SECTION 02361 - TERMITE PROTECTION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. SUBMITTALS: PRODUCT DATA AND PRODUCT CERTIFICATES SIGNED BY MANUFACTURER CERTIFYING THAT PRODUCTS USED COMPLY WITH U.S. EPA REGULATIONS FOR TERMITICIDES. INCLUDE APPLICATION INSTRUCTIONS AND A EPA-REGISTERED LABEL.

B. ENGAGE A LICENSED PROFESSIONAL PEST CONTROL OPERATOR TO APPLY TERMITE CONTROL SOLUTION.

PART 2 - PRODUCTS

2.1 TERMITICIDES

A. PROVIDE AN EPA-REGISTERED TERMITICIDE COMPLYING WITH REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION, IN A SOLUABLE OR EMULSIBLE, CONCENTRATED FORMULATION THAT DILUTES WITH WATER OR FOAMING AGENT. USE ONLY SOIL TREATMENT SOLUTIONS THAT ARE NOT HARMFUL TO PLANTS. PROVIDE QUANTITY REQUIRED FOR APPLICATION AT THE LABEL VOLUME AND RATE FOR THE MAXIMUM TERMITICIDE CONCENTRATION ALLOWED FOR EACH SPECIFIC USE, ACCORDING TO THE PRODUCT'S EPA-REGISTERED LABEL.

PART 3 - EXECUTION

3.1 INSTALLATION

A. PREPARE SURFACES AND APPLY TREATMENT AT RATES AND CONCENTRATIONS RECOMMENDED IN MANUFACTURER'S WRITTEN INSTRUCTIONS.

B. APPLY TERMITE CONTROL TO THE FOLLOWING:
1. AT FOUNDATIONS.
2. UNDER CONCRETE FLOOR SLABS ON GRADE.
3. AT HOLLOW MASONRY.
4. AT EXPANSION AND CONTROL JOINTS AND SLAB PENETRATIONS.
5. TREAT ADJACENT AREAS INCLUDING AROUND ENTRANCE PLATFORM AND EQUIPMENT BASES. APPLY OVERALL TREATMENT ONLY WHERE ATTACHED CONCRETE PLATFORM ARE ON FILL OR GROUND.

C. POST WARNING SIGNS IN AREAS OF APPLICATION.

D. REAPPLY SOIL TERMITICIDE TREATMENT SOLUTION TO AREAS DISTURBED BY SUBSEQUENT EXCAVATION OR OTHER CONSTRUCTION ACTIVITIES FOLLOWING APPLICATION.

END OF SECTION 02361

SECTION 02751 - CONCRETE PAVEMENT

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. SUBMITTALS: PRODUCT DATA, DESIGN MIXES FOR CONCRETE, LABORATORY TEST REPORTS.

B. COMPLY WITH ACI 301, "SPECIFICATION FOR STRUCTURAL CONCRETE."

PART 2 - PRODUCTS

2.1 MATERIALS

A. REINFORCING BARS: ASTM A 615/A 615M, GRADE 60 (GRADE 420), DEFORMED.
B. WELDED STEEL WIRE FABRIC: ASTM A 185, FLAT SHEETS NOT ROLLS.
C. AIR-ENTRAINING ADMIXTURE: ASTM C 260.
D. CHEMICAL ADMIXTURES: ASTM C 494. CALCIUM CHLORIDE SHALL NOT BE USED.
E. LIQUID MEMBRANE-FORMING CURING COMPOUND: ASTM C 309, CLEAR, TYPE I, CLASS B, WATERBORNE.
F. PAVEMENT-MARKING PAINT: FS TT-P-1952, LATEX, WATER-BASE EMULSION.

2.2 MIXES

A. PROPORTION NORMAL-WEIGHT CONCRETE MIXES TO PROVIDE THE FOLLOWING PROPERTIES:
1. COMPRESSIVE STRENGTH: 3000 PSI (20.7 MPA) AT 28 DAYS.
2. SLUMP LIMIT: 4 INCHES (100 MM) AT POINT OF PLACEMENT.
3. W/C RATIO: 0.45 MAXIMUM AT POINT OF PLACEMENT.
4. AIR CONTENT: 5.5 TO 7.0 PERCENT.

PART 3 - EXECUTION

3.1 PAVING

A. ACCURATELY POSITION AND SUPPORT REINFORCEMENT, AND SECURE AGAINST DISPLACEMENT.
B. LOCATE AND INSTALL CONTRACTION, CONSTRUCTION, ISOLATION, AND EXPANSION JOINTS AS INDICATED OR REQUIRED.
C. PLACE CONCRETE IN A CONTINUOUS OPERATION WITHIN PLANNED JOINTS OR SECTIONS. DO NOT ADD WATER TO ADJUST SLUMP.
D. FLOAT SURFACES TO TRUE PLANES WITHIN A TOLERANCE OF 1/4 INCH IN 10 FEET (1:480) AND MEDIUM-TO-COARSE-TEXTURED BROOM FINISH.
E. TOOL EDGES AND JOINTS TO A RADIUS OF 3/8 INCH (9.5 MM).
F. BEGIN CURING AFTER FINISHING CONCRETE. APPLY MEMBRANE-FORMING CURING COMPOUND TO CONCRETE.
G. APPLY TRAFFIC PAINT WITH MECHANICAL EQUIPMENT TO A MINIMUM WET FILM THICKNESS OF 15 MILS (0.4 MM).
H. OWNER WILL EMPLOY A TESTING AGENCY TO SAMPLE CONCRETE, PERFORM TESTS, AND SUBMIT TEST REPORTS DURING CONCRETE PLACEMENT.
I. GENERAL CONTRACTOR AND REPLACE CONCRETE PAVING THAT IS BROKEN, DAMAGED, OR DEFECTIVE. EXCLUDE TRAFFIC FROM PAVING FOR AT LEAST 14 DAYS.

END OF SECTION 02751

SECTION 06100 - ROUGH CARPENTRY

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. SUBMITTALS: MODEL CODE EVALUATION REPORTS FOR ENGINEERED WOOD PRODUCTS, FOAM-PLASTIC SHEATHING, AND FIRE-RETARDANT-TREATED WOOD.

PART 2 - PRODUCTS

2.1 LUMBER, GENERAL

A. DRESSED LUMBER, S4S, 15 PERCENT MAXIMUM MOISTURE CONTENT FOR 2-INCH (38-MM) THICKNESS OR LESS, MARKED WITH GRADE STAMP OF INSPECTION AGENCY.

2.2 TREATED MATERIALS

A. PRESERVATIVE-TREATED MATERIALS: AWPA C2 LUMBER AND AWPA C9 PLYWOOD, LABELED BY AN INSPECTION AGENCY APPROVED BY ALSC'S BOARD OF REVIEW. AFTER TREATMENT, KILN-DRY LUMBER AND PLYWOOD TO 19 AND 15 PERCENT MOISTURE CONTENT, RESPECTIVELY. TREAT INDICATED ITEMS AND THE FOLLOWING:
1. WOOD MEMBERS IN CONNECTION WITH ROOFING, FLASHING, VAPOR BARRIERS, AND WATERPROOFING.
2. CONCEALED MEMBERS IN CONTACT WITH MASONRY OR CONCRETE.
3. WOOD FRAMING MEMBERS LESS THAN 18 INCHES (460 MM) ABOVE GRADE.
4. WOOD FLOOR PLATES INSTALLED OVER CONCRETE SLABS DIRECTLY IN CONTACT WITH EARTH.

B. FIRE-RETARDANT-TREATED MATERIALS: AWPA C20 LUMBER AND AWPA C27 PLYWOOD, INTERIOR TYPE A TREATMENT, LABELED BY A TESTING AND INSPECTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.
1. USE TREATED LUMBER AND PLYWOOD WITH BENDING STRENGTH, STIFFNESS, AND FASTENER-HOLDING CAPACITIES THAT ARE NOT REDUCED BELOW VALUES PUBLISHED BY MANUFACTURER OF CHEMICAL FORMULATION UNDER ELEVATED TEMPERATURE AND HUMIDITY CONDITIONS.

2.3 LUMBER

A. DIMENSION LUMBER: THE FOLLOWING GRADES PER INSPECTION AGENCY INDICATED. SELECT ONE GRADE REQUIREMENT AND ONE OR MORE SPECIES GROUP IN SUBPARAGRAPHS BELOW FOR EACH APPLICATION DEPENDING ON AVAILABILITY AND SUITABILITY FOR PROJECT. DESIGNATE LOAD-BEARING WALLS ON DRAWINGS.
1. NON-LOAD-BEARING INTERIOR PARTITIONS: CONSTRUCTION, STUD, OR NO. 3.
2. FRAMING OTHER THAN NON-LOAD-BEARING PARTITIONS: CONSTRUCTION, STUD, OR NO. 3

B. CONCEALED BOARDS: 19 PERCENT MAXIMUM MOISTURE CONTENT: EASTERN SOFTWOODS: NO. 3 COMMON PER NELMA RULES.

C. MISCELLANEOUS LUMBER: NO. 3 OR STANDARD GRADE OF ANY SPECIES FOR NAILERS, BLOCKING, AND SIMILAR MEMBERS.

2.4 ENGINEERED WOOD PRODUCTS

A. ENGINEERED WOOD PRODUCTS ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION AND WITH ALLOWABLE DESIGN STRESSES, AS PUBLISHED BY MANUFACTURER, THAT MEET OR EXCEED THOSE INDICATED. MANUFACTURER'S PUBLISHED VALUES SHALL BE DEMONSTRATED BY COMPREHENSIVE TESTING.

B. LAMINATED-VENEER LUMBER: LAMINATED WITH AN EXTERIOR-TYPE ADHESIVE COMPLYING WITH ASTM D 2559, WITH GRAIN OF VENEERS PARALLEL TO THEIR LENGTHS.
1. EXTREME FIBER STRESS IN BENDING: 2500 PSI (17 MPA) FOR 12-INCH NOMINAL- (286-MM ACTUAL-) DEPTH MEMBERS.
2. MODULUS OF ELASTICITY: 2,000,000 PSI (13 800 MPA). STRUCTURAL PROPERTIES FOR PRODUCT ABOVE AND BELOW ARE BASED ON PRODUCTS OF ONE MANUFACTURER. VERIFY ADEQUACY AND LOCAL AVAILABILITY BEFORE RETAINING. REVISE AS NEEDED.

C. PARALLEL-STRAND LUMBER: LAID UP FROM WOOD STRANDS WITH EXTERIOR-TYPE ADHESIVE COMPLYING WITH ASTM D 2559,WITH GRAIN OF STRANDS PARALLEL TO THEIR LENGTHS.
1. EXTREME FIBER STRESS IN BENDING: 2900 PSI (20 MPA) FOR 12-INCH NOMINAL- (286-MM ACTUAL-) DEPTH MEMBERS.
2. MODULUS OF ELASTICITY: 2,000,000 PSI (13 800 MPA).

2.5 PANEL PRODUCTS

A. WOOD-BASED STRUCTURAL-USE PANELS: DOC PS 2. PROVIDE PLYWOOD COMPLYING WITH DOC PS 1, WHERE PLYWOOD IS INDICATED.
1. FACTORY MARK PANELS EVIDENCING COMPLIANCE WITH GRADE REQUIREMENTS.
2. PROVIDE PANELS WITH SPAN RATINGS REQUIRED BY SUPPORT SPACING INDICATED.
3. WALL SHEATHING: APA-RATED STRUCTURAL I SHEATHING, EXPOSURE 1.
4. ROOF SHEATHING: APA-RATED STRUCTURAL I SHEATHING, EXTERIOR.

2.6 MISCELLANEOUS PRODUCTS

A. AIR-INFILTRATION BARRIER: ASTM D 226, TYPE I, NO. 15 ASPHALT FELT, UNPERFORATED OR POLYOLEFIN MATERIAL COMPLYING WITH ASTM E 1677, TYPE I, WITH MINIMUM WATER-VAPOR TRANSMISSION OF 10 PERMS (575 NG/PA X S X SQ. M).

B. FASTENERS: SIZE AND TYPE INDICATED. WHERE ROUGH CARPENTRY IS EXPOSED TO WEATHER, IN GROUND CONTACT, OR IN AREA OF HIGH RELATIVE HUMIDITY, PROVIDE FASTENERS WITH A HOT-DIP ZINC COATING PER ASTM A 153 OR OF TYPE 304 STAINLESS STEEL.
1. POWER-DRIVEN FASTENERS: CABO NER-272.
2. BOLTS: STEEL BOLTS COMPLYING WITH ASTM A 307, GRADE A (ASTM F 568, PROPERTY CLASS 4.6); WITH ASTM A 563 (ASTM A 563M) HEX NUTS AND, WHERE INDICATED, FLAT WASHERS.

C. METAL FRAMING ANCHORS: HOT-DIP GALVANIZED STEEL OF STRUCTURAL CAPACITY, TYPE, AND SIZE INDICATED.
D. SILL-SEALER: GLASS-FIBER INSULATION, 1-INCH (25-MM) THICK, COMPRESSIBLE TO 1/32 INCH (0.8 MM).
E. ADHESIVES FOR FIELD GLUING PANELS TO FRAMING: APA AFG-01.

PART 3 - EXECUTION

3.1 INSTALLATION

A. FIT ROUGH CARPENTRY TO OTHER CONSTRUCTION; SCRIBE AND COPE FOR ACCURATE FIT. CORRELATE LOCATION OF FURRING, BLOCKING, AND SIMILAR SUPPORTS TO ALLOW ATTACHMENT OF OTHER CONSTRUCTION.

B. SECURELY ATTACH ROUGH CARPENTRY WORK TO SUBSTRATE BY ANCHORING AND FASTENING AS INDICATED, COMPLYING WITH THE FOLLOWING:
1. CABO NER-272 FOR POWER-DRIVEN STAPLES, P-NAILS, AND ALLIED FASTENERS.
2. PUBLISHED REQUIREMENTS OF METAL FRAMING ANCHOR MANUFACTURER.

END OF SECTION 06100

SECTION 07110 - DAMPPROOFING

1.1 SECTION REQUIREMENTS

AT LOCATIONS BETWEEN BRICK VENEER OR MANUFACTURED STONE AND CMU CONSTRUCTION, THE FACE OF THE CMU SHALL BE PROVIDED WITH DAMPPROOFING APPLIED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. DAMPPROOFING SHALL CONSIST OF A WATER EMULSION OF ASPHALT FORMULATED FOR SPRAYING OR BRUSHING, AND USE FOR GREEN OR SLIGHTLY DAMPENED WALLS. ACCEPTABLE PRODUCTS ARE:

1) KARNAK CHEMICAL CORP., KARNAK 100 AF NON-FIBERED EMULSION DAMPPROOFING
2) BASF BUILDING SYSTEMS, HYDROCIDE 700B
3) TEXMASTIC INTERNATIONAL, INC., TEXMASTIC SPRAY MASTIC #712-B
4) GRACE CONSTRUCTION PRODUCTS, GRACE PROCOR

END OF SECTION 07110

SECTION 07242 - ROOF INSULATION

SEE SECTION 07500

SECTION 07210 - BUILDING INSULATION

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. SUBMITTALS: PRODUCT DATA FOR EACH TYPE OF INSULATION PRODUCT SPECIFIED. MODIFY RATINGS IN PARAGRAPH BELOW TO SUIT AUTHORITIES HAVING JURISDICTION, INSULATION MATERIAL SELECTED, OR IF INSULATION MATERIALS WILL REMAIN EXPOSED.

B. SURFACE-BURNING CHARACTERISTICS: ASTM E 84, FLAME-SPREAD RATINGS OF 75 OR LESS AND SMOKE-DEVELOPED RATINGS OF 450 OR LESS.

PART 2 - PRODUCTS

2.1 INSULATION PRODUCTS

A. EXTRUDED-POLYSTYRENE BOARD INSULATION: ASTM C 578, TYPE [IV] [V] [VI] [VII] [X].
B. MOLDED-POLYSTYRENE BOARD INSULATION: ASTM C 578, TYPE [I] [II] [VIII].
C. POLYISOCYANURATE BOARD INSULATION: ASTM C 1289, TYPE I, CLASS 1 OR 2, FACED ON BOTH SIDES WITH ALUMINUM FOIL.
D. FLEXIBLE GLASS-FIBER-BOARD INSULATION: ASTM C 612, TYPE IA OR ASTM C 553, TYPES I, II, AND III; FOIL-SCRIM-KRAFT FACED; NOMINAL DENSITY OF 1.5 LB/CU. FT. (24 KG/CU. M).
E. GLASS-FIBER-BOARD INSULATION: ASTM C 612, TYPE IA OR TYPE IA AND IB; FOIL-SCRIM-KRAFT OR FOIL-SCRIM-POLYETHYLENE FACED; NOMINAL DENSITY OF 3 LB/CU. FT. (48 KG/CU. M).
F. MINERAL-FIBER-BLANKET INSULATION: ASTM C 665, TYPE III, CLASS A, FOIL-SCRIM-KRAFT, FOIL-SCRIM, OR FOIL-SCRIM-POLYETHYLENE VAPOR-RETARDER MEMBRANE ON ONE FACE WITH FIBERS MANUFACTURED FROM GLASS.

2.2 ACCESSORIES

A. VAPOR RETARDER: REINFORCED POLYETHYLENE OR FIRE-RETARDANT, REINFORCED POLYETHYLENE, MIN. 6 MILL THICK.

B. EAVE VENTILATION TROUGHS: PREFORMED, RIGID FIBERBOARD OR PLASTIC SHEETS DESIGNED TO FIT BETWEEN ROOF FRAMING MEMBERS AND TO PROVIDE CROSS-VENTILATION BETWEEN ATTIC SPACES AND VENTED EAVES.

PART 3 - EXECUTION

3.1 INSTALLATION

A. INSTALL INSULATION IN AREAS AND IN THICKNESSES INDICATED OR REQUIRED TO PRODUCE R-VALUES INDICATED. CUT AND FIT TIGHTLY AROUND OBSTRUCTIONS AND FILL VOIDS WITH INSULATION.

B. EXTEND VAPOR RETARDER TO EXTREMITIES OF AREAS TO BE PROTECTED FROM VAPOR TRANSMISSION. SECURE IN PLACE WITH ADHESIVES OR OTHER ANCHORAGE.

NOTE - AS AN ALTERNATE TO EXTRUDED POLYSTYRENE BOARD THE CONTRACTOR MAY USE INJECTED FOAM INSULATION AT ALL CMU CAVITIES NOT FILLED WITH CONCRETE. COMPLY WITH MANUFACTURER'S SPECIFICATION. BY: TAYLORED FOAM, CORE-FILL 500, OR EQUAL.

END OF SECTION 07210

SECTION 07423 - COMPOSITE WALL PANELS

PART 1 - GENERAL

1.1 SECTION INCLUDES:

A. EXTERIOR, PANELIZED FIBER CEMENT CLADDING SYSTEM AND ACCESSORIES TO COMPLETE A DRAINED AND BACK-VENTILATED RAINSCREEN.

1.2 RELATED SYSTEMS

A. STRUCTURAL METAL STUD FRAMING
B. ROUGH CARPENTRY
C. SHEATHING
D. THERMAL PROTECTION
E. WEATHER BARRIERS
F. FLASHING AND SHEET METAL
G. JOINT PROTECTION

1.3 REFERENCES

A. AMERICAN ARCHITECTURAL MANUFACTURERS ASSOCIATION (AAMA):
1. AAMA 509-09 - VOLUNTARY TEST AND CLASSIFICATION METHOD OF DRAINED AND BACK VENTILATED RAIN SCREEN WALLCLADDING SYSTEMS

B. ASTM INTERNATIONAL (ASTM):
1. ASTM C 518 - STANDARD TEST METHOD FOR STEADY-STATE THERMAL TRANSMISSION PROPERTIES BY MEANS OF THE HEAT FLOW METER APPARATUS.
2. ASTM C 1185 - STANDARD TEST METHODS FOR SAMPLING AND TESTING NON-ASBESTOS FIBER CEMENT.

A. ASTM C 1186 - STANDARD SPECIFICATION FOR FLAT FIBER-CEMENT SHEETS.
3. ASTM E-84 - STANDARD TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS.
4. ASTM E 119 - STANDARD TEST METHODS FOR FIRE TESTS OF BUILDING CONSTRUCTION AND MATERIALS.
5. ASTM E 228 - STANDARD TEST METHOD FOR LINEAR THERMAL EXPANSION OF SOLID MATERIALS WITH A VITREOUS SILICA DILATOMETER.
6. ASTM E 330 - STANDARD TEST METHOD FOR STRUCTURAL PERFORMANCE OF EXTERIOR WINDOWS, CURTAIN WALLS, AND DOORS BY UNIFORM STATIC AIR PRESSURE DIFFERENCE.
7. ASTM E 331 - STANDARD TEST METHOD FOR WATER PENETRATION OF EXTERIOR WINDOWS, CURTAIN WALLS, AND DOORS BY UNIFORM STATIC AIR PRESSURE DIFFERENCE.
8. ASTM G 23 - STANDARD PRACTICE FOR OPERATING LIGHT-EXPOSURE APPARATUS (CARBON-ARC TYPE) WITH AND WITHOUT WATER FOR EXPOSURE OF NONMETALLIC MATERIALS, REPLACED BY G152 AND G153.

C. FLORIDA BUILDING CODE - TEST PROTOCOL HVHZ
1. TESTING APPLICATION STANDARD (TAS) 201, 202, 203 - IMPACT TEST PROCEDURES

D. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA):
1. NFPA 285 - FIRE TEST METHOD FOR EXTERIOR WALL ASSEMBLIES CONTAINING COMBUSTIBLE MATERIAL.
2. NFPA 268 - IGNITION RESISTANCE OF EXTERIOR WALL ASSEMBLIES.

1.4 SUBMITTALS

A. PRODUCT DATA: SUBMIT MANUFACTURER'S PRODUCT DESCRIPTION, STORAGE AND HANDLING REQUIREMENTS, AND INSTALLATION INSTRUCTIONS.
B. PRODUCT TEST REPORTS AND CODE COMPLIANCE: DOCUMENTS DEMONSTRATING PRODUCT COMPLIANCE WITH LOCAL BUILDING CODE, SUCH AS TEST REPORTS OR EVALUATION REPORTS FROM QUALIFIED, INDEPENDENT TESTING AGENCIES.
C. MANUFACTURER'S DETAILS: SUBMIT DRAWINGS (.DWG, .RVT, AND/OR .PDF FORMATS), INCLUDING PLANS, SECTIONS, SHOWING INSTALLATION DETAILS THAT DEMONSTRATE PRODUCT DIMENSIONS, EDGE/TERMINATION CONDITIONS/TREATMENTS, COMPRESSION AND CONTROL JOINTS, CORNERS, OPENINGS, AND PENETRATIONS.
D. SAMPLES: VERIFY IF REQUIRED BY OWNER OR ARCHITECT. IF REQUIRED, SUBMIT SAMPLES OF EACH PRODUCT TYPE PROPOSED FOR USE.

1.5 QUALITY ASSURANCE

A. MANUFACTURER QUALIFICATIONS:
1. ALL FIBER CEMENT PANELS SPECIFIED IN THIS SECTION MUST BE SUPPLIED BY A MANUFACTURER WITH A MINIMUM OF 10 YEARS OF EXPERIENCE IN FABRICATING AND SUPPLYING FIBER CEMENT CLADDING SYSTEMS.

A. PRODUCTS COVERED UNDER THIS SECTION ARE TO BE MANUFACTURED IN AN ISO 9001 CERTIFIED FACILITY.
2. PROVIDE TECHNICAL AND DESIGN SUPPORT AS NEEDED REGARDING INSTALLATION REQUIREMENTS AND WARRANTY COMPLIANCE PROVISIONS.

B. INSTALLER QUALIFICATIONS: ALL PRODUCTS LISTED IN THIS SECTION ARE TO BE INSTALLED BY A SINGLE INSTALLER TRAINED BY MANUFACTURER OR REPRESENTATIVE.
C. MOCK-UP WALL: VERIFY IF REQUIRED BY OWNER OR ARCHITECT. IF REQUIRED, PROVIDE A MOCK-UP WALL AS EVALUATION TOOL FOR PRODUCT AND INSTALLATION WORKMANSHIP.
D. PRE-INSTALLATION MEETINGS: PRIOR TO BEGINNING INSTALLATION, CONDUCT CONFERENCE TO VERIFY AND DISCUSS SUBSTRATE CONDITIONS, MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WARRANTY REQUIREMENTS, AND PROJECT REQUIREMENTS.

1.6 DELIVERY, STORAGE, AND HANDLING

A. PANELS MUST BE STORED FLAT AND KEPT DRY BEFORE INSTALLATION. A WATERPROOF COVER OVER PANELS AND ACCESSORIES SHOULD BE USED AT ALL TIMES PRIOR TO INSTALLATION.
B. IF PANELS ARE EXPOSED TO WATER OR WATER VAPOR PRIOR TO INSTALLATION, ALLOW TO COMPLETELY DRY BEFORE INSTALLING. FAILURE TO DO SO MAY RESULT IN PANEL SHRINKAGE AT SHIP LAP JOINTS, AND SUCH ACTION MAY VOID WARRANTY.
C. PANELS MUST BE CARRIED ON EDGE. DO NOT CARRY OR LIFT PANELS FLAT. IMPROPER HANDLING MAY CAUSE CRACKING OR PANEL DAMAGE.
D. DIRECT CONTACT BETWEEN THE PANELS AND THE GROUND SHOULD BE AVOIDED AT ALL TIMES. IT IS NECESSARY TO KEEP PANELS CLEAN DURING INSTALLATION PROCESS.

1.7 WARRANTY

A. PROVIDE MANUFACTURER'S 50-YEAR WARRANTY AGAINST MANUFACTURED DEFECTS IN FIBER CEMENT PANELS.
B. PROVIDE MANUFACTURER'S 15-YEAR WARRANTY AGAINST MANUFACTURED DEFECTS IN PANEL FINISH.
C. WARRANTY PROVIDES FOR THE ORIGINAL PURCHASER. SEE WARRANTY FOR DETAILED INFORMATION ON TERMS, CONDITIONS AND LIMITATIONS.

PART II: PRODUCTS

2.1 MANUFACTURERS

A. ACCEPTABLE MANUFACTURER: NICHIHA CORPORATION, 18-19 NISHIKI 2-CHOME NAKA-KU, NAGOYA, AICHI 460-8610, JAPAN.
B. ACCEPTABLE MANUFACTURER'S REPRESENTATIVE: NICHIHA USA, INC., 6465 E. JOHNS CROSSING, SUITE 250, JOHNS CREEK, GA 30097. TOLL FREE: 1.866.424.4421, OFFICE: 770.805.9466, FAX: 770.805.9467, WWW.NICHIHA.COM.
1. BASIS OF DESIGN PRODUCT: **AS SPECIFIED ON EXTERIOR FINISH SCHEDULE.**

A. PROFILE COLORS: BARK, CEDAR.
B. PROFILES: WOOD PLANK TEXTURE WITH THREE, 3/8" GROOVES RUNNING LENGTHWISE, SPACED 5-5/8" APART.
C. ACCESSORY/COMPONENT OPTIONS:
I. MANUFACTURED CORNERS NOT REQUIRED. PROVIDE MANUFACTURER'S CORNER KEY TRIM.
II. ALUMINUM TRIM TO BE PAINTED PER FINISH SCHEDULE: OUTSIDE CORNERS (CORNER KEY, OPEN OUTSIDE CORNER), VERTICAL JOINTS (H-MOLD), TERMINATIONS (J-MOLD)
III. ESSENTIAL FLASHING SYSTEM: STARTER, COMPRESSION JOINT, OVERHANG.

D. DIMENSIONS - AWP-3030: 455MM (17-7/8") (H) X 3,030 MM (119-5/16") (L).
E. PANEL THICKNESS: 16 MM (5/8").
F. WEIGHT: 57.32 LBS. PER PANEL.
G. COVERAGE: 14.81 SQ. FT. PER PANEL.
H. FACTORY SEALED ON SIX [6] SIDES.
C. SUBSTITUTIONS: NOT PERMITTED.

2.2 MATERIALS

A. FIBER CEMENT PANELS MANUFACTURED FROM A PRESSED, STAMPED, AND AUTOCLAVED MIX OF PORTLAND CEMENT, FLY ASH, SILICA, RECYCLED REJECTS, AND WOOD FIBER BUNDLES.
B. PANEL SURFACE PRE-FINISHED AND MACHINE APPLIED.
C. PANELS PROFILED ALONG ALL FOUR EDGES, SUCH THAT BOTH HORIZONTAL AND VERTICAL JOINTS BETWEEN THE INSTALLED PANELS ARE SHIP-LAPPED.
D. FACTORY-APPLIED SEALANT GASKET ADDED TO TOP AND RIGHT PANEL EDGES; ALL JOINTS CONTAIN A FACTORY SEALANT.

2.3 PERFORMANCE REQUIREMENTS:

A. FIBER CEMENT CLADDING - MUST COMPLY WITH ASTM C-1186, TYPE A, GRADE II REQUIREMENTS:
1. WET FLEXURAL STRENGTH, LOWER LIMIT: 1015 PSI.
2. WATER TIGHTNESS: NO WATER DROPLETS OBSERVED ON ANY SPECIMEN.
3. FREEZE-THAW: NO DAMAGE OR DEFECTS OBSERVED.
4. WARM WATER: NO EVIDENCE OF CRACKING, DELAMINATION, SHELLING, OR OTHER DEFECTS OBSERVED.
5. HEAT-RAIN: NO CRAZING, CRACKING, OR OTHER DELETERIOUS EFFECTS, SURFACE OR JOINT CHANGES OBSERVED IN ANY SPECIMEN.

B. MEAN COEFFICIENT OF LINEAR THERMAL EXPANSION (ASTM E-228): MAX 1.0*10^-5 IN./IN. F.
C. SURFACE BURNING (CAN-ULC S102/ASTM E-84): FLAME SPREAD: 0, SMOKE DEVELOPED: 5.
D. WIND LOAD (ASTM E-330): CONTACT MANUFACTURER FOR ULTIMATE TEST PRESSURE DATA CORRESPONDING TO FRAMING TYPE, DIMENSIONS, FASTENER TYPE, AND ATTACHMENT CLIPS. PROJECT ENGINEER(S) MUST DETERMINE ZONE 4 AND 5 DESIGN PRESSURES BASED ON PROJECT SPECIFICS.
1. MINIMUM LATERAL DEFLECTION: L/120.

E. WATER PENETRATION (ASTM E-331): NO WATER LEAKAGE OBSERVED INTO WALL CAVITY.
F. WEATHER RESISTANT (ASTM G-23): NO CRACKING, CHECKING, CRAZING, EROSION, OR OTHER DETRIMENTAL EFFECTS OBSERVED.
G. STEADY-STATE HEAT FLUX AND THERMAL TRANSMISSION PROPERTIES TEST (ASTM C-518): THERMAL RESISTANCE R VALUE OF 1.23.
H. FIRE RESISTANT (ASTM E-119): THE WALL ASSEMBLY MUST SUCCESSFULLY ENDURE 60-MINUTE FIRE EXPOSURE WITHOUT DEVELOPING EXCESSIVE UNEXPOSED SURFACE TEMPERATURE OR ALLOWING FLAMING ON THE UNEXPOSED SIDE OF THE ASSEMBLY.
I. IGNITION RESISTANCE (NFPA 268): NO SUSTAINED FLAMING OF PANEL ASSEMBLY WHEN SUBJECTED TO A MINIMUM RADIANT HEAT FLUX OF 12.5 KW/M2 ± 5% IN THE PRESENCE OF A PILOT IGNITION SOURCE FOR A 20-MINUTE PERIOD.
J. FIRE PROPAGATION (NFPA 285): WALL ASSEMBLY OF NICHIHA AWP, ULTIMATE CLIPS AND STARTER TRACK, TYVEK COMMERCIAL WRAP, ½" DENSGLASS GOLD SHEATHING, 16" O.C. 18 GAUGE STEEL STUDS, MINERAL WOOL IN-CAVITY INSULATION, AND INTERIOR 5/8" TYPE X GYPSUM MET THE ACCEPTANCE CRITERIA OF NFPA 285.
K. FIRE PROPAGATION (CAN/ULC S-134): WALL ASSEMBLY OF NICHIHA AWP, ULTIMATE CLIPS AND STARTER TRACK, TYVEK HOUSEWRAP, 5/8" FRT PLYWOOD, 16" O.C. 2X4 WOOD STUDS, FIBERGLASS IN-CAVITY INSULATION, AND INTERIOR 5/8" TYPE X GYPSUM MET THE ACCEPTANCE CRITERIA OF CAN/ULC S-134.
L. DRAINED AND BACK VENTILATED RAINSCREEN (AAMA 509-09): SYSTEM MUST PASS ALL COMPONENT TESTS.
M. FLORIDA BUILDING CODE - TEST PROTOCOL HVHZ (TAS 201, 202, 203): PASSED.

2.4 INSTALLATION COMPONENTS

A. ULTIMATE CLIP SYSTEM:
1. STARTER TRACK:

A. HORIZONTAL PANEL INSTALLATIONS - FA 700 - 3,030MM (L) GALVALUME.
B. VERTICAL PANEL INSTALLATIONS (AWP-3030 ONLY) - FA 710T - 3,030MM (L) GALVALUME.
2. PANEL CLIPS: JEL 777 ULTIMATE CLIP® (10MM RAINSCREEN FOR 16MM AWP) - ZINC-ALUMINUM-MAGNESIUM ALLOY COATED STEEL.

A. JOINT TAB ATTACHMENTS (INCLUDED) - USED AT ALL AWP-1818 PANEL TO PANEL VERTICAL JOINTS - NOT USED WITH AWP-3030 INSTALLATIONS.
3. SINGLE FLANGE SEALANT BACKER - FHK 1017 (10MM) - 6.5' (L) FLUORINE COATED GALVALUME.
4. DOUBLE FLANGE SEALANT BACKER - FH 1020 (10MM) - 10' (L) FLUORINE COATED GALVALUME.
5. CORRUGATED SPACER - FS 1005 (5MM), FS 1010 (10MM) - 4' (L).
6. FINISH CLIP (OPTIONAL) - JE310 (5MM)

B. ALUMINUM TRIM (OPTIONAL): PAINT AS SPECIFIED IN FINISH SCHEDULE.
C. ESSENTIAL FLASHING SYSTEM (OPTIONAL):
1. STARTER - MAIN SEGMENTS (3,030MM), INSIDE CORNERS, OUTSIDE CORNERS
2. COMPRESSION JOINT - MAIN SEGMENTS (3,030MM)
3. OVERHANG - MAIN SEGMENTS (3,030MM), INSIDE CORNERS, OUTSIDE CORNERS, JOINT CLIPS

D. FASTENERS: CORROSION RESISTANT FASTENERS, SUCH AS HOT-DIPPED GALVANIZED SCREWS APPROPRIATE TO LOCAL BUILDING CODES AND PRACTICES MUST BE USED. USE STAINLESS STEEL FASTENERS IN HIGH HUMIDITY AND HIGH-MOISTURE REGIONS. PANEL MANUFACTURER IS NOT LIABLE FOR CORROSION RESISTANCE OF FASTENERS. DO NOT USE ALUMINUM FASTENERS, STAPLES OR FASTENERS THAT ARE NOT RATED OR DESIGNED FOR INTENDED USE. SEE MANUFACTURER'S INSTRUCTIONS FOR APPROPRIATE FASTENERS FOR CONSTRUCTION METHOD USED.
E. FLASHING: FLASH ALL AREAS SPECIFIED IN MANUFACTURER'S INSTRUCTIONS. DO NOT USE RAW ALUMINUM FLASHING. FLASHING MUST BE GALVANIZED, ANODIZED, OR PVC COATED.
F. SEALANT: SEALANT SHALL COMPLY WITH ASTM C920.

PART III: EXECUTION

3.1 EXAMINATION

A. VERIFICATION OF CONDITIONS:
1. FIBER CEMENT PANELS CAN BE INSTALLED OVER BRACED WOOD, STEEL STUDS AND SHEATHING INCLUDING PLYWOOD, OSB, PLASTIC FOAM OR FIBERBOARD SHEATHING. FIBER CEMENT PANELS CAN ALSO BE INSTALLED OVER STRUCTURAL INSULATED PANELS (SIP'S), CONCRETE MASONRY UNITS (CMU'S) AND CONCRETE BLOCK STRUCTURES (CBS'S) WITH FURRING STRIPS, AND PRE-ENGINEERED METAL CONSTRUCTION. INSULATED CONCRETE FORMS (ICFS) ARE NOT AN APPROVED SUBSTRATE UNDER ANY CONDITION.
2. ALLOWABLE STUD SPACING: 16" O.C. MAXIMUM.
3. A WEATHER RESISTIVE BARRIER IS REQUIRED WHEN INSTALLING FIBER CEMENT PANELS. USE AN APPROVED WEATHER RESISTIVE BARRIER (WRB) AS DEFINED BY THE 2015 IBC OR IRC. REFER TO LOCAL BUILDING CODES.
4. APPROPRIATE METAL FLASHING SHOULD BE USED TO PREVENT MOISTURE PENETRATION AROUND ALL DOORS, WINDOWS, WALL BOTTOMS, MATERIAL TRANSITIONS AND PENETRATIONS. REFER TO LOCAL BUILDING CODES FOR BEST PRACTICES.

B. EXAMINE SITE TO ENSURE SUBSTRATE CONDITIONS ARE WITHIN SPECIFICATION FOR PROPER INSTALLATION.
C. DO NOT BEGIN INSTALLATION UNTIL UNACCEPTABLE CONDITIONS HAVE BEEN CORRECTED.
D. DO NOT INSTALL PANELS OR COMPONENTS THAT APPEAR TO BE DAMAGED OR DEFECTIVE. DO NOT INSTALL WET PANELS.

3.2 INSTALLATION

A. GENERAL: INSTALL PRODUCTS IN ACCORDANCE WITH THE LATEST INSTALLATION GUIDELINES OF THE MANUFACTURER AND ALL APPLICABLE BUILDING CODES AND OTHER LAWS, RULES, REGULATIONS AND ORDINANCES. REVIEW ALL MANUFACTURER INSTALLATION, MAINTENANCE INSTRUCTIONS, AND OTHER APPLICABLE DOCUMENTS BEFORE INSTALLATION.
1. CONSULT WITH YOUR LOCAL DEALER OR NICHIHA TECHNICAL DEPARTMENT BEFORE INSTALLING ANY NICHIHA FIBER CEMENT PRODUCT ON A BUILDING HIGHER THAN 45 FEET OR THREE STORIES OR FOR CONDITIONS NOT MATCHING PRESCRIBED STANDARD INSTALLATION GUIDE REQUIREMENTS AND METHODS. SPECIAL INSTALLATION CONDITIONS MAY BE REQUIRED VIA A TECHNICAL REVIEW AND SPECIAL APPLICATIONS FORM (SAF) PROCESS.
2. VERTICAL CONTROL/EXPANSION JOINTS ARE REQUIRED WITHIN 2-10 FEET OF OUTSIDE CORNERS FINISHED WITH METAL TRIM AND APPROXIMATELY EVERY 30 FEET THEREAFTER.
3. HORIZONTAL/COMPRESSION JOINTS ARE REQUIRED FOR MULTI-STORY INSTALLATIONS OF AWP. LOCATE JOINTS AT FLOOR LINES. JOINTS ARE FLASHED MINIMUM 1/2" BREAKS. DO NOT CAULK. REFER TO INSTALLATION GUIDE(S).
A. WOOD FRAMED BUILDINGS OF THREE OR MORE FLOORS REQUIRE A COMPRESSION JOINT AT EACH FLOOR.
B. STEEL FRAMED BUILDINGS (INCLUDING REINFORCED CONCRETE CORE WITH LGMF EXTERIOR WALLS) OF MORE THAN THREE FLOORS (OR 45 FEET) REQUIRE A COMPRESSION JOINT EVERY 25 FEET AT A FLOOR LINE.

B. PANEL CUTTING
1. ALWAYS CUT FIBER CEMENT PANELS OUTSIDE OR IN A WELL VENTILATED AREA. DO NOT CUT THE PRODUCTS IN AN ENCLOSED AREA.
2. ALWAYS WEAR SAFETY GLASSES AND NIOSH/OSHA APPROVED RESPIRATOR WHENEVER CUTTING, DRILLING, SAWING, SANDING OR ABRADING THE PRODUCTS. REFER TO MANUFACTURER SDS FOR MORE INFORMATION.
3. USE A DUST-REDUCING CIRCULAR SAW WITH A DIAMOND-TIPPED OR CARBIDE-TIPPED BLADE.
A. RECOMMENDED CIRCULAR SAW: MAKITA 7-1/4" CIRCULAR SAW WITH DUST COLLECTOR (#5057KB).
B. RECOMMENDED BLADE: TENRYU BOARD-PRO PLUS PCD BLADE (#BP-18505).
C. SHEARS (ELECTRIC OR PNEUMATIC) OR JIG SAW CAN BE USED FOR COMPLICATED CUTTINGS, SUCH AS SERVICE OPENINGS, CURVES, RADII AND SCROLLWORK.
4. SILICA DUST WARNING: FIBER CEMENT PRODUCTS MAY CONTAIN SOME AMOUNTS OF CRYSTALLINE SILICA, A NATURALLY OCCURRING, POTENTIALLY HAZARDOUS MINERAL WHEN AIRBORNE IN DUST FORM. CONSULT PRODUCT SDS OR VISIT HTTPS://WWW.OSHA.GOV/DSG/TOPICS/SILICACRYSTALLINE/.

3.3 CLEANING AND MAINTENANCE

A. REVIEW MANUFACTURER GUIDELINES FOR DETAILED CARE INSTRUCTIONS.

END OF SECTION 07423

SECTION 07500 - SINGLE-PLY ROOFING (TPO)

PART 1 - GENERAL

1.1 SECTION REQUIREMENTS

A. THERMOPLASTIC MEMBRANE ROOFING SYSTEM, INCLUDING ALL COMPONENTS SPECIFIED.
B. COMPLY WITH THE PUBLISHED RECOMMENDATIONS AND INSTRUCTIONS OF THE ROOFING MEMBRANE MANUFACTURER, AT HTTP://MANUAL.FSBP.COM.
C. COMMENCEMENT OF WORK BY CONTRACTOR SHALL CONSTITUTE ACKNOWLEDGEMENT BY 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 06100 - ROUGH CARPENTRY: WOOD NAILERS ASSOCIATED WITH ROOFING AND ROOF INSULATION.

1.3 REFERENCE STANDARDS

A. ASTM C1177/C1177M - STANDARD SPECIFICATION FOR GLASS MAT GYPSUM SUBSTRATE FOR USE AS SHEATHING; 2013.
B. ASTM C1289 - STANDARD SPECIFICATION FOR FACED RIGID CELLULAR POLYISOCYANURATE THERMAL INSULATION BOARD; 2014.
C. ASTM C1549 - STANDARD TEST METHOD FOR DETERMINATION OF SOLAR REFLECTANCE NEAR AMBIENT TEMPERATURE USING A PORTABLE SOLAR REFLECTOMETER; 2009 (REAPPROVED 2014).
D. ASTM D638 - STANDARD TEST METHOD FOR TENSILE PROPERTIES OF PLASTICS; 2010.
E. ASTM D1004 - STANDARD TEST METHOD FOR TEAR RESISTANCE (GRAVES TEAR) OF PLASTIC FILM AND SHEETING; 2013.
F. ASTM D6878/D6878M - STANDARD SPECIFICATION FOR THERMOPLASTIC POLYOLEFIN BASED SHEET ROOFING; 2013.
G. FM DS 1-28 - WIND DESIGN; FACTORY MUTUAL SYSTEM; 2007.
H. FM DS 1-29 - ROOF DECK SECUREMENT AND ABOVE-DECK ROOF COMPONENTS; FACTORY MUTUAL SYSTEM; 2006.
I. PS 1 - STRUCTURAL PLYWOOD; 2009.
J. PS 20 - AMERICAN SOFTWOOD LUMBER STANDARD; 2010.
K. SPRI ES-1 - WIND DESIGN STANDARD FOR EDGE SYSTEMS USED WITH LOW SLOPE ROOFING SYSTEMS; 2011. (ANSI/SPRI/FM 4435/ES-1)

1.4 SUBMITTALS

A. PRODUCT DATA:
1. PROVIDE MEMBRANE MANUFACTURER'S PRINTED DATA SUFFICIENT TO SHOW THAT ALL COMPONENTS OF ROOFING SYSTEM, INCLUDING INSULATION AND FASTENERS, COMPLY WITH THE SPECIFIED REQUIREMENTS AND WITH THE MEMBRANE MANUFACTURER'S REQUIREMENTS AND RECOMMENDATIONS FOR THE SYSTEM TYPE SPECIFIED; INCLUDE DATA FOR EACH PRODUCT USED IN CONJUNCTION WITH ROOFING MEMBRANE.

B. SAMPLES: SUBMIT SAMPLES OF EACH PRODUCT TO BE USED.
C. SHOP DRAWINGS: PROVIDE:
1. THE ROOF MEMBRANE MANUFACTURER'S STANDARD DETAILS CUSTOMIZED FOR THIS PROJECT FOR ALL RELEVANT CONDITIONS, INCLUDING FLASHINGS, BASE TIE-INS, ROOF EDGES, TERMINATIONS, EXPANSION JOINTS, PENETRATIONS, AND DRAINS.

1.5 QUALITY ASSURANCE

A. INSTALLER QUALIFICATIONS: ROOFING INSTALLER SHALL HAVE THE FOLLOWING:
1. CURRENT FIRESTONE RED SHIELD LICENSED CONTRACTOR STATUS.

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. STORE MATERIALS CLEAR OF GROUND AND MOISTURE WITH WEATHER PROTECTIVE COVERING.
C. KEEP COMBUSTIBLE MATERIALS AWAY FROM IGNITION SOURCES.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. ACCEPTABLE MANUFACTURER - ROOFING SYSTEM: FIRESTONE BUILDING PRODUCTS LLC, CARMEL, IN: WWW.FIRESTONEBPCO.COM.
B. MANUFACTURER OF INSULATION AND COVER BOARDS: SAME MANUFACTURER AS ROOF MEMBRANE (WHERE REQUIRED).
C. MANUFACTURER OF METAL ROOF EDGING: SAME MANUFACTURER AS ROOF MEMBRANE.
1. FACTORY FABRICATED PRODUCTS MANUFACTURED BY THE COMPANIES LISTED BELOW ARE ACCEPTABLE PROVIDED THEY ARE COMPLETELY EQUIVALENT IN MATERIALS AND PERFORMANCE:
a. METAL ERA.

2.2 ROOFING SYSTEM DESCRIPTION

A. ROOFING SYSTEM: THERMOPLASTIC POLYOLEFIN (TPO) SINGLE-PLY MEMBRANE.
1. MEMBRANE ATTACHMENT: MECHANICALLY FASTENED.
2. WARRANTY: FULL SYSTEM WARRANTY; FIRESTONE 20 YEAR RED SHIELD LIMITED WARRANTY COVERING MEMBRANE, ROOF INSULATION, AND MEMBRANE ACCESSORIES.
3. COMPLY WITH APPLICABLE LOCAL BUILDING CODE REQUIREMENTS - FLORIDA PRODUCT APPROVAL FL 10964 R-12 SYSTEM SC 197
4. PROVIDE ASSEMBLY HAVING UNDERWRITERS LABORATORIES, INC. (UL) CLASS A FIRE HAZARD CLASSIFICATION.
5. PROVIDE ASSEMBLY COMPLYING WITH FACTORY MUTUAL CORPORATION (FM) ROOF ASSEMBLY CLASSIFICATION, FM DS 1-28 AND 1-29, AND MEETING MINIMUM REQUIREMENTS OF FM 1-90 WIND UPLIFT RATING.

B. ROOFING SYSTEM COMPONENTS: LISTED IN ORDER FROM THE TOP OF THE ROOF DOWN:
1. MEMBRANE: THICKNESS AS SPECIFIED.
2. INSULATION COVER BOARD: NOT REQUIRED.
3. INSULATION:
a. MAXIMUM BOARD THICKNESS: 3.3 INCHES; USE AS MANY LAYERS AS NECESSARY; STAGGER JOINTS IN ADJACENT LAYERS.
b. TOTAL R-VALUE OF 19, MINIMUM.
c. BOTTOM LAYER: POLYISOCYANURATE FOAM BOARD, NON-COMPOSITE; LOOSE-LAID, NO ATTACHMENT.
d. CRICKETS: TAPERED INSULATION OF SAME TYPE AS SPECIFIED FOR TOP LAYER; SLOPE AS INDICATED.

2.3 MEMBRANE MATERIALS

A. MEMBRANE: FLEXIBLE, HEAT-WELDABLE SHEET COMPOSED OF THERMOPLASTIC POLYOLEFIN POLYMER AND ETHYLENE PROPYLENE RUBBER; COMPLYING WITH ASTM D6878/D6878M; WITH POLYESTER WEFT INSERTED REINFORCEMENT AND THE FOLLOWING ADDITIONAL CHARACTERISTICS:
1. THICKNESS: 0.060 INCH (1.52 MM) PLUS/MINUS 10 PERCENT, WITH COATING THICKNESS OVER REINFORCEMENT OF 0.024 INCH (0.61 MM) PLUS/MINUS 10 PERCENT.
2. COLOR: WHITE (FIELD OF ROOF AREA)
3. COLOR: TAN (PARAPET WALL AREAS)
4. ACCEPTABLE PRODUCT: ULTRAPLY TPO BY FIRESTONE.

B. MEMBRANE FASTENERS: TYPE AND SIZE AS REQUIRED BY ROOF MEMBRANE MANUFACTURER FOR ROOFING SYSTEM AND WARRANTY TO BE PROVIDED; USE ONLY FASTENERS FURNISHED BY ROOF MEMBRANE MANUFACTURER.
C. CURB AND PARAPET FLASHING: SAME MATERIAL AS MEMBRANE (TAN IN COLOR), WITH ENCAPSULATED EDGE WHICH ELIMINATES NEED FOR SEAM SEALING THE FLASHING-TO-ROOF SPLICE.
D. FORMABLE FLASHING: NON-REINFORCED, FLEXIBLE, HEAT WELDABLE SHEET, COMPOSED OF THERMOPLASTIC POLYOLEFIN POLYMER AND ETHYLENE PROPYLENE RUBBER.
1. THICKNESS: 0.060 INCH (1.52 MM) PLUS/MINUS 10 PERCENT.
2. COLOR: WHITE.
3. ACCEPTABLE PRODUCT: ULTRAPLY TPO FLASHING BY FIRESTONE.

E. TAPE FLASHING: 5-1/2 INCH (140 MM) NOMINAL WIDE TPO MEMBRANE LAMINATED TO CURED RUBBER POLYMER SEAMING TAPE, OVERALL THICKNESS 0.065 INCH (1.6 MM) NOMINAL; TPO QUICKSEAM FLASHING BY FIRESTONE.
F. BONDING ADHESIVE: NEOPRENE AND SBR RUBBER BLEND, FORMULATED FOR COMPATIBILITY WITH THE MEMBRANE OTHER SUBSTRATE MATERIALS, INCLUDING MASONRY, WOOD, AND INSULATION FACINGS; ULTRAPLY BONDING ADHESIVE BY FIRESTONE.
G. POURABLE SEALER: TWO-PART POLYURETHANE, TWO-COLOR FOR RELIABLE MIXING; POURABLE SEALER BY FIRESTONE.
H. SEAM PLATES: STEEL WITH BARBS AND GALVALUME COATING; CORROSION-RESISTANCE COMPLYING WITH FM 4470; HEAVY DUTY SEAM PLATES BY FIRESTONE.
I. TERMINATION BARS: ALUMINUM BARS WITH INTEGRAL CAULK LEDGE; 1.3 INCHES (33 MM) WIDE BY 0.10 INCH (2.5 MM) THICK; FIRESTONE TERMINATION BAR BY FIRESTONE.
J. CUT EDGE SEALANT: SYNTHETIC RUBBER-BASED, FOR USE WHERE MEMBRANE REINFORCEMENT IS EXPOSED; ULTRAPLY TPO CUT EDGE SEALANT BY FIRESTONE.
K. GENERAL PURPOSE SEALANT: EPDM-BASED, ONE PART, WHITE GENERAL PURPOSE SEALANT; ULTRAPLY TPO GENERAL PURPOSE SEALANT BY FIRESTONE.
L. COATED METAL FLASHING AND EDGINGS: GALVANIZED STEEL WITH ROOFING MANUFACTURER'S BONDED TPO COATING; ULTRAPLY TPO COATED METAL BY FIRESTONE.
M. MOLDED FLASHING ACCESSORIES: UNREINFORCED TPO MEMBRANE PRE-MOLDED TO SUIT A VARIETY OF FLASHING DETAILS, INCLUDING PIPE BOOTS, INSIDE CORNERS, OUTSIDE CORNERS, ETC.; ULTRAPLY TPO SMALL AND LARGE PIPE FLASHING BY FIRESTONE.
N. WATER BLOCK SEAL: BUTYL RUBBER SEALANT FOR USE BETWEEN TWO SURFACES, NOT EXPOSED; WATER BLOCK SEAL BY FIRESTONE.
O. ROOF WALKWAY PADS: NON-REINFORCED TPO WALKWAY PADS, 0.130 INCH (3 MM) BY 30 INCHES (760 MM) BY 40 FEET (12.19 M) LONG WITH PATTERNED TRAFFIC BEARING SURFACE; ULTRAPLY TPO WALKWAY PADS BY FIRESTONE.

2.4 ROOF INSULATION AND COVER BOARDS

A. POLYISOCYANURATE BOARD INSULATION: CLOSED CELL POLYISOCYANURATE FOAM WITH BLACK GLASS REINFORCED MAT LAMINATED TO FACES, COMPLYING WITH ASTM C1289 TYPE II CLASS 1, WITH THE FOLLOWING ADDITIONAL CHARACTERISTICS:
1. SIZE: 48 INCHES (1220 MM) BY 96 INCHES (2440 MM), NOMINAL.
2. R-VALUE (RSI-VALUE) (LTTR):
a. 3.3 INCH THICKNESS: R=19.2 MINIMUM.
3. COMPRESSIVE STRENGTH: 20 PSI (138 KPA) WHEN TESTED IN ACCORDANCE WITH ASTM C1289.
4. ACCEPTABLE PRODUCT: ISO 95+ GL POLYISOCYANURATE INSULATION BY FIRESTONE.

B. GYPSUM-BASED COVER BOARD: NOT REQUIRED
1. INSULATION FASTENERS: TYPE AND SIZE AS REQUIRED BY ROOF MEMBRANE MANUFACTURER FOR ROOFING SYSTEM AND WARRANTY TO BE PROVIDED; USE ONLY FASTENERS FURNISHED BY ROOF MEMBRANE MANUFACTURER: HEAVY DUTY FASTENERS BY FIRESTONE.

2.5 METAL ACCESSORIES

A. METAL ROOF EDGING AND FASCIA: CONTINUOUS METAL EDGE MEMBER SERVING AS TERMINATION OF ROOF MEMBRANE AND RETAINER FOR METAL FASCIA; WATERTIGHT WITH NO EXPOSED FASTENERS; MOUNTED TO ROOF EDGE NAILER. METAL ERA PERMATITE SYSTEM 200 FASCIA
1. WIND PERFORMANCE:
a. MEMBRANE PULL-OFF RESISTANCE: 100 LBS/FT (1460 N/M), MINIMUM, WHEN TESTED IN ACCORDANCE WITH ANSI/SPRI/FM 4435/ES-1 TEST METHOD RE-1, CURRENT EDITION.
2. DESCRIPTION: TWO-PIECE; EXTRUDED ALUMINUM T-SHAPED EDGE MEMBER SECURING TOP AND BOTTOM EDGES OF FLAT-FACED FORMED METAL FASCIA; METAL ERA .
3. FASCIA MATERIAL AND FINISH: 24 GAGE, 0.024 INCH (0.06 MM) GALVANIZED STEEL WITH KYNAR 500 FINISH IN MANUFACTURER'S STANDARD COLOR; MATCHING CONCEALED JOINT SPLICE PLATES; FACTORY-INSTALLED PROTECTIVE PLASTIC FILM.

2.6 ACCESSORY MATERIALS

A. WOOD NAILERS: PS 20 DIMENSION LUMBER, STRUCTURAL GRADE NO. 2 OR BETTER SOUTHERN PINE, DOUGLAS FIR; OR PS 1, APA EXTERIOR GRADE PLYWOOD; PRESSURE PRESERVATIVE TREATED.
1. WIDTH: 3-1/2 INCHES (90 MM), NOMINAL MINIMUM, OR AS WIDE AS THE NAILING FLANGE OF THE ROOF ACCESSORY TO BE ATTACHED TO IT.
2. THICKNESS: SAME AS THICKNESS OF ROOF INSULATION.

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. DO NOT START WORK UNTIL PRE-INSTALLATION NOTICE HAS BEEN SUBMITTED TO MANUFACTURER AS NOTIFICATION THAT THIS PROJECT REQUIRES A MANUFACTURER'S WARRANTY.
D. PERFORM WORK USING COMPETENT AND PROPERLY EQUIPPED PERSONNEL.
E. 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.
F. INSTALL ROOFING MEMBRANE ONLY WHEN SURFACES ARE CLEAN, DRY, SMOOTH AND FREE OF SNOW OR ICE; DO NOT APPLY ROOFING MEMBRANE 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 (15 TO 25 DEGREES C).
G. 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.

H. UNTIL READY FOR USE, KEEP MATERIALS IN THEIR ORIGINAL CONTAINERS AS LABELED BY THE MANUFACTURER.
I. 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. EXAMINE ROOF SUBSTRATE TO VERIFY THAT IT IS PROPERLY SLOPED TO DRAINS.
D. 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.
E. VERIFY THAT WOOD NAILERS HAVE BEEN PROPERLY INSTALLED.

3.3 PREPARATION

A. TAKE APPROPRIATE MEASURES TO ENSURE THAT FUMES FROM ADHESIVE SOLVENTS ARE NOT DRAWN INTO THE BUILDING THROUGH AIR INTAKES.
B. PRIOR TO PROCEEDING, PREPARE ROOF SURFACE SO THAT IT IS CLEAN, DRY, AND SMOOTH, AND FREE OF SHARP EDGES, FINS, ROUGHENED SURFACES, LOOSE OR FOREIGN MATERIALS, OIL, GREASE AND OTHER MATERIALS THAT MAY DAMAGE THE MEMBRANE.
C. FILL ALL SURFACE VOIDS IN THE IMMEDIATE SUBSTRATE THAT ARE GREATER THAN 1/4 INCH (6 MM) WIDE WITH FILL MATERIAL ACCEPTABLE INSULATION TO MEMBRANE MANUFACTURER.
D. SEAL, GROUT, OR TAPE DECK JOINTS, WHERE NEEDED, TO PREVENT BITUMEN SEEPAGE INTO BUILDING.
E. WOOD NAILERS: PROVIDE WOOD NAILERS AT ALL PERIMETERS AND OTHER LOCATIONS WHERE INDICATED ON THE DRAWINGS, OF TOTAL HEIGHT MATCHING THE TOTAL THICKNESS OF INSULATION BEING USED.

3.4 INSULATION AND COVER BOARD INSTALLATION

A. INSTALL INSULATION IN CONFIGURATION AND WITH ATTACHMENT METHOD(S) SPECIFIED IN PART 2, UNDER ROOFING SYSTEM.
B. INSTALL ONLY AS MUCH INSULATION AS CAN BE COVERED WITH THE COMPLETED ROOFING SYSTEM BEFORE THE END OF THE DAY'S WORK OR BEFORE THE ONSET OF INCLEMENT WEATHER.
C. LAY ROOF INSULATION IN COURSES PARALLEL TO ROOF EDGES.
D. NEATLY AND TIGHTLY FIT INSULATION TO ALL PENETRATIONS, PROJECTIONS, AND NAILERS, WITH GAPS NOT GREATER THAN 1/4 INCH (6 MM). FILL GAPS GREATER THAN 1/4 INCH (6 MM) WITH ACCEPTABLE INSULATION. DO NOT LEAVE THE ROOFING MEMBRANE UNSUPPORTED OVER A SPACE GREATER THAN 1/4 INCH (6 MM).
E. MECHANICAL FASTENING: USING SPECIFIED FASTENERS AND INSULATION PLATES ENGAGE FASTENERS THROUGH INSULATION INTO DECK TO DEPTH AND IN PATTERN REQUIRED BY FACTORY MUTUAL FOR FM CLASS SPECIFIED IN PART 2 AND MEMBRANE MANUFACTURER, WHICHEVER IS MORE STRINGENT.

3.5 SINGLE-PLY MEMBRANE INSTALLATION

A. BEGINNING AT LOW POINT OF ROOF, PLACE MEMBRANE WITHOUT STRETCHING OVER SUBSTRATE AND ALLOW TO RELAX AT LEAST 30 MINUTES BEFORE ATTACHMENT OR SPLICING; IN COLDER WEATHER ALLOW FOR LONGER RELAX TIME.
B. LAY OUT THE MEMBRANE PIECES SO THAT FIELD AND FLASHING SPLICES ARE INSTALLED TO SHED WATER.
C. INSTALL MEMBRANE WITHOUT WRINKLES AND WITHOUT GAPS OR FISHMOUTHS IN SEAMS; BOND AND TEST SEAMS AND LAPS IN ACCORDANCE WITH MEMBRANE MANUFACTURER'S INSTRUCTIONS AND DETAILS.
D. INSTALL MEMBRANE MECHANICALLY ATTACHED TO THE SUBSTRATE USING SEAM BATTENS, FASTENERS, AND EDGE SECUREMENT AS SPECIFIED AND AS REQUIRED BY MEMBRANE MANUFACTURERS.
E. MECHANICAL ATTACHMENT: INSTALL FASTENERS IN THE SEAMS, COVERED BY MEMBRANE.
1. LAY OUT FASTENERS IN COMPLIANCE WITH FM CLASS SPECIFIED IN PART 2, AS RECOMMENDED BY MEMBRANE MANUFACTURER, AND AS INDICATED, WHICHEVER IS MOST STRINGENT.
2. PROPERLY ENGAGE FASTENERS IN THE DECK WITH HEAD FLUSH WITH THE COUNTERSUNK PORTION OF SEAM PLATE.

F. EDGE SECUREMENT: SECURE MEMBRANE AT ALL LOCATIONS WHERE MEMBRANE TERMINATES OR GOES THROUGH AN ANGLE CHANGE GREATER THAN 2 IN 12 INCHES (1:6) USING MECHANICALLY FASTENED REINFORCED PERIMETER FASTENING STRIPS, PLATES, OR METAL EDGING AS INDICATED OR AS RECOMMENDED BY ROOFING MANUFACTURER.
1. EXCEPTIONS: ROUND PIPE PENETRATIONS LESS THAN 18 INCHES (460 MM) IN DIAMETER AND SQUARE PENETRATIONS LESS THAN 4 INCHES (200 MM) SQUARE.
2. METAL EDGING IS NOT MERELY DECORATIVE; ENSURE ANCHORAGE OF MEMBRANE AS INTENDED BY ROOFING MANUFACTURER.

3.6 FLASHING AND ACCESSORIES INSTALLATION

A. INSTALL FLASHINGS, INCLUDING LAPS, SPLICES, JOINTS, BONDING, ADHESION, AND ATTACHMENT, AS REQUIRED BY MEMBRANE MANUFACTURER'S RECOMMENDATIONS AND DETAILS.
B. METAL ACCESSORIES: INSTALL METAL EDGINGS, GRAVEL STOPS, AND COPINGS IN LOCATIONS INDICATED ON THE DRAWINGS, WITH HORIZONTAL LEG OF EDGE MEMBER OVER MEMBRANE AND FLASHING OVER METAL ONTO MEMBRANE.
1. FOLLOW ROOFING MANUFACTURER'S INSTRUCTIONS.
2. REMOVE PROTECTIVE PLASTIC SURFACE FILM IMMEDIATELY BEFORE INSTALLATION.
3. INSTALL WATER BLOCK SEALANT UNDER THE MEMBRANE ANCHORAGE LEG.
4. FLASH WITH MANUFACTURER'S RECOMMENDED FLASHING SHEET UNLESS OTHERWISE INDICATED.
5. WHERE SINGLE APPLICATION OF FLASHING WILL NOT COMPLETELY COVER THE METAL FLANGE, INSTALL ADDITIONAL PIECE OF FLASHING TO COVER THE METAL EDGE.
6. IF THE ROOF EDGE INCLUDES A GRAVEL STOP AND SEALANT IS NOT APPLIED BETWEEN THE LAPS IN THE METAL EDGING, INSTALL AN ADDITIONAL PIECE OF SELF-ADHESIVE FLASHING MEMBRANE OVER THE METAL LAP TO THE TOP OF THE GRAVEL STOP; APPLY SEAM EDGE TREATMENT AT THE INTERSECTIONS OF THE TWO FLASHING SECTIONS.
7. WHEN THE ROOF SLOPE IS GREATER THAN 1:12, APPLY SEAM EDGE TREATMENT ALONG THE BACK EDGE OF THE FLASHING.

C. SCUPPERS: SET IN SEALANT AND SECURE TO STRUCTURE; FLASH AS RECOMMENDED BY MANUFACTURER.
D. ROOFING EXPANSION JOINTS: INSTALL AS SHOWN ON DRAWINGS AND AS RECOMMENDED BY ROOFING MANUFACTURER.
E. FLASHING AT WALLS, CURBS, AND OTHER VERTICAL AND SLOPED SURFACES: INSTALL WEATHERTIGHT FLASHING AT ALL WALLS, CURBS, PARAPETS, CURBS, SKYLIGHTS, AND OTHER VERTICAL AND SLOPED SURFACES THAT THE ROOFING MEMBRANE ABUTS TO; EXTEND FLASHING AT LEAST 8 INCHES (200 MM) HIGH ABOVE MEMBRANE SURFACE.
1. USE THE LONGEST PRACTICAL FLASHING PIECES.
2. EVALUATE THE SUBSTRATE AND OVERLAY AND ADJUST INSTALLATION PROCEDURE IN ACCORDANCE WITH MEMBRANE MANUFACTURER'S RECOMMENDATIONS.
3. COMPLETE THE SPLICE BETWEEN FLASHING AND THE MAIN ROOF SHEET WITH SPECIFIED SPLICE ADHESIVE BEFORE ADHERING FLASHING TO THE VERTICAL SURFACE.
4. PROVIDE TERMINATION DIRECTLY TO THE VERTICAL SUBSTRATE AS SHOWN ON ROOF DRAWINGS.

F. ROOF DRAINS:
1. TAPER INSULATION AROUND DRAIN TO PROVIDE SMOOTH TRANSITION FROM ROOF SURFACE TO DRAIN. USE SPECIFIED PRE-MANUFACTURED TAPERED INSULATION WITH FACER OR SUITABLE BONDING SURFACE TO ACHIEVE SLOPE; SLOPE NOT TO EXCEED MANUFACTURER'S RECOMMENDATIONS.
2. POSITION MEMBRANE, THEN CUT A HOLE FOR ROOF DRAIN TO ALLOW 1/2 TO 3/4 INCH (12 TO 19 MM) OF MEMBRANE TO EXTEND INSIDE CLAMPING RING PAST DRAIN BOLTS.
3. MAKE ROUND HOLES IN MEMBRANE TO ALIGN WITH CLAMPING BOLTS; DO NOT CUT MEMBRANE BACK TO BOLT HOLES.
4. APPLY SEALANT ON TOP OF DRAIN BOWL WHERE CLAMPING RING SEATS BELOW THE MEMBRANE
5. INSTALL ROOF DRAIN CLAMPING RING AND CLAMPING BOLTS; TIGHTEN CLAMPING BOLTS TO ACHIEVE CONSTANT COMPRESSION.

G. 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; OTHERWISE USE SPECIFIED SELF-CURING ELASTOMERIC FLASHING.
2. PIPE CLUSTERS AND UNUSUAL SHAPED PENETRATIONS: PROVIDE PENETRATION POCKET AT LEAST 2 INCHES (50 MM) DEEP, WITH AT LEAST 1 INCH (25 MM) CLEARANCE FROM PENETRATION, SLOPED TO SHED WATER.
3. STRUCTURAL STEEL TUBING: IF CORNER RADII ARE GREATER THAN 1/4 INCH (6 MM) AND LONGEST SIDE OF TUBE DOES NOT EXCEED 12 INCHES (305 MM), FLASH AS FOR PIPES; OTHERWISE, PROVIDE A STANDARD CURB WITH FLASHING.
4. FLEXIBLE AND MOVING PENETRATIONS: PROVIDE WEATHERTIGHT GOOSENECK SET IN SEALANT AND SECURED TO DECK, FLASHED AS RECOMMENDED BY MANUFACTURER.
5. HIGH TEMPERATURE SURFACES: WHERE THE IN-SERVICE TEMPERATURE IS, OR IS EXPECTED TO BE, IN EXCESS OF 180 DEGREES F (82 DEGREES C), PROTECT THE ELASTOMERIC COMPONENTS FROM DIRECT CONTACT WITH THE HOT SURFACES USING AN INTERMEDIATE INSULATED SLEEVE AS FLASHING SUBSTRATE AS RECOMMENDED BY MEMBRANE MANUFACTURER.

3.7 FINISHING AND WALKWAY INSTALLATION

A. INSTALL WALKWAYS AT ACCESS POINTS TO THE ROOF, AROUND ROOFTOP EQUIPMENT THAT MAY REQUIRE MAINTENANCE, AND WHERE INDICATED ON THE DRAWINGS.
1. USE SPECIFIED WALKWAY PADS UNLESS OTHERWISE INDICATED.

B. WALKWAY PADS: ADHERE TO THE ROOFING MEMBRANE, SPACING EACH PAD AT MINIMUM OF 1.0 INCH (25 MM) AND MAXIMUM OF 3.0 INCHES (75 MM) FROM EACH OTHER TO ALLOW FOR DRAINAGE.
1. IF INSTALLATION OF WALKWAY PADS OVER FIELD FABRICATED SPLICES OR WITHIN 6 INCHES (150 MM) OF A SPLICE EDGE CANNOT BE AVOIDED, ADHERE ANOTHER LAYER OF FLASHING OVER THE SPLICE AND EXTENDING BEYOND THE WALKWAY PAD A MINIMUM OF 6 INCHES (150 MM) ON EITHER SIDE.
2. PRIME THE MEMBRANE, REMOVE THE RELEASE PAPER ON THE PAD, PRESS IN PLACE, AND WALK ON PAD TO ENSURE PROPER ADHESION.

3.8 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.

3.9 CLEANING

A. CLEAN ALL CONTAMINANTS GENERATED BY ROOFING WORK FROM BUILDING AND SURROUNDING AREAS, INCLUDING BITUMEN, ADHESIVES, SEALANTS, AND COATINGS.
B. 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.
C. REMOVE LEFTOVER MATERIALS, TRASH, DEBRIS, EQUIPMENT FROM PROJECT SITE AND SURROUNDING AREAS.

3.10 PROTECTION

A. WHERE CONSTRUCTION TRAFFIC MUST CONTINUE OVER FINISHED ROOF MEMBRANE, PROVIDE DURABLE PROTECTION AND REPLACE OR REPAIR DAMAGED ROOFING TO ORIGINAL CONDITION.

END OF SECTION 07500

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