO AVOID INTERFERENCE AND TO ASSURE PROPER OPERATION AND SERVICING OF ACCESSORY UNITS.

2.2 FABRICATION

(A) FORM SURFACES FLAT WITHOUT DISTORTION. WELD AND GRIND JOINTS SMOOTH.

(B) SHOP ASSEMBLE COMPONENTS AND PACKAGE WITH ANCHORS AND FITTINGS.

(C) BACK PAINT COMPONENTS TO PREVENT ELECTROLYSIS.

(D) PROVIDE STEEL ANCHOR PLATES, ADAPTERS, AND ANCHOR COMPONENTS FOR INSTALLATION.

(E) HOT DIP GALVANIZE EXPOSED AND PAINTED FERROUS METAL AND FASTENING DEVICES.

(F) SURFACE-MOUNTED TOILET ACCESSORIES, GENERAL: EXCEPT WHERE OTHERWISE INDICATED, FABRICATE UNIT WITH TIGHT SEAMS AND JOINTS, EXPOSED EDGES ROLLED. PROVIDE CONCEALED ANCHORAGE WHEREVER POSSIBLE.

2.3 FINISHES

(A) ANCHORS: SCREWS, BOLTS, AND OTHER DEVICES OF SAME MATERIAL AS ACCESSORY UNIT OR OF GALVANIZED STEEL WHERE CONCEALED. GALVANIZE TO 1.25 OZ/SQ YD.

(B) GALVANIZED STEEL MOUNTING DEVICES: ASTM A 386, HOT-DIP GALVANIZED AFTER FABRICATION.; FOR CONCEALED AREAS ONLY.

(C) STAINLESS STEEL: AISI TYPE 302/304, NO. 4 SATIN LUSTER FINISH, 22 GAUGE MINIMUM, UNLESS OTHERWISE INDICATED; FOR ALL EXPOSED SURFACES.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

(A) VERIFY EXACT LOCATION OF ACCESSORIES FOR INSTALLATION.

(B) DELIVER INSERTS AND ROUGH-IN FRAMES TO SITE. PROVIDE TEMPLATES AND ROUGH-IN MEASUREMENTS AS REQUIRED.

(C) INSTALLER MUST EXAMINE SUBSTRATES, PREVIOUSLY INSTALLED INSERTS AND ANCHORAGES NECESSARY FOR MOUNTING OF TOILET ACCESSORIES, AND OTHER CONDITIONS UNDER WHICH INSTALLATION IS TO OCCUR, AND MUST NOTIFY CONTRACTOR IN WRITING OF CONDITIONS DETRIMENTAL TO PROPER AND TIMELY COMPLETION OF WORK. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED IN MANNER ACCEPTABLE TO INSTALLER.

3.2 INSTALLATION

(A) INSTALL FIXTURES, ACCESSORIES AND ITEMS IN ACCORDANCE WITH MANUFACTURERS' INSTRUCTIONS, ADA AND ANSI REGULATIONS, USING FASTENERS WHICH ARE APPROPRIATE TO SUBSTRATE AND RECOMMENDED BY MANUFACTURER OF UNIT.

(B) INSTALL PLUMB AND LEVEL, SECURELY AND RIGIDLY ANCHORED TO SUBSTRATE.

(C) ADJUST TOILET ACCESSORIES FOR PROPER OPERATION AND VERIFY THAT MECHANISMS FUNCTION SMOOTHLY. CLEAN AND POLISH ALL EXPOSED SURFACES AFTER REMOVING PROTECTIVE COATINGS.

(D) SECURE MIRRORS TO WALLS IN TAMPERPROOF MANNER WITH SPECIAL HANGERS, TOGGLE BOLTS, OR SCREWS. SET UNITS PLUMB, LEVEL, AND SQUARE AT LOCATIONS INDICATED, IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS FOR TYPE OF SUBSTRATE INVOLVED.

(E) CLEAN EXPOSED SURFACES OF MIRROR UNITS IN COMPLIANCE WITH MANUFACTURER'S RECOMMENDATIONS.

(F) REFER TO DRAWINGS FOR SPECIFIC LOCATIONS OF ACCESSORIES AND FIXTURES.

3.3 SCHEDULE

(A) GRAB BARS: PROVIDE GRAB BARS WITH WALL THICKNESS NOT LESS THAN 18 GAUGE STAINLESS STEEL TYPE CONCEALED MOUNTING WITH MANUFACTURER'S STANDARD FLANGES AND ANCHORS, GRIPPING SURFASES OF MANUFACTURER'S STANDARD NON-SLIP TEXTURE AND 1-1/2" OUTSIDE DIAMETER, WITH WALL THICKNESS NOT LESS THAN 18 GAUGE; EQUAL TO:

1. BOBRICK, B-6806.99 FOR SURFACE MOUNTED GRAB BARS, PEENED NONSLIP GRIPPING SURFACE.

2. INSTALL GRAB BARS AT ALL HANDICAPPED ACCESSIBLE WATER CLOSETS AND SHOWERS; REFER TO PLANS AND ELEVATIONS FOR LENGTHS AND LOCATIONS.

3. INSTALL WOOD BLOCKING AT ALL STUD WALL LOCATIONS.

4. INSTALL PER ADA/ANSI STANDARDS.

(B) STAINLESS STEEL FRAME MIRRORS: ONE PIECE WELDED FRAME; 3/4" X 3/4" WITH 304 STAINLESS STEEL ANGLES WITH SATIN FINISH. CORNERS HELIARC WELDED, GROUND AND POLISHED SMOOTH, BEVELED FRAME EDGE. ¼" GLASS MIRROR, WARRANTED AGAINST SILVER SPOILAGE FOR 15 YEARS. GALVANIZED STEEL BACK, SECURED TO CONCEALED WALL HANGER WITH THEFT-RESISTANT MOUNTING. REFER TO ELEVATIONS FOR SIZE; EQUAL TO BOBRICK B-290 SERIES; MOUNTING TO BE ACCESSIBLE PER ADAAG STANDARDS.

1. INSTALL MIRROR OVER EACH LAVATORY IN ALL TOILET ROOMS. REFER TO CONSTRUCTION DOCUMENTS FOR SIZE AND SPECIAL MOUNTING INSTRUCTIONS OVER VARIED WALL FINISHES.

2. REFER TO ELEVATION DRAWINGS FOR OTHER LOCATIONS.

(C) CURVED SHOWER CURTAIN ROD EQUAL TO BRADLEY CORPORATION, 9530 SERIES.

1. INSTALL ONE AT EACH SHOWER LOCATION AS INDICATED WITH CURVE LINE ON PLANS, FIELD VERIFY ALL ROD LENGTHS.

(D) SURFACE MOUNTED SOAP DISPENSER EQUAL TO BOBRICK CORPORATION, B-42 CLASSIC SERIES.

1. INSTALL AT PUBLIC TOILETS, ANY DEPARTMENT WHERE THE SINK IS EITHER USED BY THE PUBLIC OR IS VISIBLE BY THE PUBLIC.

2. CONTRACTOR TO INSTALL.

(E) OWNER WILL PROVIDE SURFACE MOUNTED SOAP DISPENSER FOR ALL AREAS NOT MENTIONED ABOVE AND CONTRACTOR WILL INSTALL.

(F) TOILET TISSUE DISPENSER: MULTI-ROLL TYPE-304 STAINLESS STEEL WITH ALL-WELDED CONSTRUCTION;

(G) EXPOSED SURFACES SHALL HAVE SATIN FINISH, EQUAL TO:

1. BOBRICK CORPORATION, B-4288 CONTURA SERIES, SURFACE-MOUNTED MULTI-ROLL DISPENSER, PROVIDE ONE AT EACH TOILET ROOM; REF CONSTRUCTION DOCUMENTS FOR LOCATIONS.

2. CONTRACTOR TO INSTALL.

(H) PAPER TOWEL DISPENSER EQUAL TO:

1. BOBRICK CORPORATION, B-4262 CONTURA SERIES, SURFACE-MOUNTED PAPER TOWEL DISPENSER WITH TOWELMATE, DISPENSES 400 C-FOLD OR 525 MULTIFOLD PAPER TOWELS, SATIN FINISH.

2. INSTALL AT ROOM C106.

3. CONTRACTOR TO INSTALL.

(I) SURFACE MOUNTED DOUBLE ROBE HOOK EQUAL TO BOBRICK B-7672.

1. INSTALL (1) ROBE HOOK AT AN ACCESSIBLE HEIGHT AT EACH SHOWER LOCATION: ALL RESIDENT ROOM TOILETS, REFERENCE DRAWINGS.

2. INSTALL (1) ROBE HOOK AT A NON-ACCESSIBLE HEIGHT AT EACH SHOWER LOCATION: ROOM C103, REFERENCE DRAWINGS.

(J) TOWEL BAR: ROUND TUBULAR BAR; ROUND MOUNTING POSTS, CONCEALED ATTACHMENT

1. MOUNTING POST MATERIAL: STAINLESS STEEL; BRONZE FINISH

2. BAR MATERIAL: STAINLESS STEEL.

3. LENGTH: 18 INCHES

4. PRODUCTS:

   a. MOEN Y2624, 24 IN. TOWEL BAR

   b. SUBSTITUTIONS: OR APPROVED EQUAL.

(K) TOWEL RING: POST WITH HANGING RING, CONCEALED ATTACHMENT.

1. POST MATERIAL: STAINLESS STEEL; BRONZE FINISH

2. RING MATERIAL: TO MATCH POST MATERIAL

3. PRODUCTS:

   a. MOEN: Y2686, 6 IN. TOWEL RING

   b. SUBSTITUTIONS: OR APPROVED EQUAL.

(L) WASTE RECEPTACLE

1. KITCHEN TRASH CAN

   a. SIZE: 13 GAL

   b. PRODUCTS:

      1) UMBRA BRIM 084200-125

2) SUBSTITUTIONS: OR APPROVED EQUAL

2. BATHROOM TRASH CAN

a. SIZE: 7 GAL

b. PRODUCTS:

1) RUBBERMAID G3183047

2) SUBSTITUTIONS: OR APPROVED EQUAL

(M) UTILITY SHELF EQUAL TO BOBRICK B-224: TYPE 304 STAINLESS STEEL, SATIN FINISH FRAME; ANTI-SLIP MOP HOLDERS HAVE SPRING-LOADED RUBBER CAM THAT GRIPS HANDLES 7/8" TO 1-1/4" DIAMETER; STAINLESS STEEL RAG HOOKS AND DRYING ROD.

1. INSTALL (1) AT EACH FLOOR SINK. REFER TO PLUMBING PLANS FOR LOCATIONS.

(N) VINYL SHOWER CURTAIN: OPAQUE WHITE VINYL .008" THICK. NICKEL-PLATED BRASS GROMMETS ALONG TOP, ONE EVERY 6"; BOTTOM AND SIDES ARE HEMMED; 42" WIDE X 72" HIGH; EQUAL TO BOBRICK 204-2.

1. INSTALL (1) AT EACH SHOWER CURTAIN ROD NOTED IN PARAGRAPH (C).

(O) PROTECT INSTALLED ACCESSOIRES FROM DAMAGE DUE TO SUBSEQUENT CONSTRUCTION OPERATIONS.

END OF SECTION

SECTION 10 31 00 - MANUFACTURED FIREPLACES

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) MANUFACTURED STEEL BOX FIREPLACE.

(B) INSULATED CHIMNEY FLUE AND ASSOCIATED ROOF FLASHINGS.

1.2 RELATED REQUIREMENTS

1.3 REFERENCE STANDARDS

(A) UL (DIR) - ONLINE CERTIFICATIONS DIRECTORY; CURRENT LISTINGS AT DATABASE.UL.COM.

(B) UL 127 - STANDARD FOR FACTORY-BUILT FIREPLACES; CURRENT EDITION, INCLUDING ALL REVISIONS.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: PROVIDE FIRE BOX CABINET DIMENSIONS, CLEARANCES REQUIRED FROM ADJACENT DISSIMILAR CONSTRUCTION, APPLICABLE REGULATORY AGENCY APPROVALS, ELECTRICAL CHARACTERISTICS OF FAN.

(C) SHOP DRAWINGS: INDICATE FIRE BOX ROUGH OPENING DIMENSIONS, ROUGH OPENING SIZES FOR CHIMNEY FLUE, AND FAN SIZE.

(D) MANUFACTURER'S CERTIFICATE: CERTIFY THAT FIREPLACE COMPONENTS MEET OR EXCEED UL (DIR) REQUIREMENTS.

(E) MANUFACTURER'S INSTRUCTIONS: INDICATE INSTALLATION PROCEDURES AND COMPONENT INSTALLATION SEQUENCE, CLEARANCES AND TOLERANCES FROM ADJACENT CONSTRUCTION.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) MANUFACTURED FIREPLACES:

1. HEAT & GLO; ESCAPE SEE-THROUGH: WWW.HEATNGLO.COM/#SLE.

2. SUBSTITUTIONS: OR APPROVED EQUAL.

3. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS

2.2 REGULATORY REQUIREMENTS

(A) CONFORM TO APPLICABLE CODE FOR CLEARANCES FROM ADJACENT MATERIALS, CHIMNEY HEIGHT ABOVE ROOF LINE REQUIREMENTS, AND UNIT UL APPROVAL.

(B) LISTED BY UNDERWRITERS LABORATORIES INC. (UL) AS COMPLYING WITH UL 127.

(C) PRODUCTS REQUIRING ELECTRICAL CONNECTION: LISTED AND LABELED BY UL (DIR) OR TESTING FIRM ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, AS SUITABLE FOR THE PURPOSE SPECIFIED AND INDICATED.

2.3 COMPONENTS

(A) FIRE BOX: FORMED INSULATED STEEL CABINET, RECTANGULAR SHAPED INTERIOR, CONFIGURED TO INCLUDE CHIMNEY OUTLET AND CLEANOUT, REFRACTORY BRICK LINING.

(B) EXPOSED CLADDING: PREPAINTED STEEL.

(C) CONTROLS: ROTATING DAMPER, 1/2 TURN TYPE.

(D) FIRE BOX CLOSURE: WOVEN STEEL WIRE MESH SCREEN WITH HEAD TRACK AND STEEL PULL CHAINS.

(E) FLUE CONSTRUCTION: INSULATED STAINLESS STEEL SANDWICH CONSTRUCTION, MODULAR SIZED SECTIONS WITH ELBOWS AND SPACING COLLARS TO PERMIT SITE ASSEMBLY, AIR AND FIRE STOP COLLARS, ELBOWS, ELBOW OFFSETS, TEES, SUPPORTS, ROOFING STORM COLLAR, ROOF FLASHING; NOMINAL INSIDE DIAMETER OF 8 INCHES.

(F) ROOF TERMINATIONS: ROUND TERMINAL CAP.

(G) ASH DUMP: FORMED STEEL CABINET, CONFIGURED TO INCLUDE CLEANOUT ACCESS.

2.4 FACTORY FINISHING

(A) EXPOSED TO VIEW SURFACES: BAKED ENAMEL, _____ COLOR.

2.5 ACCESSORIES

(A) FIRESTOP SPACER: NON-COMBUSTIBLE DEVICE DESIGNED TO FIT BETWEEN CHIMNEY RISER AND PENETRATED FLOOR OR ROOF CONSTRUCTION FRAMING.

(B) ROOF FLASHING: PRE-FINISHED SHEET METAL, CONFIGURED TO FIT TIGHTLY TO CHIMNEY RISER AND SEAL TO SHINGLE ROOFING SYSTEM.

(C) WOOD HOLDER: BLACK IRON.

(D) FIREPLACE TOOLS: PROVIDE SHOVEL, BRUSH, POKER, TONG, AND _____ TOOL SET, FINISHED TO MATCH HEARTH CLOSURE.

(E) FIRE BOX GRATE: WROUGHT STEEL.

(F) CIRCULATING FANS: MOTOR AND FAN, UL APPROVED, 120 VOLTS, ____ WATT RATING WITH REMOTE ON/OFF SWITCH, SHEET STEEL ENCLOSURE, AND FACE GRILLE.

(G) SPARK ARRESTOR SCREEN: STEEL MESH, SET IN STEEL FRAME.

(H) COMBUSTION AIR INTAKE DUCT: GALVANIZED STEEL; ___BY___ INCH IN SIZE.

(I) FASTENERS AND ANCHORS: GALVANIZED STEEL TYPE.

PART 3 EXECUTION

3.1 VERIFICATION OF CONDITIONS

(A) VERIFY THAT PREPARED OPENINGS ARE READY TO RECEIVE WORK AND OPENING DIMENSIONS ARE AS INDICATED ON DRAWINGS.

(B) VERIFY THAT PROPER POWER SUPPLY AND FUEL SOURCE ARE AVAILABLE.

3.2 INSTALLATION

(A) INSTALL UNIT ASSEMBLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(B) INSTALL CHIMNEY PLUMB THROUGH PREPARED OPENINGS USING FIRE STOP SPACERS.

(C) SECURE CHIMNEY IN OPENING FRAMING WITH APPROPRIATE FASTENERS.

(D) CAREFULLY CUT HOLES FOR FAN WALL SWITCH AND GRILLES.

(E) INSTALL ROOF FLASHINGS TO ENSURE MOISTURE IS SHED FROM CHIMNEY FLUE.

END OF SECTION

SECTION 10 44 00 - FIRE PROTECTION SPECIALTIES

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) FIRE EXTINGUISHERS.

(B) FIRE EXTINGUISHER CABINETS.

(C) ACCESSORIES.

1.2 RELATED REQUIREMENTS

(A) SECTION 04 20 00 - UNIT MASONRY ASSEMBLIES: TYPICAL WALL CONSTRUCTION

(B) SECTION 06 10 00 - ROUGH CARPENTRY: WOOD BLOCKING PRODUCT AND EXECUTION REQUIREMENTS.

(C) SECTION 09 91 23 - INTERIOR PAINTING: FIELD PAINT FINISH.

(D) SECTION 21 12 00 - FIRE-SUPPRESSION STANDPIPES: CABINET ENCLOSURE FOR EXTINGUISHERS.

1.3 REFERENCE STANDARDS

(A) ASTM E814 - STANDARD TEST METHOD FOR FIRE TESTS OF PENETRATION FIRESTOP SYSTEMS; 2013A (REAPPROVED 2017).

(B) FM (AG) - FM APPROVAL GUIDE; CURRENT EDITION.

(C) NFPA 10 - STANDARD FOR PORTABLE FIRE EXTINGUISHERS; 2013.

(D) UL (DIR) - ONLINE CERTIFICATIONS DIRECTORY; CURRENT LISTINGS AT DATABASE.UL.COM.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: PROVIDE EXTINGUISHER OPERATIONAL FEATURES.

(C) SHOP DRAWINGS: INDICATE LOCATIONS OF CABINETS AND CABINET PHYSICAL DIMENSIONS.

(D) MANUFACTURER'S INSTALLATION INSTRUCTIONS: INDICATE SPECIAL CRITERIA AND WALL OPENING COORDINATION REQUIREMENTS.

(E) MANUFACTURER'S CERTIFICATE: CERTIFY THAT PRODUCTS MEET OR EXCEED SPECIFIED REQUIREMENTS.

(F) MAINTENANCE DATA: INCLUDE TEST, REFILL OR RECHARGE SCHEDULES AND RE-CERTIFICATION REQUIREMENTS.

1.5 FIELD CONDITIONS

(A) DO NOT INSTALL EXTINGUISHERS WHEN AMBIENT TEMPERATURE MAY CAUSE FREEZING OF EXTINGUISHER INGREDIENTS.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) FIRE EXTINGUISHERS:

1. ANSUL, A TYCO BUSINESS: WWW.ANSUL.COM/#SLE.
2. KIDDE, A UNIT OF UNITED TECHNOLOGIES CORP: WWW.KIDDE.COM/#SLE.
3. NYSTROM, INC: WWW.NYSTROM.COM/#SLE.
4. OVAL BRAND FIRE PRODUCTS; OVAL DRY CHEMICAL FIRE EXTINGUISHER - MULTIPURPOSE ABC: WWW.OVALFIREPRODUCTS.COM/#SLE.
5. PYRO-CHEM, A TYCO BUSINESS: WWW.PYROCHEM.COM/#SLE.
6. SUBSTITUTIONS: OR APPROVED EQUAL.
7. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) FIRE EXTINGUISHER CABINETS AND ACCESSORIES:

1. ACTIVAR CONSTRUCTION PRODUCTS GROUP - JL INDUSTRIES: WWW.ACTIVARCPG.COM/#SLE.
2. ANSUL, A TYCO BUSINESS: WWW.ANSUL.COM/#SLE.
3. KIDDE, A UNIT OF UNITED TECHNOLOGIES CORP: WWW.KIDDE.COM/#SLE.
4. LARSEN'S MANUFACTURING CO: WWW.LARSENSMFG.COM/#SLE.
5. NYSTROM, INC: WWW.NYSTROM.COM/#SLE.
6. OVAL BRAND FIRE PRODUCTS; CABINETS FOR LOW PROFILE EXTINGUISHERS: WWW.OVALFIREPRODUCTS.COM/#SLE.
7. POTTER-ROEMER: WWW.POTTERROEMER.COM/#SLE.
8. SUBSTITUTIONS: OR APPROVED EQUAL.
9. PYRO-CHEM, A TYCO BUSINESS: WWW.PYROCHEM.COM/#SLE.
10. SUBSTITUTIONS - OR APPROVED EQUAL.
11. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.2 FIRE EXTINGUISHERS

(A) FIRE EXTINGUISHERS - GENERAL: COMPLY WITH PRODUCT REQUIREMENTS OF NFPA 10 AND APPLICABLE CODES, WHICHEVER IS MORE STRINGENT.

(B) MULTIPURPOSE DRY CHEMICAL TYPE FIRE EXTINGUISHERS: ALUMINUM TANK, WITH PRESSURE GAUGE.

1. CLASS: A:B:C TYPE.

2. CLASS: 1-A, 10-B; C TYPE I APARTMENTS UNIT; 2-A, 10-B: C IN PUBLIC SPACE.

3. SIZE: 2.5 POUND.

4. SIZE AND CLASSIFICATION AS SCHEDULED.

2.3 FIRE EXTINGUISHER CABINETS

(A) FIRE RATING: LISTED AND LABELED IN ACCORDANCE WITH ASTM E814 REQUIREMENTS FOR FIRE RESISTANCE RATING OF WALLS WHERE BEING INSTALLED.

(B) CABINET CONSTRUCTION: NON-FIRE RATED.

1. FORMED PRIMED STEEL SHEET; 0.036 INCH THICK BASE METAL.

(C) FIRE RATED CABINET CONSTRUCTION: ONE-HOUR FIRE RATED.

(D) CABINET CONFIGURATION: RECESSED TYPE.

1. SIZE TO ACCOMMODATE ACCESSORIES.

2. TRIMLESS TYPE.

3. TRIM: FLAT SQUARE EDGE, WITH 2 INCH WIDE FACE.

4. PROVIDE CABINET ENCLOSURE WITH RIGHT ANGLE INSIDE CORNERS AND SEAMS, AND WITH FORMED PERIMETER TRIM AND DOOR STILES.

(E) DOOR: 0.036 INCH METAL THICKNESS, REINFORCED FOR FLATNESS AND RIGIDITY WITH NYLON CATCH. HINGE DOORS FOR 180 DEGREE OPENING WITH TWO BUTT HINGE.

(F) DOOR GLAZING: TEMPERED GLASS, CLEAR, 1/8 INCH THICK, AND SET IN RESILIENT CHANNEL GLAZING GASKET.

(G) CABINET MOUNTING HARDWARE: APPROPRIATE TO CABINET, WITH PRE-DRILLED HOLES FOR PLACEMENT OF ANCHORS.

(H) WELD, FILL, AND GRIND COMPONENTS SMOOTH.

(I) FINISH OF CABINET EXTERIOR TRIM AND DOOR: WHITE POWDER COAT.

(J) FINISH OF CABINET INTERIOR: WHITE POWDER COAT.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY EXISTING CONDITIONS BEFORE STARTING WORK.

(B) VERIFY ROUGH OPENINGS FOR CABINET ARE CORRECTLY SIZED AND LOCATED.

3.2 INSTALLATION

(A) INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(B) INSTALL CABINETS PLUMB AND LEVEL IN WALL OPENINGS, 48 INCHES FROM FINISHED FLOOR TO TOP OF CABINET.

(C) SECURE RIGIDLY IN PLACE.

(D) PLACE EXTINGUISHERS IN CABINETS.

3.3 SCHEDULES

(A) BOILER ROOM: ONE FIRE BLANKET, AND ONE DRY CHEMICAL TYPE, CLASS 4-A:60-B:C FIRE EXTINGUISHER PLACED IN 24 INCH WIDE (600 MM) BY 30 INCH HIGH (760 MM) BY 10 INCH (250 MM) DEEP SURFACE MOUNTED CABINET.

END OF SECTION

SECTION 10 55 00 - POSTAL SPECIALTIES

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) WALL-MOUNTED MAILBOXES

1.2 RELATED REQUIREMENTS

(A) SECTION 03 30 00 - CAST-IN-PLACE CONCRETE: CONCRETE PEDESTAL AND ANCHOR BOLTS FOR MAIL BOX.

1.3 REFERENCE STANDARDS

(A) 36 CFR 1191 - AMERICANS WITH DISABILITIES ACT (ADA) ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES; ARCHITECTURAL BARRIERS ACT (ABA) ACCESSIBILITY GUIDELINES; CURRENT EDITION.

(B) 39 CFR 111 - U.S. POSTAL SERVICE STANDARD 4C; EFFECTIVE DATE SEPTEMBER 3, 2006.

(C) ADA STANDARDS - AMERICANS WITH DISABILITIES ACT (ADA) STANDARDS FOR ACCESSIBLE DESIGN; 2010.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: PROVIDE MANUFACTURER'S SPECIFICATIONS AND DESCRIPTIVE LITERATURE, INSTALLATION INSTRUCTIONS, MAINTENANCE INFORMATION, AND CURRENT USPS APPROVAL DOCUMENTATION.

(C) SHOP DRAWINGS: INDICATE PLANS FOR EACH UNIT OR GROUPS OF UNITS, FRONT ELEVATIONS WITH COMPARTMENT LAYOUT AND MODEL NUMBER, OVERALL DIMENSIONS, ROUGH-IN OPENING SIZES, CONSTRUCTION AND ANCHORAGE DETAILS.

(D) SAMPLES: SUBMIT TWO SETS OF MANUFACTURER'S AVAILABLE COLORS.

1.5 WARRANTY

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL WARRANTY REQUIREMENTS.

(B) PROVIDE MANUFACTURER'S WARRANTY AGAINST DEFECTS IN MATERIALS OR WORKMANSHIP FOR A PERIOD OF 5 YEARS FROM DATE OF SUBSTANTIAL COMPLETION.

PART 2 PRODUCTS

2.1 CENTRAL MAIL DELIVERY BOXES

(A) WALL-MOUNTED MAILBOXES: FULLY-RECESSED, COMPLYING WITH 39 CFR 111 (USPS-STD-4C).

1. UNIT D: FRONT-LOADING WITH PAIR OF MASTER DOORS, DOUBLE-COLUMN DESIGN, 9 CUSTOMER COMPARTMENTS, 1 OUTGOING MAIL COMPARTMENT, AND 2 PARCEL COMPARTMENTS.

    a. FLORENCE MANUFACTURING COMPANY; MODEL VERSATILE 4C MAILBOX.

    b. SUBSTITUTIONS: OR APPROVED EQUAL.

    c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS

2.2 COMPONENTS

(A) LOCKING - FRONT LOADING MASTER DOOR: THREE-POINT LATCHING MECHANISM WITH USPS MASTER LOCK FURNISHED AND INSTALLED BY POSTMASTER.

(B) LOCKING - CUSTOMER COMPARTMENT DOORS: USPS APPROVED CAM LOCK, 3 KEYS EACH LOCK.

(C) LOCKING - PARCEL COMPARTMENT DOORS: DOUBLE-LOCK ARRANGEMENT WITH USPS APPROVED CAM LOCK FOR CUSTOMER ACCESS, AND USPS MASTER LOCK FURNISHED AND INSTALLED BY POSTMASTER.

(D) IDENTIFICATION - CUSTOMER AND PARCEL COMPARTMENTS: SEQUENTIAL NUMERICAL OR ALPHABETIC CHARACTERS, TOP TO BOTTOM, LEFT TO RIGHT; FACTORY-INSTALLED.

1. SILVER ADHESIVE DECALS, 3/4 INCH HIGH BLACK CHARACTERS CENTERED ON 1-1/2 INCH HIGH BY 1-3/4 INCH LONG DECAL.

2. CUSTOMER NAME MARKING: NAME CARD HOLDER, SIZED TO HOLD 3/4 INCH HIGH BY MINIMUM 2-1/2 INCH LONG NAME CARD; ATTACH ABOVE OR INSIDE EACH COMPARTMENT.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY THAT ROUGH-OPENINGS ARE READY TO RECEIVE WALL-MOUNTED UNITS.

(B) DO NOT BEGIN INSTALLATION UNTIL UNACCEPTABLE CONDITIONS ARE CORRECTED.

3.2 INSTALLATION

(A) INSTALL POSTAL SPECIALTIES IN ACCORDANCE WITH APPROVED SHOP DRAWINGS, MANUFACTURER'S INSTRUCTIONS, AND USPS REQUIREMENTS.

(B) ADJUST AND LUBRICATE DOOR HARDWARE TO OPERATE PROPERLY.

END OF SECTION

SECTION 11 30 13 - RESIDENTIAL APPLIANCES

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) KITCHEN APPLIANCES.

(B) LAUNDRY APPLIANCES.

1.2 RELATED REQUIREMENTS

(A) DIVISION 22 - PLUMBING

(B) DIVISION 26 - ELECTRICAL

1.3 REFERENCE STANDARDS

(A) UL (DIR) - ONLINE CERTIFICATIONS DIRECTORY; CURRENT LISTINGS AT DATABASE.UL.COM.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: MANUFACTURER'S DATA INDICATING DIMENSIONS, CAPACITY, AND OPERATING FEATURES OF EACH PIECE OF RESIDENTIAL EQUIPMENT SPECIFIED.

(C) COPIES OF WARRANTIES: SUBMIT MANUFACTURER WARRANTY AND ENSURE THAT FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER.

1.5 QUALITY ASSURANCE

(A) MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING PRODUCTS SPECIFIED IN THIS SECTION, WITH NOT LESS THAN THREE YEARS OF DOCUMENTED EXPERIENCE.

(B) ELECTRIC APPLIANCES: LISTED AND LABELED BY UL (DIR) AND COMPLYING WITH NEMA STANDARDS (NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION).

1.6 WARRANTY

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL WARRANTY REQUIREMENTS.

(B) PROVIDE FIVE (5) YEAR MANUFACTURER WARRANTY ON REFRIGERATION SYSTEM OF REFRIGERATORS.

(C) PROVIDE TEN (10) YEAR MANUFACTURER WARRANTY ON MAGNETRON TUBE OF MICROWAVE OVENS.

(D) PROVIDE TEN (10) YEAR MANUFACTURER WARRANTY ON TUB AND DOOR LINER OF DISHWASHERS.

PART 2 PRODUCTS

2.1 KITCHEN APPLIANCES

(A) PROVIDE EQUIPMENT ELIGIBLE FOR ENERGY STAR RATING: ENERGY STAR RATED.

(B) REFRIGERATOR: FREE-STANDING, SIDE-BY-SIDE, AND FROST-FREE.

1. CAPACITY: TOTAL MINIMUM STORAGE OF 18 CUBIC FT; MINIMUM 25 PERCENT FREEZER CAPACITY.

2. ENERGY USAGE: MINIMUM 20 PERCENT MORE ENERGY EFFICIENT THAN ENERGY EFFICIENCY STANDARDS SET BY U.S. DEPARTMENT OF ENERGY (DOE).

3. FEATURES: INCLUDE GLASS SHELVES, AUTOMATIC ICEMAKER, LIGHT IN FREEZER COMPARTMENT, AND IN-DOOR WATER AND ICE DISPENSER.

4. EXTERIOR FINISH: STAINLESS STEEL, COLOR AS INDICATED.

5. MANUFACTURERS:

a. GE APPLIANCES: WWW.GEAPPLIANCES.COM/#SLE.

b. FRIGIDAIRE HOME PRODUCTS: WWW.FRIGIDAIRE.COM/#SLE.

c. WHIRLPOOL CORP: WWW.WHIRLPOOL.COM/#SLE.

d. SUBSTITUTIONS: OR APPROVED EQUAL.

e. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(C) RANGE: ELECTRIC, FREE-STANDING, WITH GLASS-CERAMIC COOKTOP.

1. SIZE: 30 INCHES WIDE.

2. OVEN: SELF-CLEANING WITH ELECTRONIC IGNITION.

3. ELEMENTS: FOUR (4).

4. CONTROLS: PUSH-TO-TURN KNOBS WITH ELECTRONIC CLOCK AND TIMER.

5. FEATURES: INCLUDE STORAGE DRAWER, OVEN DOOR WINDOW, BROILER PAN AND GRID, AND OVEN LIGHT.

6. EXTERIOR FINISH: STAINLESS STEEL, COLOR AS INDICATED.

7. MANUFACTURERS:

a. GE APPLIANCES: WWW.GEAPPLIANCES.COM/#SLE.

b. FRIGIDAIRE HOME PRODUCTS: WWW.FRIGIDAIRE.COM/#SLE.

c. WHIRLPOOL CORP: WWW.WHIRLPOOL.COM/#SLE.

d. SUBSTITUTIONS: OR APPROVED EQUAL.

e. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(D) COOKING EXHAUST: RANGE HOOD.

1. SIZE: 30 INCHES WIDE.

2. FAN: TWO-SPEED, 500 CFM

3. EXHAUST: RECTANGULAR, VENTED TO EXTERIOR.

4. FEATURES: INCLUDE COOKTOP LIGHT, NIGHT LIGHT, BACKDRAFT DAMPER, REMOVABLE GREASE FILTER, AND RETRACTABLE VISOR.

5. EXTERIOR FINISH: STAINLESS STEEL, COLOR AS INDICATED.

6. MANUFACTURERS:

a. GE APPLIANCES: WWW.GEAPPLIANCES.COM/#SLE.

b. FRIGIDAIRE HOME PRODUCTS: WWW.FRIGIDAIRE.COM/#SLE.

c. WHIRLPOOL CORP: WWW.WHIRLPOOL.COM/#SLE.

d. SUBSTITUTIONS: OR APPROVED EQUAL.

e. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(E) MICROWAVE: COUNTERTOP.

1. CAPACITY: 1.5 CUBIC FT.

2. POWER: 1000 WATTS.

3. FEATURES: INCLUDE TURNTABLE, COOKTOP LIGHT, NIGHT LIGHT, 2-SPEED EXHAUST FAN, BUILT-IN TRIM KIT, AND UNDERCABINET MOUNTING KIT.

4. EXTERIOR FINISH: STAINLESS STEEL.

5. MANUFACTURERS:

a. GE APPLIANCES: WWW.GEAPPLIANCES.COM/#SLE.

b. FRIGIDAIRE HOME PRODUCTS: WWW.FRIGIDAIRE.COM/#SLE.

c. WHIRLPOOL CORP: WWW.WHIRLPOOL.COM/#SLE.

d. SUBSTITUTIONS: OR APPROVED EQUAL.

e. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(F) DISHWASHER: UNDERCOUNTER.

1. CONTROLS: SOLID STATE ELECTRONIC.
2. WASH LEVELS: THREE (3).
3. CYCLES: FIVE (5), INCLUDING NORMAL, RINSE AND HOLD, SHORT, CHINA/CRYSTAL, AND POT AND PAN.
4. FEATURES: INCLUDE RINSE AID DISPENSER, OPTIONAL NO-HEAT DRY, OPTIONAL WATER TEMPERATURE BOOST, ADJUSTABLE UPPER RACK, AND ADJUSTABLE LOWER RACK.
5. FINISH: STAINLESS STEEL, COLOR AS INDICATED.
6. MANUFACTURERS:
    a. GE APPLIANCES: WWW.GEAPPLIANCES.COM/#SLE.
    b. FRIGIDAIRE HOME PRODUCTS: WWW.FRIGIDAIRE.COM/#SLE.
    c. WHIRLPOOL CORP: WWW.WHIRLPOOL.COM/#SLE.
    d. SUBSTITUTIONS: OR APPROVED EQUAL.
    e. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(G) ICE MACHINE / DISPENSER

1. SIZE: 26" X 22.5" X 40"
2. FEATURES: CUBELET ICE, LED SENSOR, DISPENSES ICE AND WATER
3. FINISH: STAINLESS STEEL
4. MANUFACTURERS:
    a. HOSHIZAKI; DCM-300BAH-OS: WWW.HOSHIZAKI.COM
    b. SUBSTITUTIONS: OR APPPOVED EQUAL
    c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.2 LAUNDRY APPLIANCES

(A) PROVIDE EQUIPMENT ELIGIBLE FOR ENERGY STAR RATING: ENERGY STAR RATED.

(B) CLOTHES WASHER: STACKABLE, ELECTRIC, STATIONARY, FRONT LOAD.

1. SIZE: FULL-SIZE.
2. CONTROLS: ROTARY AND DIGITAL.
3. CYCLES: INCLUDE NORMAL, PERMANENT PRESS, DELICATE, SOAK, AND AUTOMATIC SOAK.
4. MOTOR SPEED: 5 SPEED.

5. FEATURES: INCLUDE OPTIONAL SECOND RINSE, BLEACH DISPENSER, FABRIC SOFTENER DISPENSER, SELF-CLEANING LINT FILTER, SOUND INSULATION, AND END OF CYCLE SIGNAL.

6. FINISH: PAINTED STEEL, COLOR WHITE.

7. MANUFACTURERS:

   a. GE APPLIANCES: WWW.GEAPPLIANCES.COM/#SLE.

   b. FRIGIDAIRE HOME PRODUCTS: WWW.FRIGIDAIRE.COM/#SLE.

   c. WHIRLPOOL CORP: WWW.WHIRLPOOL.COM/#SLE.

   d. SUBSTITUTIONS: OR APPROVED EQUAL.

   e. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(C) CLOTHES DRYER: STACKABLE, ELECTRIC, STATIONARY, FRONT LOAD

1. SIZE: FULL-SIZE.

2. CONTROLS: ROTARY AND DIGITAL

3. TEMPERATURE SELECTIONS: FOUR.

4. CYCLES: INCLUDE NORMAL, PERMANENT PRESS, KNIT/DELICATE, AND AIR ONLY.

5. FEATURES: INCLUDE INTERIOR LIGHT, REVERSIBLE DOOR, STATIONARY RACK, SOUND INSULATION, AND END OF CYCLE SIGNAL.

6. FINISH: PAINTED STEEL, COLOR WHITE.

7. MANUFACTURERS:

   a. GE APPLIANCES: WWW.GEAPPLIANCES.COM/#SLE.

   b. FRIGIDAIRE HOME PRODUCTS: WWW.FRIGIDAIRE.COM/#SLE.

   c. WHIRLPOOL CORP: WWW.WHIRLPOOL.COM/#SLE.

   d. SUBSTITUTIONS: OR APPROVED EQUAL.

   e. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(D) CLOTHES WASHER: ELECTRIC, STATIONARY, FRONT LOAD

1. SIZE: LARGE CAPACITY

2. CONTROLS: DIGITAL

3. TEMPERATURE SELECTIONS: 5

4. CYCLES: INCLUDE NORMAL, PERMANENT PRESS, DELICATE, SOAK, AND AUTOMATIC SOAK.

5. FEATURES:

6. FINISH

7. MANUFACTURERS:

   a. WHIRLPOOL CORP: WWW.WHIRLPOOL.COM/#SLE.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY UTILITY ROUGH-INS ARE PROVIDED AND CORRECTLY LOCATED.

3.2 INSTALLATION

(A) INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(B) ANCHOR BUILT-IN EQUIPMENT IN PLACE.

3.3 ADJUSTING

(A) ADJUST EQUIPMENT TO PROVIDE EFFICIENT OPERATION.

3.4 CLEANING

(A) REMOVE PACKING MATERIALS FROM EQUIPMENT AND PROPERLY DISCARD.

(B) WASH AND CLEAN EQUIPMENT.

END OF SECTION

SECTION 11 66 23 - GYMNASIUM EQUIPMENT

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) GYMNASIUM EXERCISE EQUIPMENT.

1.2 RELATED REQUIREMENTS

(A) SECTION 03 30 00 - CAST-IN-PLACE CONCRETE: CONCRETE FLOOR SLAB TO RECEIVE FLOOR SLEEVES AND ANCHORS.

(B) SECTION 05 12 00 - STRUCTURAL STEEL FRAMING: STRUCTURAL MEMBERS SUPPORTING BASKETBALL SYSTEMS.

1.3 REFERENCE STANDARDS

(A) AWS D1.1/D1.1M - STRUCTURAL WELDING CODE - STEEL; 2015 (WITH MARCH 2016 ERRATA).

(B) NFPA 70 - NATIONAL ELECTRICAL CODE; MOST RECENT EDITION ADOPTED BY AUTHORITY HAVING JURISDICTION, INCLUDING ALL APPLICABLE AMENDMENTS AND SUPPLEMENTS.

1.4 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: PROVIDE MANUFACTURER'S DATA SHOWING CONFIGURATION, SIZES, MATERIALS, FINISHES, HARDWARE, AND ACCESSORIES; INCLUDE:

1. ELECTRICAL CHARACTERISTICS AND CONNECTION LOCATIONS.

2. MANUFACTURER'S INSTALLATION INSTRUCTIONS.

(C) SAMPLES: SUBMIT SAMPLES OF WALL PAD COVERINGS IN MANUFACTURER'S AVAILABLE RANGE OF COLORS.

(D) OPERATING AND MAINTENANCE DATA, FOR EACH OPERATING EQUIPMENT ITEM.

(E) WARRANTY: SUBMIT MANUFACTURER WARRANTY AND ENSURE THAT FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER.

1.5 QUALITY ASSURANCE

(A) MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING PRODUCTS SPECIFIED IN THIS SECTION, WITH NOT LESS THAN 5 YEARS OF DOCUMENTED EXPERIENCE.

(B) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING WORK OF THE TYPE SPECIFIED WITH MINIMUM 5 YEARS OF EXPERIENCE.

1.6 DELIVERY, STORAGE, AND HANDLING

(A) DELIVER PRODUCTS TO PROJECT SITE IN MANUFACTURER'S ORIGINAL PACKAGING WITH FACTORY ORIGINAL LABELS ATTACHED.

(B) STORE PRODUCTS INDOORS AND ELEVATED ABOVE FLOOR; PREVENT WARPING, TWISTING, OR SAGGING.

(C) STORE PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS; PROTECT FROM EXTREMES OF WEATHER, TEMPERATURE, MOISTURE, AND OTHER DAMAGE.

1.7 WARRANTY

(A) SEE SECTUIB 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL WARRANTY REQUIREMENTS.

(B) PROVIDE 1 YEAR MANUFACTURER WARRANTY FOR _____.

PART 2 PRODUCTS

2.1 GENERAL REQUIREMENTS

(A) SEE DRAWINGS FOR SIZES AND LOCATIONS, UNLESS NOTED OTHERWISE.

(B) HARDWARE: HEAVY DUTY STEEL HARDWARE, AS RECOMMENDED BY MANUFACTURER.

(C) ELECTRICAL WIRING AND COMPONENTS: COMPLY WITH NFPA 70; PROVIDE UL-LISTED EQUIPMENT.

2.2 EXERCISE EQUIPMENT

(A) TREADMILL:

1. SIZE: 35" X 83" X 68.5"

2. FEATURES: TOUCH SCREEN DISPLAY

3. MANUFACTURER:

a. PRECOR; TRM 885: WWW.PRECORHOMEFITNESS.COM

b. SUBSTITUTIONS: OR APPROVED EQUAL

c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) DUMBBELL:

1. SIZE: 30.3" X 51" X 41"

2. FEATURES: 10 PAIR RACK

3. MANUFACTURER:

a. PRECOR; DBR0814: WWW.PRECORHOMEFITNESS.COM

b. SUBSTITUTIONS: OR APPROVED EQUAL.

c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(C) STATIONARY BIKE:

1. SIZE: 23: X 67" X 53.5"

2. FEATURES: TOUCH SCREEN DISPLAY

3. MANUFACTURER:

a. PRECOR; RBK 885: WWW.PRECORHOMEFITNESS.COM

b. SUBSTITUTIONS: OR APPROVED EQUAL

c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(D) ELLIPTICAL MACHINE:

1. SIZE: 30" X 80" X 72"

2. FEATURES: TOUCH SCREEN DISPLAY

3. MANUFACTURER:

a. PRECOR; EFX 885: WWW.PRECORHOMEFITNESS.COM

b. SUBSTITUTIONS: OR APPROVED EQUAL

c. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS,

PART 3 EXECUTION

3.1 EXAMINATION

(A) TAKE FIELD MEASUREMENTS TO ENSURE PROPER FITTING OF WORK. IF TAKING FIELD MEASUREMENTS BEFORE FABRICATION WILL DELAY WORK, ALLOW FOR ADJUSTMENTS WITHIN RECOMMENDED TOLERANCES.

(B) INSPECT AREAS AND CONDITIONS BEFORE INSTALLATION, AND NOTIFY ARCHITECT IN WRITING OF UNSATISFACTORY OR DETRIMENTAL CONDITIONS.

(C) DO NOT PROCEED WITH THIS WORK UNTIL CONDITIONS HAVE BEEN CORRECTED; COMMENCING INSTALLATION CONSTITUTES ACCEPTANCE OF WORK SITE CONDITIONS.

3.2 INSTALLATION

(A) INSTALL IN ACCORDANCE WITH CONTRACT DOCUMENTS AND MANUFACTURER'S INSTRUCTIONS.

(B) INSTALL EQUIPMENT RIGID, STRAIGHT, PLUMB, AND LEVEL.

(C) SECURE EQUIPMENT WITH MANUFACTURER'S RECOMMENDED ANCHORING DEVICES.

(D) SEPARATE DISSIMILAR METALS TO PREVENT ELECTROLYTIC CORROSION.

3.3 CLEANING

(A) REMOVE MASKING OR PROTECTIVE COVERING FROM FINISHED SURFACES.

(B) CLEAN EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

3.4 PROTECTION

(A) PROTECT INSTALLED PRODUCTS UNTIL DATE OF SUBSTANTIAL COMPLETION.

(B) REPLACE DAMAGED PRODUCTS BEFORE DATE OF SUBSTANTIAL COMPLETION.

END OF SECTION

SECTION 12 24 00 - WINDOW SHADES

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) WINDOW SHADES AND ACCESSORIES.

1.2 RELATED REQUIREMENTS

(A) SECTION 06 10 00 - ROUGH CARPENTRY: CONCEALED WOOD BLOCKING FOR ATTACHMENT OF HEADRAIL BRACKETS.

(B) SECTION 09 21 16 - GYPSUM BOARD ASSEMBLIES: SUBSTRATE FOR WINDOW SHADE SYSTEMS.

1.3 REFERENCE STANDARDS

(A) ASTM D4674 - STANDARD PRACTICE FOR ACCELERATED TESTING FOR COLOR STABILITY OF PLASTICS EXPOSED TO INDOOR OFFICE ENVIRONMENTS; 2002A (REAPPROVED 2010).

(B) ASTM G21 - STANDARD PRACTICE FOR DETERMINING RESISTANCE OF SYNTHETIC POLYMERIC MATERIALS TO FUNGI; 2015.

(C) NFPA 70 - NATIONAL ELECTRICAL CODE; MOST RECENT EDITION ADOPTED BY AUTHORITY HAVING JURISDICTION, INCLUDING ALL APPLICABLE AMENDMENTS AND SUPPLEMENTS.

(D) NFPA 701 - STANDARD METHODS OF FIRE TESTS FOR FLAME PROPAGATION OF TEXTILES AND FILMS; 2015.

(E) UL 325 - STANDARD FOR DOOR, DRAPERY, GATE, LOUVER, AND WINDOW OPERATORS AND SYSTEMS; CURRENT EDITION, INCLUDING ALL REVISIONS.

(F) WCMA A100.1 - SAFETY OF WINDOW COVERING PRODUCTS; 2018.

1.4 ADMINISTRATIVE REQUIREMENTS

(A) SEQUENCING:

1. DO NOT FABRICATE SHADES UNTIL FIELD DIMENSIONS FOR EACH OPENING HAVE BEEN TAKEN.

2. DO NOT INSTALL SHADES UNTIL FINAL SURFACE FINISHES AND PAINTING ARE COMPLETE.

1.5 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: PROVIDE MANUFACTURER'S STANDARD CATALOG PAGES AND DATA SHEETS INCLUDING MATERIALS, FINISHES, FABRICATION DETAILS, DIMENSIONS, PROFILES, MOUNTING REQUIREMENTS, AND ACCESSORIES.

(C) SHOP DRAWINGS: INCLUDE SHADE SCHEDULE INDICATING SIZE, LOCATION AND KEYS TO DETAILS.

(D) SOURCE QUALITY CONTROL SUBMITTALS: PROVIDE TEST REPORTS INDICATING COMPLIANCE WITH SPECIFIED FABRIC PROPERTIES.

(E) SELECTION SAMPLES: INCLUDE FABRIC SAMPLES IN FULL RANGE OF AVAILABLE COLORS AND PATTERNS.

(F) VERIFICATION SAMPLES: MINIMUM SIZE 6 INCHES SQUARE, REPRESENTING ACTUAL MATERIALS, COLOR AND PATTERN.

(G) MANUFACTURER'S INSTRUCTIONS: INCLUDE INSTRUCTIONS FOR STORAGE, HANDLING, PROTECTION, EXAMINATION, PREPARATION, AND INSTALLATION OF PRODUCT.

(H) OPERATION AND MAINTENANCE DATA: LIST OF ALL COMPONENTS WITH PART NUMBERS, SOURCES OF SUPPLY, AND OPERATION AND MAINTENANCE INSTRUCTIONS; INCLUDE COPY OF SHOP DRAWINGS.

(I) WARRANTY: SUBMIT SAMPLE OF MANUFACTURER'S WARRANTY AND DOCUMENTATION OF FINAL EXECUTED WARRANTY COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER.

(J) MAINTENANCE CONTRACTS.

1.6 QUALITY ASSURANCE

(A) MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING PRODUCTS SPECIFIED IN THIS SECTION, WITH NOT LESS THAN FIVE YEARS OF DOCUMENTED EXPERIENCE.

(B) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING WORK OF THIS TYPE WITH MINIMUM FIVE YEARS OF EXPERIENCE.

1.7 DELIVERY, STORAGE, AND HANDLING

(A) DELIVER SHADES IN MANUFACTURER'S UNOPENED PACKAGING, LABELED TO IDENTIFY EACH SHADE FOR EACH OPENING.

(B) HANDLE AND STORE SHADES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

1.8 FIELD CONDITIONS

(A) DO NOT INSTALL PRODUCTS UNDER ENVIRONMENTAL CONDITIONS OUTSIDE MANUFACTURER'S ABSOLUTE LIMITS.

1.9 WARRANTY

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL WARRANTY REQUIREMENTS.

(B) PROVIDE MANUFACTURER'S WARRANTY FROM DATE OF SUBSTANTIAL COMPLETION, COVERING THE FOLLOWING:

1. SHADE HARDWARE: ONE YEAR.

2. FABRIC: ONE YEAR.

3. ALUMINUM AND STEEL COATINGS: ONE YEAR.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) INTERIOR MANUALLY OPERATED ROLLER SHADES:

1. DRAPER, INC; CLUTCH OPERATED FLEXSHADE: WWW.DRAPERINC.COM/#SLE.

2. HUNTER DOUGLAS ARCHITECTURAL; RB500 MANUAL ROLLER SHADES: WWW.HUNTERDOUGLASARCHITECTURAL.COM/#SLE.

3. LEVOLOR; : WWW.LEVOLOR.COM/COMMERCIAL/#SLE.

4. TIMBERBLINDMETROSHADE; SOLARVUE MANUAL ROLLER SHADE: WWW.TIMBERBLINDS.COM/COMMERCIAL-DIVISION/#SLE.

5. SWFCONTRACT, A DIVISION OF SPRINGS WINDOW FASHIONS, LLC.; : WWW.SWFCONTRACT.COM/#SLE.

6. SUBSTITUTIONS: OR APPROVED EQUAL

7. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(B) SHADE FABRIC:

1. MERMET CORPORATION; E-SCREEN - 1%: WWW.MERMETUSA.COM/#SLE.

2. PHIFER, INC; STYLE 2410 3%: WWW.PHIFER.COM/#SLE.

3. SUBSTITUTIONS: OR APPROVED EQUAL

4. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.2 WINDOW SHADE APPLICATIONS

(A) INTERIOR ROLLER SHADES: SHEER SHADES.

1. TYPE: BOTTOM-UP, CLOSED POSITION IS AT TOP OF WINDOW.

2. FABRIC: STANDARD.

3. FABRIC PERFORMANCE REQUIREMENTS:

a. OPENNESS FACTOR: 1%.

b. SOLAR TRANSMITTANCE (TS): 6.

c. VISIBLE LIGHT TRANSMITTANCE (TV): 6.

d. SOLAR ABSORPTION (AS): 53.

e. SOLAR REFLECTANCE (RS): 41.

1) COLOR: AS SCHEDULED.

2) MOUNTING: INSIDE (BETWEEN JAMBS).

3) OPERATION: MANUAL.

2.3 ROLLER SHADES

(A) ROLLER SHADES: FABRIC ROLLER SHADES COMPLETE WITH MOUNTING BRACKETS, ROLLER TUBES, HEMBARS, HARDWARE AND ACCESSORIES.

1. DROP: REGULAR ROLL.

2. SIZE: AS INDICATED ON DRAWINGS.

(B) FABRIC: NON-FLAMMABLE, COLOR-FAST, IMPERVIOUS TO HEAT AND MOISTURE, AND ABLE TO RETAIN ITS SHAPE UNDER NORMAL OPERATION.

1. FLAMMABILITY: PASS NFPA 701 LARGE AND SMALL TESTS.

2. FUNGAL RESISTANCE: NO GROWTH WHEN TESTED ACCORDING TO ASTM G21.

(C) ROLLER TUBES: AS REQUIRED FOR TYPE OF OPERATION.

1. MATERIAL: EXTRUDED ALUMINUM OR GALVANIZED STEEL; AS REQUIRED FOR SHADE LOCATION.

2. SIZE: MANUFACTURER'S STANDARD, SELECTED FOR SUITABILITY FOR INSTALLATION CONDITIONS, SPAN, AND WEIGHT OF SHADES.

3. FABRIC ATTACHMENT: UTILIZE EXTRUDED CHANNEL IN TUBE TO ACCEPT VINYL SPLINE WELDED TO FABRIC EDGE.

4. FINISH: BRONZE ANODIZED.

5. TAKE-UP ROLLER: MANUFACTURER'S STANDARD ROLLER TUBE PRE-TENSIONED FOR WINDING LIFT CABLE IN BOTTOM-UP TYPE SHADES.

(D) HEMBARS: DESIGNED FOR WEIGHT REQUIREMENTS AND ADAPTATION TO UNEVEN SURFACES, TO MAINTAIN BOTTOM OF SHADE STRAIGHT AND FLAT.

1. STYLE: THERMALLY SEALED FABRIC POCKET COVERING RECTANGULAR ALUMINUM HEMBAR.

2. FINISH: PAINTED.

3. COLOR: WHITE.

(E) MANUAL OPERATION FOR INTERIOR SHADES: CLUTCH OPERATED CONTINUOUS LOOP; BEADED BALL CHAIN.

2.4 ACCESSORIES

(A) FASCIAS: SIZE AS REQUIRED TO CONCEAL SHADE MOUNTING.

1. STYLE: AS SELECTED BY ARCHITECT FROM SHADE MANUFACTURER'S FULL SELECTION.

2. STYLE: AS INDICATED ON DRAWINGS.

3. MATERIAL AND COLOR: TO MATCH SHADE.

4. BRACKETS AND MOUNTING HARDWARE: AS RECOMMENDED BY MANUFACTURER FOR MOUNTING CONFIGURATION AND SPAN INDICATED.

5. INTERIOR SIDE CHANNELS: AS REQUIRED FOR LIGHT SEALING BLACKOUT SHADE APPLICATIONS.

6. LIFTING CABLES: NYLON COATED CABLE FOR LIFTING BOTTOM-UP TYPE SHADES.

7. NUMBER PLATES: NUMBER EACH OPENING AND SHADE. PROVIDE ALUMINUM NUMBER PLATES FOR EACH SHADE UNIT AND EACH OPENING. FASTEN SHADE PLATE TO THE BACK OF ROLLER. FASTEN OPENING PLATE ON UNEXPOSED SURFACE OF THE OPENING.

8. FASTENERS: NON-CORROSIVE, AND AS RECOMMENDED BY SHADE MANUFACTURER.

(B) FABRICATION

1. FIELD MEASURE FINISHED OPENINGS PRIOR TO ORDERING OR FABRICATION.

2. FABRICATE SHADES TO FIT OPENINGS WITHIN SPECIFIED TOLERANCES.

   a. VERTICAL DIMENSIONS: FILL OPENINGS FROM HEAD TO SILL WITH 1/2 INCH SPACE BETWEEN BOTTOM BAR AND WINDOW STOOL.

   b. HORIZONTAL DIMENSIONS - INSIDE MOUNTING: FILL OPENINGS FROM JAMB TO JAMB.

3. DIMENSIONAL TOLERANCES: AS RECOMMENDED IN WRITING BY MANUFACTURER.

4. AT OPENINGS REQUIRING CONTINUOUS MULTIPLE SHADE UNITS WITH SEPARATE ROLLERS, LOCATE ROLLER JOINTS AT WINDOW MULLION CENTERS; BUTT ROLLERS END-TO-END.

PART 3 EXECUTION

3.1 EXAMINATION

(A) EXAMINE FINISHED OPENINGS FOR DEFICIENCIES THAT MAY PRECLUDE SATISFACTORY INSTALLATION.

(B) IF SUBSTRATE PREPARATION IS THE RESPONSIBILITY OF ANOTHER INSTALLER, NOTIFY ARCHITECT OF UNSATISFACTORY PREPARATION BEFORE PROCEEDING.

(C) START OF INSTALLATION SHALL BE CONSIDERED ACCEPTANCE OF SUBSTRATES.

3.2 PREPARATION

(A) PREPARE SURFACES USING METHODS RECOMMENDED BY MANUFACTURER FOR ACHIEVING BEST RESULT FOR SUBSTRATE UNDER THE PROJECT CONDITIONS.

(B) COORDINATE WITH WINDOW INSTALLATION AND PLACEMENT OF CONCEALED BLOCKING TO SUPPORT SHADES.

3.3 INSTALLATION

(A) INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPROVED SHOP DRAWINGS, USING MOUNTING DEVICES AS INDICATED.

(B) INSTALLATION TOLERANCES:

1. INSIDE MOUNTING: MAXIMUM SPACE BETWEEN SHADE AND JAMB WHEN CLOSED OF 1/16 INCH.

2. MAXIMUM OFFSET FROM LEVEL: 1/16 INCH.

(C) REPLACE SHADES THAT EXCEED SPECIFIED DIMENSIONAL TOLERANCES AT NO EXTRA COST TO OWNER.

(D) ADJUST LEVEL, PROJECTION AND SHADE CENTERING FROM MOUNTING BRACKET. VERIFY THERE IS NO TELESCOPING OF SHADE FABRIC. ENSURE SMOOTH SHADE OPERATION.

3.4 CLEANING

(A) CLEAN SOILED SHADES AND EXPOSED COMPONENTS AS RECOMMENDED BY MANUFACTURER.

(B) REPLACE SHADES THAT CANNOT BE CLEANED TO "LIKE NEW" CONDITION.

(C) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS FOR ADDITIONAL REQUIREMENTS.

3.5 PROTECTION

(A) PROTECT INSTALLED PRODUCTS FROM SUBSEQUENT CONSTRUCTION OPERATIONS.

(B) TOUCH-UP, REPAIR OR REPLACE DAMAGED PRODUCTS BEFORE SUBSTANTIAL COMPLETION.

3.6 MAINTENANCE

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL REQUIREMENTS RELATING TO MAINTENANCE SERVICE.

(B) PROVIDE TO OWNER, A PROPOSAL AS AN ALTERNATE TO THE BASE BID, A SEPARATE RENEWABLE MAINTENANCE CONTRACT FOR THE SERVICE AND MAINTENANCE OF A MOTORIZED SHADE SYSTEM FOR ONE YEAR FROM DATE OF SUBSTANTIAL COMPLETION. INCLUDE A COMPLETE DESCRIPTION OF PREVENTIVE MAINTENANCE, SYSTEMATIC EXAMINATION, ADJUSTMENT, PARTS AND LABOR, CLEANING, AND TESTING, WITH A DETAILED SCHEDULE.

END OF SECTION

SECTION 12 35 30 - RESIDENTIAL CASEWORK

PART 1 - GENERAL

1.1 SECTION INCLUDES

(A) MANUFACTURED STANDARD AND CUSTOM CASEWORK, CABINET UNITS, HARDWARE, AND COUNTER TOPS.

(B) PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, AND MISCELLANEOUS ACCESSORIES FOR A COMPLETE INSTALLATION.

1.2 SUBMITTALS

(A) SHOP DRAWINGS: INDICATE CASEWORK TYPES, LOCATIONS, SCALE PLANS, ELEVATIONS, CROSS SECTIONS, HARDWARE, CLEARANCES REQUIRED AND OTHER MISCELLANEOUS ITEMS.

(B) PRODUCT DATA: PROVIDE DATA ON COMPONENT PROFILES, SIZES, ASSEMBLY METHODS, AND SCHEDULE OF FINISHES.

(C) MAINTENANCE DATA: MANUFACTURER'S RECOMMENDATIONS FOR CARE AND CLEANING.

(D) FINISH TOUCH-UP KIT FOR EACH TYPE AND COLOR OF MATERIALS PROVIDED.

(E) SAMPLES:

1. SUBMIT SAMPLE BASE CABINET AT TIME OF SHOP DRAWING REVIEW SHOWING TYPICAL CONSTRUCTION DETAILING, INCLUDING: SPECIFIED TOP MATERIAL, DOOR AND DRAWER CONSTRUCTION, SPECIFIED HARDWARE. (SAMPLE MAY BE OF REDUCED SIZE TO AID IN PORTABILITY).

1.3 QUALITY ASSURANCE

(A) MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM TWENTY YEARS OF DOCUMENTED EXPERIENCE.

(B) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING WORK OF THE TYPE SPECIFIED IN THIS SECTION, WITH NOT LESS THAN THREE YEARS OF DOCUMENTED EXPERIENCE AND APPROVED BY MANUFACTURER.

PART 2 - PRODUCTS

2.1 CASEWORK

(A) BASIS OF DESIGN:

1. MANUFACTURER: LOWE'S

2. COLLECTION: SHENANDOAH WINCHESTER

3. FINISH: COGNAC MAPLE

2.2 STYLE

(A) DOOR: STANDARD OVERLAY WITH RAISED PANEL

(B) DRAWER: STANDARD OVERLAY

2.3 HARDWARE

(A) HARDWARE: MANUFACTURER'S STANDARD

(B) PULLS EQUAL TO BRAINERD VUELO ITEM # 340657 MODEL # P18007V-VBC-C

(C) HINGES: PROVIDE MANUFACTURER'S STANDARD CONCEALED HINGES.

(D) DRAWER GLIDES: PROVIDE MANF STANDARD FULL EXTENSION BOTTOM MOUNTED GLIDES WITH STAY-CLOSED DETERENTS, LOCK OUT STOPS TO PREVENT DRAWER REMOVAL

2.4 WALL CABINETS

(A) HIGH DENSITY 3/8" BOX CONSTRUCTION. TOPS, BOTTOMS AND SIDES SHALL BE LAMINATED ON BOTH SIDES FOR A WELL-BALANCED PANEL. BACK SHALL BE FULLY CAPTURED.

(B) ADJUSTABLE SHELVES: STANDARD (3/4" MINIMUM) FOR BOTH SINGLE AND DOUBLE-DOOR CABINETS.

(C) SOLID WOOD FACE FRAMES: KILN DRIED 3/4" SOLID WOOD; REINFORCED JOINTS ARE PRECISELY ALIGNED WITH SELF BORING SCREWS BONDED TOGETHER WITH ADHESIVE.

2.5 BASE CABINETS

(A) CONSTRUCTION SHALL MATCH WALL CABINETS.

(B) ADJUSTABLE SHELVES: MANFUFACTURER'S STANDARD.

(C) ENCLOSED TOE SPACE: FULL ENCLOSED WITH MATCHING FINISH.

2.6 COUNTER TOP MATERIALS

(A) AS SCHEDULED.

2.7 ACCESSORIES

(A) FASTENERS: SIZE AND TYPE TO SUIT APPLICATION.

(B) CONTACT ADHESIVES: WATER BASE TYPE, OR AS RECOMMENDED BY PLASTIC LAMINATE MANUFACTURER.

(C) WALL ADHESIVE: CARTRIDGE TYPE, COMPATIBLE WITH WALL SUBSTRATE, CAPABLE OF ACHIEVING DURABLE BOND.

2.8 CUSTOM ITEMS

(A) FURNISH AND INSTALL CUSTOM-BUILT CABINET ITEMS AS SHOWN AND/OR SPECIFIED OR AS OTHERWISE REQUIRED FOR A COMPLETE WORKING INSTALLATION.

(B) ALL SUCH CUSTOM-BUILT ITEMS SHALL MATCH MANUFACTURER'S STANDARD CABINETS IN MATERIALS, DETAILS, FINISH, HARDWARE, AND OVERALL APPEARANCE.

PART 3 - EXECUTION

3.1 EXAMINATION AND PREPARATION

(A) PROVIDE SUPPLEMENTARY SUPPORT FRAMING.

(B) EXAMINE PRE-FABRICATED WOODWORK BEFORE INSTALLATION AND VERIFY THAT BACK PRIMING HAS BEEN COMPLETED AND ALL PACKING HAS BEEN REMOVED.

(C) PRIME PAINT SURFACES OF ITEMS OR ASSEMBLIES WHICH WERE NOT FACTORY PRIMED, AND ARE IN CONTACT WITH CEMENTITIOUS MATERIALS, BEFORE INSTALLATION.

(D) PROVIDE ALL CUTOUTS OF WOODWORK NECESSARY TO ACCOMMODATE ELECTRICAL, TELEPHONE, MECHANICAL, PLUMBING, APPLIANCES, OR OTHER EQUIPMENT AS NOTED.

(E) SITE VERIFICATION OF ENVIRONMENTAL CONDITIONS:

1. DO NOT DELIVER CASEWORK UNTIL THE FOLLOWING CONDITIONS HAVE BEEN MET:

   a. BUILDING HAS BEEN ENCLOSED (WINDOWS AND DOORS SEALED AND WEATHER-TIGHT).

   b. AN OPERATIONAL HVAC SYSTEM THAT MAINTAINS TEMPERATURE AND HUMIDITY AT OCCUPANCY LEVELS HAS BEEN PUT IN PLACE.

   c. CEILING, OVERHEAD DUCTWORK, PIPING, AND LIGHTING HAVE BEEN INSTALLED.

   d. INSTALLATION AREAS DO NOT REQUIRE FURTHER “WET WORK” CONSTRUCTION.

3.2 INSTALLATION - CASEWORK

(A) WOODWORK SHALL BE INSTALLED PLUMB, LEVEL, TRUE AND STRAIGHT WITH NO DISTORTIONS.

1. USE CONCEALED SHIMS AS REQUIRED

2. WORK SHALL BE INSTALLED TO A TOLERANCE OF 1/8 INCH IN 8 FEET FOR PLUMBNESS AND LEVELNESS, INCLUDING TOPS.

3. THERE SHALL BE NO VARIATIONS IN FLUSHNESS OF ADJOINING SURFACES.

4. ALL CABINETS SHALL BE INSTALLED AND SECURED TO WITHSTAND ANTICIPATED FULLY-LOADED CONDITIONS, ESPECIALLY WALL-HUNG CABINETS.

5. SECURE WOODWORK TO CONCEALED BLOCKING OR BLOCKING DIRECTLY ATTACHED TO SUBSTRATES.

6. SECURE WOODWORK TO GROUNDS, FURRING, STRIPPING AND BLOCKING AS REQUIRED WITH COUNTERSUNK, CONCEALED FASTENERS PERFORMING A COMPLETE INSTALLATION.

7. TOPS AND WOODWORK SHALL BE SCRIBED AND TRIMMED TO FIT ADJOINING WORK. WHERE CUTS OCCUR, REFINISH SURFACES AND REPAIR DAMAGED FINISHES.

8. INSTALL CASEWORK WITH NO DISTORTION SO THAT DOORS AND DRAWERS FIT OPENINGS PROPERLY AND ARE ACCURATELY AND EVENLY ALIGNED.

9. COMPLETE THE INSTALLATION OF HARDWARE AND ACCESSORY ITEMS.

10. MAINTAIN VENEER SEQUENCE MATCHING OF CASEWORK WITH TRANSPARENT FINISH, WHERE SO MANUFACTURED.

(B) USE FIXTURE ATTACHMENTS AT CONCEALED LOCATIONS FOR WALL MOUNTED COMPONENTS.

(C) CAREFULLY SCRIBE CASEWORK WHICH IS AGAINST OTHER BUILDING MATERIALS, LEAVING GAPS OF NOT MORE THAN 1/32" MAXIMUM. USE FILLER STRIPS, NOT ADDITIONAL OVERLAY TRIM FOR THIS PURPOSE.

3.3 INSTALLATION - COUNTERTOPS

(A) SCRIBE AND TRIM TO FIT ADJOINING WORK. WHERE CUTS OCCUR, REFINISH SURFACES AND REPAIR DAMAGED FINISHES.

(B) ANCHOR TOPS SECURELY TO BASE UNITS AND TO OTHER SUPPORT SYSTEMS AS REQUIRED.

(C) USE CONCEALED JOINT FASTENERS TO ALIGN AND SECURE ADJOINING COUNTER TOPS.

(D) INSTALL MATCHING SPLASHES WHERE SHOWN IN CONSTRUCTION DOCUMENTS.

3.4 ADJUSTING

(A) TO WHATEVER EXTENT WORK WAS NOT COMPLETED AT SHOP OR PRIOR TO INSTALLATION OF WOODWORK, PERFORM AND COMPLETE THE SPECIFIED FINISHING OF WOODWORK.

(B) REPAIR DAMAGED AND DEFECTIVE WOODWORK WHERE POSSIBLE ELIMINATING DEFECTS FUNCTIONALLY AND VISUALLY.

1. WHERE NOT POSSIBLE TO REPAIR DAMAGED OR DEFECTIVE WORK, REPLACE WITH MATCHING NEW WORK.

(C) ADJUST JOINERY FOR UNIFORM APPEARANCE.

(D) ADJUST CASEWORK HARDWARE CENTERING THE DOORS AND DRAWERS IN THE OPENINGS AND PROVIDE UNENCUMBERED OPERATION.

(E) ADJUST AND LUBRICATE HARDWARE, MOVING OR OPERATING PARTS TO FUNCTION SMOOTHLY AND CORRECTLY.

3.5 CLEANING

(A) CLEAN EXPOSED AND SEMI-EXPOSED SURFACES OF WOODWORK, TOP SURFACES, AND HARDWARE.

3.6 PROTECTION

(A) DO NOT PERMIT FINISHED CASEWORK TO BE EXPOSED TO CONTINUED CONSTRUCTION ACTIVITY.

(B) PROTECT CASEWORK AND COUNTERTOPS FROM ONGOING CONSTRUCTION ACTIVITIES. PREVENT WORKMEN FROM STANDING ON OR STORING TOOLS AND MATERIALS ON CASEWORK OR COUNTERTOPS.

(C) REPAIR DAMAGE, INCLUDING TO FINISHES, THAT OCCURS PRIOR TO DATE OF SUBSTANTIAL COMPLETION, USING METHODS PRESCRIBED BY MANUFACTURER; REPLACE UNITS THAT CANNOT BE REPAIRED TO LIKE-NEW CONDITION.

END OF SECTION

SECTION 12 46 00 - FURNISHING ACCESSORIES

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) FURNISHING ACCESSORIES.

1.2 SUBMITTALS

(A) PRODUCT DATA: MANUFACTURER'S DATA SHEETS ON EACH PRODUCT TO BE USED, INCLUDING:

1. PREPARATION INSTRUCTIONS AND RECOMMENDATIONS.
2. STORAGE AND HANDLING REQUIREMENTS AND RECOMMENDATIONS.
3. INSTALLATION METHODS.

1.3 QUALITY ASSURANCE

(A) MANUFACTURER QUALIFICATIONS: MINIMUM 5 YEAR EXPERIENCE MANUFACTURING SIMILAR PRODUCTS.

(B) INSTALLER QUALIFICATIONS: MINIMUM 2 YEAR EXPERIENCE INSTALLING SIMILAR PRODUCTS.

(C) MOCK-UP: PROVIDE A MOCK-UP FOR EVALUATION OF SURFACE PREPARATION TECHNIQUES AND APPLICATION WORKMANSHIP.

1. FINISH AREAS DESIGNATED BY ARCHITECT.
2. DO NOT PROCEED WITH REMAINING WORK UNTIL WORKMANSHIP IS APPROVED BY ARCHITECT.
3. REFINISH MOCK-UP AREA AS REQUIRED TO PRODUCE ACCEPTABLE WORK.

1.4 PRE-INSTALLATION MEETINGS

(A) CONVENE MINIMUM TWO WEEKS PRIOR TO STARTING WORK OF THIS SECTION.

1.5 DELIVERY, STORAGE, AND HANDLING

(A) DELIVER AND STORE PRODUCTS IN MANUFACTURER'S UNOPENED PACKAGING BEARING THE BRAND NAME AND MANUFACTURER'S IDENTIFICATION UNTIL READY FOR INSTALLATION.

(B) HANDLING: HANDLE MATERIALS TO AVOID DAMAGE.

1.6 PROJECT CONDITIONS

(A) MAINTAIN ENVIRONMENTAL CONDITIONS (TEMPERATURE, HUMIDITY, AND VENTILATION) WITHIN LIMITS RECOMMENDED BY MANUFACTURER FOR OPTIMUM RESULTS. DO NOT INSTALL PRODUCTS UNDER ENVIRONMENTAL CONDITIONS OUTSIDE MANUFACTURER'S RECOMMENDED LIMITS.

1.7 SEQUENCING

(A) ENSURE THAT PRODUCTS OF THIS SECTION ARE SUPPLIED TO AFFECTED TRADES IN TIME TO PREVENT INTERRUPTION OF CONSTRUCTION PROGRESS.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) ACCEPTABLE ARTWORK MANUFACTURERS:

1. JVA ART GROUP

(B) CUSTOM ARTWORK

1. CONTRACTOR SHALL PROCURE CUSTOM ARTWORK PIECE FOR ARTWORK WITH ID "ART-6". INTERIOR DESIGNER SHALL REVIEW AND APPROVE REQUEST FOR PROPOSAL (RFP) DOCUMENT BEFORE DISTRIBUTION.

2. RFP SHOULD BE DISTRIBUTED WIDELY AND AT A MINIMUM TO THE FOLLOWING SOURCES:

a. FIRST PEOPLES FUND COMMUNICATION MANAGER: CECILY@FIRSTPEOPLESDFUND.ORG

b. MISSOULA ART MUSEUM SENIOR CURATOR: BRANDON@MISSOULAARTMUSEUM.ORG

c. INSTITUTE OF AMERICAN INDIAN ARTS MARKETING DIRECTOR: ERIC.DAVIS@IAIA.EDU

3. ACCEPTABLE NATIVE AMERICAN ARTISTS FOR CUSTOM ARTWORK (MUST BE A MEMBER OF A FEDERALLY RECOGNIZED TRIBE)

a. NATIVE AMERICAN ARTISTS

1) D.G. SMALLING (CHOCTAW NATION OF OKLAHOMA)

(C) REQUESTS FOR SUBSTITUTIONS WILL BE CONSIDERED IN ACCORDANCE WITH PROVISIONS OF SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.2 MATERIALS

(A) FURNISHING ACCESSORIES:

1. ARTWORK.

PART 3 EXECUTION

3.1 EXAMINATION

(A) DO NOT BEGIN INSTALLATION UNTIL SUBSTRATES HAVE BEEN PROPERLY PREPARED.

(B) IF SUBSTRATE PREPARATION IS THE RESPONSIBILITY OF ANOTHER INSTALLER, NOTIFY ARCHITECT OF UNSATISFACTORY PREPARATION BEFORE PROCEEDING.

3.2 PREPARATION

(A) CLEAN SURFACES THOROUGHLY PRIOR TO INSTALLATION.

(B) PREPARE SURFACES USING THE METHODS RECOMMENDED BY THE MANUFACTURER FOR ACHIEVING THE BEST RESULT FOR THE SUBSTRATE UNDER THE PROJECT CONDITIONS.

3.3 INSTALLATION

(A) INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND IN PROPER RELATIONSHIP WITH ADJACENT CONSTRUCTION.

3.4 PROTECTION

(A) PROTECT INSTALLED PRODUCTS UNTIL COMPLETION OF PROJECT.

(B) TOUCH-UP, REPAIR OR REPLACE DAMAGED PRODUCTS BEFORE SUBSTANTIAL COMPLETION.

END OF SECTION

SECTION 12 48 13 - ENTRANCE FLOOR MATS AND FRAMES

PART 1 GENERAL

1.1 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: PROVIDE DATA INDICATING PROPERTIES OF WALK-OFF SURFACE AND COMPONENT DIMENSIONS.

(C) SHOP DRAWINGS: INDICATE DIMENSIONS

(D) SAMPLES: SUBMIT TWO SAMPLES, 6 BY 6 INCH IN SIZE ILLUSTRATING PATTERN, COLOR, FINISH, AND EDGING.

(E) MAINTENANCE DATA: INCLUDE CLEANING INSTRUCTIONS, AND STAIN REMOVAL PROCEDURES.

PART 2 PRODUCTS

2.1 MANUFACTURERS

(A) AMERICAN FLOOR MATS; WWW.AMERICANFLOORMATS.COM/#SLE.

(B) BABCOCK-DAVIS; WWW.BABCOCKDAVIS.COM/#SLE.

(C) CONSTRUCTION SPECIALTIES, INC; WWW.C-SGROUP.COM/#SLE.

(D) SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

2.2 MATS

(A) CARPET MAT: CUT NYLON PILE PERMANENTLY BONDED TO RUBBER BACKING; WITH ONE INCH (25 MM) BLACK MATCHING RUBBER BORDER ON ALL EDGES.

(B) COLOR: CHESNUT.

(C) SIZE: AS INDICATED ON DRAWINGS.

2.3 FABRICATION

(A) CONSTRUCT RECESSED MAT FRAMES SQUARE, TIGHT JOINTS AT CORNERS, RIGID. COAT SURFACES WITH PROTECTIVE COATING WHERE IN CONTACT WITH CEMENTITIOUS MATERIALS.

(B) FABRICATE MATS IN SINGLE UNIT SIZES; FABRICATE MULTIPLE MATS WHERE INDICATED ON DRAWINGS.

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY THAT FLOORS ARE READY TO RECEIVE WORK.

3.2 PREPARATION

(A) CLEAN FLOOR.

3.3 INSTALLATION

(A) INSTALL WALK-OFF SURFACE ONLY AFTER CLEANING OF FINISH FLOORING.

END OF SECTION

SECTION 14 20 10 - PASSENGER ELEVATORS

PART 1 GENERAL

1.1 SECTION INCLUDES

(A) COMPLETE ELEVATOR SYSTEMS.

(B) ELEVATOR MAINTENANCE.

1.2 RELATED REQUIREMENTS

(A) SECTION 03 30 00 - CAST-IN-PLACE CONCRETE: INCLUDES ELEVATOR MACHINE FOUNDATION.

(B) SECTION 04 20 00 - UNIT MASONRY: MASONRY HOISTWAY ENCLOSURE; BUILDING-IN AND GROUTING HOISTWAY DOOR FRAMES.

(C) SECTION 05 12 00 - STRUCTURAL STEEL FRAMING: INCLUDES HOISTWAY FRAMING.

(D) SECTION 10 44 00 - FIRE PROTECTION SPECIALTIES: FIRE EXTINGUISHER IN ELEVATOR MACHINE ROOM.

(E) DIVISION 22 - PLUMBING

(F) DIVISION 26 - ELECTRICAL

(G) DIVISION 28 - ELECTRONIC SAFETY & SECURITY

1.3 REFERENCE STANDARDS

(A) AISC 360 - SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS; 2016.

(B) ASME A17.1 - SAFETY CODE FOR ELEVATORS AND ESCALATORS; 2016.

(C) ASME A17.2 - GUIDE FOR INSPECTION OF ELEVATORS, ESCALATORS, AND MOVING WALKS; 2014.

(D) ITS (DIR) - DIRECTORY OF LISTED PRODUCTS; CURRENT EDITION.

(E) NFPA 80 - STANDARD FOR FIRE DOORS AND OTHER OPENING PROTECTIVES; 2016.

(F) UL (ECMD) - ELECTRICAL CONSTRUCTION MATERIALS DIRECTORY; CURRENT EDITION.

1.4 ADMINISTRATIVE REQUIREMENTS

(A) PREINSTALLATION MEETING: CONVENE A MEETING ONE WEEK PRIOR TO STARTING WORK.

1. REVIEW SCHEDULE OF INSTALLATION, INSTALLATION PROCEDURES AND CONDITIONS, AND COORDINATION WITH RELATED WORK.

(B) CONSTRUCTION USE OF ELEVATOR: NOT PERMITTED.

1.5 SUBMITTALS

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR SUBMITTAL PROCEDURES.

(B) PRODUCT DATA: PROVIDE DATA ON THE FOLLOWING ITEMS:

1. SIGNAL AND OPERATING FIXTURES, OPERATING PANELS, INDICATORS.
2. CAB DESIGN, DIMENSIONS, LAYOUT, AND COMPONENTS.
3. CAB AND HOISTWAY DOOR AND FRAME DETAILS.
4. ELECTRICAL CHARACTERISTICS AND CONNECTION REQUIREMENTS.

(C) SHOP DRAWINGS: INDICATE THE FOLLOWING INFORMATION:

1. LOCATIONS OF MACHINE ROOM EQUIPMENT: DRIVING MACHINES, CONTROLLERS, GOVERNORS AND OTHER COMPONENTS.
2. RAIL BRACKET SPACING; MAXIMUM LOADS IMPOSED ON GUIDE RAILS REQUIRING LOAD TRANSFER TO BUILDING STRUCTURAL FRAMING.
3. LOADS ON HOISTING BEAMS AND LOCATION OF TROLLEY BEAMS.
4. CLEARANCES AND OVER-TRAVEL OF CAR AND COUNTERWEIGHT.
5. LOCATION AND SIZES OF ACCESS DOORS, DOORS, AND FRAMES.
6. EXPECTED HEAT DISSIPATION OF ELEVATOR EQUIPMENT IN MACHINE ROOM.
7. ELECTRICAL CHARACTERISTICS AND CONNECTION REQUIREMENTS.
8. SHOW ARRANGEMENT OF EQUIPMENT IN MACHINE ROOM SO ROTATING ELEMENTS, SHEAVES, AND OTHER EQUIPMENT CAN BE REMOVED FOR REPAIRS OR REPLACED WITHOUT DISTURBING OTHER COMPONENTS. ARRANGE EQUIPMENT FOR CLEAR PASSAGE THROUGH ACCESS DOOR.

(D) SAMPLES: SUBMIT TWO SAMPLES, 12 X 12 INCH IN SIZE ILLUSTRATING CAB FLOOR MATERIAL.

(E) MAINTENANCE CONTRACT.

1.6 QUALITY ASSURANCE

(A) PERFORM WORK IN ACCORDANCE WITH APPLICABLE CODE AND AS SUPPLEMENTED IN THIS SECTION.

(B) DESIGNER QUALIFICATIONS: DESIGN GUIDE RAILS, BRACKETS, ANCHORS, AND MACHINE ANCHORS UNDER DIRECT SUPERVISION OF A PROFESSIONAL STRUCTURAL ENGINEER EXPERIENCED IN DESIGN OF WORK OF THIS TYPE AND LICENSED IN MONTANA.

(C) PERFORM STRUCTURAL STEEL DESIGN, FABRICATION, AND INSTALLATION IN ACCORDANCE WITH AISC 360, SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS. PERFORM SEISMIC DESIGN IN ACCORDANCE WITH APPLICABLE CODE.

(D) FABRICATE AND INSTALL DOOR AND FRAME ASSEMBLIES IN ACCORDANCE WITH NFPA 80.

(E) MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN MANUFACTURING THE PRODUCTS SPECIFIED IN THIS SECTION WITH MINIMUM TEN YEARS DOCUMENTED EXPERIENCE.

(F) INSTALLER QUALIFICATIONS: COMPANY SPECIALIZING IN PERFORMING THE WORK OF THIS SECTION AND APPROVED BY ELEVATOR EQUIPMENT MANUFACTURER.

1.7 WARRANTY

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL WARRANTY REQUIREMENTS.

PART 2 PRODUCTS

2.1 ELEVATORS

(A) GEARLESS, THREE-PHASE SYNCHRONOUS MOTOR WITH INTEGRATED TRACTION SHEAVE

(B) INTERIOR CAR HEIGHT: 8 FEET

(C) POWER SUPPLY: 480V

(D) CAPACITY: 2500 LBS

(E) TRAVEL SPEED: 150 FPM

(F) ELEVATOR PIT DEPTH: 5 FEET

(G) TRAVEL DISTANCE: AS INDICATED ON DRAWINGS

(H) NUMBER OF STOPS: AS INDICATED ON DRAWINGS

(I) ONE SIDED LOADING

(J) MANUFACTURERS:

1. KONE; MONOSPACE500: WWW.KONE.COM/#SLE. (BASIS OF DESIGN)

2. THYSSENKRUPP ELEVATOR: WWW.THYSSENKRUPPELEVATOR.COM/#SLE.

3. SUBSTITUTIONS: OR APPROVED EQUAL.

4. SUBSTITUTIONS: SEE SECTION 01 00 00 - GENERAL REQUIREMENTS.

(K) ALL COMPONENTS TO BE MANUFACTURED BY SAME ENTITY, UNLESS OTHERWISE INDICATED.

2.2 CONTROLS

(A) ELEVATOR CONTROLS: PROVIDE LANDING BUTTONS AND HALL LANTERNS.

(B) DOOR CONTROLS:

1. PROGRAM DOOR CONTROL TO OPEN DOORS AUTOMATICALLY WHEN CAR ARRIVES AT FLOOR.

2. RENDER "DOOR CLOSE" BUTTON INOPERATIVE WHEN CAR IS STANDING AT DISPATCHING TERMINAL WITH DOORS OPEN.

3. IF DOORS ARE PREVENTED FROM CLOSING FOR APPROXIMATELY TEN SECONDS BECAUSE OF AN OBSTRUCTION, AUTOMATICALLY DISCONNECT DOOR REOPENING DEVICES, CLOSE DOORS MORE SLOWLY UNTIL OBSTRUCTION IS CLEARED. SOUND BUZZER.

4. DOOR SAFETY DEVICES: MOVEABLE, RETRACTABLE SAFETY EDGES, QUIET IN OPERATION; EQUIP WITH PHOTO-ELECTRIC LIGHT RAYS.

(C) LANDING BUTTONS: STAINLESS STEEL TYPE, ONE FOR ORIGINATING UP AND ONE FOR ORIGINATING DOWN CALLS, ONE BUTTON ONLY AT TERMINATING LANDINGS; MARKED WITH ARROWS.

(D) PROVIDE "FIREFIGHTER'S OPERATION" IN ACCORDANCE WITH APPLICABLE CODE. DESIGNATED LANDING: FIRST FLOOR.

2.3 EMERGENCY POWER

(A) ARRANGE ELEVATOR OPERATION TO OPERATE UNDER EMERGENCY POWER WHEN NORMAL POWER SUPPLY FAILS.

(B) PROVIDE MANUAL SWITCH TO OVERRIDE THE AUTOMATIC SELECTION PROCEDURE.

2.4 ELECTRICAL CHARACTERISTICS AND COMPONENTS

(A) ELECTRICAL CHARACTERISTICS:

PART 3 EXECUTION

3.1 EXAMINATION

(A) VERIFY EXISTING CONDITIONS BEFORE STARTING WORK.

(B) VERIFY THAT HOISTWAY, PIT, AND MACHINE ROOM ARE READY FOR WORK OF THIS SECTION.

(C) VERIFY HOISTWAY SHAFT AND OPENINGS ARE OF CORRECT SIZE AND WITHIN TOLERANCE.

(D) VERIFY LOCATION AND SIZE OF MACHINE FOUNDATION AND POSITION OF MACHINE FOUNDATION BOLTS.

(E) VERIFY THAT ELECTRICAL POWER IS AVAILABLE AND OF THE CORRECT CHARACTERISTICS.

3.2 PREPARATION

(A) ARRANGE FOR TEMPORARY ELECTRICAL POWER FOR INSTALLATION WORK AND TESTING OF ELEVATOR COMPONENTS.

3.3 INSTALLATION

(A) INSTALL SYSTEM COMPONENTS. CONNECT EQUIPMENT TO BUILDING UTILITIES.

(B) PROVIDE CONDUIT, BOXES, WIRING, AND ACCESSORIES.

(C) MOUNT MACHINES ON VIBRATION AND ACOUSTIC ISOLATORS, ON BED PLATE AND CONCRETE PAD. PLACE ON STRUCTURAL SUPPORTS AND BEARING PLATES. SECURELY FASTEN TO BUILDING SUPPORTS. PREVENT LATERAL DISPLACEMENT.

(D) ACCOMMODATE EQUIPMENT IN SPACE INDICATED.

(E) INSTALL GUIDE RAILS USING THREADED BOLTS WITH METAL SHIMS AND LOCK WASHERS UNDER NUTS. COMPENSATE FOR EXPANSION AND CONTRACTION MOVEMENT OF GUIDE RAILS.

(F) ACCURATELY MACHINE AND ALIGN GUIDE RAILS. FORM SMOOTH JOINTS WITH MACHINED SPLICE PLATES.

(G) COORDINATE INSTALLATION OF HOISTWAY WALL CONSTRUCTION.

(H) INSTALL HOISTWAY DOOR SILLS, FRAMES, AND HEADERS IN HOISTWAY WALLS. GROUT SILLS IN PLACE. SET ENTRANCES IN VERTICAL ALIGNMENT WITH CAR OPENINGS AND ALIGNED WITH PLUMB HOISTWAY LINES.

(I) STRUCTURAL METAL SURFACES: CLEAN SURFACES OF RUST, OIL OR GREASE; WIPE CLEAN WITH SOLVENT; PRIME TWO COATS.

(J) MACHINE ROOM COMPONENTS: CLEAN AND DEGREASE; PRIME ONE COAT, FINISH WITH ONE COAT OF ENAMEL.

(K) ADJUST EQUIPMENT FOR SMOOTH AND QUIET OPERATION.

3.4 ERECTION TOLERANCES

(A) GUIDE RAIL ALIGNMENT: PLUMB AND PARALLEL TO EACH OTHER IN ACCORDANCE WITH ASME A17.1 .

(B) CAB MOVEMENT ON ALIGNED GUIDE RAILS: SMOOTH MOVEMENT, WITH NO OBJECTIONABLE LATERAL OR OSCILLATING MOVEMENT OR VIBRATION.

3.5 FIELD QUALITY CONTROL

(A) TESTING AND INSPECTION BY REGULATORY AGENCIES WILL BE PERFORMED AT THEIR DISCRETION.

1. SCHEDULE TESTS WITH AGENCIES AND NOTIFY OWNER AND ARCHITECT.

2. OBTAIN PERMITS REQUIRED TO PERFORM TESTS.

3. DOCUMENT REGULATORY AGENCY TESTS AND INSPECTIONS IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 01 00 00.

4. PERFORM TESTS REQUIRED BY REGULATORY AGENCIES.

5. FURNISH TEST AND APPROVAL CERTIFICATES ISSUED BY AUTHORITIES HAVING JURISDICTION.

3.6 ADJUSTING

(A) ADJUST FOR SMOOTH ACCELERATION AND DECELERATION OF CAR SO NOT TO CAUSE PASSENGER DISCOMFORT.

(B) ADJUST AUTOMATIC FLOOR LEVELING FEATURE AT EACH FLOOR TO ACHIEVE 1/4 INCH FROM FLUSH.

3.7 CLEANING

(A) REMOVE PROTECTIVE COVERINGS FROM FINISHED SURFACES.

(B) CLEAN SURFACES AND COMPONENTS READY FOR INSPECTION.

3.8 PROTECTION

(A) DO NOT PERMIT CONSTRUCTION TRAFFIC WITHIN CAB AFTER CLEANING.

(B) PROTECT INSTALLED PRODUCTS UNTIL PROJECT COMPLETION.

(C) TOUCH-UP, REPAIR, OR REPLACE DAMAGED PRODUCTS BEFORE DATE OF SUBSTANTIAL COMPLETION.

3.9 MAINTENANCE

(A) SEE SECTION 01 00 00 - GENERAL REQUIREMENTS, FOR ADDITIONAL REQUIREMENTS RELATING TO MAINTENANCE SERVICE.

(B) PROVIDE A SEPARATE MAINTENANCE CONTRACT FOR SPECIFIED MAINTENANCE SERVICE.

(C) PERFORM MAINTENANCE WORK USING COMPETENT AND QUALIFIED PERSONNEL UNDER THE SUPERVISION AND IN THE DIRECT EMPLOY OF THE ELEVATOR MANUFACTURER OR ORIGINAL INSTALLER.

(D) PROVIDE SERVICE AND MAINTENANCE OF ELEVATOR SYSTEM AND COMPONENTS FOR ONE YEAR FROM DATE OF SUBSTANTIAL COMPLETION.

(E) EXAMINE SYSTEM COMPONENTS MONTHLY. CLEAN, ADJUST, AND LUBRICATE EQUIPMENT.

(F) INCLUDE SYSTEMATIC EXAMINATION, ADJUSTMENT, AND LUBRICATION OF ELEVATOR EQUIPMENT. MAINTAIN HYDRAULIC FLUID LEVELS. REPAIR OR REPLACE PARTS WHENEVER REQUIRED. USE PARTS PRODUCED BY THE MANUFACTURER OF THE ORIGINAL EQUIPMENT. REPLACE WIRE ROPES WHEN NECESSARY TO MAINTAIN THE REQUIRED FACTOR OF SAFETY.

(G) PERFORM WORK WITHOUT REMOVING CARS DURING PEAK TRAFFIC PERIODS.

END OF SECTION

SECTION 32 31 23 - VINYL FENCING AND GATES

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PART 1 GENERAL

2.1 SECTION INCLUDES

(A) PRIVACY FENCE

(B) GATES

(C) GATE HARDWARE

2.2 RELATED SECTIONS

(A) SECTION 03 30 00 - CAST-IN-PLACE CONCRETE.

2.3 REFERENCES

(A) ASTM D 1784 - STANDARD SPECIFICATION FOR RIGID POLY(VINYL CHLORIDE) (PVC) COMPOUNDS AND CHLORINATED POLY (VINYL CHLORIDE) (CPVC) COMPOUNDS.

2.4 SUBMITTALS

(A) SUBMIT UNDER PROVISIONS OF SECTION 01 00 00 – GENERAL REQUIREMENTS.

(B) PRODUCT DATA: MANUFACTURER'S DATA SHEETS ON EACH PRODUCT TO BE USED, INCLUDING:

1. PREPARATION INSTRUCTIONS AND RECOMMENDATIONS.

2. STORAGE AND HANDLING REQUIREMENTS AND RECOMMENDATIONS.

3. INSTALLATION METHODS.

(C) SHOP DRAWINGS: SUBMIT SHOP DRAWINGS FOR EACH PRODUCT AND ACCESSORY REQUIRED. INCLUDE INFORMATION NOT FULLY DETAILED IN MANUFACTURER'S STANDARD PRODUCT DATA.

(D) SELECTION SAMPLES: FOR EACH FINISH PRODUCT SPECIFIED, TWO COMPLETE SETS OF COLOR CHIPS REPRESENTING MANUFACTURER'S FULL RANGE OF AVAILABLE COLORS AND PATTERNS.

(E) VERIFICATION SAMPLES: FOR EACH FINISH PRODUCT SPECIFIED, TWO SAMPLES, MINIMUM SIZE 3 INCHES (76 MM) SQUARE, REPRESENTING ACTUAL PRODUCT, COLOR, AND PATTERNS.

(F) MANUFACTURER'S CERTIFICATES: CERTIFY PRODUCTS MEET OR EXCEED SPECIFIED REQUIREMENTS.

(G) CLOSEOUT SUBMITTALS: PROVIDE MANUFACTURER'S MAINTENANCE INSTRUCTIONS THAT INCLUDE RECOMMENDATIONS FOR PERIODIC CLEANING AND MAINTENANCE OF ALL COMPONENTS.

2.5 QUALITY ASSURANCE

(A) MANUFACTURER QUALIFICATIONS: A FIRM ENGAGED IN THE MANUFACTURE OF VINYL FENCE AND GATES OF TYPES AND SIZES SPECIFIED, AND WHOSE PRODUCTS HAVE BEEN IN SATISFACTORY USE IN SIMILAR SERVICE FOR A MINIMUM OF FIVE YEARS.

(B) INSTALLER QUALIFICATIONS: A FIRM WITH A MINIMUM OF TWO YEARS OF SUCCESSFUL INSTALLATION EXPERIENCE WITH PROJECTS UTILIZING VINYL FENCE AND GATES SIMILAR IN TYPE AND SCOPE TO THAT REQUIRED FOR THIS PROJECT.

(C) MOCK-UP: PROVIDE A MOCK-UP FOR EVALUATION OF SURFACE PREPARATION TECHNIQUES AND APPLICATION WORKMANSHIP.

1. FINISH AREAS DESIGNATED BY ARCHITECT.

2. DO NOT PROCEED WITH REMAINING WORK UNTIL WORKMANSHIP, COLOR, AND SHEEN ARE APPROVED BY ARCHITECT.

3. REFINISH MOCK-UP AREA AS REQUIRED TO PRODUCE ACCEPTABLE WORK.

4. ACCEPTED MOCK-UPS SHALL BE COMPARISON STANDARD FOR REMAINING WORK

(D) PRE-INSTALLATION CONFERENCE: CONDUCT PRE-INSTALLATION CONFERENCE IN ACCORDANCE WITH SECTION 01 00 00 – GENERAL REQUIREMENTS. DATE AND TIME OF THE PRE-INSTALLATION CONFERENCE SHALL BE ACCEPTABLE TO THE OWNER AND THE ARCHITECT.

1. PRIOR TO COMMENCING THE INSTALLATION, MEET AT THE PROJECT SITE TO REVIEW THE MATERIAL SELECTIONS, INSTALLATION PROCEDURES, AND COORDINATION WITH OTHER TRADES.

2. MOCK-UPS SHALL BE REVIEWED DURING THE PRE-INSTALLATION CONFERENCE.

3. PRE-INSTALLATION CONFERENCE SHALL INCLUDE THE CONTRACTOR, THE INSTALLER, AND ANY TRADE THAT REQUIRES COORDINATION WITH THE WORK.

2.6 DELIVERY, STORAGE, AND HANDLING

(A) DELIVER MATERIALS TO THE PROJECT SITE IN MANUFACTURER'S ORIGINAL WRAPPINGS AND CONTAINERS, LABELED WITH SUPPLIER'S OR MANUFACTURER'S NAME, MATERIAL OR PRODUCT BRAND NAME, AND LOT NUMBER, IF ANY.

(B) STORE MATERIALS IN THEIR ORIGINAL, UNDAMAGED PACKAGES AND CONTAINERS, INSIDE A WELL-VENTILATED AREA PROTECTED FROM WEATHER, MOISTURE, SOILING, EXTREME TEMPERATURES, AND HUMIDITY.

2.7 SEQUENCING

(A) ENSURE THAT LOCATING TEMPLATES AND OTHER INFORMATION REQUIRED FOR INSTALLATION OF PRODUCTS OF THIS SECTION ARE FURNISHED TO AFFECTED TRADES IN TIME TO PREVENT INTERRUPTION OF CONSTRUCTION PROGRESS.

(B) ENSURE THAT PRODUCTS OF THIS SECTION ARE SUPPLIED TO AFFECTED TRADES IN TIME TO PREVENT INTERRUPTION OF CONSTRUCTION PROGRESS.

2.8 PROJECT CONDITIONS

(A) MAINTAIN ENVIRONMENTAL CONDITIONS (TEMPERATURE, HUMIDITY, AND VENTILATION) WITHIN LIMITS RECOMMENDED BY MANUFACTURER FOR OPTIMUM RESULTS. DO NOT INSTALL PRODUCTS UNDER ENVIRONMENTAL CONDITIONS OUTSIDE MANUFACTURER'S ABSOLUTE LIMITS.

2.9 WARRANTY

(A) LIFETIME LIMITED, NON-PRORATED WARRANTY ON MATERIAL AND 5 YEAR PRORATED LABOR WARRANTY.

PART 2 PRODUCTS

3.1 MANUFACTURERS

(A) SUPERIOR PLASTIC PRODUCTS, INC., WHICH IS LOCATED AT: 260 JALYN DR.; NEW HOLLAND, PA 17557; TOLL FREE TEL: 800-633-7093; FAX: 717-355-7129; EMAIL:REQUEST INFO (TGIFFORD@SUPERIORPLASTIC.NET); WEB:HTTPS://SUPERIORPLASTICPRODUCTS.COM | HTTP://WWW.KEYLINKONLINE.COM

(B) SUBSTITUTIONS: OR APPROVED EQUAL

(C) SUBSTITUTIONS: SEE SECTION 01 00 00 – GENERAL REQUIREMENTS.

3.2 MATERIALS

(A) PVC: POLY VINYL CHLORIDE (PVC) FORMULATED TO RESIST IMPACT AND FOR ULTRA VIOLET (UV) STABILIZATION. EXTRUDED PRODUCTS MEETS OR EXCEEDS ASTM D I784.

1. 2

2. 3

3. 4

(B) WIDTH: 8 FOOT WIDE SECTIONS

(C) RAIL SIZE: 2 INCH BY 6 INCH BY 8 FOOT RAILS.

(D) GATES AND POSTS:

1. MATCHING FENCE STYLE.

(E) COLORS:

1. WHITE PINE.

2. SEASONED PINE.

3.3 PRIVACY FENCE

(A) STYLE: MANOR PRIVACY FENCE.

1. HEIGHT:
    a. 96 INCH
2. SECTION WIDTH:
    a. 6 FOOT
3. DECO RAILS: 2 INCH BY 6-1/2
4. MIDRAIL: PROVIDE FOR 64 INCH, 84 INCH AND 72 INCH HIGH FENCE SECTIONS.
5. TONGUE AND GROOVE PANELS: 7/8 INCH BY 6.8 INCH.
6. POSTS: 5 INCH BY 5 INCH.
7. GATES AND POSTS:
    a. MATCHING FENCE STYLE.
8. COLORS:
    a. WHITE

3.4 GATE HARDWARE

(A) "SELECT" GATE HARDWARE:

1. LATCH: STAINLESS STEEL WITH ALUMINUM LATCH CLAPPER
2. ALUMINUM HANDLE
3. HINGE SET - SELECT
4. DROP PIN KIT - SELECT
5. 2 WAY LATCH SET
6. FINISH/COLOR: POWDER COATED
    a. WHITE
    b. BLACK

(B) GATE HARDWARE: STAINLESS STEEL WITH ALUMINUM LATCH CLAPPERS.

1. ALUMINUM GATE HANDLE.
2. GATE WHEEL.
3. ALUMINUM GATE BRACE.
4. HINGE SET

5. RESIDENTIAL LATCH: STAINLESS STEEL WITH ALUMINUM LATCH CLAPPER.
    a. DROP PIN KIT- RESIDENTIAL
6. COMMERCIAL LATCH: STAINLESS STEEL WITH ALUMINUM LATCH CLAPPER.
    a. DROP PIN KIT - COMMERCIAL
    b. SPRING SET - COMMERCIAL
7. FINISH/COLOR: POWDER COATED
    a. BLACK

PART 3 EXECUTION

4.1 EXAMINATION

(A) DO NOT BEGIN INSTALLATION UNTIL CONDITIONS HAVE BEEN PROPERLY PREPARED.

(B) VERIFICATION OF CONDITIONS: EXAMINE LOCATIONS WHERE FENCING IS TO BE INSTALLED FOR ANY CONDITIONS DETRIMENTAL TO THE PROPER AND TIMELY COMPLETION OF THE WORK.

(C) IF PREPARATION IS THE RESPONSIBILITY OF ANOTHER INSTALLER, NOTIFY ARCHITECT OF UNSATISFACTORY PREPARATION BEFORE PROCEEDING.

4.2 PREPARATION

(A) CLEAN SURFACES THOROUGHLY PRIOR TO INSTALLATION.

(B) PREPARE THE GRADE AND REMOVE SURFACE IRREGULARITIES, IF ANY, WHICH MAY CAUSE INTERFERENCE WITH THE INSTALLATION OF THE FENCE.

(C) PREPARE SURFACES USING THE METHODS RECOMMENDED BY THE MANUFACTURER FOR ACHIEVING THE BEST RESULT FOR THE SUBSTRATE UNDER THE PROJECT CONDITIONS.

4.3 INSTALLATION

(A) INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

(B) SET POSTS AND GATE POSTS FOR GATE OPENINGS AS INDICATED ON THE DRAWINGS.

(C) CENTER AND ALIGN POSTS, PLACE CONCRETE AROUND POSTS AND VIBRATE OR TAMP FOR CONSOLIDATION. RECHECK VERTICAL AND TOP ALIGNMENT OF POSTS, AND MAKE NECESSARY CORRECTIONS.

(D) INSTALL GATES PLUMB, LEVEL, AND SECURE FOR FULL OPENING WITHOUT INTERFERENCE. FOR DOUBLE GATES, INSTALL DROP ROD. ADJUST HARDWARE FOR SMOOTH OPERATION.

4.4 CLEANING

(A) TOUCH-UP, REPAIR, OR REPLACE DAMAGED PRODUCTS BEFORE SUBSTANTIAL COMPLETION.

(B) CLEAN THE WORK ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS. POST HOLE EXCAVATIONS SHALL BE SCATTERED UNIFORMLY AWAY FROM THE POSTS. CLEAN FENCE WITH MILD HOUSEHOLD DETERGENT AND RINSE WELL WITH CLEAN WATER. REMOVE MORTAR FROM EXPOSED POSTS USING A 10 PERCENT SOLUTION OF MURIATIC ACID FOLLOWED IMMEDIATELY BY SEVERAL RINSES WITH CLEAN WATER.

4.5 PROTECTION

(A) PROTECT INSTALLED PRODUCTS UNTIL COMPLETION OF PROJECT.

(B) TOUCH-UP, REPAIR OR REPLACE DAMAGED PRODUCTS BEFORE SUBSTANTIAL COMPLETION.

END OF SECTION