CONTACT LIST OWNER/DEVELOPER CIVIL CONSULTANT

SWEETWATER INVESTMENTS LLC, BAXTER & WOODMAN ENGINEERS 301 DENALI PASS DR. SUITE 3 5304 CIPRIANO DR, AUSTIN, TX 78738 CEDAR PARK, TX 78613 PHONE: (737)-358-8012 PHONE: (972) 358 1857 CONTACT: KERRI PENA CONTACT: VENKAT DUBHAKULA

GEOTECHNICAL ENGINEER SURVEYOR TERRADYNE ENGINEERING, LLC. 1608 ROYSTON LANE, BLDG 2 ROUND ROCK, TX 78664 PHONE: (512)-252-1218 CONTACT: JOHN. A. GUNTER

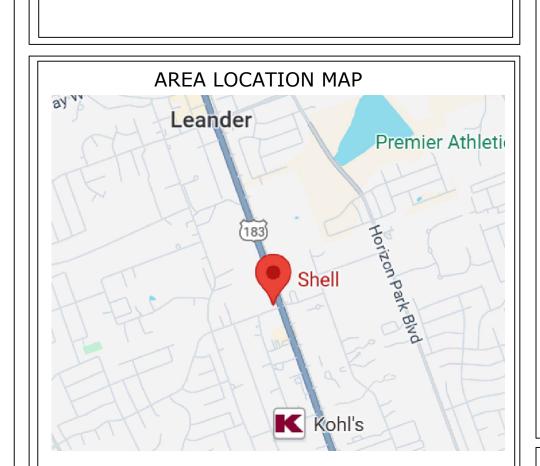
PHONE: (512) 352 9090 BRUCE@BRYANTECHNICALSERVCES.COM **ARCHITECT** STRUCTURAL CONSULTANT

BRYAN TECHNICAL SERVICES

CONTACT: BRUCE BRYAN

TAYLOR, TX 76051

MEP CONSULTANT LANDSCAPE CONSULTANT



MRK DATE ISSUED FOR

NEW APPR	S IS A ONE S OX. 8,874 SFT ACRE LOT AT U	IN THESE CONSTR TORY SHELL BUILE OFFICE/GENERAL S 183 HWY AND	DING FOR A RETAIL USE
GOVERNING CODES: CODE TYPE ALL CURRENT LOCAL AMENDMENTS ARE ALSO PART		LOWING CODES:	
BUILDING CODE PLUMBING CODE MECHANICAL CODE FIRE CODE ELECTRICAL CODE ENERGY CODE ACCESSIBILITY CODE			BC 2015 IPC 2015 IMC 2015 IFC 2015 NEC 2014 IECC 2015 TAS 2012
OCCUPANCY TYPES: TYPE OF CONSTRUCTION: SHELL FLOOR AREA OCCUPANT LOAD FACTOR: SPRINKLER SYSTEM: ALLOWABLE AREAS: MINIMUM FIRE FLOW AS DEFINED BY	IBC 8,87 1 PE PROVIDE SPRINKLER 6,000 S.F. PI PER IBC TABI		IBC 2021 VITH ALL LOCAL CODES.
THE IFC: ALLOWABLE AREA AS DEFINED BY THE IFC FIRE FLOW TABLE:	APPENDIX B — 1 TYPE V—B	ABLE B105.1 701 SF - 9,400 SF	
ACTUAL HEATED AREA: ACTUAL SLAB AREA: BUILDING HEIGHT: ALLOWABLE HEIGHT	8,858 SF TO 8,874 SF TO 27' BUILDING HEIGH 2 STORY/40 FEET		OF PLANE)
OCCUPANT LOAD: EGRESS SYSTEM:	BUILDING	$150 = \frac{8.874}{150} = 60$ OCCUPIDTHS: 0.2" X OCCUP	
BUILDING BLDG. TOT SQ.FT. OCC BUILDING 8,874 60	TAL CUPANCY	EXIT WIDTH REQ'D 12"	EXIT WIDTH PROV'D 36"
TBD DURING TENANT FINISHOUT S BUILDING AREA AND EXIT REQUIR SPACE WITH ONE EXIT, OCCUPAN PER 1015.1.1 THREE OR MORE I NUMBER OF EXITS REQUIRED NUMBER OF EXITS PROVIDED COMMON PATH OF EGRESS TRAVE MAXIMUM TRAVEL DISTANCE TO E MAXIMUM TRAVEL DISTANCE TO E MAXIMUM DEAD END CORRIDOR L MINIMUM CORRIDOR/AISLE WIDTH	STAGE EMENTS: Y B, EXITS, OCC LOA EL SHALL NOT XIT (FT.) (WA XIT (FT.) (WA ENGTH (FT.)	MAXIMUM OCCUPAD OF 501 TO 10 EXCEED / SPRINKLE SYSTE	ANT LOAD=49 00= 3 EXITS = 2 EXITS =14 EXITS 75 FT. EM) 300 FT.
PLUMBING FIXTURE REQUIREMENTS TABLE403.1 IPC 2021		TOTAL OCCUPANO MALE OCCUPANO FEMALE OCCUPANO	CY: 30
CCCUPANCY REQUIRED MALE/FEMALE REQUIRED MALE/FEMALE MA	Tories	REQUIRED SUINNIND OF SUINNIND	SELANCE SINK

CODE DATA

GENERAL INFORMATION:

DEFERRED SUBMITTALS

***INDIVIDUAL LEASE SPACES TO PROVIDE RESTROOMS AS REQUIRED

1 PER 25 FOR THE FIRST 50 AND 1 PER 50 FOR THE REMAINDER EXCEEDING 50 REMAINDER EXCEEDING 80 1 PER 100

TBD DURING TENANT FINISHOUT STAGE

BUILDING SIGNAGE/MONUMENT SIGN IS A DEFERRED SUBMITTAL, DESIGNED AND SUBMITTED BY THE SIGNAGE CONTRACTOR.

BUILDING SIGNAGE . FIRE SPRINKLER SYSTEM

GENERAL NOTES

THE CONTRACTOR SHALL VISIT THE PROJECT SITE, INVESTIGATE, AND BECOME FAMILIAR WITH ALL EXISTING CONDITIONS PRIOR TO BIDDING THE PROJECT. ADDITIONAL COSTS WILL NOT BE AWARDED FOR EXISTING CONDITIONS WHICH ARE VISIBLE AND/OR CAN BE REASONABLY ANTICIPATED.

THE CONTRACTOR IS RESPONSIBLE FOR VERIFYING ALL DIMENSIONS, SITE GRADES, ETC. PRIOR TO CONSTRUCTION, AND NOTIFY THE ARCHITECT OF ANY DISCREPANCIES THAT COULD AFFECT THE DESIGN AND FINISH-OUT OF THE

ALL CONSTRUCTION SHALL COMPLY WITH ALL APPLICABLE CITY AND STATE CODES AND

STANDARDS.

THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING THE WORK OF ALL UTILITY COMPANIES AND PERFORMING ALL WORK REQUIRED BY THEM.

THE CONTRACTOR SHALL PICK-UP ALL REQUIRED 15. UNLESS OTHERWISE INDICATED, EACH SUBCONTRACTOR PERMITS AND CERTIFICATE OF OCCUPANCY. TAP FEES & ANY OTHER FEES SHALL BE PAID BY THE CONTRACTOR. THE OWNER SHALL PAY FOR THE PERMITS & CERTIFICATE OF OCCUPANCY.

THE CONTRACTOR IS RESPONSIBLE FOR INSURING PROPER FILLING AND COMPACTION OF UTILITY COMPANY TRENCHES, BOTH INTERIOR & EXTERIOR.

CONTRACTOR TO PROTECT ALL EXISTING BUILDINGS AND ALL EXISTING ABOVE AND BELOW GRADE UTILITIES. CONTRACTOR WILL REPAIR ALL DAMAGE TO EXISTING CONDITIONS.

ALL EXCAVATION, TRENCHING, ETC. REQUIRED IN ROCK SUBGRADE TO BE PART OF CONTRACT, EXCEPT AS RELATING TO SITE WORK. SHORE AND BRACE ALL EXCAVATIONS IN ACCORDANCE WITH CITY, STATE AND O.S.H.A. REQUIREMENTS.

ALL ACCESSIBLE ROUTES SHALL BE SLOPED 4.75% MAX. IN THE DIRECTION OF TRAVEL AND 1.75% ON CROSS SLOPES. ALL LANDINGS SHALL NOT EXCEED 1.75% IN ALL DIRECTIONS.

CONTRACTOR TO EXERCISE EXTREME CARE IN CONSTRUCTION TO OR ADJACENT TO EXISTING BUILDINGS. PROVIDE ALL SHORING OR OTHER PROJECTION NECESSARY TO PREVENT DISTURBING BUILDING SUBGRADE OR FOUNDATIONS. CONTRACTOR IS TO INSTALL RAMPS AND SIGNAGE

FOR ACCESSIBILITY PER CITY, STATE, AND A.D.A.

REQUIREMENTS. ALL CURB AND EXIT DOOR RAMPS,

INTERIOR & EXTERIOR, ARE TO HAVE HEAVY BROOM

FINISH PERPENDICULAR TO DIRECTION OF TRAVEL.

1 SERVICE SINK

19 ALL EXIT DOOR HARDWARE IS TO COMPLY WITH LOCAL, STATE, AND FEDERAL A.D.A. REQUIREMENTS, WHETHER SPECIFICALLY INDICATED IN HARDWARE NOTES OR SPECIFICATIONS. THIS INCLUDES, BUT NOT NECESSARILY LIMITED TO: DOOR CLOSURES, LATCH SETS, LOCK SETS, PRIVACY SETS, PANIC HARDWARE, CONTROLLERS, AUTOMATIC BOLTS AND DOOR MOUNTED ELECTRICAL STRIKES AND ALARMS.

12. ALL MAIN AND BRANCH SPRINKLER LINES,

ELECTRICAL AND PLUMBING LINES ARE TO BE RUN

SPACE WHEREVER THIS IS POSSIBLE. WHEN LINES

AS HIGH AS POSSIBLE WITHIN THE ROOF STRUCTURE

ARE RUN BELOW ROOF STRUCTURE, THEY ARE TO BE

HELD AS TIGHT AS POSSIBLE TO BOTTOM OF STRUCT.

ALL LINES ARE TO BE SUSPENDED FROM TOP JOIST

SUPPORT ELECTRIC PANELS, ACCESS ROOF LADDER,

JOIST CHORD, HORIZ. BRIDGING OR X-BRACING, OR

DECKS AND/OR ANY WORK BY OTHER TRADES. REFER

TO STRUCT. DWGS. FOR JOIST LOADS NOT SHOWN ON

THE STRUCT. FRAMING PLAN(S) CONSULT ARCHITECT

AND STRUCTURAL ENGINEER IF THE DETAIL(S) IS/ARE

NOT PROVIDED OR MAY NOT BE APPLICABLE TO

AND GENERAL CONTRACTOR IS RESPONSIBLE FOR

ADEQUATELY BRACING & SUPPORTING ALL ITEMS FROM

THE ROOF STRUCTURE FOR GRAVITY LOADS AND TO

APPLICABLE CODES. (ANY BRACING W/ A SIGNIFICANT

VISUAL IMPACT IS SUBJECT TO ARCHITECT APPROVAL)

16. CONTRACTOR IS RESPONSIBLE FOR VERIFYING AND

17. CONTRACTOR TO PROVIDE TEMPORARY SAFETY

PRICING ALL A.D.A. REQUIREMENTS, PRIOR TO START

GUARD RAILS AT ALL FLOOR OPENINGS UNTIL TENANT

SPRINKLER, FIRE ALARM, ETC.) SHALL BE ON THE JOB SITE

DURING CONSTRUCTION. CONTRACTOR SHALL COORDINATE

18. AN APPROVED SINGLE SET OF PLANS (BUILDING, FIRE

THE ACTUAL LOCATION OF APPROVED PLANS TO

COINCIDE W/ INSPECTIONS TAKING PLACE.

TO RESIST SEISMIC MOVEMENTS AS REQ'D. BY ALL

SPECIFIC LOADING CONDITION(S).

OF CONSTRUCTION.

CONSTRUCTION STARTS.

PIPING AND CONDUITS, METAL ROOF OR FLOOR

ARE TO BE AS 90 PARALLEL TO STRUCTURE.

13. PROVIDE ADEQUATE BLOCKING AS REQUIRED TO

HANDRAILS, WALL MOUNTED SIGNAGE, ETC.

14. DO NOT SUSPEND ANY ITEMS FROM THE BOTTOM

AND GIRDER CHORDS. ANY CHANGES IN LINE ROUTING

20. ALL EXPOSED EXTERIOR WALL MOUNTED CONDUITS, BUSS GUTTERS, JUNCTION BOXES, PANEL BOXES, METERS, PIPES. ETC. ARE TO BE THREE (3) COAT PAINTED WITH COLOR TO BE SELECTED BY THE ARCHITECT. ALL EXPOSED CONDUIT PIPES, JUNCTION BOXES, ROOF SCUTTLES ETC. ABOVE THE ROOF BOTH IN MID FIELD AREAS AND ON BACKS OF PARAPETS ARE TO BE THREE (3) COATS PAINTED; COLOR TO BE SELECTED BY THE ARCHITECT.

21. ALL EXITS SHALL BE OPERABLE FROM THE INSIDE WITHOUT THE USE OF A KEY. SALES AREA ENTRANCE DOORS SHALL HAVE A SIGN STATING "THESE DOORS SHALL REMAIN UNLOCKED DURING BUSINESS HOURS" IN ONE-INCH (1") HIGH LETTERS MIN. OR AS REQUIRED BY CODE.

22. MOUNTING HEIGHTS: WHERE MOUNTING HEIGHTS ARE NOT INDICATED, INSTALL COMPONENTS AT MOUNTING HEIGHTS REQUIRED BY THE MOST RECENT ISSUE OF THE AMERICANS WITH DISABILITIES ACT FOR ANY PARTICULAR APPLICATION INDICATED. REFER ANY QUESTIONABLE MOUNTING HEIGHT DECISIONS TO THE ARCHITECT FOR FINAL DECISION.

23. CONTRACTOR IS TO REFER TO M.E.P. DRAWING AND PROJECT MANUAL (IF ANY) FOR ANY HINGED ACCESS PANELS NOT INDICATED IN ARCH. DWGS AND PROJ. MANUAL. CONTRACTOR IS RESPON-SIBLE FOR COORDINATING ALL ACCESS PANEL LOCATIONS FOR DRYWALL, TILE, E.I.F.S., AND PLASTER WORK WITH ALL TRADES.

24. HAZARDOUS MAT'LS. MAY NOT BE STORED, USED OR DISPENSED.

25. SIGN CONTRACTOR SHALL OBTAIN SEPARATE APPROVALS AND PERMITS FROM OWNER AND APPLICABLE JURISDICTIONS PRIOR TO INSTALLATION OF ANY SIGN

26. WOOD PRODUCTS THAT ARE USED IN NON-COMBUSTIBLE BLDGS. SHALL BE PRESSURE-TREATED WITH AN APPROVED FIRE RETARDANT IN ACCORDANCE WITH THE 1997 UBC CODE.

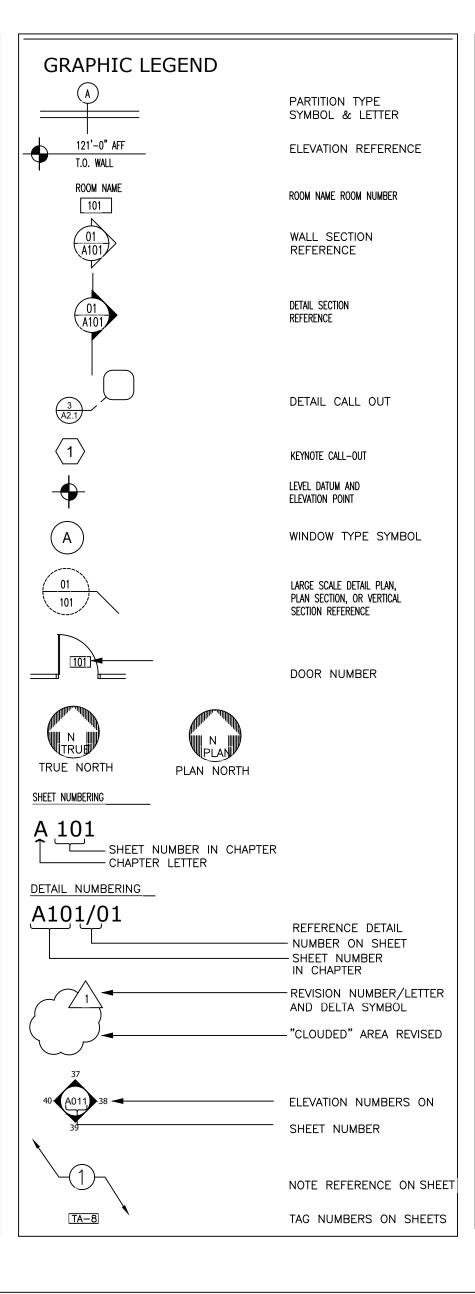
27. PROVIDE AN APPROVED FIRE SPRINKLER SYSTEM PER NFPA STANDARDS AND THE APPLCABLE ABUILDING CODE AND AS REGULATED BY LOCAL CITY AUTHORITIES. SUBMIT DRAWINGS FOR APPROVAL PRIOR TO COMMENCING WORK (IF SPRINKLER SYSTEM IS A CODE REQUIREMENT FOR THIS PROJECT).

28. "TYPICAL" NOTES APPLY TO ALL SIMILAR CONDITIONS. TYPICAL DETAILS ARE COMMON CONSTRUCTION CONDITIONS AND APPLY TO ALL CIRCUMSTANCES UNLESS NOTED OTHERWISE.

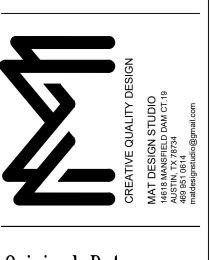
29. THE DRAWINGS AND THE PROJECT IS CONSIDERED PARTS OF THE CONTRACT DOCUMENTS, THE CON-TRACTOR IS RESPONSIBLE FOR THE REVIEW AND CONFORMANCE TO ALL CONTRACT DOCUMENTS. IN THE CASE OF APPARENT CONFLICTS AND DISCREPANCIES WITHIN THE DRAWING, CONTRACTOR IS TO NOTIFY ARCHITECT IN WRITING OF SUCH APPARENT CONFLICTS AND REQUEST CLARIFICATION FROM THE ARCHITECT. NO ADDITIONAL COSTS OR DELAYS IN SCHEDULE WILL BE ACCEPTED DUE TO CONTRACTOR'S MISINTERPRETATIONS AND FAILURES TO REQUEST CLARIFICATIONS.

30. FOR CONSTRUCTON ADMINISTRATION PURPOSES, PROVIDE A PRODUCT DATA SUBMITTAL FOR ALL PRODUCTS SPECIFIED AND BEING INSTALLED IN THIS PROJECT.

31. FOR CONSTRUCTION ADMINISTRATION PURPOSES, PROVIDE A SAMPLE SUBMITTAL FOR ALL FINISH PRODUCTS SPECIFIED AND BEING INSTALLED IN THIS PROJECT. MINIMUM SAMPLE SIZE TO BE



	TRADE	INDEX TO DRAWINGS:
EVISION	TR	SHEET DESCRIPTION
		A100-1 COVER SHEET, CONTACTS & INDEX
	ARCHITECTURAL	A101 SITE PLAN A102 ADA SHEET A103 LIFE SAFETY PLAN A104 REFERENCE PLAN A105 DIMENSION PLAN A106 ROOF PLAN A107 ROOF DETAILS AND ACCESS LADDER DETAILS A108 REFLECTED CEILING PLAN A109 BUILDING ELEVATIONS A110 BUILDING SECTIONS A111 DOOR AND WINDOW SCHEDULE A112 DUMPSTER DETAIL A113 WATERPROOFING/DEMISING WALL DETAIL A114 NOT USED A116 ENLARGED DETAILS A117 NOT USED A118 WALL SECTIONS A119 WALL SECTIONS A120 WALL SECTIONS A121 SPECIFICATIONS A122 SPECIFICATIONS A124 SPECIFICATIONS A125 SPECIFICATIONS A126 SPECIFICATIONS A127 SPECIFICATIONS A127 SPECIFICATIONS A128 SPECIFICATIONS A128 SPECIFICATIONS A128 SPECIFICATIONS A128 SPECIFICATIONS A128 SPECIFICATIONS
	STRUCTURAL	
	MECH. & PLUMBING	M 100 MECHANICAL FLOOR PLAN AND GENERAL NOTES P 100 PLUMBING LEGEND— NOTES AND SCHEDULE P 200 PLUMBING FLOOR PLAN PU100 PLUMBING SITE PLAN
	ELECTRICAL	E 100 ELECTRICAL LEGEND-NOTES AND SCHEDULE EU100 SITE PLAN-ELECTRICAL E 200 FLOOR PLAN-LIGHTING AND POWER E 300 ELECTRICAL RISER DIAGRAM E 400 ELECTRICAL SPECIFICATIONS



Original Date: 00/00/2025 Issue Log

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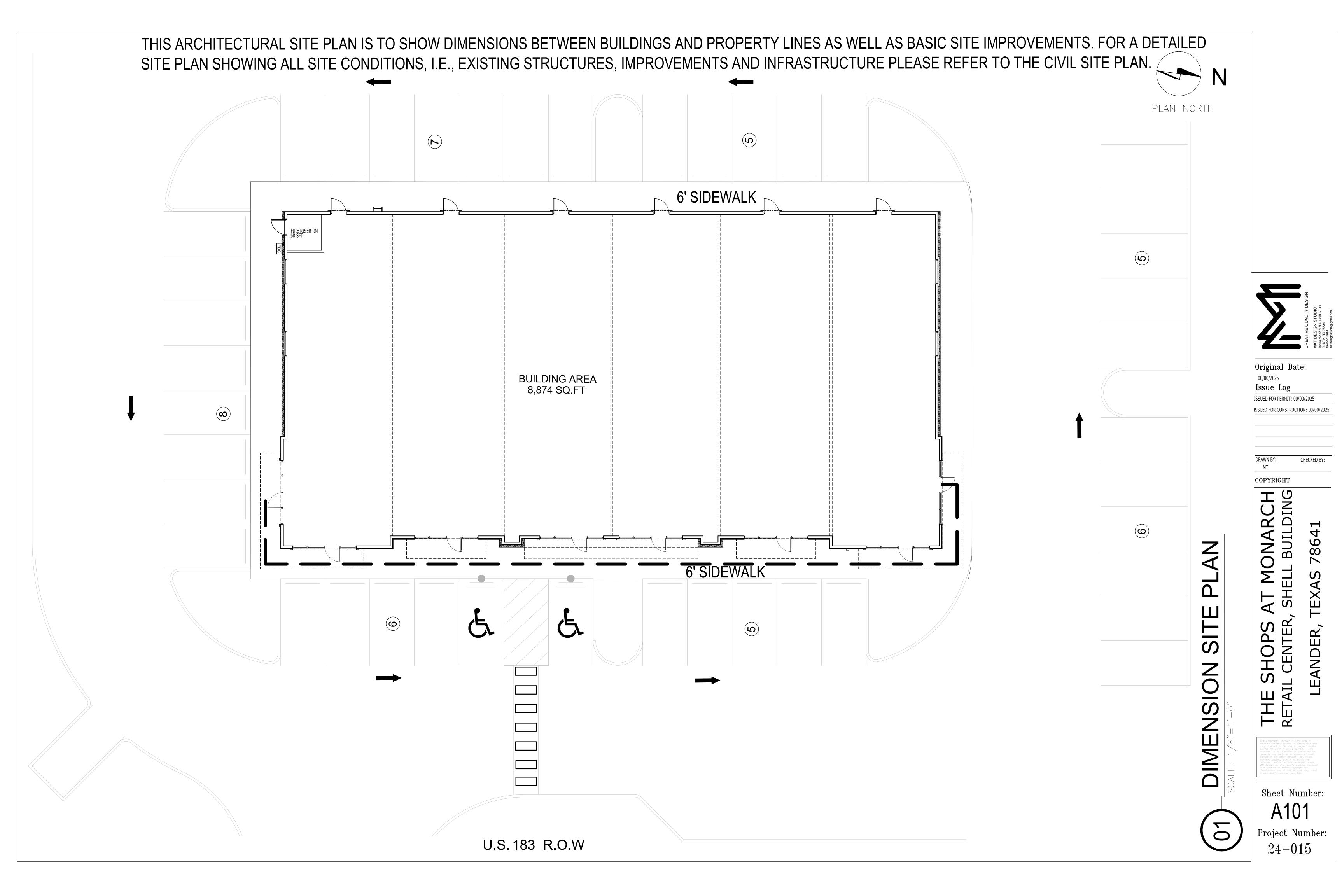
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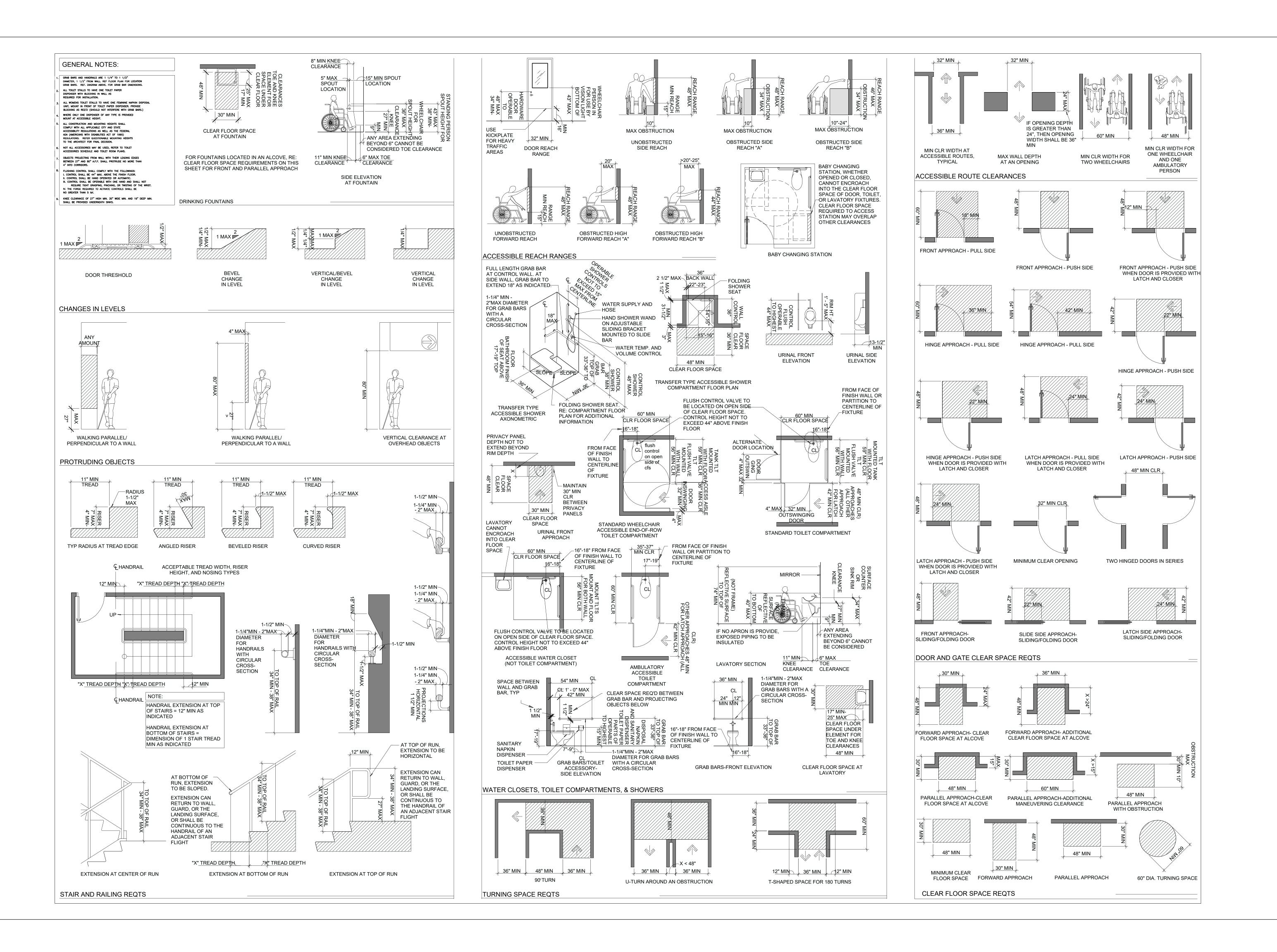
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Project Number: 24 - 015





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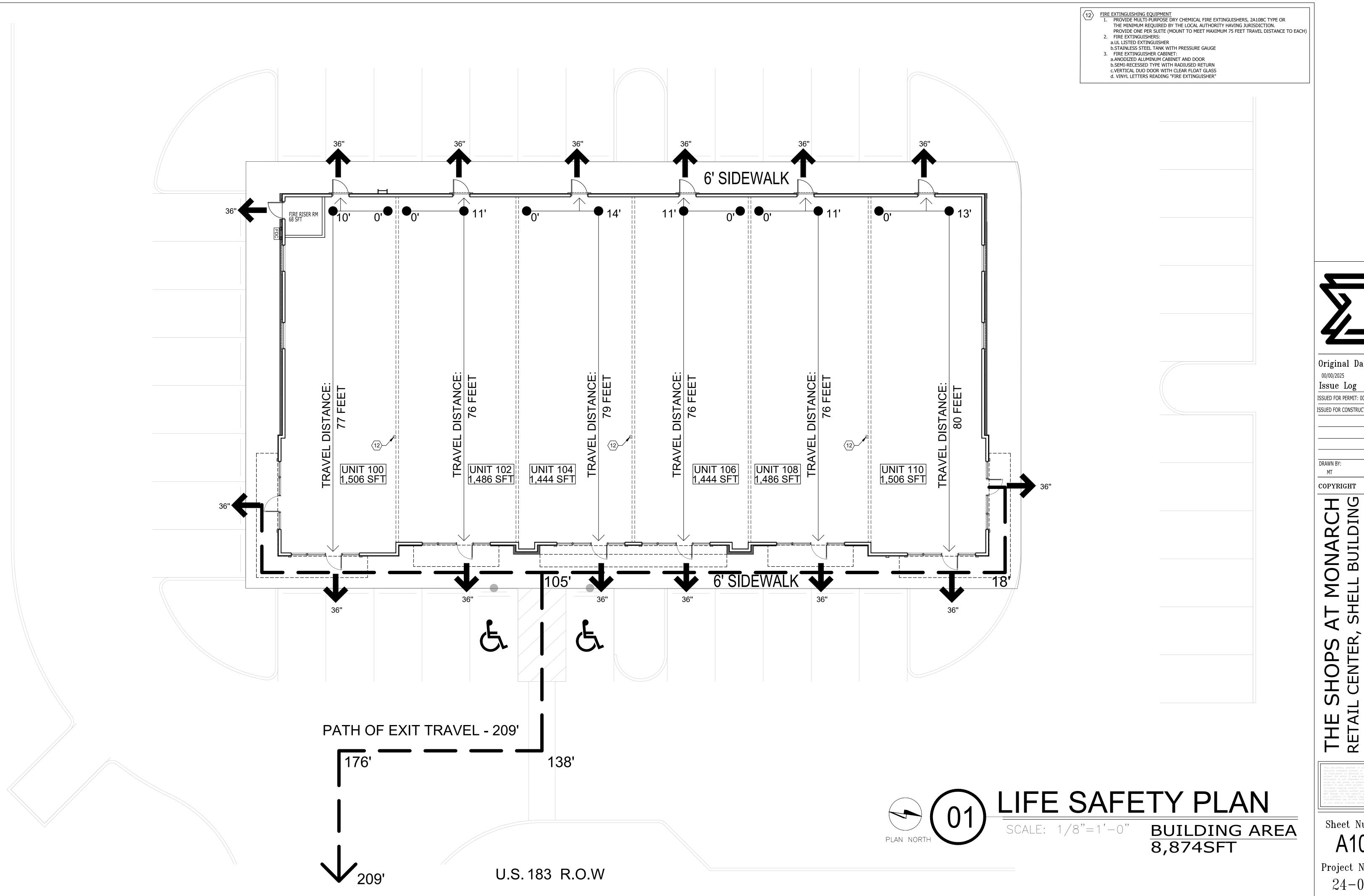
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Sheet Number: A102 Project Number: 24 - 035





Original Date:

Issue Log ISSUED FOR PERMIT: 00/00/2025

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AT MONARCH SHELL BUILDING 78641 **TEXAS** SHOPS IL CENTER, LEANDER,



Sheet Number: A103 Project Number:

24-015



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GENERAL NOTES

- CONTRACTOR SHALL VISIT THE SITE AND VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS THAT AFFECT THE NEW WORK PRIOR TO BIDDING. ANY SITE DISCREPANCIES FOUND DURING CONSTRUCTION SHALL BE REPORTED TO THE OWNER'S REPRESENTATIVE
- 2. REFER STRUCTURAL DRAWINGS FOR STUD SIZE.

IMMEDIATELY.

- ALL WORK SHALL BE ACCOMPLISHED IN ACCORDANCE WITH ALL APPLICABLE STATE, LOCAL, AND NATIONAL CODES (CURRENT EDITIONS AS ACCEPTED BY THE CITY AND/OR GOVERNING BODY). ALL WORK SHALL COMPLY WITH THE AMERICANS WITH DISABILITIES ACT ("ADA") AND TEXAS ACCESSIBILITY STANDARDS ("T.A.S.") AS APPLICABLE.
- ALL DIMENSIONS ARE TO FACE OF STUD, GRID CENTERLINE OR FACE OF BLOCK UNLESS NOTED OTHERWISE. CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING ANY WORK OR FABRICATION.
- 5. GENERAL CONTRACTOR SHALL COORDINATE AND VERIFY ALL PIPE AND CONDUIT LOCATIONS IN CONCRETE SLAB WITH ALL RELATIVE SUBCONTRACTORS.
- 6. FRAMING CONTRACTOR SHALL PROVIDE SOLID WOOD BLOCKING AT ALL WALL MOUNTED FIXTURES, INCLUDING, BUT NOT LIMITED TO WALL MOUNTED SHELVING, BASE AND UPPER CABINETS, CUBBIES, CLOSET SHELVING AND RODS, AT EXTERIOR SIGNAGE LOCATIONS. WALL MOUNTED DOOR STOPS, TOILET ROOM PARTITIONS, LAV'S, GRAB BARS, MIRRORS, SOAP DISPENSERS, WASTE RECEPTACLES, TOILET PAPER DISPENSERS, MOP SINK, EXTERIOR LIGHTING AND ACCESSORIES. ALL WOOD TO BE USED FOR BLOCKING & NAILERS SHALL BE TREATED (WOLMANIZED OR EQUAL). CONTRACTOR TO PROVIDE CEMENTITIOUS BACKER BOARD ON ALL WET WALLS, AND ON ALL
- THE SIDE OF EACH DOOR STRIKE JAMB ON THE PULL SIDE. REFER TO THE TEXAS ACCESSIBILITY STANDARDS.

WALLS THAT RECEIVE WALL TILE.

- 8. IF BUILDING HAS A FIRE SPRINKLER SYSTEM, LOCATE SPRINKLER HEADS PER FIRE DEPARTMENT REQUIREMENTS.
- PROVIDE ADDRESS AND OR SUITE LETTERS/NUMBERS (2" HIGH MIN.) ON EACH EXTERIOR DOOR OF SET OF DOORS, AS WELL AS ON THE ELECTRICAL DISCONNECT.

10. PROVIDE ADDRESS LETTERS (8" HIGH MIN.) ON THE SIDE OF THE BUILDING THAT FRONTS THE STREET. ADDRESS MUST BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET. MUST HAVE A STROKE WIDTH OF NOT LESS THAN 1/4". NUMBERS SHALL CONTRAST WITH THEIR BACKGROUND. FIRE CODE OFFICIAL CAN FIELD

LOCATE WITH CONTRACTOR IF NECESSARY.

- 11. DOORS TO MECHANICAL ROOMS, ELECTRICAL ROOMS, AUTOMATIC SPRINKLER SYSTEMS AND FIRE ALARM CONTROL PANELS SHALL BE LABELED WITH A DURABLE, ALL-WEATHER SIGN. I.E.; "ELECTRICAL ROOM", "MECHANICAL ROOM", "FACP", AND "SPRINKLER RISER".
- 12. PROVIDE A PORTABLE FIRE EXTINGUISHER WITH A MINIMUM RATING OF 3A:40B:C WITHIN 75 FEET FROM ANY POINT IN THE BUILDING.
- 13. PROVIDE A PORTABLE FIRE EXTINGUISHER WITH A MINIMUM RATING OF 3A:40B:C WITHIN 30 FEET OF COMMERCIAL COOKING APPLIANCES.

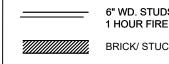
LEGEND

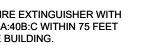


DOOR NUMBER - REFER TO DOOR/WINDOW SCHEDULE



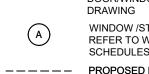
WINDOW /STOREFRONT TYPE REFER TO WINDOW/ DOOR SCHEDULES DRAWING PROPOSED DEMISING WALLS BY TENANT. 6" WD. STUDS AT 16"





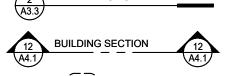


KEYNOTE CALL-OUT 100



O.C. 1 HOUR FIRE RATED ______ 6" WD. STUDS AT 16" O.C.





2 DETAIL SECTION

3 A2.1 DETAIL CALL OUT

RATED ASSEMBLY LEGEND

- 1 UL# P522 = ONE-HOUR CLG./ROOF ASSEMBLY (LEASE SPACE / GYP. BD. CLG & WD. ROOF TRUSS)
- $\frac{\text{UL\# U305}}{\text{UL\# U356}} = 1 \text{-HOUR TYP. } \underline{\text{INTERIOR}} \quad 6" \text{ STUD WALL}$ $\underline{\text{EXTERIOR}} \quad 6" \text{ STUD WALL}$

KEYNOTE LEGEND

- $\langle 1 \rangle$ NOT USED.
- \langle 2 \rangle GLAZED ALUMINUM STORE FRONT PER DOOR AND WINDOW SCHEDULE.
- METAL BRACKET, EXTERIOR SHEATHING AND STANDING SEAM SLOPING CANOPY ON TOP, 4'
 DEEP. REFER ELEVATIONS FOR HEIGHTS. CANOPY SCOPE WILL BE DESIGN BUILD BY
- CANOPY SUBCONTRACTOR, PROVIDE TEXAS RPE SIGNED AND SEALED SHOP DRAWING
- 4' DEEP CANOPY IN ALUMINUM WITH HANGER RODS DESIGN. REFER ELEVATION FOR HEIGHTS. CANOPY SCOPE TO BE DESIGN BUILD BY THE CANOPY SUBCONTRACTOR. PROVIDE TEXAS RPE SIGNED AND SEALED SHOP DRAWING FOR REVIEW .
- PROPOSED DEMISING WALL LOCATIONS BY TENANT. ACTUAL / LOCATION SHALL BE DETERMINED PER TENANT LEASE AGREEMENT. 6 PROVIDE PLUMBING LEAVE-OUT PER BLDR. SPECS. COORDINATE LOCATION WITH PLUMBING PLANS.
- $\langle 7 \rangle$ COLUMNS PER STRUCTURAL DRAWINGS
- $\langle 9 \rangle$ LINE OF SOFFIT ABOVE NOT USED.

(8) CONCRETE SIDEWALK PER CIVIL.

- $\langle 10
 angle$ fixed glazed aluminum window per door schedule.
- $\langle 11 \rangle$ FIRE RISER ROOM DOOR.
- $\langle 12 \rangle$ fire extinguisher. Refer to specs on sheet a 104. FIRE DEPARTMENT APPROVED KNOX-KEY-BOX (4400 SERIES-RECESSED INTO THE
- $\langle 13
 angle$ masonry. Mount at 60" ht. (Minimum)) contractor shall field locate with |FIRE CODE OFFICIAL BEFORE INSTALLATION. FIRE DEPARTMENT APPROVED KNOX-KEY-BOX (3200 SERIES-RECESSED INTO THE 3A) MASONRY. MOUNT AT 60" HT. (MINIMUM)) CONTRACTOR SHALL FIELD LOCATE
- WITH FIRE CODE OFFICIAL BEFORE INSTALLATION. PROVIDE AN APPROVED FIRE DEPARTMENT CONNECTION PER FIRE DEPT. CODES AND 15/ SPECS. REFER TO CIVIL PLANS FOR EXACT LOCATION. ALL FIRE DEPARTMENT CONNECTIONS FOR AUTOMATIC FIRE SPRINKLERS WILL REQUIRE LOCKING KNOX FDC DEPARTMENT CONNECTION (FDC) NEEDS A SIGN TO ASSIST WITH IDENTIFYING IT'S LOCATION. IT SHALL HAVE A RED BACKGROUND WITH 6" WHITE LETTERS THAT READ

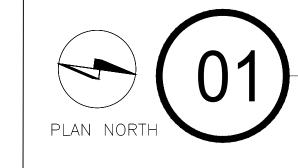
"FDC". IT SHALL BE MOUNTED HIGH ABOVE THE CONNECTION AS TO NOT BE

- OBSTRUCTED BY VEHICLES, LANDSCAPING, ETC. $\langle 16 \rangle$ not used.
- ROOF ACCESS LADDER. (SEE ELEVATION). AIR & WEATHER BARRIER TO BE PROPERLY DETAILED AROUND LADDER WALL ANCHORS PER AIR BARRIER MANUFACTURER'S RECOMMENDATIONS AND DETAILS.
- $\langle 19 \rangle$ 6" STUCCO TOP TRIM W/ 6" SIDE TRIM. (SEE ELEVATION)

 $\langle 18 \rangle$ 3 COAT 3/4" STUCCO FINISH OVER METAL LATHE ON FELT PAPER.

- $\langle 22
 angle$ break metal cladding 18 gauge coping cap; refer elevations
- (23) MANUFACTURED STONE STACKED VERIFY STYLE & COLOR W/ OWNER. (REF. ELEV. FOR HT'S.)
- (25) ARCHITECTURAL WOOD PANEL; REFER ELEVATIONS FOR LOCATION (27) REAR/SIDE DOORS PER DOOR SCHEDULE - NOT USED
- APPROVED ADDRESS NUMBERS WILL BE REQUIRED. CONTRACTOR TO COORDINATE LOCATION WITH FIRE MARSHAL PRIOR TO INSTALLATION. ADDRESS NUMBERS SHALL BE ARABIC NUMERALS, 8" HIGH OR MAY BE LARGER FOR VISIBILITY, MINIMUM STROKE WIDTH OF .0.5" AND SHALL CONTRAST WITH THEIR BACKGROUND. ADDRESS NUMBERS TO BE VERIFIED. ENSURE PLACEMENT IS NOT OBSCURED BY CURRENT OR FUTURE LANDSCAPE GROWTH.

- 1. THE MEANS OF EGRESS INCLUDING EXIT DISCHARGE SHALL BE ILLUMINATED AT ALL TIMES THE BUILDING SPACE SERVED BY THE MEANS OF EGRESS IS OCCUPIED. CONTRACTOR TO PROVIDE EXTERIOR EMERGENCY ILLUMINATION WITH BATTERY BACK UP AT EACH EXIT DISCHARGE. FUTURE EGRESS LIGHTING IS TO BE PROVIDED
- 2. 1-HR TENANT DEMISING WALL TO EXTEND FROM SLAB TO UNDERSIDE OF THE ROOF DECK, TYPICAL. COORDINATE REQUIREMENT OF TENANT DEMISING WALL WITH AUTHORITY HAVING JURISDICTION PRIOR TO CONSTRUCTION.
- 1. PROVIDE MULTI-PURPOSE DRY CHEMICAL FIRE EXTINGUISHERS, 2A10BC TYPE OR THE MINIMUM REQUIRED BY THE LOCAL AUTHORITY HAVING JURISDICTION. PROVIDE ONE PER SUITE (MOUNT TO MEET MAXIMUM 75 FEET TRAVEL DISTANCE TO EACH)
- FIRE EXTINGUISHERS: a.UL LISTED EXTINGUISHER
- b.STAINLESS STEEL TANK WITH PRESSURE GAUGE 3. FIRE EXTINGUISHER CABINET: a.ANODIZED ALUMINUM CABINET AND DOOR
- b.SEMI-RECESSED TYPE WITH RADIUSED RETURN c.VERTICAL DUO DOOR WITH CLEAR FLOAT GLASS d. VINYL LETTERS READING "FIRE EXTINGUISHER"



BY TENANT FINISH OUT.

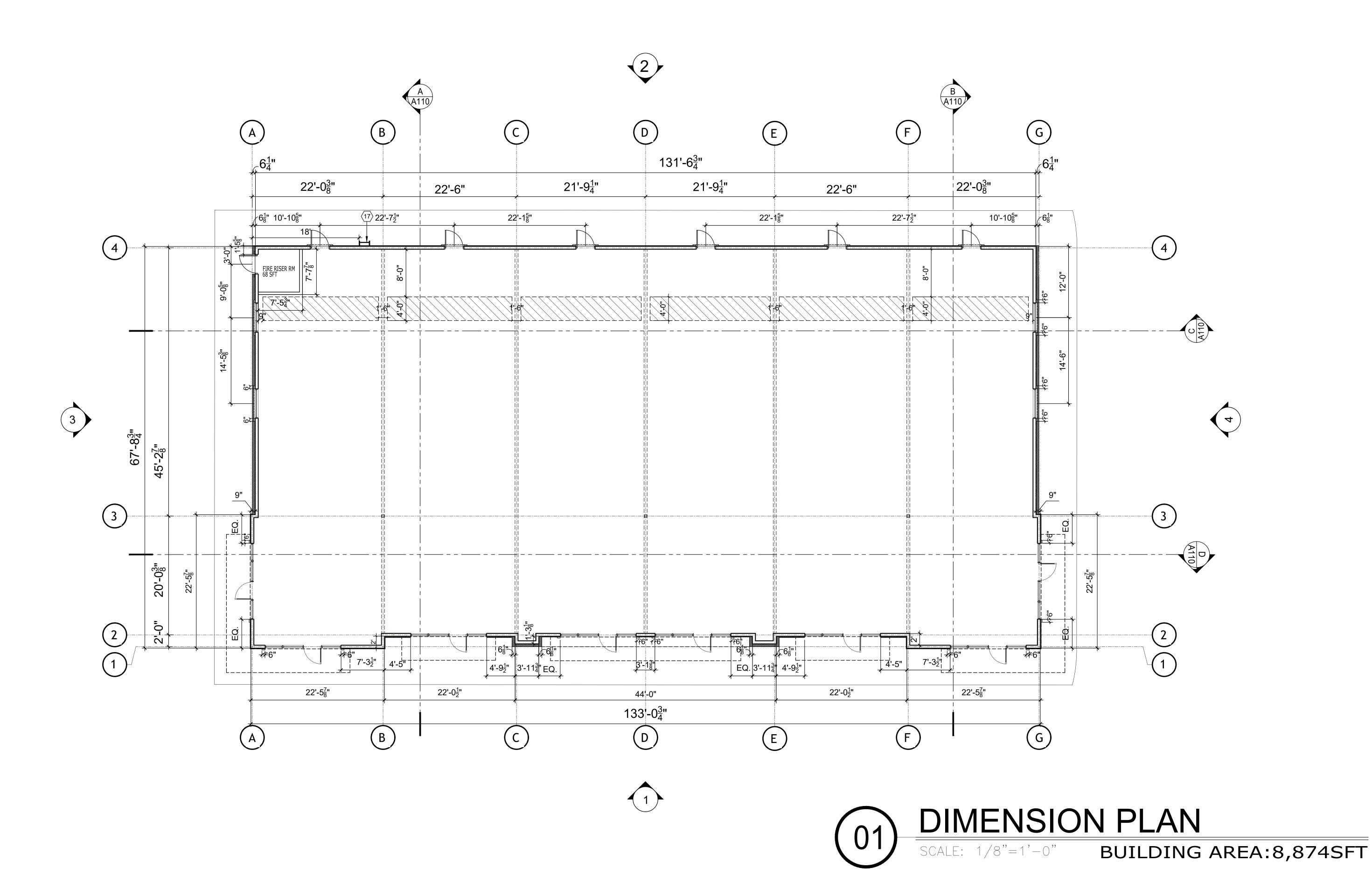
REFERENCE PLAN

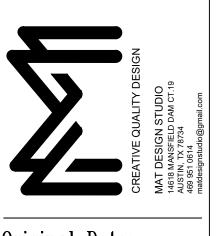
BUILDING AREA 8,874SFT



Sheet Number: A104 Project Number:

24-015





Original Date:

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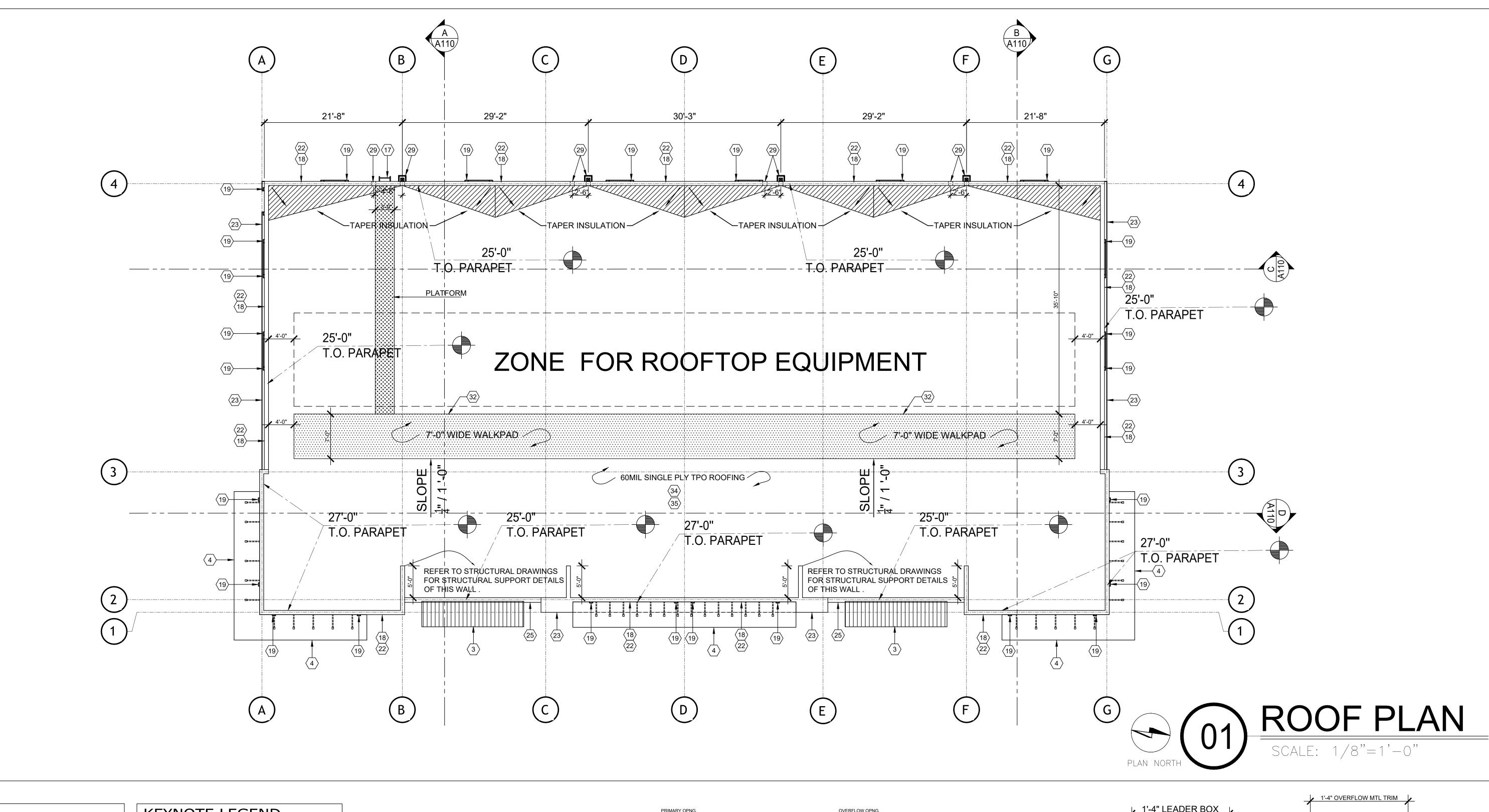
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HE SHOPS AT MONARCH TAIL CENTER, SHELL BUILDING LEANDER, TEXAS 78641



Sheet Number:
A105

Project Number:
24-015





REQUIRED WARRANTY.

- ALL DETAILS, RELATING TO THE ROOFING SYSTEM, REGARDLESS AS TO HOW THEY MAY BE INDICATED ON THESE CONTRACT DOCUMENTS MUST BE APPROVED BY THE ROOFING MANUFACTURER SO AS TO OBTAIN THE
- TAPERED INSULATION TO BE LOCATED AND INSTALLED FOR SCUPPERS, OVERFLOW SCUPPERS AND AT ALL ROOF EQUIPMENT CURBS, ROOF DRAINS AND ROOF OVERFLOW DRAINS.
- SLOPE INDICATES SLOPE OF ROOF.
- ROOFTOP EQUIPMENTS AND CURBS FURNISHED BY G.C. CURBS SHALL
- UNITS MUST SIT LVL. SEE MECHANICAL DRAWINGS FOR DETAILS ALL PIPES, CONDUITS AND ROOF HATCHES ABOVE ROOF ARE TO BE (3)

BEAR DIRECTLY ON STRUCTURE, NOT ON WOODEN DECK. MECH.

- COAT PAINTED. COLOR TO BE SELECTED BY OWNER.
- INDICATES ROOF WALK ZONE FOR MAINTENANCE OF ROOFTOP
- ALL ROOFING PENETRATIONS ARE TO BE DONE IN ACCORDANCE WITH APPROVED ROOF MANUFACTURER'S ROOFING DETAILS FOR ROOFING SYSTEM(S) INSTALLED.
- 8. INDICATES TAPERED INSULATION.
- 9. ALL STEEL EXPOSED TO THE ELEMENTS OF NATURE TO BE HOT DIPPED
- 10. LIGHTNING PROTECTION AND GROUNDING WIRE TO BE INSTALLED WITH
- 11 ROOFING SYSTEM WILL BE COMPLETELY ADHERED 60MIL TPO SYSTEM

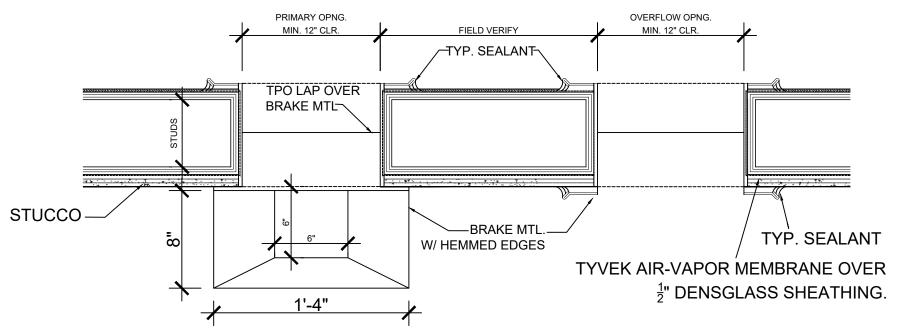
KEYNOTE LEGEND

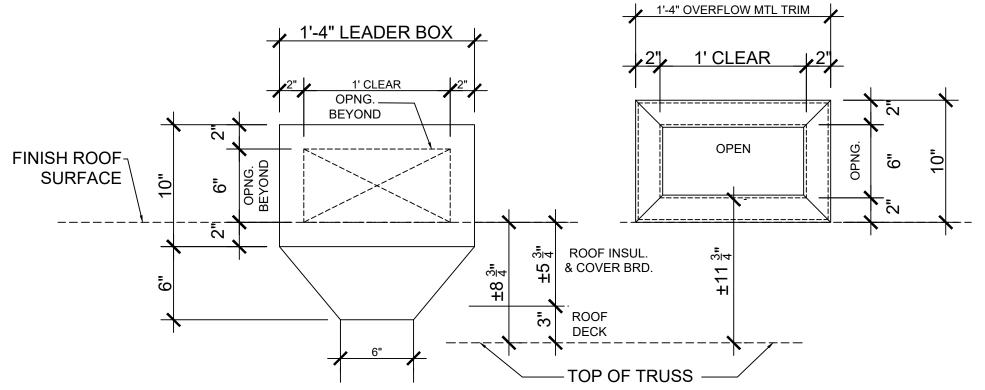
- - METAL BRACKET, EXTERIOR SHEATHING AND STANDING SEAM SLOPING CANOPY ON TOP, 4' DEEP. REFER ELEVATIONS FOR HEIGHTS. CANOPY SCOPE WILL BE DESIGN BUILD BY CANOPY SUBCONTRACTOR, PROVIDE TEXAS RPE SIGNED AND SEALED SHOP
- 4' DEEP CANOPY IN ALUMINUM WITH HANGER RODS DESIGN. REFER 4 ELEVATION FOR HEIGHTS. CANOPY SCOPE TO BE DESIGN BUILD BY THE CANOPY SUBCONTRACTOR. PROVIDE TEXAS RPE SIGNED AND SEALED SHOP DRAWING
- $\langle 4B \rangle$ NOT USED
- 4C NOT USED
- 17 STEEL ACCESS LADDER.
- 3 COAT 3/4" STUCCO FINISH OVER METAL LATHE ON FELT PAPER. STUCCO ON WALLS WITH JOINTS PER MANUF. SPECS.
- $\langle 19 \rangle$ 6" STUCCO TOP TRIM W/ 6" SIDE TRIM. (SEE ELEVATION)
- BREAK METAL CLADDING 18 GAUGE COPING CAP. CONTRACTOR TO PROVIDE ENOUGH BACKING/SUPPORT TO GAUGE METAL TO PREVENT OIL CANNING. 23 EXTERIOR MASONARY - VERIFY STYLE & COLOR W/ OWNER. (REF. ELEV. FOR HT'S.)
- EXTERIOR AECHITECTURAL WOOD PANELS VERIFY STYLE & COLOR W/ OWNER. (REF. ELEV. FOR HT'S.)
- 29 24 GA CONDUCTOR HEAD AND DOWNSPOUT AND OVERFLOW SCUPPER DISCHARGE AT GRADE SEE DIMMANO BRANCES DISCHARGE AT GRADE - SEE PLUMBING DRAWINGS.
- $\langle 32 \rangle$ Walkway protection pad in contrasting color to roof.

 $\langle 35 \rangle$ vapor impermeable rigid board insulation.

- $\langle 34 \rangle$ TPO MEMBRANE ROOF, SLOPE STRUCTURE TO DRAIN TOWARDS ROOF DRAIN.
- TPO ROOF MEMBRANE TO COMPLY WITH 2015 IECC SECTION C402.3. ROOF SOLAR REFLECTANCE AND THERMAL EMITTANCE TO EITHER HAVE (1) A MINIMUM THREE-YEAR AGED SOLAR REFLECTANCE OF 0.55 AND 3 YEAR AGED THERMAL EMITTANCE OF 0.75. OR (2) THREE YEAR -AGED SOLAR REFLECTANCE INDEX OF 64.

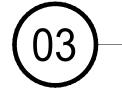
THE DISTANCE BETWEEN THE ROOF DRAIN AND THE





OVERFLOW IS TO BE PER THE ROOFING MANUFACTURER REQUIREMENTS TO ACHIEVE ROOFING WARRANTIES.

PLAN-ROOF DRAINAGE SCUPPERS



ELEV-ROOF DRAINAGE SCUPPERS

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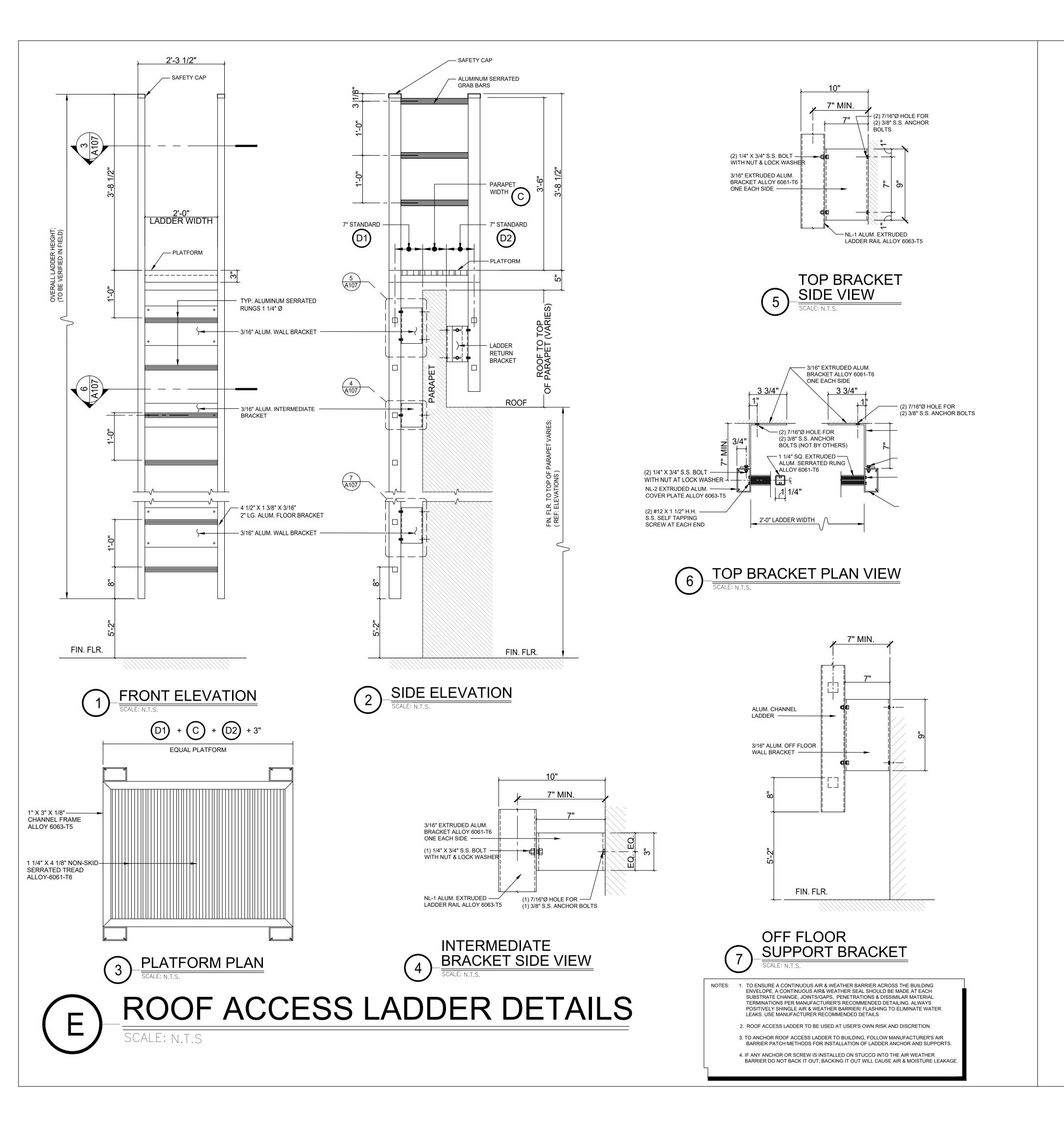
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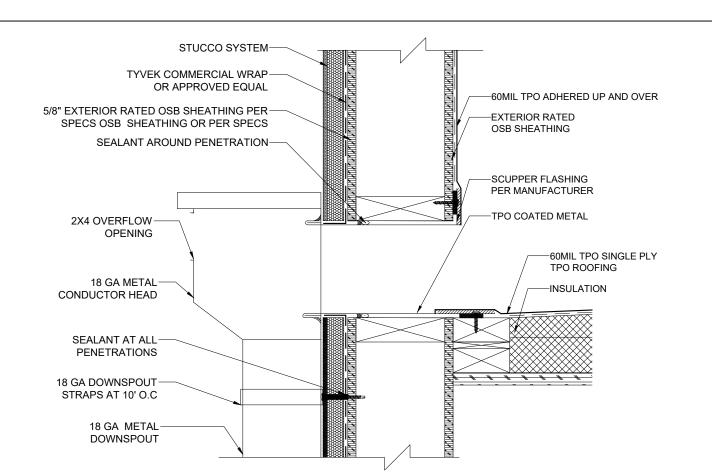
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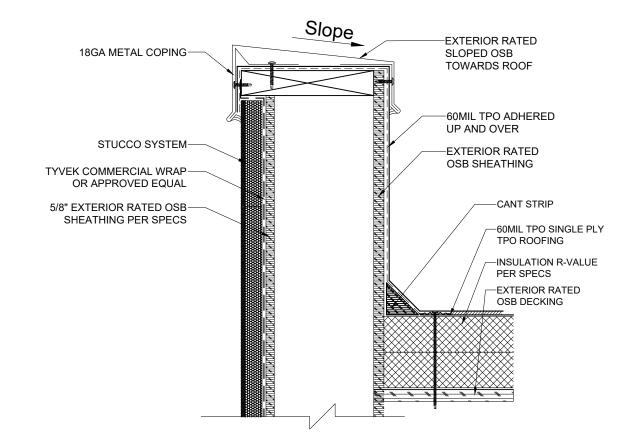
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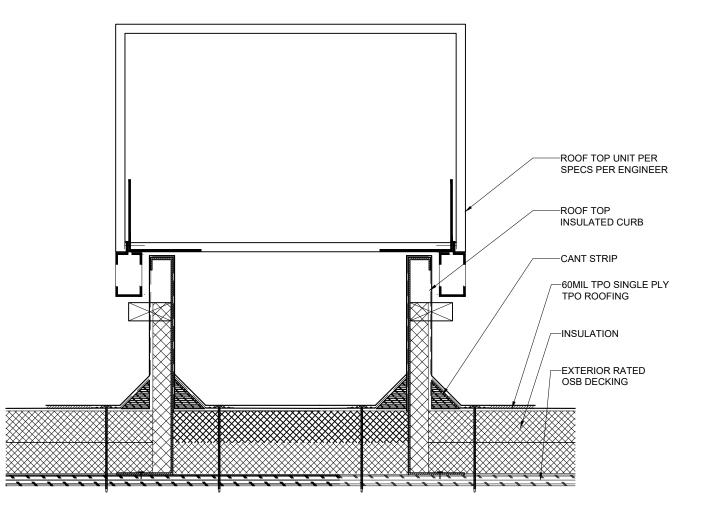




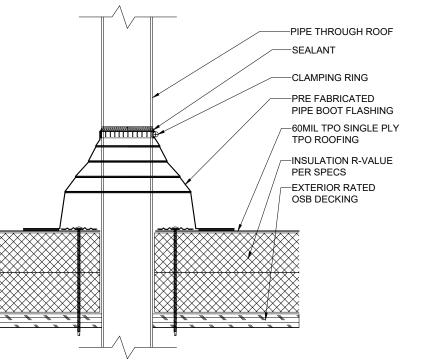
CONDUCTOR HEAD FLASHING



COPING AT STUCCO WALL



ROOF TOP UNIT FLASHING DETAIL



ROOF PIPE PENETRATION DETAIL



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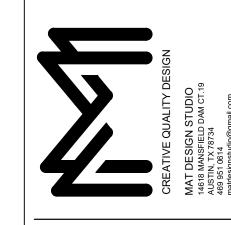
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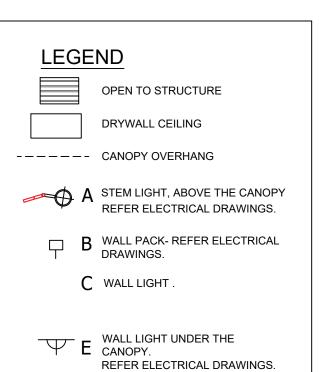
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T MONARCH

KEYNOTE LEGEND

REFER TO ELECTRICAL DRAWINGS FOR A,B,C,D FIXTURE TYPES AND SPECS

- 1 NOT USED.
- METAL BRACKET, EXTERIOR SHEATHING AND STANDING SEAM SLOPING CANOPY ON TOP, 4' DEEP. REFER ELEVATIONS FOR HEIGHTS. CANOPY SCOPE TO BE DESIGN BUILD BY THE CANOPY SUBCONTRACTOR. PROVIDE TEXAS RPE SIGNED AND SEALED SHOP DRAWING
- 4' DEEP CANOPY DESIGN IN ALUMINUM DESIGN. REFER ELEVATION FOR HEIGHTS. CANOPY SCOPE TO BE DESIGN BUILD BY THE CANOPY SUBCONTRACTOR. PROVIDE TEXAS RPE SIGNED AND SEALED SHOP DRAWING FOR REVIEW.
- PROPOSED DEMISING WALL LOCATIONS BY TENANT. ACTUAL LOCATION SHALL BE DETERMINED PER TENANT LEASE AGREEMENT.
- $\sqrt{7}$ COLUMNS PER STRUCTURAL DRAWINGS
- 9 LINE OF SOFFIT ABOVE.
- 17 ROOF ACCESS LADDER W/ SECURITY DOOR



F CEILING MOUNTED SURFACE LIGHT IN FIRE RISER ROOM. REFER

ELECTRICAL LIGHTING PLAN.





REFLECTED CEILING PLAN

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

NOTE:

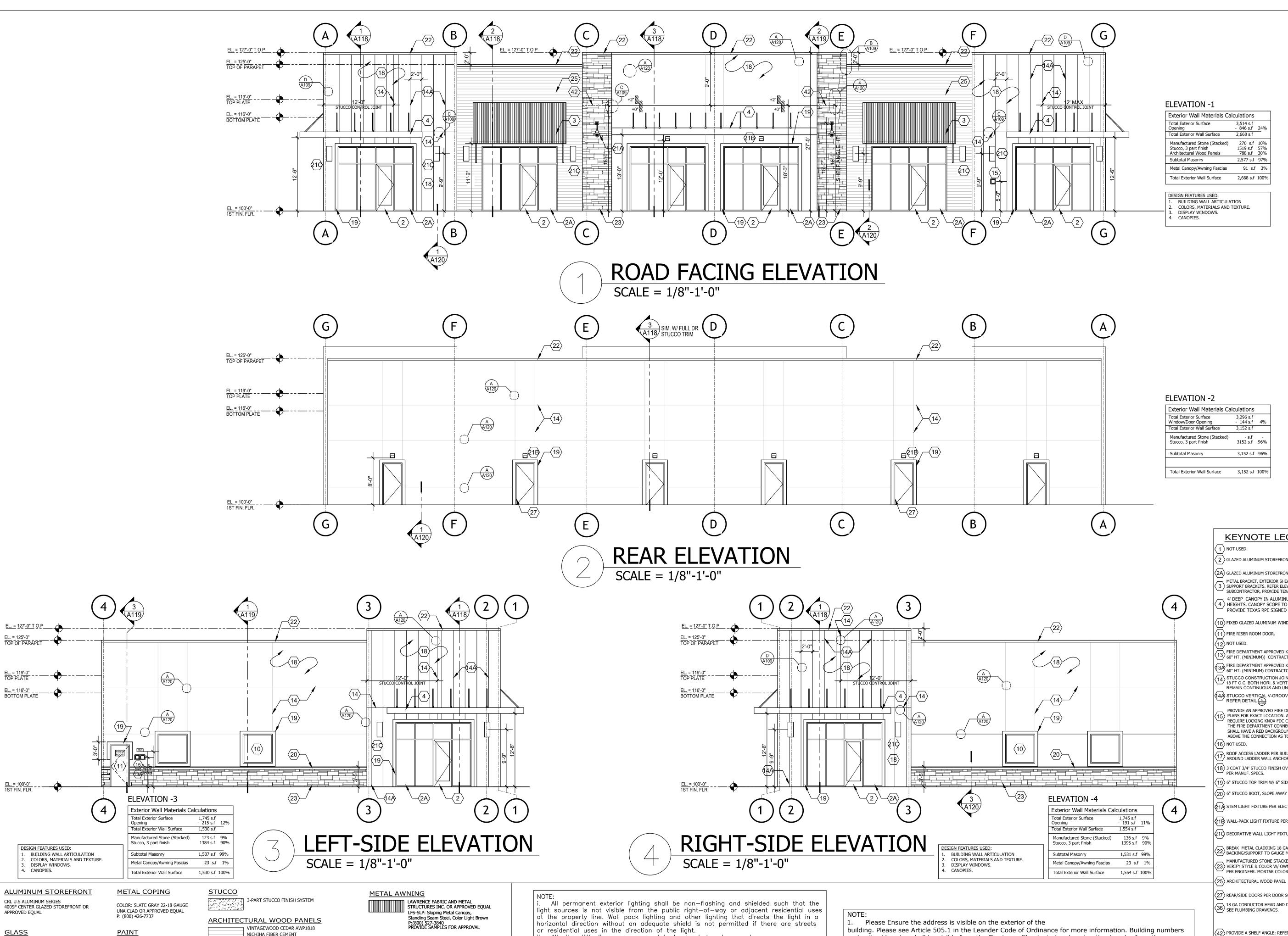
1. THE MEANS OF EGRESS INCLUDING EXIT DISCHARGE SHALL BE ILLUMINATED AT ALL TIMES THE BUILDING SPACE SERVED BY THE MEANS OF EGRESS IS OCCUPIED. CONTRACTOR TO PROVIDE EXTERIOR EMERGENCY ILLUMINATION WITH BATTERY BACK UP AT EACH EXIT DISCHARGE. FUTURE EGRESS LIGHTING IS TO BE PROVIDED BY TENANT FINISH OUT.

1-HR TENANT DEMISING WALL TO EXTEND FROM SLAB TO UNDERSIDE OF THE ROOF DECK, OR PER CITY OF CEDAR PARK REQUIREMENTS. TENANT DEMISING WALLS TO BE FINISHED BY TENANTS DURING INTERIOR FINISH OUTS.



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All site utility lines are proposed to be located underground.

FDC nozzle cap shall be 36" above finished grade
 Each FDC shall be a 5" Storz on a 30" elbow with a KNOX locking cap
 Hydrant will be located within 100 feet of FDC

FIRE DEPARTMENT CONNECTION NOTES:

iii. Windows shall have a maximum exterior reflectivity of twenty (20%) percent.

NICHIHA FIBER CEMENT

MANUFACTURED STONE (STACKED)

MANUFACTURER: CULTURED STONE

PATTERN: COUNTRY LEDGESTONE

PAINTS AND GLAZING ARE SUBJECTED TO THE APPROVAL OF THE

OWNER. G.C. TO PROVIDE SAMPLE OF ALL PAINT COLOR TO THE OWNER BEFORE PURCHASING ANY PAINT. G.C. TO MAKE A MOCK

UP SAMPLE OF ALL PAINT AND GET APPROVAL OF THE OWNER

PRIOR TO APPLICATION.

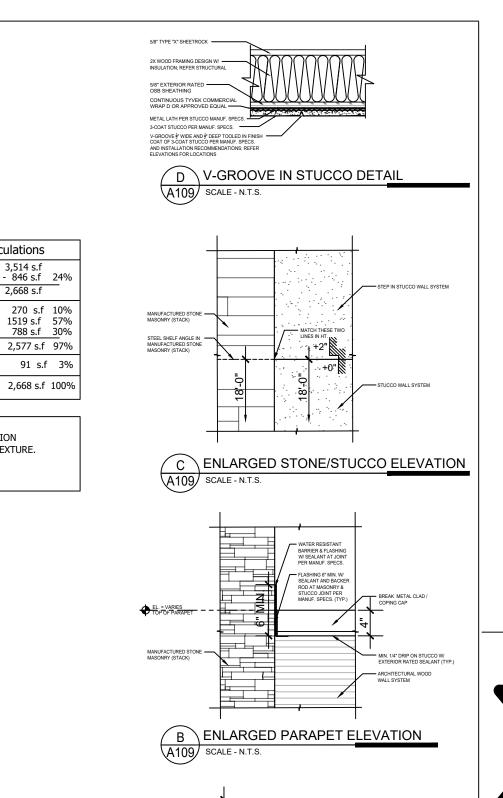
KILLEEN GLASS OR APPROVED EQUAL

NOTE: ALL STEEL EXPOSED TO THE ELEMENTS OF NATURE TO BE HOT DIPPED GALVANIZED.

ALL EXTERIOR WOOD, METAL SURFACES ARE TO BE PRIMED AND PAINTED PER COLOR SELECTIONS BY DESIGN TEAM.

(254) 526 4157

STUCCO COLORS COLOR A TBD COLOR B TBD



A ENLARGED AWNING ELEVATION

KEYNOTE LEGEND

 $\langle 2 \rangle$ glazed aluminum storefront per door schedule.

(2A) GLAZED ALUMINUM STOREFRONT PER WINDOW SCHEDULE.

METAL BRACKET, EXTERIOR SHEATHING AND STANDING SEAM SLOPING CANOPY ON TOP, 4' DEEP WITH SUPPORT BRACKETS. REFER ELEVATIONS FOR HEIGHTS. CANOPY SCOPE WILL BE DESIGN BUILD BY CANOPY SUBCONTRACTOR, PROVIDE TEXAS RPE SIGNED AND SEALED SHOP DRAWING

4' DEEP CANOPY IN ALUMINUM WITH HANGER RODS DESIGN. REFER ELEVATION FOR \downarrow Heights. Canopy scope to be design build by the canopy subcontractor. PROVIDE TEXAS RPE SIGNED AND SEALED SHOP DRAWING FOR REVIEW .

10 FIXED GLAZED ALUMINUM WINDOW PER DOOR SCHEDULE.

1 FIRE RISER ROOM DOOR.

THE DEPARTMENT APPROVED KNOX-KEY-BOX (4400 SERIES-RECESSED INTO THE WALL SYSTEM. MOUNT AT 3/ 60" HT. (MINIMUM)) CONTRACTOR SHALL FIELD LOCATE WITH FIRE CODE OFFICIAL BEFORE INSTALLATION. TIRE DEPARTMENT APPROVED KNOX-KEY-BOX (3200 SERIES) - RECESSED INTO THE WALL SYSTEM. MOUNT AT 60" HT. (MINIMUM) CONTRACTOR SHALL FIELD LOCATE WITH FIRE CODE OFFICIAL BEFORE INSTALLATION. $\overline{14}$ STUCCO CONSTRUCTION JOINTS PER MANUF. SPECS. IN STUCCO ON LATH, AT A MAX. SPACING OF 7 18 FT O.C. BOTH HORI. & VERT. ENCLOSING AN AREA NO MORE THAN 144 SF.: VERTICAL JOINT SHOULD REMAIN CONTINUOUS AND UNBROKEN AT JOINT INTERSECTIONS; REFER MANUF. RECOMMENDATIONS.

(4A) STUCCO VERTICAL V-GROOVES ½" WIDE AND ½" DEEP AT 2'-0" O.C. PER MANUF. SPECS.; REFER DETAIL (A)

PROVIDE AN APPROVED FIRE DEPARTMENT CONNECTION PER FIRE DEPT. CODES AND SPECS. REFER TO CIVIL

>> PLANS FOR EXACT LOCATION. ALL FIRE DEPARTMENT CONNECTIONS FOR AUTOMATIC FIRE SPRINKLERS WILL REQUIRE LOCKING KNOX FDC CAPS. CONTRACTOR TO COORDINATE THE FDC LOCATION WITH CIVIL PLANS. THE FIRE DEPARTMENT CONNECTION (FDC) NEEDS A SIGN TO ASSIST WITH IDENTIFYING IT'S LOCATION. IT SHALL HAVE A RED BACKGROUND WITH 6" WHITE LETTERS THAT READ "FDC". IT SHALL BE MOUNTED HIGH ABOVE THE CONNECTION AS TO NOT BE OBSTRUCTED BY VEHICLES, LANDSCAPING, ETC.

ROOF ACCESS LADDER PER BUILDER'S SPECS. AIR & WEATHER BARRIER TO BE PROPERLY DETAILED $^{\prime}$ around ladder wall anchors per air barrier manufacturer's recommendations and details

 $18\rangle$ 3 coat 3/4" stucco finish over metal lathe on felt paper. Stucco on walls with joints

19 6" STUCCO TOP TRIM W/ 6" SIDE TRIM AS PER ELEVATION.

 $\langle 20 \rangle$ 6" STUCCO BOOT, SLOPE AWAY FROM WALL FOR WATER DRAINAGE.

21A STEM LIGHT FIXTURE PER ELECTRICAL. REFER REFLECTED CEILING PLAN FOR FIXTURE HEIGHTS.

♦1В WALL-PACK LIGHT FIXTURE PER ELECTRICAL. REFER REFLECTED CEILING PLAN FOR FIXTURE HEIGHTS. 210 DECORATIVE WALL LIGHT FIXTURE PER ELECTRICAL. REFER REFLECTED CEILING PLAN FOR FIXTURE HEIGHTS.

N BREAK METAL CLADDING 18 GAUGE COPING CAP. CONTRACTOR TO PROVIDE ENOUGH

BACKING/SUPPORT TO GAUGE METAL TO PREVENT OIL CANNING MANUFACTURED STONE STACKED (STACK BLOCK). REFER ELEVATION DWG A109-1 FOR SPECS. 23 VERIFY STYLE & COLOR W/ OWNER. PROVIDE WEEP HOLES AT LUG PER CODE, PROVIDE VERT. & HOR. REINF. PER ENGINEER. MORTAR COLOR TO BE APPROVED BY DESIGN TEAM (REF. ELEV. FOR HT'S.)

 $\langle 27 \rangle$ REAR/SIDE DOORS PER DOOR SCHEDULE.

and unit addressing shall be visible from the Fire Lane. Illuminated and contrasting in color from the

2. Provide a minimum 36-inch horizontal and 72-inch vertical clearance around all electrical panels.

fire lane: 4" MIN. Height; Up to 50' = 4" MIN. Height 51' - 100'.

Inspector will verify addressing for the building upon inspection.

background. The following criteria shall be applied for proper sizing and is based on the distance from the

18 GA CONDUCTOR HEAD AND DOWNSPOUT AND OVERFLOW SCUPPER DISCHARGE AT GRADE -

PROVIDE A SHELF ANGLE; REFER TO ELEV. FOR HTS.; REFER TO STRUCTURAL DRAWINGS FOR SHELF ANGLE INSTALLATION DETAILS.

DIE:
APPROVED ADDRESS NUMBERS WILL BE REQUIRED. BUILDING NUMBERS TO BE ATTACHED TO EACH STRUCTURE. CONTRACTOR TO COORDINATE LOCATION WITH FIRE
ARSHAL PRIOR TO INSTALLATION. ADDRESS NUMBERS SHALL BE ARABIC NUMERALS, 8" HIGH OR MAY BE LARGER FOR VISIBILITY, MINIMUM STROKE WIDTH OF 0.5" AND SHALL
INTRAST WITH THEIR BACKGROUND. ADDRESS NUMBERS TO BE VERIFIED. ENSURE PLACEMENT IS NOT OBSCURED BY CURRENT OR FUTURE LANDSCAPE GROWTH. ASSIGNED CITY SERVICE ADDRESSES SHALL BE PERMANENTLY AFFIXED TO ALL BUILDINGS. BUILDING NUMBERS SHALL BE ATTACHED TO EACH STRUCTURE. NEW AND EXISTING BUILDINGS SHALL BE PROVIDED WITH APPROVED ADDRESS IDENTIFICATION. ADDRESS IDENTIFICATION CHARACTERS SHALL BE LEGIBLE AND PLACED IN A POSITION THAT IS VISIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY. ADDRESS IDENTIFICATION CHARACTERS SHALL CONTRAST WITH THEIR BACKGROUND. ADDRESS NUMBERS SHALL BE ARABIC NUMBERS OR ALPHABETICAL LETTERS. NUMBERS SHALL NOT BE SPELLED OUT. EACH CHARACTER SHALL BE NOT LESS THAN B INCHES HIGH WITH A MINIMUM STROKE WIDTH OF 1 INCH. WHERE REQUIRED BY THE FIRE CODE OFFICIAL, ADDRESS IDENTIFICATION SHALL BE PROVIDED IN ADDITIONAL APPROVED LOCATIONS TO FACILITATE EMERGENCY RESPONSE. WHERE ACCESS IS BY MEANS OF A PRIVATE ROAD AND THE BUILDING CANNOT BE VIEWED FROM THE PUBLIC WAY, A MONUMENT, POLE OR OTHER SIGN OR MEANS SHALL BE USED TO IDENTIFY THE STRUCTURE. ADDRESS IDENTIFICATION SHALL BE MAINTAINED.

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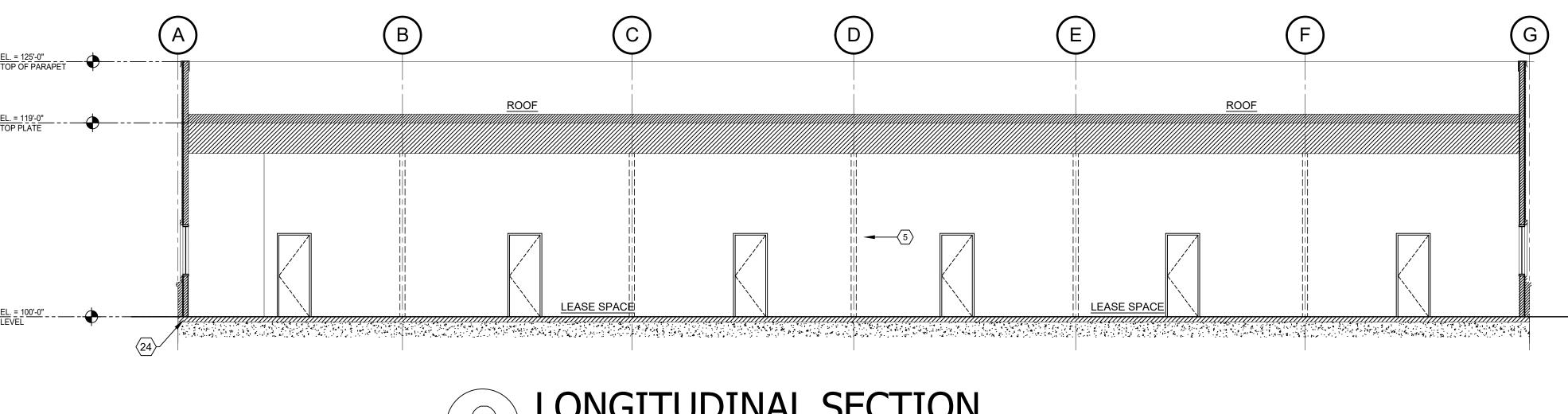
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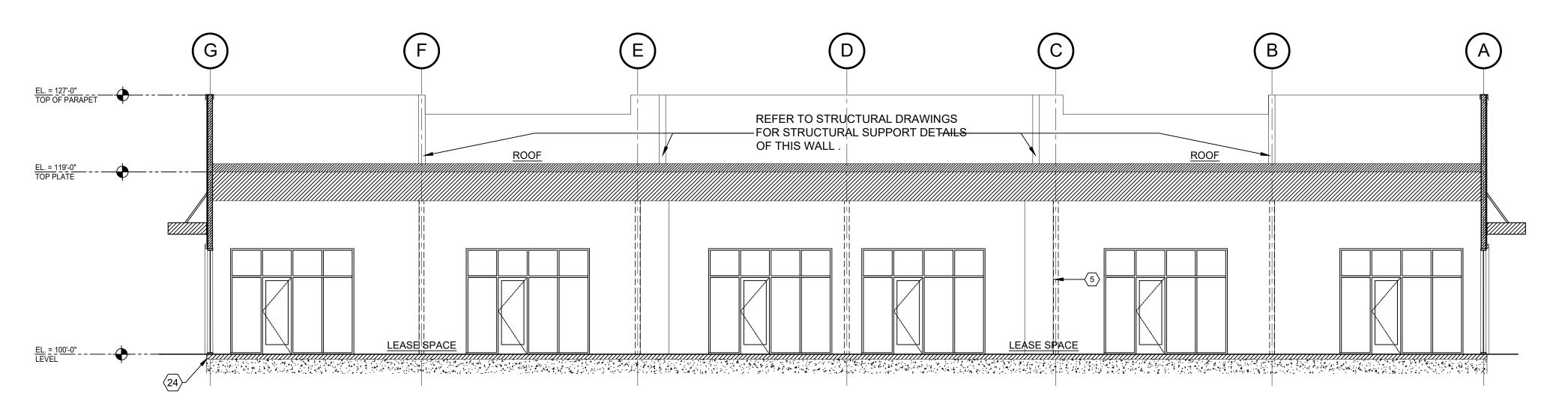
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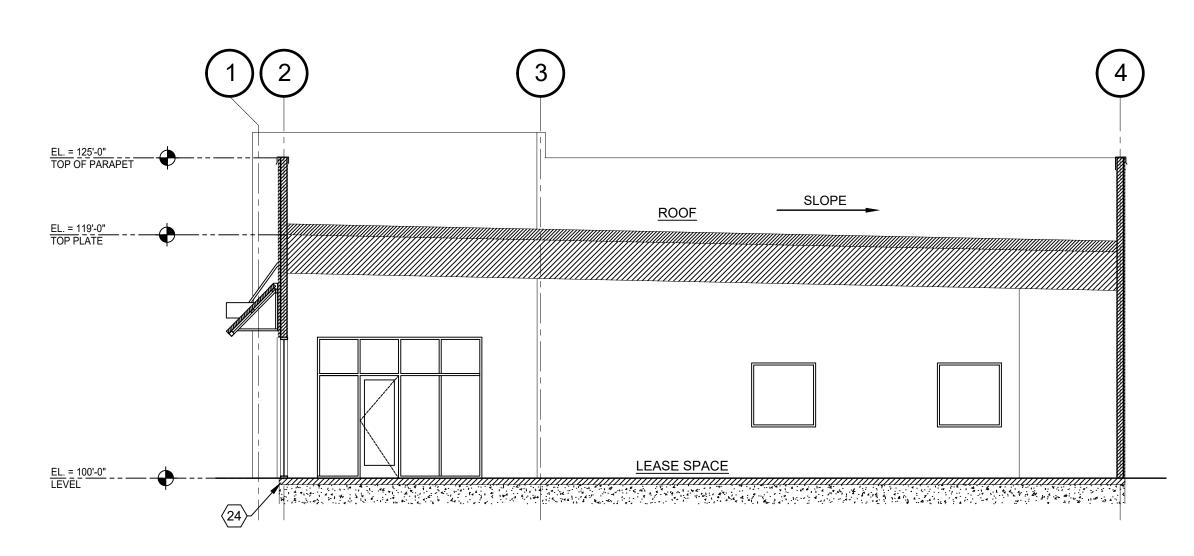
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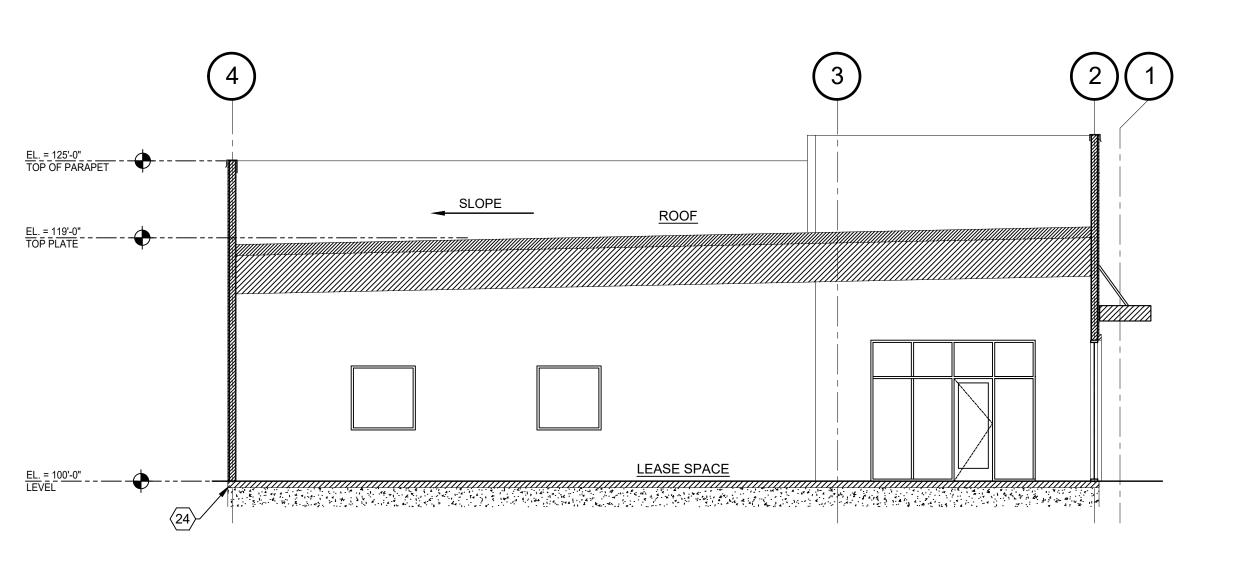


LONGITUDINAL SECTION SCALE = 1/8"-1'-0"



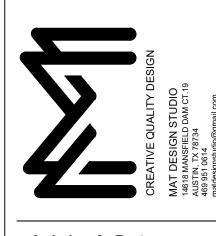
LONGITUDINAL SECTION SCALE = 1/8"-1'-0"





CROSS-SECTION SCALE = 1/8"-1'-0"





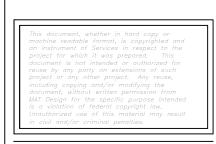
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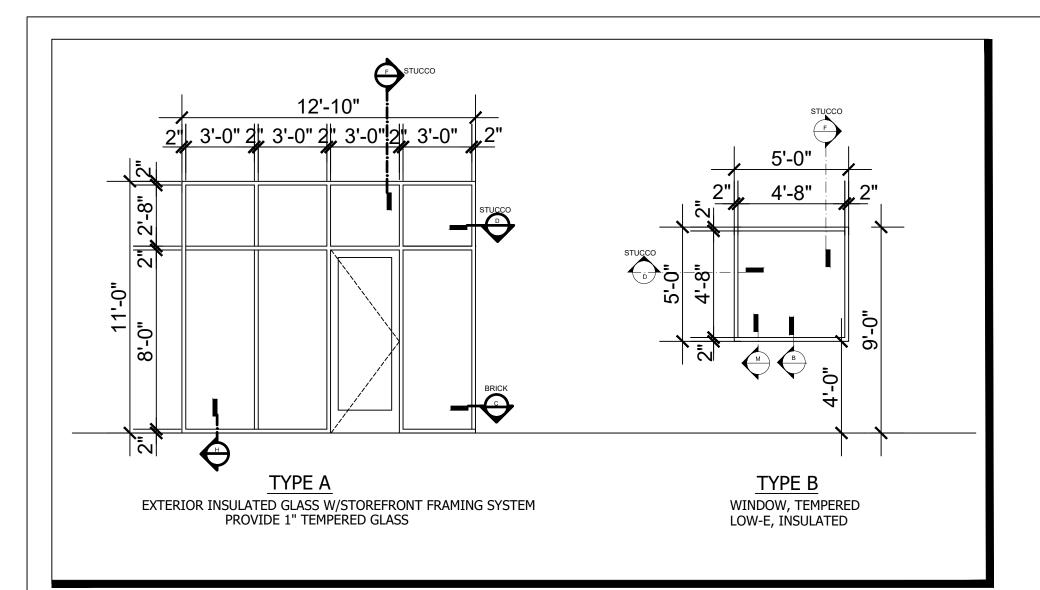
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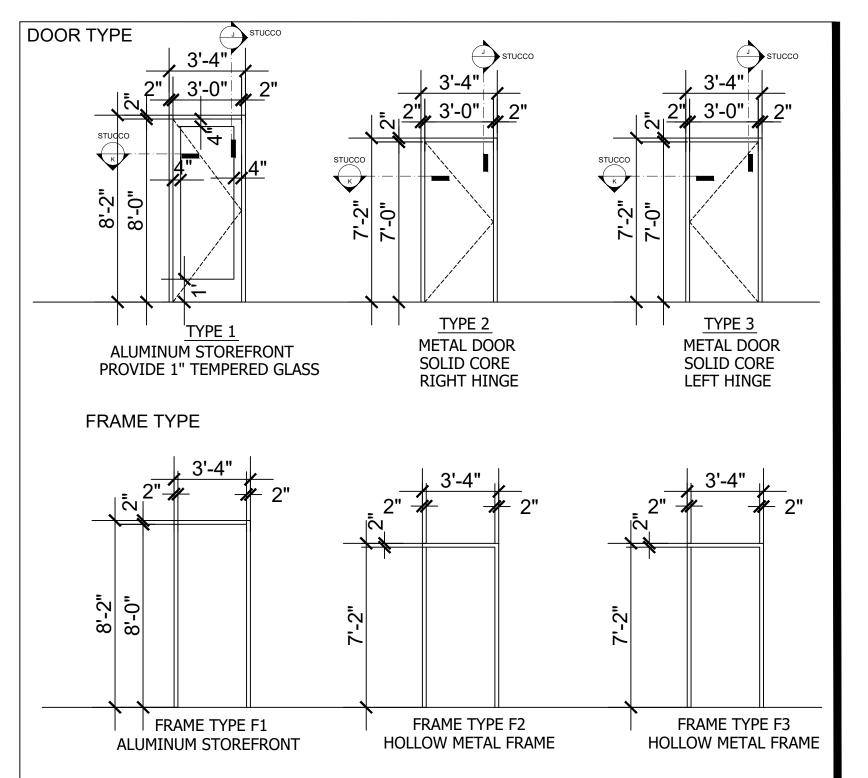
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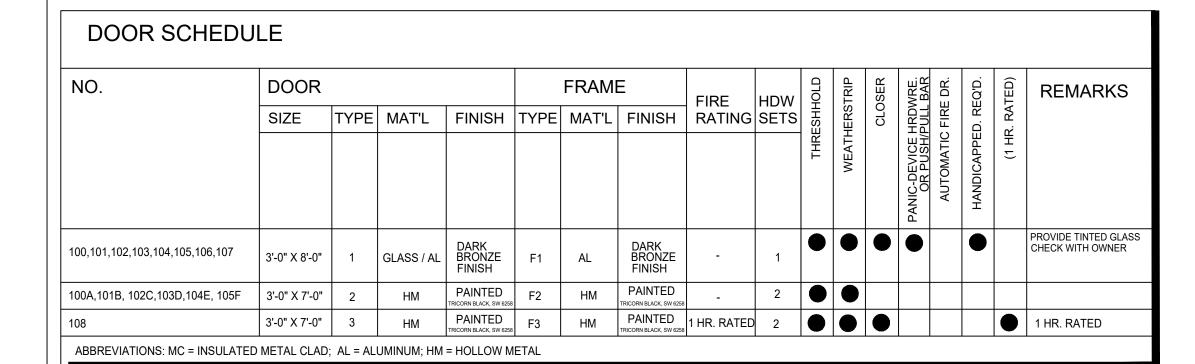
MONARCH ELL BUILDING SHELL SHOPS / LEANDER, THE S RETAIL



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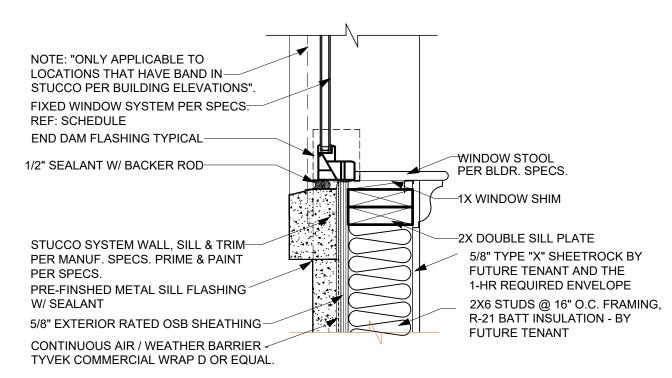




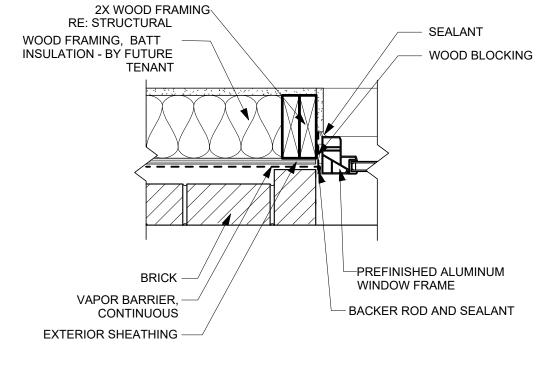
EXIT DOORS SHALL NOT REQUIRE SPECIAL TOOLS OR KNOWLEDGE TO OPERATE. DOUBLE KEY DEAD-BOLTS ARE NOT ALLOWED UNLESS DOOR IS PROVIDED WITH PANIC HARDWARE THAT OVERRIDES THE LOCKING MECHANISM.

NOTE: ALL WINDOW & DOOR FRAMES TO MATCH

STO	REFRON	T & WINDO	W SCHEDULE			
NO.	SIZE	TYPE	GLASS	FRAME	MANF.	REMARKS
A	12-10" X 11'-0"	FIXED GLS. / AL	TEMPERED 1" THK. / CLEAR LOW-E INSULATED GLASS, TINTED	DARK BRONZE	TBD	REFER TO ELEVATIONS, FOLLOW MANUFACTURER'S RECOMMENDATIONS
В	5-0" X 5'-0"	FIXED GLS. / AL	TEMPERED 1" THK. / CLEAR LOW-E INSULATED GLASS, TINTED	DARK BRONZE	TBD	REFER TO ELEVATIONS, FOLLOW MANUFACTURER'S RECOMMENDATIONS

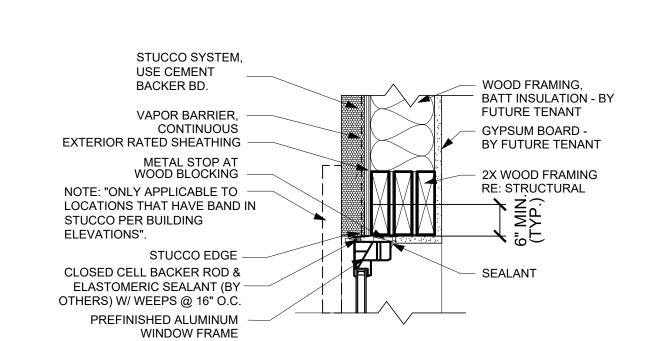






JAMB DETAIL AT BRICK TYP.





F) WINDOW HEAD DET. AT STUCCO/ METAL PANEL WINDOW HEAD DET. AT BRICK TYP.

AL / GLASS STOREFRONT

EXTEND "Z FLASHING 1/2"

INTO EXP. JNT. AND SEAL

1" EXPANSION MATERIAL

SEALANT

WOOD BLOCKING

JOINT SEALANT

SITE PAVING

SELF-LEVELING EXPANSION

REFER TO SCHEDULE

DOOR NOTES:

THE LEADING EDGE OF THE DOOR.

HARDWARE NOTES:

1. ALL EXTERIOR DOORS WITH FRAMES ARE TO BE INSULATED, U.N.O.

2. FIELD VERIFY ALL ROUGH OPENINGS PRIOR TO SUBMITTING SHOP DRAWINGS.

ACCESSIBLE DOOR PASSAGE SHALL BE MOUNTED NO HIGHER THAN 48" ABOVE FINISHED FLOOR.

WHEN FIRE DOORS ARE UTILIZED, THE MAX EFFORT MAY BE INCREASED TO NOT EXCEED 15 LBS.

PROVIDE LEVER-STYLE LATCHSETS AND LOCKSETS FOR ALL DOORS WITH SATIN/STAINLESS STEEL FINISH

FINAL KEYING TO BE PROVIDED BY HARDWARE SUBCONTRACTOR IN COORDINATION WITH THE OWNER.

THRESHOLDS AND FLOOR LEVEL CHANGES AT ACCESSIBLE DOORWAYS SHALL BE BEVELED WITH A SLOPE NO GREATER THAN 1:2. DOOR

HARDWARE, HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERATING DEVICES ON ACCESSIBLE DOORS SHALL HAVE A SHAPE THAT IS EASY

TO GRASP WITH ONE HAND AND DOES NOT REQUIRE TIGHT GRASPING, TIGHT PINCHING OR TWISTING OF THE WRIST TO OPERATE. LEVER OPERATED MECHANISMS, PUSH-TYPE MECHANISMS AND U-SHAPED HANDLES ARE ACCEPTABLE DESIGNS. HARDWARE REQUIRED FOR

4. THE MAX PULL/PUSH EFFORT TO OPERATE DOORS SHALL NOT EXCEED 5LBS WITH EFFORT APPLIED AT RIGHT ANGLES TO HNGED DOORS.

POSITION OF 70 DEGREES, THE DOOR WILL TAKE AT LEAST 3 SECONDS TO MOVE TO A POINT 3 IN (75MM) FROM THE LATCH, MEASURED TO

6. HEIGHT AND LENGTH DIMENSIONS SHOWN FOR DOOR, STOREFRONTS ETC. ARE ROUGH OPENING DIMENSIONS, CONTRACTOR TO REDUCE

5. DOOR CLOSER, IF A DOOR HAS A CLOSER, THEN THE SWEEP PERIOD OF THE CLOSER SHALL BE ADJUSTED SO THAT FROM AN OPEN

THE HARDWARE SETS THAT INCLUDES FINAL CORES - CONTRACTOR TO USE CONSTRUCTION CORE DURING CONSTRUCTION.

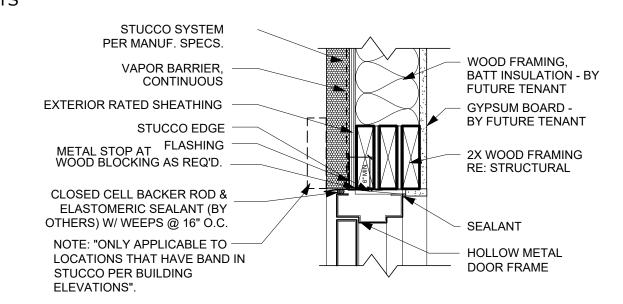
. PROTECT EXISTING WINDOWS DURING CONSTRUCTION AND CLEAN THOROUGHLY BEFORE TURN OVER OF THE PROJECT.

3. THRESHOLDS AT DOORWAYS SHALL NOT EXCEED $\frac{1}{2}$ " IN HEIGHT. RAISED

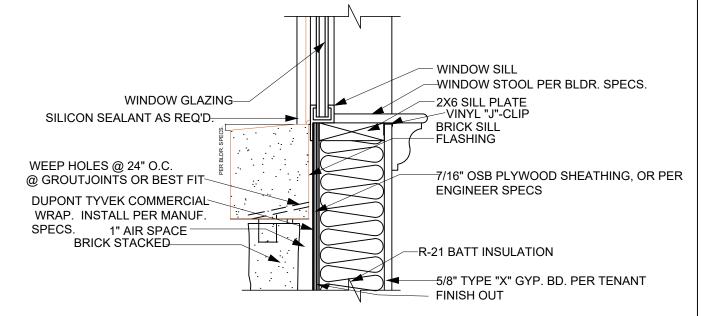
APPROPRIATE FRAME DIMENSION TO FIT THE FRAME IN THE ROUGH OPENING.

INTERIOR GLAZING SHALL BE SINGLE PANE: 1/4" CLEAR TEMPERED GLASS

ALL DOOR HARDWARE TO BE ADA / TAS COMPLAINT



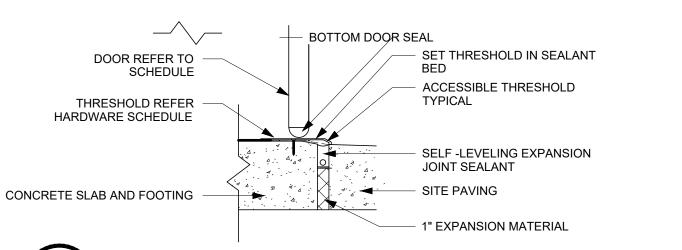




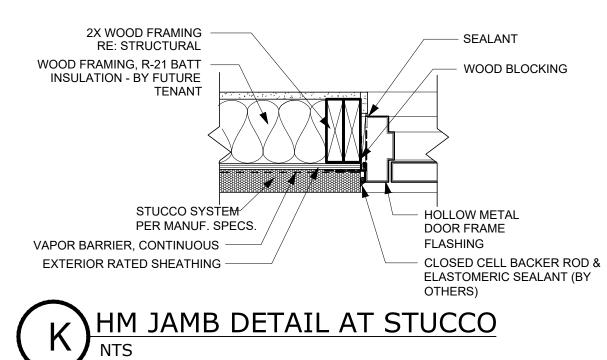


2X WOOD FRAMING RE: STRUCTURAL SEALANT WOOD FRAMING, BATT INSULATION - BY FUTURE - WOOD BLOCKING CONTINUOUS WOOD FRAMING, BATT **INSULATION - BY FUTURE** TENANT STEEL LINTEL RE: STUCCO SYSTEM, GYPSUM BOARD STRUCTURAL **USE CEMENT** BY FUTURE TENANT BACKER BD. WOOD BLOCKING 2X WOOD FRAMING RE: STRUCTURAL FLASHING VAPOR BARRIER, BACKER ROD AND SEALANT CONTINUOUS PREFINISHED ALUMINUM SEALANT WINDOW FRAME PREFINISHED ALUMINUM EXTERIOR RATED SHEATHING WINDOW FRAME NOTE: "ONLY APPLICABLE TO CLOSED CELL BACKER ROD & LOCATIONS THAT HAVE BAND IN-ELASTOMERIC SEALANT (BY OTHERS) STUCCO PER BUILDING



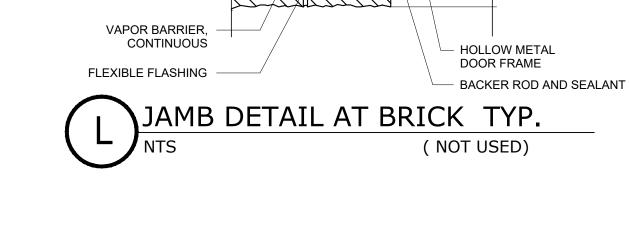


THRESHOLD DETAIL AT ENTRY DOOR



DOOR HARDWARE SET 2 METAL DOOR SET 1 ALUMINUM STOREFRONT DOORS 1 LEVER TYPE HANDLE WITH KEYED LOCKSET CLOSER: ADD PER OWNER APPROVAL SARGENT 1100 SERIES ADAMSRITE MS 185/S 3PT LATCH WITH BEST CYLINDERS #4085 POSITIONER SILENCERS: FLIP UP TYPE WITH RUBBER SHOE DOOR SWEEP: KERF STYLE SWEEP WEATHERSTRIPPING: ALL SIDES, MANUFACTURER'S RECOMMENDATION EXTRUDED ALUM IN MILL FINISH, OVERALL HT. OF 1/2" PEMKO EQUAL OR MANUF. RECOMMENDATIONS WEATHERSEAL PANIC HARDWARES OR STD. ALUM STYLE F-2, FULL DOOR WIDTH. ALL DOOR LEAFS ON PUSH SIDE OF DOORS STD. ALUM STYLE F-2 OR MANUF. RECOMMENDATION FULL DOOR WIDTH, EXTERIOR OF 'OUT' DOORS. NOTE: ALL CYLINDERS SHALL BE KEYED ALIKE

PROVIDE TWO (2) KEYS AND ONE (1) CONTROL KEY



SILL DETAIL AT STOREFRONT

END DAM FLASHING - TYP.

NON-CORROSIVE SHIMS

W/ SEALANT BOTH SIDES

FLASHING SET IN MASTIC, TO

MATCH STOREFRONT FINISH

CONT. SEALANT & BACKER ROD

CONCRETE SLAB AND FOOTING

SEAL ANCHOR PENETRATIONS

2X WOOD FRAMING

WOOD FRAMING, BATT

EXTERIOR RATED SHEATHING -

INSULATION - BY FUTURE

RE: STRUCTURAL

ALUM. BREAK MTL. "Z"

BOTH SIDES - TYP.

AND ANCHOR HEADS

1. TO ENSURE A CONTINUOUS AIR BARRIER ACROSS THE BUILDING ENVELOPE, A CONTINUOUS AIR SEAL SHOULD BE MADE AT EACH SUBSTRATE CHANGE, JOINTS/GAPS. PENETRATIONS AND DISSIMILAR MATERIAL TERMINATIONS, ALWAYS POSITIVELY SHINGLE AIR VAPOR BARRIER/ FLASHING TO ELIMINATE WATER LEAKS. USE MANUFACTURER RECOMMENDED DETAIL. 2. DO NOT USE PLASTIC TRACK AT WINDOW HEAD.

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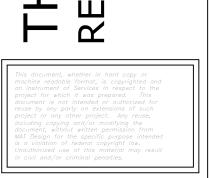
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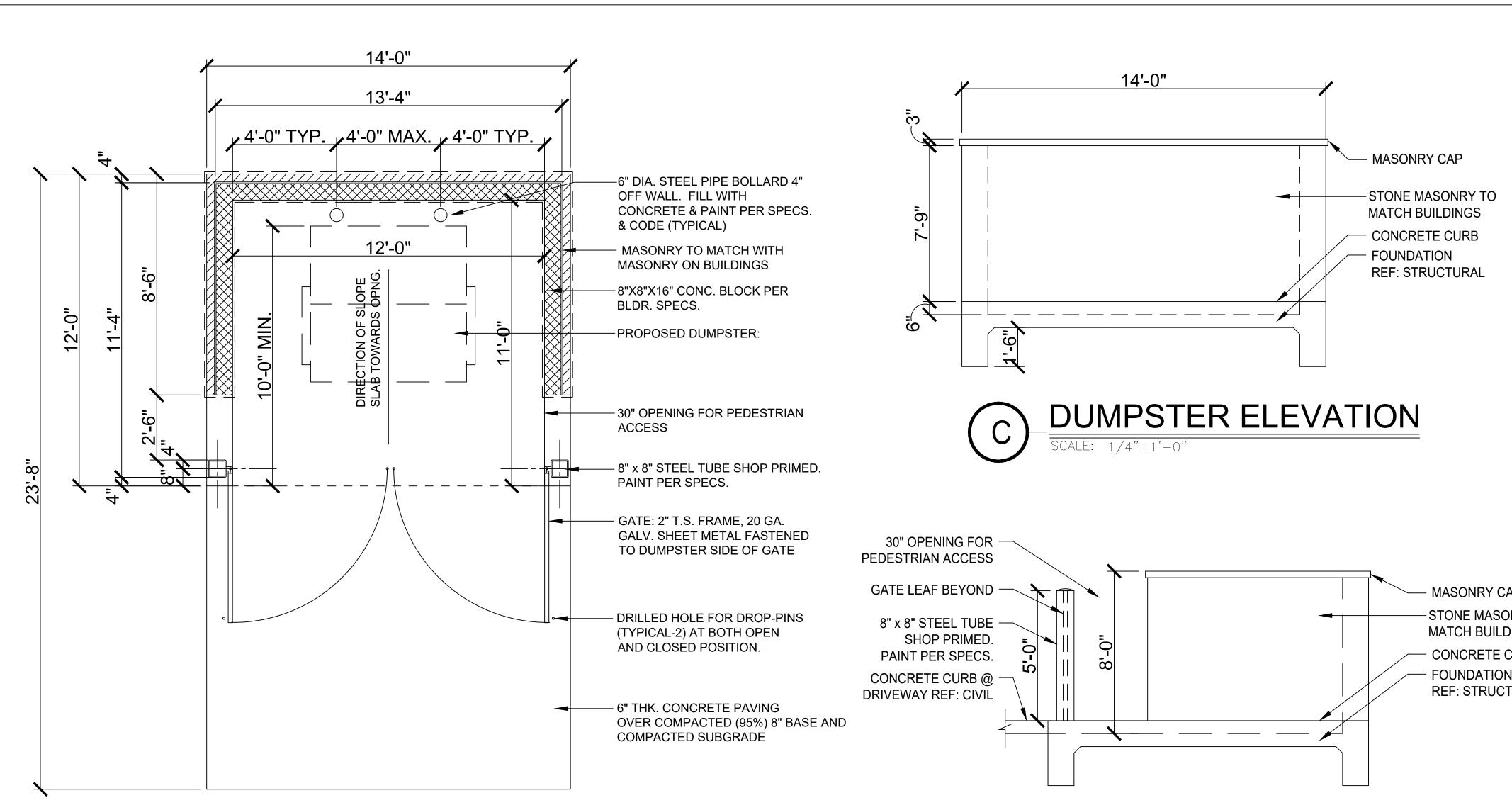
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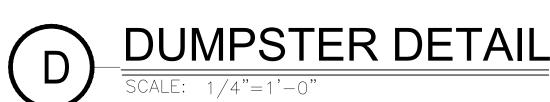
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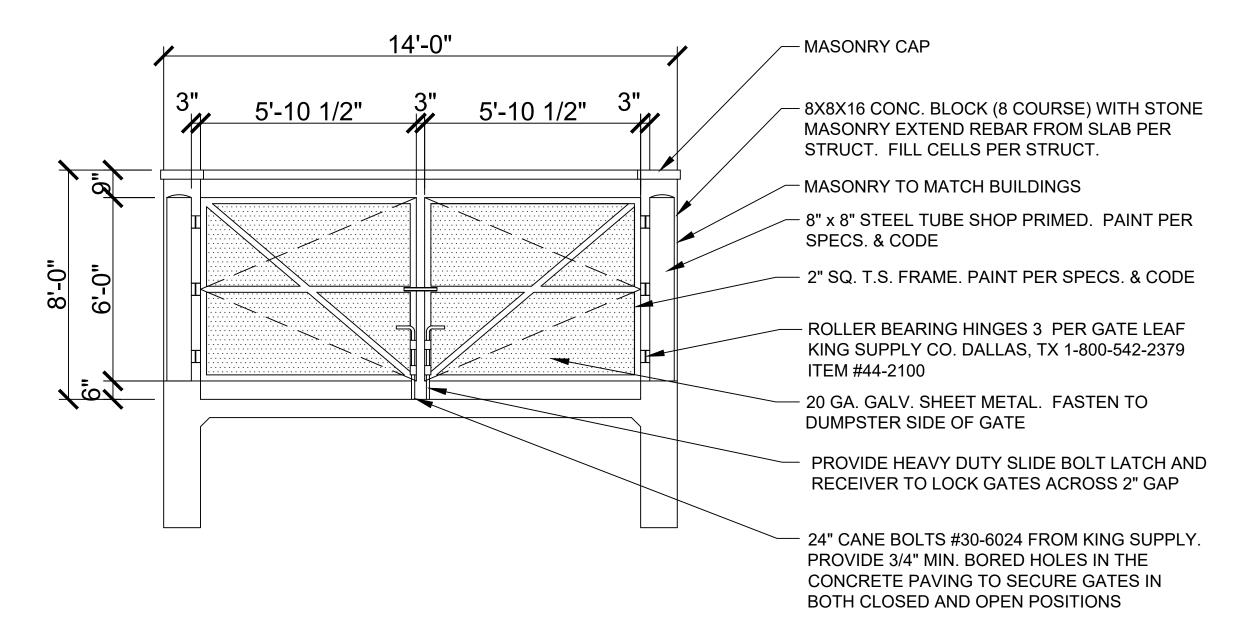
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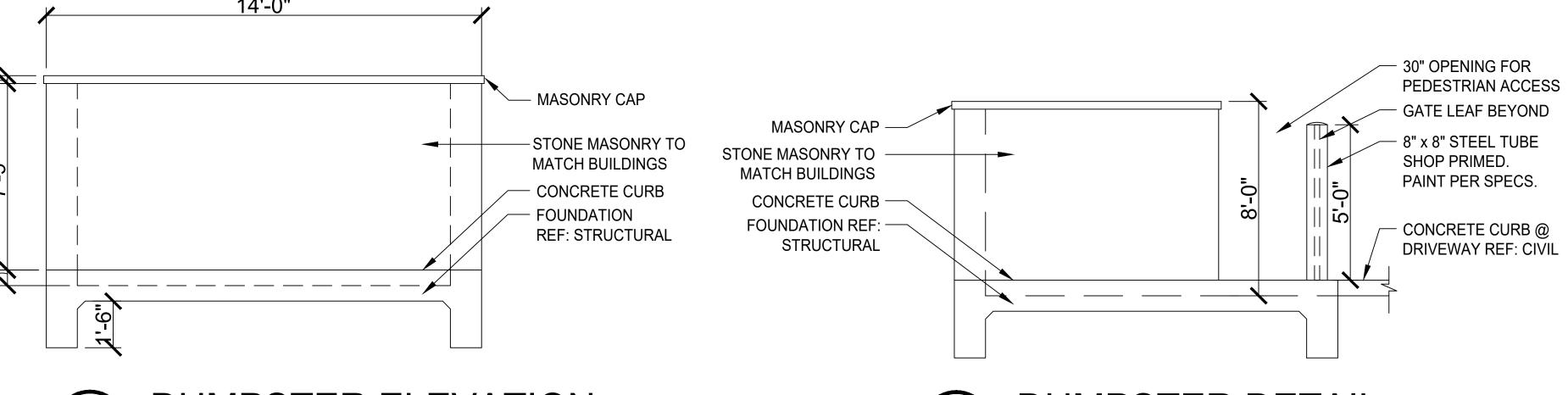


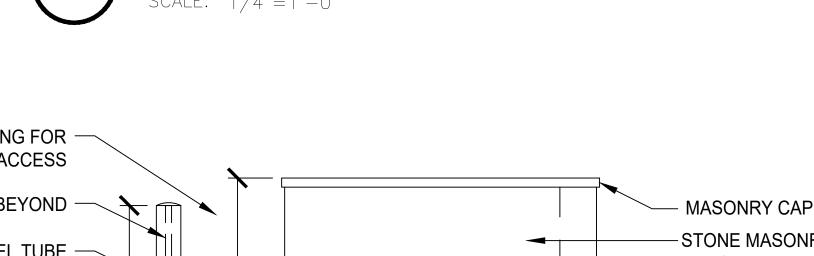






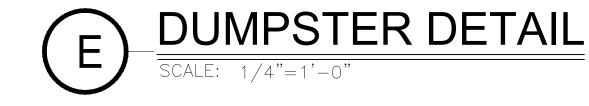
DUMPSTER PLAN

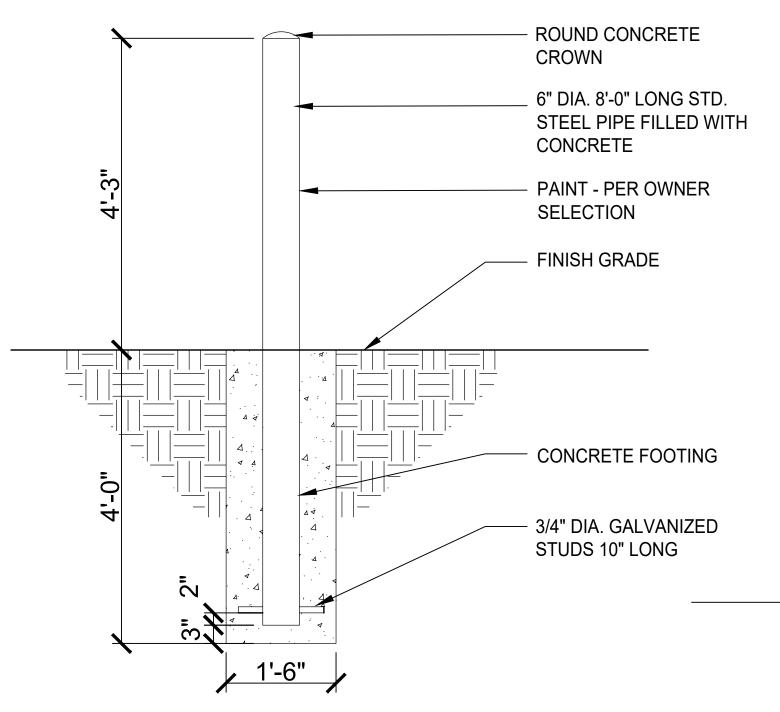




MASONRY CAP -STONE MASONRY TO MATCH BUILDINGS **CONCRETE CURB** - FOUNDATION REF: STRUCTURAL











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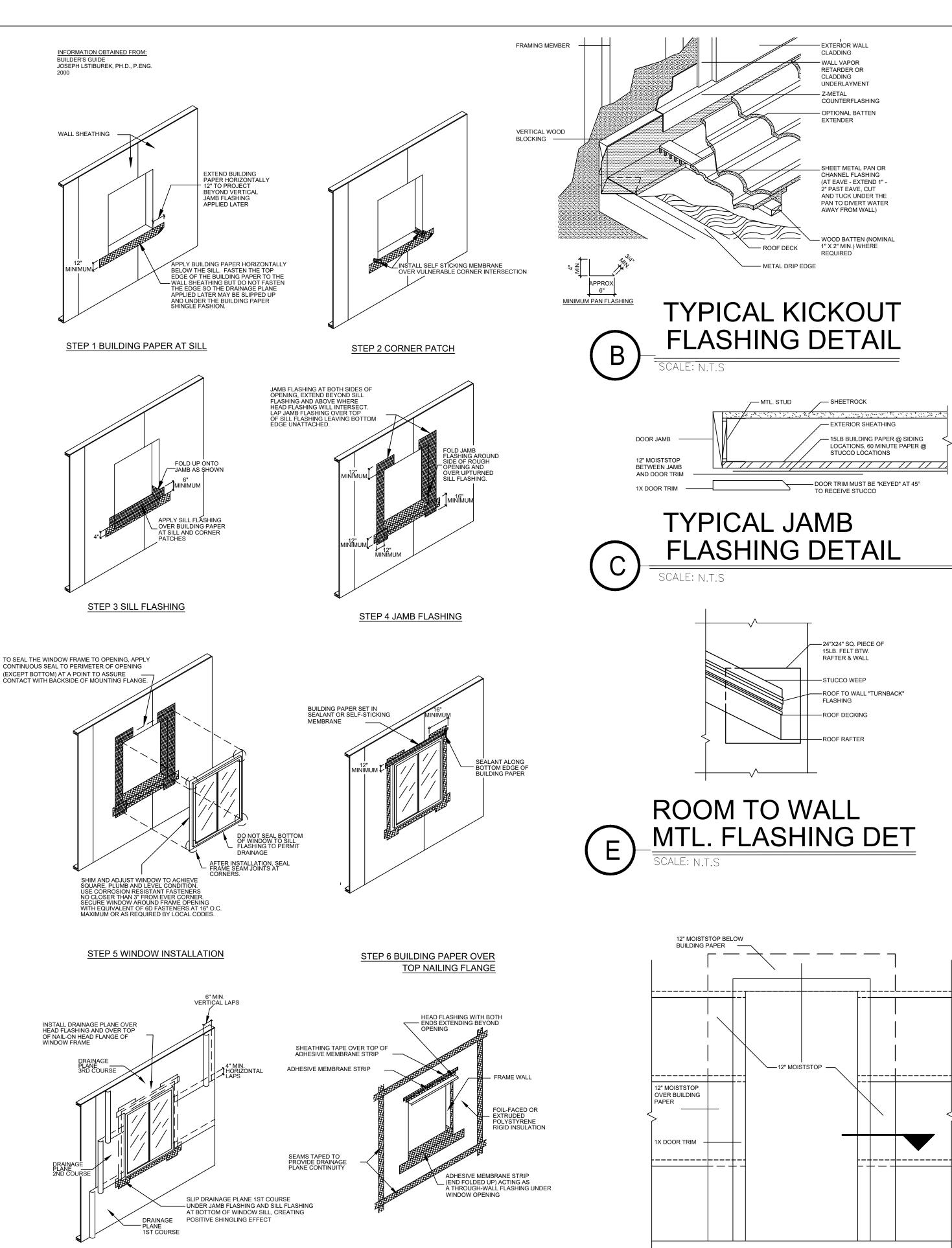
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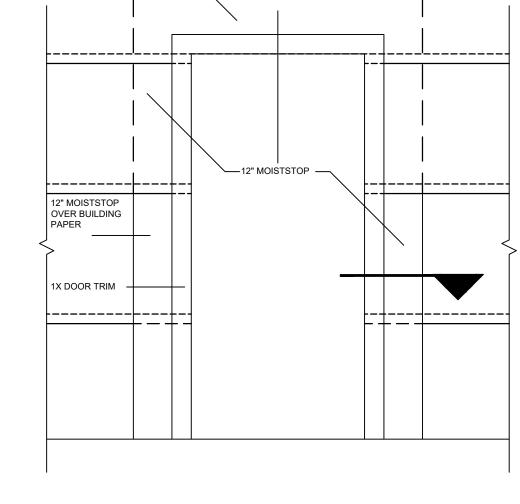
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Project Number: 24 - 035

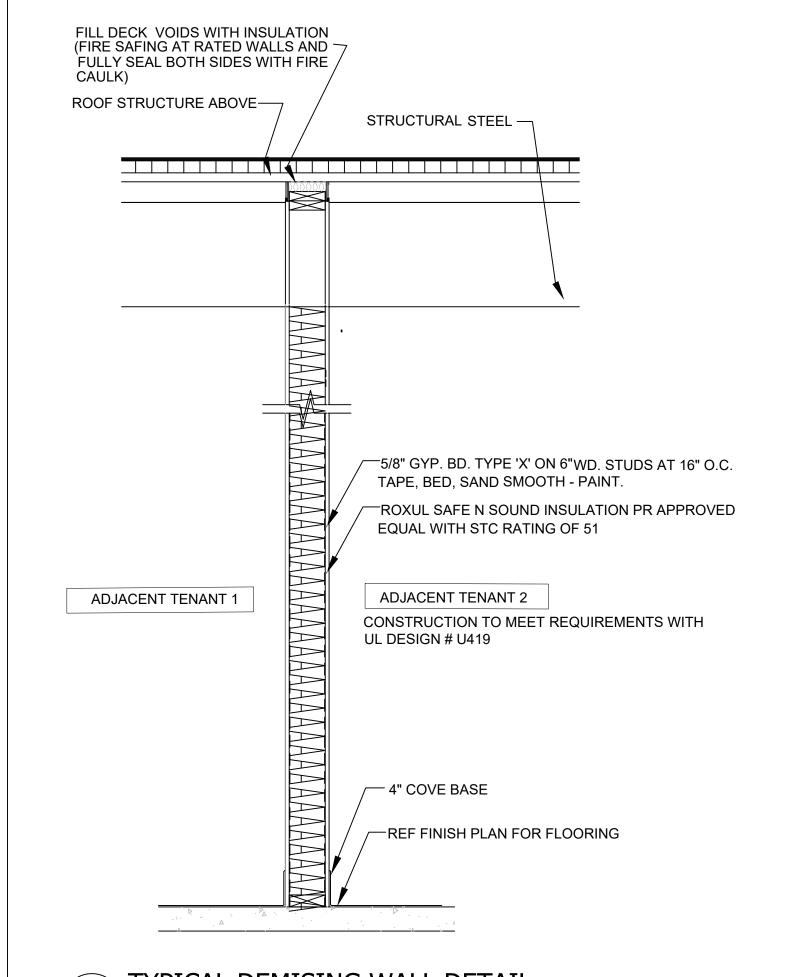


STEP 8 TAPED RIDGID INSULATION

AS DRAINAGE PLANE



TYPICAL DOOR FLASHING DETAIL (F) D



TYPICAL DEMISING WALL DETAIL 1 HR RATED / UL # U419

PENETRATIONS IN AND PERIMETER OF FIRE RATED WALLS SHALL BE FIRE

—BUILDING PAPER

-24"X24" SQUARE PIECE OF 15LB FELT BETWEEN ROOF

RAFTER AND WALL

BUILDING PAPER

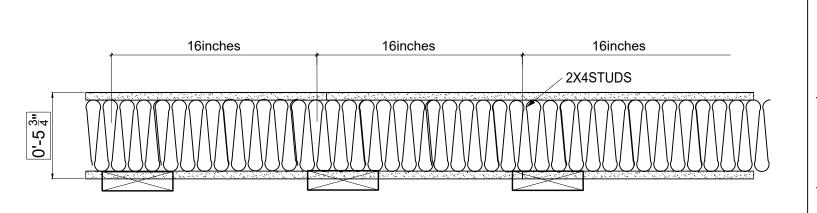
-SQUARE FELT IS BLW. BUILDING PAPER

SQUARE FELT IS ABOVE

STOPPED AND SEALED WITH UL APPROVED MATERIALS. 2. WALL ASSEMBLIES SHALL COMPLY WITH UL# U419.

WALL ASSEMBLY 1-1/4" MAX. -FIRE SAFING INSULATION FIRECAULK PENETRATION 1/4" MIN.

WALL PENETRATION DETAIL



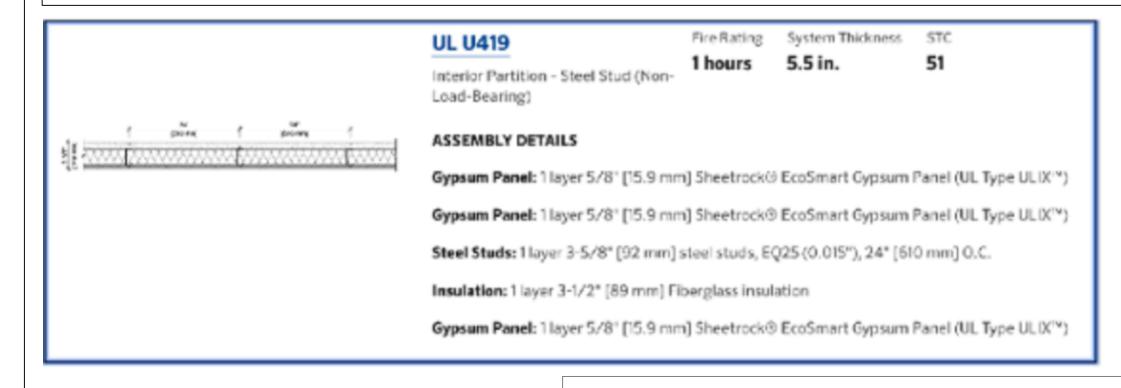
DEMISING WALL PLAN 1 HR RATED / UL # U419

NOTE:

TENANT DEMISING WALLS ARE NOT REVIEWED UNDER THIS PERMIT AND ARE SHOWN FOR POTENTIAL LOCATION REFERENCE ONLY.

NOTE:

UL DESIGN NO. P561 IS RECOMMENDED CEILING ASSEMBLY FOR FIRE RISER ROOM TO ACHIEVE ONE HOUR RATING IN CEILING. UL # U419 IS THE RECOMMENDED DETAIL FOR THE FIRE RISER ROOM WALLS. REFER TO DETAIL 1 ON A113 FOR THE ONE HOUR RATED FIRE RISER ROOM WALL DETAIL.



System Thickness STC Steel C-Joist (Load-Bearing) 1.5 Hours ASSEMBLY DETAILS Roof Covering: 1 layer 5/8" Thick Gypsum Fiber Roof Board (UL Type FRX-G™) Structural Cement-Fiber Units: 1 layer 3/4" Thick, USG Structural Panel Concrete Subfloor (USGSP), with long edges tongue and grooved, long dimension of panels to be perpendicular to Joists (UL Type USGSP) Structo-Crete® Brand Structural Panels Steel Joists: 1 layer 10" Deep, 16ga., Spaced 24" Max. O.C. Clip Angles (Not Shown): 1 layer One Clip Angle per Joist End Insulation: 1 layer 3-1/2" Thick Glass Fiber Batt Insulation Resilient Channel: 1 layer 1/2" 25ga. Resilient Channel Spaced 16" O.C. Gypsum Panel: 1 layer 5/8" [15.9 mm] Sheetrock® EcoSmart Gypsum Panel (UL Type ULIX™)

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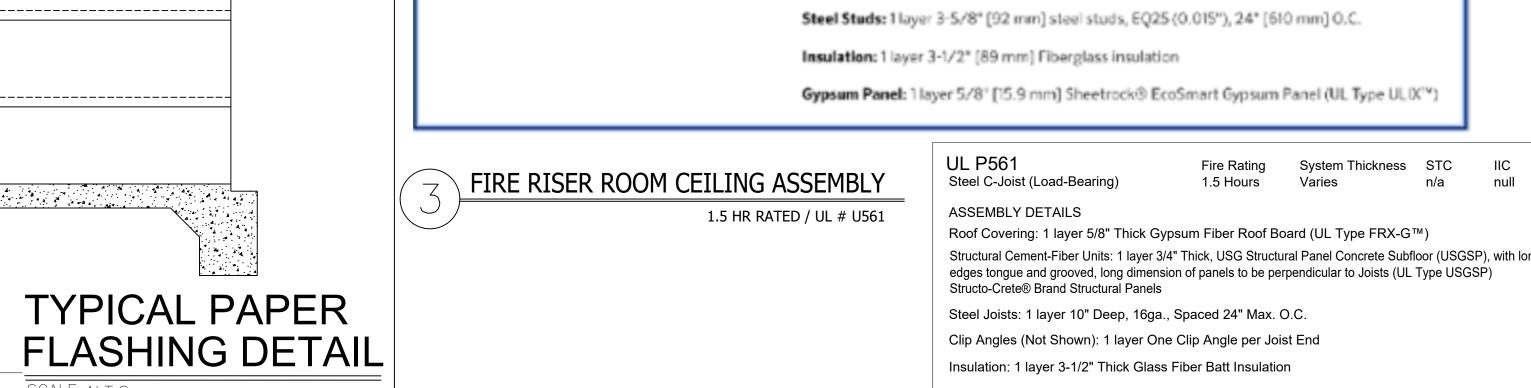
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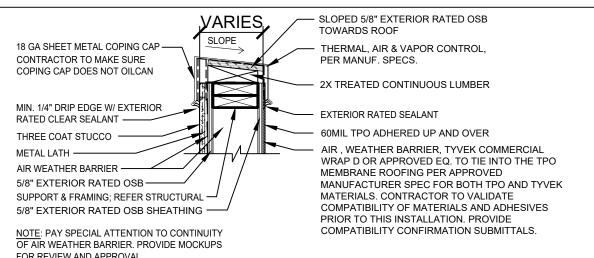
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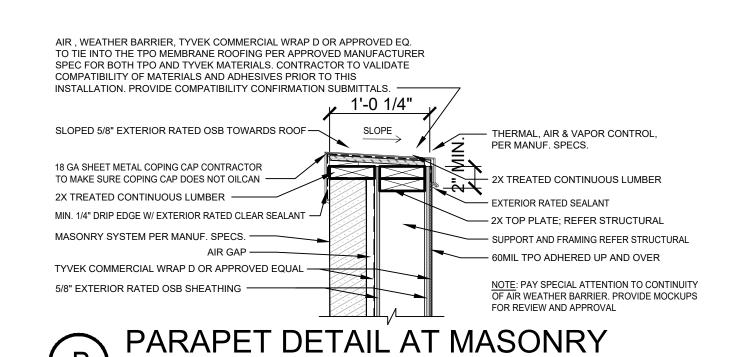


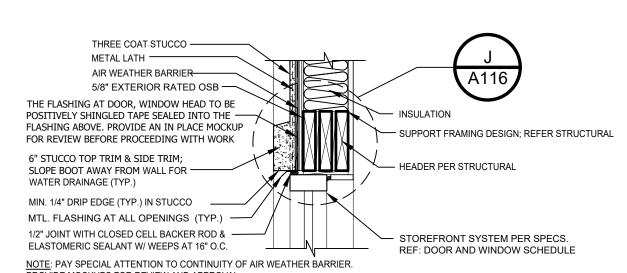


STEP 7 DRAINAGE PLANE APPLICATION

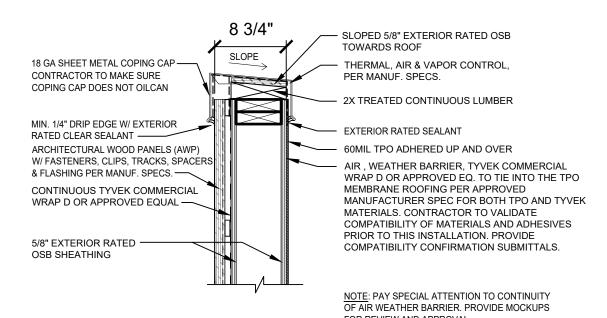


FOR REVIEW AND APPROVAL PARAPET DETAIL AT STUCCO

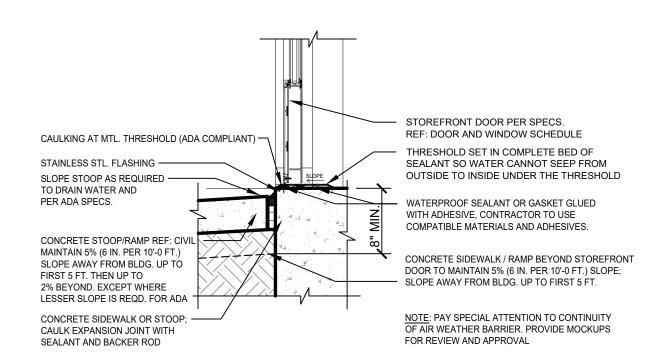




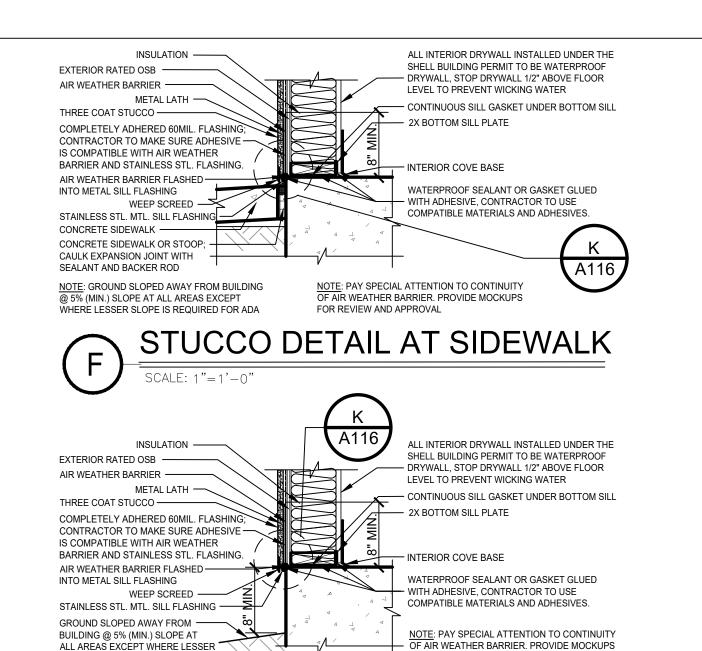


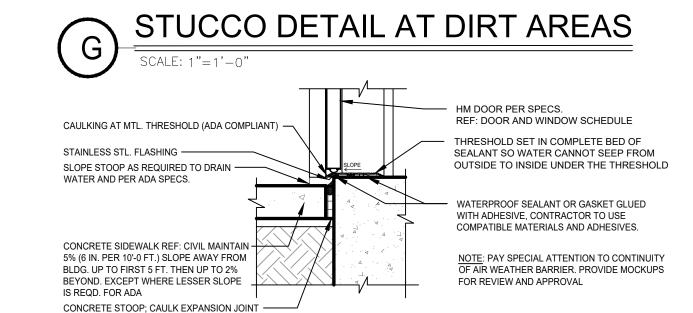














AIR WEATHER BARRIER TYVEK COMMERCIAL WRAP D

COMPLETELY ADHERED WATERPROOFING MEMBRANE POSITIVELY SHINGLED WITH TYVEK.

TYVEK TERMINATED WITH A COMPLETELY

ADHERED WATERPROOFING MEMBRANE

STAINLESS STL. METAL FLASHING

COMPATIBILITY WITH MATERIALS

JAIR WEATHER BARRIER T

COMMERCIAL WRAP D

EXTERIOR RATED CAULK & CLOSED SEAL BACKER ROD: CONTRACTOR TO CONFIRM

STOREFRONT SYSTEM HEAD -

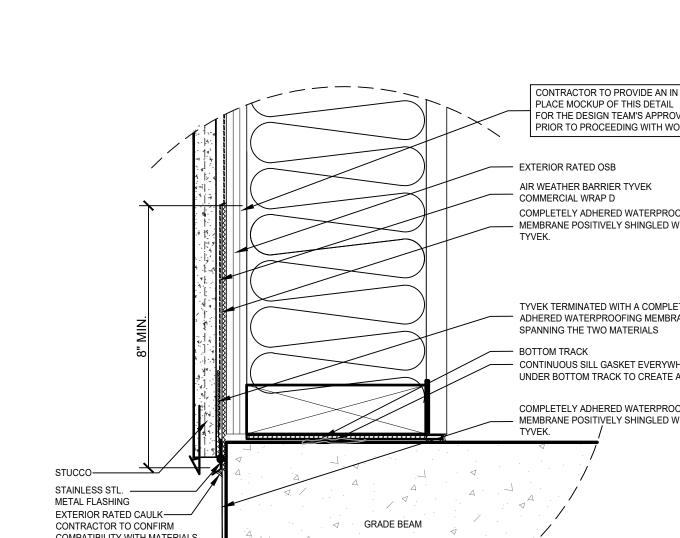
HEAD WATER-PROOFING

DETAIL AT STUCCO BOOT

SPANNING THE TWO MATERIALS

COMPLETELY ADHERED

SLOPE IS REQUIRED FOR ADA



EXTERIOR WALL SILL WATER PROOFING DETAIL AT GRADE BEAM

PROVIDE CONT. SEALANT BEAD AT TERMINATION BAR OF MEMBRANE FLASHING ANCHORED TO SHEATHING -TYP. THROUGH WALL MEMBRANE FLASHING ADHERE TO GROUT FILL & SHEATHING. TURN UP MIN 6" AND ADHERE TO SHEATHING, SEAL ALL EDGES & SEAMS CONTRACTOR TO PROVIDE AN IN PLACE MOCKUP OF THIS DETAIL FOR THE DESIGN TEAM'S APPROVAL PRIOR TO PROCEEDING WITH WORK - CAVITY FILLED W/ GROUT WEEP HOLES AT 24" O.C. — COMPLETELY ADHERED WATERPROOFING MEMBRANI FLASHING POSITIVELY SHINGLED WITH TYVEK. BOTTOM TRACI - CONTINUOUS∕SILL GASKET EVERYWHERE UNDER BOTTOM TRACK TO CREATE A SEAL GRADE BEAM STAINLESS STL. METAL FLASHING EXTERIOR RATED CAULK CONTRACTOR TO CONFIRM — COMPATIBILITY WITH MATERIALS

EXTERIOR WALL SILL WATER PROOFING DETAIL @ GRADE BEAM

AIR WEATHER BARRIER TYVEK

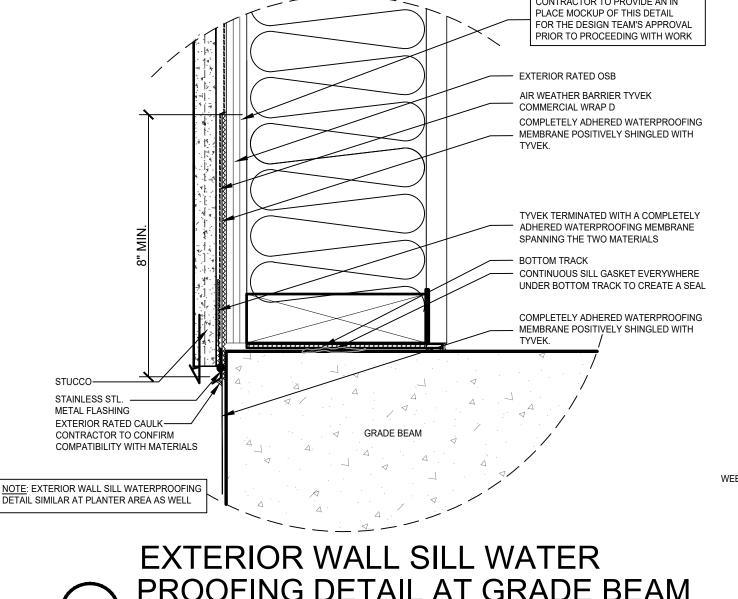
AIR, WEATHER BARRIER, TYVEK COMMERCIAL WRAP D OR APPROVED EQ. TO TIE INTO THE TPO MEMBRANE ROOFING PER APPROVED MANUFACTURER SPEC FOR BOTH TPO AND TYVEK MATERIALS. CONTRACTOR TO VALIDATE COMPATIBILITY OF MATERIALS AND ADHESIVES PRIOR TO THIS INSTALLATION. PROVIDE COMPATIBILITY CONFIRMATION SUBMITTALS.

NOTES: 1. TO ENSURE A CONTINUOUS AIR & WEATHER BARRIER ACROSS THE BUILDING ENVELOPE, A CONTINUOUS AIR & WEATHER SEAL SHOULD BE MADE AT EACH SUBSTRATE CHANGE, JOINTS/GAPS, PENETRATIONS & DISSIMILAR MATERIAL TERMINATIONS PER MANUFACTURER'S RECOMMENDED DETAILING. ALWAYS POSITIVELY SHINGLE AIR & WEATHER BARRIER / FLASHING TO ELIMINATE WATER LEAKS. USE MANUFACTURER RECOMMENDED DETAILS.

- 2. TRUSS MANUFACTURER TO BE CONTRACTED AS DESIGNBUILD SCOPE UNDER G.C.
- 3. CANOPIES AND AWNINGS DESIGN AND INSTALLATION ARE DELEGATED DESIGN BY THE CONTRACTOR. CONTRACTOR TO COORDINATE WITH CANOPY DESIGN TEAM AND INSTALL ALL REQUIRED BLOCKING
- 4. VALIDATE ALL BREAK-METAL COPING, TRIM, FLASHING ETC. DIMENSIONS IN THE FIELD. BREAK METAL CLADDING & COPING CAP TO BE 18 GA. CONTRACTOR TO PROVIDE ENOUGH BACKING/SUPPORT TO GAUGE METAL TO PREVENT OIL CANNING.
- 5. CONTRACTOR TO INSTALL EXPANSION JOINTS PER STUCCO MANUFACTURER REQUIREMENTS AND COORDINATE LOCATIONS WITH DESIGN TEAM.
- 6. TO ANCHOR ROOF ACCESS LADDER TO BUILDING, FOLLOW MANUFACTURER'S AIR BARRIER PATCH METHODS FOR INSTALLATION OF LADDER **ANCHOR AND SUPPORTS**

MASONRY SYSTEM MANUF, SPECS. MASONRY TIE REF. MANUF. SPACING (SEE ELEV. FOR HEIGHTS) —— REQUIREMENTS. CONTINUOUS TYVEK COMMERCIAL PROVIDE CONT. SEALANT BEAD AT TERMINATION OF MEMBRANE FLASHING WRAP D OR APPROVED EQUAL -5/8" EXTERIOR RATED OSB SHEATHING THROUGH WALL MEMBRANE FLASHING AIR GAP FILLED W/ GROUT ADHERE TO GROUT FILL & SHEATHING. TURN UP MIN 12" AND ADHERE TO SHEATHING, SEAL ALL EDGES & SEAMS. TYVEK POSITIVELY SHINGLED WITH THROUGH WALL FLASHING A116 2X BOTTOM SILL PLATE; THE FRAMING & FASTENING METHOD WILL BE BASED ON THE STUD FRAMING WEEP HOLES AT 24" O.C. -DELEGATED DESIGN SUBMITTAL. STAINLESS STL. SILL FLASHING -FLOORING PER SPECS GROUT FILL REF: CIVIL -WATERPROOF SEALANT OR GASKET GLUED WITH ADHESIVE, CONTRACTOR TO USE COMPATIBLE MATERIALS AND ADHESIVES. CONCRETE SIDEWALK REF: CIVIL CONCRETE SIDEWALK OR STOOP:-CALILK EXPANSION JOINT WITH NOTE: SIDEWALK SLOPED AWAY FROM BUILDING @ 5% (MIN.) SLOPE SEALANT AND BACKER ROD

MASONRY DETAIL AT SIDEWALK



ALL STEEL EXPOSED TO ELEMENTS OF NATURE MUST BE GALVANIZED. NOTE: AT ALL PARAPET ROOF DETAILS:



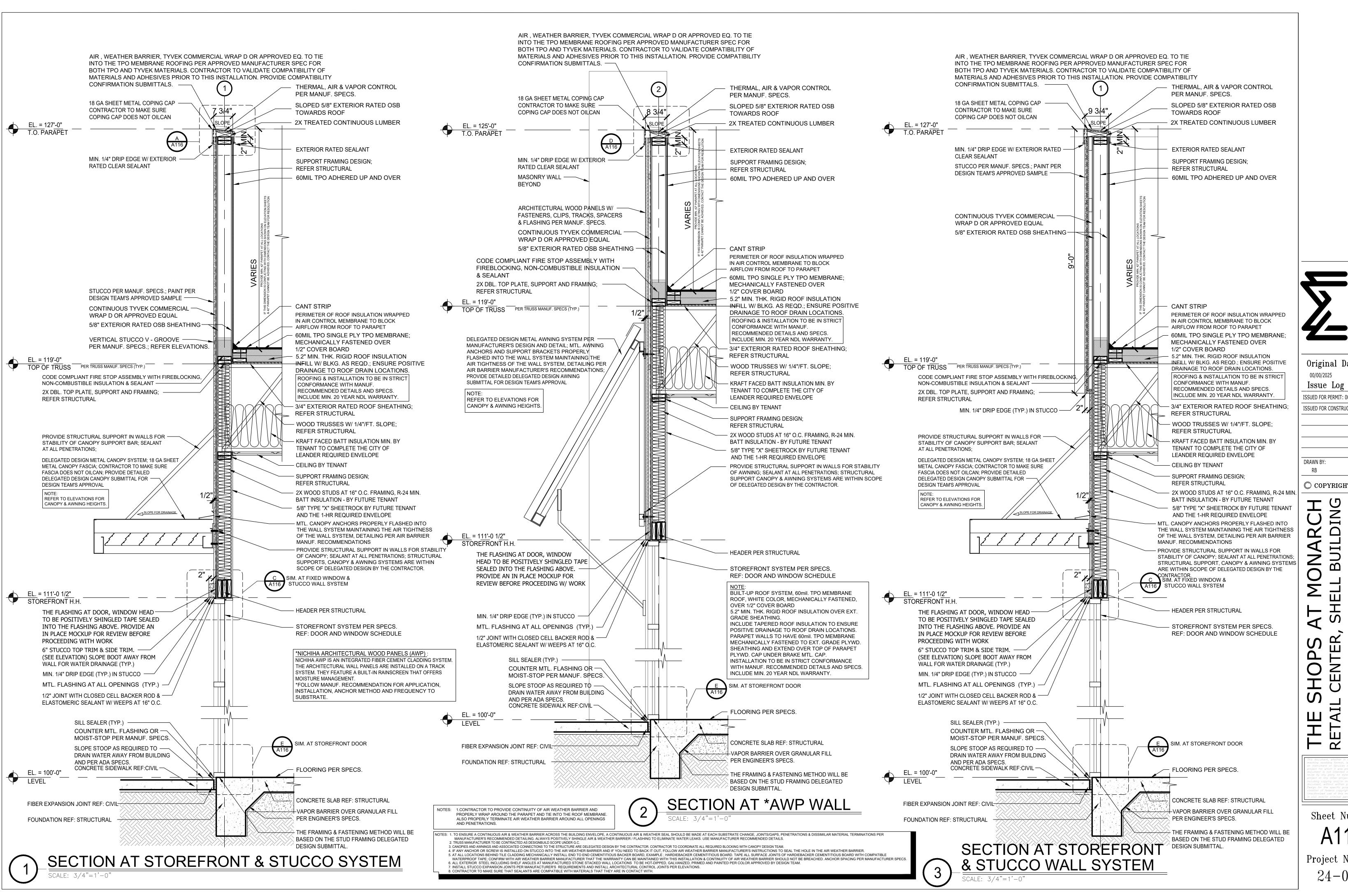
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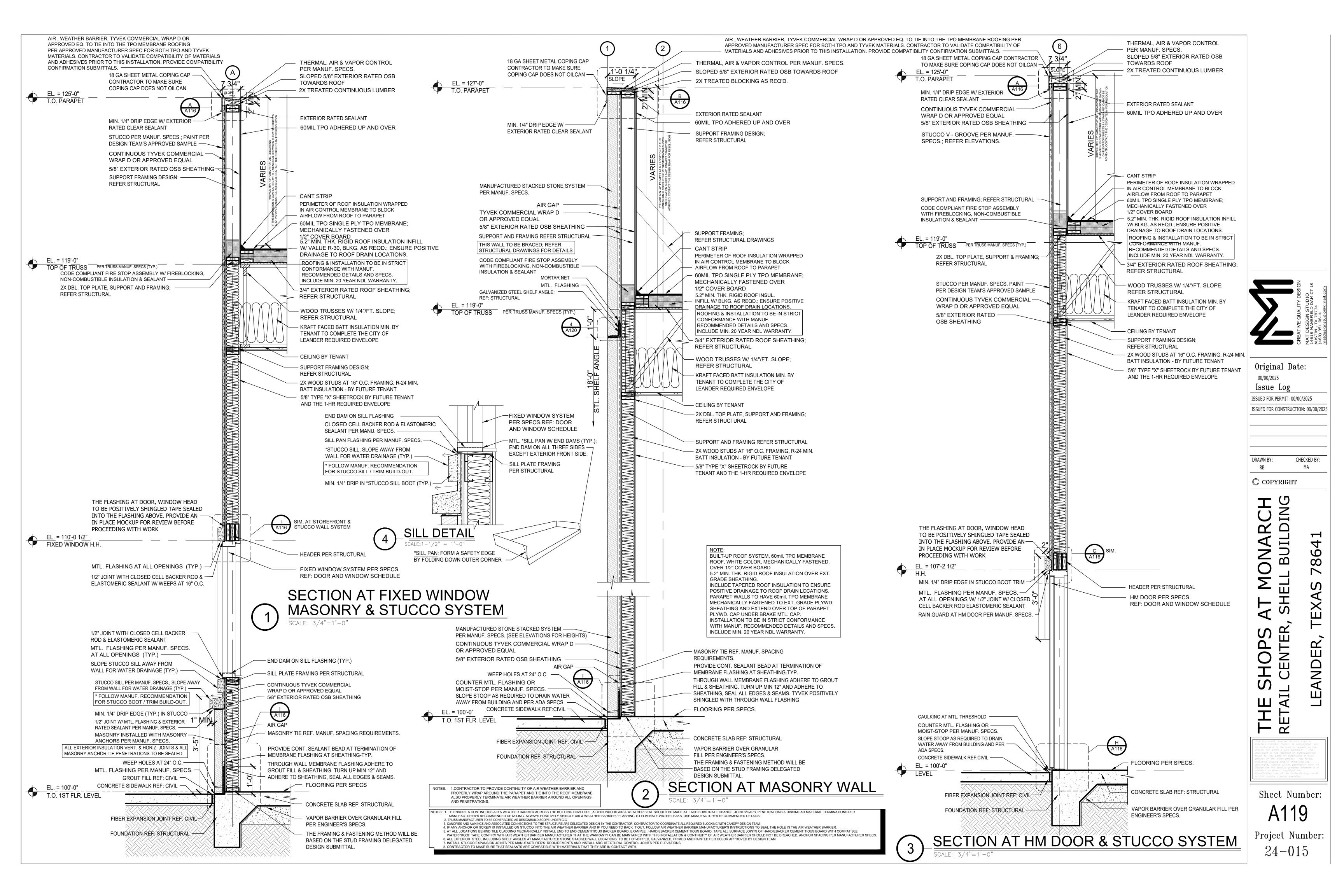
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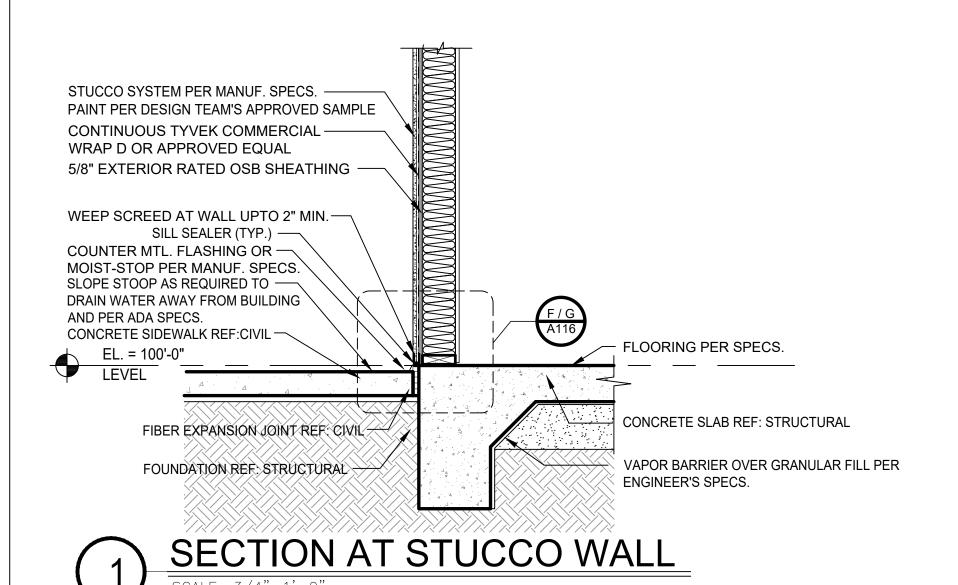
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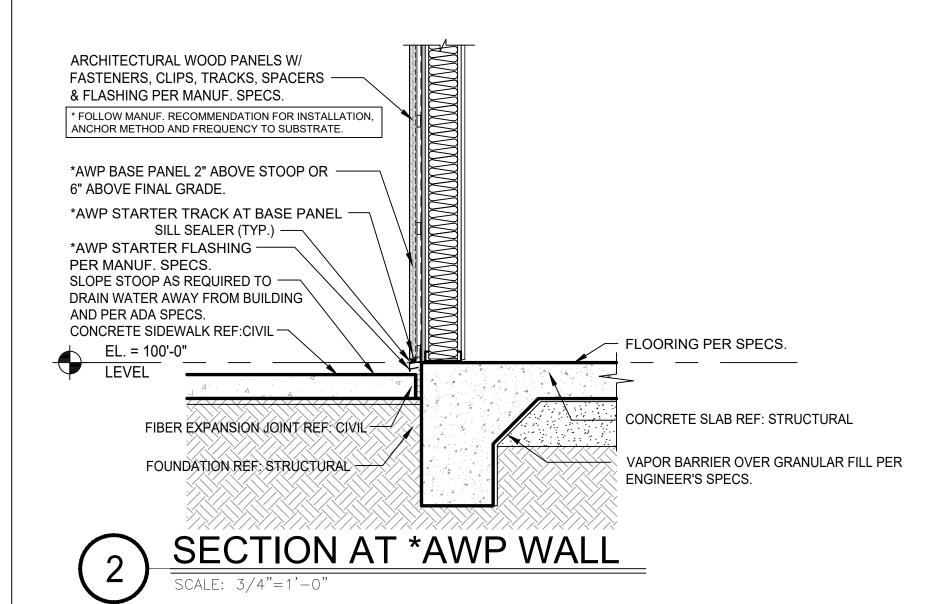
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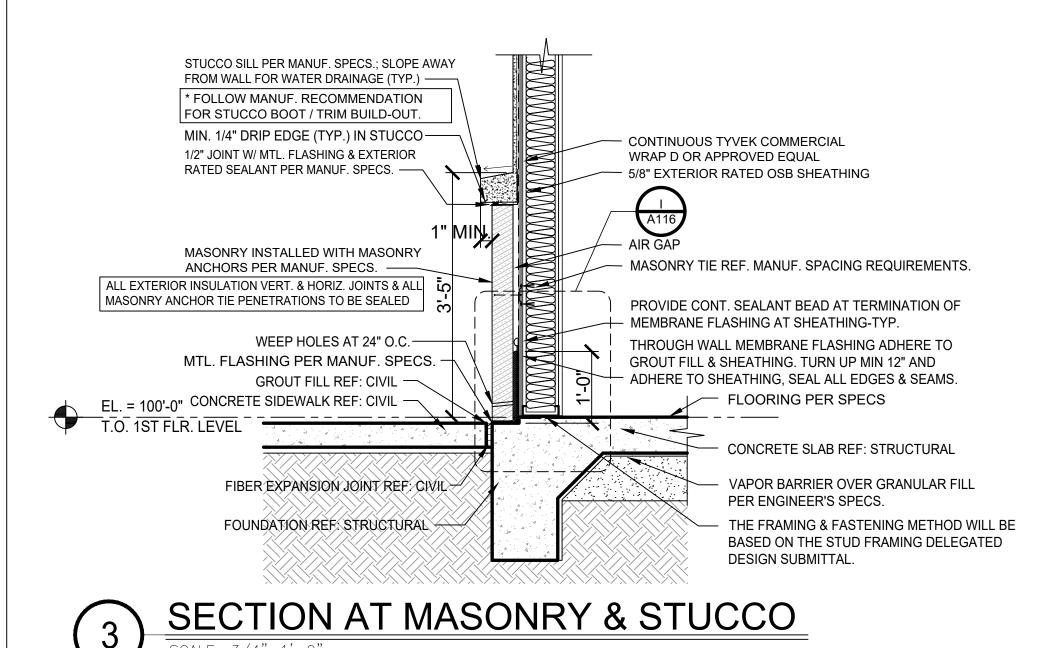
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CODE COMPLIANT PAPER OR FELT WRB — (WATER-RESISTIVE BARRIER) 5/8" EXTERIOR STONE MASONRY PER MANUF. SPECS. - RATED OSB SHEATHING TYVEK COMMERCIAL WRAP D MORTAR NET OR APPROVED EQUAL MTL. FLASHING -GALVANIZED STEEL SHELF ANGLE; -REF: STRUCTURAL - SUPPORT FRAMING DESIGN; STAINLESS STEEL DRIP EDGE SET IN SEALANT; REFER STRUCTURAL REF: STRUCTURAL EL. = VARIES; REFER ELEV. FOR HTS. TOP OF STL. SHELF ANGLE COMPRESSIBLE FILLER, CLOSED CELL BACKER ROD & ELASTOMERIC SEALANT JOINT PER MANUF. SPECS. ______

> SECTION AT MASONRY WALL W/ STL SHELF ANGLE
>
> SCALE: 3/4"=1'-0"

5/8" TYPE "X" SHEETROCK BY FUTURE TENANT AND THE 1-HR REQUIRED ENVELOPE 2X WOOD STUDS AT 16" O.C. FRAMING, R-24 MIN. BATT INSULATION - BY FUTURE TENANT 5/8" EXTERIOR RATED -OSB SHEATHING CONTINUOUS TYVEK COMMERCIAL WRAP D OR APPROVED EQUAL -METAL LATH PER STUCCO MANUF. SPECS. 3-COAT STUCCO PER MANUF. SPECS. ONE-PIECE CONTROL JOINT IN 3-COAT STUCCO WIRED TO METAL LATH PER MANUF. SPECS. AND INSTALLATION RECOMMENDATIONS AND IN COMPLIANCE WITH BUILDING CODES ASTM C847 AND/OR ASTM C1063; REFER ELEVATIONS FOR LOCATIONS; JOINT PAINT TO MATCH WITH STUCCO PAINT.



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NOTES: 1.CONTRACTOR TO PROVIDE CONTINUITY OF AIR WEATHER BARRIER AND PROPERLY WRAP AROUND THE PARAPET AND TIE INTO THE ROOF MEMBRANE ALSO PROPERLY TERMINATE AIR WEATHER BARRIER AROUND ALL OPENINGS

NOTES: 1. TO ENSURE A CONTINUOUS AIR & WEATHER BARRIER ACROSS THE BUILDING ENVELOPE, A CONTINUOUS AIR & WEATHER SEAL SHOULD BE MADE AT EACH SUBSTRATE CHANGE, JOINTS/GAPS, PENETRATIONS & DISSIMILAR MATERIAL TERMINATIONS PER MANUFACTURER'S RECOMMENDED DETAILING. ALWAYS POSITIVELY SHINGLE AIR & WEATHER BARRIER / FLASHING TO ELIMINATE WATER LEAKS. USE MANUFACTURER RECOMMENDED DETAILIS. 2. TRUSS MANUFACTURER TO BE CONTRACTED AS DESIGNBUILD SCOPE UNDER G.C 3. CANOPIES AND AWNINGS AND ASSOCIATED CONNECTIONS TO THE STRUCTURE ARE DELEGATED DESIGN BY THE CONTRACTOR. CONTRACTOR TO COORDINATE ALL REQUIRED BLOCKING WITH CANOPY DESIGN TEAM. 4. IF ANY ANCHOR OR SCREW IS INSTALLED ON STUCCO INTO THE AIR WEATHER BARRIER AND IF YOU NEED TO BACK IT OUT, FOLLOW AIR WEATHER BARRIER MANUFACTURER'S INSTRUCTIONS TO SEAL THE HOLE IN THE AIR WEATHER BARRIER.
5. AT ALL LOCATIONS BEHIND TILE CLADDING MECHANICALLY INSTALL END TO END CEMENTITIOUS BACKER BOARD, EXAMPLE; HARDIEBACKER CEMENTITIOUS BOARD. TAPE ALL SURFACE JOINTS OF HARDIEBACKER CEMENTITIOUS BOARD WITH COMPATIBLE WATERPROOF TAPE; CONFIRM WITH AIR WEATHER BARRIER MANUFACTURER THAT THE WARRANTY CAN BE MAINTAINED WITH THIS INSTALLATION & CONTINUITY OF AIR WEATHER BARRIER SPECS.

6. ALL EXTERIOR STEEL INCLUDING SHELF ANGLES AT MANUFACTURED STONE STACKED WALL LOCATIONS TO BE HOT-DIPPED, GALVANIZED, PRIMED AND PAINTED PER COLOR APPROVED BY DESIGN TEAM. 7. INSTALL STUCCO EXPANSION JOINTS PER MANUFACTURER'S REQUIREMENTS AND INSTALL ARCHITECTURAL CONTROL JOINTS PER ELEVATIONS.
8. CONTRACTOR TO MAKE SURE THAT SEALANTS ARE COMPATIBLE WITH MATERIALS THAT THEY ARE IN CONTACT WITH.

- 1.1 SUMMARY
- A. SECTION INCLUDES: MANUFACTURED PRODUCTS:
- a. MANUFACTURED REGLETS
- 2. FORMED PRODUCTS a. FORMED LOW-SLOPE ROOF SHEET METAL FABRICATIONS.
- b. FORMED WALL SHEET METAL FABRICATIONS. c. FORMED OVERHEAD-PIPING SAFETY PANS.
- B. PRODUCTS FURNISHED BUT NOT INSTALLED UNDER THIS SECTION:
- 1. "UNIT MASONRY": METAL COUNTER FLASHINGS AND WALL FLASHINGS BUILT INTO UNIT MASONRY. 2. "THERMOPLASTIC POLYOLEFIN (TPO) MEMBRANE ROOFING":

1.2 PERFORMANCE REQUIREMENTS

- A. GENERAL: SHEET METAL FLASHING AND TRIM ASSEMBLIES AS INDICATED SHALL WITHSTAND WIND LOADS, STRUCTURAL MOVEMENT, THERMALLY INDUCED MOVEMENT, AND EXPOSURE TO WEATHER WITHOUT FAILURE DUE TO DEFECTIVE MANUFACTURE, FABRICATION, OTHER DEFECTS IN CONSTRUCTION. COMPLETED SHEET METAL FLASHING AND TRIM SHALL NOT RATTLE, LEAK, OR LOOSEN, AND SHALL
- B. FABRICATE AND INSTALL ROOF EDGE FLASHING AND COPINGS CAPABLE OF RESISTING THE FOLLOWING FORCES ACCORDING TO
- RECOMMENDATIONS IN FMG LOSS PREVENTION DATA SHEET 1-49: 1. WIND EXPOSURE B: 90 MILES PER HOUR, 3 SECOND GUST.
- C. THERMAL MOVEMENTS: PROVIDE SHEET METAL FLASHING AND TRIM THAT ALLOWS FOR THERMAL MOVEMENTS FROM AMBIENT AND
- SURFACE TEMPERATURE CHANGES. 1. TEMPERATURE CHANGE (RANGE): 120 DEG F (67 DEG C), AMBIENT; 180 DEG F (100 DEG C), MATERIAL SURFACES.

- A. PRODUCT DATA: SUBMIT IN ACCORDANCE WITH DIVISION 1 SECTION "SUBMITTAL PROCEDURES", FOR EACH TYPE OF PRODUCT INDICATED. INCLUDE CONSTRUCTION DETAILS, MATERIAL DESCRIPTIONS, DIMENSIONS OF INDIVIDUAL COMPONENTS AND PROFILES, AND FINISHES FOR EACH MANUFACTURED PRODUCT AND ACCESSORY.
- B. SHOP DRAWINGS: SHOW FABRICATION AND INSTALLATION LAYOUTS OF SHEET METAL FLASHING AND TRIM, INCLUDING PLANS, ELEVATIONS, EXPANSION-JOINT LOCATIONS, AND KEYED DETAILS. DISTINGUISH BETWEEN SHOP- AND FIELD-ASSEMBLED WORK.
- 1. IDENTIFICATION OF MATERIAL, THICKNESS, WEIGHT, AND FINISH FOR EACH ITEM AND LOCATION IN PROJECT.
- 2. DETAILS FOR FORMING SHEET METAL FLASHING AND TRIM, INCLUDING PROFILES, SHAPES, SEAMS, AND DIMENSIONS. 3. DETAILS FOR JOINING, SUPPORTING, AND SECURING SHEET METAL FLASHING AND TRIM, INCLUDING LAYOUT OF FASTENERS, CLEATS,
- CLIPS, AND OTHER ATTACHMENTS. INCLUDE PATTERN OF SEAMS.
- 4. DETAILS OF TERMINATION POINTS AND ASSEMBLIES, INCLUDING FIXED POINTS.
- 5. DETAILS OF EXPANSION JOINTS AND EXPANSION-JOINT COVERS, INCLUDING SHOWING DIRECTION OF EXPANSION AND
- 6. DETAILS OF EDGE CONDITIONS, INCLUDING EAVES, RIDGES, VALLEYS, RAKES, CRICKETS, AND COUNTERFLASHINGS AS APPLICABLE.
- 7. DETAILS OF SPECIAL CONDITIONS 8. DETAILS OF CONNECTIONS TO ADJOINING WORK.
- 9. DETAIL FORMED FLASHING AND TRIM AT A SCALE OF NOT LESS THAN 1-1/2 INCHES PER 12 INCHES (1:10).
- C. SAMPLES FOR INITIAL SELECTION: FOR EACH TYPE OF SHEET METAL FLASHING, TRIM, AND ACCESSORY INDICATED WITH SPECIFIED
- D. SAMPLES FOR VERIFICATION: FOR EACH TYPE OF EXPOSED FINISH REQUIRED, PREPARED ON SAMPLES OF SIZE INDICATED BELOW:
- 1. SHEET METAL FLASHING: 12 INCHES (300 MM) LONG BY ACTUAL WIDTH OF UNIT, INCLUDING FINISHED SEAM AND IN REQUIRED PROFILE. INCLUDE FASTENERS, CLEATS, CLIPS, CLOSURES, AND OTHER ATTACHMENTS.
- 2. TRIM, METAL CLOSURES, EXPANSION JOINTS, JOINT INTERSECTIONS, AND MISCELLANEOUS FABRICATIONS: 12 INCHES (300 MM) LONG
- AND IN REQUIRED PROFILE. INCLUDE FASTENERS AND OTHER EXPOSED ACCESSORIES.
- 3. ACCESSORIES AND MISCELLANEOUS MATERIALS: FULL-SIZE SAMPLE.
- E. QUALIFICATION DATA: FOR QUALIFIED FABRICATOR.
- F. MAINTENANCE DATA: FOR SHEET METAL FLASHING, TRIM, AND ACCESSORIES TO INCLUDE IN MAINTENANCE MANUALS
- G. WARRANTY: SAMPLE OF SPECIAL WARRANTY
- 1.4 QUALITY ASSURANCE
- A. FABRICATOR AND INSTALLER QUALIFICATIONS: COMPANY THAT EMPLOYS SKILLED WORKERS WHO CUSTOM FABRICATE AND INSTALL SHEET METAL FLASHING AND TRIM SIMILAR TO THAT REQUIRED FOR THIS PROJECT AND WHOSE PRODUCTS HAVE A RECORD OF MINIMUM 5 YEARS DOCUMENTED SUCCESSFUL IN-SERVICE PERFORMANCE.
- B. SHEET METAL FLASHING AND TRIM STANDARD: COMPLY WITH SMACNA'S "ARCHITECTURAL SHEET METAL MANUAL" UNLESS MORE STRINGENT REQUIREMENTS ARE SPECIFIED OR SHOWN ON DRAWINGS.
- INC., ROME NY., PUBLICATION "COPPER AND COMMON SENSE", 7TH EDITION. CONFORM TO DIMENSIONS AND PROFILES SHOWN UNLESS
- MORE STRINGENT REQUIREMENTS ARE INDICATED.
- D. MOCKUPS: BUILD MOCKUPS TO VERIFY SELECTIONS MADE UNDER SAMPLE SUBMITTALS AND TO DEMONSTRATE AESTHETIC EFFECTS AND SET QUALITY STANDARDS FOR FABRICATION AND INSTALLATION. 1. BUILD MOCKUP OF TYPICAL ROOF EAVE, INCLUDING FASCIA AND FASCIA TRIM, APPROXIMATELY 10 FEET (3.0 M) LONG, INCLUDING
- SUPPORTING CONSTRUCTION CLEATS, SEAMS, ATTACHMENTS, UNDERLAYMENT, AND ACCESSORIES
- 2. APPROVAL OF MOCKUPS DOES NOT CONSTITUTE APPROVAL OF DEVIATIONS FROM THE CONTRACT DOCUMENTS CONTAINED IN MOCKUPS UNLESS ARCHITECT SPECIFICALLY APPROVES SUCH DEVIATIONS IN WRITING.

E. PREINSTALLATION CONFERENCE: CONDUCT CONFERENCE AT PROJECT SITE.

- 1. MEET WITH OWNER, DESIGN TEAM, OWNER'S INSURER IF APPLICABLE, INSTALLER, AND INSTALLERS WHOSE WORK INTERFACES WITH OR AFFECTS SHEET METAL FLASHING AND TRIM INCLUDING INSTALLERS OF ROOFING MATERIALS, ROOF ACCESSORIES, UNIT SKYLIGHTS, AND ROOF-MOUNTED EQUIPMENT.
- 2. REVIEW METHODS AND PROCEDURES RELATED TO SHEET METAL FLASHING AND TRIM.
- 3. EXAMINE SUBSTRATE CONDITIONS FOR COMPLIANCE WITH REQUIREMENTS, INCLUDING FLATNESS AND ATTACHMENT TO STRUCTURAL MEMBERS
- 4. REVIEW SPECIAL ROOF DETAILS, ROOF DRAINAGE, ROOF PENETRATIONS, EQUIPMENT CURBS, AND CONDITION OF OTHER CONSTRUCTION THAT WILL AFFECT SHEET METAL FLASHING.
- 5. DOCUMENT PROCEEDINGS, INCLUDING CORRECTIVE MEASURES AND ACTIONS REQUIRED, AND FURNISH COPY OF RECORD TO EACH PARTICIPANT.

1.5 DELIVERY, STORAGE, AND HANDLING

- A. DO NOT STORE SHEET METAL FLASHING AND TRIM MATERIALS IN CONTACT WITH OTHER MATERIALS THAT MIGHT CAUSE STAINING, DENTING, OR OTHER SURFACE DAMAGE. STORE SHEET METAL FLASHING AND TRIM MATERIALS AWAY FROM UNCURED CONCRETE AND
- B. PROTECT STRIPPABLE PROTECTIVE COVERING ON SHEET METAL FLASHING AND TRIM FROM EXPOSURE TO SUNLIGHT AND HIGH HUMIDITY, EXCEPT TO THE EXTENT NECESSARY FOR THE PERIOD OF SHEET METAL FLASHING AND TRIM INSTALLATION.

PART 2 - PRODUCTS

- 2.1 SHEET METALS
- A. GENERAL: PROTECT MECHANICAL AND OTHER FINISHES ON EXPOSED SURFACES FROM DAMAGE BY APPLYING A STRIPPABLE, TEMPORARY PROTECTIVE FILM BEFORE SHIPPING.
- B. SHEET METAL STANDARD FOR FLASHING AND TRIM: COMPLY WITH NRCA'S "THE NRCA ROOFING MANUAL" AND SMACNA'S "ARCHITECTURAL SHEET METAL MANUAL" REQUIREMENTS FOR DIMENSIONS AND PROFILES SHOWN UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED.

- D. ALUMINUM SHEET: ASTM B 209 (ASTM B 209M), ALLOY AS STANDARD WITH MANUFACTURER FOR FINISH REQUIRED, WITH TEMPER AS REQUIRED TO SUIT FORMING OPERATIONS AND PERFORMANCE REQUIRED.
- SURFACE: SMOOTH, FLAT EXPOSED COIL-COATED FINISH
- a. THREE-COAT FLUOROPOLYMER: AAMA 620. FLUOROPOLYMER FINISH CONTAINING NOT LESS THAN 70 PERCENT PVDF RESIN BY WEIGHT IN BOTH COLOR COAT AND CLEAR TOPCOAT. PREPARE, PRETREAT, AND APPLY COATING TO EXPOSED METAL SURFACES
- TO COMPLY WITH COATING AND RESIN MANUFACTURERS' WRITTEN INSTRUCTIONS. 3. COLOR(S): AS SELECTED BY DESIGN TEAM FROM MANUFACTURER'S FULL RANGE.
- 4. ALUMINUM SHEET TO HAVE THE FOLLOWING MINIMUM THICKNESS AS SPECIFIED HEREIN BELOW FOR THE APPLICATIONS INDICATED:
- a. BASE FLASHING: 0.032 INCH THICKNESS.
- b. ROOF PENETRATIONS: 0.032 INCH THICKNESS.
- c. EXPOSED FLASHINGS AND TRIM: 0.050 INCH THICKNESS, EXCEPT AS SPECIFIED OTHERWISE HEREIN FOR SPECIFIC APPLICATIONS. E. STAINLESS-STEEL SHEET: ASTM A 240/A 240M OR ASTM A 666, TYPE 304, DEAD SOFT, FULLY ANNEALED. 1. SURFACE: SMOOTH, FLAT.
- FINISH: 2D (DULL, COLD ROLLED). 3. MINIMUM THICKNESS: 18 GAUGE (0.050 INCH), EXCEPT AS SPECIFIED OTHERWISE HEREIN FOR SPECIFIC APPLICATIONS.
- 2.2 UNDERLAYMENT MATERIALS A. FELT: ASTM D 226, TYPE II (NO. 15), ASPHALT-SATURATED ORGANIC FELT, NONPERFORATED.

B. SLIP SHEET: BUILDING PAPER, 3-LB/100 SQ. FT. (0.16-KG/SQ. M) MINIMUM, ROSIN SIZED.

- A. GENERAL: PROVIDE MATERIALS AND TYPES OF FASTENERS, SOLDER, WELDING RODS, PROTECTIVE COATINGS, SEPARATORS, SEALANTS, AND OTHER MISCELLANEOUS ITEMS AS REQUIRED FOR COMPLETE SHEET METAL FLASHING AND TRIM INSTALLATION AND RECOMMENDED BY
- MANUFACTURER OF PRIMARY SHEET METAL OR MANUFACTURED ITEM UNLESS OTHERWISE INDICATED.
- B. FASTENERS: WOOD SCREWS, ANNULAR THREADED NAILS, SELF-TAPPING SCREWS, SELF-LOCKING RIVETS AND BOLTS, AND OTHER SUITABLE FASTENERS DESIGNED TO WITHSTAND DESIGN LOADS AND RECOMMENDED BY MANUFACTURER OF PRIMARY SHEET METAL OR
- MANUFACTURED ITEM. 1. GENERAL: BLIND FASTENERS OR SELF-DRILLING SCREWS, GASKETED, WITH HEX-WASHER HEAD.
- a. EXPOSED FASTENERS: HEADS MATCHING COLOR OF SHEET METAL USING PLASTIC CAPS OR FACTORY-APPLIED COATING. b. BLIND FASTENERS: HIGH-STRENGTH ALUMINUM OR STAINLESS-STEEL RIVETS SUITABLE FOR METAL BEING FASTENED.
- 2. FASTENERS FOR COPPER SHEET: COPPER, HARDWARE BRONZE, OR SERIES 300 STAINLESS STEEL
- 3. FASTENERS FOR STAINLESS-STEEL SHEET: SERIES 300 STAINLESS STEEL.

b. FASTENERS INTO METAL STUDS: BI-METAL.

4. FASTENERS FOR ALUMINUM SHEET: SERIES 300 STAINLESS STEEL a. FASTENERS INTO CONCRETE OR CONCRETE MASONRY UNITS: BI-METAL.

2.3 MISCELLANEOUS MATERIALS

- 1. FOR COPPER: ASTM B32, GRADE SN50, 50 PERCENT TIN AND 50 PERCENT LEAD
- 2. FOR STAINLESS STEEL: ASTM B 32, GRADE SN60, WITH AN ACID FLUX OF TYPE RECOMMENDED BY STAINLESS-STEEL SHEET
- D. SEALANT TAPE: PRESSURE-SENSITIVE, 100 PERCENT SOLIDS, GRAY POLYISOBUTYLENE COMPOUND SEALANT TAPE WITH RELEASE-PAPER BACKING. PROVIDE PERMANENTLY ELASTIC, NONSAG, NONTOXIC, NONSTAINING TAPE 1/2 INCH (13 MM) WIDE AND 1/8 INCH (3 MM) THICK.
- E. ELASTOMERIC SEALANT: ASTM C 920, ELASTOMERIC SILICONE POLYMER SEALANT; AS SPECIFIED UNDER SECTION 07 92 00.
- F. BUTYL SEALANT: ASTM C 1311, SINGLE-COMPONENT, SOLVENT-RELEASE BUTYL RUBBER SEALANT; AS SPECIFIED UNDER SECTION 07 92 00.
- G. EPOXY SEAM SEALER: TWO-PART, NONCORROSIVE, ALUMINUM SEAM-CEMENTING COMPOUND, RECOMMENDED BY ALUMINUM MANUFACTURER FOR EXTERIOR NONMOVING JOINTS. INCLUDING RIVETED JOINTS.
- H. BITUMINOUS COATING: COLD-APPLIED ASPHALT EMULSION COMPLYING WITH ASTM D 1187.

I. ASPHALT ROOFING CEMENT: ASTM D 4586, ASBESTOS FREE, OF CONSISTENCY REQUIRED FOR APPLICATION

- 2.4 MANUFACTURED SHEET METAL FLASHING AND TRIM
- A. REGLETS: UNITS OF TYPE, MATERIAL, AND PROFILE INDICATED, FORMED TO PROVIDE SECURE INTERLOCKING OF SEPARATE REGLET AND COUNTERFLASHING PIECES, AND COMPATIBLE WITH FLASHING INDICATED WITH FACTORY-MITERED AND -WELDED CORNERS AND
- 1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
- a. CHENEY FLASHING COMPANY.
- b. FRY REGLET CORPORATION. c. HECKMANN BUILDING PRODUCTS INC.
- d. HICKMAN, W. P. COMPANY. e. HOHMANN & BARNARD, INC.; STF SAWTOOTH FLASHING.
- f. KEYSTONE FLASHING COMPANY, INC.
- g. NATIONAL SHEET METAL SYSTEMS, INC.
- h. SANDELL MANUFACTURING COMPANY, INC. 2. MATERIAL: STAINLESS STEEL, 0.019 INCH (0.48 MM) THICK.
- 3. SURFACE-MOUNTED TYPE: PROVIDE WITH SLOTTED HOLES FOR FASTENING TO SUBSTRATE, WITH NEOPRENE OR OTHER SUITABLE
- WEATHERPROOFING WASHERS, AND WITH CHANNEL FOR SEALANT AT TOP EDGE. 4. CONCRETE TYPE: PROVIDE TEMPORARY CLOSURE TAPE TO KEEP REGLET FREE OF CONCRETE MATERIALS, SPECIAL FASTENERS FOR
- ATTACHING REGLET TO CONCRETE FORMS, AND GUIDES TO ENSURE ALIGNMENT OF REGLET SECTION ENDS.
- 5. MASONRY TYPE: PROVIDE WITH OFFSET TOP FLANGE FOR EMBEDMENT IN MASONRY MORTAR JOINT.
- a. FLEXIBLE-FLASHING RETAINER: PROVIDE RESILIENT PLASTIC OR RUBBER ACCESSORY TO SECURE FLEXIBLE FLASHING IN REGLET WHERE CLEARANCE DOES NOT PERMIT USE OF STANDARD METAL COUNTERFLASHING OR WHERE DRAWINGS SHOW REGLET WITHOUT METAL COUNTERFLASHING.
- b. COUNTERFLASHING WIND-RESTRAINT CLIPS: PROVIDE CLIPS TO BE INSTALLED BEFORE COUNTERFLASHING TO PREVENT WIND UPLIFT OF COUNTERFLASHING LOWER EDGE.

2.5 FABRICATION, GENERAL

- A. GENERAL: CUSTOM FABRICATE SHEET METAL FLASHING AND TRIM TO COMPLY WITH RECOMMENDATIONS IN SMACNA'S "ARCHITECTURAL SHEET METAL MANUAL" THAT APPLY TO DESIGN, DIMENSIONS, GEOMETRY, METAL THICKNESS, AND OTHER CHARACTERISTICS OF ITEM
- INDICATED. FABRICATE ITEMS AT THE SHOP TO GREATEST EXTENT POSSIBLE. 1. FABRICATE SHEET METAL FLASHING AND TRIM IN THICKNESS OR WEIGHT NEEDED TO COMPLY WITH PERFORMANCE REQUIREMENTS, BUT NOT LESS THAN THAT SPECIFIED FOR EACH APPLICATION AND METAL
- 2. OBTAIN FIELD MEASUREMENTS FOR ACCURATE FIT BEFORE SHOP FABRICATION. 3. FORM SHEET METAL FLASHING AND TRIM WITHOUT EXCESSIVE OIL CANNING, BUCKLING, AND TOOL MARKS AND TRUE TO LINE AND
- LEVELS INDICATED, WITH EXPOSED EDGES FOLDED BACK TO FORM HEMS. 4. CONCEAL FASTENERS AND EXPANSION PROVISIONS WHERE POSSIBLE. EXPOSED FASTENERS ARE NOT ALLOWED ON FACES EXPOSED TO
- B. FABRICATION TOLERANCES: FABRICATE SHEET METAL FLASHING AND TRIM THAT IS CAPABLE OF INSTALLATION TO A TOLERANCE OF 1/4 INCH IN 20 FEET (6 MM IN 6 M) ON SLOPE AND LOCATION LINES AS INDICATED AND WITHIN 1/8-INCH (3-MM) OFFSET OF ADJOINING FACES AND OF ALIGNMENT OF MATCHING PROFILES.
- C. FABRICATION TOLERANCES: FABRICATE SHEET METAL FLASHING AND TRIM THAT IS CAPABLE OF INSTALLATION TO TOLERANCES SPECIFIED IN MCA'S "GUIDE SPECIFICATION FOR RESIDENTIAL METAL ROOFING."
- D. SEALED JOINTS: FORM NON-EXPANSION BUT MOVABLE JOINTS IN METAL TO ACCOMMODATE ELASTOMERIC SEALANT.
- E. EXPANSION PROVISIONS: WHERE LAPPED EXPANSION PROVISIONS CANNOT BE USED, FORM EXPANSION JOINTS OF INTERMESHING HOOKED FLANGES, NOT LESS THAN 1 INCH (25 MM) DEEP, FILLED WITH BUTYL SEALANT CONCEALED WITHIN JOINTS.
- F. FABRICATE CLEATS AND ATTACHMENT DEVICES FROM SAME MATERIAL AS ACCESSORY BEING ANCHORED OR FROM COMPATIBLE, NONCORROSIVE METAL.
- G. FABRICATE CLEATS AND ATTACHMENT DEVICES OF SIZES AS RECOMMENDED BY SMACNA'S "ARCHITECTURAL SHEET METAL MANUAL" AND BY FMG LOSS PREVENTION DATA SHEET 1-49 FOR APPLICATION, BUT NOT LESS THAN THICKNESS OF METAL BEING SECURED.
- H. SEAMS: FABRICATE NONMOVING SEAMS WITH FLAT-LOCK SEAMS. TIN EDGES TO BE SEAMED, FORM SEAMS, AND SOLDER.

2.6 LOW-SLOPE ROOF SHEET METAL FABRICATIONS

- A. ROOF-EDGE FLASHING (GRAVEL STOP): FABRICATE IN MINIMUM 96-INCH- (2400-MM-) LONG, BUT NOT EXCEEDING 10-FOOT- (3-M-) LONG,
- SECTIONS. FURNISH WITH 6-INCH- (150- MM-) WIDE, JOINT COVER PLATES. 1. JOINT STYLE: BUTT, WITH 12-INCH- (300-MM-) WIDE, CONCEALED BACKUP PLATE.
- 2. FABRICATE FROM THE FOLLOWING MATERIALS: a. ALUMINUM: 0.050 INCH (1.27 MM) THICK.
- B. COPINGS: FABRICATE IN MINIMUM 96-INCH- (2400-MM-) LONG, BUT NOT EXCEEDING 10- FOOT- (3-M-) LONG, SECTIONS. FABRICATE JOINT PLATES OF SAME THICKNESS AS COPINGS. FURNISH WITH CONTINUOUS CLEATS TO SUPPORT EDGE OF EXTERNAL LEG AND DRILL ELONGATED HOLES FOR FASTENERS ON INTERIOR LEG. MITER CORNERS, SEAL, AND SOLDER OR WELD WATERTIGHT.
- 1. COPING PROFILE: AS INDICATED ON DRAWINGS. 2. JOINT STYLE: BUTT, WITH 12-INCH- (300-MM-) WIDE, CONCEALED BACKUP PLATE.
- 3. FABRICATE FROM THE FOLLOWING MATERIALS: a. ALUMINUM: 0.050 INCH (1.27 MM) THICK.
- C. BASE FLASHING: FABRICATE FROM THE FOLLOWING MATERIALS: 1. STAINLESS STEEL: 0.019 INCH (0.48 MM) THICK.
- D. COUNTERFLASHING: FABRICATE FROM THE FOLLOWING MATERIALS: 1. STAINLESS STEEL: 0.019 INCH (0.48 MM) THICK.
- E. FLASHING RECEIVERS: FABRICATE FROM THE FOLLOWING MATERIALS: 1. STAINLESS STEEL: 0.016 INCH (0.40 MM) THICK.
- F. ROOF-DRAIN FLASHING: FABRICATE FROM THE FOLLOWING MATERIALS: 1. STAINLESS STEEL: 0.016 INCH (0.40 MM) THICK.

1. STAINLESS STEEL: 0.016 INCH (0.40 MM) THICK.

2.7 WALL SHEET METAL FABRICATIONS

- A. THROUGH-WALL FLASHING, GENERAL: TWO-PIECE FLASHING SYSTEM COMPRISING INNER PIECE AND OUTER PIECE FOR INSTALLATION AS
- SHOWN ON DRAWINGS B. THROUGH-WALL FLASHING, OUTER PIECE: FABRICATE CONTINUOUS FLASHINGS IN MINIMUM 96-INCH- (2400-MM-) LONG, BUT NOT EXCEEDING 12-FOOT- (3.6-M-) LONG, SECTIONS, UNDER COPINGS, AT SHELF ANGLES, AND WHERE INDICATED. FABRICATE DISCONTINUOUS LINTEL, SILL, AND SIMILAR FLASHINGS TO EXTEND 6 INCHES (150 MM) BEYOND EACH SIDE OF WALL OPENINGS. FORM WITH 2-INCH- (50-MM-) HIGH, END DAMS WHERE FLASHING IS DISCONTINUOUS. FABRICATE FROM THE FOLLOWING MATERIALS:
- C. THROUGH-WALL FLASHING, INNER PIECE: REFER TO SECTION 04 20 00 "UNIT MASONRY" FOR CONCEALED PIECE OF THROUGH-WALL

PART 3 - EXECUTION

- 3.1 EXAMINATION
- A. EXAMINE SUBSTRATES, AREAS, AND CONDITIONS, WITH INSTALLER PRESENT, TO VERIFY ACTUAL LOCATIONS, DIMENSIONS AND OTHER CONDITIONS AFFECTING PERFORMANCE OF THE WORK.
- 1. VERIFY COMPLIANCE WITH REQUIREMENTS FOR INSTALLATION TOLERANCES OF SUBSTRATES. 2. VERIFY THAT SUBSTRATE IS SOUND, DRY, SMOOTH, CLEAN, SLOPED FOR DRAINAGE, AND SECURELY ANCHORED.
- B. FOR THE RECORD, PREPARE WRITTEN REPORT, ENDORSED BY INSTALLER, LISTING CONDITIONS DETRIMENTAL TO PERFORMANCE OF THE C. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

- 3.2 UNDERLAYMENT INSTALLATION
- A. GENERAL: INSTALL UNDERLAYMENT AS INDICATED ON DRAWINGS.
- B. FELT UNDERLAYMENT: INSTALL 15# FELT UNDERLAYMENT IN TWO LAYERS, WITH STAGGERED AND OVERLAPPING SEAMS. WITH ADHESIVE FOR TEMPORARY ANCHORAGE TO MINIMIZE USE OF MECHANICAL FASTENERS UNDER SHEET METAL FLASHING AND TRIM. APPLY IN SHINGLE FASHION TO SHED WATER, WITH LAPPED JOINTS OF NOT LESS THAN 2 INCHES (50 MM)
- 3.3 INSTALLATION, GENERAL
- A. GENERAL: ANCHOR SHEET METAL FLASHING AND TRIM AND OTHER COMPONENTS OF THE WORK SECURELY IN PLACE. WITH PROVISIONS FOR THERMAL AND STRUCTURAL MOVEMENT, USE FASTENERS, SOLDER, WELDING RODS, PROTECTIVE COATINGS. SEPARATORS, SEALANTS, AND OTHER MISCELLANEOUS ITEMS AS REQUIRED TO COMPLETE SHEET METAL FLASHING AND TRIM
- 1. INSTALL SHEET METAL FLASHING AND TRIM TRUE TO LINE AND LEVELS INDICATED. PROVIDE UNIFORM, NEAT SEAMS WITH MINIMUM EXPOSURE OF SOLDER, WELDS, AND SEALANT.
- 2. INSTALL SHEET METAL FLASHING AND TRIM TO FIT SUBSTRATES AND TO RESULT IN WATERTIGHT PERFORMANCE. VERIFY SHAPES AND DIMENSIONS OF SURFACES TO BE COVERED BEFORE FABRICATING SHEET METAL
- 3. SPACE CLEATS NOT MORE THAN 12 INCHES (300 MM) APART. ANCHOR EACH CLEAT WITH TWO FASTENERS. BEND TABS OVER
- 4. INSTALL EXPOSED SHEET METAL FLASHING AND TRIM WITHOUT EXCESSIVE OIL CANNING, BUCKLING, AND TOOL MARKS.
- INSTALL SEALANT TAPE WHERE INDICATED. 6. TORCH CUTTING OF SHEET METAL FLASHING AND TRIM IS NOT PERMITTED.
- 7. DO NOT USE GRAPHITE PENCILS TO MARK METAL SURFACES. B. METAL PROTECTION: WHERE DISSIMILAR METALS WILL CONTACT EACH OTHER OR CORROSIVE SUBSTRATES, PROTECT AGAINST
- 1. COAT BACK SIDE OF UNCOATED ALUMINUM AND STAINLESS-STEEL SHEET METAL FLASHING AND TRIM WITH BITUMINOUS COATING WHERE FLASHING AND TRIM WILL CONTACT WOOD, FERROUS METAL, OR CEMENTITIOUS CONSTRUCTION.

GALVANIC ACTION BY PAINTING CONTACT SURFACES WITH BITUMINOUS COATING OR BY OTHER PERMANENT SEPARATION AS

- 2. UNDERLAYMENT: WHERE INSTALLING METAL FLASHING DIRECTLY ON CEMENTITIOUS OR WOOD SUBSTRATES, INSTALL A COURSE OF FELT UNDERLAYMENT AND COVER WITH A SLIP SHEET OR INSTALL A COURSE OF POLYETHYLENE SHEET.
- C. EXPANSION PROVISIONS: PROVIDE FOR THERMAL EXPANSION OF EXPOSED FLASHING AND TRIM. 1. ALUMINUM: SPACE MOVEMENT JOINTS AT A MAXIMUM OF 10 FEET (3 M) WITH NO JOINTS ALLOWED WITHIN 24 INCHES (600 MM) OF CORNER OR INTERSECTION. WHERE LAPPED EXPANSION PROVISIONS CANNOT BE USED OR WOULD NOT BE SUFFICIENTLY WATERTIGHT, FORM EXPANSION JOINTS OF INTERMESHING HOOKED FLANGES, NOT LESS THAN 1 INCH (25 MM) DEEP, FILLED
- WITH SEALANT CONCEALED WITHIN JOINTS. 2. COPPER AND STAINLESS STEEL: SPACE MOVEMENT JOINTS AT A MAXIMUM OF 20 FEET (6M) WITH NO JOINTS ALLOWED WITHIN 24 INCHES (600 MM) OF CORNER OR INTERSECTION. WHERE LAPPED EXPANSION PROVISIONS CANNOT BE USED OR WOULD NOT BE SUFFICIENTLY WATERTIGHT, FORM EXPANSION JOINTS OF INTERMESHING HOOKED FLANGES, NOT LESS THAN 1 INCH (25 MM) DEEP, FILLED WITH SEALANT CONCEALED WITHIN JOINTS.

E. SEAL JOINTS AS SHOWN AND AS REQUIRED FOR WATERTIGHT CONSTRUCTION

- D. FASTENER SIZES: USE FASTENERS OF SIZES THAT WILL PENETRATE 1. WOOD SHEATHING: NOT LESS THAN 1-1/4 INCHES (32 MM) FOR NAILS AND NOT LESS THAN 3/4 INCH (19 MM) FOR WOOD
- 2. METAL DECKING: NOT LESS THAN RECOMMENDED BY FASTENER MANUFACTURER TO ACHIEVE MAXIMUM PULL-OUT
- RESISTANCE. 3. CONCRETE AND CONCRETE-MASONRY UNITS: NOT LESS THAN RECOMMENDED BY FASTENER MANUFACTURER TO ACHIEVE MAXIMUM PULL-OUT RESISTANCE
- 4. METAL STUD FRAMING: NOT LESS THAN RECOMMENDED BY FASTENER MANUFACTURER TO ACHIEVE MAXIMUM PULL-OUT
- 1. WHERE SEALANT-FILLED JOINTS ARE USED, EMBED HOOKED FLANGES OF JOINT MEMBERS NOT LESS THAN 1 INCH (25 MM) INTO SEALANT. FORM JOINTS TO COMPLETELY CONCEAL SEALANT. WHEN AMBIENT TEMPERATURE AT TIME OF
- EACH WAY. ADJUST SETTING PROPORTIONATELY FOR INSTALLATION AT HIGHER AMBIENT TEMPERATURES. DO NOT INSTALL SEALANT-TYPE JOINTS AT TEMPERATURES BELOW 40 DEG F (4 DEG C). 2. PREPARE JOINTS AND APPLY SEALANTS TO COMPLY WITH REQUIREMENTS IN DIVISION 7 SECTION "JOINT SEALANTS."

INSTALLATION IS MODERATE, BETWEEN 40 AND 70 DEG F (4 AND 21 DEG C), SET JOINT MEMBERS FOR 50 PERCENT MOVEMENT

- F. SOLDERED JOINTS: CLEAN SURFACES TO BE SOLDERED, REMOVING OILS AND FOREIGN MATTER. PRE-TIN EDGES OF SHEETS TO BE SOLDERED TO A WIDTH OF 1-1/2 INCHES (38 MM), EXCEPT REDUCE PRE-TINNING WHERE PRE-TINNED SURFACE WOULD SHOW
- 1. LOCATION OF SOLDERED JOINTS: NON-MOVING JOINTS INCLUDING JOINTS BETWEEN THIMBLES AND FLASHING 2. DO NOT SOLDER METALLIC-COATED STEEL AND ALUMINUM SHEET.
- 3. DO NOT USE TORCHES FOR SOLDERING. HEAT SURFACES TO RECEIVE SOLDER AND FLOW SOLDER INTO JOINT. FILL JOINT COMPLETELY. COMPLETELY REMOVE FLUX AND SPATTER FROM EXPOSED SURFACES. 4. STAINLESS-STEEL SOLDERING: TIN EDGES OF UNCOATED SHEETS USING SOLDER RECOMMENDED FOR STAINLESS STEEL AND ACID FLUX. PROMPTLY REMOVE ACID FLUX RESIDUE FROM METAL AFTER TINNING AND SOLDERING. COMPLY WITH SOLDER
- MANUFACTURER'S RECOMMENDED METHODS FOR CLEANING AND NEUTRALIZATION. G. RIVETS: RIVET JOINTS IN UNCOATED ALUMINUM WHERE INDICATED AND WHERE NECESSARY FOR STRENGTH

CONTINUOUS CLEAT ANCHORED TO SUBSTRATE AT STAGGERED 3-INCH (75-MM) CENTERS.

WALL-OPENING COMPONENTS SUCH AS WINDOWS, DOORS, AND LOUVERS.

- 3.4 ROOF FLASHING INSTALLATION
- A. GENERAL: INSTALL SHEET METAL FLASHING AND TRIM TO COMPLY WITH PERFORMANCE REQUIREMENTS. SHEET METAL MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS, AND SMACNA'S "ARCHITECTURAL SHEET METAL MANUAL." PROVIDE CONCEALED FASTENERS WHERE POSSIBLE. SET UNITS TRUE TO LINE. AND LEVEL AS INDICATED. INSTALL WORK WITH LAPS,
- JOINTS, AND SEAMS THAT WILL BE PERMANENTLY WATERTIGHT AND WEATHER RESISTANT B. ROOF EDGE FLASHING: ANCHOR TO RESIST UPLIFT AND OUTWARD FORCES ACCORDING TO RECOMMENDATIONS IN SMACNA'S "ARCHITECTURAL SHEET METAL MANUAL" AND AS INDICATED. INTERLOCK BOTTOM EDGE OF ROOF EDGE FLASHING WITH
- C. COPINGS: ANCHOR TO RESIST UPLIFT AND OUTWARD FORCES ACCORDING TO RECOMMENDATIONS IN SMACNA'S "ARCHITECTURAL SHEET METAL MANUAL" AND AS INDICATED 1. INTERLOCK EXTERIOR BOTTOM EDGE OF COPING WITH CONTINUOUS CLEAT ANCHORED TO SUBSTRATE AT 16-INCH (400-MM)
- 2. ANCHOR INTERIOR LEG OF COPING WITH WASHERS AND SCREW FASTENERS THROUGH SLOTTED HOLES AT 24-INCH (600-MM) D. COUNTERFLASHING: COORDINATE INSTALLATION OF COUNTERFLASHING WITH INSTALLATION OF BASE FLASHING. INSERT COUNTERFLASHING IN REGLETS OR RECEIVERS AND FIT TIGHTLY TO BASE FLASHING. EXTEND COUNTERFLASHING 4 INCHES (100

MM) OVER BASE FLASHING. LAP COUNTERFLASHING JOINTS A MINIMUM OF 4 INCHES (100 MM) AND BED WITH SEALANT. SECURE IN

- A WATERPROOF MANNER BY MEANS OF INTERLOCKING FOLDED SEAM OR BLIND RIVETS AND SEALANT.
- 3.5 WALL FLASHING INSTALLATION A. GENERAL: INSTALL SHEET METAL WALL FLASHING TO INTERCEPT AND EXCLUDE PENETRATING MOISTURE ACCORDING TO

SMACNA RECOMMENDATIONS AND AS INDICATED. COORDINATE INSTALLATION OF WALL FLASHING WITH INSTALLATION OF

- B. THROUGH-WALL FLASHING: INSTALLATION OF THROUGH-WALL FLASHING IS SPECIFIED IN DIVISION 4 SECTION "UNIT MASONRY ASSEMBLIES."
- C. REGLETS: INSTALLATION OF REGLETS IS SPECIFIED IN DIVISION 4 SECTION "UNIT MASONRY ASSEMBLIES."

D. OPENING FLASHINGS IN FRAME CONSTRUCTION: INSTALL CONTINUOUS HEAD, SILL, JAMB, AND SIMILAR FLASHINGS TO EXTEND 4

- INCHES (100 MM) BEYOND WALL OPENINGS, UNLESS OTHERWISE INDICATED ON DRAWINGS.
- 3.6 MISCELLANEOUS FLASHING INSTALLATION A. OVERHEAD-PIPING SAFETY PANS: SUSPEND PANS INDEPENDENT FROM STRUCTURE ABOVE AS INDICATED ON DRAWINGS. PIPE
- AND INSTALL DRAIN LINE TO PLUMBING WASTE OR DRAINAGE SYSTEM. B. EQUIPMENT SUPPORT FLASHING: COORDINATE INSTALLATION OF EQUIPMENT SUPPORT FLASHING WITH INSTALLATION OF

ROOFING AND EQUIPMENT. WELD OR SEAL FLASHING WITH ELASTOMERIC SEALANT TO EQUIPMENT SUPPORT MEMBER.

3.7 ERECTION TOLERANCES

C. CLEAN OFF EXCESS SEALANTS.

END OF SECTION

- A. INSTALLATION TOLERANCES: SHIM AND ALIGN SHEET METAL FLASHING AND TRIM WITHIN INSTALLED TOLERANCE OF 1/4 INCH IN 20 FEET (6 MM IN 6 M) ON SLOPE AND LOCATION LINES AS INDICATED AND WITHIN 1/8-INCH (3-MM) OFFSET OF ADJOINING FACES AND OF ALIGNMENT OF MATCHING PROFILES.
- 3.8 CLEANING AND PROTECTION
- A. CLEAN EXPOSED METAL SURFACES OF SUBSTANCES THAT INTERFERE WITH UNIFORM OXIDATION AND WEATHERING.
- B. CLEAN AND NEUTRALIZE FLUX MATERIALS. CLEAN OFF EXCESS SOLDER.

REPAIR BY FINISH TOUCHUP OR SIMILAR MINOR REPAIR PROCEDURES.

INSTALLATION, REMOVE UNUSED MATERIALS AND CLEAN FINISHED SURFACES. MAINTAIN IN A CLEAN CONDITION DURING

UNLESS OTHERWISE INDICATED IN MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS. ON COMPLETION OF

D. REMOVE TEMPORARY PROTECTIVE COVERINGS AND STRIPPABLE FILMS AS SHEET METAL FLASHING AND TRIM ARE INSTALLED

E. REPLACE SHEET METAL FLASHING AND TRIM THAT HAVE BEEN DAMAGED OR THAT HAVE DETERIORATED BEYOND SUCCESSFUL

JOINT SEALANTS

- PART 1 GENERAL 1.1 SUMMARY
- A. SECTION INCLUDES:
- SILICONE JOINT SEALANTS URETHANE JOINT SEALANTS
- 1.2 PRECONSTRUCTION TESTING
- A. PRECONSTRUCTION COMPATIBILITY AND ADHESION TESTING: SUBMIT TO JOINT-SEALANT MANUFACTURERS EIGHT SAMPLES OF MATERIALS THAT WILL CONTACT OR AFFECT JOINT SEALANTS, USE ASTM C 1087 AND MANUFACTURER'S STANDARD TEST METHOD TO DETERMINE WHETHER PRIMING AND OTHER SPECIFIC JOINT PREPARATION TECHNIQUES ARE REQUIRED TO OBTAIN RAPID, OPTIMUM
- 1.3 SUBMITTALS
- A. PRODUCT DATA: FOR EACH JOINT-SEALANT PRODUCT INDICATED. B. SAMPLES: FOR EACH KIND AND COLOR OF JOINT SEALANT REQUIRED.
- C. JOINT-SEALANT SCHEDULE: INCLUDE THE FOLLOWING INFORMATION: 1. JOINT-SEALANT APPLICATION, JOINT LOCATION, AND DESIGNATION. 2. JOINT-SEALANT MANUFACTURER AND PRODUCT NAME.

ADHESION OF JOINT SEALANTS TO JOINT SUBSTRATES.

- 3. JOINT-SEALANT FORMULATION. JOINT-SEALANT COLOR.
- D. PRODUCT TEST REPORTS.
- E. PRECONSTRUCTION COMPATIBILITY AND ADHESION TEST REPORTS. F. FIELD-ADHESION TEST REPORTS.
- G. WARRANTIES.

1.4 QUALITY ASSURANCE

B. PREINSTALLATION CONFERENCE: CONDUCT CONFERENCE AT PROJECT SITE.

A. TESTING AGENCY QUALIFICATIONS: QUALIFIED ACCORDING TO ASTM C 1021 TO CONDUCT THE TESTING INDICATED.

- WARRANTY PERIOD 1. WARRANTY PERIOD: TWO YEARS FROM DATE OF SUBSTANTIAL COMPLETION. B. SPECIAL MANUFACTURER'S WARRANTY: MANUFACTURER'S STANDARD FORM IN WHICH JOINT-SEALANT MANUFACTURER AGREES TO

A. SPECIAL INSTALLER'S WARRANTY: MANUFACTURER'S STANDARD FORM IN WHICH INSTALLER AGREES TO REPAIR OR REPLACE JOINT

SEALANTS THAT DO NOT COMPLY WITH PERFORMANCE AND OTHER REQUIREMENTS SPECIFIED IN THIS SECTION WITHIN SPECIFIED

FURNISH JOINT SEALANTS TO REPAIR OR REPLACE THOSE THAT DO NOT COMPLY WITH PERFORMANCE AND OTHER REQUIREMENTS SPECIFIED IN THIS SECTION WITHIN SPECIFIED WARRANTY PERIOD. 1. WARRANTY PERIOD: FIVE YEARS FROM DATE OF SUBSTANTIAL COMPLETION.

PART 2 - PRODUCTS

- A. VOC CONTENT OF INTERIOR SEALANTS: PROVIDE SEALANTS AND SEALANT PRIMERS FOR USE INSIDE THE WEATHERPROOFING SYSTEM THAT
- COMPLY WITH THE FOLLOWING LIMITS FOR VOC CONTENT WHEN CALCULATED ACCORDING TO 40 CFR 59, PART 59, SUBPART D (EPA METHOD 24): ARCHITECTURAL SEALANTS: 250 G/L 2. SEALANT PRIMERS FOR NONPOROUS SUBSTRATES: 250 G/L.
- 3. SEALANT PRIMERS FOR POROUS SUBSTRATES: 775 G/L. B. STAIN-TEST-RESPONSE CHARACTERISTICS: WHERE SEALANTS ARE SPECIFIED TO BE NONSTAINING TO POROUS SUBSTRATES, PROVIDE PRODUCTS
- A. JOINT SEALANT SHALL CONFORM TO THE FOLLOWING: 1. PREFORMED POLYCHLOROPRENE ELASTOMERIC TYPE ASTM D 2628.

1 SAWED CONTRACTION JOINTS AND EXPANSION JOINTS IN SLARS SHALL BE FILLED WITH JOINT SEALANT, UNLESS OTHERWISE SHOWN, JOINT

THAT HAVE UNDERGONE TESTING ACCORDING TO ASTM C 1248 AND HAVE NOT STAINED POROUS JOINT SUBSTRATES INDICATED FOR PROJECT.

- SURFACES SHALL BE CLEAN, DRY, AND FREE OF OIL OR OTHER FOREIGN MATERIAL WHICH WOULD ADVERSELY AFFECT THE BOND BETWEEN SEALANT AND CONCRETE. JOINT SEALANT SHALL BE APPLIED AS RECOMMENDED BY THE MANUFACTURER OF THE SEALANT.
- 2.3 SILICONE JOINT SEALANTS
- A. MILDEW-RESISTANT NEUTRAL-CURING SILICONE JOINT SEALANT SS-01: ASTM C 920. 1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
- B. DOW CORNING CORPORATION
- D. MAY NATIONAL ASSOCIATES, INC. E. PECORA CORPORATION. F. POLYMERIC SYSTEMS, INC.

C. GE ADVANCED MATERIALS - SILICONES.

G. SCHNEE-MOREHEAD, INC. H. SIKA CORPORATION; CONSTRUCTION PRODUCTS DIVISION. TREMCO INCORPORATED

2. TYPE: SINGLE COMPONENT (S).

- GRADE: NONSAG (NS). 4. CLASS: 100/50. 5. USES RELATED TO EXPOSURE: NONTRAFFIC (NT).
- 2.4 URETHANE JOINT SEALANTS
- A. URETHANE JOINT SEALANT US 01: ASTM C 920.
- 1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
- A. BASF BUILDING SYSTEMS. B. BOSTIK, INC. C. LYMTAL, INTERNATIONAL, INC.
- D. MAY NATIONAL ASSOCIATES, INC. E. PACIFIC POLYMERS INTERNATIONAL, INC.

TYPE: MULTICOMPONENT (M).

- F. PECORA CORPORATION G. POLYMERIC SYSTEMS, INC
- H. SCHNEE-MOREHEAD, INC I. SIKA CORPORATION; CONSTRUCTION PRODUCTS DIVISION. J. TREMCO INCORPORATED.

2.5 LATEX JOINT SEALANTS

GRADE: NONSAG (NS). 4. CLASS: 100/50. 5. USES RELATED TO EXPOSURE: NONTRAFFIC (NT).

INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

- A. LATEX JOINT SEALANT LS-01: ACRYLIC LATEX OR SILICONIZED ACRYLIC LATEX, ASTM C 834, TYPE OP, GRADE NF. 1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE
- A. BASF BUILDING SYSTEMS. B. BOSTIK, INC. C. MAY NATIONAL ASSOCIATES, INC.
- D. PECORA CORPORATION. E. SCHNEE-MOREHEAD, INC.

F. TREMCO INCORPORATED

A. PECORA CORPORATION

2.7 JOINT SEALANT BACKING

- 2.6 ACOUSTICAL JOINT SEALANTS A. ACOUSTICAL JOINT SEALANT AS-01: MANUFACTURER'S STANDARD NONSAG, PAINTABLE, NONSTAINING LATEX SEALANT COMPLYING WITH ASTM C
- 834. PRODUCT EFFECTIVELY REDUCES AIRBORNE SOUND TRANSMISSION THROUGH PERIMETER JOINTS AND OPENINGS IN BUILDING CONSTRUCTION AS DEMONSTRATED BY TESTING REPRESENTATIVE ASSEMBLIES ACCORDING TO ASTM E 90. 1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE MANUFACTURERS OFFERING PRODUCTS THAT MAY BE
- B. USG CORPORATION.

C. SOFT ROD BACKER ROD: CLOSED-CELL, NON-GASING "SOFT ROD".

- APPROVED IN WRITING BY JOINT-SEALANT MANUFACTURER FOR JOINT APPLICATION INDICATED, AND OF SIZE AND DENSITY TO CONTROL SEALANT DEPTH AND OTHERWISE CONTRIBUTE TO PRODUCING OPTIMUM SEALANT PERFORMANCE.
- 2.8 MISCELLANEOUS MATERIALS A. PRIMER: MATERIAL RECOMMENDED BY JOINT-SEALANT MANUFACTURER WHERE REQUIRED FOR ADHESION OF SEALANT TO JOINT SUBSTRATES

A. CYLINDRICAL SEALANT BACKINGS: ASTM C 1330, TYPE C (CLOSED-CELL MATERIAL WITH A SURFACE SKIN) OR ANY OF THE PRECEDING TYPES, AS

B. CLEANERS FOR NONPOROUS SURFACES: CHEMICAL CLEANERS ACCEPTABLE TO MANUFACTURERS OF SEALANTS AND SEALANT BACKING

B. BOND-BREAKER TAPE: POLYETHYLENE TAPE OR OTHER PLASTIC TAPE RECOMMENDED BY SEALANT MANUFACTURER.

INDICATED, AS DETERMINED FROM PRECONSTRUCTION JOINT-SEALANT-SUBSTRATE TESTS AND FIELD TESTS.

C. MASKING TAPE: NONSTAINING, NONABSORBENT MATERIAL COMPATIBLE WITH JOINT SEALANTS AND SURFACES ADJACENT TO JOINTS.

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PART 3 - EXECUTION

3.1 PREPARATION

- A. SURFACE CLEANING OF JOINTS: CLEAN OUT JOINTS IMMEDIATELY BEFORE INSTALLING JOINT SEALANTS TO COMPLY WITH JOINT-SEALANT MANUFACTURER'S WRITTEN INSTRUCTIONS.

LEAVE RESIDUES CAPABLE OF INTERFERING WITH ADHESION OF JOINT SEALANTS.

- 1. REMOVE LAITANCE AND FORM-RELEASE AGENTS FROM CONCRETE. 2. CLEAN NONPOROUS JOINT SUBSTRATE SURFACES WITH CHEMICAL CLEANERS OR OTHER MEANS THAT DO NOT STAIN, HARM SUBSTRATES, OR
- B. JOINT PRIMING: PRIME JOINT SUBSTRATES WHERE RECOMMENDED BY JOINT-SEALANT MANUFACTURER OR AS INDICATED BY PRECONSTRUCTION JOINT-SEALANT-SUBSTRATE TESTS OR PRIOR EXPERIENCE, APPLY PRIMER TO COMPLY WITH JOINT-SEALANT MANUFACTURER'S WRITTEN
- INSTRUCTIONS. CONFINE PRIMERS TO AREAS OF JOINT- SEALANT BOND; DO NOT ALLOW SPILLAGE OR MIGRATION ONTO ADJOINING SURFACES. C. MASKING TAPE: USE MASKING TAPE WHERE REQUIRED TO PREVENT CONTACT OF SEALANT OR PRIMER WITH ADJOINING SURFACES THAT
- OTHERWISE WOULD BE PERMANENTLY STAINED OR DAMAGED BY SUCH CONTACT OR BY CLEANING METHODS REQUIRED TO REMOVE SEALANT SMEARS. REMOVE TAPE IMMEDIATELY AFTER TOOLING WITHOUT DISTURBING JOINT SEAL.

3.2 INSTALLATION

- A. SEALANT INSTALLATION STANDARD: COMPLY WITH RECOMMENDATIONS IN ASTM C 1193 FOR USE OF JOINT SEALANTS AS APPLICABLE TO MATERIALS, APPLICATIONS, AND CONDITIONS INDICATED.
- B. INSTALL SEALANT BACKINGS OF KIND INDICATED TO SUPPORT SEALANTS DURING APPLICATION AND AT POSITION REQUIRED TO PRODUCE CROSS-SECTIONAL SHAPES AND DEPTHS OF INSTALLED SEALANTS RELATIVE TO JOINT WIDTHS THAT ALLOW OPTIMUM SEALANT MOVEMENT
- 1. DO NOT LEAVE GAPS BETWEEN ENDS OF SEALANT BACKINGS.
- 2. DO NOT STRETCH, TWIST, PUNCTURE, OR TEAR SEALANT BACKINGS.
- 3. REMOVE ABSORBENT SEALANT BACKINGS THAT HAVE BECOME WET BEFORE SEALANT APPLICATION AND REPLACE THEM WITH DRY MATERIALS.
- C. INSTALL BOND-BREAKER TAPE BEHIND SEALANTS WHERE SEALANT BACKINGS ARE NOT USED BETWEEN SEALANTS AND BACKS OF JOINTS.
- D. INSTALL SEALANTS USING PROVEN TECHNIQUES THAT COMPLY WITH THE FOLLOWING AND AT THE SAME TIME BACKINGS ARE INSTALLED: 1. PLACE SEALANTS SO THEY DIRECTLY CONTACT AND FULLY WET JOINT SUBSTRATES.
- 2. COMPLETELY FILL RECESSES IN EACH JOINT CONFIGURATION. 3. PRODUCE UNIFORM, CROSS-SECTIONAL SHAPES AND DEPTHS RELATIVE TO JOINT WIDTHS THAT ALLOW OPTIMUM SEALANT MOVEMENT
- E. TOOLING OF NONSAG SEALANTS: IMMEDIATELY AFTER SEALANT APPLICATION AND BEFORE SKINNING OR CURING BEGINS, TOOL SEALANTS ACCORDING TO REQUIREMENTS SPECIFIED IN SUBPARAGRAPHS BELOW TO FORM SMOOTH, UNIFORM BEADS OF CONFIGURATION INDICATED: TO
- ELIMINATE AIR POCKETS; AND TO ENSURE CONTACT AND ADHESION OF SEALANT WITH SIDES OF JOINT. REMOVE EXCESS SEALANT FROM SURFACES ADJACENT TO JOINTS. 2. USE TOOLING AGENTS THAT ARE APPROVED IN WRITING BY SEALANT MANUFACTURER AND THAT DO NOT DISCOLOR SEALANTS OR ADJACENT
- SURFACES. 3. PROVIDE CONCAVE JOINT PROFILE PER FIGURE 8A IN ASTM C 1193, UNLESS OTHERWISE INDICATED.
- F. ACOUSTICAL SEALANT INSTALLATION: COMPLY WITH ASTM C 919 AND WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS.
- G. CLEAN OFF EXCESS SEALANT OR SEALANT SMEARS ADJACENT TO JOINTS AS THE WORK PROGRESSES BY METHODS AND WITH CLEANING MATERIALS APPROVED IN WRITING BY MANUFACTURERS OF JOINT SEALANTS AND OF PRODUCTS IN WHICH JOINTS OCCUR.

END OF SECTION

ACME BRICK COMPANY SECTION 04 21 00 ARCHITECTURAL FACE BRICK NOT USED PART 1 GENERAL 1.1 SECTION INCLUDES

A. BRICK UNITS. B. REINFORCEMENT, ANCHORS, AND ACCESSORIES.

1.2 RELATED SECTIONS

1.3 ALLOWANCES A. ALLOWANCE INCLUDED UNDER PROVISIONS OF SECTION 01210 - ALLOWANCES, INCLUDES ALL BRICK PRODUCTS INCLUDED IN THIS

SPECIFICATION. INSTALLATION IS INCLUDED IN THIS SECTION AND IS PART OF CONTRACT SUM/PRICE.

A. ASTM A153 - STANDARD SPECIFICATION FOR ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE.

B. ASTM C 216 - STANDARD SPECIFICATION FOR FACING BRICK (SOLID MASONRY UNITS MADE FROM CLAY OR SHALE). C. ASTM D 1056 - STANDARD SPECIFICATION FOR FLEXIBLE CELLULAR MATERIALS - SPONGE OR EXPANDED RUBBER.

1.5 SUBMITTALS

A.SUBMIT UNDER PROVISIONS OF SECTION 01 30 00 - ADMINISTRATIVE REQUIREMENTS.

B.SELECTION SAMPLES: FOR EACH PRODUCT SPECIFIED, TWO COMPLETE SAMPLES OF BRICK TO REFLECT THE FULL RANGE OF COLOR, SHADES AND SURFACE TEXTURE OF BRICK SPECIFIED. C.VERIFICATION SAMPLES: FOR EACH PRODUCT SPECIFIED, TWO SAMPLES OF FOUR BRICK EACH, REPRESENTING ACTUAL PRODUCT.

COLOR, AND TEXTURE D.MANUFACTURER'S CERTIFICATES: CERTIFY PRODUCTS MEET OR EXCEED SPECIFIED REQUIREMENTS.

1.6 MOCKUP A. AS SOON AS THE BRICK AND STONE SAMPLES HAVE BEEN APPROVED, DELIVER ENOUGH BRICK TO THE JOB SITE TO CONSTRUCT A FOOT BY FOOT MOCKUP WALL PANEL.

B. CONSTRUCT THE MOCKUP PANEL USING THE BRICK, MORTAR, REINFORCING, WEEP HOLES, TOOLING, AND CLEANING AS SPECIFIED, WITH APPROPRIATE BACKUP WALLS AS SHOWN ON THE DRAWING. C. THE APPROVED SAMPLE PANEL SHALL BE A STANDARD OF WORKMANSHIP FOR THE WORK.

D. AS CONSTRUCTION PROCEEDS, THE FIRST FULL PANEL OF BRICKWORK, BETWEEN EXPANSION JOINTS SHALL BECOME THE STANDARD OF WORKMANSHIP FOR ISSUES, SUCH AS HEAD JOINT ALIGNMENT, THAT ARE NOT APPARENT ON THE SMALLER MOCKUP PANEL. E. MOCKUP PANEL SHALL NOT BE REMOVED UNTIL MASONRY WORK REQUIRED BY THIS SECTION HAS BEEN COMPLETED AND ACCEPTED. 1.7 DELIVERY, STORAGE, AND HANDLING

A. DELIVER, STORE, AND HANDLE MATERIALS TO PREVENT INCLUSION OF FOREIGN MATERIALS AND DAMAGE BY WATER OR WEATHER. STORE PACKAGED MATERIALS IN THEIR ORIGINAL PACKAGES. REMOVE DAMAGED OR DETERIORATED MATERIALS FROM THE PREMISES 1.8 PROJECT CONDITIONS

A. FOLLOW HOT WEATHER AND COLD WEATHER REQUIREMENTS IN THE MASONRY CODE AND SPECIFICATIONS, TMS 402 AND TMS 602. PART 2 PRODUCTS

2. 1MANUFACTURERS A. ACCEPTABLE MANUFACTURER: ACME BRICK COMPANY OR APPROVED EQUAL

2.2 BRICK UNITS A. FACE BRICK: BRICK SHALL BE TYPE FBS OR HBS AS FOLLOWS:

1. MODULAR IN SIZE, 2-1/4 BY 3-5/8 BY 7-5/8 INCHES, AND CONFORM TO THE REQUIREMENTS OF ASTM C 216, GRADE SW. 2. KING SIZE 2-5/8 BY 2-5/8 BY 9-5/8 INCHES AND CONFORM TO THE REQUIREMENTS OF ASTM C 216, GRADE SW. 3. QUEEN SIZE 2-3/4 BY 2-3/4 BY 7-5/8 INCHES, AND CONFORM TO THE REQUIREMENTS OF ASTM C 216 GRADE SW. USE FIELD CUT CLOSERS AS REQUIRED FOR HALF-BOND PATTERN. 4. WESTERN QUEEN SIZE 2-13/16 BY 2-13/16 BY 8-5/8 INCHES, AND CONFORM TO THE REQUIREMENTS OF ASTM C 216 GRADE SW. USE FIELD

CUT CLOSERS AS REQUIRED FOR HALF-BOND PATTERN. 5. UTILITY 3-5/8 BY 3-5/8 BY 11-5/8 INCHES AND CONFORM TO THE REQUIREMENTS OF ASTM C 216, GRADE SW. USE FIELD CUT CLOSERS AS REQUIRED FOR HALF-BOND PATTERN.

6. CLOSURE 3-5/8 BY 3-5/8 BY 7-5/8 INCHES AND CONFORM TO THE REQUIREMENTS OF ASTM C 216, GRADE SW. 7. NORMAN 3-5/8 BY 2-1/4 BY 11-5/8 INCHES AND CONFORM TO THE REQUIREMENTS OF ASTM C 216, GRADE SW. USE FIELD CUT CLOSERS AS

REQUIRED FOR HALF-BOND PATTERN. 8. ESTATE 3-5/8 BY 3-5/8 BY 15-5/8 INCHES AND CONFORM TO THE REQUIREMENTS OF ASTM C 216, GRADE SW. USE FIELD CUT CLOSERS AS R REQUIRED FOR HALF-BOND PATTERN. 9. OTHER SIZES: _____

B. SPECIAL SHAPE FACE BRICKS SHALL BE AS DETAILED AND AT LOCATIONS AS INDICATED ON THE DRAWINGS.

2.3 ANCHORS AND TIES A. ACCEPTABLE MANUFACTURERS:

1. PRODUCTS OF HOHMANN AND BARNARD AND HECKMAN BUILDING PRODUCTS, CONFORMING TO SPECIFICATION REQUIREMENTS ARE ACCEPTABLE.

1. SLOTTED ANCHORS OF TYPE DW10 SHALL BE USED WITH STEEL STUD OR WOOD STUD BACKUP WALLS UNLESS NOTED OTHERWISE. 2. DUR-O-EYE OR EQUAL ANCHORS WELDED TO JOINT REINFORCING SHALL BE USED WITH MASONRY BACKUP WALLS. MISSING OR DAMAGED ANCHORS SHALL BE REPLACED AS NECESSARY WITH DW10 ANCHORS FASTENED TO WALL WITH CORROSION RESISTANT TAPCON SCREWS. 3. ZINC COATING SHALL COMPLY WITH ASTM A153-B2.

2.4 ACCESSORLES

A. WEEP HOLES: OPEN HEAD JOINTS EVERY THIRD BRICK AT LINTELS AND OTHER LOCATIONS. B. COMPRESSIBLE FILLER: PREMOLDED, FLEXIBLE CELLULAR NEOPRENE RUBBER FILLER STRIPS COMPLYING WITH ASTM D 1056, GRADE RE41E1, CAPABLE OF COMPRESSION UP TO 35 PERCENT OF WIDTH AND THICKNESS INDICATED. C. MORTAR NET: PROVIDE CONTINUOUS MORTAR NET ALONG BASE OF AIR SPACE TO CATCH MORTAR DRIPPINGS. HIGH-DENSITY POLYETHYLENE 90 PERCENT OPEN MESH DOVETAIL SHAPE

D. AS AN ALTERNATE TO MORTAR NET, EVERY THIRD BRICK MAY BE LEFT OUT AT BASE OF AIR SPACE AND CAVITY CLEANED AND INSPECTED TO BE FREE OF MORTAR DROPPINGS.

PART 3 EXECUTION

A. DO NOT BEGIN INSTALLATION UNTIL BACKUP SUBSTRATES HAVE BEEN PROPERLY PREPARED.

B. VERIFY FIELD CONDITIONS ARE ACCEPTABLE AND ARE READY TO RECEIVE WORK. C. VERIFY BUILT-IN ITEMS ARE IN PROPER LOCATION, AND READY FOR ROUGHING INTO MASONRY WORK.

D. IF BACKUP SUBSTRATE AND OTHER PREPARATION WORK IS THE RESPONSIBILITY OF ANOTHER INSTALLER, NOTIFY ARCHITECT OF UNSATISFACTORY PREPARATION BEFORE PROCEEDING.

3.2 PREPARATION A. CLEAN SURFACES THOROUGHLY PRIOR TO INSTALLATION.

B. FURNISH TEMPORARY BRACING DURING INSTALLATION OF MASONRY WORK. MAINTAIN IN PLACE UNTIL BUILDING STRUCTURE PROVIDES 3.3 INSTALLATION

A. PRE-WET ALL BRICK HAVING INITIAL RATE OF ABSORPTION GREATER THAN 30 BEFORE LAYING. B. HEAT WATER AND SAND IN COLD WEATHER. DO NOT LAY BRICK IN TEMPERATURE BELOW FREEZING UNLESS SUCH HEATING OF MATERIALS AND PROTECTION OF WORK IS PROPERLY PROVIDED FOR.

C. LAY BRICKWORK TRUE TO DIMENSIONS, PLUMB, SQUARE, AND IN BOND. ALL COURSES SHALL BE LEVEL WITH JOINTS OF UNIFORM WIDTH D. VERTICAL JOINTS IN FACING BOND WORK SHALL BE SPACED SO AS TO LINE UP PLUMB AND TRUE, AND ALL JOINTS SHALL BE AS UNIFORM AS THE TYPE OF BRICK WILL ALLOW E. LAY FACING BRICK IN FULL MORTAR BED WITH SHOVED HEAD JOINTS. COMPLETELY FILL JOINTS WITH MORTAR. DO NOT DEEP FURROW BED JOINTS. F. ALLOW SPACE FOR CAULKING OF JOINTS AT FRAMES.

G. BOND FOR FACING BRICK SHALL BE RUNNING BOND UNLESS OTHERWISE INDICATED ON THE DRAWINGS. MATCH EXISTING BOND PATTERNS UNI ESS NOTED OTHERWISE H. ANCHOR FACING BRICK TO METAL STUDS OR MASONRY BACKUP AT 16 INCHES O.C. VERTICALLY AND 16 INCHES O.C. HORIZONTALLY WITH ADJUSTABLE ANCHORS AND TIES.

I. JOINT THICKNESS SHALL BE SUCH AS TO PROVIDE COURSING PATTERN TO MATCH EXISTING BRICKWORK. WHEN THE JOINTS HAVE BECOME THUMBPRINT HARD, ALL EXPOSED JOINTS SHALL BE TOOLED WITH A SLED-JOINTING TOOL. THE JOINTER SHALL BE LARGER THAN THE WIDTH OF THE JOINTS SO THAT A COMPLETE CONTACT IS MADE ALONG THE EDGES OF THE UNITS, COMPRESSING AND SEALING THE SURFACE OF THE JOINT. JOINTS SHALL BE POINTED AS THE TOOL PROCEEDS. J. FORM WEEP HOLES IN HEAD JOINTS AT FACE BRICK OVER SHELF ANGLES AND LINTELS AND WHERE SHOWN ON THE DRAWINGS. RAKE OUT BED JOINT MORTAR TO CLEAN FLASHING SURFACE. WEEP HOLES SHALL BE FILLED WITH PREFORMED MESH TYPE VENT AT BOTTOM OF HEAD JOINTS NOT MORE THAN 24 INCHES O.C.

K. KEEP AIR SPACE CLEAN OF MORTAR AT ALL TIMES. WHERE BRICK EXTENDS BELOW GRADE, FILL BRICK CAVITY SOLID TO LEVEL OF FLASHING AND SLOPE MORTAR SLIGHTLY TO OUTSIDE UNDER FLASHING L. WHEN FLASHING IS TO BE LAID ON OR AGAINST MASONRY, THE SURFACE OF THE MASONRY SHALL BE SMOOTH AND FREE FROM PROJECTIONS THAT MIGHT PUNCTURE THE FLASHING MATERIAL. M. WHERE FRESH MASONRY JOINS MASONRY THAT IS PARTIALLY SET OR TOTALLY SET, THE EXPOSED SURFACE OF THE SET MASONRY SHALL BE CLEANED AND LIGHTLY WETTED SO AS TO OBTAIN THE BEST POSSIBLE BOND WITH THE NEW WORK. ALL LOOSE BRICK AND

N EXPANSION JOINTS: 1.VERTICAL: LOCATE WHERE INDICATED ON DRAWINGS. LAY UNITS TO FORM A VERTICAL JOINT FREE OF MORTAR AND OF SAME WIDTH AS NORMAL HEAD JOINT 2. HORIZONTAL: LOCATE UNDER SHELF ANGLES AND OTHER DISSIMILAR MATERIALS ABUTTED BY BRICK. MAINTAIN A CLEAR SPACE AT LEAST 1/4-INCH THICK FREE OF MORTAR. INSPECT WITH TROWEL BEFORE INSTALLING BACKER ROD AND SEALANT. 3. SEALANT SHALL BE IN ACCORDANCE WITH SECTION 07 90 00 - JOINT PROTECTION.

3 4 FLASHING A. BUILD IN, AS THE WORK PROGRESSES ALL FLASHINGS WHICH ENTER THE MASONRY AS SPECIFIED IN SECTIONS 07600 SHEET METAL FLASHING AND 07670 THRU-WALL FLASHING.

B. EXTEND ALL FLEXIBLE FLASHING 1 INCH PAST FACE OF WALL AND TRIM AFTER TOOLING JOINTS. C. WHERE METAL FLASHING OR DRIP EDGE IS SHOWN, ALIGN DRIP WITH FACE OF BRICK. EDGE OF FLASHING OR DRIP EDGE SHALL BE A SIMPLE HEM ROLLED EDGE AND NOT TURNED DOWN.

3.5 OPENINGS AND HOLES A. PROVIDE ALL CHASES AND RECESSES IN MASONRY WORK OF ALL TYPES AS INDICATED ON THE DRAWINGS AND AS REQUIRED FOR PIPES,

3.6 SETTING AND BUILDING-IN

MORTAR SHALL BE REMOVED

DUCTS, AND OTHER WORK OF MECHANICAL AND ELECTRICAL TRADES. SUCH WORK SHALL BE ACCURATELY LOCATED BY THE TRADES REQUIRING THE WORK. BUT MASONRY WORK SHALL NOT BE CONSTRUCTED WITHOUT GIVING OTHER TRADES DUE NOTICES AND OPPORTUNITY TO LAY OUT OR INSTALL SUCH ITEMS AS MAY BE REQUIRED FOR THEIR WORK B. WHERE REQUIRED FOR INSTALLATION OF WORK OF OTHER TRADES, LEAVE OPENINGS AS INDICATED ON THE DRAWING OR AS REQUIRED

TO RECEIVE A LATER INSTALLATION C. AFTER WORK OF OTHER TRADES IS IN PLACE, OPENINGS SHALL BE NEATLY FILLED WITH MASONRY OF THE SAME TYPE AS IN THE ADJOINING SURFACES.

A. BUILD-IN MATERIALS OCCURRING IN ANY TYPE OF MASONRY CONSTRUCTION THAT ARE FURNISHED BY OTHER TRADES. ALL BUILT-IN WORK SHALL BE ACCURATELY PLACED. SECURED, HELD IN POSITION, AND LOCATED BY THE TRADE REQUIRING THE WORK. B. SET AND BUILT -IN ITEMS OF RELATED MISCELLANEOUS IRON SUCH AS LOOSE LINTELS AND ANCHORS REQUIRED TO COMPLETE ALL PARTS NOT CONNECTED TO BUILDING FRAMING C. SET ALL ANCHOR BOLTS REQUIRED FOR THE ATTACHMENT OF WORK TO MASONRY.

D. BUILD-IN RECESSES, FLASHINGS, RECEIVERS, SLOTS, ANCHORS, SLEEVES AND OTHER WORK SHOWN ON DRAWINGS.

A. AFTER TOOLING AND POINTING IS DONE, CLEAN FACE BRICK SURFACE WITH DRY BRUSH. B. AFTER 3 DAYS CLEAN WITH WATER AND MILD DETERGENT OR CLEANERS RECOMMENDED BY BRICK MANUFACTURER. DO NOT USE

MURIATIC ACID 1. WET BRICK SURFACES THOROUGHLY BEFORE APPLYING CLEANING SOLUTION. 2 APPLY CLEANING SOLUTION WITH BUCKET AND BRUSH OR LOW PRESSURE SPRAY

3. REMOVE ALL STAINS AND MORTAR STREAKS USING STIFF FIBER BRISTLE BRUSH.

4. RINSE THOROUGHLY WITH WATER. 5. PROTECT WINDOWS, LANDSCAPING, AND SURROUNDING MASONRY SURFACES FROM CLEANING SOLUTION AND RINSE WATER.

END OF SECTION



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DIVISION 7 - THERMAL AND MOISTURE PROTECTION

SECTION 07 54 23 THERMOPLASTIC POLYOLEFIN (TPO) ROOFING

PART 1 - GENERAL

1.1 SUMMARY

A. SECTION INCLUDES:

1. ADHERED TPO MEMBRANE ROOFING SYSTEM.

2. ROOF WALKWAYS VAPOR PERMEABLE AIR BARRIER.

4. ROOF INSULATION, TAPERED AND FLAT INSULATION.

5. TWO-COMPONENT INTERLOCKING FLASHING AT PERIMETER OF ROOFING SYSTEM.

B. PROVIDE TESTING OF HEAT-WELDED SEAMS

C. PROVIDE EVFM TESTING OF ROOFING SYSTEM.

D. PROVIDE INFRARED SURVEY OF COMPLETED ROOF ASSEMBLY, PERFORMED BY INDEPENDENT THIRD PARTY TESTING AGENCY HIRED

1.2 DEFINITIONS

A. TPO: THERMOPLASTIC POLYOLEFIN.

B. ROOFING TERMINOLOGY: SEE ASTM D 1079 AND GLOSSARY IN NRCA'S "THE NRCA ROOFING AND WATERPROOFING MANUAL" FOR DEFINITIONS OF TERMS RELATED TO ROOFING WORK IN THIS SECTION.

BY THE CONTRACTOR.

1.3 PERFORMANCE REQUIREMENTS

INSTALLATION, OR OTHER DEFECTS IN CONSTRUCTION. MEMBRANE ROOFING AND BASE FLASHINGS SHALL REMAIN WATERTIGHT. B. MATERIAL COMPATIBILITY: PROVIDE ROOFING MATERIALS THAT ARE COMPATIBLE WITH ONE ANOTHER UNDER CONDITIONS OF SERVICE AND APPLICATION REQUIRED, AS DEMONSTRATED BY MEMBRANE ROOFING MANUFACTURER BASED ON TESTING AND FIELD

A. GENERAL PERFORMANCE: INSTALLED MEMBRANE ROOFING AND BASE FLASHINGS SHALL WITHSTAND SPECIFIED UPLIFT PRESSURES.

THERMALLY INDUCED MOVEMENT. AND EXPOSURE TO WEATHER WITHOUT FAILURE DUE TO DEFECTIVE MANUFACTURE. FABRICATION.

C. ROOFING SYSTEM DESIGN: PROVIDE MEMBRANE ROOFING SYSTEM THAT IS IDENTICAL TO SYSTEMS THAT HAVE BEEN SUCCESSFULLY TESTED BY A QUALIFIED TESTING AND INSPECTING AGENCY TO RESIST UPLIFT PRESSURE CALCULATED ACCORDING TO ASCE/SEI 7. 1. DESIGN ROOFING SYSTEM FOR ASCE-7-05 PEAK WIND SPEED (3 SECOND GUST) OF 90 MILES PER HOUR.

REQUIREMENTS OF FM 1-28 FOR ROOF SYSTEM APPROVAL RATING OF FM 1-75. 2. ABOVE-DECK ROOF COMPONENTS SHALL BE DESIGNED AND INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF FM 1-29 FOR

a. ADDITIONAL WIND UPLIFT PERFORMANCE REQUIREMENTS: DESIGN AND CONSTRUCT ROOFING TO IN ACCORDANCE WITH

D. SOLAR REFLECTANCE INDEX: NOT LESS THAN 78 WHEN CALCULATED ACCORDING TO ASTM E 1980, BASED ON TESTING IDENTICAL

1.4 ACTION SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.

PERFORMANCE REQUIREMENTS SPECIFIED ABOVE.

B. SHOP DRAWINGS: FOR ROOFING SYSTEM. INCLUDE PLANS, ELEVATIONS, SECTIONS, DETAILS, AND ATTACHMENTS TO OTHER WORK

PRODUCTS BY A QUALIFIED TESTING AGENCY.

2. TAPERED INSULATION, INCLUDING SLOPES

3. ROOF PLAN SHOWING ORIENTATION OF ROOF DECK AND ORIENTATION OF MEMBRANE ROOFING AND FASTENING SPACINGS AND

PATTERNS FOR MECHANICALLY FASTENED MEMBRANE ROOFING. 4. INDICATE ROOF WALKWAY LOCATIONS

5. INSULATION FASTENING PATTERNS FOR CORNER, PERIMETER, AND FIELD-OF-ROOF LOCATIONS.

C. SAMPLES FOR VERIFICATION: FOR THE FOLLOWING PRODUCTS:

1. SHEET ROOFING, OF COLOR SPECIFIED, INCLUDING T-SHAPED SIDE AND END LAP SEAM.

2. ROOF INSULATION WALKWAY PADS

4. WALKWAY ROLLS

METAL TERMINATION BARS

7. SIX INSULATION FASTENERS OF EACH TYPE, LENGTH, AND FINISH.

8. SIX ROOF COVER FASTENERS OF EACH TYPE, LENGTH, AND FINISH 1.5 INFORMATIONAL SUBMITTALS

A. QUALIFICATION DATA: FOR QUALIFIED INSTALLER AND MANUFACTURER

B. MANUFACTURER CERTIFICATES: SIGNED BY ROOFING MANUFACTURER CERTIFYING THAT ROOFING SYSTEM COMPLIES WITH

REQUIREMENTS SPECIFIED IN "PERFORMANCE REQUIREMENTS" ARTICLE. 1. SUBMIT EVIDENCE OF COMPLIANCE WITH PERFORMANCE REQUIREMENTS.

C. PRODUCT TEST REPORTS: BASED ON EVALUATION OF COMPREHENSIVE TESTS PERFORMED BY MANUFACTURER AND WITNESSED BY A QUALIFIED TESTING AGENCY, FOR COMPONENTS OF MEMBRANE ROOFING SYSTEM.

D. RESEARCH/EVALUATION REPORTS: FOR COMPONENTS OF MEMBRANE ROOFING SYSTEM, FROM THE ICC-ES.

E. FIELD QUALITY-CONTROL REPORTS.

F. WARRANTIES: SAMPLE OF SPECIAL WARRANTIES.

1.6 CLOSEOUT SUBMITTALS

A. MAINTENANCE DATA: FOR ROOFING SYSTEM TO INCLUDE IN MAINTENANCE MANUALS.

1.7 QUALITY ASSURANCE

A. MANUFACTURER QUALIFICATIONS: A QUALIFIED MANUFACTURER THAT IS UL LISTED FOR MEMBRANE ROOFING SYSTEM IDENTICAL TO

B. INSTALLER QUALIFICATIONS: A QUALIFIED FIRM THAT IS APPROVED, AUTHORIZED, OR LICENSED BY MEMBRANE ROOFING SYSTEM MANUFACTURER TO INSTALL MANUFACTURER'S PRODUCT AND THAT IS ELIGIBLE TO RECEIVE MANUFACTURER'S SPECIAL WARRANTY.

C. SOURCE LIMITATIONS: OBTAIN COMPONENTS INCLUDING ROOF INSULATION AND FASTENERS FOR MEMBRANE ROOFING SYSTEM FROM SAME MANUFACTURER AS MEMBRANE ROOFING OR APPROVED BY MEMBRANE ROOFING MANUFACTURER.

D. EXTERIOR FIRE-TEST EXPOSURE: ASTM E 108, CLASS A; FOR APPLICATION AND ROOF SLOPES INDICATED, AS DETERMINED BY TESTING IDENTICAL MEMBRANE ROOFING MATERIALS BY A QUALIFIED TESTING AGENCY. MATERIALS SHALL BE IDENTIFIED WITH APPROPRIATE

MARKINGS OF APPLICABLE TESTING AGENCY. E. FIRE-RESISTANCE RATINGS: WHERE INDICATED. PROVIDE FIRE-RESISTANCE-RATED ROOF ASSEMBLIES IDENTICAL TO THOSE OF

ASSEMBLIES TESTED FOR FIRE RESISTANCE PER ASTM E 119 BY A QUALIFIED TESTING AGENCY. IDENTIFY PRODUCTS WITH APPROPRIATE MARKINGS OF APPLICABLE TESTING AGENCY.

F. PRELIMINARY ROOFING CONFERENCE: BEFORE STARTING ROOF DECK CONSTRUCTION, CONDUCT CONFERENCE AT PROJECT SITE. 1. MEET WITH OWNER, DESIGN TEAM, OWNER'S INSURER IF APPLICABLE, TESTING AND INSPECTING AGENCY REPRESENTATIVE,

ROOFING INSTALLER, ROOFING SYSTEM MANUFACTURER'S REPRESENTATIVE, DECK INSTALLER, AND INSTALLERS WHOSE WORK INTERFACES WITH OR AFFECTS ROOFING, INCLUDING INSTALLERS OF ROOF ACCESSORIES AND ROOF-MOUNTED EQUIPMENT.

2. REVIEW METHODS AND PROCEDURES RELATED TO ROOFING INSTALLATION, INCLUDING MANUFACTURER'S WRITTEN INSTRUCTIONS. 3. REVIEW AND FINALIZE CONSTRUCTION SCHEDULE AND VERIFY AVAILABILITY OF MATERIALS, INSTALLER'S PERSONNEL, EQUIPMENT,

AND FACILITIES NEEDED TO MAKE PROGRESS AND AVOID DELAYS. 4. REVIEW DECK SUBSTRATE REQUIREMENTS FOR CONDITIONS AND FINISHES, INCLUDING FLATNESS AND FASTENING.

5. REVIEW STRUCTURAL LOADING LIMITATIONS OF ROOF DECK DURING AND AFTER ROOFING.

6. REVIEW BASE FLASHINGS, SPECIAL ROOFING DETAILS, ROOF DRAINAGE, ROOF PENETRATIONS, EQUIPMENT CURBS, AND CONDITION OF OTHER CONSTRUCTION THAT WILL AFFECT ROOFING SYSTEM.

7. REVIEW GOVERNING REGULATIONS AND REQUIREMENTS FOR INSURANCE AND CERTIFICATES IF APPLICABLE.

8. REVIEW TEMPORARY PROTECTION REQUIREMENTS FOR ROOFING SYSTEM DURING AND AFTER INSTALLATION.

9. REVIEW ROOF OBSERVATION AND REPAIR PROCEDURES AFTER ROOFING INSTALLATION.

G. PREINSTALLATION ROOFING CONFERENCE: CONDUCT CONFERENCE AT PROJECT SITE.

1. MEET WITH OWNER, ARCHITECT, OWNER'S INSURER IF APPLICABLE, TESTING AND INSPECTING AGENCY REPRESENTATIVE, ROOFING INSTALLER, ROOFING SYSTEM MANUFACTURER'S REPRESENTATIVE, DECK INSTALLER, AND INSTALLERS WHOSE WORK INTERFACES

WITH OR AFFECTS ROOFING, INCLUDING INSTALLERS OF ROOF ACCESSORIES AND ROOF-MOUNTED EQUIPMENT 2. REVIEW METHODS AND PROCEDURES RELATED TO ROOFING INSTALLATION, INCLUDING MANUFACTURER'S WRITTEN INSTRUCTIONS.

3. REVIEW AND FINALIZE CONSTRUCTION SCHEDULE AND VERIFY AVAILABILITY OF MATERIALS, INSTALLER'S PERSONNEL, EQUIPMENT, AND FACILITIES NEEDED TO MAKE PROGRESS AND AVOID DELAYS

4. EXAMINE DECK SUBSTRATE CONDITIONS AND FINISHES FOR COMPLIANCE WITH REQUIREMENTS, INCLUDING FLATNESS AND

5. REVIEW STRUCTURAL LOADING LIMITATIONS OF ROOF DECK DURING AND AFTER ROOFING.

6. REVIEW BASE FLASHINGS, SPECIAL ROOFING DETAILS, ROOF DRAINAGE, ROOF PENETRATIONS, EQUIPMENT CURBS, AND CONDITION OF OTHER CONSTRUCTION THAT WILL AFFECT ROOFING SYSTEM.

1.8 DELIVERY, STORAGE, AND HANDLING

A. DELIVER ROOFING MATERIALS TO PROJECT SITE IN ORIGINAL CONTAINERS WITH SEALS UNBROKEN AND LABELED WITH MANUFACTURER'S NAME, PRODUCT BRAND NAME AND TYPE, DATE OF MANUFACTURE, APPROVAL OR LISTING AGENCY MARKINGS, AND DIRECTIONS FOR STORING AND MIXING WITH OTHER COMPONENTS.

B. STORE LIQUID MATERIALS IN THEIR ORIGINAL UNDAMAGED CONTAINERS IN A CLEAN, DRY, PROTECTED LOCATION AND WITHIN THE TEMPERATURE RANGE REQUIRED BY ROOFING SYSTEM MANUFACTURER. PROTECT STORED LIQUID MATERIAL FROM DIRECT

1. DISCARD AND LEGALLY DISPOSE OF LIQUID MATERIAL THAT CANNOT BE APPLIED WITHIN ITS STATED SHELF LIFE.

C. PROTECT ROOF INSULATION MATERIALS FROM PHYSICAL DAMAGE AND FROM DETERIORATION BY SUNLIGHT, MOISTURE, SOILING, AND OTHER SOURCES. STORE IN A DRY LOCATION. COMPLY WITH INSULATION MANUFACTURER'S WRITTEN INSTRUCTIONS FOR HANDLING, STORING, AND PROTECTING DURING INSTALLATION.

D. HANDLE AND STORE ROOFING MATERIALS AND PLACE EQUIPMENT IN A MANNER TO AVOID PERMANENT DEFLECTION OF DECK.

1.9 PROJECT CONDITIONS

A. WEATHER LIMITATIONS: PROCEED WITH INSTALLATION ONLY WHEN EXISTING AND FORECASTED WEATHER CONDITIONS PERMIT ROOFING SYSTEM TO BE INSTALLED ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS AND WARRANTY REQUIREMENTS.

1.10 WARRANTY

A. SPECIAL WARRANTY: MANUFACTURER'S STANDARD OR CUSTOMIZED FORM, WITHOUT MONETARY LIMITATION. IN WHICH MANUFACTURER AGREES TO REPAIR OR REPLACE COMPONENTS OF MEMBRANE ROOFING SYSTEM THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD.

1. SPECIAL WARRANTY INCLUDES MEMBRANE ROOFING, BASE FLASHINGS, ROOF INSULATION, FASTENERS, COVER BOARDS, SUBSTRATE BOARD, ROOFING ACCESSORIES AND OTHER COMPONENTS OF MEMBRANE ROOFING SYSTEM. 2. WARRANTY PERIOD: 20 YEARS FROM DATE OF SUBSTANTIAL COMPLETION. PART 2 - PRODUCTS

2.1 TPO MEMBRANE ROOFING

A. FABRIC-REINFORCED THERMOPLASTIC POLYOLEFIN SHEET: ASTM D 6878, INTERNALLY FABRIC OR SCRIM REINFORCED, UNIFORM, FLEXIBLE FABRIC BACKED TPO SHEET.

1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING, OR

a. <u>CARLISLE SYNTEC INCORPORATED.</u> b. FIRESTONE INC.

2. THICKNESS: 60 MILS (1.5 MM), NOMINAL.

3. EXPOSED FACE COLOR: GRAY OR TAN, AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE, HAVING SPECIFIED SOLAR REFLECTIVE INDEX.

2.2 AUXILIARY MEMBRANE ROOFING MATERIALS

A. GENERAL: AUXILIARY MEMBRANE ROOFING MATERIALS RECOMMENDED BY ROOFING SYSTEM MANUFACTURER FOR INTENDED USE, AND COMPATIBLE WITH MEMBRANE ROOFING.

1. LIQUID-TYPE AUXILIARY MATERIALS SHALL COMPLY WITH VOC LIMITS OF AUTHORITIES HAVING JURISDICTION

2. ADHESIVES AND SEALANTS THAT ARE NOT ON THE EXTERIOR SIDE OF WEATHER BARRIER SHALL COMPLY WITH THE FOLLOWING LIMITS FOR VOC CONTENT WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24):

a. PLASTIC FOAM ADHESIVES: 50 G/L

b. GYPSUM BOARD AND PANEL ADHESIVES: 50 G/L.

c. MULTIPURPOSE CONSTRUCTION ADHESIVES: 70 G/L. d. FIBERGLASS ADHESIVES: 80 G/L.

e. SINGLE-PLY ROOF MEMBRANE ADHESIVES: 250 G/L. f. OTHER ADHESIVES: 250 G/L.

g. SINGLE-PLY ROOF MEMBRANE SEALANTS: 450 G/L. h. NONMEMBRANE ROOF SEALANTS: 300 G/L.

i. SEALANT PRIMERS FOR NONPOROUS SUBSTRATES: 250 G/L. j. SEALANT PRIMERS FOR POROUS SUBSTRATES: 775 G/L.

B. SHEET FLASHING: MANUFACTURER'S STANDARD UNREINFORCED THERMOPLASTIC POLYOLEFIN SHEET FLASHING, 55 MILS (1.4 MM) THICK, MINIMUM, OF SAME COLOR AS SHEET MEMBRANE.

C. BONDING ADHESIVE: MANUFACTURER'S STANDARD.

D. SLIP SHEET: MANUFACTURER'S STANDARD, OF THICKNESS REQUIRED FOR APPLICATION.

E. METAL TERMINATION BARS: MANUFACTURER'S STANDARD, PREDRILLED STAINLESS-STEEL OR ALUMINUM BARS, APPROXIMATELY 1 BY 1/8 INCH (25 BY 3 MM) THICK; WITH ANCHORS.

F. METAL BATTENS: MANUFACTURER'S STANDARD, ALUMINUM-ZINC-ALLOY-COATED OR ZINC- COATED STEEL SHEET, APPROXIMATELY 1 INCH WIDE BY 0.05 INCH THICK (25 MM WIDE BY

G. FASTENERS: FACTORY-COATED STEEL FASTENERS AND METAL OR PLASTIC PLATES COMPLYING WITH CORROSION-RESISTANCE PROVISIONS IN FM APPROVALS 4470, DESIGNED FOR FASTENING MEMBRANE TO SUBSTRATE, AND ACCEPTABLE TO MEMBRANE

H. MISCELLANEOUS ACCESSORIES: PROVIDE POURABLE SEALERS. PREFORMED CONE AND VENT SHEET FLASHINGS. PREFORMED INSIDE AND OUTSIDE CORNER SHEET FLASHINGS, T-JOINT COVERS, LAP SEALANTS, TERMINATION REGLETS, AND OTHER ACCESSORIES.

2.3 SUBSTRATE BOARDS

1.3 MM THICK), PREPUNCHED.

A. SUBSTRATE BOARD: ASTM C 1177/C 1177M, GLASS-MAT, WATER-RESISTANT GYPSUM SUBSTRATE, TYPE X, 5/8 INCH (16 MM) THICK.

1. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING:

a. <u>GEORGIA-PACIFIC CORPORATION</u>; DENS DECK.

B. FASTENERS: FACTORY-COATED STEEL FASTENERS AND METAL OR PLASTIC PLATES COMPLYING WITH CORROSION-RESISTANCE PROVISIONS IN FM APPROVALS 4470, DESIGNED FOR FASTENING SUBSTRATE BOARD TO ROOF DECK.

2.4 VAPOR PERMEABLE AIR AND WATER BARRIER

A. BASIS OF DESIGN: TO ESTABLISH A STANDARD OF QUALITY, DESIGN AND FUNCTION DESIRED, DRAWINGS AND SPECIFICATIONS HAVE BEEN BASED ON W.R. GRACE & CO., PRODUCT: "PERM-A-BARRIER VPS (AIR & VAPOR BARRIER)".

B. SHEET MEMBRANE: PREFABRICATED COMPOSITE SHEET 0.9 MM (36 MILS) OF SELF-ADHESIVE RUBBERIZED ASPHALT INTEGRALLY BONDED TO 0.1 MM (4 MILS) OF CROSS- LAMINATED, HIGH-DENSITY POLYÉTHYLENE FILM TO PROVIDE A MINIMUM 1 MM (40 MIL) THICK MEMBRANE. MEMBRANE SHALL BE INTERLEAVED WITH DISPOSABLE SILICONE-COATED RELEASE PAPER UNTIL INSTALLED.

a. WATER VAPOR TRANSMISSION (ASTM E 96, METHOD B): 202 G/M2/ 24 HOURS, (29 PERMS).

b. WATER VAPOR PERMEABILITY: 1658 NG/PA.M2 S c. PEEL ADHESION TO UNPRIMED PLYWOOD (TESTED PER ICC ES AC48):

d. CONTROL BASELINE: 62 LBF/FT (905N/M). e. AFTER 7 DAY WATER IMMERSION: 54 LBF/FT (786N/M).

 AFTER ACCELERATED AGING: 72 LBF/FT (1049N/M). q. AFTER UV EXPOSURE: 77 LBF/FT (1125N/M).

h. ACCELERATED AGING (TESTED PER ICC ES AC48): 25 CYCLE TEST, PASSED.

i. CYCLING AND ELONGATION: (TESTED PER ICC ES AC48): 100 CYCLE TEST AT MINUS 20 DEGREES F., PASSED.

j. CRITERIA FOR WATER RESISTIVE BARRIERS (TESTED PER ICC ES AC48): PASSED. k. FLAME SPREAD INDEX (ASTM E 84): 0, CLASS A.

I. SMOKE DEVELOPED (ASTM E 84): 105, CLASS A. 2. ACCEPTABLE PRODUCTS:

a. HENRY COMPANY, INC., PRODUCT: "BLUESKIN VP160".

b. GRACE, PRODUCT: "PERM-A-BARRIER VPS MEMBRANE". W.R. MEADOWS, INC., PRODUCT: "AIR-SHIELD LMP".

C. PRIMER: RUBBER-BASED PRIMER IN SOLVENT, AS RECOMMENDED BY SHEET VAPOR BARRIER MANUFACTURER FOR SUBSTRATE CONDITIONS, AND WHEN APPLIED WILL NOT AFFECT WATER VAPOR TRANSMISSION OF MEMBRANE.

1. VOC CONTENT: LESS THAN 680 G/L.

2.5 ROOF INSULATION

D. LIQUID MEMBRANE TAPE, CRACK FILLER, MASTICS, AND ACCESSORIES AS RECOMMENDED BY THE SHEET MEMBRANE MANUFACTURER AND WHEN APPLIED WILL NOT AFFECT WATER VAPOR TRANSMISSION OF MEMBRANE.

E. TERMINATION SEALANT: MANUFACTURERS STANDARD MEDIUM MODULUS MASTIC OR SEALANT WHICH IS FULLY COMPATIBLE WITH SHEET AIR BARRIER, ROOFING AND WATERPROOFING MEMBRANES AND SUBSTRATE. 1. VOC CONTENT: LESS THAN 200 G/L.

A. GENERAL: PREFORMED ROOF INSULATION BOARDS MANUFACTURED OR APPROVED BY TPO MEMBRANE ROOFING MANUFACTURER, SELECTED FROM MANUFACTURER'S STANDARD SIZES SUITABLE FOR APPLICATION, OF THICKNESSES INDICATED.

C. TAPERED INSULATION: PROVIDE FACTORY-TAPERED INSULATION BOARDS FABRICATED TO SLOPE OF 1/4 INCH PER 12 INCHES (1:48)

B. EXTRUDED-POLYSTYRENE BOARD INSULATION: ASTM C 578, TYPE IV, 1.6-LB/CU. FT. (26- KG/CU. M) MINIMUM DENSITY, SQUARE EDGED.

D. PROVIDE PREFORMED SADDLES, CRICKETS, TAPERED EDGE STRIPS, AND OTHER INSULATION SHAPES WHERE INDICATED FOR SLOPING TO DRAIN. FABRICATE TO SLOPES INDICATED. 1. CRICKETS AND SADDLES SHALL BE 2 TIMES THE TYPICAL SLOPE OF THE ROOF SURFACE, BUT NOT LESS THAN ½ INCH TO

2.6 INSULATION ACCESSORIES

A. GENERAL: FURNISH ROOF INSULATION ACCESSORIES RECOMMENDED BY INSULATION MANUFACTURER FOR INTENDED USE AND COMPATIBILITY WITH MEMBRANE ROOFING.

B. FASTENERS: FACTORY-COATED STEEL FASTENERS AND METAL OR PLASTIC PLATES COMPLYING WITH CORROSION-RESISTANCE PROVISIONS IN FM APPROVALS 4470, DESIGNED FOR FASTENING ROOF INSULATION AND COVER BOARDS TO SUBSTRATE, AND ACCEPTABLE TO ROOFING SYSTEM MANUFACTURER.

C. FULL-SPREAD APPLIED INSULATION ADHESIVE: INSULATION MANUFACTURER'S RECOMMENDED SPRAY-APPLIED. LOW-RISE. TWO-COMPONENT URETHANE ADHESIVE FORMULATED TO ATTACH ROOF INSULATION TO SUBSTRATE OR TO ANOTHER

D. COVER BOARD: ASTM C 1177/C 1177M, GLASS-MAT, WATER-RESISTANT GYPSUM SUBSTRATE, 1/2 INCH (13 MM) THICK.

1. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING:

a. <u>GEORGIA-PACIFIC CORPORATION</u>; DENS DECK.

2.7 ACCESSORIES

A. COATED METAL TRIM: 18GAUGE (0.6 MM) GALVANIZED STEEL SHEET THAT IS COATED WITH A LAYER OF 0.035 INCH NON-REINFORCED TPO FLASHING. MEMBRANE MAY BE

WELDED DIRECTLY TO THE COATED METAL, ELIMINATING THE NEED TO STRIP IN THE METAL WITH A SEPARATE PIECE OF TPO PRESSURE SENSITIVE COVER STRIP. 1. BASIS OF DESIGN: CARLISLE SYNTEC INC., PRODUCT "SURE-WELD COATED METAL"

B. PREFORMED, TWO-PIECE CAP FLASHING (PROVIDED AT PERIMETER OF ROOFING SYSTEM): 26 GAGE STAINLESS STEEL WITH #2D (MILL) FINISH. FLASHING TO CONSIST OF SURFACE MOUNTED RECEIVER AND COUNTER FLASHING. FLASHING TO HAVE MECHANICAL VERTICAL LOCKING THAT REQUIRES NO BENDING.

1. ACCEPTABLE MANUFACTURERS, OR APPROVED EQUAL: a. LONG ISLAND TINSMITH SUPPLY CORP (LITSCO). b. KEYSTONE FLASHING COMPANY, INC.

2.8 WALKWAYS

c. OR APPROVED EQUAL.

FROM NORMAL WEIGHT AGGREGATES CONFORMING TO ASTM C 33, PORTLAND CEMENT, AIR-ENTRA TEGRAL WATER REPELLANTS, FINELY GOUND SILICA, INTEGRAL COLORANT, AND OTHER FILLER MATER COMPRESSIVE STRENGTH OF NOT LESS THAN 8,000 P.S.I. BY MANUFACTURER ACCEPTABLE TO ROOFING MANUFACTUR

PART 3 - EXECUTION

3.1 EXAMINATION

A. EXAMINE SUBSTRATES, AREAS, AND CONDITIONS, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH THE FOLLOWING

1. VERIFY THAT ROOF OPENINGS AND PENETRATIONS ARE IN PLACE AND CURBS ARE SET AND BRACED AND THAT ROOF

2. VERIFY THAT WOOD BLOCKING, CURBS, AND NAILERS ARE SECURELY ANCHORED TO ROOF DECK AT PENETRATIONS AND TERMINATIONS AND THAT NAILERS MATCH THICKNESSES OF INSULATION. 3. VERIFY THAT SURFACE PLANE FLATNESS AND FASTENING OF STEEL ROOF DECK COMPLIES WITH REQUIREMENTS IN

I_VERIEY THAT MINIMUM CONCRETE DRYING PERIOD RECOMMENDED BY ROOFING SYSTEM MANUFACTURER HAS PASSED PLASTIC SHEET METHOD ACCORDING TO ASTM D 4263. 6. VERIFY THAT CONCRETE CURING COMPOUNDS THAT WILL IMPAIR ADHESION OF ROOFING COMPONENTS TO ROOF DECK

B. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

REQUIREMENTS AND OTHER CONDITIONS AFFECTING PERFORMANCE OF ROOFING SYSTEM:

A. CLEAN SUBSTRATE OF DUST, DEBRIS, MOISTURE, AND OTHER SUBSTANCES DETRIMENTAL TO ROOFING INSTALLATION ACCORDING TO ROOFING SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS. REMOVE SHARP PROJECTIONS.

B. PREVENT MATERIALS FROM ENTERING AND CLOGGING ROOF DRAINS AND CONDUCTORS AND FROM SPILLING OR MIGRATING ONTO SURFACES OF OTHER CONSTRUCTION. REMOVE ROOF-DRAIN PLUGS WHEN NO WORK IS TAKING PLACE OR WHEN RAIN IS FORECAST.

C COMPLETE TERMINATIONS AND BASE ELASHINGS AND PROVIDE TEMPORARY SEALS TO PREVENT WATER FROM ENTERING COMPLETED SECTIONS OF ROOFING SYSTEM AT THE END OF THE WORKDAY OR WHEN RAIN IS FORECAST. REMOVE AND DISCARD TEMPORARY SEALS BEFORE BEGINNING WORK ON ADJOINING ROOFING.

ACOUSTICAL ROOF DECK MANUFACTURER'S WRITTEN INSTRUCTIONS. IMMEDIATELY REFORE INSTALLATION OF OVERLYING

D. INSTALL ACCUISTICAL ROOF DECK RIB INSULATION STRIPS. SPECIFIED IN SECTION 053100 "STEEL DECKING." ACCORDING TO

3.3 SUBSTRATE BOARD A. INSTALL SUBSTRATE BOARD WITH LONG JOINTS IN CONTINUOUS STRAIGHT LINES, PERPENDICULAR TO ROOF SLOPES WITH

END JOINTS STAGGERED BETWEEN ROWS. TIGHTLY BUTT SUBSTRATE BOARDS TOGETHER. 1. FASTEN SUBSTRATE BOARD TO TOP FLANGES OF STEEL DECK ACCORDING TO RECOMMENDATIONS IN FM APPROVALS' "ROOFNAV" AND FM GLOBAL LOSS PREVENTION DATA SHEET 1-29 FOR SPECIFIED WINDSTORM RESISTANCE

2. FASTEN SUBSTRATE BOARD TO TOP FLANGES OF DECK TO RESIST UPLIFT PRESSURE AT CORNERS, PERIMETER, AND FIELD OF ROOF ACCORDING TO MEMBRANE ROOFING SYSTEM MANUFACTURERS' WRITTEN INSTRUCTIONS

3.4 VAPOR-RETARDER INSTALLATION

A. POLYETHYLENE FILM: LOOSELY LAY POLYETHYLENE-FILM VAPOR RETARDER IN A SINGLE LAYER OVER AREA TO RECEIVE VAPOR RETARDER, SIDE AND END LAPPING EACH SHEET A MINIMUM OF 2 INCHES (50 MM) AND 6 INCHES (150 MM),

B. COMPLETELY SEAL VAPOR RETARDER AT TERMINATIONS, OBSTRUCTIONS, AND PENETRATIONS TO PREVENT AIR MOVEMENT INTO MEMBRANE ROOFING SYSTEM.

3.5 INSULATION INSTALLATION

1. CONTINUOUSLY SEAL SIDE AND END LAPS WITH TAPE.

BOARD-TYPE ROOF INSULATION TO DECK TYPE.

FIRMLY PRESSING AND MAINTAINING INSULATION IN PLACE.

A. COORDINATE INSTALLING MEMBRANE ROOFING SYSTEM COMPONENTS SO INSULATION IS NOT EXPOSED TO PRECIPITATION

OR LEFT EXPOSED AT THE END OF THE WORKDAY. B. COMPLY WITH MEMBRANE ROOFING SYSTEM AND INSULATION MANUFACTURER'S WRITTEN INSTRUCTIONS FOR INSTALLING

C. INSTALL TAPERED INSULATION UNDER AREA OF ROOFING TO CONFORM TO SLOPES INDICATED.

D. INSTALL INSULATION UNDER AREA OF ROOFING TO ACHIEVE REQUIRED THICKNESS. WHERE OVERALL INSULATION THICKNESS IS 2.7 INCHES (68 MM) OR GREATER, INSTALL TWO OR MORE LAYERS WITH JOINTS OF EACH SUCCEEDING LAYER STAGGERED FROM JOINTS OF PREVIOUS LAYER A MINIMUM OF 6 INCHES (150 MM) IN EACH DIRECTION.

RESTRICT FLOW OF WATER. F. INSTALL INSULATION WITH LONG JOINTS OF INSULATION IN A CONTINUOUS STRAIGHT LINE WITH END JOINTS STAGGERED BETWEEN ROWS, ABUTTING EDGES AND ENDS BETWEEN BOARDS. FILL GAPS EXCEEDING 1/4 INCH (6 MM) WITH INSULATION.

E. TRIM SURFACE OF INSULATION WHERE NECESSARY AT ROOF DRAINS SO COMPLETED SURFACE IS FLUSH AND DOES NOT

G. MECHANICALLY FASTENED INSULATION: INSTALL EACH LAYER OF INSULATION AND SECURE TO DECK USING MECHANICAL FASTENERS SPECIFICALLY DESIGNED AND SIZED FOR FASTENING SPECIFIED BOARD-TYPE ROOF INSULATION TO DECK

1. CUT AND FIT INSULATION WITHIN 1/4 INCH (6 MM) OF NAILERS, PROJECTIONS, AND PENETRATIONS.

RESISTANCE CLASSIFICATION. 2. FASTEN INSULATION TO RESIST UPLIFT PRESSURE AT CORNERS, PERIMETER, AND FIELD OF ROOF. H. MECHANICALLY FASTENED AND ADHERED INSULATION: INSTALL EACH LAYER OF INSULATION AND SECURE FIRST LAYER OF INSULATION TO DECK USING MECHANICAL FASTENERS SPECIFICALLY DESIGNED AND SIZED FOR FASTENING SPECIFIED

1. FASTEN INSULATION ACCORDING TO REQUIREMENTS IN FM APPROVALS' "ROOFNAV" FOR SPECIFIED WINDSTORM

1. FASTEN FIRST LAYER OF INSULATION ACCORDING TO REQUIREMENTS IN FM APPROVALS' "ROOFNAV" FOR SPECIFIED WINDSTORM RESISTANCE CLASSIFICATION.

2. FASTEN FIRST LAYER OF INSULATION TO RESIST UPLIFT PRESSURE AT CORNERS, PERIMETER, AND FIELD OF ROOF.

3. SET EACH SUBSEQUENT LAYER OF INSULATION IN A SOLID MOPPING OF HOT ROOFING ASPHALT, APPLIED WITHIN PLUS

OR MINUS 25 DEG F (14 DEG C) OF EQUIVISCOUS TEMPERATURE. 4. SET EACH SUBSEQUENT LAYER OF INSULATION IN RIBBONS OF BEAD-APPLIED INSULATION ADHESIVE, FIRMLY PRESSING AND MAINTAINING INSULATION IN PLACE. 5. SET EACH SUBSEQUENT LAYER OF INSULATION IN A UNIFORM COVERAGE OF FULL-SPREAD INSULATION ADHESIVE,

3.6 ADHERED MEMBRANE ROOFING INSTALLATION

REQUIRED BY MANUFACTURER. STAGGER END LAPS.

A. ADHERE MEMBRANE ROOFING OVER AREA TO RECEIVE ROOFING AND INSTALL ACCORDING TO MEMBRANE ROOFING

B. START INSTALLATION OF MEMBRANE ROOFING IN PRESENCE OF MEMBRANE ROOFING SYSTEM MANUFACTURER'S

C. ACCURATELY ALIGN MEMBRANE ROOFING AND MAINTAIN UNIFORM SIDE AND END LAPS OF MINIMUM DIMENSIONS

D. BONDING ADHESIVE: APPLY TO SUBSTRATE AND UNDERSIDE OF MEMBRANE ROOFING AT RATE REQUIRED BY MANUFACTURER AND ALLOW TO PARTIALLY DRY BEFORE INSTALLING MEMBRANE ROOFING. DO NOT APPLY TO SPLICE AREA OF MEMBRANE ROOFING

E. IN ADDITION TO ADHERING, MECHANICALLY FASTEN MEMBRANE ROOFING SECURELY AT TERMINATIONS, PENETRATIONS,

F. APPLY MEMBRANE ROOFING WITH SIDE LAPS SHINGLED WITH SLOPE OF ROOF DECK WHERE POSSIBLE.

G. SEAMS: CLEAN SEAM AREAS, OVERLAP MEMBRANE ROOFING, AND HOT-AIR WELD SIDE AND END LAPS OF MEMBRANE ROOFING AND SHEET FLASHINGS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS TO ENSURE A WATERTIGHT

H. SPREAD SEALANT BED OVER DECK DRAIN FLANGE AT ROOF DRAINS AND SECURELY SEAL MEMBRANE ROOFING IN PLACE

1. TEST LAP EDGES WITH PROBE TO VERIFY SEAM WELD CONTINUITY. APPLY LAP SEALANT TO SEAL CUT EDGES OF 2. VERIFY FIELD STRENGTH OF SEAMS A MINIMUM OF TWICE DAILY AND REPAIR SEAM SAMPLE AREAS

3. REPAIR TEARS, VOIDS, AND LAPPED SEAMS IN ROOFING THAT DOES NOT COMPLY WITH REQUIREMENTS.

3.7 BASE FLASHING INSTALLATION

AND PERIMETER OF ROOFING.

A. INSTALL SHEET FLASHINGS AND PREFORMED FLASHING ACCESSORIES AND ADHERE TO SUBSTRATES ACCORDING TO MEMBRANE ROOFING SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS.

B. APPLY BONDING ADHESIVE TO SUBSTRATE AND UNDERSIDE OF SHEET FLASHING AT REQUIRED RATE AND ALLOW TO PARTIALLY DRY. DO NOT APPLY TO SEAM AREA OF FLASHING.

C. FLASH PENETRATIONS AND FIELD-FORMED INSIDE AND OUTSIDE CORNERS WITH CURED OR UNCURED SHEET FLASHING.

D. CLEAN SEAM AREAS, OVERLAP, AND FIRMLY ROLL SHEET FLASHINGS INTO THE ADHESIVE. HOT- AIR WELD SIDE AND END LAPS TO ENSURE A WATERTIGHT SEAM INSTALLATION. E. TERMINATE AND SEAL TOP OF SHEET FLASHINGS AND MECHANICALLY ANCHOR TO SUBSTRATE THROUGH TERMINATION

3.8 WALKWAY INSTALLATION

A. FLEXIBLE WALKWAYS: INSTALL WALKWAY PRODUCTS IN LOCATIONS INDICATED, HEAT WELD TO SUBSTRATE OR ADHERE WALKWAY PRODUCTS TO SUBSTRATE WITH COMPATIBLE ADHESIVE ACCORDING TO ROOFING SYSTEM MANUFACTURER'S WRITTEN INSTRUCTIONS.

3.9 FIELD QUALITY CONTROL

THEY DO NOT COMPLY WITH SPECIFIED REQUIREMENTS.

ELECTRIC BREACH DETECTION PROCEDURE

A. TESTING AGENCY: OWNER WILL ENGAGE A QUALIFIED TESTING AGENCY TO PERFORM TESTS AND INSPECTIONS.

B. FINAL ROOF INSPECTION: ARRANGE FOR ROOFING SYSTEM MANUFACTURER'S TECHNICAL PERSONNEL TO INSPECT ROOFING INSTALLATION ON COMPLETION.

D. ADDITIONAL INSPECTIONS, AT CONTRACTOR'S EXPENSE, WILL BE PERFORMED TO DETERMINE COMPLIANCE OF REPLACED OR ADDITIONAL WORK WITH SPECIFIED REQUIREMENTS.

C. REPAIR OR REMOVE AND REPLACE COMPONENTS OF MEMBRANE ROOFING SYSTEM WHERE INSPECTIONS INDICATE THAT

E. ELECTRIC VECTOR FIELD MAPPING (EVFM): CONFIRM INTEGRITY OF INSTALLED WATERPROOFING MEMBRANE BY TESTING MEMBRANE FOR HOLES, OPEN SEAMS AND CAPILLARY DEFECTS THAT WILL ALLOW WATER INTRUSION.

a. CONDUCT TESTING AFTER INSTALLING MEMBRANE AND BEFORE PLACING PAVERS, TEST TO VERIFY MEMBRANE IS

ALLOW FOR REPAIRS OF DEFECTS AND CONSEQUENTIAL RETESTING.

ADDITIONAL PARALLEL STRANDS OF CONDUCTOR WIRE.

WILL BE CONSIDERED WATERPROOF AT THAT TIME.

TERMINATIONS FOR EVIDENCE OF LEAKS DURING TESTING.

c. IF BREACHES ARE FOUND, CONDUCT RETEST AFTER REPAIRS TO MEMBRANE HAVE BEEN COMPLETED. d. CONDUCT THIRD AND FINAL TEST AFTER PAVER PLACEMENT TO VERIFY THAT NO DAMAGE HAS BEEN DONE TO THE MEMBRANE DURING INSTALLATION OF PAVERS.

a. PROVIDE STATIONARY IMPULSE CONDUCTOR WIRE AROUND PERIMETERS OF DESIGNATED AREAS. INDIVIDUAL TEST

GEO-TEXTILE THAT WILL CONTACT THE MEMBRANE. RUN THE CONDUCTOR WIRES TO PREDETERMINED LOCATIONS

b. SCHEDULE TESTING TO BEST MEET PROJECT DEMANDS AND CONSTRUCTION SCHEDULE WITH AMPLE TIME TO

AREAS WILL TYPICALLY RANGE BETWEEN 2000 SF AND 7,500 SF. THE TESTING AGENCY WILL DETERMINE SIZE AND SHAPE OF EACH DESIGNATED AREA BASED ON FIELD CONDITIONS. b. PLACE THE CONDUCTOR WIRE APPROXIMATELY 6 INCHES FROM PERIMETER OF EACH TEST AREA AND SECURE AGAINST ACCIDENTAL MOVEMENT OR DAMAGE OR CONCEAL COMPLETELY IF NECESSARY SO AS NOT TO CREATE A TRIPPING HAZARD. IDEALLY, PLACE CONDUCTOR WIRE DIRECTLY ON THE MEMBRANE OR WITHIN LAYERS OF

AND LEAVE ACCESSIBLE FOR FUTURE TESTING. c. ISOLATE ALL CONDUCTIVE COMPONENTS THAT PENETRATE THE MEMBRANE OR CONTACT BOTH THE MEMBRANE AND THE STRUCTURE BY OUTLINING EACH ITEM WITH SEVERAL ADDITIONAL STRANDS OF CONDUCTOR WIRE TO ISOLATE THE FIELD OR BY REMOVING THE METAL ITEMS TEMPORARILY IF POSSIBLE. d. WHERE GROUNDED SOIL OR STRUCTURE CONTACTS THE MEMBRANE, ISOLATE TEST AREA BY PLACING SEVERAL

3. TESTING PROCEDURE a. ATTACH EFVM IMPULSE GENERATOR TO CONDUCTOR WIRE AND GROUND OR BUILDING STRUCTURE CREATING A POTENTIAL CIRCUIT. THE CIRCUIT WILL COMPLETE IF WATER FINDS A PATH TO GROUND BY WAY OF A BREECH IN

b. CREATE A CONTINUOUS CONDUCTING "PLATE" ABOVE THE MEMBRANE BY WETTING SOME OR ALL OF THE TEST AREA WITH WATER. TEST ONLY AREAS THAT ARE WETTED. c. DELIVER A ONE SECOND LONG 40 VOLT POTENTIAL ELECTRICAL IMPULSE TO THE CONDUCTOR WIRE AT AN AVERAGE RATE OF ONE IMPULSE EVERY TWO OR THREE SECONDS.

d. DETECT THE PRESENCE OR ABSENCE OF ELECTRICAL FLOW ACROSS THE SURFACE OF THE MEMBRANE BY SYSTEMATICALLY CONTACTING THE WET FIELD WITH TWO NONINVASIVE PROBES AND READING THE

c. RETEST REPAIRED DEFECTS

POTENTIOMETER LINKED BETWEEN THEM. 4. RESULTS OF TESTING a. IF, AFTER A SYSTEMATIC SEARCH, NO CONCENTRATION OF ELECTRICAL FLOW IS FOUND, THE INSTALLED

MEMBRANE IN THAT AREA TESTED IS DETERMINED TO BE FREE OF BREACHES, SEAM AND CAPILLARY DEFECTS AND

b. IF CONCENTRATIONS OF ELECTRICAL FLOW ARE FOUND, TRACE AND IDENTIFY ALL CONTACT POINTS AND THEREFORE ANY BREACHES IN THE MEMBRANE. DOCUMENT ON A DRAWING AND PROVIDE A WRITTEN REPORT -IMMEDIATELY IF POSSIBLE SHOWING THE EXACT LOCATION OF BREACHES FOUND IN THE INSTALLED MEMBRANE IN THE AREA TESTED.

ANY CORRECTIONS MADE AND A SCHEMATIC CAD DRAWING AND PROVIDE THREE COPIES OF THE REPORT AT THE COMPLETION OF THE WATERPROOFING OR ROOFING WORK. 5. ENGAGE AN INDEPENDENT TESTING AGENCY TO OBSERVE TESTING AND EXAMINE UNDERSIDE OF DECKS AND

6. WHEN ALL AREAS HAVE BEEN TESTED. SUBMIT FINAL REPORT STATING THAT THE WATERPROOFING SYSTEM IS

d. RECORD EACH DAY'S TEST RESULTS WITH A WRITTEN DESCRIPTION AND PHOTOGRAPHS OF ALL BREACHES AND

"TOTALLY WATERPROOF" CONSISTENT WITH WARRANTY REQUIREMENTS OF THE ROOFING SYSTEM MANUFACTURER.

3.10 PROTECTING AND CLEANING A. PROTECT MEMBRANE ROOFING SYSTEM FROM DAMAGE AND WEAR DURING REMAINDER OF CONSTRUCTION PERIOD. WHEN REMAINING CONSTRUCTION WILL NOT AFFECT OR ENDANGER ROOFING, INSPECT ROOFING FOR DETERIORATION AND DAMAGE, DESCRIBING ITS NATURE AND EXTENT IN A WRITTEN REPORT, WITH COPIES TO ARCHITECT AND OWNER.

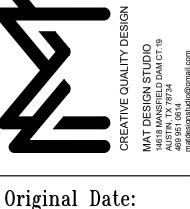
REPAIR SUBSTRATES; AND REPAIR OR REINSTALL MEMBRANE ROOFING SYSTEM TO A CONDITION FREE OF DAMAGE AND

C. CLEAN OVERSPRAY AND SPILLAGE FROM ADJACENT CONSTRUCTION USING CLEANING AGENTS AND PROCEDURES RECOMMENDED BY MANUFACTURER OF AFFECTED CONSTRUCTION.

DETERIORATION AT TIME OF SUBSTANTIAL COMPLETION AND ACCORDING TO WARRANTY REQUIREMENTS.

B. CORRECT DEFICIENCIES IN OR REMOVE MEMBRANE ROOFING SYSTEM THAT DOES NOT COMPLY WITH REQUIREMENTS;

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1.1 SUMMARY

A. SECTION INCLUDES 1. EXTERIOR AND INTERIOR STOREFRONT FRAMING.

STOREFRONT FRAMING FOR WINDOW WALLS. 3. STOREFRONT FRAMING FOR PUNCHED OPENINGS.

4. EXTERIOR AND INTERIOR MANUAL-SWING ENTRANCE DOORS AND DOOR FRAME UNITS.

1.2 PERFORMANCE REQUIREMENTS

A. GENERAL PERFORMANCE: ALUMINUM-FRAMED SYSTEMS SHALL WITHSTAND THE EFFECTS OF THE FOLLOWING PERFORMANCE REQUIREMENTS WITHOUT EXCEEDING PERFORMANCE CRITERIA OR FAILURE DUE TO DEFECTIVE MANUFACTURE, FABRICATION,

INSTALLATION. OR OTHER DEFECTS IN CONSTRUCTION: 1. MOVEMENTS OF SUPPORTING STRUCTURE INDICATED ON DRAWINGS INCLUDING, BUT NOT LIMITED TO, STORY DRIFT AND

DEFLECTION FROM UNIFORMLY DISTRIBUTED AND CONCENTRATED LIVE LOADS. 2. DIMENSIONAL TOLERANCES OF BUILDING FRAME AND OTHER ADJACENT CONSTRUCTION.

3. FAILURE INCLUDES THE FOLLOWING

a. DEFLECTION EXCEEDING SPECIFIED LIMITS.

b. THERMAL STRESSES TRANSFERRING TO BUILDING STRUCTURE.

c. FRAMING MEMBERS TRANSFERRING STRESSES, INCLUDING THOSE CAUSED BY THERMAL AND STRUCTURAL MOVEMENTS

d. NOISE OR VIBRATION CREATED BY WIND AND BY THERMAL AND STRUCTURAL MOVEMENTS.

e. LOOSENING OR WEAKENING OF FASTENERS, ATTACHMENTS, AND OTHER COMPONENTS.

f. FAILURE OF OPERATING UNITS.

B. DELEGATED DESIGN: DESIGN ALUMINUM-FRAMED SYSTEMS, INCLUDING COMPREHENSIVE ENGINEERING ANALYSIS BY A QUALIFIED PROFESSIONAL ENGINEER, USING PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA INDICATED.

C. WIND LOADS: 100MPH

D. DEFLECTION OF FRAMING MEMBERS:

1. DEFLECTION NORMAL TO WALL PLANE: LIMITED TO EDGE OF GLASS IN A DIRECTION PERPENDICULAR TO GLASS PLANE SHALL NOT EXCEED L/175 OF THE GLASS EDGE LENGTH FOR EACH INDIVIDUAL GLAZING LITE OR AN AMOUNT THAT RESTRICTS EDGE DEFLECTION OF INDIVIDUAL GLAZING LITES TO 3/4 INCH. WHICHEVER IS LESS.

2. DEFLECTION PARALLEL TO GLAZING PLANE: LIMITED TO L/360 OF CLEAR SPAN OR 1/8 INCH, WHICHEVER IS SMALLER. E. STRUCTURAL-TEST PERFORMANCE: PROVIDE ALUMINUM-FRAMED SYSTEMS TESTED ACCORDING TO ASTM E 330 AS FOLLOWS:

1. WHEN TESTED AT 150 PERCENT OF POSITIVE AND NEGATIVE WIND-LOAD DESIGN PRESSURES, SYSTEMS, INCLUDING ANCHORAGE, DO NOT EVIDENCE MATERIAL FAILURES, STRUCTURAL DISTRESS, AND PERMANENT DEFORMATION OF MAIN FRAMING MEMBERS EXCEEDING 0.2 PERCENT OF SPAN.

TEST DURATIONS: 10 SECONDS.

F. AIR INFILTRATION: PROVIDE ALUMINUM-FRAMED SYSTEMS WITH MAXIMUM AIR LEAKAGE THROUGH FIXED GLAZING AND FRAMING AREAS OF 0.06 CFM/SQ. FT. OF FIXED WALL AREA WHEN TESTED ACCORDING TO ASTM E 283 AT A MINIMUM STATIC-AIR-PRESSURE DIFFERENCE OF 6.24 LBF/SQ. FT.

G. WATER PENETRATION UNDER STATIC PRESSURE: PROVIDE ALUMINUM-FRAMED SYSTEMS THAT DO NOT EVIDENCE WATER PENETRATION THROUGH FIXED GLAZING AND FRAMING AREAS WHEN TESTED ACCORDING TO ASTM E 331 AT A MINIMUM STATIC-AIR-PRESSURE DIFFERENCE OF 20 PERCENT OF POSITIVE WIND-LOAD DESIGN PRESSURE, BUT NOT LESS THAN 6.24 LBF/SQ.

1.3 SUBMITTALS

A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED.

B. SHOP DRAWINGS: FOR ALUMINUM-FRAMED SYSTEMS. INCLUDE PLANS, ELEVATIONS, SECTIONS, DETAILS, AND ATTACHMENTS TO 1. INCLUDE DETAILS OF PROVISIONS FOR SYSTEM EXPANSION AND CONTRACTION AND FOR DRAINAGE OF MOISTURE IN THE

SYSTEM TO THE EXTERIOR.

C. SAMPLES: FOR EACH TYPE OF EXPOSED FINISH REQUIRED. D. OTHER ACTION SUBMITTALS

1. ENTRANCE DOOR HARDWARE SCHEDULE: PREPARED BY OR UNDER THE SUPERVISION OF SUPPLIER, DETAILING FABRICATION AND ASSEMBLY OF ENTRANCE DOOR HARDWARE, AS WELL AS PROCEDURES AND DIAGRAMS.

E. DELEGATED-DESIGN SUBMITTAL: FOR ALUMINUM-FRAMED SYSTEMS INDICATED TO COMPLY WITH PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA, INCLUDING ANALYSIS DATA SIGNED AND SEALED BY THE QUALIFIED PROFESSIONAL ENGINEER RESPONSIBLE FOR THEIR PREPARATION.

F. PRODUCT TEST REPORTS.

G. MAINTENANCE DATA.

H. WARRANTIES: SAMPLE OF SPECIAL WARRANTIES.

1.4 QUALITY ASSURANCE

A. INSTALLER QUALIFICATIONS: MANUFACTURER'S AUTHORIZED REPRESENTATIVE WHO IS TRAINED AND APPROVED FOR INSTALLATION OF UNITS REQUIRED FOR THIS PROJECT.

B. TESTING AGENCY QUALIFICATIONS: QUALIFIED ACCORDING TO ASTM E 699 FOR TESTING INDICATED.

ENGINEERING RESPONSIBILITY: PREPARE DATA FOR ALUMINUM-FRAMED SYSTEMS, INCLUDING SHOP DRAWINGS, BASED ON TESTING AND ENGINEERING ANALYSIS OF MANUFACTURER'S STANDARD UNITS IN SYSTEMS SIMILAR TO THOSE INDICATED FOR

D. PRODUCT OPTIONS: INFORMATION ON DRAWINGS AND IN SPECIFICATIONS ESTABLISHES REQUIREMENTS FOR SYSTEMS' AESTHETIC EFFECTS AND PERFORMANCE CHARACTERISTICS. AESTHETIC EFFECTS ARE INDICATED BY DIMENSIONS. ARRANGEMENTS ALIGNMENT, AND PROFILES OF COMPONENTS AND ASSEMBLIES AS THEY RELATE TO SIGHTLINES, TO ONE ANOTHER, AND TO

OR MORE METHODS INCLUDING PRECONSTRUCTION TESTING, FIELD TESTING, AND IN-SERVICE PERFORMANCE. E. ACCESSIBLE ENTRANCES: COMPLY WITH APPLICABLE PROVISIONS IN THE U.S. ARCHITECTURAL & TRANSPORTATION BARRIERS

ADJOINING CONSTRUCTION. PERFORMANCE CHARACTERISTICS ARE INDICATED BY CRITERIA SUBJECT TO VERIFICATION BY ONE

COMPLIANCE BOARD'S ADA-ABA ACCESSIBILITY GUIDELINES AND ICC/ANSI A117.1. F. SOURCE LIMITATIONS FOR ALUMINUM-FRAMED SYSTEMS: OBTAIN FROM SINGLE SOURCE FROM SINGLE MANUFACTURER.

G. PREINSTALLATION CONFERENCE: CONDUCT CONFERENCE AT PROJECT SITE.

1.5 WARRANTY

A. SPECIAL WARRANTY: MANUFACTURER'S STANDARD FORM IN WHICH MANUFACTURER AGREES TO REPAIR OR REPLACE COMPONENTS OF ALUMINUM-FRAMED SYSTEMS THAT DO NOT COMPLY WITH REQUIREMENTS OR THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD. 1. WARRANTY PERIOD: FIVE YEARS FROM DATE OF SUBSTANTIAL COMPLETION.

B. SPECIAL FINISH WARRANTY: MANUFACTURER'S STANDARD FORM IN WHICH MANUFACTURER AGREES TO REPAIR OR REPLACE COMPONENTS ON WHICH FINISHES DO NOT COMPLY WITH REQUIREMENTS OR THAT FAIL IN MATERIALS OR WORKMANSH WITHIN SPECIFIED WARRANTY PERIOD. WARRANTY DOES NOT INCLUDE NORMAL WEATHERING. 1. WARRANTY PERIOD: 10 YEARS FROM DATE OF SUBSTANTIAL COMPLETION.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

A. BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS: PROVIDE VISTA WALL ARCHITECTURAL PRODUCTS, HEAVY WALL SWING ENTRANCE, OR COMPARABLE PRODUCT BY ONE OF THE FOLLOWING:

ARCADIA, INC.

2. ARCH ALUMINUM & GLASS CO., INC. 3. CMI ARCHITECTURAL

4. COMMERCIAL ARCHITECTURAL PRODUCTS, INC. EFCO CORPORATION.

6. KAWNEER NORTH AMERICA; AN ALCOA COMPANY.

7. LEED HIMMEL INDUSTRIES, INC. 8. PITTCO ARCHITECTURAL METALS, INC.

TRACO. TUBELITE.

11. UNITED STATES ALUMINUM. 12. VISTAWALL ARCHITECTURAL PRODUCTS; THE VISTAWALL GROUP; A BLUESCOPE STEEL COMPANY.

13. YKK AP AMERICA INC.

14. MANKO WINDOW SYSTEMS, INC. 15. CR LAURENCE.

2.2 MATERIALS

A. ALUMINUM: ALLOY AND TEMPER RECOMMENDED BY MANUFACTURER FOR TYPE OF USE AND FINISH INDICATED. SHEET AND PLATE: ASTM B 209.

2. EXTRUDED BARS, RODS, PROFILES, AND TUBES: ASTM B 221.

3. EXTRUDED STRUCTURAL PIPE AND TUBES: ASTM B 429.

4. STRUCTURAL PROFILES: ASTM B 308/B 308M. 5. WELDING RODS AND BARE ELECTRODES: AWS A5.10.

B. STEEL REINFORCEMENT: MANUFACTURER'S STANDARD ZINC-RICH, CORROSION-RESISTANT PRIMER, COMPLYING WITH SSPC-PS GUIDE NO. 12.00; APPLIED IMMEDIATELY AFTER SURFACE PREPARATION AND PRETREATMENT. SELECT SURFACE PREPARATION METHODS ACCORDING TO RECOMMENDATIONS IN SSPC-

SP COM AND PREPARE SURFACES ACCORDING TO APPLICABLE SSPC STANDARD.

1. STRUCTURAL SHAPES, PLATES, AND BARS: ASTM A 36.

2. COLD-ROLLED SHEET AND STRIP: ASTM A 1008. 3. HOT-ROLLED SHEET AND STRIP: ASTM A 1011.

2.3 FRAMING SYSTEMS

A. FRAMING MEMBERS: MANUFACTURER'S STANDARD EXTRUDED-ALUMINUM FRAMING MEMBERS OF THICKNESS REQUIRED AND REINFORCED AS REQUIRED TO SUPPORT IMPOSED LOADS.

 CONSTRUCTION: BLAST RESISTANT 2. GLAZING SYSTEM: RETAINED MECHANICALLY WITH GASKETS ON FOUR SIDES.

GLAZING PLANE: FRONT.

B. BRACKETS AND REINFORCEMENTS: MANUFACTURER'S STANDARD HIGH-STRENGTH ALUMINUM WITH NONSTAINING, NONFERROUS

SHIMS FOR ALIGNING SYSTEM COMPONENTS. C. FASTENERS AND ACCESSORIES: MANUFACTURER'S STANDARD CORROSION-RESISTANT, NONSTAINING, NONBLEEDING

FASTENERS AND ACCESSORIES COMPATIBLE WITH ADJACENT MATERIALS. 1. USE SELF-LOCKING DEVICES WHERE FASTENERS ARE SUBJECT TO LOOSENING OR TURNING OUT FROM THERMAL AND STRUCTURAL MOVEMENTS, WIND LOADS, OR VIBRATION.

2. REINFORCE MEMBERS AS REQUIRED TO RECEIVE FASTENER THREADS. 3. USE EXPOSED FASTENERS WITH COUNTERSUNK PHILLIPS SCREW HEADS, FINISHED TO MATCH FRAMING SYSTEM ,

FABRICATED FROM STAINLESS STEEL. D. CONCRETE AND MASONRY INSERTS: HOT-DIP GALVANIZED CAST-IRON, MALLEABLE-IRON, OR STEEL INSERTS, COMPLYING WITH

E. CONCEALED FLASHING: MANUFACTURER'S STANDARD CORROSION-RESISTANT, NONSTAINING, NONBLEEDING FLASHING COMPATIBLE WITH ADJACENT MATERIALS.

F. FRAMING SYSTEM GASKETS AND SEALANTS: MANUFACTURER'S STANDARD, RECOMMENDED BY MANUFACTURER FOR JOINT TYPE. 1. PROVIDE SEALANTS FOR USE INSIDE OF THE WEATHERPROOFING SYSTEM THAT HAVE A VOC CONTENT OF 250 G/L OR LESS WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24).

2.4 GLAZING SYSTEMS

A. GLAZING: AS SPECIFIED IN "GLAZING." SECTION

B. GLAZING GASKETS: MANUFACTURER'S STANDARD COMPRESSION TYPES; REPLACEABLE, MOLDED OR EXTRUDED, OF PROFILE AND HARDNESS REQUIRED TO MAINTAIN WATERTIGHT SEAL.

C. SPACERS AND SETTING BLOCKS: MANUFACTURER'S STANDARD ELASTOMERIC TYPE.

a. PROVIDE NONREMOVABLE GLAZING STOPS ON OUTSIDE OF DOOR.

A. ENTRANCE DOORS: MANUFACTURER'S STANDARD GLAZED ENTRANCE DOORS FOR MANUAL-SWING OPERATION. 1. DOOR CONSTRUCTION: 1-3/4 INCH OVERALL THICKNESS, WITH MINIMUM 0.125-INCH THICK, EXTRUDED-ALUMINUM TUBULAR RAIL AND STILE MEMBERS. MECHANICALLY FASTEN CORNERS WITH REINFORCING BRACKETS THAT ARE DEEPLY PENETRATED AND FILLET WELDED OR THAT INCORPORATE CONCEALED TIE RODS. 2. DOOR DESIGN: WIDE STILE; 5-INCH NOMINAL WIDTH.

a. ACCESSIBLE DOORS: SMOOTH SURFACED FOR WIDTH OF DOOR IN AREA WITHIN 10 INCHES ABOVE FLOOR OR GROUND 3. GLAZING STOPS AND GASKETS: SQUARE, SNAP-ON, EXTRUDED-ALUMINUM STOPS AND PREFORMED GASKETS.

B. ENTRANCE DOOR HARDWARE: AS SPECIFIED IN DIVISION 08 SECTION "DOOR HARDWARE" AND AS SPECIFIED BELOW 1. CONTINUOUS HINGES: CONTINUOUS HINGES SHALL CONSIST OF THREE (3)-INTERLOCKING EXTRUSIONS IN A PIN-LESS ASSEMBLY APPLIED TO THE FULL HEIGHT OF THE DOOR. ALL CONTINUOUS GEARED HINGES SHALL BE MANUFACTURED TO TEMPLATE SCREW LOCATIONS AND BE NON-HANDED. ALL MORTISE HINGES AND HALF MORTISE HINGES SHALL COVER AND WRAP THE DOOR EDGE COMPLETELY. DOORFRAME HEADS SHALL BE EXTENDED FOR CLEARANCE ON FULL OR HALF MORTISE HINGES VERSUS DOWNSIZING DOORS FOR EASE OF REPAIR AND REPLACEMENT. ALL FRAMES SHALL BE PROPERLY REINFORCED PER MANUFACTURER'S STANDARDS. STANDARD WARRANTY SHALL BE FOR THE LIFE OF OPENING.

2.6 ACCESSORY MATERIALS

A. BITUMINOUS PAINT: COLD-APPLIED, ASPHALT-MASTIC PAINT COMPLYING WITH SSPC-PAINT 12 REQUIREMENTS EXCEPT CONTAINING NO ASBESTOS; FORMULATED FOR 30-MIL THICKNESS PER COAT

2.7 FABRICATION

A. FORM OR EXTRUDE ALUMINUM SHAPES BEFORE FINISHING.

B. WELD IN CONCEALED LOCATIONS TO GREATEST EXTENT POSSIBLE TO MINIMIZE DISTORTION OR DISCOLORATION OF FINISH REMOVE WELD SPATTER AND WELDING OXIDES FROM EXPOSED SURFACES BY DESCALING OR GRINDING.

C. FRAMING MEMBERS, GENERAL: FABRICATE COMPONENTS THAT, WHEN ASSEMBLED, HAVE THE FOLLOWING CHARACTERISTICS:

1. PROFILES THAT ARE SHARP, STRAIGHT, AND FREE OF DEFECTS OR DEFORMATIONS. 2 ACCURATELY FITTED JOINTS WITH ENDS COPED OR MITERED 3. MEANS TO DRAIN WATER PASSING JOINTS, CONDENSATION WITHIN FRAMING MEMBERS, AND MOISTURE MIGRATING WITHIN

THE SYSTEM TO EXTERIOR 4. PHYSICAL AND THERMAL ISOLATION OF GLAZING FROM FRAMING MEMBERS.

5. ACCOMMODATIONS FOR THERMAL AND MECHANICAL MOVEMENTS OF GLAZING AND FRAMING TO MAINTAIN REQUIRED GLAZING EDGE CLEARANCES 6. PROVISIONS FOR FIELD REPLACEMENT OF GLAZING FROM INTERIOR.

7. FASTENERS, ANCHORS, AND CONNECTION DEVICES THAT ARE CONCEALED FROM VIEW TO GREATEST EXTENT POSSIBLE.

D. MECHANICALLY GLAZED FRAMING MEMBERS: FABRICATE FOR FLUSH GLAZING WITHOUT PROJECTING STOPS.

E. ENTRANCE DOOR FRAMES: REINFORCE AS REQUIRED TO SUPPORT LOADS IMPOSED BY DOOR OPERATION AND FOR INSTALLING ENTRANCE DOOR HARDWARE.

F. ENTRANCE DOORS: REINFORCE DOORS AS REQUIRED FOR INSTALLING ENTRANCE DOOR HARDWARE.

G. ENTRANCE DOOR HARDWARE INSTALLATION: FACTORY INSTALL ENTRANCE DOOR HARDWARE TO THE GREATEST EXTENT POSSIBLE. CUT, DRILL, AND TAP FOR FACTORY-INSTALLED ENTRANCE DOOR HARDWARE BEFORE APPLYING FINISHES.

H. AFTER FABRICATION, CLEARLY MARK COMPONENTS TO IDENTIFY THEIR LOCATIONS IN PROJECT ACCORDING TO SHOP DRAWINGS.

2.8 ALUMINUM FINISHES

A. ANODIZED FINISH: COLOR: CLEAR ANODIZED

PART 3 - EXECUTION 3.1 INSTALLATION

A. GENERAL

1. COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS.

DO NOT INSTALL DAMAGED COMPONENTS.

3. FIT JOINTS TO PRODUCE HAIRLINE JOINTS FREE OF BURRS AND DISTORTION.

4. RIGIDLY SECURE NONMOVEMENT JOINTS.

5. INSTALL ANCHORS WITH SEPARATORS AND ISOLATORS TO PREVENT METAL CORROSION AND ELECTROLYTIC DETERIORATION.

SURFACES WITH BITUMINOUS PAINT

6. SEAL JOINTS WATERTIGHT UNLESS OTHERWISE INDICATED. B. METAL PROTECTION

1. WHERE ALUMINUM WILL CONTACT DISSIMILAR METALS, PROTECT AGAINST GALVANIC ACTION BY PAINTING CONTACT SURFACES WITH PRIMER OR APPLYING SEALANT OR TAPE, OR BY INSTALLING NONCONDUCTIVE SPACERS AS RECOMMENDED BY MANUFACTURER FOR THIS PURPOSE 2. WHERE ALUMINUM WILL CONTACT CONCRETE OR MASONRY, PROTECT AGAINST CORROSION BY PAINTING CONTACT

C. INSTALL COMPONENTS TO DRAIN WATER PASSING JOINTS, CONDENSATION OCCURRING WITHIN FRAMING MEMBERS, AND MOISTURE MIGRATING WITHIN THE SYSTEM TO EXTERIOR.

D. SET CONTINUOUS SILL MEMBERS AND FLASHING IN FULL SEALANT BED AS SPECIFIED IN DIVISION 07 SECTION "JOINT SEALANTS" TO PRODUCE WEATHERTIGHT INSTALLATION.

2. FIELD-INSTALLED ENTRANCE DOOR HARDWARE: INSTALL SURFACE-MOUNTED ENTRANCE DOOR HARDWARE ACCORDING TO

ENTRANCE DOOR HARDWARE MANUFACTURERS' WRITTEN INSTRUCTIONS USING CONCEALED FASTENERS TO GREATEST

E. INSTALL COMPONENTS PLUMB AND TRUE IN ALIGNMENT WITH ESTABLISHED LINES AND GRADES, AND WITHOUT WARP OR RACK.

F. INSTALL GLAZING AS SPECIFIED IN DIVISION 08 SECTION "GLAZING." G. ENTRANCE DOORS: INSTALL DOORS TO PRODUCE SMOOTH OPERATION AND TIGHT FIT AT CONTACT POINTS. 1. EXTERIOR DOORS: INSTALL TO PRODUCE WEATHERTIGHT ENCLOSURE AND TIGHT FIT AT WEATHER STRIPPING.

EXTENT POSSIBLE 3.2 FIELD QUALITY CONTROL

A. TESTING AGENCY: ENGAGE A QUALIFIED INDEPENDENT TESTING AND INSPECTING AGENCY TO PERFORM FIELD TESTS AND

B. TESTING SERVICES: TESTING AND INSPECTING OF REPRESENTATIVE AREAS TO DETERMINE COMPLIANCE OF INSTALLED SYSTEMS WITH SPECIFIED REQUIREMENTS SHALL TAKE PLACE AS FOLLOWS. DO NOT PROCEED WITH INSTALLATION OF THE NEXT AREA UNTIL TEST RESULTS FOR PREVIOUSLY COMPLETED AREAS SHOW COMPLIANCE WITH REQUIREMENTS.

1. WATER SPRAY TEST: BEFORE INSTALLATION OF INTERIOR FINISHES HAS BEGUN, AREAS DESIGNATED BY ARCHITECT SHALL BE

TESTED ACCORDING TO AAMA 821.2 AND SHALL NOT EVIDENCE WATER PENETRATION. C. REPAIR OR REMOVE WORK IF TEST RESULTS AND INSPECTIONS INDICATE THAT IT DOES NOT COMPLY WITH SPECIFIED

E. ALUMINUM-FRAMED ASSEMBLIES WILL BE CONSIDERED DEFECTIVE IF THEY DO NOT PASS TESTS AND INSPECTIONS.

D. ADDITIONAL TESTING AND INSPECTING, AT CONTRACTOR'S EXPENSE, WILL BE PERFORMED TO DETERMINE COMPLIANCE OF REPLACED OR ADDITIONAL WORK WITH SPECIFIED REQUIREMENTS.

F. PREPARE TEST AND INSPECTION REPORTS.

END OF SECTION

PART 1 - GENERAL

A. SECTION INCLUDES GLAZING FOR THE FOLLOWING PRODUCTS AND APPLICATIONS, INCLUDING THOSE SPECIFIED IN OTHER SECTIONS WHERE GLAZING REQUIREMENTS ARE SPECIFIED BY REFERENCE TO THIS SECTION:

DOORS.

3. GLAZED CURTAIN WALLS. 4. STOREFRONT FRAMING

14. GLASS RAILINGS AT BRIDGE.

3. SECTION 08 83 00 "MIRRORS."

GLAZED ENTRANCES

6. BACK-PAINTED TEMPERED GLASS AS INDICATED. LAMINATED GLASS FINS.

8. SLOPED GLASS AT SKYLIGHTS COLORED LAMINATED GLASS.

10. GLASS WALKWAY SURFACES AT BRIDGE. 11. INTERIOR BORROWED LITES.

12. INTERIOR MARKERBOARD WALLS 13. LAMINATED GLASS GUARDRAILS AT ATRIUM.

1. SECTION 01505 - CONSTRUCTION AND DEMOLITION WASTE MANAGEMENT: PROCEDURAL AND ADMINISTRATIVE

REQUIREMENTS FOR CONSTRUCTION RECYCLING. 2. SECTION 01 81 13 - SUSTAINABLE DESIGN REQUIREMENTS: SPECIAL ADMINISTRATIVE AND PROCEDURE REQUIREMENTS RELATED TO THE OWNER'S LEED 2009 NEW CONSTRUCTION AND MAJOR RENOVATION. CERTIFICATE

GOALS OF ENERGY CONSERVATION AND EFFICIENCY, INDOOR AIR QUALITY, AND NATURAL RESOURCE EFFICIENCY.

1.2 DEFINITIONS

A. GLASS MANUFACTURERS: FIRMS THAT PRODUCE PRIMARY GLASS, FABRICATED GLASS, OR BOTH, AS DEFINED IN REFERENCED GLAZING PUBLICATIONS.

B. GLASS THICKNESSES: INDICATED BY THICKNESS DESIGNATIONS IN MILLIMETERS ACCORDING TO ASTM C 1036.

C. INTERSPACE: SPACE BETWEEN LITES OF AN INSULATING-GLASS UNIT

a. WIND DESIGN DATA: AS INDICATED ON DRAWINGS.

1.3 PERFORMANCE REQUIREMENTS

A. GENERAL: INSTALLED GLAZING SYSTEMS SHALL WITHSTAND NORMAL THERMAL MOVEMENT AND WIND AND IMPACT LOADS (WHERE APPLICABLE) WITHOUT FAILURE, INCLUDING LOSS OR GLASS BREAKAGE ATTRIBUTABLE TO THE FOLLOWING: DEFECTIVE MANUFACTURE. FABRICATION. OR INSTALLATION: FAILURE OF SEALANTS OR GASKETS TO REMAIN WATERTIGHT AND AIRTIGHT; DETERIORATION OF GLAZING MATERIALS; OR OTHER DEFECTS IN CONSTRUCTION.

B. DELEGATED DESIGN: DESIGN GLASS, INCLUDING COMPREHENSIVE ENGINEERING ANALYSIS ACCORDING TO ASTM E 1300 BY A QUALIFIED PROFESSIONAL ENGINEER, USING THE FOLLOWING DESIGN CRITERIA: 1. DESIGN WIND PRESSURES: DETERMINE DESIGN WIND PRESSURES APPLICABLE TO PROJECT ACCORDING TO ASCE/SEI 7, BASED ON HEIGHTS ABOVE GRADE INDICATED ON DRAWINGS.

2. VERTICAL GLAZING: FOR GLASS SURFACES SLOPED 15 DEGREES OR LESS FROM VERTICAL, DESIGN GLASS TO RESIST DESIGN WIND PRESSURE BASED ON GLASS TYPE FACTORS FOR SHORT-DURATION LOAD. 3. MAXIMUM LATERAL DEFLECTION: FOR GLASS SUPPORTED ON ALL FOUR EDGES, LIMIT CENTER-OF-GLASS

DEFLECTION AT DESIGN WIND PRESSURE TO NOT MORE THAN 1/50 TIMES THE SHORT-SIDE LENGTH OR 1 INCH (25 MM), WHICHEVER IS LESS 4. DIFFERENTIAL SHADING: DESIGN GLASS TO RESIST THERMAL STRESSES INDUCED BY DIFFERENTIAL SHADING

WITHIN INDIVIDUAL GLASS LITES. C. THERMAL MOVEMENTS: ALLOW FOR THERMAL MOVEMENTS FROM AMBIENT AND SURFACE TEMPERATURE CHANGES ACTING ON GLASS FRAMING MEMBERS AND GLAZING COMPONENTS. 1. TEMPERATURE CHANGE: 120 DEG F (67 DEG C), AMBIENT; 180 DEG F (100 DEG C), MATERIAL SURFACES.

1.4 PRECONSTRUCTION TESTING

A. PRECONSTRUCTION ADHESION AND COMPATIBILITY TESTING: TEST EACH GLAZING MATERIAL TYPE, TAPE SEALANT GASKET, GLAZING ACCESSORY, AND GLASS-FRAMING MEMBER FOR ADHESION TO AND COMPATIBILITY WITH ELASTOMERIC GLAZING SEALANTS. 1. TESTING WILL NOT BE REQUIRED IF DATA ARE SUBMITTED BASED ON PREVIOUS TESTING OF CURRENT SEALANT

PRODUCTS AND GLAZING MATERIALS MATCHING THOSE SUBMITTED. 2. USE ASTM C 1087 TO DETERMINE WHETHER PRIMING AND OTHER SPECIFIC JOINT- PREPARATION TECHNIQUES ARE REQUIRED TO OBTAIN RAPID, OPTIMUM ADHESION OF

GLAZING SEALANTS TO GLASS, TAPE SEALANTS, GASKETS, AND GLAZING CHANNEL SUBSTRATES. 3. TEST NO FEWER THAN EIGHT SAMPLES OF EACH TYPE OF MATERIAL, INCLUDING JOINT SUBSTRATES, SHIMS,

SEALANT BACKINGS, SECONDARY SEALS, AND MISCELLANEOUS MATERIALS. 4. SCHEDULE SUFFICIENT TIME FOR TESTING AND ANALYZING RESULTS TO PREVENT DELAYING THE WORK. 5. FOR MATERIALS FAILING TESTS, SUBMIT SEALANT MANUFACTURER'S WRITTEN INSTRUCTIONS FOR CORRECTIVE

C. GLAZING ACCESSORY SAMPLES: FOR GASKETS, SEALANTS AND COLORED SPACERS, IN 12-INCH (300-MM) LENGTHS.

MEASURES INCLUDING THE USE OF SPECIALLY FORMULATED PRIMERS. 1.5 ACTION SUBMITTALS

A. PRODUCT DATA: FOR EACH GLASS PRODUCT AND GLAZING MATERIAL INDICATED.

B. GLASS SAMPLES: FOR EACH TYPE OF THE FOLLOWING PRODUCTS; 12 INCHES (300 MM) SQUARE. COATED GLASS. 2. INSULATING GLASS.

INSTALL SEALANT SAMPLES BETWEEN TWO STRIPS OF MATERIAL REPRESENTATIVE IN COLOR OF THE ADJOINING D. GLAZING SCHEDULE: LIST GLASS TYPES AND THICKNESSES FOR EACH SIZE OPENING AND LOCATION. USE SAME

DESIGNATIONS INDICATED ON DRAWINGS E. DELEGATED-DESIGN SUBMITTAL: FOR GLASS INDICATED TO COMPLY WITH PERFORMANCE REQUIREMENTS AND DESIGN CRITERIA, INCLUDING ANALYSIS DATA SIGNED AND SEALED BY THE QUALIFIED PROFESSIONAL ENGINEER

RESPONSIBLE FOR THEIR PREPARATION.

1.6 INFORMATIONAL SUBMITTALS

A. QUALIFICATION DATA: FOR MANUFACTURERS OF INSULATING-GLASS UNITS WITH SPUTTER- COATED, LOW-E COATINGS.

B. PRODUCT CERTIFICATES: FOR GLASS AND GLAZING PRODUCTS, FROM MANUFACTURER. C. PRODUCT TEST REPORTS: BASED ON EVALUATION OF COMPREHENSIVE TESTS PERFORMED BY A QUALIFIED TESTING AGENCY, FOR INSULATING GLASS GLAZING SEALANTS AND GLAZING GASKETS.

1. FOR GLAZING SEALANTS, PROVIDE TEST REPORTS BASED ON TESTING CURRENT SEALANT FORMULATIONS WITHIN PREVIOUS 36-MONTH PERIOD.

D. PRECONSTRUCTION ADHESION AND COMPATIBILITY TEST REPORT.

E. WARRANTIES: SAMPLE OF SPECIAL WARRANTIES.

1.7 QUALITY ASSURANCE A. MANUFACTURER QUALIFICATIONS FOR INSULATING-GLASS UNITS WITH SPUTTER-COATED, LOW-E COATINGS: A

B. GLASS TESTING AGENCY QUALIFICATIONS: A QUALIFIED INDEPENDENT TESTING AGENCY ACCREDITED ACCORDING TO THE NFRC CAP 1 CERTIFICATION AGENCY PROGRAM.

QUALIFIED INSULATING-GLASS MANUFACTURER WHO IS APPROVED BY COATED-GLASS MANUFACTURER.

1021 TO CONDUCT THE TESTING INDICATED. D. SOURCE LIMITATIONS FOR GLASS: OBTAIN COATED FLOAT GLASS, LAMINATED GLASS AND INSULATING GLASS FROM SINGLE SOURCE FROM SINGLE MANUFACTURER FOR EACH GLASS TYPE.

C. SEALANT TESTING AGENCY QUALIFICATIONS: AN INDEPENDENT TESTING AGENCY QUALIFIED ACCORDING TO ASTM C

EACH PRODUCT AND INSTALLATION METHOD. F. GLAZING PUBLICATIONS: COMPLY WITH PUBLISHED RECOMMENDATIONS OF GLASS PRODUCT MANUFACTURERS AND ORGANIZATIONS BELOW, UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED. REFER TO THESE PUBLICATIONS FOR GLAZING TERMS NOT OTHERWISE DEFINED IN THIS SECTION OR IN REFERENCED STANDARDS

E. SOURCE LIMITATIONS FOR GLAZING ACCESSORIES: OBTAIN FROM SINGLE SOURCE FROM SINGLE MANUFACTURER FOR

2. IGMA PUBLICATION FOR INSULATING GLASS: SIGMA TM-3000, "NORTH AMERICAN GLAZING GUIDELINES FOR SEALED INSULATING GLASS UNITS FOR COMMERCIAL AND RESIDENTIAL USE."

1. GANA PUBLICATIONS: GANA'S "LAMINATED GLAZING REFERENCE MANUAL" AND GANA'S "GLAZING MANUAL."

G. PLASTIC GLAZING LABELING: IDENTIFY PLASTIC SHEETS WITH APPROPRIATE MARKINGS OF APPLICABLE TESTING AND INSPECTING AGENCY, INDICATING COMPLIANCE WITH REQUIRED FIRE-TEST-RESPONSE CHARACTERISTICS.

H. SAFETY GLAZING LABELING: WHERE SAFETY GLAZING LABELING IS INDICATED, PERMANENTLY MARK GLAZING WITH

CERTIFICATION LABEL OF THE SGCC OR ANOTHER CERTIFICATION AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION OR THE MANUFACTURER. LABEL SHALL INDICATE MANUFACTURER'S NAME, TYPE OF GLASS, THICKNESS,

AND SAFETY GLAZING STANDARD WITH WHICH GLASS COMPLIES. I. FIRE-PROTECTION-RATED GLAZING LABELING: PERMANENTLY MARK FIRE-PROTECTION-RATED GLAZING WITH CERTIFICATION LABEL OF A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION LABEL SHALL INDICATE MANUFACTURER'S NAME. TEST STANDARD. WHETHER GLAZING IS FOR USE IN FIRE DOORS OR OTHER OPENINGS, WHETHER OR NOT GLAZING PASSES HOSE-STREAM TEST, WHETHER OR NOT GLAZING HAS A

TEMPERATURE RISE RATING OF 450 DEG F (250 DEG C), AND THE FIRE-RESISTANCE RATING IN MINUTES.

J. INSULATING-GLASS CERTIFICATION PROGRAM: PERMANENTLY MARKED EITHER ON SPACERS OR ON AT LEAST ONE COMPONENT LITE OF UNITS WITH APPROPRIATE CERTIFICATION LABEL OF IGCC.

K. MOCKUPS: BUILD MOCKUPS TO VERIFY SELECTIONS MADE UNDER SAMPLE SUBMITTALS AND TO DEMONSTRATE AESTHETIC EFFECTS AND SET QUALITY STANDARDS FOR MATERIALS AND EXECUTION 1. INSTALL GLAZING IN MOCKUPS SPECIFIED IN SECTION 01 43 39 -"INTEGRATED MOCK- UP OF EXTERIOR ENCLOSURE" TO MATCH GLAZING SYSTEMS REQUIRED FOR PROJECT, INCLUDING GLAZING METHODS.

L. PREINSTALLATION CONFERENCE: CONDUCT CONFERENCE AT PROJECT SITE.

1. REVIEW AND FINALIZE CONSTRUCTION SCHEDULE AND VERIFY AVAILABILITY OF MATERIALS. INSTALLER'S PERSONNEL, EQUIPMENT, AND FACILITIES NEEDED TO MAKE PROGRESS AND AVOID DELAYS.

2. REVIEW TEMPORARY PROTECTION REQUIREMENTS FOR GLAZING DURING AND AFTER INSTALLATION.

1.8 DELIVERY, STORAGE, AND HANDLING

A. PROTECT GLAZING MATERIALS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS, PREVENT DAMAGE TO GLASS AND GLAZING MATERIALS FROM CONDENSATION, TEMPERATURE CHANGES, DIRECT EXPOSURE TO SUN, OR

B. COMPLY WITH INSULATING-GLASS MANUFACTURER'S WRITTEN RECOMMENDATIONS FOR VENTING AND SEALING UNITS TO AVOID HERMETIC SEAL RUPTURES DUE TO ALTITUDE CHANGE.

1.9 PROJECT CONDITIONS

A. ENVIRONMENTAL LIMITATIONS: DO NOT PROCEED WITH GLAZING WHEN AMBIENT AND SUBSTRATE TEMPERATURE CONDITIONS ARE OUTSIDE LIMITS PERMITTED BY GLAZING MATERIAL MANUFACTURERS AND WHEN GLAZING CHANNEL SUBSTRATES ARE WET FROM RAIN, FROST, CONDENSATION, OR OTHER CAUSES. 1. DO NOT INSTALL GLAZING SEALANTS WHEN AMBIENT AND SUBSTRATE TEMPERATURE CONDITIONS ARE OUTSIDE LIMITS PERMITTED BY SEALANT MANUFACTURER OR BELOW 40 DEG F (4.4 DEG C).

1.10 WARRANTY

TO MANUFACTURER'S WRITTEN INSTRUCTIONS, DEFECTS INCLUDE PEELING, CRA

Y PERIOD: 10 YEARS FROM DATE OF SUBSTANTIAL COMPLETION

VISION BY DUST, MOISTURE, OR FILM ON INTERIOR SURFACES OF GLASS.

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

C. MANUFACTURER'S SPECIAL WARRANTY ON INSULATING GLASS: MANUFACTURER'S STANDARD FORM IN WHICH INSULATING-GLASS MANUFACTURER AGREES TO REPLACE INSULATING-GLASS UNITS THAT DETERIORATE WITHIN SPECIFIED WARRANTY PERIOD. DETERIORATION OF INSULATING GLASS IS DEFINED AS FAILURE OF HERMETIC SEAL UNDER NORMAL USE THAT IS NOT ATTRIBUTED TO GLASS BREAKAGE OR TO MAINTAINING AND CLEANING INSULATING GLASS CONTRARY TO MANUFACTURER'S WRITTEN INSTRUCTIONS. EVIDENCE OF FAILURE IS THE OBSTRUCTION OF

PART 2 - PRODUCTS

2.1 GLASS PRODUCTS, GENERAL A. THICKNESS: WHERE GLASS THICKNESS IS INDICATED, IT IS A MINIMUM. PROVIDE GLASS LITES IN THICKNESSES AS NEEDED TO COMPLY WITH REQUIREMENTS INDICATED.

KIND FT HEAT-TREATED FLOAT GLASS AS NEEDED TO COMPLY WITH "PERFORMANCE REQUIREMENTS" ARTICLE

C. SOLAR HEAT-GAIN COEFFICIENT AND VISIBLE TRANSMITTANCE: CENTER-OF-GLAZING VALUES, ACCORDING TO NFRC

A. MINIMUM GLASS THICKNESS FOR EXTERIOR LITES: NOT LESS THAN 3/4". GLASS, OR KIND FT HEAT-TREATED FLOAT GLASS AS NEEDED TO COMPLY WITH "PERFORMANCE REQUIRE ARTICLE: WHERE HEAT STRENGTHENED GLASS IS INDICATED, PROVIDE KIND HS HEAT TREATED FLOAT GLASS OF

C. THERMAL AND OPTICAL PERFORMANCE PROPERTIES: PROVIDE GLASS WITH PERFORMANCE PROPERTIES SPECIFIED AS INDICATED IN MANUFACTURER'S PUBLISHED TEST DATA, BASED ON PROCEDURES INDICATED BELOW: A. FOR INSULATING-GLASS UNITS, PROPERTIES ARE BASED ON UNITS OF THICKNESS INDICATED FOR OVERALL UNIT AND

B. U-FACTORS: CENTER-OF-GLAZING VALUES, ACCORDING TO NFRC 100 AND BASED ON LBL'S WINDOW 5.2 COMPUTER PROGRAM, EXPRESSED AS BTU/SQ. FT. X H X DEG F (W/SQ. M X K).

D. VISIBLE REFLECTANCE: CENTER-OF-GLAZING VALUES, ACCORDING TO NFRC 300.

2.2 GLASS PRODUCTS A. FLOAT GLASS: ASTM C 1036, TYPE I, QUALITY-Q3, CLASS I (CLEAR) UNLESS OTHERWISE INDICATED.

200 AND BASED ON LBL'S WINDOW 5.2 COMPUTER PROGRAM.

a. VISIBLE LIGHT TRANSMITTANCE: 90 PERCE

REFLECTANCE VISIBLE LIGHT: 8 PERCENT

HEAT-TREATED FLOAT GLASS. ASTM C 1048, TYPE I; QUALITY-Q3, CLASS I (CLEAR) UNLESS OTHERWISE INDICATED; OF A. FABRICATION PROCESS BY HORIZONTAL (ROLLER-HEARTH) PROCESS WITH BOLL WAVE DISTORTION PAR

TOW-IRON GLASS: - LOW-IRON SODA-LIME FLOAT GLASS, FULLY-TEMPERED IN 1/4 INCH THICKNESS, FXCFPT AS A. PERFORMANCE CRITERIA

. - CERAMIC-COATED SPANDREL GLASS: ASTM C-1048, CONDITION B, TYPE I, QUALITY- Q3, AND COMPLYING WITH OTHER

b. GUARDIAN INDUSTRIES, PRODUCT "GUARDIAN ULTRA WHITE".

E. ULTRACLAS INC., PRODUCT "LOW-IRON GLASS", FORMERLY "STARPHIRE"

d. PILKINGTON NORTH AMERICA, PRODUCT "OPTIWHITE"

2.3 LAMINATED GLASS S SPECIFIED HISE MATERIALS THAT HAVE A PROVEN RECORD OF M INSTALLATION. A: CONSTRUC CURED-TRANSPARENT RESIN INTERLAYER TO COMPLY WITH INTERLAYER MANUFACTURER'S WRITTE

OMPLY WITH APPLICABLE REQUIREMENTS IN "GLASS PRODUCTS" ARTICLE AS INDICATED BY DESIGNATIONS

REQUIREMENTS.

RECOMMENDATIONS

2.4 INSULATING GLASS A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING, OR APPROVED EQUAL DOMESTIC MANUFACTURER:

B. INTERLAYER THICKNESS, PROVIDE THICKNESS NOT LESS THAN THAT INDICATED AND AS NEEDED TO COMPLY WITH

A. GUARDIAN INDUSTRIES

C. VIRACON

B. INSULATING-GLASS UNITS: FACTORY-ASSEMBLED UNITS CONSISTING OF SEALED LITES OF GLASS SEPARATED BY A DEHYDRATED INTERSPACE, QUALIFIED ACCORDING TO ASTM E 2190, AND COMPLYING WITH OTHER REQUIREMENTS SPECIFIED

A. SEALING SYSTEM: DUAL SEAL, WITH MANUFACTURER'S STANDARD PRIMARY AND SECONDARY COMPATIBLE WITH

B. SPACER: STAINLESS STEEL C. DESICCANT: MOLECULAR SIEVE OR SILICA GEL, OR BLEND OF BOTH.

C. GLASS: COMPLY WITH APPLICABLE REQUIREMENTS IN "GLASS PRODUCTS" ARTICLE AS INDICATED BY DESIGNATIONS IN "INSULATING-GLASS TYPES" ARTICLE.

2.5 FIRE-PROTECTION-RATED GLAZING

ARGON GAS IN INTERSPACE..

A. FIRE-PROTECTION-RATED GLAZING, GENERAL: LISTED AND LABELED BY A TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION, FOR FIRE-PROTECTION RATINGS INDICATED, BASED ON TESTING ACCORDING TO LAMINATED CERAMIC GLAZING: LAMINATED GLASS MADE FROM 2 PLIES OF CLEAR, CERAMIC FLAT GLASS; 5/16-INCF (8-MM) TOTAL NOMINAL THICKNESS; COMPLYING WITH TESTING REQUIREMENTS IN 16 CFR 1201 FOR CATEGORY

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b. SCHOTT NORTH AMERICA, INC.: LAMINATED PYRAN CRYSTAI c VETROTECH SAINT-GOBAIN: SGG KERALITE FR-I

2.6 GLAZING GASKETS

A. DENSE COMPRESSION GASKETS: MOLDED OR EXTRUDED GASKETS OF PROFILE AND HARDNESS REQUIRED TO MAINTAIN WATERTIGHT SEAL, MADE FROM ONE OF THE FOLLOWING:

A. NEOPRENE COMPLYING WITH ASTM C 864.

B. EPDM COMPLYING WITH ASTM C 864.

C. SILICONE COMPLYING WITH ASTM C 1115. D. THERMOPLASTIC POLYOLEFIN RUBBER COMPLYING WITH ASTM C 1115.

B. SOFT COMPRESSION GASKETS: EXTRUDED OR MOLDED, CLOSED-CELL, INTEGRAL-SKINNED EPDM, SILICONE OR THERMOPLASTIC POLYOLEFIN RUBBER GASKETS COMPLYING WITH ASTM C 509, TYPE II, BLACK; OF PROFILE AND HARDNESS REQUIRED TO MAINTAIN WATERTIGHT SEAL

A. APPLICATION: USE WHERE SOFT COMPRESSION GASKETS WILL BE COMPRESSED BY INSERTING DENSE COMPRESSION GASKETS ON OPPOSITE SIDE OF GLAZING OR PRESSURE APPLIED BY MEANS OF PRESSURE-GLAZING STOPS ON OPPOSITE SIDE OF GLAZING.

2.7 GLAZING SEALANTS

A. COMPATIBILITY: PROVIDE GLAZING SEALANTS THAT ARE COMPATIBLE WITH ONE ANOTHER AND WITH OTHER MATERIALS THEY WILL CONTACT, INCLUDING GLASS PRODUCTS, SEALS OF INSULATING-GLASS UNITS, AND GLAZING CHANNEL SUBSTRATES, UNDER CONDITIONS OF SERVICE AND APPLICATION, AS DEMONSTRATED BY SEALANT MANUFACTURER BASED ON TESTING AND FIELD

B. SUITABILITY: COMPLY WITH SEALANT AND GLASS MANUFACTURERS' WRITTEN INSTRUCTIONS FOR SELECTING GLAZING SEALANTS SUITABLE FOR APPLICATIONS INDICATED AND FOR CONDITIONS EXISTING AT TIME OF INSTALLATION.

C. SEALANTS USED INSIDE THE WEATHERPROOFING SYSTEM, SHALL HAVE A VOC CONTENT OF NOT MORE THAN 250 G/L WHEN CALCULATED ACCORDING TO 40 CFR 59, SUBPART D (EPA METHOD 24).

D. COLORS OF EXPOSED GLAZING SEALANTS: AS SELECTED BY THE DESIGN TEAM FROM MANUFACTURER'S FULL RANGE. B. GLAZING SEALANT: NEUTRAL-CURING SILICONE GLAZING SEALANT COMPLYING WITH ASTM C 920, TYPE S, GRADE NS, CLASS 100/50,

A. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE ONE OF THE FOLLOWING

DOW CORNING CORPORATION; 790.

b. GE ADVANCED MATERIALS - SILICONES; SILPRUF LM SCS2700.

c. MAY NATIONAL ASSOCIATES, INC.; BONDAFLEX SIL 290. d. PECORA CORPORATION: 890

e. SIKA CORPORATION, CONSTRUCTION PRODUCTS DIVISION; SIKASIL-C990.

f. TREMCO INCORPORATED; SPECTREM 1.

2.8 GLAZING TAPES

A. BACK-BEDDING MASTIC GLAZING TAPES: PREFORMED, BUTYL-BASED, 100 PERCENT SOLIDS ELASTOMERIC TAPE; NONSTAINING AND NONMIGRATING IN CONTACT WITH NONPOROUS SURFACES; WITH OR WITHOUT SPACER ROD AS RECOMMENDED IN WRITING BY TAPE AND GLASS MANUFACTURERS FOR APPLICATION INDICATED; AND COMPLYING WITH ASTM C 1281 AND AAMA 800 FOR PRODUCTS INDICATED BELOW

A. AAMA 804.3 TAPE, WHERE INDICATED.

B. AAMA 806.3 TAPE, FOR GLAZING APPLICATIONS IN WHICH TAPE IS SUBJECT TO CONTINUOUS PRESSURE. C. AAMA 807.3 TAPE, FOR GLAZING APPLICATIONS IN WHICH TAPE IS NOT SUBJECT TO CONTINUOUS PRESSURE.

B. EXPANDED CELLULAR GLAZING TAPES: CLOSED-CELL, PVC FOAM TAPES; FACTORY COATED WITH ADHESIVE ON BOTH SURFACES; AND COMPLYING WITH AAMA 800 FOR THE FOLLOWING TYPES:

A. AAMA 810.1, TYPE 1, FOR GLAZING APPLICATIONS IN WHICH TAPE ACTS AS THE PRIMARY SEALANT. B. AAMA 810.1, TYPE 2, FOR GLAZING APPLICATIONS IN WHICH TAPE IS USED IN COMBINATION WITH A FULL BEAD OF LIQUID SEALANT.

2.9 MISCELLANEOUS GLAZING MATERIALS

A. GENERAL: PROVIDE PRODUCTS OF MATERIAL, SIZE, AND SHAPE COMPLYING WITH REFERENCED GLAZING STANDARD, REQUIREMENTS OF MANUFACTURERS OF GLASS AND OTHER GLAZING MATERIALS FOR APPLICATION INDICATED, AND WITH A PROVEN RECORD OF COMPATIBILITY WITH SURFACES CONTACTED IN INSTALLATION.

B. CLEANERS, PRIMERS, AND SEALERS: TYPES RECOMMENDED BY SEALANT OR GASKET MANUFACTURER.

C. SETTING BLOCKS: ELASTOMERIC MATERIAL WITH A SHORE, TYPE A DUROMETER HARDNESS OF 85, PLUS OR MINUS 5.

D. SPACERS: ELASTOMERIC BLOCKS OR CONTINUOUS EXTRUSIONS OF HARDNESS REQUIRED BY GLASS MANUFACTURER TO MAINTAIN GLASS LITES IN PLACE FOR INSTALLATION INDICATED.

E. EDGE BLOCKS: ELASTOMERIC MATERIAL OF HARDNESS NEEDED TO LIMIT GLASS LATERAL MOVEMENT (SIDE WALKING)

F. CYLINDRICAL GLAZING SEALANT BACKING: ASTM C 1330, TYPE O (OPEN-CELL MATERIAL), OF SIZE AND DENSITY TO CONTROL GLAZING SEALANT DEPTH AND OTHERWISE PRODUCE OPTIMUM GLAZING SEALANT PERFORMANCE

G. PERIMETER FRAMING FOR CHANNEL GLAZING: EXTRUDED ALUMINUM FRAMING CHANNELS AS RECOMMENDED BY CHANNEL GLAZING MANUFACTURER AND AS FOLLOWS:

A. ALUMINUM: EXTRUDED UNITS PER THE PROFILES SHOWN OR AS REQUIRED TO SUIT CONDITIONS INDICATED.

B. MINIMUM WALL THICKNESS OF 0.125 INCH (3.18MM) FOR FRAMING MEMBERS AND RAILS, 0.090INCH (2.3 MM) FOR SHEETS . VINYL FRAME LINER, GLASS SUPPORT AND SPACER: EXTRUDED VINYL SPACER ENGINEERED FOR SNAP-IN APPLICATION IN STANDARD

THERMALLY BROKEN ALUMINUM FRAME TO SUPPORT AND SPACE GLASS UNITS. D. FASTENERS: NON-MAGNETIC STAINLESS STEEL OR OTHER ENGINEER APPROVED NON- CORROSIVE MATERIALS COMPATIBLE WITH ITEMS

a. PROVIDE CONCEALED FASTENERS WHEREVER POSSIBLE E. PRODUCT: BENDHEIM WALL SYSTEMS, "I-60 INTERIOR SYSTEM"

H. PERIMETER INSULATION FOR FIRE-RESISTIVE GLAZING: PRODUCT THAT IS APPROVED BY TESTING AGENCY THAT LISTED AND LABELED FIRE-RESISTANT GLAZING PRODUCT WITH WHICH IT IS USED FOR APPLICATION AND FIRE-PROTECTION RATING INDICATED.

MOUNTING HARDWARE FOR GLASS MARKER WALLS: GLASS MANUFACTURER'S RECOMMENDED CLEAT AND BOTTOM RAILS WITH RUBBER

A. PRODUCT: SKYLINE DESIGN, "MAGNETIC MARKERGLASS, WALL MOUNT".

J. MOUNTING BRACKETS FOR TRANSLUCENT LAMINATED GLASS SOLAR SHADING FINS AT ROOFTOP LIGHT MONITORS: CUSTOM STAINLESS

STEEL FABRICATION IN ACCORDANCE WITH THE REQUIREMENTS OF SECTION 05 50 00 "METAL FABRICATIONS". K. MOUNTING HARDWARE FOR PLASTIC GLAZING PANELS: PLASTIC GLAZING MANUFACTURER'S RECOMMENDED CONCEALED CYLINDRICAL

A. MATERIAL: 304 STAINLESS STEEL, MILL FINISH. B. PRODUCT: 3FORM "HIDDEN POINT ADAPTER".

2.10 FABRICATION OF GLAZING UNITS

A. FABRICATE GLAZING UNITS IN SIZES REQUIRED TO FIT OPENINGS INDICATED FOR PROJECT, WITH EDGE AND FACE CLEARANCES, EDGE AND SURFACE CONDITIONS, AND BITE COMPLYING WITH WRITTEN INSTRUCTIONS OF PRODUCT MANUFACTURER AND REFERENCED GLAZING PUBLICATIONS, TO COMPLY WITH SYSTEM PERFORMANCE REQUIREMENTS.

B. CLEAN-CUT OR FLAT-GRIND VERTICAL EDGES OF BUTT-GLAZED MONOLITHIC LITES TO PRODUCE SQUARE EDGES WITH SLIGHT CHAMFERS AT JUNCTIONS OF EDGES AND FACES.

C. GRIND SMOOTH AND POLISH EXPOSED GLASS EDGES AND CORNERS.

2.11 COATING FOR BACK-PAINTED GLASS - NOT USED

A. BACK-PAINTED COATING: COLOR COATING ON THE GLASS SHALL BE AN ISOCYANATE-FREE TWO-PART URETHANE SPECIFICALLY RECOMMENDED AND WARRANTED FOR GLASS APPLICATION, AND MEETING ALL PERFORMANCE REQUIREMENTS SPECIFIED HEREIN AND HAVING A MINIMUM DRY-FILM THICKNESS OF 1.5 MILS.

B. PERFORMANCE REQUIREMENTS A. PROVIDE COLOR-COATED DECORATIVE GLASS CAPABLE OF WITHSTANDING NORMAL SHIPPING, HANDLING, INSTALLATION AND USE

WITHOUT VISIBLE ABRASION, DISCOLORATION OR FAILURE. B. COLOR COATING MUST BE SUITABLE FOR BOTH INTERIOR AND EXTERIOR APPLICATIONS. COATING SHOULD NOT CRACK, PEEL,

DELAMINATE, DISCOLOR OR CHALK UNDER NORMAL EXTERIOR UV EXPOSURE LEVELS. C. CHEMICAL MAKEUP: COLOR COATING MUST BE FREE OF CHEMICAL ISOCYANATES (E.G. TRADITIONAL ISOCYANATE BASED TWO-PART URETHANES ARE PROHIBITED) D. CHEMICAL RESISTANCE: COATING MUST BE TESTED USING ASTM D1308 TO WITHSTAND 24-HOUR CONTACT TESTING WITH THE

FOLLOWING CHEMICALS: ETHYL ALCOHOL, MINERAL SPIRITS, 5% SODIUM HYDROXIDE SOLUTION, 5% HYDROCHLORIC ACID SOLUTION HOUSEHOLD GLASS CLEANER (E.G. WINDEX), HOUSEHOLD SURFACE CLEANER (E.G. FANTASTIC), COLD WATER IMMERSION. COATING MUST SHOW NO VISIBLE DEGRADATION WHEN VIEWED THROUGH THE GLASS INCLUDING BLISTERING, CRACKING, PEELING OR DISCOLORATION AFTER SUCH TESTS.

E. COATING ADHESION: COATING MUST BE TESTED FOR ADHESION USING ASTM D3359 METHOD A AND B AND SHOW A 4A/4B RATING OR BETTER. IN ADDITION, COATING MUST BE TESTED TO SHOW PULL-OFF ADHESION STRENGTH (ASTM D 4541) OF AT LEAST 2,000 PSI. F. COATING HARDNESS: COATING MUST BE TESTED USING ASTM D 3363 AND YIELD A PENCIL HARDNESS RESULT OF AT LEAST 2H.

G. COATING HUMIDITY RESISTANCE: COATING MUST BE TESTED USING ASTM D4585 (WITH FOLLOW UP D 714 AND D 3359 BLISTERING AND ADHESION TESTING) AND SHOW NO VISIBLE DEFECTS (BLISTERS OR CRACKING), AND HAVE ADHESION OF AT LEAST 4A / 4B.

2.12 MONOLITHIC-GLASS TYPES A. GLASS TYPE A: CLEAR FULLY TEMPERED FLOAT GLASS.

a. THICKNESS: PER DELEGATED DESIGN SIGNED AND SEALED BY A TEXAS RPE, BUT NOT LESS THAN 3/4" b. PROVIDE SAFETY GLAZING LABELING.

B. GLASS TYPE B: CLEAR FULLY TEMPERED FLOAT GLASS.

a. THICKNESS: PER DELEGATED DESIGN SIGNED AND SEALED BY A TEXAS RPE, BUT NOT LESS THAN $rac{3}{4}$ " b. PROVIDE SAFETY GLAZING LABELING.

GLASS TYPE C, BACK PAINTED GLASS AS SCHEDULED ON THE DRAWINGS. NOT USED

a. THICKNESS: PER DELEGATED DESIGN SIGNED AND SEALED BY A TEXAS RPE, BUT NOT LESS THAN 3/4"

b. BACK PAINTED FACTORY-APPLIED COATING: EQUAL TO GARDNER GLASS PRODUCTS, INC, HUNTSVILLE, TX., PRODUCT: "DREAMWALLS, DREAMGLASS BACKPAINTED GLASS". 2.13 INSULATING-GLASS UNIT (IGU) TYPES

 A. GLASS TYPE 1 (VISION GLASS): 1 INCH THICK LOW-E COATED, CLEAR INSULATING GLASS UNITS. a. BASIS OF DESIGN: DRAWINGS AND SPECIFICATIONS ARE BASED ON THE FOLLOWING PRODUCT. SUBJECT TO STRICT COMPLIANCE WITH REQUIREMENTS, EQUIVALENT PRODUCTS FROM ACCEPTABLE MANUFACTURERS WILL BE CONSIDERED FOR APPROVAL:

1. PPG INDUSTRIES: "SOLARBAN 70XL STARPHIRE"

a. OUTER LAYER: 3/8 INCH THICK HEAT-STRENGTHENED LOW-IRON GLASS, COLOR "CLEAR" WITH LOW-E

SPUTTER COATING ON NUMBER 2 SURFACE. b. AIR SPACE: 1/2 INCH (13 MM) THICK, WITH 90% ARGON/10% AIR FILL.

c. INNER LAYER: 3/8 INCH THICK HEAT-STRENGTHENED LOW-IRON GLASS, COLOR "CLEAR C. PERFORMANCE REQUIREMENTS: GLASS UNITS SHALL BE EQUAL TO OR HAVE GREATER PERFORMANCE THAN THE

FOLLOWING: a. VISIBLE TRANSMITTANCE: 66 PERCENT.

b. SHADING COEFFICIENT: 0.32.

c. RELATIVE HEAT GAIN: 66 (BTU/HR.FT2). d. SOLAR TRANSMITTANCE: 25 PERCENT

e. REFLECTANCE (VISIBLE OUT): 12 PERCENT f. REFLECTANCE (VISIBLE IN): 13 PERCENT

g. SOLAR REFLECTANCE: 52 PERCENT h. H. U VALUE (WINTER / SUMMER): 0.24/ 0.21

D. GLASS TYPE 1A (VISION GLASS): 1 INCH THICK LOW-E COATED, TINTED INSULATING GLASS UNITS.

a. BASIS OF DESIGN: DRAWINGS AND SPECIFICATIONS ARE BASED ON THE FOLLOWING PRODUCT. SUBJECT TO STRICT COMPLIANCE WITH REQUIREMENTS, EQUIVALENT PRODUCTS FROM ACCEPTABLE MANUFACTURERS

WILL BE CONSIDERED FOR APPROVAL 1. PPG INDUSTRIES: DOUBLE SOLARBAN 70XL - ATLANTICA.

b. COMPONENTS 1. OUTER LAYER: 3/8 INCH THICK HEAT-STRENGTHENED GLASS, COLOR "ATLANTICA" WITH LOW-E SPUTTER

COATING ON NUMBER 2 SURFACE. 2. AIR SPACE: 1/2 INCH THICK, WITH 90% ARGON/10% AIR FILL.

3. INNER LAYER: 3/8 INCH THICK HEAT-STRENGTHENED LOW-IRON GLASS, COLOR "CLEAR" WITH LOW-E SPUTTER COATING ON NUMBER 3 SURFACE.

c. PERFORMANCE REQUIREMENTS: GLASS UNITS SHALL BE EQUAL TO OR HAVE GREATER PERFORMANCE THAN THE FOLLOWING:

 VISIBLE TRANSMITTANCE: 48 PERCENT. SHADING COEFFICIENT: 0.25.

RELATIVE HEAT GAIN: 53(BTU/HR.FT2). SOLAR TRANSMITTANCE: 16 PERCENT

5. REFLECTANCE (VISIBLE OUT):9 PERCENT 6. REFLECTANCE (VISIBLE IN): 12 PERCENT

7. SOLAR REFLECTANCE: 8 PERCENT 8. U VALUE (WINTER / SUMMER): 0.24 / 0.21.

GLASS TYPE 2 (VISION GLASS): 1 INCH THICK LOW-E DOUBLE COATED, CLEAR INSULATING GLASS UNITS WITH SAFETY GLASS.NOT USED

a. PROVIDE SAFETY GLAZING LABELING. b. BASIS OF DESIGN PRODUCT: DRAWINGS AND SPECIFICATIONS ARE BASED ON THE FOLLOWING PRODUCT.

SUBJECT TO STRICT COMPLIANCE WITH REQUIREMENTS, EQUIVALENT PRODUCTS FROM ACCEPTABLE MANUFACTURERS WILL BE CONSIDERED FOR APPROVAL: PPG INDUSTRIES: SOLARBAN 70XL STARPHIRE.

c. COMPONENTS

1. OUTER LAYER: 3/8 INCH THICK FULLY-TEMPERED SAFETY LOW-IRON

GLASS, COLOR "CLEAR" WITH LOW-E SPUTTER COATING ON NUMBER 2 SURFACE.

2. AIR SPACE: 1/2 INCH THICK, WITH 90% ARGON/10% AIR FIL 3. INNER LAYER: 3/8 INCH THICK FULLY-TEMPERED SAFETY LOW-IRON GLASS, COLOR "CLEAR" d. PERFORMANCE REQUIREMENTS: SAME AS GLASS TYPE 1.

F. GLASS TYPE 3 (SPANDREL GLASS): 1 INCH THICK LOW-E COATED, INSULATING GLASS UNITS WITH CERAMIC FRIT. a. BASIS OF DESIGN: DRAWINGS AND SPECIFICATIONS ARE BASED ON THE FOLLOWING PRODUCT. SUBJECT TO STRICT COMPLIANCE WITH REQUIREMENTS, EQUIVALENT PRODUCTS FROM ACCEPTABLE MANUFACTURERS

1. PPG INDUSTRIES: SOLARBAN 70XL WITH SOLID CERAMIC FRIT.

WILL BE CONSIDERED FOR APPROVAL

b. COMPONENTS 1. OUTER LAYER: 3/8 INCH THICK FULLY TEMPERED SAFETY GLASS, COLOR "CLEAR" WITH LOW-E SPUTTER COATING ON NUMBER 2 SURFACE

2. AIR SPACE: 1/2 INCH THICK, WITH 90% ARGON/10% AIR FILL

3. INNER LAYER: 3/8 INCH THICK HEAT-STRENGTHENED GLASS WITH SOLID CERAMIC FRIT ON THE NUMBER 3

A. EXAMINE FRAMING, GLAZING CHANNELS, AND STOPS, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH THE

FOLLOWING:

3.1 EXAMINATION

2. PRESENCE AND FUNCTIONING OF WEEP SYSTEMS.

3. MINIMUM REQUIRED FACE AND EDGE CLEARANCES. 4. EFFECTIVE SEALING BETWEEN JOINTS OF GLASS-FRAMING MEMBERS.

B. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

3.2 PREPARATION

A. CLEAN GLAZING CHANNELS AND OTHER FRAMING MEMBERS RECEIVING GLASS IMMEDIATELY BEFORE GLAZING. REMOVE COATINGS NOT FIRMLY BONDED TO SUBSTRATES.

B. EXAMINE GLAZING UNITS TO LOCATE EXTERIOR AND INTERIOR SURFACES. LABEL OR MARK UNITS AS NEEDED SO THAT EXTERIOR AND INTERIOR SURFACES ARE READILY IDENTIFIABLE. DO NOT USE MATERIALS THAT WILL LEAVE VISIBLE MARKS IN THE COMPLETED WORK

3.3 GLAZING, GENERAL

A. COMPLY WITH COMBINED WRITTEN INSTRUCTIONS OF MANUFACTURERS OF GLASS, SEALANTS, GASKETS, AND OTHER GLAZING MATERIALS, UNLESS MORE STRINGENT REQUIREMENTS ARE INDICATED, INCLUDING THOSE IN REFERENCED GLAZING PUBLICATIONS.

B. ADJUST GLAZING CHANNEL DIMENSIONS AS REQUIRED BY PROJECT CONDITIONS DURING INSTALLATION TO PROVIDE NECESSARY BITE ON GLASS, MINIMUM EDGE AND FACE CLEARANCES, AND ADEQUATE SEALANT THICKNESSES, WITH REASONABLE TOLERANCES.

C. PROTECT GLASS EDGES FROM DAMAGE DURING HANDLING AND INSTALLATION. REMOVE DAMAGED GLASS FROM PROJECT SITE AND LEGALLY DISPOSE OF OFF PROJECT SITE. DAMAGED GLASS IS GLASS WITH EDGE DAMAGE OR OTHER IMPERFECTIONS THAT, WHEN INSTALLED, COULD WEAKEN GLASS AND IMPAIR PERFORMANCE AND

D. APPLY PRIMERS TO JOINT SURFACES WHERE REQUIRED FOR ADHESION OF SEALANTS, AS DETERMINED BY PRECONSTRUCTION TESTING.

E. INSTALL SETTING BLOCKS IN SILL RABBETS, SIZED AND LOCATED TO COMPLY WITH REFERENCED GLAZING PUBLICATIONS, UNLESS OTHERWISE REQUIRED BY GLASS MANUFACTURER. SET BLOCKS IN THIN COURSE OF COMPATIBLE SEALANT SUITABLE FOR HEEL BEAD.

F. DO NOT EXCEED EDGE PRESSURES STIPULATED BY GLASS MANUFACTURERS FOR INSTALLING GLASS LITES.

G. PROVIDE SPACERS FOR GLASS LITES WHERE LENGTH PLUS WIDTH IS LARGER THAN 50 INCHES (1270 MM). 1. LOCATE SPACERS DIRECTLY OPPOSITE EACH OTHER ON BOTH INSIDE AND OUTSIDE FACES OF GLASS. INSTALL CORRECT SIZE AND SPACING TO PRESERVE REQUIRED FACE CLEARANCES, UNLESS GASKETS AND GLAZING TAPES ARE USED THAT HAVE DEMONSTRATED ABILITY TO MAINTAIN REQUIRED FACE CLEARANCES AND TO COMPLY WITH SYSTEM PERFORMANCE REQUIREMENTS.

2. PROVIDE 1/8-INCH (3-MM) MINIMUM BITE OF SPACERS ON GLASS AND USE THICKNESS EQUAL TO SEALANT WIDTH. WITH GLAZING TAPE, USE THICKNESS SLIGHTLY LESS THAN FINAL COMPRESSED THICKNESS OF TAPE. H. PROVIDE EDGE BLOCKING WHERE INDICATED OR NEEDED TO PREVENT GLASS LITES FROM MOVING SIDEWAYS IN

REQUIREMENTS IN REFERENCED GLAZING PUBLICATIONS. I. SET GLASS LITES IN EACH SERIES IF APPLICABLE, WITH UNIFORM PATTERN, DRAW, BOW, AND SIMILAR

GLAZING CHANNEL, AS RECOMMENDED IN WRITING BY GLASS MANUFACTURER AND ACCORDING TO

CHARACTERISTICS. J. SET GLASS LITES WITH PROPER ORIENTATION, IF APPLIES SO THAT COATINGS FACE EXTERIOR OR INTERIOR AS SPECIFIED.

K. WHERE WEDGE-SHAPED GASKETS ARE DRIVEN INTO ONE SIDE OF CHANNEL TO PRESSURIZE SEALANT OR GASKET ON OPPOSITE SIDE, PROVIDE ADEQUATE ANCHORAGE SO GASKET CANNOT WALK OUT WHEN INSTALLATION IS SUBJECTED TO

L. SQUARE CUT WEDGE-SHAPED GASKETS AT CORNERS AND INSTALL GASKETS IN A MANNER RECOMMENDED BY GASKET MANUFACTURER TO PREVENT CORNERS FROM PULLING AWAY; SEAL CORNER JOINTS AND BUTT JOINTS WITH SEALANT RECOMMENDED BY GASKET MANUFACTURER.

3.4 TAPE GLAZING

A. POSITION TAPES ON FIXED STOPS SO THAT, WHEN COMPRESSED BY GLASS, THEIR EXPOSED EDGES ARE FLUSH WITH OR PROTRUDE SLIGHTLY ABOVE SIGHTLINE OF STOPS.

B. INSTALL TAPES CONTINUOUSLY, BUT NOT NECESSARILY IN ONE CONTINUOUS LENGTH. DO NOT STRETCH TAPES TO MAKE C. COVER VERTICAL FRAMING JOINTS BY APPLYING TAPES TO HEADS AND SILLS FIRST AND THEN TO JAMBS. COVER

HORIZONTAL FRAMING JOINTS BY APPLYING TAPES TO JAMBS AND THEN TO HEADS AND SILLS.

E. DO NOT REMOVE RELEASE PAPER FROM TAPE UNTIL RIGHT BEFORE EACH GLAZING UNIT IS INSTALLED.

F. APPLY HEEL BEAD OF ELASTOMERIC SEALANT

G. CENTER GLASS LITES IN OPENINGS ON SETTING BLOCKS AND PRESS FIRMLY AGAINST TAPE BY INSERTING DENSE COMPRESSION GASKETS FORMED AND INSTALLED TO LOCK IN PLACE AGAINST FACES OF REMOVABLE STOPS. START GASKET APPLICATIONS AT CORNERS AND WORK TOWARD CENTERS OF OPENINGS.

H. APPLY CAP BEAD OF ELASTOMERIC SEALANT OVER EXPOSED EDGE OF TAPE

3.5 GASKET GLAZING (DRY)

A. CUT COMPRESSION GASKETS TO LENGTHS RECOMMENDED BY GASKET MANUFACTURER TO FIT OPENINGS EXACTLY, WITH ALLOWANCE FOR STRETCH DURING INSTALLATION.

B. INSERT SOFT COMPRESSION GASKET BETWEEN GLASS AND FRAME OR FIXED STOP SO IT IS SECURELY IN PLACE WITH JOINTS MITER CUT AND BONDED TOGETHER AT CORNERS. C. INSTALLATION WITH DRIVE-IN WEDGE GASKETS: CENTER GLASS LITES IN OPENINGS ON SETTING BLOCKS AND PRESS FIRMLY AGAINST

SOFT COMPRESSION GASKET BY INSERTING DENSE COMPRESSION GASKETS FORMED AND INSTALLED TO LOCK IN PLACE AGAINST FACES OF REMOVABLE STOPS. START GASKET APPLICATIONS AT CORNERS AND WORK TOWARD CENTERS OF OPENINGS. COMPRESS GASKETS TO PRODUCE A WEATHERTIGHT SEAL WITHOUT DEVELOPING BENDING STRESSES IN GLASS. SEAL GASKET JOINTS WITH SEALANT RECOMMENDED BY GASKET MANUFACTURER. D. INSTALLATION WITH PRESSURE-GLAZING STOPS: CENTER GLASS LITES IN OPENINGS ON SETTING BLOCKS AND PRESS FIRMLY AGAINST

SOFT COMPRESSION GASKET. INSTALL DENSE COMPRESSION GASKETS AND PRESSURE-GLAZING STOPS, APPLYING PRESSURE

UNIFORMLY TO COMPRESSION GASKETS. COMPRESS GASKETS TO PRODUCE A WEATHERTIGHT SEAL WITHOUT DEVELOPING BENDING

E. INSTALL GASKETS SO THEY PROTRUDE PAST FACE OF GLAZING STOPS.

RECOMMENDED IN WRITING BY GLASS MANUFACTURER

3.6 SEALANT GLAZING (WET)

A. INSTALL CONTINUOUS SPACERS, OR SPACERS COMBINED WITH CYLINDRICAL SEALANT BACKING, BETWEEN GLASS LITES AND GLAZING STOPS TO MAINTAIN GLASS FACE CLEARANCES AND TO PREVENT SEALANT FROM EXTRUDING INTO GLASS CHANNEL AND BLOCKING WEEP SYSTEMS UNTIL SEALANTS CURE. SECURE SPACERS OR SPACERS AND BACKINGS IN PLACE AND IN POSITION TO CONTROL DEPTH OF INSTALLED SEALANT RELATIVE TO EDGE CLEARANCE FOR OPTIMUM SEALANT PERFORMANCE.

B. FORCE SEALANTS INTO GLAZING CHANNELS TO ELIMINATE VOIDS AND TO ENSURE COMPLETE WETTING OR BOND OF SEALANT TO GLASS AND CHANNEL SURFACES.

C. TOOL EXPOSED SURFACES OF SEALANTS TO PROVIDE A SUBSTANTIAL WASH AWAY FROM GLASS.

STRESSES IN GLASS. SEAL GASKET JOINTS WITH SEALANT RECOMMENDED BY GASKET MANUFACTUREF

3.7 CLEANING AND PROTECTION

A. PROTECT EXTERIOR GLASS FROM DAMAGE IMMEDIATELY AFTER INSTALLATION BY ATTACHING CROSSED STREAMERS TO FRAMING HELD AWAY FROM GLASS. DO NOT APPLY MARKERS TO GLASS SURFACE. REMOVE NONPERMANENT LABELS AND CLEAN SURFACES.

B. PROTECT GLASS FROM CONTACT WITH CONTAMINATING SUBSTANCES RESULTING FROM CONSTRUCTION OPERATIONS. IF, DESPITE SUCH PROTECTION, CONTAMINATING SUBSTANCES DO COME INTO CONTACT WITH GLASS, REMOVE SUBSTANCES IMMEDIATELY AS

C. EXAMINE GLASS SURFACES ADJACENT TO OR BELOW EXTERIOR CONCRETE AND OTHER MASONRY SURFACES AT FREQUENT INTERVALS DURING CONSTRUCTION, BUT NOT LESS THAN ONCE A MONTH, FOR BUILDUP OF DIRT, SCUM, ALKALINE DEPOSITS, OR STAINS; REMOVE AS RECOMMENDED IN WRITING BY GLASS MANUFACTURER.

D. REMOVE AND REPLACE GLASS THAT IS BROKEN, CHIPPED, CRACKED, OR ABRADED OR THAT IS DAMAGED FROM NATURAL CAUSES, ACCIDENTS, AND VANDALISM, DURING CONSTRUCTION PERIOD.

E. WASH GLASS ON BOTH EXPOSED SURFACES IN EACH AREA OF PROJECT NOT MORE THAN FOUR DAYS BEFORE DATE SCHEDULED FOR INSPECTIONS THAT ESTABLISH DATE OF SUBSTANTIAL COMPLETION. WASH GLASS AS RECOMMENDED IN WRITING BY GLASS

END OF SECTION

SECTION 05515: LADDERS

O'KEEFFE'S ALUMINUM LADDERS

PART 1 GENERAL

1.1 SECTION INCLUDES

A. ALUMINUM ACCESS LADDERS. B. ALUMINUM SHIP'S LADDERS.

C. ALUMINUM CAGE LADDERS.

1.2 RELATED SECTIONS

1.3 REFERENCES

A. SECTION 05500 - METAL FABRICATIONS: FASTENERS AND INSTALLATION REQUIREMENTS USED TO ATTACH LADDERS TO STRUCTURE B. SECTION 14200 - ELEVATORS: FOR PIT LADDERS.

C. SECTION 15050 - BASIC ELECTRICAL MATERIALS AND METHODS: FOR ELECTRICAL GROUNDING OF LADDERS.

A. AA - ALUMINUM ASSOCIATION. B. ASTM B 209 - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY SHEET AND PLATE.

2. PROVIDE TEMPLATES FOR ANCHORS AND BOLTS SPECIFIED FOR INSTALLATION UNDER OTHER SECTIONS.

C. ASTM B 221 - STANDARD SPECIFICATION FOR ALUMINUM AND ALUMINUM-ALLOY EXTRUDED BARS, RODS, WIRE, PROFILES, AND TUBES.

D. OSHA 1910.27 - FIXED LADDERS. 1.4 SUBMITTALS

B. PRODUCT DATA: MANUFACTURER'S DATA SHEETS ON EACH PRODUCT

1. RECORD OF SUCCESSFUL IN-SERVICE PERFORMANCE.

2. SUFFICIENT PRODUCTION CAPACITY TO PRODUCE REQUIRED UNITS.

A. SUBMIT UNDER PROVISIONS OF SECTION 01300.

C. SHOP DRAWINGS:

1. DETAIL FABRICATION AND ERECTION OF EACH LADDER INDICATED. INCLUDE PLANS, ELEVATIONS, SECTIONS, AND DETAILS OF METAL FABRICATIONS AND THEIR CONNECTIONS

3. PROVIDE REACTION LOADS FOR EACH HANGER AND BRACKET.

D. QUALIFICATION DATA 1. REFER TO QUALITY ASSURANCE PROVISIONS FOR SUBMITTAL REQUIREMENTS EVIDENCING EXPERIENCE, CERTIFICATIONS AND RESOURCES. E. SELECTION SAMPLES: FOR EACH FINISH SPECIFIED, TWO COMPLETE SETS OF COLOR CHIPS REPRESENTING MANUFACTURER'S FULL RANGE OF

F. VERIFICATION SAMPLES: FOR EACH FINISH SPECIFIED, TWO SAMPLES, MINIMUM SIZE 6 INCHES (150 MM) SQUARE, REPRESENT ACTUAL PRODUCT COLOR.

1.5 QUALITY ASSURANCE A. MANUFACTURER QUALIFICATIONS: A FIRM EXPERIENCED IN PRODUCING ALUMINUM METAL LADDERS SIMILAR TO THOSE INDICATED FOR THIS

3. PROFESSIONAL ENGINEERING COMPETENT IN DESIGN AND STRUCTURAL ANALYSIS TO FABRICATE LADDERS IN COMPLIANCE WITH INDUSTRY STANDARDS AND LOCAL CODES. B. INSTALLER QUALIFICATIONS: COMPETENT AND EXPERIENCED FIRM CAPABLE OF SELECTING FASTENERS AND INSTALLING LADDERS TO ATTAIN

DESIGNED OPERATIONAL AND STRUCTURAL PERFORMANCE. C. PRODUCT QUALIFICATION: PRODUCT DESIGN SHALL COMPLY WITH OSHA 1910.27 MINIMUM STANDARDS FOR LADDERS.

D. MOCK-UP: PROVIDE A MOCK-UP FOR EVALUATION OF SURFACE PREPARATION TECHNIQUES AND APPLICATION WORKMANSHIP.

1. INSTALL LADDER IN AREA DESIGNATED BY ARCHITECT 2. DO NOT PROCEED WITH REMAINING WORK UNTIL WORKMANSHIP AND INSTALLATION ARE APPROVED BY ARCHITECT

A. STORE PRODUCTS IN MANUFACTURER'S UNOPENED PACKAGING UNTIL READY FOR INSTALLATION.

3. REWORK MOCK-UP AS REQUIRED TO PRODUCE ACCEPTABLE WORK. 1.6 DELIVERY, STORAGE, AND HANDLING

DEFECTIVE LADDER.

RESULTING FROM THE USE OF LADDER PRODUCTS

1.7 PROJECT CONDITIONS A. FIELD MEASUREMENTS: VERIFY DIMENSIONS BY FIELD MEASUREMENT BEFORE FABRICATION.

1. ESTABLISHED DIMENSIONS: WHERE FIELD MEASUREMENTS CANNOT BE MADE WITHOUT DELAYING THE WORK, INDICATE ESTABLISHED DIMENSIONS ON SHOP DRAWING SUBMITTAL AND PROCEED WITH FABRICATION.

2. DETERIORATION OF MATERIAL AND SURFACE PERFORMANCE BELOW MINIMUM OSHA STANDARDS AS CERTIFIED BY INDEPENDENT THIRD PARTY TESTING LABORATORY, ORDINARY WEAR AND TEAR, UNUSUAL ABUSE OR NEGLECT EXCEPTED.

3. WITHIN THE WARRANTY PERIOD, THE MANUFACTURER SHALL, AT ITS OPTION, REPAIR, REPLACE, OR REFUND THE PURCHASE PRICE OF

A. MANUFACTURER HAS RESPONSIBILITY FOR AN EXTENDED CORRECTIVE PERIOD FOR WORK OF THIS SECTION FOR A PERIOD OF 5 YEARS

OWNER, MANUFACTURER SHALL PROMPTLY AND WITHOUT INCONVENIENCE AND COST TO OWNER CORRECT SAID DEFICIENCIES.

B. MANUFACTURER SHALL BE NOTIFIED IMMEDIATELY OF DEFECTIVE PRODUCTS. AND BE GIVEN A REASONABLE OPPORTUNITY TO INSPECT THE GOODS PRIOR TO RETURN. MANUFACTURER WILL NOT ASSUME RESPONSIBILITY. OR COMPENSATION. FOR UNAUTHORIZED REPAIRS OR LABOR. MANUFACTURER MAKES NO OTHER WARRANTY, EXPRESSED OR IMPLIED, TO THE MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, DESIGN. SALE, INSTALLATION, OR USE, OF THE LADDER; AND SHALL NOT BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, LOSSES OF OR EXPENSES 1.9 EXTRA MATERIALS A. FURNISH TOUCHUP KIT FOR EACH TYPE AND COLOR OF PAINT FINISH PROVIDED.

2.1 MANUFACTURERS

A. ACCEPTABLE MANUFACTURER: O'KEEFFE'S, INC.; 100 N HILL DRIVE, SUITE 12, BRISBANE, CA 94005. TOLL FREE TEL: (888) 653-3333. TEL: (415) 824-4900. FAX: (415) 824-5900. EMAIL: INFO@OKEEFFES.COM. WEB: HTTP://WWW.OKEEFFES.COM.

B. SUBSTITUTIONS: NOT PERMITTED.

C. REQUESTS FOR SUBSTITUTIONS WILL BE CONSIDERED IN ACCORDANCE WITH PROVISIONS OF SECTION 01600.

B. FIXED ACCESS LADDER:

A. FIXED AND CAGE LADDER DESIGN:

1. SAFETY CAGES ARE REQUIRED ON LADDERS OVER 24 FEET (7315 MM)

2. SAFETY CAGES ARE REQUIRED ON ALL LADDERS IN HIGH OR HAZARDOUS AREAS.

3. LANDING PLATFORMS ARE REQUIRED AT 50 FEET (15,240 MM) ABOVE THE BOTTOM OF THE LADDER. 4. RAIL AND HARNESS FALL ARREST SYSTEM AS ALTERNATE TO SAFETY CAGE AND LANDING PLATFORMS SHALL BE A PERMISSIBLE MANUFACTURER'S OPTION.

A.FIXED LADDER BOTTOM BRACKET.

B. BOTTOM FLOOR SUPPORTED BRACKET.

C.BOTTOM WALL SUPPORTED BRACKET. D.BRACKET AS DRAWN.

1. STANDARD DUTY CHANNEL RAIL A. MODEL 500 AS MANUFACTURED BY O'KEEFFE'S INC.

A. MODEL 821 AS MANUFACTURED BY O'KEEFFE'S INC.

3. TUBULAR RAIL LOW PARAPET ACCESS LADDER WITH ROOFOVER RAIL EXTENSION. A. MODEL 502 AS MANUFACTURED BY O'KEEFFE'S INC.

A. MODEL 503 AS MANUFACTURED BY O'KEEFFE'S INC.

5. TUBULAR RAIL LOW PARAPET ACCESS LADDER WITH PLATFORM.

A. MODEL 503A AS MANUFACTURED BY O'KEEFFE'S INC.

4. TUBULAR RAIL LOW PARAPET ACCESS LADDER WITH PLATFORM AND RETURN.

6. TUBULAR RAIL LOW PARAPET ACCESS LADDER WITH WALK-THROUGH RAIL EXTENSION. A. MODEL 504 AS MANUFACTURED BY O'KEEFFE'S INC.

A. MODEL 531 AS MANUFACTURED BY O'KEEFFE'S INC. 2. CAGE LADDER WITH ROOFOVER RAIL EXTENSION.

1. CAGE LADDER WITH ROOF HATCH RAIL EXTENSION.

A. MODEL 532 AS MANUFACTURED BY O'KEEFFE'S INC.

3. CAGE LADDER WITH HIGH PARAPET ACCESS, PLATFORM AND RETURN. A. MODEL 533 AS MANUFACTURED BY O'KEEFFE'S INC.

A. MODEL 533A AS MANUFACTURED BY O'KEEFFE'S INC

4. CAGE LADDER WITH HIGH PARAPET ACCESS, PLATFORM AND NO RETURN.

5. TUBULAR RAIL LOW PARAPET CAGE LADDER WITH WALK-THROUGH EXTENSION.

A. MODEL 534 AS MANUFACTURED BY O'KEEFFE'S INC. D. SHIP LADDER:

A. MODEL 520 AS MANUFACTURED BY O'KEEFFE'S INC.

2. SHIP LADDER WITH PLATFORM.

A. MODEL 521 AS MANUFACTURED BY O'KEEFFE'S INC. 3. SHIP LADDER WITH PLATFORM AND RETURN.

A. MODEL 522 AS MANUFACTURED BY O'KEEFFE'S INC. 4. SHIP LADDER WITH ACCESS TO ROOF HATCH.

A. MODEL 523 AS MANUFACTURED BY O'KEEFFE'S INC.

A. 60 DEGREE B. 75 DEGREE

> C. AS DRAWN 2.3 FINISHES

 A. MILL FINISH. AS EXTRUDED B. CLEAR ANODIC FINISH: AA-M10C22A41 MECHANICAL FINISH AS FABRICATED. ARCHITECTURAL CLASS I, CLEAR COATING 0.018 MM OR THICKER.

C. PAINT. URETHANE OVER CHEMICALLY PRETREATED SUBSTRATE.

1. FIRE RED (RAL 2002). 2. ALERT ORANGE (RAL 2003).

3. WARNING BLUE (RAL 5005). 4. CAUTION YELLOW (RAL 1018).

5. SAFETY GREEN (RAL 6001). 6. AS SCHEDULED ON DRAWINGS

SERRATED ON ALL SIDES.

3.1 EXAMINATION

2.4 MATERIALS A. ALUMINUM SHEET: ALLOY 5005-H34 TO COMPLY WITH ASTM B209. B. ALUMINUM EXTRUSIONS: ALLOY 6063-T6 TO COMPLY WITH ASTM B221.

G. LANDING PLATFORM: 1-1/2 INCHES (38 MM) OR GREATER DIAMETER, TUBULAR ALUMINUM GUARDRAILS AND DECKS OF SERRATED ALUMINUM TREADS.

A. RUNGS: NOT LESS THAN 1-1/4 INCHES (32 MM) IN SECTION AND 18-3/8 INCHES (467MM) LONG, FORMED FROM TUBULAR ALUMINUM EXTRUSIONS. SQUARED AND DEEPLY

1. RUNGS SHALL WITHSTAND A 1,500 POUND (454 KG) LOAD WITHOUT DEFORMATION OR FAILURE. CHANNEL SIDE RAILS: NOT LESS THAN 1/8 INCH (3 MM) WALL THICKNESS BY 3 INCHES (76 MM) WIDE.

MM) WIDE. CONSTRUCTION SHALL BE SELF-LOCKING STAINLESS STEEL FASTENERS, FULL PENETRATION TIG WELDS AND CLEAN, SMOOTH AND BURR-FREE SURFACES. E. SHIP LADDERS: NOT LESS THAN 1-1/4 INCHES (32MM) HIGH, 4-1/8 INCH (105 MM) DEEP AND 2 FEET (610 MM) WIDE; TREAD SPACING SHALL BE 1 FOOT (305 MM) ON CENTER. HANDRAILS SHALL BE ALUMINUM PIPE, NOT LESS THAN 1-1/2 INCHES (38 MM) IN DIAMETER WITH HEMISPHERIC END CAPS.

H. SECURITY DOORS: FORMED 1/8 INCH (3 MM) THICK ALUMINUM SHEET. SECURITY PANELS SHALL EXTEND ON BOTH SIDES, PERPENDICULAR TO THE DOOR FACE, TO WITHIN 2 INCHES (51 MM) OF THE WALL. SECURITY DOOR SHALL BE FURNISHED WITH CONTINUOUS ALUMINUM PIANO HINGE AND HEAVY DUTY FORGED STEEL LOCKING

I. SHIP LADDER SEISMIC BOTTOM SUPPORT: MANUFACTURER'S STANDARD; TWO ISOLATION BEARINGS PER STRINGER.

J. LADDER SAFETY POST: RETRACTABLE HAND HOLD AND TIE OFF

A. PROTECT INSTALLED PRODUCTS UNTIL COMPLETION OF PROJECT.

K. RAIL AND HARNESS FALL ARREST SYSTEM: SUPPLIED WHERE SPECIFIED AS ALTERNATE TO SAFETY CAGE AND LANDING PLATFORMS, IN ACCORDANCE WITH OSHA REGULATION 1910.27; PERMANENTLY MOUNTED TO LADDER RUNGS AND COMPLETE WITH NECESSARY COMPONENTS.

HOOPS AND VERTICAL BARS SHALL NOT EXCEED THAT REQUIRED BY CODE. 2. SAFETY CAGE HOOPS AND VERTICAL BARS: 3/16 INCH (5 MM) BY 2 INCHES (51 MM) ALUMINUM BAR. PART 3 EXECUTION

1. FABRICATE LADDER SAFETY CAGES TO COMPLY WITH AUTHORITY HAVING JURISDICTION. ASSEMBLE BY WELDING. SPACING OF PRIMARY HOOPS, SECONDARY

COMMENCING ON THE SHIPMENT DATE OF THE PRODUCT AGAINST ALL THE CONDITIONS INDICATED BELOW, AND WHEN NOTIFIED IN WRITING FROM B. DO NOT BEGIN INSTALLATION UNTIL SUPPORTING STRUCTURE IS COMPLETE AND LADDER INSTALLATION WILL NOT INTERFERE WITH SUPPORTING STRUCTURE WORK. C. IF SUPPORTING STRUCTURE IS THE RESPONSIBILITY OF ANOTHER INSTALLER, NOTIFY ARCHITECT OF UNSATISFACTORY SUPPORTING WORK BEFORE PROCEEDING 3.2 INSTALLATION

A. COORDINATE ANCHORAGES. FURNISH SETTING DRAWINGS, TEMPLATES, AND ANCHORAGE STRUCTURAL LOADS FOR FASTENER RESISTANCE.

A. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND IN PROPER RELATIONSHIP WITH ADJACENT CONSTRUCTION 3.3 PROTECTION

B. TOUCH-UP, REPAIR OR REPLACE DAMAGED PRODUCTS BEFORE SUBSTANTIAL COMPLETION END OF SECTION

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D. HEAVY DUTY TUBULAR SIDE RAILS: ASSEMBLED FROM TWO INTERLOCKING ALUMINUM EXTRUSIONS NO LESS THAN 1/8 INCH (3 MM) WALL THICKNESS BY 3 INCHES (76 F. WALK-THROUGH RAIL AND ROOF RAIL EXTENSION: NOT LESS THAN 3 FEET 6 INCHES (1067 MM) ABOVE THE LANDING AND SHALL BE FITTED WITH DEEPLY SERRATED,

WALL ASSEMBLIES CONTAINING COMBUSTIBLE COMPONENTS USING THE INTERMEDIATE-SCALE, MULTISTORY TEST 2. NFPA 268, STANDARD TEST METHOD FOR DETERMINING IGNITABILITY OF EXTERIOR WALL ASSEMBLIES USING A RADIANT HEAT ENERGY SOURCE H. SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT (SOUTH COAST AQMD) 1. RULE 1113 (2019) - BUILDING ENVELOPE COATINGS, ARCHITECTURAL COATINGS I. STO CORP. BUILDING CODE EVALUATION REPORTS, INSTALLATION GUIDES, AND PRODUCT BULLETINS 1. ICC ESR-1233, STOGUARD AIR BARRIER AND WATER-RESISTIVE BARRIER SYSTEM AND STOENERGY GUARD (STOGUARD WITH CONTINUOUS INSULATION) 2. STO RAPIDGUARD: INSTALLATION GUIDE 3 STOGUARD CONFORMABLE MEMBRANE: INSTALLATION GUIDE 4. STOPOWERWALL CI DESIGN GUIDE AND DETAIL BOOKLET J. US EPA (UNITED STATED ENVIRONMENTAL PROTECTION AGENCY 1. 40 CFR PART 59 (CODE OF FEDERAL REGULATIONS TITLE 40 PART 59 – NATIONAL VOLATILE ORGANIC COMPOUND EMISSION STANDARDS FOR CONSUMER AND COMMERCIAL PRODUCTS A. STRUCTURAL (WIND AND AXIAL LOADS) 1. DESIGN FOR MAXIMUM ALLOWABLE DEFLECTION, NORMAL TO THE PLANE OF THE WALL OF L/360 2. DESIGN FOR WIND LOAD IN CONFORMANCE WITH CODE REQUIREMENTS 3. METAL FRAMING: 18 GAGE (0.043 MIL) OR HEAVIER, MAXIMUM 1-/8-INCH FLANGE WIDTH, COLD FORMED STEEL STUD FRAMING IN CONFORMANCE WITH AISI STANDARD S200-07 4. MAXIMUM STUD SPACING: 16-INCHES (406 MM) ON CENTER SHEATHING: MINIMUM 5 /8-INCH (19 MM) GLASS MAT FACED GYPSUM SHEATHING IN CONFORMANCE WITH ASTM C1177 6. INSULATION BOARD: MINIMUM 1-INCH (25 MM), MAXIMUM 2-/8-INCH (51 MM) GRAPHITE ENHANCED POLYSTYRENE (GPS) IN CONFORMANCE WITH ASTM C 578 TYPE 1 OR EXTRUDED POLYSTYRENE (XPS) INSULATION IN CONFORMANCE WITH TYPE IV REQUIREMENTS 7. DRAINAGE MAT: MAXIMUM 3 /8-INCH (10 MM) THICK TANGLED FILAMENT NYLON CORE WITH FABRIC FACING 8. METAL LATH: MINIMUM 2.5 LB / YD2 (1 4 KG / M2) SELF-FURRED GALVANIZED STEEL DIAMOND MESH METAL LATH IN CONFORMANCE WITH ASTM C847 OR EQUIVALENT SELF-FURRING WELDED WIRE LATH 9. LATH FASTENERS AND PLATES: CORROSION RESISTANT FASTENERS IN CONFORMANCE WITH AISI STANDARD S200-2007 AND ASTM C1513 WITH MINIMUM THREE THREAD PENETRATION BEYOND STEEL FRAMING MEMBERS. AND MINIMUM 1-INCH (32 MM) CORROSION RESISTANT LATH PLATES, WITH MINIMUM FASTENER SIZE AND LENGTH OF, • #8 X 3-INCH (76 MM) FOR 1-INCH (25 MM) INSULATION BOARD THICKNESS • #10 X 3-1/2 -INCHES (89 MM) FOR 1-/2-INCH (38 MM) INSULATION BOARD THICKNESS • #10 X 4-INCH (102 MM) FOR 2-INCH OR 2-/8-INCH (51 OR 54 MM) INSULATION BOARD THICKNESS • WOOD FRAMING--MINIMUM #10 TYPE S WAFER HEAD CORROSION RESISTANT SCREWS WITH MINIMUM 1-INCH (25 MM) PENETRATION INTO STUDS CONCRETE OR CMU SUBSTRATES—MINIMUM #10 TAPCON TYPE CORROSION RESISTANT SCREWS WITH MINIMUM 7/8-INCH THREADED PENETRATION INTO CONCRETE OR CMU SUBSTRATE 10. LATH FASTENER SPACING: MAXIMUM 6-INCHES (152 MM) VERTICALLY ALONG STUDS STO GUIDE SPECIFICATION 6300 – STOPOWERWALL CI STO GUIDE SPECIFICATION 6300 STO CORP. IS AN ISO 9001AND 14001 REGISTERED COMPANY PAGE 5 OF 25 CREATED: MAY 2013 REVISION 014: OCTOBER 2023 11. STUCCO: 3/4-INCH (19 MM) OR 7 /8-INCH (22 MM) PORTLAND CEMENT STUCCO IN CONFORMANCE WITH ASTM C 926 OF UNIFORM THICKNESS APPLIED IN TWO COATS, SCRATCH AND BROWN COAT. 1. PREVENT THE ACCUMULATION OF WATER INTO OR BEHIND THE STUCCO, EITHER BY CONDENSATION OR LEAKAGE INTO THE WALL CONSTRUCTION, IN THE DESIGN AND DETAILING OF THE WALL ASSEMBLY A. PROVIDE CORROSION RESISTANT FLASHING TO PROTECT EXPOSED ELEMENTS AND TO DIRECT WATER TO THE EXTERIOR, INCLUDING, ABOVE WINDOW AND DOOR HEADS, BENEATH WINDOW AND DOOR SILLS, AT FLOOR LINES, AT ROOF/WALL INTERSECTIONS, DECKS, ABUTMENTS OF LOWER WALLS WITH HIGHER WALLS, ABOVE PROJECTING FEATURES, AND AT THE B. AIR LEAKAGE PREVENTION-PREVENT EXCESS AIR LEAKAGE IN THE DESIGN AND DETAILING OF THE WALL ASSEMBLY PROVIDE CONTINUITY BETWEEN AIR BARRIER COMPONENTS IN THE WALL ASSEMBLY. C. VAPOR DIFFUSION AND CONDENSATION - PERFORM A DEW POINT ANALYSIS OF THE WALL ASSEMBLY TO DETERMINE THE POTENTIAL FOR ACCUMULATION OF MOISTURE IN THE WALL ASSEMBLY AS A RESULT OF WATER VAPOR DIFFUSION AND CONDENSATION. ADJUST WALL ASSEMBLY COMPONENTS ACCORDINGLY TO MINIMIZE THE RISK OF CONDENSATION. AVOID THE USE OF VAPOR RETARDERS ON THE INTERIOR SIDE OF THE WALL IN HOT, HUMID CLIMATES. D. PROVIDE STOGUARD AIR AND WATER-RESISTIVE BARRIER OVER SHEATHING E. AT THROUGH WALL EXPANSION JOINTS AND AT JOINTS FORMED WITH BACK-TO-BACK CASING BEADS, BACK JOINTS WITH STOGUARD CONFORMABLE MEMBRANE OR STOGUARD TRANSITION MEMBRANE. REFER TO STO GUIDE DETAILS AT F. SEAL STUCCO TERMINATIONS AND ACCESSORY BUTT JOINTS WITH APPROPRIATE SEALANT. SEAL ALL PENETRATIONS THROUGH THE STUCCO WALL ASSEMBLY WITH APPROPRIATE SEALANT, OR BACKER ROD AND SEALANT, AS DICTATED BY 1. DO NOT SPECIFY STUCCO FOR USE BELOW GRADE OR ON SURFACES SUBJECT TO CONTINUOUS OR INTERMITTENT WATER MMERSION OR HYDROSTATIC PRESSURE. PROVIDE MINIMUM 4-INCH (100 MM) CLEARANCE ABOVE EARTH GRADE MINIMUM 2-INCH (51 MM) CLEARANCE ABOVE FINISHED GRADE (PAVERS/SIDEWALK). PROVIDE INCREASED CLEARANCE IN FREEZE/THAW CLIMATE ZONES. D. SLOPED SURFACES, INCLUDING GPS OR EPS FOAM TRIM AND PROJECTING ARCHITECTURAL FEATURES ATTACHED TO STUCCO. 1. AVOID THE USE OF STUCCO ON BUILD-OUTS OR WEATHER EXPOSED SLOPED AND HORIZONTAL SURFACES (REFER TO 2 AND 3 2. BUILD OUT TRIM AND PROJECTING ARCHITECTURAL FEATURES FROM THE STUCCO WALL SURFACE WITH CODE COMPLIANT GPS OR EPS FOAM. ALL FOAM TRIM AND PROJECTING ARCHITECTURAL FEATURES MUST HAVE A MINIMUM 1:2 [27] I SLOPE ALONG THEIR TOP SURFACE. ALL FOAM HORIZONTAL REVEALS MUST HAVE A MINIMUM 1:2 [27] SLOPE ALONG THEIR BOTTOM SURFACE. INCREASE SLOPE FOR NORTHERN CLIMATES TO PREVENT ACCUMULATION OF ICE/SNOW AND WATER ON SURFACE. WHERE TRIM/FEATURE OR BOTTOM SURFACE OF REVEAU PROJECTS MORE THAN 2-INCHES (51 MM) FROM THE FACE OF THE WALL PLANE. PROTECT THE TOP SURFACE WITH WATERPROOF BASE COAT, LIMIT FOAM THICKNESS TO A MAXIMUM OF 4-INCHES (102 MM). PERIODIC INSPECTIONS AND INCREASED MAINTENANCE MAY BE REQUIRED TO MAINTAIN SURFACE INTEGRITY OF FINISHES ON WEATHER EXPOSED SLOPED SURFACES. LIMIT PROJECTING FEATURES TO EASILY ACCESSIBLE AREAS AND LIMIT TOTAL AREA TO FACILITATE MAINTENANCE AND MINIMIZE MAINTENANCE BURDEN. REFER TO STO GUIDE DETAILS AT WWW STOCORP COM 3. DO NOT USE FOAM ON WEATHER EXPOSED PROJECTING LEDGES. SILLS, OR OTHER PROJECTING FEATURES UNLESS SUPPORTED BY FRAMING OR OTHER STRUCTURAL SUPPORT AND PROTECTED WITH METAL COPING OR FLASHING. REFER TO STO GUIDE DETAILS AT WWW STOCORP COM E. JOINTS AND ACCESSORIES STO GUIDE SPECIFICATION 6300 - STOPOWERWALL CI STO GUIDE SPECIFICATION 6300 STO CORP. IS AN ISO 9001AND 14001 REGISTERED COMPANY PAGE 6 OF 25 CREATED: MAY 2013 REVISION 014: OCTOBER 2023 1. PROVIDE TWO-PIECE EXPANSION JOINTS IN THE STUCCO SYSTEM WHERE BUILDING MOVEMENT IS ANTICIPATED: AT JOINTS IN THE SUBSTRATE OR SUPPORTING CONSTRUCTION, WHERE THE SYSTEM IS TO BE INSTALLED OVER DISSIMILAR CONSTRUCTION OR SUBSTRATES, AT CHANGES IN BUILDING HEIGHT, AT FLOOR LINES, AT COLUMNS AND CANTILEVERED AREAS. 2. PROVIDE ONE PIECE EXPANSION JOINTS EVERY 144 FT2). CUT AND WIRE TIE LATH TO THE EXPANSION JOINT ACCESSORY SO LATH IS DISCONTINUOUS AT OR BENEATH THE ACCESSORY. DO NOT EXCEED LENGTH TO WIDTH RATIO OF 2-IN EXPANSION JOINT LAYOUT AND DO NOT EXCEED MORE THAN 18 FEET (5.5 M) IN ANY DIRECTION WITHOUT AN EXPANSION JOINT. WHERE CASING BEAD IS USED BACK-TO-BACK AS THE EXPANSION JOINT, BACK THE JOINT WITH STOGUARD CONFORMABLE MEMBRANE OR STOGUARD TRANSITION MEMBRANE 3. PROVIDE ONE PIECE EXPANSION JOINTS AT THROUGH WALL PENETRATIONS, FOR EXAMPLE, ABOVE AND BELOW DOORS OR 4. PROVIDE MINIMUM3 /8-INCH (9 MM) WIDE JOINTS WHERE THE SYSTEM ABUTS WINDOWS, DOORS AND OTHER THROUGH WALL 5. PROVIDE APPROPRIATE ACCESSORIES AT STUCCO TERMINATIONS AND JOINTS. 6. AVOID THE USE OF CHANNEL REVEAL ACCESSORIES WHICH CAN INTERFERE WITH PROPER DRAINAGE AND PROPER STRESS RELIEF. 7. PROVIDE APPROPRIATE SEALANT AT STUCCO TERMINATIONS AND AT STUCCO ACCESSORY BUTT JOINTS. 8. INDICATE LOCATION OF JOINTS, ACCESSORIES AND ACCESSORY TYPE ON ARCHITECTURAL DRAWINGS. 1. PROVIDE 15-MINUTE THERMAL BARRIER, TYPICALLY MINIMUM $rac{1}{2}$ -INCH THICK INTERIOR GYPSUM WALL BOARD, TO SEPARATE FOAM PLASTIC INSULATION FROM INTERIOR. 2. NONCOMBUSTIBLE TYPE CONSTRUCTION: PROVIDE FULL WIDTH FIRESTOPS AT FLOOR LINES, TYPICALLY 4 PCF (64 KG/M3) SEMIRIGID MINERAL WOOL, WHERE METAL FRAMING RUNS CONTINUOUSLY PAST FLOOR LINE AND PROVIDE MINIMUM 3/4-INCH (19 3. FIRE RESISTANCE RATED NON-LOAD BEARING WALL ASSEMBLY: PROVIDE ¾ OR 7 /8-INCH (19 OR 22 MM) UNIFORM STUCCO

THICKNESS. REFER TO STO GUIDE DETAILS FOR ONE-HOUR NON-LOAD BEARING FIRE-RESISTIVE RATED WALL ASSEMBLY.

2. STUCCO SHALL BE APPLIED IN 2 COATS, SCRATCH AND BROWN COAT, TO ACHIEVE THE PRESCRIBED THICKNESS.

1. GPS INSULATION: COMPLIANCE WITH ASTM C578 TYPE 1 REQUIREMENTS AND LISTED BY AN APPROVED AGENCY

. 5. VAPOR IMPERMEABLE, WATER VAPOR PERMEANCE, ASTM E96, METHOD A: LESS THAN 0.1 PERM [5.73 NG/(PA·S·M2

6. SURFACE BURNING, ASTM E 84: FLAME SPREAD LESS THAN 25, SMOKE DEVELOPED, LESS THAN 450, CLASS A BUILDING

2. XPS INSULATION: COMPLIANT WITH ASTM C 578 TYPE IV REQUIREMENTS AND LISTED BY AN APPROVED AGENCY

G. STUCCO THICKNESS (DOES NOT INCLUDE PRIMER OR TEXTURED FINISH COAT)

3. THICKNESS SHALL BE UNIFORM THROUGHOUT THE WALL AREA.

1. COMPLIANT WITH ICC ES ACCEPTANCE CRITERIA AC 212 (ICC ESR 1233)

2. MATERIAL AIR LEAKAGE RESISTANCE, ASTM E 2178: LESS THAN 0.02 L/Ś·M2

3. ASSEMBLY AIR LEAKAGE RESISTANCE, ASTM E 2357: LESS THAN 0.2 L/S·M2

7. TENSILE ADHESION, ASTM C 297: GREATER THAN 15 PSI (103 KPA)

/8-INCH (19 OR 22 MM)

/8-INCH (22 MM).

(0.004 CFM/FT2

(0.04 CFM/FT2 AT 1.57 PSF)

AT 1.57 PSF)

STUCCO THICKNESS SHALL NOT EXCEED 7

1.03 PERFORMANCE REQUIREMENTS

B. AIR AND WATER-RESISTIVE BARRIER

A. CONTINUOUS INSULATION

1. APPLICATION TO METAL PLASTER BASES: STUCCO THICKNESS SHALL BE UNIFORM %-INCH OR 7

4. WATER VAPOR PERMEANCE, ASTM E 96, METHOD B: GREATER THAN 10 PERMS [573 NG/(PA·S·M2

1. NFPA 285, STANDARD METHOD OF TEST FOR THE EVALUATION OF FLAMMABILITY CHARACTERISTICS OF EXTERIOR NON-LOADBEARING

1. SURFACE BURNING, ASTM E 84: FLAME SPREAD LESS THAN 25, SMOKE DEVELOPED LESS THAN 450, CLASS A BUILDING 2. FLAME PROPAGATION, NFPA 285: MEETS REQUIREMENTS FOR USE ON NONCOMBUSTIBLE (TYPES I.II.III, AND IV) CONSTRUCTION. C. STUCCO BASE (SELECT ONE) 1. STUCCO SCRATCH AND BROWN COAT MATERIAL IN COMPLIANCE WITH ASTM C 926 AND MANUFACTURED OR LISTED BY STO CORP. (SEE ADDENDUM) D. PRIMERS (SELECT ONE 1. ALKALINE RESISTANT PRIMER FOR FRESHLY PLACED (MINIMUM 4 DAY OLD) STUCCO SURFACES: A. RESISTANT TO ALKALINE SURFACES WITH PH OF 13 OR LESS B. SURFACE BURNING, ASTM E 84: FLAME SPREAD LESS THAN 25, SMOKE DEVELOPED LESS THAN 450, CLASS A BUILDING MATERIAL C. VOC: LESS THAN 50 G/L, COMPLIANT WITH SOUTH COAST AQMD RULE 1113 FOR ARCHITECTURAL COATINGS 2. ACRYLIC PRIMER FOR FULLY CURED (MINIMUM 28 DAY OLD OR PH LESS THAN 10) STUCCO SURFACES: A. SURFACE BURNING, ASTM E 84: FLAME SPREAD LESS THAN 25, SMOKE DEVELOPED LESS THAN 450, CLASS A BUILDING MATERIAL B. VOC: LESS THAN 50 G/L, COMPLIANT WITH SOUTH COAST AQMD RULE 1113 FOR ARCHITECTURAL COATINGS E. TEXTURED FINISHES (SELECT ONE) 1. LOTUS-EFFECT® TECHNOLOGY FINISH (STOLIT® LOTUSAN® A. SUPER-HYDROPHOBIC TEXTURED FINISH WITH LOTUS-EFFECT TECHNOLOGY B. ACCELERATED WEATHERING, ASTM G154: 2000 HOURS, NO BLISTERING, CHECKING, CRACKING, CRAZING, OR OTHER DELETERIOUS EFFECTS C. WATER VAPOR PERMEABILITY, ASTM E96, METHOD B: > 30 PERMS [(1172 NG/(PA·S·M2 D. SURFACE BURNING, ASTM E84: FLAME SPREAD LESS THAN 25, SMOKE DEVELOPED LESS THAN 450, CLASS BUILDING E. VOC: LESS THAN 50 G/L, COMPLIANT WITH SOUTH COAST AQMD RULE 1113 FOR ARCHITECTURAL COATINGS 2. HYDROPHOBIC FINISH (STOLIT HDP A. ACCELERATED WEATHERING, ASTM G155: 2000 HOURS, NO BLISTERING, CHECKING, CRACKING, CRAZING, OR OTHER B. WATER VAPOR PERMEABILITY, ASTM E96, METHOD B: > 40 PERMS [(2288 NG/(PA·S·M2 C. SURFACE BURNING, ASTM E84: FLAME SPREAD LESS THAN 25, SMOKE DEVELOPED LESS THAN 450, CLASS A D. VOC: LESS THAN 50 G/L, COMPLIANT WITH SOUTH COAST AQMD RULE 1113 FOR ARCHITECTURAL COATINGS 3. SILICONE ENHANCED ELASTOMERIC FINISH (STO POWERFLEX SILCO) STO GUIDE SPECIFICATION 6300 - STOPOWERWALL CI STO GUIDE SPECIFICATION 6300 STO CORP. IS AN ISO 9001AND 14001 REGISTERED COMPANY PAGE 8 OF 25 CREATED: MAY 2013 A. ACCELERATED WEATHERING, ASTM G154: 2000 HOURS, NO BLISTERING, CHECKING, CRACKING, CRAZING, OR OTHER B. WATER VAPOR PERMEABILITY, ASTM E96, METHOD B: > 10 PERMS [(574 NG/(PA·S·M2 C. SURFACE BURNING, ASTM E84: FLAME SPREAD LESS THAN 25, SMOKE DEVELOPED LESS THAN 450, CLASS A **BUILDING MATERIAL** D. VOC: LESS THAN 50 G/L, COMPLIANT WITH SOUTH COAST AQMD RULE 1113 FOR ARCHITECTURAL COATINGS 4. ELASTOMERIC FINISH (STO POWERFLEX) A. ACCELERATED WEATHERING, ASTM G154: 2000 HOURS, NO BLISTERING, CHECKING, CRACKING, CRAZING, OR OTHER DELETERIOUS EFFECTS B. WATER VAPOR PERMEABILITY, ASTM E96, METHOD B: > 5 PERMS [(287 NG/(PA·S·M2 C. SURFACE BURNING, ASTM E84: FLAME SPREAD LESS THAN 25, SMOKE DEVELOPED LESS THAN 450, CLASS A **BUILDING MATERIAL** D. VOC: LESS THAN 50 G/L, COMPLIANT WITH SOUTH COAST AQMD RULE 1113 FOR ARCHITECTURAL COATINGS 5. FLEXIBLE ACRYLIC FINISH (STOPOWERWALL) A. ACCELERATED WEATHERING, ASTM G154: 2000 HOURS, NO BLISTERING, CHECKING, CRACKING, CRAZING, OR OTHER DELETERIOUS EFFECTS B. WATER VAPOR PERMEABILITY, ASTME 96, METHOD B: > 15 PERMS [(861 NG/(PA·S·M2 C. SURFACE BURNING, ASTM E84: FLAME SPREAD LESS THAN 25, SMOKE DEVELOPED LESS THAN 450, CLASS A **BUILDING MATERIAL** D. VOC: LESS THAN 50 G/L, COMPLIANT WITH SOUTH COAST AQMD RULE 1113 FOR ARCHITECTURAL COATINGS 6. ACRYLIC FINISH (STOLIT, STOLIT X, STO ESSENCE DPR) A. ACCELERATED WEATHERING, ASTM G154 OR G 155: 2000 HOURS, NO BLISTERING, CHECKING, CRACKING, CRAZING, OR OTHER DELETERIOUS EFFECTS B. WATER VAPOR PERMEABILITY, ASTM E96, METHOD B: > 10 PERMS [572 NG/(PA·S·M2 C. SURFACE BURNING, ASTM E84: FLAME SPREAD LESS THAN 25, SMOKE DEVELOPED LESS THAN 450. CLASS A BUILDING MATERIAL D. VOC: LESS THAN 50 G/L, COMPLIANT WITH SOUTH COAST AQMD RULE 1113 FOR ARCHITECTURAL COATINGS H PRE-FORMED VENEER UNITS (SELECT ONE) 1. STOCAST BRICK OR STOCAST WOOD A. ACCELERATED WEATHERING, ASTM G154 OR G 155: 2000 HOURS, NO BLISTERING, CHECKING, CRACKING, CRAZING OR OTHER DELETERIOUS EFFECTS B. WATER VAPOR PERMEABILITY, ASTM E96, METHOD B: > 10 PERMS [572 NG/(PA·S·M2 C. SURFACE BURNING, ASTM E84: FLAME SPREAD LESS THAN 25, SMOKE DEVELOPED LESS THAN 450, CLASS A BUILDING MATERIAL L SPECIALTY FINISHES (SELECT ONE) 1. STO SIGNATURE SERIES OR STO SPECIALTY AGGREGATE FINISHES A. SURFACE BURNING, ASTM E84: FLAME SPREAD LESS THAN 25, SMOKE DEVELOPED LESS THAN 450, CLASS A **BUILDING MATERIAL** A. MANUFACTURER'S SPECIFICATIONS, DETAILS, INSTALLATION INSTRUCTIONS AND PRODUCT DATA. B. MANUFACTURER'S CODE COMPLIANCE REPORT AND UL LISTING FOR CONTINUOUS INSULATION COMPONENT STO GUIDE SPECIFICATION 6300 – STOPOWERWALL CI STO GUIDE SPECIFICATION 6300 STO CORP. IS AN ISO 9001AND 14001 REGISTERED COMPANY PAGE 9 OF 25 CREATED: MAY 2013 REVISION 014: OCTOBER 2023 C. MANUFACTURER'S CODE COMPLIANCE REPORT FOR AIR AND WATER-RESISTIVE BARRIER D. MANUFACTURER'S NEPA 285 ASSEMBLY REPORT OR ICC ESR INDICATING COMPLIANCE OF STUCCO ASSEMBLY, INCLUDING CONTINUOUS INSULATION, AIR AND WATER-RESISTIVE BARRIER, AND DRAINAGE MAT, WITH REQUIREMENTS OF NFPA 285 FOR USE ON TYPES I, II, III, AND IV CONSTRUCTION E. MANUFACTURER'S STANDARD WARRANTY F. SAMPLES FOR APPROVAL AS DIRECTED BY ARCHITECT OR OWNER G. FASTENER MANUFACTURER'S PULL-OUT OR WITHDRAWAL CAPACITY FOR APPLICABLE SUBSTRATES H. PREPARE AND SUBMIT PROJECT-SPECIFIC DETAILS (WHEN REQUIRED BY CONTRACT DOCUMENTS) 1.07 QUALITY ASSURANCE A. MANUFACTURER REQUIREMENTS 1. STUCCO AND AIR BARRIER PRODUCTS MANUFACTURER FOR A MINIMUM OF TWENTY (20) YEARS. 2. STUCCO FINISH PRODUCTS AND AIR AND WATER-RESISTIVE BARRIER PRODUCTS MANUFACTURED UNDER ISO 9001 QUALITY SYSTEM AND 14001 ENVIRONMENTAL MANAGEMENT SYSTEM. B. CONTRACTOR REQUIREMENTS 1. LICENSED, INSURED AND ENGAGED IN APPLICATION OF PORTLAND CEMENT STUCCO FOR A MINIMUM OF THREE (3) YEARS. 2. KNOWLEDGEABLE IN THE PROPER USE AND HANDLING OF STO MATERIALS. 3. EMPLOY SKILLED MECHANICS WHO ARE EXPERIENCED AND KNOWLEDGEABLE IN PORTLAND CEMENT STUCCO APPLICATION, AND FAMILIAR WITH THE REQUIREMENTS OF THE SPECIFIED WORK. 4. SUCCESSFUL COMPLETION OF MINIMUM OF THREE (3) PROJECTS OF SIMILAR SIZE AND COMPLEXITY TO THE SPECIFIED PROJECT. 5. PROVIDE THE PROPER EQUIPMENT, MANPOWER AND SUPERVISION ON THE JOB SITE TO INSTALL THE SYSTEM IN COMPLIANCE WITH STO'S PUBLISHED SPECIFICATIONS AND DETAILS AND THE PROJECT PLANS AND SPECIFICATIONS. C. INSULATION BOARD MANUFACTURER REQUIREMENTS 1. LISTED BY AN APPROVED AGENCY. LABEL INSULATION BOARD WITH INFORMATION REQUIRED BY STO, THE APPROVED LISTING AGENCY, AND THE APPLICABLE BUILDING CODE. 1. CONSTRUCT FULL-SCALE MOCK-UP OF TYPICAL STUCCO/WINDOW WALL ASSEMBLY WITH SPECIFIED TOOLS AND MATERIALS AND TEST AIR AND WATER INFILTRATION AND STRUCTURAL PERFORMANCE IN ACCORDANCE WITH ASTM E283, E331 AND E330, RESPECTIVELY, THROUGH INDEPENDENT LABORATORY. MOCK-UP SHALL COMPLY WITH REQUIREMENTS OF PROJECT SPECIFICATIONS. WHERE MOCK-UP IS TESTED AT JOB SITE MAINTAIN APPROVED MOCK-UP AT SITE AS REFERENCE STANDARD. IF TESTED OFF-SITE ACCURATELY RECORD CONSTRUCTION DETAILING AND SEQUENCING OF APPROVED MOCK-UP FOR REPLICATION DURING CONSTRUCTION. 2. CONDUCT AIR BARRIER ADHESION TESTING IN ACCORDANCE WITH ASTM D4541. 3. CONDUCT AIR BARRIER ASSEMBLY TESTING IN ACCORDANCE WITH ASTM E783. 4. VERIFY ADEQUACY OF PULL-OUT OR WITHDRAWAL CAPACITY OF FASTENERS USED FOR FRAME CONSTRUCTION WITH MANUFACTURER IN RELATION TO NEGATIVE DESIGN WIND PRESSURES. 5. CONDUCT PH TESTING TO CHECK STUCCO SURFACE ALKALINITY BEFORE APPLICATION OF PRIMER OR FINISH MATERIALS. WHERE ALKALINE RESISTANT PRIMER IS USED PH TESTING MAY BE WAIVED. STO GUIDE SPECIFICATION 6300 – STOPOWERWALL CI STO GUIDE SPECIFICATION 6300 STO CORP. IS AN ISO 9001AND 14001 REGISTERED COMPANY PAGE 10 OF 25 CREATED: MAY 2013 REVISION 014: OCTOBER 2023 6. CONDUCT WET SEALANT ADHESION TESTING IN ACCORDANCE WITH SEALANT MANUFACTURER'S FIELD QUALITY CONTROL TEST PROCEDURE. 7. NOTIFY DESIGN PROFESSIONAL MINIMUM 7-DAYS PRIOR TO TESTING. E. INSPECTIONS 1. PROVIDE INDEPENDENT THIRD-PARTY INSPECTION WHERE REQUIRED BY CODE OR CONTRACT DOCUMENTS. 2. CONDUCT INSPECTIONS IN ACCORDANCE WITH CODE REQUIREMENTS AND CONTRACT DOCUMENTS. 1.08 DELIVERY, STORAGE AND HANDLING A. DELIVER ALL MATERIALS IN THEIR ORIGINAL SEALED CONTAINERS BEARING MANUFACTURER'S NAME AND IDENTIFICATION OF PRODUCT. B. PROTECT INSULATION MATERIALS FROM PROLONGED UV EXPOSURE, KEEP AWAY FROM SOURCES OF HEAT, SPARKS, FLAME, FLAMMABLE OR VOLATILE MATERIALS, STORE ON A CLEAN FLAT SURFACE, OFF THE GROUND IN A DRY AREA C. PROTECT COATINGS (PAIL PRODUCTS) FROM FREEZING AND TEMPERATURES IN EXCESS OF 90 F (32 C). STORE AWAY FROM DIRECT D. PROTECT PORTLAND CEMENT-BASED MATERIALS (BAG PRODUCTS) FROM MOISTURE AND HUMIDITY. STORE UNDER COVER OFF THE

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B. COMPLIANT WITH US EPA 40 CFR 59 FOR WATERPROOFING SEALER

C. COMPLIANT WITH SOUTH COAST AQMD RULE 1113 FOR BUILDING ENVELOPE COATING

CREATED: MAY 2013 REVISION 014: OCTOBER 2023

A. LESS THAN 50 G/L

B. DRAINAGE MAT

IN A DRY LOCATION

1.09 PROJECT/SITE CONDITIONS

E. STORE AND HANDLE ALL PRODUCTS AS DIRECTED ON LABELING.

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CONDITIONS EXTEND WORKING TIME AND RETARD DRYING AND MAY REQUIRE ADDED MEASURES OF PROTECTION AGAINST WIND, DUST, DIRT, A. MAINTAIN AMBIENT AND SURFACE TEMPERATURES ABOVE 40 \Box F (4 \Box C) DURING APPLICATION AND FOR 24 HOURS AFTER SET OF STUCCO, AND APPLICATION OF AIR AND WATER-RESISTIVE BARRIER AND FINISH MATERIALS. B. PROVIDE SUPPLEMENTARY HEAT FOR INSTALLATION IN TEMPERATURES LESS THAN 40 ☐ F (4 ☐ C) SUCH THAT MATERIAL TEMPERATURES MAINTAINED AS IN 1.09A. PREVENT CONCENTRATION OF HEAT ON UNCURED STUCCO AND VENT FUMES AND OTHER PRODUCTS OF COMBUSTION TO THE OUTSIDE TO PREVENT CONTACT WITH STUCCO. C. PREVENT UNEVEN OR EXCESSIVE EVAPORATION OF MOISTURE FROM STUCCO DURING HOT, DRY OR WINDY WEATHER. FOR INSTALLATION UNDER ANY OF THESE CONDITIONS PROVIDE SPECIAL MEASURES TO PROPERLY MOIST CURE THE STUCCO. DO NOT INSTALL STUCCO IF AMBIENT TEMPERATURES ARE EXPECTED TO RISE ABOVE 100°F (38°C) WITHIN A 24-HOUR PERIOD. D. PROVIDE PROTECTION OF SURROUNDING AREAS AND ADJACENT SURFACES FROM APPLICATION OF MATERIALS 1.10 COORDINATION/SCHEDULING (THE WORK IN THIS SECTION REQUIRES CLOSE COORDINATION WITH RELATED SECTIONS AND TRADES. SEQUENCE WORK TO PROVIDE CONSTRUCTION MATERIALS FROM WEATHER DETERIORATION AND FROM DAMAGE FROM TRADES) A. PROTECT CONTINUOUS INSULATION FROM PROLONGED UV EXPOSURE. PROTECT WITH WALL COVERING WITHIN 60 DAYS OF INSTALLATION. STO GUIDE SPECIFICATION 6300 – STOPOWERWALL CI STO GUIDE SPECIFICATION 6300 STO CORP. IS AN ISO 9001AND 14001 REGISTERED COMPANY PAGE 11 OF 25 CREATED: MAY 2013 REVISION 014: OCTOBER 2023 B. PROTECT SHEATHING FROM CLIMATIC CONDITIONS TO PREVENT WEATHER DAMAGE UNTIL THE INSTALLATION OF THE AIR AND WATERRESISTIVE BARRIER. C. INSTALL DIVERTER FLASHINGS WHEREVER WATER CAN ENTER THE WALL ASSEMBLY TO DIRECT WATER TO THE EXTERIOR D. COORDINATE INSTALLATION OF FOUNDATION WATERPROOFING, ROOFING MEMBRANE, WINDOWS, DOORS AND OTHER WALL PENETRATIONS TO PROVIDE A CONTINUOUS AIR BARRIER AND CONTINUOUS MOISTURE PROTECTION. PROVIDE PROTECTION OF ROUGH OPENINGS BEFORE INSTALLING WINDOWS, DOORS, AND OTHER PENETRATIONS THROUGH THE WALL AND PROVIDE SILL FLASHING. COORDINATE INSTALLATION AIR AND WATER-RESISTIVE BARRIER COMPONENTS WITH WINDOW AND DOOR INSTALLATION TO PROVIDE WEATHER PROOFING OF THE STRUCTURE AND TO PREVENT MOISTURE INFILTRATION AND EXCESS AIR INFILTRATION. E. INSTALL WINDOW AND DOOR HEAD FLASHING IMMEDIATELY AFTER WINDOWS AND DOORS ARE INSTALLED F. PROTECT AIR AND WATER-RESISTIVE BARRIER WITH STUCCO CLADDING WITHIN 180 DAYS OF INSTALLATION, 90 DAYS IF STOGUARD VAPORSEAL IS USED. G. PROTECT DRAINAGE MAT WITH STUCCO CLADDING WITHIN 30 DAYS OF INSTALLATION. H. COMMENCE THE STUCCO INSTALLATION AFTER COMPLETION OF ALL FLOOR AND ROOF CONSTRUCTION, AND OTHER CONSTRUCTION THAT IMPOSES DEAD LOADS ON THE WALLS TO PREVENT EXCESSIVE DEFLECTION (AND POTENTIAL CRACKING) OF THE STUCCO. I. SEQUENCE INTERIOR WORK SUCH AS DRYWALL INSTALLATION PRIOR TO STUCCO INSTALLATION TO PREVENT STUD DISTORTION (AND CRACKING) OF THE STUCCO J. PROVIDÉ SITE GRADING SUCH THAT THE STUCCO TERMINATES ABOVE EARTH GRADE MINIMUM 4-INCHES (100 MM) AND ABOVE FINISHED GRADE (PAVERS/SIDEWALK) MINIMUM 2-INCHES (51 MM). PROVIDE INCREASED CLEARANCE IN FREÈZE/THÁW CLIMATE K. INSTALL COPINGS AND SEALANT IMMEDIATELY AFTER INSTALLATION OF THE STUCCO AND WHEN FINISH COATINGS ARE DRY. L. ATTACH PENETRATIONS THROUGH STUCCO TO STRUCTURAL SUPPORT AND PROVIDE AIR-TIGHT AND WATERTIGHT SEALS AT PENETRATIONS. 1.11 WARRANTY A. PROVIDE MANUFACTURER'S STANDARD WARRANTY. PART 2 PRODUCTS 2.01 MANUFACTURERS A. AIR AND WATER-RESISTIVE BARRIER, DRAINAGE MAT, PORTLAND CEMENT STUCCO, STUCCO PRIMERS, STUCCO FINISHES, JOINT SEALANT 1. STO CORP., 3800 CAMP CREEK PARKWAY, BUILDING 1400, SUITE 120. ATLANTA, GA 30331 B. CONTINUOUS INSULATION 1. GPS BOARD: ATLAS MOLDED PRODUCTS, A DIVISION OF ATLAS ROOFING CORPORATION, 8240 BYRON CENTER SW, BYRON CENTER, MICHIGAN 49315 2. XPS BOARD: DUPONT, 974 CENTRE ROAD, WILMINGTON, DE 19805 STO GUIDE SPECIFICATION 6300 – STOPOWERWALL CI STO GUIDE SPECIFICATION 6300 STO CORP. IS AN ISO 9001AND 14001 REGISTERED COMPANY PAGE 12 OF 25 CREATED: MAY 2013 REVISION 014: OCTOBER 2023 (NOTE: OTHER SOURCES FOR PORTLAND CEMENT STUCCO MAY BE PERMISSIBLE - REFER TO STO LISTED STUCCO PRODUCTS) 2.02 AIR AND WATER-RESISTIVE BARRIER A. STOGUARD DETAIL COMPONENTS: 1. STO GOLD FILL -- READY MIXED ACRYLIC BASED FLEXIBLE JOINT TREATMENT FOR ROUGH OPENING PROTECTION, JOINT TREATMENT OF WALL SHEATHING, CMU CRACK REPAIR, AND DETAIL COMPONENT FOR SHIPLAF CONNECTIONS WITH FLASHING, WEEP SCREED, AND SIMILAR SHIP LAP DETAILS. 2. STO GOLD COAT® -- READY MIXED VAPOR PERMEABLE AIR AND WATER-RESISTIVE BARRIER COATING ® -- READY MIXED VAPOR PERMEABLE AIR AND WATER-RESISTIVE BARRIER COATING 4. STOGUARD® **VAPORSEAL®** - READY MIXED VAPOR IMPERMEABLE AIR AND WATER-RESISTIVE BARRIER COATING 5. STOGUARD MESH-- NOMINAL 4.2 OZ/YD2), SELF-ADHESIVE, FLEXIBLE, SYMMETRICAL, INTERLACED GLASS FIBER MESH, WITH ALKALINE RESISTANT COATING FOR COMPATIBILITY WITH STO MATERIALS, USED WITH STO GOLD FILL TO REINFORCE ROUGH OPENINGS, INSIDE AND OUTSIDE CORNERS, SHEATHING JOINTS, AND SHIPLAP CONNECTIONS WITH FLASHING, WEEP SCREED, AND SIMILAR SHINGLE LAP DETAILS 6. STOGUARD FABRIC - NONWOVEN CLOTH REINFORCEMENT USED WITH AWRB COATING FOR ROUGH OPENING PROTECTION, JOINT TREATMENT OF WALL SHEATHING, AND DETAIL COMPONENT FOR SHIPLAP CONNECTIONS WITH FLASHING, WEEP SCREED, STOGUARD FABRIC FOR QUICKER INSTALLATION 8. STOGUARD PRIMER - PRIMER FOR USE WITH STOGUARD CONFORMABLE MEMBRANE (NOTE: VERIFY ADHESION TO FOUNDATION WATERPROOFING, ROOF MEMBRANE, AND OTHER PROPRIETARY SUBSTRATES WITH LAB AND/OR FIELD ADHESION TESTS) B. STOGUARD CONFORMABLE MEMBRANE - SELF-ADHERED MEMBRANE FLASHING FOR USE OVER PREPARED VERTICAL ABOVEGRADE CONCRETE, CONCRETE MASONRY, BRICK MASONRY, WOOD SHEATHING, GLASS MAT GYPSUM SHEATHING, AND CEMENTITIOUS SHEATHING USED TO • SEAL JOINTS AND SEAMS IN WALL SHEATHING • SEAL STATIC JOINTS BETWEEN DISSIMILAR MATERIALS • FLASH EXTERIOR WALL OPENINGS AND PROTECT ROUGH OPENINGS • SEAL BETWEEN WINDOW FLANGE AND WALL SHEATHING • CONNECT TO ABOVE GRADE FOUNDATION WATERPROOFING CONNECT TO ROOF MEMBRANE • SEAL AROUND WALL PENETRATIONS SUCH AS PIPES, SCUPPERS, VENTS • BACK MASONRY WALL TIES • SEAL DYNAMIC JOINTS IN WALL CONSTRUCTION C. STO RAPIDGUARD® - ONE COMPONENT STPE RAPID DRYING GUN-APPLIED TREATMENT FOR SHEATHING JOINTS, ROUGH OPENINGS, SEAMS, CRACKS, PENETRATIONS AND OTHER STATIC TRANSITIONS IN ABOVE GRADE WALL CONSTRUCTION SUCH AS: SHINGLE LAP OVER FLASHING, WALL TO BALCONY FLOOR SLAB OR CEILING, AND THROUGH WALL PENETRATIONS - PIPES. ELECTRICAL BOXES, AND SCUPPER PENETRATIONS CHOOSE ONE COATING AND SELECT APPLICATION BY SUBSTRATE (B1A, B2A, OR B3), MEDIUM-BUILD (B1B, B2B, OR B3), OR HIGH-BUILD (B1C, B2C, OR B3) AS INDICATED B. AIR & WATER-RESISTIVE BARRIER COATING 1. STO GOLD COAT: READY MIXED VAPOR PERMEABLE AIR AND WATER-RESISTIVE BARRIER COATING APPLIED. A. BY SUBSTRATE AS FOLLOWS: • GLASS MAT GYPSUM: APPLY ONE COAT AT MINIMUM 10 MILS WFT • PLYWOOD: APPLY ONE COAT AT MINIMUM 10 MILS WFT STO GUIDE SPECIFICATION 6300 - STOPOWERWALL CI STO GUIDE SPECIFICATION 6300 STO CORP. IS AN ISO 9001AND 14001 REGISTERED COMPANY PAGE 13 OF 25 CREATED: MAY 2013 REVISION 014: OCTOBER 2023 • CEMENT BOARD: APPLY ONE COAT AT MINIMUM 10 MILS WFT • OSB: APPLY ONE OR TWO COATS AT MINIMUM 20 MILS WFT. IF APPLIED BY ROLLER, APPLY TWO COATS. TOUCH UP ANY BARE SPOTS AND RAISED OSB STRANDS. • CMU: APPLY TWO OR THREE COATS AT MINIMUM 20-60 MILS WFT CONCRETE: APPLY ONE COAT AT MINIMUM 10 MILS WFT B. TO A MEDIUM BUILD IN ONE OR TWO COATS TO ACHIEVE MINIMUM 20 MILS WFT. IF APPLIED BY ROLLER APPLY TWO COATS TO ACHIEVE MINIMUM 20 MILS WET, FOR CMU SUBSTRATES APPLY TWO OR THREE COATS TO ACHIEVE 20-60. C. TO A HIGH FILM BUILD IN TWO OR THREE COATS TO ACHIEVE 40 MILS WFT. IF APPLIED BY ROLLER APPLY THREE OR MORE COATS AS NEEDED. FOR CMU SUBSTRATES APPLY MULTIPLE COATS TO ACHIEVE 40-60 MILS WET. 2. STO AIRSEAL: READY MIXED VAPOR PERMEABLE AIR AND WATER-RESISTIVE BARRIER COATING APPLIED A BY SUBSTRATE AS FOLLOWS: • GLASS MAT GYPSUM: APPLY ONE COAT AT MINIMUM 20 MILS WFT CEMENT BOARD: APPLY ONE COAT AT MINIMUM 20 MILS WFT • OSB: APPLY ONE OR TWO COATS AT MINIMUM 20 MILS WFT. IF APPLIED BY ROLLER, APPLY TWO COATS. TOUCH UP ANY BARE SPOTS AND RAISED OSB STRANDS. • PLYWOOD: APPLY ONE COAT AT MINIMUM 20 MILS WFT • CMU: APPLY TWO OR THREE COATS AT MINIMUM 20-65 MILS WFT CONCRETE: APPLY ONE COAT AT MINIMUM 20 MILS WFT B. TO A MEDIUM-BUILD IN ONE OR TWO COATS TO ACHIEVE MINIMUM 40 MILS WFT. IF APPLIED BY ROLLER APPLY TWO COATS TO ACHIEVE MINIMUM 40 MILS WFT. FOR CMU SUBSTRATES APPLY TWO OR THREE COATS TO ACHIEVE 40-65 C. TO A HIGH-BUILD IN ONE, TWO OR THREE COATS TO ACHIEVE MINIMUM 65 MILS WFT. IF APPLIED BY ROLLER APPLY MINIMUM THREE COATS TO ACHIEVE MINIMUM 65 MILS WFT. 3. STOGUARD VAPORSEAL: CLASS 1 VAPOR RETARDER COATING FOR USE OVER PREPARED VERTICAL ABOVE-GRADE CONCRETE. CONCRETE MASONRY, BRICK MASONRY, WOOD SHEATHING, CEMENTITIOUS SHEATHING, AND GLASS MAT GYPSUM SHEATHING, APPLIED BY AIRLESS SPRAY IN ONE OR TWO COATS TO ACHIEVE MINIMUM 80 MILS TOTAL WFT 2.03 CONTINUOUS INSULATION (DUPONT™ STYROFOAM™ IS SUPPLIED BY OTHERS) A. STO GPS BOARD, NOMINAL 1.0 LB/FT3) GRAPHITE ENHANCED POLYSTYRENE RIGID FOAM PLASTIC INSULATION BOARD IN COMPLIANCE WITH ASTM C578 TYPE I REQUIREMENTS, R-4.7 PER INCH (RSI – 0.83 PER 25MM), LISTED, LABELLED, AND FURNISHED IN ACCORDANCE WITH SECTION 1.07C.

B. DUPONT™ STYROFOAM™ BRAND ST-100 TYPE EXTRUDED POLYSTYRENE (XPS) RIGID INSULATION BOARD IN COMPLIANCE WITH ASTM

A. STO TURBOSTICK® - SINGLE COMPONENT POLYURETHANE FOAM ADHESIVE FOR ATTACHING FOAM INSULATION AND FILLING SEAMS AND

ONE LAYER OF GRADE D KRAFT BUILDING PAPER, OR PAPER-BACKED STUCCO LATH CONFORMING WITH PARAGRAPH 2.07.

C578 IN COMPLIANCE WITH ASTM C578 TYPE X REQUIREMENTS.

2.05 SHEET WATER-RESISTIVE BARRIER (SUPPLIED BY OTHERS)

A. MINIMUM NO. 15 ASPHALT SATURATED FELT COMPLYING WITH ASTM D226, TYPE 1, OR

2.04 FOAM ADHESIVE, CI SEAM AND GAP FILLER

GAPS IN INSULATION BOARD SURFACE.

(WEATHER CONDITIONS AFFECT APPLICATION, DRYING TIME AND CURING REQUIREMENTS. HOT OR DRY CONDITIONS LIMIT WORKING TIME AND

ACCELERATE DRYING AND MAY REQUIRE ADJUSTMENTS IN APPLICATION, SCHEDULING AND CURING TO ACHIEVE DESIRED RESULTS; COOL OR

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A. BASE COAT (SELECT ONE) 1. STO BTS XTRA - LIGHT WEIGHT ONE COMPONENT POLYMER MODIFIED CEMENT-BASED EXTRA HIGH BUILD BASE COAT

2. STO BTS PLUS - ONE COMPONENT POLYMER MODIFIED CEMENT-BASED HIGH BUILD BASE COAT MATERIAL 3 STO PRIMER/ADHESIVE-B - ONE COMPONENT POLYMER MODIFIED CEMENT-BASED BASE COAT MATERIAL 4. STO PRIMER/ADHESIVE - TWO COMPONENT ACRYLIC BASED BASE COAT MATERIAL FIELD MIXED WITH PORTLAND CEMENT 5 STO REP – READY MIXED NON-CEMENTITIOUS FIBER REINFORCED BASE COAT MATERIAL 6 STOARMAT CLASSIC PLUS - READY MIXED NON-CEMENTITIOUS FIBER REINFORCED HIGH BUILD BASE COAT MATERIAL 7 STO FLEXYL - TWO COMPONENT FIBER REINFORCED ACRYLIC-BASED WATERPROOF BASE COAT MATERIAL FIFLD MIXED WITH PORTLAND CEMENT (FOR USE AS A WATERPROOF BASE COAT TO WATERPROOF FOUNDATIONS, PARAPETS, SPLASH AREAS, TRIM AND OTHER PROJECTING ARCHITECTURAL FEATURES).

1. STO MESH - NOMINAL 4.5 OZ./YD2 (153 G/M2 , SYMMETRICAL, INTERLACED OPEN-WEAVE GLASS FIBER MESH MADE WITH ALKALINE RESISTANT COATING FOR COMPATIBILITY WITH STO MATERIALS. 2.14 PRIMER (SELECT ONE) A. STOPRIME HOT - ACRYLIC-BASED PRIMER/SEALER FOR FRESHLY PLACED (MINIMUM 4 DAY OLD) AND HIGH PH STUCCO SURFACES. B. STOPRIME SAND - ACRYLIC-BASED TINTED, SANDED PRIMER FOR FULLY CURED (MINIMUM 28 DAY OLD OR PH LESS THAN 10) STUCCO

C. STOPRIME - ACRYLIC-BASED TINTED PRIMER FOR FULLY CURED (MINIMUM 28 DAY OLD OR PH LESS THAN 10) STUCCO SURFACES. (NOTE: PRIMING IS RECOMMENDED TO PROVIDE UNIFORM SUBSTRATE ABSORPTION AND FINISH COLOR, TO IMPROVE ADHESION AND WATER RESISTANCE, AND TO RETARD EFFLORESCENCE. STOPRIME HOT MAY BE APPLIED 48 HOURS AFTER MOIST CURING THE BROWN COAT. OTHER PRIMERS REQUIRE 28 DAYS CURING OF BROWN COAT OR PH LESS THAN 10 BEFORE APPLICATION. 2.15 FINISH (SELECT ONE)

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B REINFORCING MESH

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A. STOLIT LOTUSAN FINISH - INTEGRALLY COLORED, FACTORY BLENDED TEXTURED LOTUS-EFFECT TECHNOLOGY WALL FINISH WITH GRADED MARBLE AGGREGATE B. STOLIT HDP™ FINISH - INTEGRALLY COLORED, FACTORY BLENDED TEXTURED HYDROPHOBIC WALL FINISH WITH GRADED MARBLE C. STO POWERFLEX SILCO FINISH - INTEGRALLY COLORED, FACTORY BLENDED, SILICONE ENHANCED ELASTOMERIC TEXTURED WALL FINISH

GRADED MARBLE AGGREGATE D. STO POWERFLEX FINISH - INTEGRALLY COLORED, FACTORY BLENDED, ELASTOMERIC TEXTURED WALL FINISH WITH GRADED MARBLE AGGREGATE

E. STOPOWERWALL FINISH - INTEGRALLY COLORED, FACTORY BLENDED, FLEXIBLE ACRYLIC TEXTURED WALL FINISH WITH GRADED MARBLE AGGREGATE. F. STOLIT FINISH - INTEGRALLY COLORED, FACTORY BLENDED, ACRYLIC TEXTURED WALL FINISH WITH GRADED MARBLE AGGREGATE G. STOLIT X FINISH – ACRYLIC-BASED TEXTURED WALL FINISH WITH GRADED MARBLE AGGREGATE AND ENHANCED POLYMER TECHNOLOGY

H. STO ESSENCE DPR FINISH - INTEGRALLY COLORED, FACTORY BLENDED, ACRYLIC TEXTURED WALL FINISH WITH GRADED MARBLE I. STOSIGNATURE FINISHES – STOLIT ACRYLIC-BASED TEXTURED WALL FINISH APPLIED OVER STO CRACK DEFENSE WITH SPECIALIZED TECHNIQUES TO ACHIEVE UNIQUE TEXTURES, IMPRESSIONS OR EFFECTS. REFER TO WWW.STOCORP.COM FOR STOSIGNATURE FINISHES J. STO SPECIALTY FINISHES – ACRYLIC BASED TEXTURED WALL FINISHES WITH COLORED AGGREGATES THAT CREATE UNIQUE AESTHETIC K. STOCAST FINISHES - STO PRE-FORMED DECORATIVE AND PROTECTIVE VENEER UNITS (WITH ADHESIVE AND TOP COAT AS APPLICABLE) 1. STOCAST WOOD 2. STO CAST BRICK

1. STO GOLD FILL - MIX WITH A CLEAN, RUST-FREE ELECTRIC DRILL AND PADDLE TO A UNIFORM CONSISTENCY. DO NOT THIN, OR 2. STO AIRSEAL – MIX WITH A CLEAN, RUST-FREE ELECTRIC DRILL AND PADDLE TO A UNIFORM CONSISTENCY. DO NOT THIN, OR DILUTE WITH WATER. 3. STO GOLD COAT - MIX WITH A CLEAN, RUST-FREE ELECTRIC DRILL AND PADDLE TO A UNIFORM CONSISTENCY. DO NOT THIN, OR DILUTE WITH WATER 4. STOGUARD VAPORSEAL - MIX WITH A CLEAN, RUST-FREE ELECTRIC DRILL AND PADDLE TO A UNIFORM CONSISTENCY. DO NOT

B. STOPOWERWALL STUCCO 1. REFER TO MIX INSTRUCTIONS ON PACKAGING. USE ONLY THE AMOUNT OF WATER NECESSARY FOR A WORKABLE MIX. USE OF EXCESS WATER IS DETRIMENTAL TO PERFORMANCE.

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2.16 MIXING

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REVISION 014: OCTOBER 2023 C. ADHESIVE AND BASE COATS FOR STO CRACK DEFENSE AND FOAM BUILD-OUTS I. REFER TO APPLICABLE STO PRODUCT BULLETIN FOR SELECTED ADHESIVE/BASE COAT MATERIAL(S). D. PRIMER--MIX WITH A CLEAN, RUST-FREE HIGH SPEED MIXER TO A UNIFORM CONSISTENCY. E. TEXTURED FINISH--MIX WITH A CLEAN, RUST-FREE HIGH SPEED MIXER TO A UNIFORM CONSISTENCY. A SMALL AMOUNT OF WATER (UP TO 12 OUNCES [0.4 L]) MAY BE ADDED TO ADJUST WORKABILITY. LIMIT ADDITION OF WATER TO AMOUNT NEEDED TO ACHIEVE THE FINISH

F. ADHESIVE FOR STOCAST WOOD - MIX WITH A CLEAN RUST-FREE ELECTRIC DRILL AND PADDLE TO A UNIFORM CONSISTENCY G. BONDING AND POINTING MORTAR FOR STOCAST BRICK - MIX WITH A CLEAN RUST-FREE ELECTRIC DRILL AND PADDLE TO A UNIFORM F. MIX ONLY AS MUCH MATERIAL AS CAN READILY BE USED. G. DO NOT ADD LIME, ANTI-FREEZE COMPOUNDS, OR OTHER ADDITIVES TO ANY OF THE MATERIALS.

3.01 ACCEPTABLE INSTALLERS

A. INSPECT SHEATHING SURFACES FOR:

3.03 SURFACE PREPARATION.

PART 3 EXECUTION

A. PRE-QUALIFY UNDER QUALITY ASSURANCE REQUIREMENTS OF THIS SPECIFICATION (SECTION 1.07.B).

1. DAMAGE AND DETERIORATION. 2. MOISTURE DAMAGE—RECORD ANY AREAS OF MOISTURE DAMAGE B. INSPECT SHEATHING APPLICATION FOR COMPLIANCE WITH APPLICABLE REQUIREMENT: 1. GLASS MAT FACED GYPSUM SHEATHING IN COMPLIANCE WITH ASTM C1177—REFER TO MANUFACTURER'S INSTRUCTIONS AND/OR ICC EVALUATION REPORT 2. EXTERIOR GRADE AND EXPOSURE 1 WOOD BASED SHEATHING—APA ENGINEERED WOOD ASSOCIATION E 30. NOTE: SHEATHING ATTACHMENT IS OFTEN THE DETERMINANT OF ULTIMATE WIND LOAD RESISTANCE. VERIFY ATTACHMENT IS SUFFICIENT TO

/8 -INCH (3MM) AT EDGE AND END JOINTS TO PREVENT CRACKING IN THE STUCCO. C. REPORT DEVIATIONS FROM THE REQUIREMENTS OF PROJECT SPECIFICATIONS OR OTHER CONDITIONS THAT MIGHT ADVERSELY AFFECT AND WATER-RESISTIVE BARRIER, CI, OR STUCCO INSTALLATION TO THE GENERAL CONTRACTOR. DO NOT PROCEED WITH AIR AND WATERRESISTIVE BARRIER, CI, OR STUCCO INSTALLATION UNTIL DEVIATIONS ARE CORRECTED.

C SHEATHING 1. REMOVE SURFACE CONTAMINANTS AND REPLACE DAMAGED SHEATHING.

DESIGN WIND PRESSURE REQUIREMENTS. WOOD-BASED SHEATHING MUST BE GAPPED

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REVISION 014: OCTOBER 2023 2. ALL SHEATHING MUST BE HANDLED AND INSTALLED IN COMPLIANCE WITH APPLICABLE BUILDING CODE AND/OR MANUFACTURER REQUIREMENTS. INSTALLED SHEATHING MUST BE CLEAN, DRY AND FREE FROM DAMAGE, FROST, AND ALL BOND-INHIBITING MATERIALS. ABUT GYPSUM SHEATHING JOINTS. GAP WOOD SHEATHING 1 /8-INCH (3 MM) AT JOINTS SHOULD GAPS EXCEED 1 /8-INCH (3 MM) UP TO 1

/2-INCH (13 MM) WIDE, USE STO RAPIDGUARD TO FILL JOINTS, OR APPLY LOW EXPANDING URETHANE FOAM INTO JOINTS AND RASP OR SHAVE FLUSH WITH SHEATHING SURFACE IN PREPARATION FOR INSTALLATION OF STOCHARD JOINT TREATMENT 3. SPOT SURFACE DEFECTS IN SHEATHING WITH JOINT TREATMENT (STO GOLD FILL OR STO RAPIDGUARD) 3. 04 AIR AND WATER-RESISTIVE BARRIER INSTALLATION (REFER TO STO GUIDE DETAILS AS NEEDED)

IMPORTANT NOTE: THE AIR AND WATER-RESISTIVE BARRIER INSTALLATION DESCRIBED BELOW IS ONE COMPONENT OF THE AIR BARRIER THE BUILDING ENVELOPE AND THE MOISTURE PROTECTION OF THE WALL CONSTRUCTION. INSTALLATION OF THE AIR AND WATER-RESISTIVE MUST BE INTEGRATED WITH OTHER AIR AND AIR AND WATER-RESISTIVE BARRIER COMPONENTS IN THE CONSTRUCTION. THIS REQUIRES WITH OTHER TRADES TO ENSURE PROPER SEQUENCING OF WORK, TO ACHIEVE AIR BARRIER CONTINUITY, AND TO DIRECT RAIN WATER TO NOT INTO THE WALL ASSEMBLY. ALWAYS PROTECT ROUGH OPENINGS IN WALL CONSTRUCTION BEFORE INSTALLING WINDOWS, DOORS, WHERE WATER IS LIKELY TO PENETRATE THE WALL ASSEMBLY, SUCH AS WINDOWS, FLASHING MUST BE INSTALLED TO DIRECT WATER TO THE

AT THE LEAK SOURCE A. THE FOLLOWING INSTRUCTIONS ARE APPLICABLE TO: 1. EXTERIOR OR EXPOSURE I PLYWOOD IN COMPLIANCE WITH PS-1 2. OSB (ORIENTED STRAND BOARD) IN COMPLIANCE WITH PS-1 OR PS-2 3. GLASS MAT FACED GYPSUM SHEATHING IN COMPLIANCE WITH ASTM C1177

D. SHEATHING JOINT TREATMENT (SELECT ONE)

B. TRANSITION DETAILING I. DETAIL TRANSITION AREAS WITH STO RAPIDGUARD (STATIC JOINTS AND SEAMS) OR STOGUARD CONFORMABLE MEMBRANE STATIC AND DYNAMIC JOINTS AND SEAMS) TO ACHIEVE AIR BARRIER CONTINUITY. FOR ILLUSTRATIONS OF INSTALLATION. REFER TO STOPOWERWALL CI DESIGN GUIDE AND DETAIL BOOKLET, STO RAPIDGUARD INSTALLATION GUIDE, AND STOGUARD CONFORMABLE MEMBRANE INSTALLATION GUIDE (WWW.STOCOP.COM) C. ROUGH OPENING PROTECTION (SELECT 1, 2, 3, OR 4 FOR FRAME CONSTRUCTION; FOR CONCRETE OR CONCRETE MASONRY ROUGH OPENINGS WITH WOOD BUCKS AND SIMILAR OPENINGS WITH COMPLEX 3-DIMENSIONAL GEOMETRY, SELECT NO. 3, STO RAPIDGUARD): 1. STO GOLD FILL WITH STOGUARD MESH: APPLY 9-INCH (229 MM) WIDE STOGUARD MESH AT ROUGH OPENINGS IMMEDIATELY APPLY STO GOLD FILL BY SPRAY OR TROWEL OVER THE MESH AND SPREAD SMOOTH WITH A TROWEL TO COMPLETELY COVER THE MESH (REFER TO STOPOWERWALL CI DESIGN GUIDE AND DETAIL BOOKLET). 2. STO GOLD COAT, STO AIRSEAL, OR STOGUARD VAPORSEAL WITH STOGUARD FABRIC: APPLY COATING LIBERALLY BY SPRAY OR ROLLER TO CORNERS OF OPENINGS, IMMEDIATELY PLACE STOGUARD REDICORNERS IN THE WET COATING, AND APPLY ADDITIONAL COATING OVER THE REDICORNERS TO COMPLETELY EMBED THEM. AFTER ALL CORNERS HAVE BEEN COMPLETED APPLY COATING LIBERALLY TO THE ENTIRE ROUGH OPENING, IMMEDIATELY PLACE STOGUARD FABRIC IN THE WET COATING, SMOOTH ANY WRINKLES WITH A BRUSH OR ROLLER, AND APPLY ADDITIONAL COATING OVER THE FABRIC TO COMPLETELY EMBED IT. OVERLAP ALL SEAMS MINIMUM 2-INCHES (51 MM). ONCE COMPLETED TOP COAT WITH ADDITIONAL COATING AS NEEDED TO COMPLETELY SEAL THE SURFACE. ALLOW TO DRY AND INSPECT FOR PINHOLES OR VOIDS. IF PINHOLES OR VOIDS ARE PRESENT. SEAL WITH ADDITIONAL COATING OR STO RAPIDGUARD.

3. STO RAPIDGUARD: APPLY A FILLET BEAD OF MATERIAL WITH A CAULKING GUN AT INTERIOR CORNERS INSIDE THE OPENING TO SEAL JAMB/SILL AND JAMB/HEAD SEAMS. APPLY MATERIAL IN A ZIG-ZAG PATTERN ALONG SILL, JAMS, AND HEAD TO FORM A GENEROUS BEAD OF MATERIAL ALONG THE SURFACE TO BE COVERED, USE A 6-INCH (152 MM) WIDE PLASTIC DRYWALL KNIFE TO SPREAD THE MATERIAL TO A UNIFORM THICKNESS OF 12-20 MILS (0.3-0.5 MM) BEFORE THE MATERIAL SKINS.

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REVISION 014: OCTOBER 2023 TREAT THE ENTIRE ROUGH OPENING SURFACE IN THIS MANNER AND OVERLAP ONTO THE FACE OF THE SHEATHING 2-INCHES (51 MM) MINIMUM ALL THE WAY AROUND. 4. STOGUARD CONFORMABLE MEMBRANE: INSTALL THE MEMBRANE IN CONFORMANCE WITH MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS (REFER TO STOGUARD CONFORMABLE MEMBRANE INSTALLATION GUIDE)

1. STO GOLD FILL WITH STOGUARD MESH: PLACE 4-INCH (102 MM) WIDE MESH CENTERED ALONG SHEATHING JOINTS AND MINIMUM 9-INCH (229 MM) WIDE MESH CENTERED AND FOLDED AT INSIDE AND OUTSIDE CORNERS, IMMEDIATELY APPLY STO GOLD FILL BY SPRAY OR TROWEL AND SPREAD SMOOTH WITH A TROWEL TO COMPLETELY COVER THE MESH 2 STO AIRSEAL STO GOLD COAT OR STOGUARD VAPORSEAL WITH STOGUARD FABRIC: APPLY COATING LIBERALLY BY SPRAY OR ROLLER ALONG SHEATHING JOINTS AND IMMEDIATELY PLACE 4-INCH (102 MM) WIDE FABRIC CENTERED OVER THE JOINTS INTO THE WET COATING, AND 6-INCH (152 MM) WIDE FABRIC CENTERED AND FOLDED AT INSIDE AND OUTSIDE CORNERS INTO THE WET COATING. SMOOTH ANY WRINKLES WITH A BRUSH OR ROLLER AND APPLY ADDITIONAL COATING TO COMPLETELY EMBED THE FABRIC, OVERLAP SEAMS MINIMUM 2-INCHES (51 MM).

3. STO RAPIDGUARD: APPLY TO PROPERLY INSTALLED SHEATHING – JOINTS BUTTED FOR GYPSUM SHEATHING, AND JOINTS GAPPED FOR PLYWOOD AND OSB SHEATHINGS (WOOD-BASED SHEATHING TYPICALLY REQUIRES 1 /8-INCH [3MM] SPACING AT EDGE AND END JOINTS). APPLY A THICK BEAD OF STO RAPIDGUARD WITH A CAULKING GUN ALONG SHEATHING JOINTS. OR APPLY IN A ZIG-ZAG PATTERN ACROSS AND DOWN THE JOINTS. SPREAD TO A UNIFORM THICKNESS OF 20-30MILS (0.5-0.6 MM) BEFORE THE MATERIAL SKINS. SPREAD 1-INCH (25 MM) BEYOND THE SHEATHING JOINT ON EACH SIDE. FOLLOW THE SAME PROCEDURE FOR INSIDE AND OUTSIDE CORNERS.

4. STOGUARD CONFORMABLE MEMBRANE: INSTALL THE MEMBRANE IN CONFORMANCE WITH MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS (REFER TO STOGUARD CONFORMABLE MEMBRANE INSTALLATION GUIDE) E. AIR AND WATER-RESISTIVE BARRIER COATING INSTALLATION 1. INSTALL THE SPECIFIED COATING TO THE REQUIRED WET FILM THICKNESS AS SPECIFIED BY: SUBSTRATE, MEDIUM-BUILD, OR HIGH BUILD (REFER TO SECTION 2.02B) F. AIR AND WATER-RESISTIVE BARRIER CONNECTIONS AND SHINGLE LAPS

1. COORDINATE INSTALLATION OF CONNECTING AIR BARRIER COMPONENTS WITH OTHER TRADES TO PROVIDE A CONTINUOUS AIR 2. COORDINATE INSTALLATION OF FLASHING AND OTHER MOISTURE PROTECTION COMPONENTS WITH OTHER TRADES TO ACHIEVE COMPLETE MOISTURE PROTECTION SUCH THAT WATER IS DIRECTED TO THE EXTERIOR, NOT INTO THE WALL ASSEMBLY, AND DRAINED TO THE EXTERIOR AT SOURCES OF LEAKS (WINDOWS, DOORS AND SIMILAR PENETRATIONS THROUGH THE WALL

3. SPLICE-IN HEAD FLASHINGS ABOVE WINDOWS, DOORS, FLOOR LINES, ROOF/SIDEWALL STEP FLASHING, AND SIMILAR LOCATIONS WITH STOGUARD DETAIL COMPONENT TO ACHIEVE SHINGLE LAP OF THE AIR AND WATER-RESISTIVE BARRIER SUCH THAT WATER

(NOTE: WINDOWS AND DOORS ARE TYPICALLY INSTALLED IMMEDIATELY FOLLOWING INSTALLATION OF THE AIR AND WATER-RESISTIVE BARRIER AND WORK SHOULD BE SEQUENCED ACCORDINGLY. CONSULT WITH WINDOW MANUFACTURER FOR INSTALLATION REQUIREMENTS TO MAINTAIN AIR BARRIER

CONTINUITY AND FOR HEAD, JAMB, SILL FLASHING AND PERIMETER SEALANT REQUIREMENTS NEEDED TO PREVENT LEAKS INTO THE WALL

NOTE: DO NOT ALLOW AIR AND WATER-RESISTIVE BARRIER INSTALLATION TO REMAIN EXPOSED MORE THAN 180 DAYS FOR STO GOLD COAT AND STO AIRSEAL, AND 90 DAYS FOR STOGUARD VAPORSEAL. PROTECT WITH CONTINUOUS INSULATION PROMPTLY AFTER INSTALLATION.

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3.06 SHEET WATER-RESISTIVE BARRIER INSTALLATION

ASSEMBLY)

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A. ATTACH INSULATION BOARDS THROUGH SHEATHING TO FRAMING WITH CORROSION RESISTANT BUGLE HEAD METAL SCREWS AND 1-

(32MM) METAL LATH LOCKS OR OTHER CORROSION RESISTANT CAP FASTENER. USE ONLY ENOUGH FASTENERS (MINIMUM 3 PER BOARD MID-SPAN) TO TEMPORARILY HOLD THE BOARD IN PLACE (LATH ATTACHMENT IS INTENDED TO PERMANENTLY HOLD IT IN PLACE). B. ATTACH IN COURSES WITH VERTICAL JOINTS STAGGERED. C. CUT INSULATION BOARD IN AN "L" SHAPE AROUND OPENINGS. TIGHTLY ABUT INSULATION BOARD JOINTS AND INTERLOCK INSIDE AND OUTSIDE CORNERS. TRIM OR RASP BOARD FLUSH FOR SQUARE CORNERS. D. SEAL GAPS OR OPEN JOINTS WITH STO TURBOSTICK SPRAY FOAM AND RASP OR SHAVE FLUSH WITH SURFACE. E. DO NOT ALLOW INSULATION BOARD TO BE EXPOSED TO WEATHER FOR MORE THAN 60 DAYS.

A. INSTALL IN COMPLIANCE WITH THE APPLICABLE BUILDING CODE REQUIREMENTS FOR BUILDING PAPER. LAP PAPER OVER FOUNDATION WEEP SCREED ATTACHMENT FLANGE, FLOOR LINE FLASHING, AND WINDOW/DOOR HEAD FLASHINGS. REFER TO STO GUIDE DETAILS AT

(NOTE: CODE REQUIREMENTS MAY VARY. ALWAYS CONSULT THE APPLICABLE CODE AND THE MANUFACTURER'S CODE COMPLIANCE REPORT. BUILDING PAPER IN COMPLIANCE WITH THE CODE IS LAPPED SHINGLE STYLE, UPPER COURSES OVER LOWER COURSES, BY MINIMUM VERTICAL LAPS OF MINIMUM 6-INCHES (150 MM). COURSES ARE STAGGERED SO THAT VERTICAL JOINTS DO NOT ALIGN. CARE MUST BE TAKEN

TEARS IN THE PAPER AND TO LIMIT PENETRATIONS TO ONLY THOSE REQUIRED FOR ATTACHMENT. FLASHING MUST BE IN PLACE AND PROPERLY INTEGRATED WITH THE SHEET WRB AT SILLS, ABOVE WINDOWS AND DOORS, AT FLOOR LINES, DECKS AND AT ROOF/WALL INTERSECTIONS SUCH THAT WATER IS DIRECTED TO THE 3.07 DRAINAGE MAT INSTALLATION

A. PLACE DRAINAGE MAT AGAINST THE WALL SURFACE AND UNROLL HORIZONTALLY WITH THE FABRIC FACING OUT. HAMMER-TACK OR

INTO CONTINUOUS INSULATION WITH CORROSION-RESISTANT FASTENERS. USE AS FEW FASTENERS AS NEEDED TO HOLD THE MAT IN PLACE. STARTING FROM THE BOTTOM OF THE WALL AT BASE FLASHING OR WEEP SCREED AND WORKING UP. DO NOT FASTEN THROUGH FLASHING. SHINGLE LAP FABRIC AT HORIZONTAL COURSES. SHINGLE LAP DRAINAGE MAT OVER WEEP SCREEDS, FLASHING AT FLOOR LINES, DECKS, ROOF LINES, WINDOW HEADS, AND OTHER AREAS WHERE FLASHING IS REQUIRED. TO DIRECT WATER TO THE EXTERIOR, BUTT ENDS OF ROLLS AND VERTICAL SEAMS, TRIM AROUND WINDOWS, DOORS, VENTS, OR OTHER PENETRATIONS THROUGH THE WALL, DO NOT INSTALL BEHIND WINDOW NAIL FLANGES. IMMEDIATELY FOLLOW INSTALLATION OF DRAINAGE MAT WITH STUCCO LATH INSTALLATION. WHERE STUCCO LATH INSTALLATION WILL NOT IMMEDIATELY FOLLOW INSTALLATION OF DRAINAGE MAT, USE CORROSION-RESISTANT CAP NAILS, CAP STAPLES, OR CAP SCREWS EVERY 16-INCHES (406 MM) ON CENTER ALONG FRAMING FOR MORE SECURE ATTACHMENT. COVER DRAINAGE MAT WITH STUCCO WITHIN 30 DAYS OF INSTALLATION.

3.08 STUCCO INSTALLATION (REFER TO STO GUIDE DETAILS AS NEEDED)

A. APPLY THE STUCCO IN DISCRETE PANELS WITHOUT INTERRUPTION TO AVOID COLD JOINTS AND DIFFERENCES IN APPEARANCE, ABUT WET STUCCO TO SET STUCCO AT NATURAL OR ARCHITECTURAL BREAKS IN THE WALL SUCH AS EXPANSION JOINTS, PILASTERS, TERMINATIONS, OR CHANGES IN PLANE. HOT OR DRY CONDITIONS ACCELERATE DRYING AND MOISTURE LOSS FROM STUCCO WHICH CAN DIMINISH STRENGTH AND RESISTANCE TO CRACKING, UNDER THESE CONDITIONS, ADJUSTMENTS IN THE APPLICATION, SCHEDULING AND CURING OF STUCCO TO PREVENT RAPID LOSS OF MOISTURE ARE NECESSARY TO ACHIEVE A SATISFACTORY STUCCO INSTALLATION. COLD TEMPERATURES RETARD DRYING AND STRENGTH GAIN AND ADJUSTMENTS MAY HAVE TO BE MADE IN THE APPLICATION. SCHEDULING AND CURING OF STUCCO TO PREVENT DAMAGE FROM FROST AND OTHER TRADES, DO NOT INSTALL STUCCO DURING EXTREMELY HOT, DRY AND/OR WINDY CONDITIONS DO NOT INSTALL STUCCO DURING FREEZING CONDITIONS OR ON FROZEN SUBSTRATES. DO NOT INSTALL STUCCO ONTO GROUNDS OF

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ACCESSORIES. COMPLETELY EMBED LATH AND FLANGES OF ACCESSORIES AND COMPLETELY COVER FASTENER ATTACHMENTS WITH STUCCO. MOIST CURE STUCCO MINIMUM 48 HOURS FOR OPTIMUM STRENGTH GAIN AND RESISTANCE TO CRACKING. ALLOW FINAL STUCCO APPLICATION TO COMPLETELY CURE (MINIMUM 28 DAYS) BEFORE APPLYING PRIMER OR FINISH OR UNTIL PH OF STUCCO SURFACE IS LESS THAN 10 (EXCEPT IN THE CASE OF STOPRIME HOT WHICH CAN BE APPLIED 48 HOURS AFTER COMPLETING MOIST CURE OF STUCCO). THE FINISHED INSTALLATION MUST BE TRUE, PLUMB AND SQUARE. SHOULD STUCCO GET INTO CONTROL OR EXPANSION JOINTS, REMOVE THE STUCCO FROM WITHIN THE JOINT BEFORE THE STUCCO SETS. AFTER SATISFACTORY INSPECTION OF SURFACES AND CORRECTION OF ANY DEVIATIONS FROM SPECIFICATION REQUIREMENTS COMMENCE THE STUCCO INSTALLATION AS DESCRIBED BELOW:

A. INSTALLATION OVER STOGUARD/STO DRAINSCREEN 1. WEEP SCREED INSTALLATION (MAY ALSO BE DONE IN CONJUNCTION WITH FLASHING AND AIR AND WATER-RESISTIVE BARRIER INSTALLATION TO FACILITATE SHINGLE LAPPING OF COMPONENTS AT BASE OF WALL) A. INSTALL FOUNDATION WEEP SCREED AT THE BASE OF THE WALL SECURELY TO SOLID SUBSTRATE OR FRAMING WITH THE APPROPRIATE FASTENER. LOCATE FOUNDATION WEEP SCREED SO THAT IT OVERLAPS THE JOINT BETWEEN THE FOUNDATION AND FRAMING BY A MINIMUM OF 1-INCH (25 MM). LOCATE THE FOUNDATION WEEP SCREED NOSING MINIMUM 4-INCHES (100 MM) ABOVE EARTH GRADE, 2-INCHES (51 MM) ABOVE FINISHED GRADE (PAVED SURFACES, FOR EXAMPLE). LAP AIR AND WATER-RESISTIVE BÄRRIER, SHEET WATER-RESISTIVÈ BARRIER, AND DRAINAGE MAT OVER THE WEEP SCREED ATTACHMENT FLANGE.

2. CASING BEAD AND TWO PIECE EXPANSION JOINT INSTALLATION A. INSTALL CASING BEADS AT STUCCO TERMINATIONS—DOORS, WINDOWS AND OTHER THROUGH WALL PENETRATIONS. INSTALL TWO PIECE EXPANSION JOINTS (OR BACK-TO-BACK CASING BEADS) AT BUILDING EXPANSION JOINTS, THRU-WALL JOINTS IN CONCRETE OR CMU, WHERE THE STUCCO IS TO BE INSTALLED OVER DISSIMILAR CONSTRUCTION OR SUBSTRATES, AT CHANGES IN BUILDING HEIGHT, AT FLOOR LINES, COLUMNS, AND CANTILEVERED AREAS. INSTALL FULL ACCESSORY PIECES WHERE POSSIBLE AND AVOID SMALL PIECES. SEAL ADJOINING PIECES BY EMBEDDING ENDS IN SEALANT. ABUT HORIZONTAL INTO VERTICAL JOINT ACCESSORIES (EXCEPT WHERE HORIZONTAL MOVEMENT JOINTS EXIST THAT PREVENT CONTINUOUS VERTICAL RUNS OF ACCESSORIES). ATTACH AT NO MORE THAN 7-INCHES (178 MM) INTO SOLID

SUBSTRATE/FRAMING WITH APPROPRIATE FASTENERS. NOTE: REFER TO ARCHITECTURAL DRAWINGS FOR JOINT LOCATIONS AND ACCESSORY TYPE. AIR AND WATER-RESISTIVE BARRIER MUST BE BEHIND JOINTS AND ACCESSORIES - REFER TO STO GUIDE DETAILS.

A. REFER TO STRUCTA WIRE CORP. TWINTRAC INSTALLATION GUIDE AND IAPMO ER 2017 B. DIAMOND MESH METAL LATH – CONFORM TO ASTM C1063

I. GENERAL--INSTALL METAL LATH WITH THE LONG DIMENSION AT RIGHT ANGLES TO STRUCTURAL FRAMING (HORIZONTALLY ON SOLID SUBSTRATES). TERMINATE LATH AT EXPANSION JOINTS. DO NOT INSTALL CONTINUOUSLY AT JOINTS. II. SEAMS/OVERLAPS--OVERLAP SIDE SEAMS MINIMUM 1

/2-INCH (13 MM) AND END SEAMS MINIMUM 1-INCH

(25 MM). STAGGER END SEAMS. OVERLAP CASING BEADS AND EXPANSION JOINTS MINIMUM 1-INCH (25 MM) OVER NARROW WING ACCESSORIES, MINIMUM 2-INCHES (51 MM) OVER EXPANDED FLANGE ACCESSORIES. DO NOT INSTALL LATH CONTINUOUSLY BENEATH EXPANSION JOINTS. III. ATTACHMENT--FASTEN SECURELY THROUGH SHEATHING INTO STRUCTURAL FRAMING AT 6-INCHES (152 MM) ON CENTER MAXIMUM VERTICALLY AND 16-INCHES (406 MM) ON CENTER HORIZONTALLY*. WIRE TIE AT NO MORE THAN 9-INCHES (225 MM) ON CENTER AT: SIDE LAPS, ACCESSORY OVERLAPS, AND WHERE END LAPS OCCUR BETWEEN SUPPORTS

C. PAPER-BACKED LATH—FOLLOW INSTALLATION AS FOR DIAMOND MESH METAL LATH. LAP LATH OVER LATH, NOT PAPER TO LATH OVERLAP. FOR HORIZONTAL OVERLAPS THE PAPER BACKING MUST LAP SHINGLE STYLE BEHIND THE LATH-TO-LATH

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CARE WHEN ATTACHING METAL LATH AND ACCESSORIES THROUGH THE AIR AND WATER-RESISTIVE BARRIER SO THAT FASTENERS GO INTO

BETWEEN] FRAMING SUPPORTS. DO NOT USE POWER, POWDER-ACTUATED OR OTHER FASTENING TOOLS/METHODS THAT CAN DAMAGE THE BARRIER, AIR AND WATER-RESISTIVE BARRIER OR SUBSTRATE).

4 ONE PIECE EXPANSION JOINT INSTALLATION A. INSTALL ONE PIECE EXPANSION JOINTS AT THROUGH WALL PENETRATIONS, FOR EXAMPLE, ABOVE AND BELOW DOORS AND WINDOWS, INSTALL ONE PIECE EXPANSION JOINTS AT EVERY 144 FT2) WIRE TIE ONE PIECE EXPANSION

JOINTS TO LATH AT NO MORE THAN 7-INCHES (178 MM) ON CENTER. SEAL ADJOINING PIECES BY EMBEDDING ENDS IN SEALANT. MAKE CERTAIN LATH IS DISCONTINUOUS AT OR BENEATH JOINTS 5 INSIDE AND OUTSIDE CORNERS A. INSTALL CORNER LATH AT INSIDE CORNERS AND CORNER BEAD AT OUTSIDE CORNERS OVER LATH. ATTACH THROUGH LATH

INTO SOLID SUBSTRATE OR FRAMING AT NO MORE THAN 7-INCHES (178 MM) ON CENTER WITH APPROPRIATE 6. STUCCO INSTALLATION

A. SCRATCH COAT: APPLY STUCCO WITH SUFFICIENT PRESSURE TO KEY INTO AND EMBED THE METAL LATH. APPLY SUFFICIENT MATERIAL, 3 /8 OR ½-INCH (9 OR 12 MM), TO COVER THE METAL LATH AND TO PERMIT SCORING THE SURFACE

SCORE THE STUCCO UPON COMPLETION OF EACH PANEL IN PREPARATION FOR A SECOND COAT. SCORE HORIZONTALLY. B. BROWN COAT: AS SOON AS THE FIRST COAT IS FIRM ENOUGH TO RECEIVE THE SECOND COAT WITHOUT DAMAGE. APPLY THE SECOND COAT. ALTERNATIVELY. MOIST CURE THE FIRST COAT UP TO 48 HOURS AND DAMPEN THE SCRATCHED SURFACE WITH WATER IMMEDIATELY BEFORE APPLYING THE SECOND COAT. APPLY THE SECOND COAT WITH SUFFICIENT PRESSURE TO ENSURE INTIMATE CONTACT WITH THE FIRST COAT AND AS NEEDED TO BRING THE STUCCO TO A UNIFORM THICKNESS THAT MATCHES THE GROUNDS OF THE ACCESSORIES. USE A ROD OR STRAIGHT EDGE TO BRING THE SURFACE TO A TRUE, EVEN PLANE. FILL DEPRESSIONS IN PLANE WITH STUCCO. FINAL THICKNESS OF STUCCO SHALL BE UNIFORM THROUGHOUT THE WALL AREA AND SHALL BE EITHER 3

/4-INCH OR 7 /8-INCH (19 OR 22 MM) AS DICTATED BY FINAL DESIGN REQUIREMENTS, AND SHALL NOT EXCEED 7

C. AFTER THE STUCCO HAS BECOME SLIGHTLY FIRM FLOAT THE SURFACE LIGHTLY WITH A DARBY OR WOOD FLOAT TO DENSIFY THE SURFACE AND TO PROVIDE A SMOOTH, EVEN SURFACE. THE PROPER TIME TO FLOAT IS WHEN THE WOOD FLOAT NO LONGER STICKS TO THE SURFACE OF THE STUCCO.

D. MOIST CURE AFTER THE STUCCO HAS SET BY LIGHTLY FOGGING FOR AT LEAST 48 HOURS. FOG AS FREQUENTLY AS REQUIRED DURING THE 48-HOUR PERIOD TO PREVENT LOSS OF MOISTURE FROM THE STUCCO. AVOID ERODING THE STUCCO SURFACE WITH EXCESS MOISTURE. IF RELATIVE HUMIDITY EXCEEDS 75% THE FREQUENCY OF MOIST CURING B FOAM TRIM AND BUILD-OUTS 1. WHERE FOAM TRIM OR BUILD-OUTS TERMINATE AT A DISSIMILAR MATERIAL SUCH AS A WINDOW, DOOR OR OTHER NON-STUCCO

SURFACE, BACKWRAP THE FOAM BUILD-OUT BY INSTALLING DETAIL MESH ONTO THE TERMINATING EDGE OF THE STUCCO. EMBED THE MESH IN THE FOAM TRIM ADHESIVE. ALLOW THE MESH TO DANGLE UNTIL THE BACKWRAPPING PROCEDURE IS COMPLETED (B4) 2. INSTALL FOAM BUILD-OUTS DIRECTLY OVER HARDENED STUCCO WITH FOAM TRIM ADHESIVE. APPLY ADHESIVE WITH THE APPROPRIATE SIZE NOTCHED TROWEL TO THE BACK OF THE INSULATION BOARD AND IMMEDIATELY PLACE BUILD-OUT IN THE PROPER LOCATION ON THE WALL. PRESS FIRMLY INTO PLACE AND TRIM OR TOOL EXCESS ADHESIVE FROM ENDS AND EDGES OF FOAM TRIM FOR A SMOOTH VOID-FREE CONNECTION TO THE STUCCO SUBSTRATE. 3. AFTER THE ADHESIVE HAS CURED SUFFICIENTLY TO HOLD THE BUILD-OUT FIRMLY IN PLACE, RASP THE ENTIRE FOAM SURFACE

4. COMPLETE THE BACKWRAPPING PROCEDURE BY APPLYING THE BASE COAT TO THE EXPOSED EDGES OF THE FOAM BUILDOUT AND

/2 -INCHES (64 MM) ONTO THE FACE. PULL THE BACKWRAP MESH AROUND THE FOAM BUILD-OUT AND FULLY EMBED IT INTO THE BASE COAT. USE A CORNER TROWEL FOR NEAT STRAIGHT CORNERS. 5. APPLY THE BASE COAT TO THE FOAM BUILD-OUT AND APPROXIMATELY 3-INCHES (76 MM) ONTO THE ADJACENT STUCCO SURFACES TO AN APPROXIMATE THICKNESS OF 1

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BASE COAT. TROWEL FROM THE CENTER TO THE EDGES OF THE MESH TO AVOID WRINKLES AND REMOVE EXCESS BASE COAT. OVERLAP MESH SEAMS MINIMUM 2-

/2-INCHES (64 MM). OVERLAP MESH ONTO ADJACENT STUCCO WALL SURFACES

/8-INCH (3 MM). IMMEDIATELY EMBED THE REINFORCING MESH IN THE WET

2-INCHES (64 MM) AT TERMINATIONS OF THE FOAM BUILD-OUT AND FEATHER ONTO THE STUCCO WALL SURFACE. ALTERNATIVELY, IF CRACK DEFENSE IS USED APPLY CRACK DEFENSE WITH ITS REINFORCING MESH CONTINUOUSLY FROM THE STUCCO WALL SURFACE OVER FOAM BUILD-OUTS (REFER TO 3.08 C (NOTE: DO NOT INSTALL FOAM BUILD-OUTS OVER JOINTS IN THE STUCCO WALL ASSEMBLY. TERMINATE FOAM BUILD-OUTS AND BACKWRAP IN ACCORDANCE WITH INSTRUCTIONS ABOVE).

C. CRACK DEFENSE NOTE: CRACK DEFENSE IS OPTIONAL. IT PROVIDES ADDITIONAL CRACK RESISTANCE TO THE STUCCO WALL SURFACE. 1. APPLY BASE COAT OVER THE MOIST CURED STUCCO (AND FOAM BUILD-OUTS IF NOT ALREADY REINFORCED WITH MESH) WITH APPROPRIATE SPRAY EQUIPMENT OR A STAINLESS STEEL TROWEL TO A UNIFORM THICKNESS OF APPROXIMATELY 1 MM). WORK HORIZONTALLY OR VERTICALLY IN STRIPS OF 40-INCHES (1016MM), AND IMMEDIATELY EMBED THE MESH INTO

THE WET BASE COAT BY TROWELING FROM THE CENTER TO THE EDGE OF THE MESH. OVERLAP MESH NOT LESS THAN 2-1/2 -INCHES (64 MM) AT MESH SEAMS AND AT OVERLAPS OF DETAIL MESH. FEATHER SEAMS AND EDGES. AVOID WRINKLES IN THE MESH. THE MESH MUST BE FULLY EMBEDDED SO THAT NO MESH COLOR SHOWS THROUGH THE BASE COAT WHEN IT IS DRY. RE-SKIM WITH ADDITIONAL BASE COAT IF MESH COLOR IS VISIBLE. DO NOT INSTALL BASE COAT OR MESH OVER JOINTS OR ACCESSORIES IN THE STUCCO WALL ASSEMBLY. NOTE: PRIMING IS OPTIONAL. PRIMING IS RECOMMENDED TO PROVIDE UNIFORM SUBSTRATE ABSORPTION AND FINISH COLOR. TO IMPROVE ADHESION AND WATER RESISTANCE, AND TO RETARD EFFLORESCENCE, STOPRIME HOT MAY BE APPLIED 48 HOURS AFTER MOIST CURING THE

COAT. OTHER STO PRIMERS REQUIRE 28 DAYS CURING OF BROWN COAT OR PH LESS THAN 10 BEFORE APPLICATION. D. PRIMER INSTALLATION 1 STOPRIME HOT—MOIST CLIRE STUCCO FOR A MINIMUM OF 48 HOURS, ALLOW STUCCO TO DRY AN ADDITIONAL 48 HOURS. THEN APPLY PRIMER EVENLY WITH BRUSH, ROLLER OR PROPER SPRAY EQUIPMENT OVER THE CLEAN, DRY STUCCO AND FOAM BUILD-OUTS, AND ALLOW TO DRY. FINAL AGE OF PRIMED STUCCO APPLICATION MUST BE MINIMUM 7 DAYS BEFORE APPLICATION OF FINISH. 2. STOPRIME SAND—MOIST CURE STUCCO FOR A MINIMUM OF 48 HOURS. WAIT UNTIL STUCCO IS 28 DAYS OLD OR THE PH

LEVEL OF THE SURFACE IS BELOW 10 BEFORE APPLYING PRIMER. FINAL AGE OF PRIMED STUCCO APPLICATION MUST BE MINIMUM 28 DAYS BEFORE APPLICATION OF FINISH OR PH MUST BE BELOW 10. 3. STOPRIME— MOIST CURE STUCCO FOR A MINIMUM OF 48 HOURS. WAIT UNTIL STUCCO IS 28 DAYS OLD OR THE PH LEVEL OF THE SURFACE IS BELOW 10 BEFORE APPLYING PRIMER. FINAL AGE OF PRIMED STUCCO APPLICATION MUST BE MINIMUM 28 DAYS BEFORE APPLICATION OF FINISH OR THE PH MUST BE BELOW 10. D. TEXTURED FINISH INSTALLATION

1. APPLY FINISH TO MINIMUM 28-DAY OLD STUCCO OR PRIMED STUCCO AND FOAM BUILD-OUTS. OR WHEN PH OF STUCCO SURFACE IS LESS THAN 10. IF STOPRIME HOT IS USED AS THE PRIMER THE PRIMED STUCCO/FOAM BUILD-OUT SURFACES NEED ONLY BE MINIMUM 7 DAYS OLD. APPLY FINISH BY SPRAYING OR TROWELING WITH A STAINLESS STEEL TROWEL, DEPENDING ON THE FINISH SPECIFIED. FOLLOW THESE GENERAL RULES FOR APPLICATION OF FINISH: A. AVOID APPLICATION IN DIRECT SUNLIGHT. B. APPLY FINISH IN A CONTINUOUS APPLICATION AND WORK A WET EDGE TOWARDS THE UNFINISHED WALL AREA. WORK

TO AN ARCHITECTURAL BREAK IN THE WALL BEFORE STOPPING TO AVOID COLD JOINTS. C. WEATHER CONDITIONS AFFECT APPLICATION AND DRYING TIME. HOT OR DRY CONDITIONS LIMIT WORKING TIME AND ACCELERATE DRYING. ADJUSTMENTS IN THE SCHEDULING OF WORK MAY BE REQUIRED TO ACHIEVE DESIRED RESULTS.

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COOL OR DAMP CONDITIONS EXTEND WORKING TIME AND RETARD DRYING AND MAY REQUIRE ADDED MEASURES OF PROTECTION AGAINST WIND, DUST, DIRT, RAIN AND FREEZING. ADJUST WORK SCHEDULE AND PROVIDE PROTECTION. D. FLOAT "R" (RILLED OR SWIRL TEXTURE) FINISHES WITH A PLASTIC FLOAT TO ACHIEVE THEIR RILLED TEXTURE E. DO NOT INSTALL SEPARATE BATCHES OF FINISH SIDE-BY-SIDE.

F. DO NOT APPLY FINISH INTO OR OVER SEALANT JOINTS. APPLY FINISH TO OUTSIDE FACE OF WALL ONLY. G. DO NOT APPLY FINISH OVER IRREGULAR OR UNPREPARED SURFACES, OR SURFACES NOT IN COMPLIANCE WITH THE REQUIREMENTS OF THE PROJECT SPECIFICATIONS. H. DO NOT INSTALL FINISH OVER HIGH PH (> 10) STUCCO SURFACES OR SURFACES THAT HAVE NOT BEEN FULLY CURED. 2. STO SIGNATURE OR SPECIALTY FINISH INSTALLATION

A. REFER TO APPLICABLE INSTALLATION GUIDE AND/OR PRODUCT BULLETIN FOR SELECTED FINISH. 3. STOCAST FINISH INSTALLATION A. REFER TO APPLICABLE APPLICATION GUIDE AND/OR PRODUCT BULLETIN FOR SELECTED FINISH.

A. PROVIDE PROTECTION OF INSTALLED MATERIALS FROM WATER INFILTRATION INTO OR BEHIND THEM. B. PROVIDE PROTECTION OF INSTALLED STUCCO FROM DUST, DIRT, PRECIPITATION, AND FREEZING, C. PROVIDE PROTECTION OF INSTALLED PRIMER AND FINISH FROM DUST, DIRT, PRECIPITATION, FREEZING AND CONTINUOUS HIGH HUMIDITY D. PROVIDE SEALANT AND BACKER MATERIAL AT STUCCO TERMINATIONS AND AT FIXTURE PENETRATIONS THROUGH THE STUCCO TO

CONDUCT WATER TO THE EXTERIOR 3.10 CLEANING, REPAIR AND MAINTENANCE A. CLEAN AND MAINTAIN THE STUCCO FINISH FOR A FRESH APPEARANCE AND TO PREVENT WATER ENTRY INTO AND BEHIND THE STUCCO. REPAIR CRACKS, IMPACT DAMAGE, SPALLS OR DELAMINATION PROMPTLY.

AGAINST AIR, WATER AND INSECT INFILTRATION. PROVIDE WEEPS AT FLOOR LINES, WINDOW AND DOOR HEADS, AND OTHER AREAS TO

C. REFER TO STO RESTORE REPAIR AND MAINTENANCE GUIDE (RESTORE PROGRAM) FOR DETAILED INFORMATION ON STUCCO RESTORATION

B. MAINTAIN ADJACENT COMPONENTS OF CONSTRUCTION SUCH AS SEALANTS, WINDOWS, DOORS, AND FLASHING, TO PREVENT WATER

CLEANING, REPAIRS, RECOATING, RESURFACING AND REFINISHING, OR RE-CLADDING. ATTENTION

STO PRODUCTS ARE INTENDED FOR USE BY QUALIFIED PROFESSIONAL CONTRACTORS, NOT CONSUMERS, AS A COMPONENT OF A LARGER CONSTRUCTION ASSEMBLY AS SPECIFIED BY A QUALIFIED DESIGN PROFESSIONAL, GENERAL CONTRACTOR OR BUILDER. THEY SHOULD BE INSTALLED IN ACCORDANCE WITH THOSE SPECIFICATIONS AND STO'S INSTRUCTIONS. STO CORP. DISCLAIMS ALL, AND ASSUMES NO, LIABILITY FOR ON-SITE INSPECTIONS, FOR ITS PRODUCTS APPLIED IMPROPERLY, OR BY UNQUALIFIED PERSONS OR ENTITIES, OR AS PART OF AN IMPROPERLY DESIGNED OR CONSTRUCTED BUILDING, FOR THE NONPERFORMANCE OF ADJACENT BUILDING COMPONENTS OR ASSEMBLIES, OR FOR OTHER CONSTRUCTION ACTIVITIES BEYOND STO'S CONTROL. IMPROPER USE OF STO PRODUCTS OR USE AS PART OF AN IMPROPERLY DESIGNED OR CONSTRUCTED LARGER ASSEMBLY OR BUILDING MAY RESULT IN SERIOUS DAMAGE TO STO PRODUCTS, AND TO THE STRUCTURE OF THE BUILDING OR ITS COMPONENTS. STO CORP. DISCLAIMS ALL EXPRESS OR IMPLIED EXCEPT FOR EXPLICIT LIMITED WRITTEN WARRANTIES ISSUED TO AND ACCEPTED BY BUILDING OWNERS IN ACCORDANCE WITH STO'S WARRANTY PROGRAMS WHICH ARE SUBJECT TO CHANGE FROM TIME TO TIME. FOR THE FULLEST, MOST CURRENT INFORMATION ON PROPER APPLICATION, CLEAN-UP, MIXING AND OTHER SPECIFICATIONS A END OF SECTION

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PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.

1.2 SUMMARY

A. SECTION INCLUDES:

1. CONCEALED-FASTENER, LAP-SEAM METAL WALL PANELS.

1.3 PREINSTALLATION MEETINGS

A. PREINSTALLATION CONFERENCE: CONDUCT CONFERENCE AT THE PROJECT SITE

- . MEET WITH OWNER, ARCHITECT, OWNER'S INSURER IF APPLICABLE, METAL PANEL INSTALLER, METAL PANEL MANUFACTURER'S REPRESENTATIVE, STRUCTURAL-SUPPORT INSTALLER, AND INSTALLERS WHOSE WORK INTERFACES WITH OR AFFECTS METAL
- PANELS, INCLUDING INSTALLERS OF DOORS, WINDOWS, AND LOUVERS. 2. REVIEW AND FINALIZE CONSTRUCTION SCHEDULE AND VERIFY AVAILABILITY OF MATERIALS, INSTALLER'S PERSONNEL,
- EQUIPMENT, AND FACILITIES NEEDED TO MAKE PROGRESS AND AVOID DELAYS. 3. REVIEW METHODS AND PROCEDURES RELATED TO METAL PANEL INSTALLATION, INCLUDING MANUFACTURER'S WRITTEN
- INSTRUCTIONS 4. EXAMINE SUPPORT CONDITIONS FOR COMPLIANCE WITH REQUIREMENTS, INCLUDING ALIGNMENT BETWEEN AND ATTACHMENT TO
- STRUCTURAL MEMBERS. 5. REVIEW FLASHINGS, SPECIAL SIDING DETAILS, WALL PENETRATIONS, OPENINGS, AND CONDITION OF OTHER CONSTRUCTION THAT
- AFFECT METAL PANELS. 6. REVIEW GOVERNING REGULATIONS AND REQUIREMENTS FOR INSURANCE, CERTIFICATES, AND TESTS AND INSPECTIONS IF
- 7. REVIEW TEMPORARY PROTECTION REQUIREMENTS FOR METAL PANEL ASSEMBLY DURING AND AFTER INSTALLATION.
- 8. REVIEW OF PROCEDURES FOR REPAIR OF METAL PANELS DAMAGED AFTER INSTALLATION.

1.4 ACTION SUBMITTALS

EACH PARTICIPANT

A PRODUCT DATA: FOR EACH TYPE OF PRODUCT

1. INCLUDE CONSTRUCTION DETAILS, MATERIAL DESCRIPTIONS, DIMENSIONS OF INDIVIDUAL COMPONENTS AND PROFILES, AND FINISHES FOR EACH TYPE OF PANEL AND ACCESSORY.

9. DOCUMENT PROCEEDINGS, INCLUDING CORRECTIVE MEASURES AND ACTIONS REQUIRED, AND FURNISH COPY OF RECORD TO

- 1. INCLUDE FABRICATION AND INSTALLATION LAYOUTS OF METAL PANELS; DETAILS OF EDGE CONDITIONS, JOINTS, PANEL PROFILES, CORNERS, ANCHORAGES, ATTACHMENT SYSTEM, TRIM, FLASHINGS, CLOSURES, AND ACCESSORIES; AND SPECIAL DETAILS. 2. ACCESSORIES: INCLUDE DETAILS OF THE FLASHING, TRIM, AND ANCHORAGE SYSTEMS, AT A SCALE OF NOT LESS THAN 3" = 1'-0"
- C. CALCULATIONS 1. INCLUDE CALCULATIONS WITH REGISTERED ENGINEER SEAL, VERIFYING WALL PANEL AND ATTACHMENT METHOD RESIST WIND
- PRESSURES IMPOSED ON IT PURSUANT TO APPLICABLE BUILDING CODES
- D. SAMPLES FOR INITIAL SELECTION: FOR EACH TYPE OF METAL PANEL INDICATED WITH FACTORY-APPLIED FINISHES.
- 1. INCLUDE SAMPLES OF TRIM AND ACCESSORIES INVOLVING COLOR SELECTION.
- E. SAMPLES FOR VERIFICATION: FOR EACH TYPE OF EXPOSED FINISH, PREPARED ON SAMPLES OF SIZE INDICATED BELOW: 1. METAL PANELS: 12 INCHES (305 MM) LONG BY ACTUAL PANEL WIDTH. INCLUDE FASTENERS, CLOSURES, AND OTHER METAL PANEL ACCESSORIES

1.5 INFORMATIONAL SUBMITTALS

- A. QUALIFICATION DATA: FOR INSTALLER AND MANUFACTURER.
- B. PRODUCT TEST REPORTS: FOR EACH PRODUCT, FOR TESTS PERFORMED BY A QUALIFIED TESTING AGENCY.
- C. FIELD QUALITY-CONTROL REPORTS.
- D. SAMPLE WARRANTIES: FOR SPECIAL WARRANTIES

1.6 CLOSEOUT SUBMITTALS

A. MAINTENANCE DATA: FOR METAL PANELS TO INCLUDE IN MAINTENANCE MANUALS.

- A. INSTALLER QUALIFICATIONS: AN ENTITY THAT EMPLOYS INSTALLERS AND SUPERVISORS WHO ARE TRAINED AND APPROVED BY MANUFACTURER.
- B. MANUFACTURER QUALIFICATIONS: COMPANY SPECIALIZING IN ARCHITECTURAL SHEET METAL PRODUCTS.
- C. MOCKUPS: BUILD MOCKUPS TO VERIFY SELECTIONS MADE UNDER SAMPLE SUBMITTALS AND TO DEMONSTRATE AESTHETIC EFFECTS AND SET QUALITY STANDARDS FOR FABRICATION AND INSTALLATION
- 1. BUILD MOCKUP OF TYPICAL METAL PANEL ASSEMBLY, INCLUDING CORNER, SUPPORTS, ATTACHMENTS, AND ACCESSORIES. 2. WATER-SPRAY TEST: CONDUCT WATER-SPRAY TEST OF METAL PANEL ASSEMBLY MOCKUP, TESTING FOR WATER PENETRATION
- ACCORDING TO AAMA 501.2. 3. APPROVAL OF MOCKUPS DOES NOT CONSTITUTE APPROVAL OF DEVIATIONS FROM THE CONTRACT DOCUMENTS CONTAINED IN
- MOCKUPS UNLESS ARCHITECT SPECIFICALLY APPROVES SUCH DEVIATIONS IN WRITING.
- 4. SUBJECT TO COMPLIANCE WITH REQUIREMENTS, APPROVED MOCKUPS MAY BECOME PART OF THE COMPLETED WORK IF UNDISTURBED AT TIME OF SUBSTANTIAL COMPLETION.

1.8 DELIVERY, STORAGE, AND HANDLING

- A. DELIVER COMPONENTS, METAL PANELS, AND OTHER MANUFACTURED ITEMS SO AS NOT TO BE DAMAGED OR DEFORMED. PACKAGE METAL PANELS FOR PROTECTION DURING TRANSPORTATION AND HANDLING.
- B. UNLOAD, STORE, AND ERECT METAL PANELS IN A MANNER TO PREVENT BENDING, WARPING, TWISTING, AND SURFACE DAMAGE. C. STACK METAL PANELS HORIZONTALLY ON PLATFORMS OR PALLETS COVERED WITH SUITABLE WEATHERTIGHT AND VENTILATE
- COVERING. STORE METAL PANELS TO ENSURE DRYNESS, WITH POSITIVE SLOPE FOR DRAINAGE OF WATER. DO NOT STORE METAL PANELS IN CONTACT WITH OTHER MATERIALS THAT MIGHT CAUSE STAINING, DENTING, OR OTHER SURFACE DAMAGE.
- D. REMOVE STRIPPABLE PROTECTIVE COVERING ON METAL PANELS AS PANELS ARE BEING INSTALLED. DO NOT LEAVE THE FILM ON INSTALLED PANELS.

1.9 FIELD CONDITIONS A. WEATHER LIMITATIONS: PROCEED WITH INSTALLATION ONLY WHEN EXISTING AND FORECASTED WEATHER CONDITIONS PERMIT

ASSEMBLY OF METAL PANELS TO BE PERFORMED ACCORDING TO MANUFACTURERS' WRITTEN INSTRUCTIONS AND WARRANTY REQUIREMENTS.

1.10 COORDINATION A. COORDINATE METAL PANEL INSTALLATION WITH RAIN DRAINAGE WORK, FLASHING, TRIM, CONSTRUCTION OF SOFFITS, AND OTHER

ADJOINING WORK TO PROVIDE A LEAKPROOF, SECURE, AND NONCORROSIVE INSTALLATION.

1.11 WARRANTY

A. GALVALUME SUBSTRATE WARRANTY: MANUFACTURER'S STANDARD FORM IN WHICH MANUFACTURER AGREES TO REPAIR OR REPLACE COMPONENTS OF METAL PANEL SYSTEMS THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY

1. FAILURES INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

- a. STRUCTURAL FAILURES INCLUDING RUPTURING OR PERFORATING.
- b. DETERIORATION OF METALS AND OTHER MATERIALS BEYOND NORMAL WEATHERING. 2. WARRANTY PERIOD: 20 YEARS AND 6 MONTHS FROM DATE OF SUBSTANTIAL COMPLETION.
- B. SPECIAL WARRANTY ON PANEL FINISHES: MANUFACTURER'S STANDARD FORM IN WHICH MANUFACTURER AGREES TO REPAIR FINISH OR REPLACE METAL PANELS THAT SHOW EVIDENCE OF DETERIORATION OF FACTORY-APPLIED FINISHES WITHIN SPECIFIED
- 1. EXPOSED PANEL FINISH: DETERIORATION INCLUDES, BUT IS NOT LIMITED TO, THE FOLLOWING:
- a. COLOR FADING MORE THAN 5 HUNTER UNITS WHEN TESTED ACCORDING TO ASTM D 2244.
- b. CHALKING IN EXCESS OF A NO. 8 RATING WHEN TESTED ACCORDING TO ASTM D 4214. c. CRACKING, CHIPPING, PEELING, OR FAILURE OF PAINT TO ADHERE TO BARE METAL

2. FINISH WARRANTY PERIOD: 20 YEARS FROM DATE OF SUBSTANTIAL COMPLETION.

PART 2 - PRODUCTS 2.1 PERFORMANCE REQUIREMENTS

- A. RECYCLED CONTENT: POSTCONSUMER RECYCLED CONTENT PLUS ONE-HALF OF PRECONSUMER RECYCLED CONTENT NOT LESS
- B. STRUCTURAL PERFORMANCE: PROVIDE METAL PANEL SYSTEMS CAPABLE OF WITHSTANDING THE EFFECTS OF THE FOLLOWING LOADS, BASED ON TESTING ACCORDING TO ASTM E 1592: WIND LOADS: AS INDICATED ON DRAWINGS.
- 2. DEFLECTION LIMITS: FOR WIND LOADS, NO GREATER THAN [1/180] [1/240] <INSERT DEFLECTION> OF THE SPAN.
- C. AIR INFILTRATION: AIR LEAKAGE OF NOT MORE THAN 0.01 CFM/SQ. FT. (0.05 L/S PER SQ. M) TESTED ACCORDING TO ASTM E 283 AT THE FOLLOWING TEST-PRESSURE DIFFERENCE: 1. TEST-PRESSURE DIFFERENCE: 6.24 LBF/SQ. FT. (300 PA)
- D. WATER PENETRATION UNDER STATIC PRESSURE: NO WATER PENETRATION WHEN TESTED ACCORDING TO ASTME 331 AT THE FOLLOWING TEST-PRESSURE DIFFERENCE: 1. TEST-PRESSURE DIFFERENCE: 15 LBF/SQ. FT. (718.2 PA)

2.2 CONCEALED-FASTENER, LAP-SEAM METAL WALL PANELS

- A GENERAL PROVIDE FACTORY-FORMED METAL PANELS DESIGNED TO BE FIELD ASSEMBLED BY LAPPING AND INTERCONNECTING SIDE FDGFS OF ADJACENT PANELS AND MECHANICALLY ATTACHING THROUGH PANEL TO SUPPORTS USING CONCEALED FASTENERS. IN SIDE LAPS. INCLUDE ACCESSORIES REQUIRED FOR WEATHERTIGHT INSTALLATION.
- B. WIDE-REVEAL-JOINT, CONCEALED-FASTENER METAL WALL PANELS, FORMED WITH HORIZONTAL PANEL EDGES AND A STEPPED PROFILE BETWEEN PANEL EDGES, RESULTING IN A WIDE REVEAL JOINT BETWEEN PANELS. 1. BASIS-OF-DESIGN PRODUCT: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE BERRIDGE MANUFACTURING COMPANY; HR-16 OR COMPARABLE PRODUCT BY ONE OF THE FOLLOWING:
- a. BERRIDGE OR EQUAL 2. METALLIC-COATED STEEL SHEET: ALUMINUM-ZINC ALLOY-COATED STEEL SHEET COMPLYING WITH ASTM A 792/A 792M, CLASS AZ50
- LASS AZM150) COATING DESIGNATION; STRUCTURAL QUALITY. PREPAINTED BY THE COIL-COATING PROCESS TO COMPLY WITH
- a. NOMINAL THICKNESS: 0.029 INCH (0.74 MM) b. SURFACE: SMOOTH FINISH.
- c. EXTERIOR FINISH: PROVIDE FOLLOWING FINISH SAMPLES FOR DESIGN TEAM'S APPROVAL
- 1) TWO-COAT FLUOROPOLYMER 2) MICA FLUOROPOLYMER
- 3) METALLIC FLUOROPOLYMER d. COLOR: AS SELECTED BY DESIGN TEAM FROM MANUFACTURER'S FULL RANGE
- 4. PANEL COVERAGE: 16 INCHES (406 MM). 5. PANEL HEIGHT: 0.875 INCHES (22 MM).

- 2.3 UNDERLAYMENT MATERIALS
- A. SELF-ADHERING, HIGH-TEMPERATURE UNDERLAYMENT: PROVIDE SELF-ADHERING, COLD-APPLIED, SHEET UNDERLAYMENT, A MINIMUM OF 40 MILS (1.02 MM) THICK, CONSISTING OF SLIP-RESISTANT, POLYETHYLENE-FILM TOP SURFACE LAMINATED TO A LAYER OF BUTYL OR SBS-MODIFIED ASPHALT ADHESIVE, WITH RELEASE-PAPER BACKING, PROVIDE PRIMER WHEN RECOMMENDED BY UNDERLAYMENT MANUFACTURER.
- 1. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
- a. GRACE ULTRA
- b. MID-STATES ASPHALT QUICK STICK HT PRO
- c. POLYGLASS POLYSTICK MTS
- d. SOPREMA LASTOBOND SHIELD HT
- e. TAMKO TW UNDERLAYMENT OR TW METAL & TILE UNDERLAYMENT
- 2. THERMAL STABILITY: STABLE AFTER TESTING AT 240 DEG F (116 DEG C); ASTM D 1970. 3. LOW-TEMPERATURE FLEXIBILITY: PASSES AFTER TESTING AT MINUS 20 DEG F (29 DEG C); ASTM D 1970.
- B. FELT UNDERLAYMENT: ASTM D 226/D 22M, TYPE II (NO. 30), ASPHALT-SATURATED ORGANIC FELTS.

2.4 MISCELLANEOUS MATERIALS

- A. MISCELLANEOUS METAL SUBFRAMING AND FURRING: ASTM C 645, COLD-FORMED, METALLIC-COATED STEEL SHEET, ASTM A 653/A 653M, G90 (Z275) HOT-DIP GALVANIZED COATING DESIGNATION OR ASTM A 792/A 792M. CLASS AZ50 (CLASS AZM150) ALLIMINLIM-ZINC-ALLOY COATING DESIGNATION. UNLESS OTHERWISE INDICATED. PROVIDE MANUFACTURER'S STANDARD SECTIONS AS REQUIRED FOR SUPPORT AND ALIGNMENT OF METAL
- B. PANEL ACCESSORIES: PROVIDE COMPONENTS REQUIRED FOR A COMPLETE, WEATHERTIGHT PANEL SYSTEM INCLUDING TRIM, COPINGS, FASCIAE, MULLIONS, SILLS, CORNER UNITS, CLIPS, FLASHINGS, SEALANTS, GASKETS, FILLERS, CLOSURE STRIPS, AND SIMILAR ITEMS. MATCH MATERIAL AND
- FINISH OF METAL PANELS UNLESS OTHERWISE INDICATED. 1. CLOSURES: PROVIDE CLOSURES AT EAVES AND RAKES, FABRICATED OF SAME METAL AS METAL PANELS.

2. BACKING PLATES: PROVIDE METAL BACKING PLATES AT PANEL END SPLICES, FABRICATED FROM MATERIAL RECOMMENDED BY

- 3. CLOSURE STRIPS: CLOSED-CELL, EXPANDED, CELLULAR, RUBBER OR CROSSLINKED, POLYOLEFIN-FOAM OR CLOSED-CELL LAMINATED POLYFTHYLENF: MINIMUM 1-INCH- (25-MM-) THICK. FLEXIBLE CLOSURE STRIPS: CUT OR PREMOLDED TO MATCH METAL PANEL PROFILE.
- PROVIDE CLOSURE STRIPS WHERE INDICATED OR NECESSARY TO ENSURE WEATHERTIGHT CONSTRUCTION. C. FLASHING AND TRIM: PROVIDE FLASHING AND TRIM FORMED FROM SAME MATERIAL AS METAL PANELS AS REQUIRED TO SEAL AGAINST WEATHER AND TO PROVIDE FINISHED APPEARANCE. LOCATIONS INCLUDE, BUT ARE NOT LIMITED TO, BASES, DRIPS, SILLS, JAMBS, CORNERS, ENDWALLS, FRAMED OPENINGS, RAKES, FASCIAE, PARAPET CAPS, SOFFITS, REVEALS, AND FILLERS. FINISH FLASHING AND TRIM WITH SAME FINISH SYSTEM AS
- D. PANEL FASTENERS: SELF-TAPPING SCREWS DESIGNED TO WITHSTAND DESIGN LOADS. PROVIDE EXPOSED FASTENERS WITH HEADS MATCHING COLOR OF METAL PANELS BY MEANS OF FACTORY-APPLIED COATING. PROVIDE EPDM OR PVC SEALING WASHERS FOR EXPOSED FASTENERS.
- E. PANEL SEALANTS: PROVIDE SEALANT TYPE RECOMMENDED BY MANUFACTURER THAT ARE COMPATIBLE WITH PANEL MATERIALS, ARE NONSTAINING, AND DO NOT DAMAGE PANEL FINISH.
- 1. SEALANT TAPE: PRESSURE-SENSITIVE, 100 PERCENT SOLIDS, GRAY POLYISOBUTYLENE COMPOUND SEALANT TAPE WITH RELEASE-PAPER BACKING. PROVIDE PERMANENTLY ELASTIC, NONSAG, NONTOXIC, NONSTAINING TAPE 1/2 INCH (13 MM) WIDE AND 1/8 INCH (3 MM) THICK. 2. JOINT SEALANT: ASTM C 920; ELASTOMERIC POLYURETHANE OR SILICONE SEALANT; OF TYPE, GRADE, CLASS, AND USE CLASSIFICATIONS REQUIRED TO SEAL JOINTS IN METAL PANELS AND REMAIN WEATHERTIGHT; AND AS RECOMMENDED IN WRITING BY METAL PANEL
- 3. BUTYL-RUBBER-BASED, SOLVENT-RELEASE SEALANT: ASTM C 1311.

INDICATED PROFILES AND WITH DIMENSIONAL AND STRUCTURAL REQUIREMENTS.

APPLICATION BUT NOT LESS THAN THICKNESS OF METAL BEING SECURED.

MANUFACTURER.

- A. GENERAL: FABRICATE AND FINISH METAL PANELS AND ACCESSORIES AT THE FACTORY, BY MANUFACTURER'S STANDARD PROCEDURES AND PROCESSES, AS NECESSARY TO FULFILL INDICATED PERFORMANCE REQUIREMENTS DEMONSTRATED BY LABORATORY TESTING. COMPLY WITH
- B. PROVIDE PANEL PROFILE, INCLUDING MAJOR RIBS AND INTERMEDIATE STIFFENING RIBS, IF ANY, FOR FULL LENGTH OF PANEL
- C. SHEET METAL FLASHING AND TRIM: FABRICATE FLASHING AND TRIM TO COMPLY WITH MANUFACTURER'S RECOMMENDATIONS AND RECOMMENDATIONS IN SMACNA'S "ARCHITECTURAL SHEET METAL MANUAL" THAT APPLY TO DESIGN, DIMENSIONS, METAL, AND OTHER
- CHARACTERISTICS OF ITEM INDICATED. 1. FORM EXPOSED SHEET METAL ACCESSORIES THAT ARE WITHOUT EXCESSIVE OIL CANNING, BUCKLING, AND TOOL MARKS AND THAT ARE TRUE
- TO LINE AND LEVELS INDICATED, WITH EXPOSED EDGES FOLDED BACK TO FORM HEMS.
- 2. SEAMS FOR ALUMINUM: FABRICATE NONMOVING SEAMS WITH FLAT-LOCK SEAMS. FORM SEAMS AND SEAL WITH EPOXY SEAM SEALER. RIVET JOINTS FOR ADDITIONAL STRENGTH.
- 3. SEAMS FOR OTHER THAN ALUMINUM: FABRICATE NONMOVING SEAMS IN ACCESSORIES WITH FLAT-LOCK SEAMS. TIN EDGES TO BE SEAMED, FORM SEAMS, AND SOLDER.
- 4. SEALED JOINTS: FORM NONEXPANSION, BUT MOVABLE, JOINTS IN METAL TO ACCOMMODATE SEALANT AND TO COMPLY WITH SMACNA 5. CONCEAL FASTENERS AND EXPANSION PROVISIONS WHERE POSSIBLE. EXPOSED FASTENERS ARE NOT ALLOWED ON FACES OF ACCESSORIES
- 6 FARRICATE CLEATS AND ATTACHMENT DEVICES FROM SAME MATERIAL AS ACCESSORY BEING ANCHORED OR FROM COMPATIBLE
- NONCORROSIVE METAL RECOMMENDED IN WRITING BY METAL PANEL MANUFACTURER. a. SIZE: AS RECOMMENDED BY SMACNA'S "ARCHITECTURAL SHEET METAL MANUAL" OR METAL WALL PANEL MANUFACTURER FOR

- A. PROTECT MECHANICAL AND PAINTED FINISHES ON EXPOSED SURFACES FROM DAMAGE BY APPLYING A STRIPPABLE, TEMPORARY PROTECTIVE
- B. APPEARANCE OF FINISHED WORK: VARIATIONS IN APPEARANCE OF ABUTTING OR ADJACENT PIECES ARE ACCEPTABLE IF THEY ARE WITHIN ONE-HALF OF THE RANGE OF APPROVED SAMPLES. NOTICEABLE VARIATIONS IN SAME PIECE ARE NOT ACCEPTABLE. VARIATIONS IN APPEARANCE OF OTHER COMPONENTS ARE ACCEPTABLE IF THEY ARE WITHIN THE RANGE OF APPROVED SAMPLES AND ARE ASSEMBLED OR INSTALLED TO

C. STEEL PANELS AND ACCESSORIES RETAIN ONE EXPOSED FLUOROPOLYMER FINISH FROM SUBPARAGRAPHS BELOW. VERIFY AVAILABILITY OF FINISHES FOR

PRODUCTS SPECIFIED. IF RETAINING MORE THAN ONE, INDICATE LOCATION OF EACH ON DRAWINGS OR BY INSERTS. TO OBTAIN A PROPRIETARY FINISH SYSTEM. INSERT NAMES OF COATING MANUFACTURERS AND PRODUCT

C STEEL PANELS AND ACCESSORIES

- 1. TWO-COAT FLUOROPOLYMER: AAMA 621. FLUOROPOLYMER FINISH CONTAINING NOT LESS THAN 70 PERCENT PVDF RESIN BY WEIGHT IN COLOR COAT APPLIED BY PANEL MANUFACTURER ON A CONTINUOUS COIL COATING LINE, WITH A TOP SIDE DRY FILM THICKNESS OF 0.75 ± 0.05 MIL (0.019+ 0.0013 MM) OVER 0.2+ 0.05 MIL (0.05+ 0.0013 MM) PRIMER COAT TO PROVIDE A TOTAL DRY FILM THICKNESS OF 0.95+ 0.10 MIL (0.024-0.0025 MM). PREPARE, PRETREAT, AND APPLY COATING TO EXPOSED METAL SURFACES TO COMPLY WITH COATING AND RESIN MANUFACTURERS' WRITTEN INSTRUCTIONS.
- 2. MICA FLUOROPOLYMER: AAMA 621. TWO-COAT FLUOROPOLYMER FINISH WITH SUSPENDED MICA FLAKES CONTAINING NOT LESS THAN 70 PERCENT PVDF RESIN BY WEIGHT IN COLOR COAT APPLIED BY PANEL MANUFACTURER ON A CONTINUOUS COIL COATING LINE, WITH A TOP SIDE DRY FILM THICKNESS OF 0.75± 0.05 MIL (0.019± 0.0013 MM) OVER 0.2± 0.05 MIL (0.05± 0.0013 MM) PRIMER COAT, TO PROVIDE A TOTAL DRY FILM THICKNESS OF 0.95± 0.10 MIL (0.024± 0.0025 MM), PREPARE, PRETREAT, AND APPLY COATING TO EXPOSED METAL SURFACES TO COMPLY WITH COATING AND RESIN MANUFACTURERS' WRITTEN INSTRUCTIONS.
- 3. METALLIC FLUOROPOLYMER: AAMA 621. TWO-COAT FLUOROPOLYMER FINISH WITH SUSPENDED METALLIC FLAKES CONTAINING NOT LESS THAN 70 PERCENT PVDF RESIN BY WEIGHT IN COLOR COAT APPLIED BY PANEL MANUFACTURER ON A CONTINUOUS COIL COATING LINE, WITH A TOP SIDE DRY FILM THICKNESS OF 0.75± 0.05 MIL (0.019± 0.0013 MM) OVER 0.2± 0.05 MIL (0.05± 0.0013 MM) PRIMER COAT. TO PROVIDE A TOTAL DRY FILM THICKNESS OF 0.95± 0.10 MIL (0.024± 0.0025 MM). PREPARE, PRETREAT, AND APPLY COATING TO EXPOSED METAL SURFACES TO COMPLY WITH COATING AND RESIN MANUFACTURERS' WRITTEN INSTRUCTIONS.
- 4. CONCEALED FINISH: APPLY PRETREATMENT AND MANUFACTURER'S STANDARD WHITE OR LIGHT-COLORED ACRYLIC OR POLYESTER BACKER FINISH CONSISTING OF PRIME COAT AND WASH COAT WITH A MINIMUM TOTAL DRY FILM THICKNESS OF 0.35 MIL (0.009 MM).

D. ALUMINUM PANELS AND ACCESSORIES:

- 1. TWO-COAT FLUOROPOLYMER: AAMA 2605. FLUOROPOLYMER FINISH CONTAINING NOT LESS THAN 70 PERCENT PVDF RESIN BY WEIGHT IN COLOR COAT APPLIED BY PANEL MANUFACTURER ON A CONTINUOUS COIL COATING LINE. WITH A TOP SIDE DRY FILM THICKNESS OF 0.75± 0.05 MIL (0.019± 0.0013 MM) OVER 0.2± 0.05 MIL (0.05± 0.0013 MM) PRIMER COAT. TO PROVIDE A TOTAL DRY FILM THICKNESS OF 0.95± 0.10 MIL (0.024± 0.0025 MM). PREPARE, PRETREAT, AND APPLY COATING TO EXPOSED METAL SURFACES TO COMPLY WITH COATING AND RESIN MANUFACTURERS' WRITTEN INSTRUCTIONS.
- 2. MICA FLUOROPOLYMER: AAMA 2605. TWO-COAT FLUOROPOLYMER FINISH WITH SUSPENDED MICA FLAKES CONTAINING NOT LESS THAN 70 PERCENT PVDF RESIN BY WEIGHT IN COLOR COAT APPLIED BY PANEL MANUFACTURER ON A CONTINUOUS COIL COATING LINE. WITH A TOP SIDE DRY FILM THICKNESS OF 0.75± 0.05 MIL (0.019± 0.0013 MM) OVER 0.2± 0.05 MIL (0.05± 0.0013 MM) PRIMER COAT. TO PROVIDE A TOTAL DRY FILM THICKNESS OF 0.95± 0.10 MIL (0.024± 0.0025 MM). PREPARE, PRETREAT, AND APPLY COATING TO EXPOSED METAL SURFACES TO COMPLY
- WITH COATING AND RESIN MANUFACTURERS' WRITTEN INSTRUCTIONS. 3. METALLIC FLUOROPOLYMER: AAMA 2605. TWO-COAT FLUOROPOLYMER FINISH WITH SUSPENDED METALLIC FLAKES CONTAINING NOT LESS THAN 70 PERCENT PVDF RESIN BY WEIGHT IN COLOR COAT APPLIED BY PANEL MANUFACTURER ON A CONTINUOUS COIL COATING LINE, WITH A TOP SIDE DRY FILM THICKNESS OF 0.75± 0.05 MIL (0.019± 0.0013 MM) OVER 0.2± 0.05 MIL (0.05± 0.0013 MM) PRIMER COAT. TO PROVIDE A TOTAL DRY FILM THICKNESS OF 0.95± 0.10 MIL (0.024± 0.0025 MM). PREPARE, PRETREAT, AND APPLY COATING TO EXPOSED METAL SURFACES TO

PART 3 - EXECUTION 3.1 EXAMINATION

- A. EXAMINE SUBSTRATES, AREAS, AND CONDITIONS, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS FOR INSTALLATION
 - TOLERANCES, METAL PANEL SUPPORTS, AND OTHER CONDITIONS AFFECTING PERFORMANCE OF THE WORK. 1. EXAMINE WALL FRAMING TO VERIFY THAT GIRTS, ANGLES, CHANNELS, STUDS, AND OTHER STRUCTURAL PANEL SUPPORT MEMBERS AND ANCHORAGE HAVE BEEN INSTALLED WITHIN ALIGNMENT TOLERANCES REQUIRED BY METAL WALL PANEL MANUFACTURER. 2. EXAMINE WALL SHEATHING TO VERIFY THAT SHEATHING JOINTS ARE SUPPORTED BY FRAMING OR BLOCKING AND THAT INSTALLATION IS
- WITHIN FLATNESS TOLERANCES REQUIRED BY METAL WALL PANEL MANUFACTURER. A. VERIFY THAT AIR- OR WATER-RESISTIVE BARRIERS HAVE BEEN INSTALLED OVER SHEATHING OR BACKING SUBSTRATE TO PREVENT AIR INFILTRATION OR WATER PENETRATION.
- B. EXAMINE ROUGHING-IN FOR COMPONENTS AND SYSTEMS PENETRATING METAL PANELS TO VERIFY ACTUAL LOCATIONS OF PENETRATIONS RELATIVE TO SEAM LOCATIONS OF METAL PANELS BEFORE INSTALLATION.
- C. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

COMPLY WITH COATING AND RESIN MANUFACTURERS' WRITTEN INSTRUCTIONS.

3.2 PREPARATION

A. MISCELLANEOUS SUPPORTS: INSTALL SUBFRAMING, FURRING, AND OTHER MISCELLANEOUS PANEL SUPPORT MEMBERS AND ANCHORAGES ACCORDING TO ASTM C 754 AND METAL PANEL MANUFACTURER'S WRITTEN RECOMMENDATIONS.

3.3 METAL PANEL INSTALLATION

- A. GENERAL: INSTALL METAL PANELS ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS IN ORIENTATION, SIZES, AND LOCATIONS INDICATED. INSTALL PANELS PERPENDICULAR TO SUPPORTS UNLESS OTHERWISE INDICATED. ANCHOR METAL PANELS AND OTHER COMPONENTS OF THE WORK SECURELY IN PLACE, WITH PROVISIONS FOR THERMAL AND STRUCTURAL MOVEMENT
- 1. SHIM OR OTHERWISE PLUMB SUBSTRATES RECEIVING METAL PANELS. 2. FLASH AND SEAL METAL PANELS AT PERIMETER OF ALL OPENINGS. FASTEN WITH SELF-TAPPING SCREWS. DO NOT BEGIN INSTALLATION UNTIL AIR- OR WATER-RESISTIVE BARRIERS AND FLASHINGS THAT WILL BE CONCEALED BY METAL PANELS ARE INSTALLED.
 - 3. INSTALL SCREW FASTENERS IN PREDRILLED HOLES. 4. LOCATE AND SPACE FASTENINGS IN UNIFORM VERTICAL AND HORIZONTAL ALIGNMENT.
- 5. INSTALL FLASHING AND TRIM AS METAL PANEL WORK PROCEEDS.
- 6. LOCATE PANEL SPLICES OVER, BUT NOT ATTACHED TO, STRUCTURAL SUPPORTS. STAGGER PANEL SPLICES AND END LAPS TO AVOID A FOUR-PANEL LAP SPLICE CONDITION.
- 7. ALIGN BOTTOMS OF METAL PANELS AND FASTEN WITH BLIND RIVETS, BOLTS, OR SELF-TAPPING SCREWS. FASTEN FLASHINGS AND TRIM AROUND OPENINGS AND SIMILAR ELEMENTS WITH SELF-TAPPING SCREWS.
- 8. PROVIDE WEATHERTIGHT ESCUTCHEONS FOR PIPE- AND CONDUIT-PENETRATING PANELS.

- 1. STEEL PANELS: USE STAINLESS-STEEL FASTENERS FOR SURFACES EXPOSED TO THE EXTERIOR; USE GALVANIZED-STEEL FASTENERS FOR SURFACES EXPOSED TO THE INTERIOR 2. ALUMINUM PANELS: USE STAINLESS-STEEL FASTENERS FOR SURFACES EXPOSED TO THE EXTERIOR; USE STAINLESS-STEEL
- FASTENERS FOR SURFACES EXPOSED TO THE INTERIOR. C. METAL PROTECTION: WHERE DISSIMILAR METALS CONTACT EACH OTHER OR CORROSIVE SUBSTRATES. PROTECT AGAINST GALVANIC
- ACTION AS RECOMMENDED IN WRITING BY METAL PANEL MANUFACTURER.
- D. LAP-SEAM METAL PANELS: FASTEN METAL PANELS TO SUPPORTS WITH FASTENERS AT EACH LAPPED JOINT AT LOCATION AND SPACING RECOMMENDED BY MANUFACTURER. 1. LAP RIBBED OR FLUTED SHEETS ONE FULL RIB. APPLY PANELS AND ASSOCIATED ITEMS TRUE TO LINE FOR NEAT AND
- WEATHERTIGHT ENCLOSURE.
- 2. PROVIDE METAL-BACKED WASHERS UNDER HEADS OF EXPOSED FASTENERS BEARING ON WEATHER SIDE OF METAL PANELS.
- 3. LOCATE AND SPACE EXPOSED FASTENERS IN UNIFORM VERTICAL AND HORIZONTAL ALIGNMENT. USE PROPER TOOLS TO OBTAIN CONTROLLED UNIFORM COMPRESSION FOR POSITIVE SEAL WITHOUT RUPTURE OF WASHER.
- 4. INSTALL SCREW FASTENERS WITH POWER TOOLS HAVING CONTROLLED TORQUE ADJUSTED TO COMPRESS WASHER TIGHTLY WITHOUT DAMAGE TO WASHER, SCREW THREADS, OR PANELS, INSTALL SCREWS IN PREDRILLED HOLES.
- 5. FLASH AND SEAL PANELS WITH WEATHER CLOSURES AT PERIMETER OF ALL OPENINGS.
- E. WATERTIGHT INSTALLATION: 1. APPLY A CONTINUOUS RIBBON OF SEALANT OR TAPE TO SEAL LAPPED JOINTS OF METAL PANELS, USING SEALANT OR TAPE AS RECOMMEND BY MANUFACTURER ON SIDE LAPS OF NESTING-TYPE PANELS; AND ELSEWHERE AS NEEDED TO MAKE PANELS
- 2. PROVIDE SEALANT OR TAPE BETWEEN PANELS AND PROTRUDING EQUIPMENT, VENTS, AND ACCESSORIES. 3. AT PANEL SPLICES, NEST PANELS WITH MINIMUM 6-INCH (152-MM) END LAP, SEALED WITH SEALANT AND FASTENED TOGETHER BY
- INTERLOCKING CLAMPING PLATES. F. METAL LINER PANELS: INSTALL PANELS ON EXTERIOR SIDE OF GIRTS, WITH GIRTS EXPOSED TO THE INTERIOR.
- G. ACCESSORY INSTALLATION: INSTALL ACCESSORIES WITH POSITIVE ANCHORAGE TO BUILDING AND WEATHERTIGHT MOUNTING, AND PROVIDE FOR THERMAL EXPANSION. COORDINATE INSTALLATION WITH FLASHINGS AND OTHER COMPONENTS. 1. INSTALL COMPONENTS REQUIRED FOR A COMPLETE METAL PANEL SYSTEM INCLUDING TRIM, COPINGS, CORNERS, SEAM COVERS,

LINE AND LEVEL AS INDICATED. INSTALL WORK WITH LAPS, JOINTS, AND SEAMS THAT ARE PERMANENTLY WATERTIGHT.

- FLASHINGS, SEALANTS, GASKETS, FILLERS, CLOSURE STRIPS, AND SIMILAR ITEMS. PROVIDE TYPES INDICATED BY METAL WALL PANEL MANUFACTURER; OR, IF NOT INDICATED, PROVIDE TYPES RECOMMENDED BY METAL PANEL MANUFACTURER. H. FLASHING AND TRIM: COMPLY WITH PERFORMANCE REQUIREMENTS, MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS, AND SMACNA'S "ARCHITECTURAL SHEET METAL MANUAL." PROVIDE CONCEALED FASTENERS WHERE POSSIBLE, AND SET UNITS TRUE TO
- INDICATED, WITH EXPOSED EDGES FOLDED BACK TO FORM HEMS. INSTALL SHEET METAL FLASHING AND TRIM TO FIT SUBSTRATES AND ACHIEVE WATERPROOF PERFORMANCE 2. EXPANSION PROVISIONS: PROVIDE FOR THERMAL EXPANSION OF EXPOSED FLASHING AND TRIM. SPACE MOVEMENT JOINTS AT A MAXIMUM OF 10 FEET (3 M) WITH NO JOINTS ALLOWED WITHIN 24 INCHES (610 MM) OF CORNER OR INTERSECTION. WHERE LAPPED EXPANSION PROVISIONS CANNOT BE USED OR WOULD NOT BE SUFFICIENTLY WATERPROOF, FORM EXPANSION JOINTS OF

INTERMESHING HOOKED FLANGES, NOT LESS THAN 1 INCH (25 MM) DEEP, FILLED WITH MASTIC SEALANT (CONCEALED WITHIN

1. INSTALL EXPOSED FLASHING AND TRIM THAT IS WITHOUT BUCKLING AND TOOL MARKS. AND THAT IS TRUE TO LINE AND LEVELS

- 3.4 FIELD QUALITY CONTROL
- A. TESTING AGENCY: OWNER WILL ENGAGE A QUALIFIED TESTING AGENCY TO PERFORM TESTS AND INSPECTIONS. B. WATER-SPRAY TEST: AFTER INSTALLATION, TEST AREA OF ASSEMBLY AS DIRECTED BY OWNER FOR WATER PENETRATION
- C. MANUFACTURER'S FIELD SERVICE: ENGAGE A FACTORY-AUTHORIZED SERVICE REPRESENTATIVE TO TEST AND INSPECT COMPLETED
- METAL WALL PANEL INSTALLATION, INCLUDING ACCESSORIES.
- D. REMOVE AND REPLACE METAL WALL PANELS WHERE TESTS AND INSPECTIONS INDICATE THAT THEY DO NOT COMPLY WITH SPECIFIED
- E. ADDITIONAL TESTS AND INSPECTIONS, AT CONTRACTOR'S EXPENSE, ARE PERFORMED TO DETERMINE COMPLIANCE OF REPLACED OR ADDITIONAL WORK WITH SPECIFIED REQUIREMENTS.
- F. PREPARE TEST AND INSPECTION REPORTS.

3.5 CLEANING AND PROTECTION

- A. REMOVE TEMPORARY PROTECTIVE COVERINGS AND STRIPPABLE FILMS, IF ANY, AS METAL PANELS ARE INSTALLED, UNLESS OTHERWISE INDICATED IN MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS. ON COMPLETION OF METAL PANEL INSTALLATION, CLEAN FINISHED SURFACES AS RECOMMENDED BY METAL PANEL MANUFACTURER. MAINTAIN IN A CLEAN CONDITION
- B. AFTER METAL PANEL INSTALLATION, CLEAR WEEP HOLES AND DRAINAGE CHANNELS OF OBSTRUCTIONS, DIRT, AND SEALANT.
- C. REPLACE METAL PANELS THAT HAVE BEEN DAMAGED OR HAVE DETERIORATED BEYOND SUCCESSFUL REPAIR BY FINISH TOUCHUP OR SIMILAR MINOR REPAIR PROCEDURES.

END OF SECTION



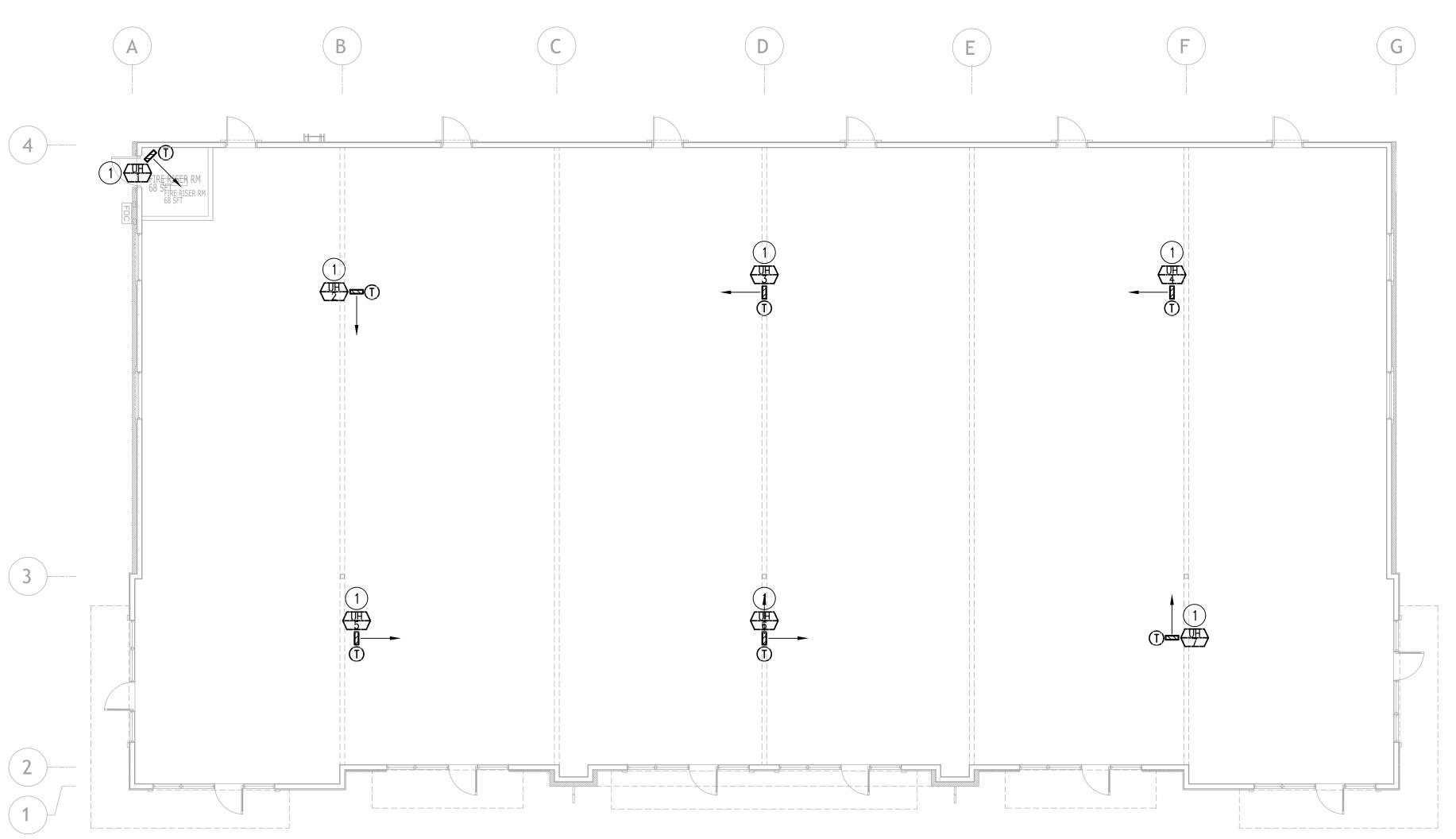
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ELECTRIC UNIT HEATER SCHEDULE							
MARK	LOCATION MOUNTING HEIGHT	VOLTS/ PH/HZ	K.W.	BTUH CAPACITY	AMPS	WEIGHT	REMARKS
UH-1, 2, 3, 4, 5, 6, 7	APPROX. 9'-0"	208/3/60	3.3	11,200	9.2	36 LBS.	REDD-I F3FUH03C03

NOTES FOR ALL:
1. AUTOMATIC PRIMARY HI-LIMIT CUTOUTS. ADJUSTABLE LOUVERS.

PROVIDE MOUNTING BRACKETS AND SUPPORTS.
 PROVIDE ADJUSTABLE THERMOSTAT.

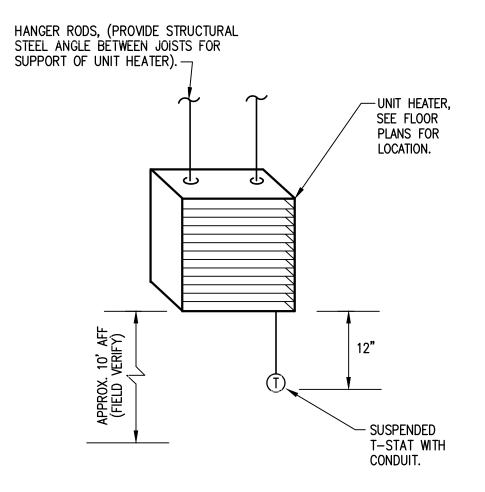
MEC	MECHANICAL SYMBOL LEGEND			
SYMBOL	DESCRIPTION			
① (里)	THERMOSTAT <u>EQUIPMENT DESIGNATION</u> NUMBER IN SEQUENTIAL ORDER			

GENERAL NOTES

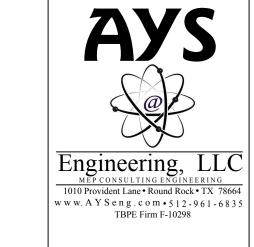
- 1. MECHANICAL CONTRACTOR TO COORDINATE WITH EXISTING SYSTEMS AND ALL OTHER TRADES PRIOR TO INSTALLING NEW SYSTEMS.
- 2. THESE PLANS ARE DIAGRAMMATIC IN NATURE, CONTRACTORS SHALL INCLUDE APPROPRIATE ALLOWANCES FOR OFFSETS, TRANSITIONS, FITTINGS, ETC. AS REQUIRED TO ACCOMMODATE VERTICAL AND HORIZONTAL VARIATIONS IN THE LOCATIONS AND ELEVATIONS OF PIPING AND EXISTING AND/OR OTHER TRADES CONDITIONS.
- 3. PENETRATIONS OF WALLS OR FLOORS SHALL BE PROPERLY SEALED AFTER INSTALLATION OF EQUIPMENT. FIELD VERIFY EXISTING WALL PENETRATIONS AND PROPERLY SEAL AS REQUIRED TO MAINTAIN WALL OR FLOOR RATING.
- 4. PROVIDE CODE AND MANUFACTURER-REQUIRED ACCESS TO ALL EQUIPMENT.
- 5. ALL CONSTRUCTION DEBRIS SHALL BE DISPOSED OF BY THE CONTRACTOR UNLESS NOTED OTHERWISE.
- 6. MECHANICAL CONTRACTOR TO COORDINATE WITH LIGHTING AND FIRE SPRINKLER PIPING LAYOUT ON ELECTRICAL AND ARCHITECTURAL PLANS.

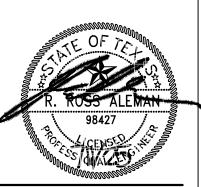
KEYED NOTES

MOUNT ELECTRIC UNIT HEATER PER MANUFACTURER'S INSTALLATION INSTRUCTIONS TO PREVENT FREEZING. THERMOSTAT TO CONTROL UNIT HEATER AND TO BE SET AT 50 DEGREES (ADJUSTABLE).











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MONARCH ELL BUILDING 78641 **TEXAS** CENTER SHOPS ANDER,

RE Sheet Number:

M100 Project Number: 24-015

DESCRIPTION	ABBREVIATION	DESCRIPTION	BBREVIATION
MECHANICAL MANUFACTURER MINIMUM NOT TO SCALE PLUMBING POLYVINYL CHLORIDE RECIRCULATION REFERENCE REQUIRED ROOFTOP UNIT SANITARY SEWER SIMILAR SPECIFICATIONS TEMPERATURE TEMP. INDICATOR (THERMOMETER) TYPICAL SANITARY VENT VENT THROUGH ROOF WITHOUT WALL CLEAN OUT WATER HAMMER ARRESTOR	MECH MFR MIN NTS PLBG PVC RECIRC REF REQ RTU SAN SIM SPECS TEMP TI TYP V VTR W/O WCO WHA	ABOVE ABOVE FINISHED FLOOR ARCHITECT BALANCING VALVE BUILDING BRITISH THERMAL UNIT PER HOUR CUBIC FEET PER HOUR CLEANOUT COLD WATER DRAIN LINE (CONDENSATE) DIAMETER DRAWING EXISTING EXISTING EXTERIOR FLOOR CLEANOUT ELECTRIC WATER HEATER FLOOR CLEAN OUT FLOOR DRAIN FINISH FLOOR FEET/FOOT (') GALLONS PER MINUTE NATURAL GAS GREASE WASTE GREASE VENT HIGH PRESSURE NATURAL GAS HOT WATER LAVATORY	ABV AFF ARCH BALA VA BLDG BTUH CO CW DIA DWG EXIST. EXT FCO EWH FCO FD FF FT GPM G GW GV HPG HW LAV
<u>EGEND</u> DESCRIPTION	1BOL L	GENERAL SYN	SYMBOL
ONTINUATION OF SYSTEM OR LINE		OTE BY SYMBOL DESIGNATION	

NOTED "OWNER FURNISHED".

	PLUMBING S	SYMBOL	LEGEND
YMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
- GW —	SANITARY SEWER GREASE WASTE PLUMBING VENT	(P)	SANITARY WASTE OR VENT STACK WASTE OR VENT NO.
	DOMESTIC COLD WATER DOMESTIC HOT WATER DOMESTIC HOT WATER RETURN	GW 1	GREASE WASTE OR VENT STACK GREASE WASTE OR VENT NO.
- F — - G —	FIRE LINE GAS LINE		CIRCUIT SETTER, BALANCING VALVE (B&G CB-SERIES)
-	DIRECTION OF FLOW		GATE VALVE WITH C.I. VALVE BOX
<u> </u>	BALL VALVE		VALVE ON VERTICAL
1 The	PLUG VALVE		DIRT LEG (6" LONG)
	SOLENOID VALVE	HB ⊞	HOSE BIBB
.t.	CHECK VALVE	₽₽ ZØ WH	WALL HYDRANT
√	NEEDLE VALVE		FLOOD DDAW
<u> </u>	GAS PRESSURE REGULATOR	☑ FD ☑ FS	FLOOR DRAIN FLOOR SINK
	THERMOMETER	—⊙ HD	HUB DRAIN
<u></u>	STRAINER W/ BLOWDOWN GATE VALVE	VTR FCO	VENT THRU ROOF FLOOR CLEANOUT
P C	TEMPERATURE/ PRESSURE RELIEF VALVE	Wco	WALL CLEANOUT
		EXT FCO	EXTERIOR FLOOR CLEANOUT
<u>¥</u> -	PRESSURE GAUGE W/ GAUGE COCK (PI) UNION	DBL EXT FCO	DOUBLE TWO-WAY EXTERIOR FLOOR CLEANOUT
			ELBOW TURNING DOWN
			ELBOW TURNING UP
		<u> </u>	CAPPED PIPE
		0:225	PIPE SLEEVE
		SLOPE	DIRECTION OF SLOPE (DNWARD)

	PIPING SCHEDULE				
SYMBOL	SERVICE	PIPE MATERIAL	TYPE JOINT	FITTINGS	TEST
	SANITARY WASTE AND UNDERGROUND	STANDARD WEIGHT DWV CAST IRON	NEOPRENE GASKET	STANDARD WEIGHT DWV CAST IRON	10 ft. FOR 6-HOURS
	SANITARY VENT	DWV CAST IRON	S.S. NO-HUB	DWV CAST IRON	10 ft. FOR 6-HOURS
	DOMESTIC WATER AND ABOVE GROUND	TYPE 'L' HARD DRAWN COPPER	SWEAT WITH LEAD FREE SOLDER,	WROUGHT COPPER	15 ft. FOR 24 HOURS

GENERAL NOTE:

(THIS NOTE APPLIES TO ALL SHEETS) ALL MATERIALS, FIXTURES AND DEVICES SHALL CONFORM TO APPROVED APPLICABLE STANDARDS (INTERNATIONAL PLUMBING CODE, SECTION 301.1.

GENERAL NOTE:

(THIS NOTE APPLIES TO ALL SHEETS) ALL PLUMBING SHALL BE IN ACCORDANCE WITH CITY OF LEANDER PLUMBING CODES (2021 IPC)

TRENCHES IN GOOD

GENERAL NOTE:

DIRECT QUESTIONS TO W&WW:

(THIS NOTE APPLIES TO ALL SHEETS) BACKFLOW PREVENTION ASSEMBLIS SHALL: A. HAVE FULL USC, FCCC&HR APPROVAL. B. BE OPERATIONALLY TESTED BY A BACKFLOW TESTER REGISTERED W/ WW&W.

AS NECESSARY.

- . ROUTE ALL PIPING HIDDEN FROM VIEW AS HIGH AS POSSIBLE ABV. CLG. 2. COORDINATE ROUTING OF ALL PIPING
- WITH ALL OTHER TRADES. OFFSET PIPING
- 3. UNLESS OTHERWISE NOTED, ALL PIPING SHOWN SHALL BE ROUTED ABV. CLG.
- 4. REFERENCE PLUMBING RISER DIAGRAMS FOR ADDITIONAL SIZES, WHA SIZES AND LOCATIONS, AND ADDITIONAL INFO.

PLUMBING SPECIFICATIONS

PART I — GENERAL

- 1. MATERIALS AND INSTALLATION SHALL COMPLY WITH ALL APPLICABLE STATE AND LOCAL CODES AND REQUIREMENTS.
- 2. OBTAIN AND PAY FOR ALL REQUIRED PERMITS, INSPECTION FEES, TAPPING FEES, CONNECTION CHARGES. AND UTILITY COMPANY SERVICE CHARGES.
- 3. INSTALLATION SHALL BE DONE IN A NEAT AND WORKABLE MANNER.
- 4. DRAWINGS ARE DIAGRAMMATIC AND SHALL NOT BE SCALED FOR EXACT SIZES OR LOCATIONS. THEY ARE NOT INTENDED TO DISCLOSE ABSOLUTE OR UNCONDITIONAL KNOWLEDGE OF ACTUAL FIELD CONDITIONS.

PART 2 – PRODUCTS

- 1. ALL DOMESTIC WATER PIPING INSIDE THE BUILDING ABOVE SLAB SHALL BE TYPE 'L' HARD DRAWN COPPER (TYPE 'K' FOR UNDERGROUND) WITH WROUGHT COPPER FITTINGS, SWEAT WITH LEAD FREE SOLDER.
- 2. ALL CONDENSATE PIPING ON THE ROOF SHALL BE TYPE 'M' COPPER. OR PVC WHERE ALLOWED BY CODE
- 3. DOMESTIC WATER AND CONDENSATE DRAIN PIPING BELOW SLAB AND OUTSIDE SHALL BE TYPE "K" SOFT SEAMLESS. NO JOINTS SHALL BE ALLOWED BELOW SLAB. ALL SLAB PENETRATIONS SHALL BE SLEEVED TO PROTECT PIPING FROM CORROSION BY CONCRETE.
- 4. COPPER PIPE FITTINGS SHALL BE WROUGHT COPPER SWEEP PATTERN FITTINGS. SOLDERED USING 95-5 LEAD-FREE SOLDER OR BRAZED WITH SIL-FOS.
- 5. ALL SANITARY WASTE, VENT AND STORM DRAINAGE PIPING INSIDE AND EXTENDING 30" OUTSIDE THE BUILDING SHALL BE SERVICE WEIGHT CAST IRON DWV EQUIVALENT TO CHARLOTTE PIPE.
- 6. JOINTS FOR PVC PIPING SHALL BE SOLVENT WELD TYPE INSIDE AND UNDERSLAB TO A POINT 30" OUTSIDE THE BUILDING AND NEOPRENE PUSH-ON TYPE JOINTS BEYOND OUTSIDE 30" FROM THE BUILDING.
- 7. INSULATE AND HEAT TRACE ALL DOMESTIC HOT AND COLD WATER PIPING LOCATED IN AREAS SUBJECT TO FREEZING. INSULATION SHALL BE 1" THICK FIBERGLASS AS MANUFACTURED BY MANVILLE, OWENS-CORNING, OR KNAUF.
- 8. ALL NATURAL GAS PIPING SHALL BE SCHEDULE 40 BLACK STEEL WITH SCREWED OR WELDED FITTINGS AND GASKET TYPE UNIONS AND FLANGES. 2" AND SMALLER - SCREWED, 2 1/4" AND LARGER WELDED
- 9. ALL UNDERGROUND NATURAL GAS PIPING SHALL BE POLYETHYLENE (PE-2306) WITH HEAT FUSION

PART 3 - EXECUTION

1. EXCAVATION, BACKFILLING AND TRENCH WORK SHALL BE DONE IN ACCORDANCE WITH O.S.H.A. AND EXISTING SAFETY STANDARDS.

A. PROVIDE SHORING AND CLEANING NECESSARY TO KEEP WORKING CONDITION, INCLUDING PUMPING OUT WATER.

B. IN MOSTLY ROCK MATERIAL, TRENCHES SHALL BE EXCAVATED TO AT LEAST 6" BELOW THE ELEVATION OF THE BOTTOM OF THE PIPES. AFTER EXCAVATION, TRENCH SHALL THEN BE FILLED TO THE PROPER ELEVATION WITH CRUSHED LIMESTONE. GRAVEL SHALL BE SCOOPED OUT UNDER PIPE BELLS SO THE PIPE RESTS FIRMLY ON THE TRENCH BOTTOM.

C. IN MOSTLY EARTH OR SAND MATERIAL, THE LAST 6" OF EXCAVATION SHALL BE DONE BY HAND. TRENCH BOTTOM SHALL BE SCOOPED OUT AT PIPE BELLS SO THE PIPE RESTS FIRMLY ON THE

D. BACKFILLING AND TAMPING SHALL BE CAREFULLY DONE BY HAND SIMULTANEOUSLY ALONG BOTH SIDES OF THE PIPE USING ROCK FREE EARTH, CRUSHED STONE OR SAND UNTIL THE PIPE IS COVERED TO A DEPTH OF AT LEAST 12". THE REST OF THE FILL-UP TO THE TOPSOIL LAYER MAY BE GRAVEL OR ROCK FREE EARTH. ACCEPTABLE SOIL MATERIALS FOR BACK FILL AND FILL SHALL BE FREE OF CLAY. ROCK OR GRAVEL LARGER THAN 2" IN ANY DIMENSION, DEBRIS, WASTE, FROZEN MATERIALS AND OTHER DELETERIOUS MATTER HAVING A PLASTICITY INDEX LESS THAN 30. BACKFILL SHALL BE DONE IN LAYERS OF NOT MORE THAN 8" AND EACH LAYER SHALL BE COMPACTED. THE LAST 12" OF BACKFILL SHALL BE ROCK FREE TOPSOIL.

E. SURFACE SHALL BE RESTORED TO ITS ORIGINAL CONDITION.

- PRESSURE REDUCING VALVE SHALL BE SET AT 70 PSI MAXIMUM. PRESSURE RELIEF VALVE SHALL BE SET AT 80 PSI MAXIMUM.
- 3. EXPOSED HOT AND COLD WATER TRIM IN FINISHED AREAS SHALL BE CHROME FINISHED.
- 4. ALL HORIZONTAL AND VERTICAL PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH APPLICABLE STATE AND LOCAL CODE RECOM— MENDATIONS. SUPPORTS SHALL SECURELY HOLD PIPING, PREVENT VIBRATION, COMPENSATE FOR ALL STATIC AND OPERATIONAL CONDITIONS OF THE VARIOUS SYSTEMS AND SHALL NOT BE SUBJECT TO ELECTROLYTIC ACTION. SHOCK ABSORBERS SERVICING FIXTURES WITH FLUSH VALVES SHALL BE SECURELY ANCHORED IN THEIR VERTICAL POSITION. ACCEPTABLE METHODS OF SUPPORT WILL BE THE SUMMER SYSTEM, POSIFIX, STAKFIX, PIPEFIX, HOLDRITE OR CHANNEL.
- PROVIDE J.R. SMITH OR APPROVED EQUAL SHOCK ABSORBERS #5005 THRU 5050 SIZE AS RECOMMENDED BY MANUFACTURER INSTALLED ON HOT AND COLD WATER BRANCH LINES CONTAINING SINGLE LEVER FAUCETS, FLUSH VALVES OR EQUIPMENT WITH QUICK CLOSING VALVES BETWEEN THE LAST TWO FIXTURES AS SHOWN ON THE CONTRACT DRAWINGS.

- 6. SANITARY WASTE LINES SHALL BE UNIFORMLY GRADED TO ELEVATIONS SHOWN. IF NO ELEVATIONS ARE GIVEN, SEWERS SHALL BE PITCHED NOT LESS THAN 1/4" PER FOOT FOR ALL PIPING 2-1/2" IN DIAMETER AND SMALLER AND 1/8" PER FOOT FOR ALL PIPING 3" IN DIAMETER AND LARGER.
- 7. SUPPORT HORIZONTAL PIPING AS FOLLOWS:

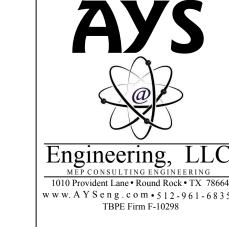
NOMINAL PIPE SIZE (IN.)	MAXIMUM DISTANCE BETWEEN SUPPORT (FT.)	MINIMUM HANGER DIAMETER (IN.)	
1/2 3/4 TO 1-1/2 10	6 6 3/8	3/8	2 TO 2-1/2
3 TO 6	12	1/2	

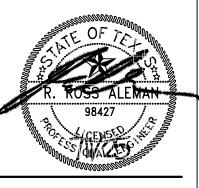
- 8. HANGERS FOR PIPING GREATER THAN 1" SHALL PASS OVER THE INSULATION. PROVIDE SADDLES FOR INSULATED PIPING.
- 9. INSULATION SHALL BE APPLIED WITH JOINTS TIGHTLY BUTTED. OPEN CRACKS, VOIDS AND DEPRESSIONS SHALL BE FILLED WITH HYDRAULIC SETTING CEMENT. LAPPING MATCHING THE FINISH SHALL BE PASTED NEATLY OVER JOINTS.
- 10. FITTINGS AND VALVES SHALL BE INSULATED WITH THE SAME TYPE INSULATION AS THE PIPING OR WITH HYDRAULIC SETTING CEMENT, BUILT-UP TO THE SAME THICKNESS AS LINES. COVER SHALL BE SAME AS ADJACENT PIPING OR PVC PREFORMED JACKET.
- 11. PROVIDE AND INSTALL A CUT-OFF VALVE, UNION AND FULL SIZE DIRT LEG AT CONNECTION TO EACH GAS-FIRED PIECE OF EQUIPMENT.
- 12. THE SYSTEM TESTS DESCRIBED HEREIN ARE MINIMUM REQUIREMENTS. HOWEVER, ADDITIONAL TESTS AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION SHALL ALSO BE PERFORMED.
- 13. DOMESTIC WATER PIPING SHALL BE TESTED HYDROSTATICALLY AT 85 PSI. IN ADDITION PIPING SHALL BE TESTED IN ACCORDANCE WITH APPLICABLE CODE REQUIREMENTS.
- 14. THE DOMESTIC WATER SYSTEM SHALL BE FLUSHED OUT PROGRESSIVELY BY OPENING OUTLETS AND FLOWING WATER UNTIL IT RUNS CLEAR. AFTER PIPE CLEANING IS COMPLETED. THE STRAINERS SHALL BE REMOVED, CLEANED, AND REPLACED. THEN THE ENTIRE DOMESTIC WATER SYSTEM SHALL BE DISINFECTED IN ACCORDANCE WITH THE AUTHORITY JURISDICTION.
- 15. THE SANITARY WASTE SYSTEM SHALL BE FLUSHED OUT PROGRESSIVELY WITH FLOWING WATER UNTIL IT RUNS CLEAR.
- 16. THE ENTIRE SANITARY WASTE SYSTEM SHALL BE TESTED AGAINST A HEAD PRESSURE OF 10', FOR 6 HOURS WITHOUT LEAKAGE.

FIRE SPRINKLER SPECS.

- 1. THE PURPOSE OF THE NEW WORK IS TO PROVIDE A COMPLETE, WORKING AND APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM FOR ALL THE AREAS/COMPARTMENTS RELATED TO THE RENOVATION AREA AS REQUIRED TO MEET THE REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION LEAVING IN PLACE AND IN SERVICE. ALL EXISTING PIPING SERVING ALL OTHER AREAS OF THE BUILDING, CONTRACTOR SHALL PERFORM WHATEVER WORK IS NECESSARY TO SATISFY THE PURPOSE OF THE NEW WORK AND LEAVE EXISTING SERVICES AND STRUCTURES IN A SATISFACTORY AND SERVICEABLE CONDITION.
- 2. CONTRACTOR SHALL INCLUDE IN HIS BID THE COST FOR REHABILITATING THE EXISTING FIRE SPRINKLER SYSTEM TO ENSURE THE NEW AND EXISTING SYSTEM MEET THE MINIMUM ACCEPTABLE STANDARDS OF THE, NFPA, THE CITY OF AUSTIN FIRE MARSHAL'S OFFICE AND THE STANDARDS LISTED IN THE SPECIFICATIONS. CONTRACTOR SHALL CORRECT ALL EXISTING DEFICIENCIES.
- 3. IT IS A REQUIREMENT OF THIS CONTRACT TO VISIT THE SITE PRIOR TO BID TO DETERMINE THE CONDITION OF THE EXISTING SYSTEM AND THE EXTENT OF WORK REQUIRED. FIELD VERIFY ALL EXISTING PIPE RUNS. SIZES, CONNECTIONS, SUPPORTS, RISERS, SPRINKLER HEAD LOCATIONS. AVAILABLE PRESSURE, AVAILABLE FLOW RATES AND THE LOCATION OF ALL EXISTING SPRINKLER SYSTEM COMPONENTS. WHILE VISITING THE SITE, CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH THE CONTRACT DOCUMENTS AND EXISTING CONDITIONS. CONTRACTOR SHALL BE FULLY KNOWLEDGEABLE OF THE EXISTING CONDITIONS AND THE PLANS OF THE NEW WORK, INCLUDING THE HVAC, ARCHITECTURAL AND ELECTRICAL PLANS TO DETERMINE THE EXTENT OF WORK REQUIRED.
- 4. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO DETERMINE AVAILABLE FLOW AND PRESSURE CHARACTERISTICS BEFORE BEGINNING THE DESIGN OF THE FIRE PROTECTION SYSTEM. PERFORM A HYDRAULIC TEST ON THE EXISTING FIRE MAIN USING EXISTING FIRE HYDRANTS TO DETERMINE THE AVAILABLE FLOW AND PRESSURE, TEST SHALL BE TAKEN AT HYDRANTS LOCATED AT AREAS CAPABLE OF PROVIDING TRUE AND REPRESENTATIVE FLOW AND PRESSURE CHARACTERISTICS OF THE EXISTING FIRE MAINS. TEST SHALL BE PERFORMED AND DOCUMENTED PER NFPA PAMPHLETS AND WITH FULL AUTHORIZATION FROM THE BUILDING OWNER. THIS CONTRACTOR SHALL SCHEDULE THE FLOW TEST WITH THE OWNER AND PROVIDE A MINIMUM 72-HOUR NOTICE TO THE OWNERS REPRESENTATIVE, THE ARCHITECT/ENGINEER AND THE BUILDING INSURANCE UNDERWRITER REPRESENTATIVE. THE CONTRACTORS LICENSED PROFESSIONAL ENGINEER SHALL BE PRESENT TO WITNESS THE HYDRAULIC TEST.
- 5. SYSTEM DESIGN. THE SPRINKLER SYSTEM CONTRACTOR IS REQUIRED TO DEVELOP, SUBMIT AND INSTALL A COMPLETE AND APPROVED FIRE PROTECTION SYSTEM DESIGN. DESIGN THE SYSTEM IN ACCORDANCE WITH STATUTES, ORDINANCES, CODES AND REGULATIONS OF NATIONAL FIRE PROTECTION ASSOCIATION (NFPA), UNDERWRITERS LABORATORIES (U.L.), OSHA, UNIFORM BUILDING CODE, CITY OF AUSTIN FIRE MARSHAL'S AND ANY STATE, LOCAL OR OTHER GOVERNMENTAL AUTHORITIES HAVING JURISDICTION.
- 6. PREPARE COMPLETE AND DETAILED SHOP DRAWINGS AND HYDRAULIC CALCULATIONS FOR THE ENTIRE FIRE PROTECTION SYSTEM. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE DESIGN OF THE FIRE PROTECTION SYSTEM. ALL PRESSURE LOSSES THROUGH THE DISTRIBUTION SYSTEM AND FLUCTUATIONS IN SUPPLY SYSTEM PRESSURES SHALL BE ADEQUATELY ACCOUNTED FOR. INCLUDE AN ADEQUATE SAFETY FACTOR IN ALL HYDRAULIC CALCULATION. IT SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO REPLACE OR OTHERWISE CORRECT ANY PORTION OF THE EXISTING FIRE SPRINKLER SYSTEM THAT DOES NOT MEET AVAILABLE PRESSURES AND FLOW RATES. FUTURE CHANGES IN WATER SUPPLIES SHALL BE CONSIDERED.
- 7. IN ADDITION TO THE DETAILED SHOP DRAWINGS AND HYDRAULIC CALCULATIONS, OBTAIN AND PAY FOR THE SERVICES OF A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF TEXAS AND EXPERIENCED IN HYDRAULIC CALCULATIONS AND FIRE PROTECTION SYSTEM INSTALLATION TO REVIEW. APPROVE AND CERTIFY THE DRAWINGS, CALCULATIONS AND INSTALLATION. SUBMIT A SIGNED LETTER FROM THE LICENSED PROFESSIONAL ENGINEER STATING THE SYSTEM PLANS HAVE BEEN REVIEWED, COMPLY WITH THE REQUIREMENTS OF NFPA 13 AND THE INSTALLED SYSTEM HAS BEEN INSTALLED IN ACCORDANCE WITH THE APPROVED PLANS AND CALCULATIONS. COPIES OF THIS LETTER SHALL BE SUBMITTED TO, THE CITY OF AUSTIN FIRE MARSHAL, THE OWNERS REPRESENTATIVE AND THE ARCHITECT/ENGINEER. THE PROFESSIONAL ENGINEER SHALL NOT BE AN EMPLOYEE OF THE CONTRACTOR.
- 8. SUBMIT THE RESULTS OF THE HYDRAULIC TEST, THE PROFESSIONAL ENGINEER'S CERTIFICATION CERTIFICATION OF THE DRAWINGS AND HYDRAULIC CALCULATIONS, THE DETAILED SHOP DRAWINGS AND THE HYDRAULIC CALCULATIONS TO THE CITY OF AUSTIN FIRE MARSHALL, AND ANY OTHER STATE OR LOCAL GOVERNING BODY HAVING JURISDICTION FOR APPROVAL. CONTRACTOR SHALL COMMENCE DESIGN WORK ON SUBMITTAL DRAWINGS IMMEDIATELY AFTER AWARD OF CONTRACT AND SHALL SUBMIT APPROVED DRAWINGS TO THE ARCHITECT IN A REASONABLE AMOUNT OF TIME (FOR ENGINEER'S ACKNOWLEDGMENT) PRIOR TO INSTALLATION OF ANY PORTION OF THE FIRE SYSTEMS.
- 9. APPROVED DATA SHALL BEAR SEAL OF THE CITY OF AUSTIN FIRE MARSHAL, AND THE PROFESSIONAL ENGINEER. SUBMIT APPROVED DRAWINGS ONLY. DO NOT SUBMIT DRAWINGS WITHOUT APPROVAL SEAL AND SIGNATURE. DRAWINGS SHALL INCLUDE ALL REQUIRED INFORMATION REQUIRED BY NFPA

- PAMPHLETS FOR WORKING PLANS, INCLUDING ALL DETAILS, PLANS, CALCULATIONS, ETC. ALL FIRE SPRINKLER DRAWINGS SHALL INCLUDE ALL INFORMATION REQUIRED BY NFPA.
- 10. PROVIDE A COMPLETE, WORKING AND APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM FOR THE NEW BUILDING. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE A FULLY DESIGNED. SIZED. INSTALLED AND APPROVED AUTOMATIC FIRE SPRINKLER SYSTEM FOR THE ENTIRE BUILDING. PROVIDE A COMPLETE AND APPROVED MODIFICATION SYSTEM AS REQUIRED BY THE PROJECT SPECIFICATIONS, THE CITY OF AUSTIN FIRE MARSHAL AND AND THE LAWS OF THE STATE OF TEXAS.
- 11. COORDINATE ALL PIPE ROUTING WITH HVAC AND ELECTRICAL TRADES BEFORE INSTALLING ANY PIPING. OFFSET PIPING AS REQUIRED TO ACCOMMODATE ALL OTHER TRADES.
- 12. THIS CONTRACTOR SHALL RELOCATE ANY FIRE LINE OR SPRINKLER SYSTEM COMPONENT THAT INTERFERES WITH DUCTWORK, WASTE PIPES OR ANY OTHER CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER.
- 13. PENETRATIONS THROUGH WALLS, FLOORS, ETC., FOR PIPING SLEEVES SHALL BE SIZED TO ACCOMMODATE PIPE WITH INSULATION WHERE REQUIRED. COORDINATE LOCATIONS AND SIZES OF NEW PENETRATIONS WITH STRUCTURAL AND ARCHITECTURAL REQUIREMENTS. CONTRACTOR SHALL COORDINATE WITH OWNER TO PATCH AND SEAL EXISTING AND OPENINGS AS PER SPECIFICATIONS.
- 14. WORK SHALL BE DONE SO AS TO MINIMIZE DISRUPTION TO BUILDING ACTIVITIES. SCHEDULING SHALL VE CLOSELY COORDINATED WITH THE OWNER. AND NO WORK SHALL PROCEED WITHOUT AN OWNER APPROVED SCHEDULE. REFER TO SPECIFICATIONS FOR AREAS REQUIRING SPECIAL ACCESS. SCHEDULING. AND/OR SECURITY.
- 15. PROTECTION OF BUILDING PERSONNEL. FURNISHINGS AND SYSTEMS FROM HAZARD AND/OR CONTAMINATION ASSOCIATED WITH DEMOLITION AND/OR CONSTRUCTION SHALL BE PROVIDED BY BY CONTRACTOR IN ACCORDANCE WITH THE SPECIFICATIONS AND THE CITY OF AUSTIN.
- 16. CONTRACTOR SHALL COORDINATE REMOVAL AND OFF-SITE DISPOSAL OF EXISTING MATERIALS AND ROUTING OF ANY NEW PIPING, CONDUIT AND DUCTWORK AT THE JOB SITE TO AVOID DAMAGE OR CONFLICT WITH EXISTING SYSTEMS AND STRUCTURE OBTAIN APPROVAL OF OWNER BEFORE DISPOSING OF ITEMS. ITEMS TO KEEP SHALL BE DELIVERED TO THE OWNER.
- 17. CONTRACTOR SHALL COORDINATE WITH OTHER TRADES. CONFLICTS SHALL BE BROUGHT TO THE ATTENTION OF THE GENERAL CONTRACTOR AND, AS NECESSARY THE OWNER.
- 18. DESIGN THE AUTOMATIC FIRE SPRINKLER SYSTEM PER NFPA 13, AND THE CITY OF AUSTIN FIRE MARSHALL'S STANDARDS.







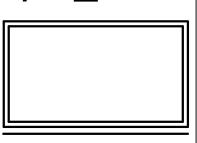
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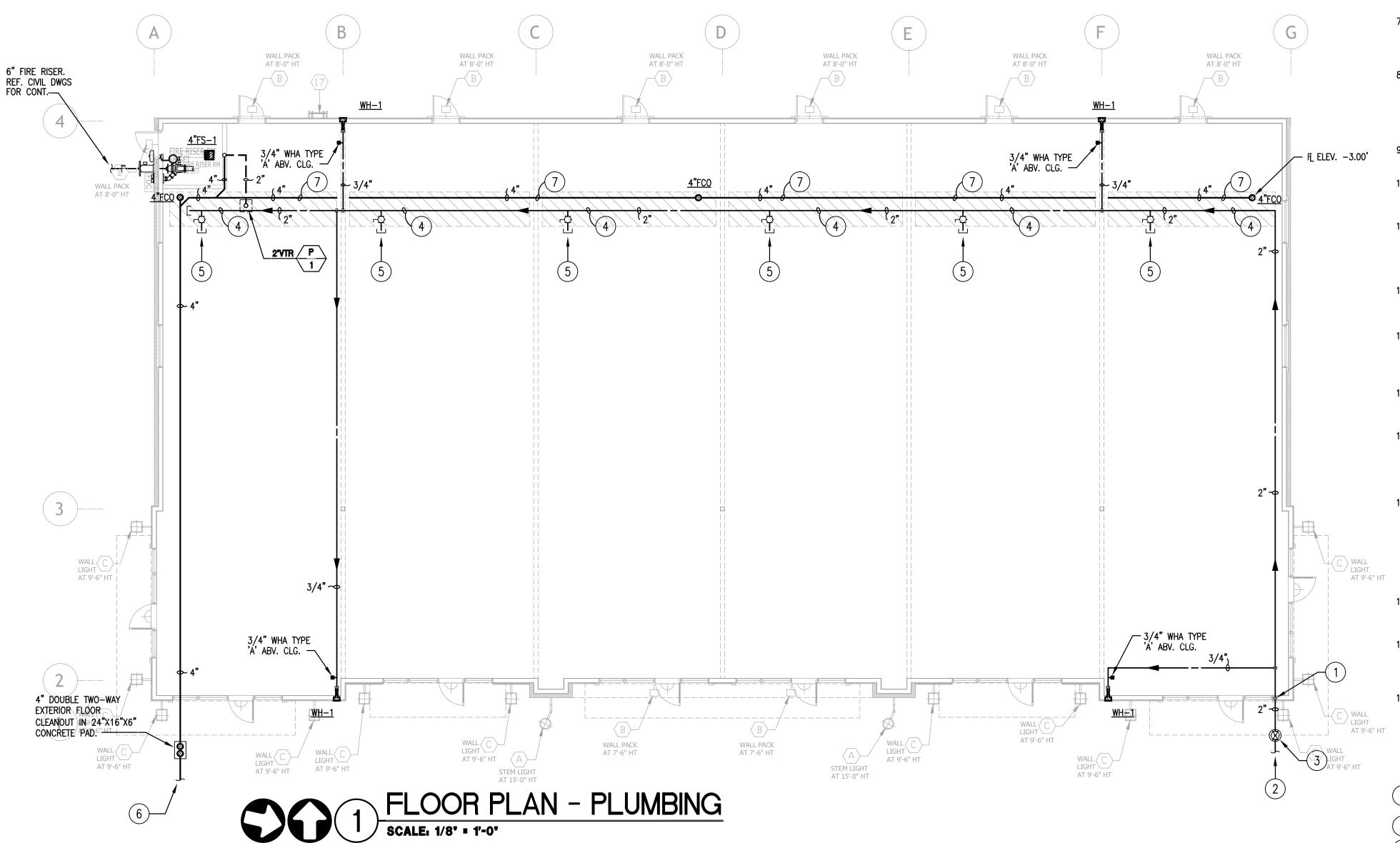
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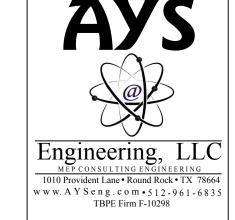
GENERAL PLUMBING NOTES:

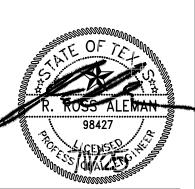
(THESE NOTES APPLY TO ALL SHEETS) (REFER TO SHEETS FOR ANY ADDITIONAL GENERAL NOTES)

- 1. FOR CONTINUATION OF WATER AND SANITARY SEWER SERVICES, REFER TO CIVIL DRAWINGS.
- 2. WATER LINES SHALL BE RUN ABOVE CEILING AND SANITARY SEWER LINES UNDER FLOOR UNLESS NOTED OTHERWISE. CONFORM TO ALL STRUCTURAL AND FINISH CONDITIONS OF BUILDING. COORDINATE WITH STRUCTURAL AND ARCHITECTURAL DRAWINGS PRIOR TO INSTALLATION.
- 3. ALL DIMENSION AND FIELD CONDITIONS SHALL BE CHECKED AND VERIFIED BY CONTRACTOR AT SITE, ALL NEW PIPING, EQUIPMENT, LOCATIONS, SIZES, SCALES, AND DIMENSION SHALL BE CHECKED AND VERIFIED AT SITE.
- 4. CONTRACTOR TO CHANGE LOCATION OF NEW PIPING, AS SHOWN, TO MEET FIELD CONDITIONS.
- 5. CONTRACTOR SHALL NOT SCALE DRAWINGS.
- 6. ANY PENETRATIONS OF THE CLG. WALLS OR FLOORS SHALL BE RESTORED TO THE ORIGINAL FIRE RATINGS, OPENING CUTS, AND CEILING SHALL BE PATCHED SLEEVE, SEALED, AND ESCUTCHEONED.
- 7. CONTRACTOR SHALL LAYOUT HIS WORK FROM ACTUAL FIELD MEASUREMENTS AND ACTUAL DIMENSIONS OF EQUIPMENT INSTALLED, ALL PIPING AND EQUIPMENT OF ALL TRADES SHALL BE PROPERLY COORDINATED AND SET TO MAINTAIN REQUIRED CLEARANCES. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL LOCATIONS SUBJECT TO APPROVAL OF ARCHITECT.
- 8. LOCATE EQUIPMENT AND FIXTURES APPROXIMATELY AS SHOWN CONFORMING TO ALL ARCHITECTURAL AND STRUCTURAL ITEMS. PROVIDE ALL SUPPORTS, HANGERS AND OPENINGS AS REQUIRED FOR A COMPLETE INSTALLATION. CONTRACTOR SHALL COORDINATE WITH ALL TRADES FOR CLEARANCES, AND EXACT LOCATIONS OF EQUIPMENT. ALL EQUIPMENT AND FIXTURES SHALL BE INSTALLED PER MANUFACTURERS RECOMMENDATIONS AND IN FULL COMPLIANCE WITH ALL APPLICABLE CODES HAVING JURISDICTION.
- 9. ROUTE ALL PIPING CONCEALED, HIDDEN FROM VIEW AND AS HIGH AS POSSIBLE ABOVE CEILING
- 10. CONTRACTOR TO CONTACT OWNER'S REPRESENTATIVE TO COORDINATE ALL CORE DRILLING WITH BUILDING OPERATIONS. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF FLOOR DRAINS AND PLUMBING FIXTURES.
- 11. WATER LINES LOCATED IN EXTERIOR WALL SHALL BE INSTALLED BETWEEN INSULATION AND INTERIOR OF WALL. WATER PIPING INDICATED UNDER THIS SLAB SHALL BE SEAMLESS COPPER WITH NO JOINTS AND LONG RADIUS CURVES FOR TURNS, PROTECTED USING ARMAFLEX INSULATION. INSULATE COPPER LINES FROM CONTACT WITH CONCRETE, REINFORCING STEEL, OR OTHER PIPING AND CONDUIT.
- 12. ALL FLOOR DRAINS, HUB DRAINS, AND FLOOR SINK SHALL BE PROTECTED BY A TRAP PRIMER WETHER SHOWN ON THE PLANS OR NOT. EXTEND 1/2" WATERLINE UNDER FLOOR AND CONNECT TO TRAP PRIMER CONNECTION ON FLOOR DRAIN.
- 13. PLUMBING VENTS AND FLUES THRU ROOF SHALL BE LOCATED 10'-0" FROM ALL OUTSIDE AIR INTAKES AND 2'-0" FROM ALL VERTICAL STRUCTURES. TERMINATIONS ARE TO BE 12" MINIMUM ABOVE ROOF. IF WITH 10'-0" OF A PARAPET, TERMINATIONS SHALL BE AT TOP OF PARAPET. REFER TO ARCHITECTURAL DRAWINGS FOR PARAPET HEIGHT.
- 14. ISOLATION VALVES ARE TO BE INSTALLED AT EACH PLUMBING FIXTURE AND/OR GROUP OF PLUMBING FIXTURES. LOCATE VALVES IN ACCESSIBLE LOCATIONS; ABOVE LAY-IN CEILINGS IN GYP. BD. CEILINGS OR WALLS WITH ACCESS DOORS.
- 15. PLUMBING CONTRACTOR IS TO ROUGH-IN FOR EACH ITEM WITH DRAIN, WATER AND GAS CONNECTION AS SCHEDULED. COORDINATE WITH OWNER'S REPRESENTATIVE, PLUMBING ROUGH-IN DRAWINGS, AND SHOP DRAWINGS FOR EXACT LOCATIONS AND REQUIREMENTS. PLUMBING CONTRACTOR SHALL MAKE ALL FINAL CONNECTIONS AS REQUIRED FOR A COMPLETE INSTALLATION. COORDINATE WITH GENERAL CONTRACTOR AND WITH OTHER TRADES.
- 16.INSULATE ALL DOMESTIC WATER SUPPLY (HOT AND COLD) PIPING WITH 1-INCH THICK FIBERGLASS PIPE INSULATION. FIBERGLASS PIPE INSULATION SHALL HAVE AN ALL SERVICE JACKET (ASJ) WITH SELF-SEALING LAPS (OWENS CORNING SSL-11 OR EQUAL). ALL PIPING INSULATION USED ON THE PROJECT SHALL HAVE A FLAME SPREAD RATING NOT EXCÉEDING 25 AN A SMOKE DEVELOPED RATING NOT EXCEEDING 50 AS DETERMINED BY TEST PROCEDURES ASTM E 84 NFPA 225 AND U.L. 723. THESE RATINGS MUST BE AS TESTED ON THE COMPOSITE OF INSULATION JACKET OR FACING AND ADHESIVE. COMPONENTS SUCH AS ADHESIVES MASTIC AND CEMENTS SHALL MEET THE SAME INDIVIDUAL RATINGS AS THE MINIMUM REQUIREMENTS.
- 17.SUPPORT INSULATION AT HANGERS AND SUPPORTS WITH A SHIELD OF GALVANIZED METAL EXTENDING NOT LESS THAN 4-INCHS ON EITHER SIDE OF THE SUPPORT BEARING AREA COVERING AT LEASE HALF OF THE PIPE CIRCUMFERENCE.
- 18.PERFORM WORK IN ACCORDANCE WITH APPLICABLE STATUES, ORDINANCES, CODES, AND REGULATIONS OF GOVERNMENTAL AUTHORITIES HAVING JURISDICTION. OBTAIN AND PAY FOR ALL PERMITS AND INSPECTIONS. REMOVE AND REPLACE EXISTING CONSTRUCTION AS REQUIRED TO ACCOMMODATE NEW
- 19. SLEEVE ALL PIPING THRU FLOOR AND CONFORM TO ALL STRUCTURAL AND FINISH CONDITIONS OF BUILDING. 10. PLUMBING CONTRACTOR SHALL PROVIDE AND INSTALL A.D.A. APPROVED INSULATION KITS TO ALL LAVATORIES IN ALL TOILET ROOMS.

PLUMBING KEYED NOTES:

- 2" COLD WATER SUPPLY LINE UP FROM UNDERFLOOR. RISE WITH 2" LINE UP AS HIGH AS POSSIBLE A.F.F.
- 2" COLD WATER SUPPLY LINE. REF. CIVIL DWGS. FOR CONT.
- 2" GATE VALVE IN CAST IRON VALVE BOX.
- COLD WATER MAIN. ROUTE IN JOIST SPACE. DIRECTLY OVER SANITARY SEWER. LINE SHOWN OFFSET FOR CLARITY.
- VALVE AND CAP 1" BRANCH LINE FOR FUTURE CONNECTION (IN JOIST SPACE).
- 6" SANITARY SEWER LINE. REF. CIVIL DWGS FOR CONT. FLOW LINE = 5.00' INV. ELEV.
- SLOPE BUILDING DRAIN AT 1/8" PER FOOT TYP.







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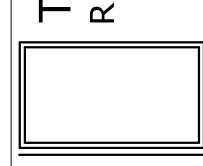
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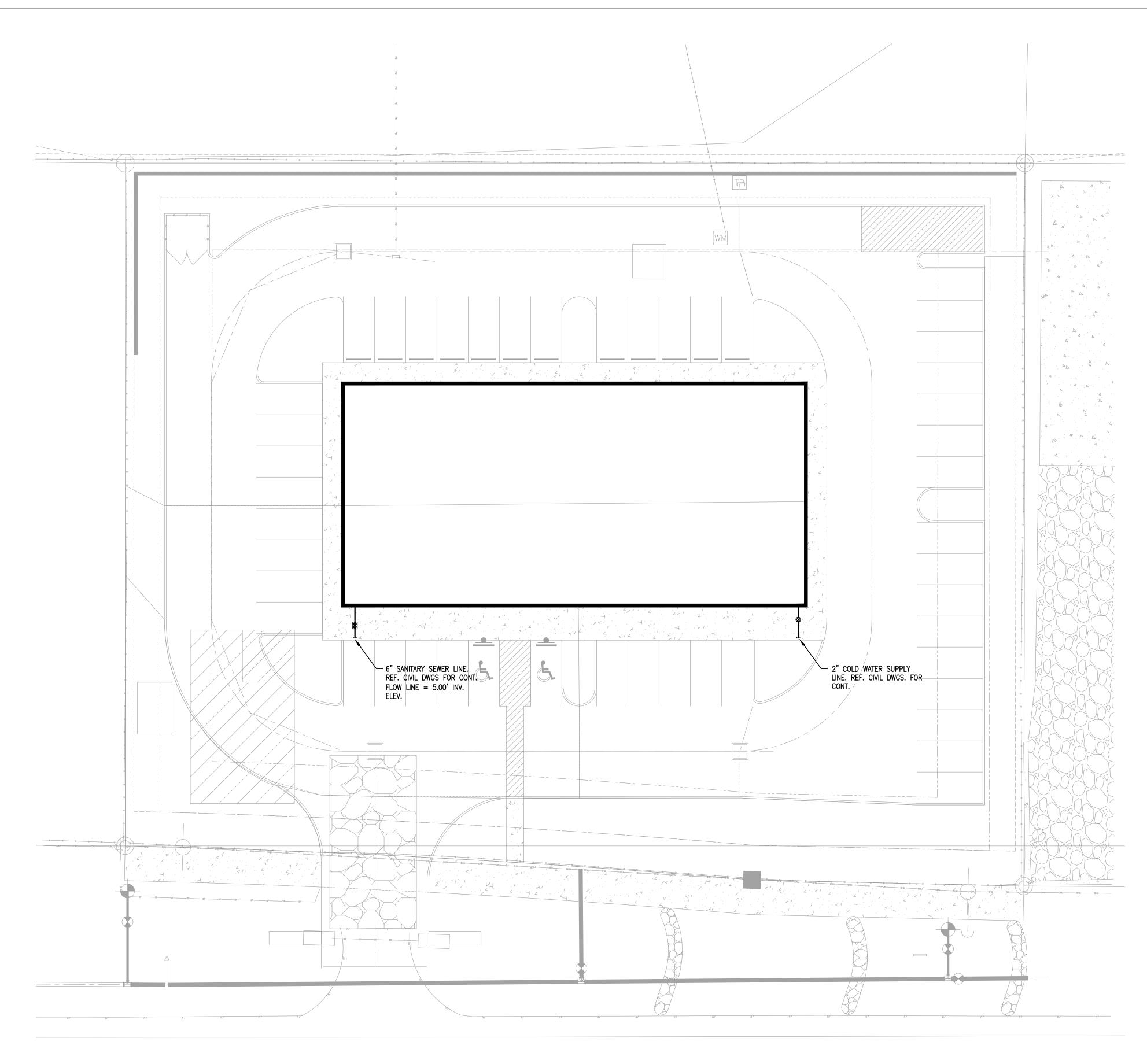
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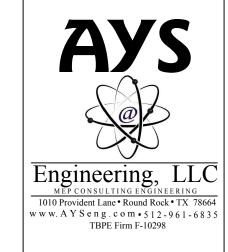
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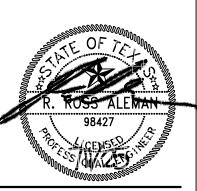


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	I I FOEND		
	L LEGEND NOTE: ALL SYMBOLS SHOWN ON LEGEN		
SYMBOL	DESCRIPTION DESCRIPTION	SYMBOL	DESCRIPTION
	1X4 LINEAR FIXTURE W/ DESIGNATION		ABBREVIATIONS
^	2X2 LINEAR FIXTURE W/ DESIGNATION	AFC	ABOVE FINISHED CEILING
^	2X4 LINEAR FIXTURE W/ DESIGNATION	AFF	ABOVE FINISHED FLOOR
	NIGHT LIGHT FIXTURE	AFG	ABOVE FINISHED GRADE
A	LINEAR STRIP OR 6" FIXTURE W/ DESIGNATION	AHJ	AUTHORITY HAVING JURISDICTION
	RECESSED DOWNLIGHT FIXTURE W/ DESIGNATION	AL	ALUMINUM
OA	SURFACE OR PENDANT DOWNLIGHT FIXTURE W/ DESIGNATION	С	CONDUIT
DD> ^A	WALL WASH FIXTURE W/ DESIGNATION, DIRECTION INDICATED BY TRIANGLE	CKT	CIRCUIT
A	WALL MOUNT LINEAR FIXTURE W/ DESIGNATION	CLG	CEILING
₽	WALL MOUNT FIXTURE W/ DESIGNATION	СТ	CURRENT TRANSFORMER
\square	SPOTLIGHT	ЕОМН	ELECTRICALLY OPERATED, MECHANICALLY HELD
	CEILING OR WALL MOUNT EXIT SIGN (INSTALL FACE AS		
= ₹	INDICATED BY ARROWS)	EM	EMERGENCY
4	EMERGENCY BATTERY FIXTURE	EWC	ELECTRIC WATER COOLER
X	CEILING FAN	(E)	EXISTING
Φ Φ	20A SIMPLEX RECEPTACLE AT 18" U.N.O.	ETR	EXISTING TO REMAIN
	20A DUPLEX RECEPTACLE AT 18" U.N.O. GFCI RECEPTACLE AT 18" U.N.O. (DUPLEX / SIMPLEX)	ER F/A	EXISTING RELOCATED FIRE ALARM
#	20A QUADRUPLEX RECEPTACLE AT 18" U.N.O.	F/S	FIRE/SMOKE DAMPER
\$	20A DUPLEX RECEPTACLE 8" ABOVE COUNTER U.N.O.	G OR GND	GROUND
<u> </u>	20A DUPLEX RECEPTACLE SPECIAL MOUNT (FLOOR, CLG)	GEC	GROUNDING ELECTRODE CONDUCTOR
⊎lG WD	20A ISOLATED GROUND RECEPTACLE	GF	GROUND FAULT CIRCUIT INTERRUPTER
d)WP	20A WEATHER-RESISTANT GFCI RECEPTACLE WITH WEATHERPROOF "EXTRA DUTY WHILE IN USE" COVER	IG	ISOLATED GROUND
⊕20	DEDICATED DUPLEX RECEPTACLE WITH AMP RATING NOTED	MFR	MANUFACTURER
ФС	20A DUPLEX RECEPTACLE WITH TOP RECEPTACLE CONTROLLED VIA AUTO-ON/OFF OCCUPANCY SENSOR	N1, N3R, N	NEMA 1, NEMA 3R, NEMA RATING (AS NOTED)
Φ ^U	20A COMBINATION DUAL USB AND DUPLEX RECEPTACLE	NIES	NOT IN ELECTRICAL SECTION
IR	GFCI BLANK FACE RESET BUTTON	NL NL	NIGHT LIGHT
	SPECIAL RECEPTACLE AS NOTED	NTS	NOT TO SCALE
	COMBINATION TELEPHONE/DATA (TELE-DATA) OUTLET (18" ON		
	WALL, 8" ABOVE COUNTER, FLOOR)	OH	OVERHEAD
▼ ▽ ▽TV ▽CR	TELEPHONE OUTLET, DATA OUTLET	SDE	SERVICE DISTRIBUTION ENCLOSURE
<u> </u>	TELEVISION/CABLE OUTLET, CARD READER OUTLET J-BOX (CEILING/WALL, FLOOR)	SPD TT	SURGE PROTECTIVE DEVICE TELEPHONE TERMINAL
	SECURITY CAMERA	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
	CONDUIT RUN EXPOSED OR CONCEALED	UG	UNDERGROUND
	CONDUIT RUN BELOW FLOOR OR GRADE	UNO	UNLESS NOTED OTHERWISE
	ITEM TO BE REMOVED	WP	WEATHER PROOF
	SWITCHLEG CIRCUIT HOMERUN, #12, THWN/THHN & QTY AS REQ'D, W/	WR	WEATHER RESISTANT
	GND, 3/4"C., U.N.O.	XFMR	TRANSFORMER
 -	CIRCUIT HOMERUN CONTAINING 3 HOTS, NEUTRAL, & GROUND	XP	EXPLOSION PROOF
<u></u>	CONDUIT STUB-UP - CAP & MARK	+18"	MOUNTING HEIGHT TO CENTERLINE OF DEVICE AFF OR AFG
<u></u>	GROUND DIVIDING STEEL CROUND	#	SIZE OF WIRE (EX. #3/0 IS SIZE 3/0 AWG WIRE)
I	BUILDING STEEL GROUND COLD WATER GROUND		
	COLD WATER GROUND CONCRETE ENCASED ELECTRODE GROUND		FIRE ALARM SYSTEM
### ### ### ### ### ### #### #########		[FAND]	
	PANELBOARD OR LOAD CENTER TRANSFORMER	[FACP]	FIRE ALARM CONTROL PANEL FIRE ALARM ANNUNCIATOR PANEL
	DISCONNECT SWITCH (NON-FUSED UNLESS NOTED OTHERWISE	·	
<u> </u>	WITH FUSE SIZE — AF — IN DISCONNECT SWITCH CALLOUT)	<u>E</u>	MANUAL PULL STATION DOUBLE ACTION
×	MAGNETIC MOTOR STARTER		GENERAL ALARM COMBINATION HORN/STROBE (AUDIO/VISUAL) (WALL, CLG)
<u>'</u> ⊠	COMBINATION DISCONNECT AND STARTER	[<u>V</u>] <u>V</u> [FIRE ALARM STROBE (VISUAL DEVICE) (WALL, CLG)
Ó	MOTOR	<u> </u>	SPEAKER — CEILING MOUNTED, WALL MOUNTED
₩	EQUIPMENT CONNECTION	1	SMOKE/IONIZATION DETECTOR
10 _© 10 _© H	OCCUPANCY SENSOR (CEILING, WALL) - RATING/COVERAGE, IF	→ H	HEAT DETECTOR
	SHOWN, IS IN 100'S OF SQ. FT.		
(P)	PHOTOELECTRIC CELL LIGHTING CONTACTOR		DUCT DETECTOR SPRINKLER SYSTEM FLOW SWITCH
TC	TIMECLOCK	<u>[FS]</u>	SPRINKLER SYSTEM FLOW SWITCH SPRINKLER SYSTEM TAMPER SWITCH
	LIGHTING CONTROL PANEL	RTS	REMOTE TEST SWITCH
S	LIGHT SWITCH AT 48" UNLESS NOTED	<u> </u>	ELECTRIC DOOR HOLDER
	SUBSCRIPTS	<u> </u>	
3	3-WAY SWITCH		
<u> </u>	4-WAY SWITCH		
4			
4 0	OCCUPANCY SENSOR SWITCH (AUTO OFF, AUTO ON)		
4 O D	DIMMER SWITCH		
4 0	, , , , ,		

GENERAL ELECTRICAL NOTES:

- 1. DO NOT SCALE DRAWINGS. VERIFY DIMENSIONS ON ARCHITECTURAL DRAWINGS AND IN FIELD PRIOR TO COMMENCEMENT OF WORK.
- BEFORE BEGINNING EXCAVATIONS OF ANY NATURE WHATSOEVER, CONTRACTOR SHALL LOCATE ALL SERVICES AND UTILITIES OCCURRING WITHIN THE BOUNDS OF THE PROJECT. THE CONTRACTOR SHALL THEN PROCEED WITH CAUTION IN HIS WORK SO THAT NO UTILITY OR LINE SERVING AREAS THAT ARE TO REMAIN BE DAMAGED WITH A RESULTANT LOSS OF SERVICE. VERIFY THE SOURCE AND SERVICE OF EACH AND EVERY LINE ENCOUNTERED AND RECORD SERVICE, SIZE AND LOCATION ON RECORD DRAWINGS.
- 3. COORDINATE EACH AND EVERY INTERRUPTION OF SERVICES AND UTILITIES WITH THE OWNER AND UTILITY COMPANIES TO ENSURE MINIMUM SHUT-DOWN TIMES ARE ACCEPTABLE.
- 4. VERIFY EXACT LOCATION OF EQUIPMENT TO BE FURNISHED BY OTHERS PRIOR TO ROUGH-IN.
- 5. IT IS THE INTENT OF THESE DRAWINGS TO CALL FOR FINISHED WORK, I.E., FULLY ADJUSTED, TESTED, AND READY FOR OPERATION. WHERE THE WORD "PROVIDE" IS USED, IT SHALL MEAN, "FURNISH AND INSTALL COMPLETE AND READY FOR USE".
- 6. FOR EACH EQUIPMENT CONNECTION SHOWN, PROVIDE THE DEVICE, OUTLET, DISCONNECT SWITCH, OR JUNCTION BOX REQUIRED TO CONNECT THE EQUIPMENT.
- 7. WHERE 120 VOLT BRANCH CIRCUITS EXCEED 57', PROVIDE MINIMUM #10 AWG CONDUCTORS FROM PANEL TO FIRST DEVICE, FIXTURE, ËTC. REF. VOLTAGE DROP TABLE ON THIS SHEET FOR ADDITIONAL VOLTAGE DROP CONDITIONS.
- 8. NO SINGLE CONDUIT SHALL CONTAIN MORE THAN 6 CURRENT CARRYING CONDUCTORS, UNLESS NOTED OTHERWISE AND PROPERLY DERATED. HOMERUN CONDUIT SHALL NOT BE LESS THAN 3/4".

- 9. ALL WIRING SHALL BE IN CONDUIT. ALL CONDUIT SHALL BE 1/2" EMT MINIMUM WITH STEEL TYPE FITTINGS. 1/2" STEEL FLEXIBLE METAL CONDUIT WILL BE ALLOWED IN MAXIMUM LENGTHS OF 6'. 3/8" AND/OR NON-METALLIC FLEXIBLE CONDUIT SHALL NOT BE USED. MC-TYPE CABLE MAY BE USED FOR INTERIOR BRANCH CIRCUIT WIRING IF ALLOWED BY THE AUTHORITY HAVING JURISDICTION. UNDERGROUND CONDUIT SHALL BE RIGID GALVANIZED STEEL (RGS) OR SCHEDULE 40 PVC WITH RGS ELLS AND RGS CONDUIT/FITTINGS WHEN EMERGING FROM GRADE, UNLESS NOTED OTHERWISE. PROVIDE CODE-SIZED GREEN GROUNDING CONDUCTOR IN ALL CONDUIT. INCREASE CONDUIT SIZE AS REQUIRED. ALL WIRING SHALL BE #12 AWG MINIMUM COPPER CONDUCTORS.
- 10. UNLESS OTHERWISE NOTED, CONDUIT SHALL BE CONCEALED, IF POSSIBLE, AND INSTALLED SQUARE TO BUILDING LINES.
- 11. ALL EMPTY RACEWAY SYSTEMS SHALL HAVE A #12 PULLWIRE OR EQUAL, AND SHALL BE IDENTIFIED AT ALL JUNCTION, PULL AND TERMINATION POINTS, USING PERMANENT METALLIC TAGS. TAG SHALL INDICATE INTENDED USE OF CONDUIT, ORIGINATION, AND TERMINATION POINTS OF EACH INDIVIDUAL CONDUIT.
- 12. WHERE FIXTURES CONTAINING BATTERY PACKS ARE SWITCHED (BY TOGGLE SWITCH, TIMECLOCK/LIGHTING CONTROL PANEL, ETC.), SUPPLY TO BATTERY PACKS SHALL BE UNSWITCHED.
- 13. LIGHT SWITCHES SHOWN IN ROOM CONTROL ALL LIGHTS IN THAT ROOM UNLESS NOTED OTHERWISE.
- 14. REVIEW ARCHITECTURAL, STRUCTURAL, CIVIL, MECHANICAL, PLUMBING, AND OTHER DRAWINGS PRIOR TO BID.
- 15. INSTALL ALL MATERIALS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. ANY DEVIATIONS SHALL BE BROUGHT TO THE ARCHITECT/ENGINEER'S ATTENTION PRIOR TO INSTALLATION.
- 16. WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER TO THE SATISFACTION OF THE ARCHITECT.

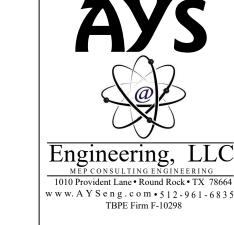
- 17. JUNCTION AND PULL BOXES OF APPROPRIATE DIMENSIONS FOR CONDUITS AND CONDUCTORS NOTED SHALL BE INSTALLED WHERE SHOWN ON THE DRAWINGS AND IN ADDITION WHERE NECESSARY OR CONVENIENT FOR INSTALLING AND PULLING WIRE.
- 18. SPLICES IN EXTERIOR PULLBOXES SHALL BE MADE WATERPROOF USING "SCOTCHCAST" SPLICE KIT OR APPROVED EQUAL. SEAL ENDS OF CONDUITS AND DUCTS WITH "DUCTSEAL" OR APPROVED EQUAL.
- 19. PROTECT ALL RECEPTACLES SHOWN AS GFCI-PROTECTED IN LOCATIONS THAT ARE NOT "READILY ACCESSIBLE" (PER THE NEC) WITH GFCI-TYPE CIRCUIT BREAKERS OR REMOTE, BLANK-FACE GFCI DEVICE IN LIEU OF GFCI-TYPE RECEPTACLE.
- 20. PROVIDE A PERMANENTLY AFFIXED LABEL TO EACH INDIVIDUAL RECEPTACLE FACE/COVER PLATE, DISCONNECTING MEANS, SWITCH COVER, ETC., INDICATING THE PANEL AND THE CIRCUIT SERVING THE DEVICE. TYPICAL FOR ALL EQUIPMENT, RECEPTACLES, LIGHTING SWITCHES, AND DISCONNECTS.
- 21. PROVIDE ALL UNDERGROUND CONDUIT SIZES 2" AND LARGER WITH LONG SWEEP ELLS. (MINIMUM 36" RADIUS.)
- 22. FINAL CONNECTIONS TO MOTORS AND OTHER VIBRATING EQUIPMENT SHALL BE WITH LIQUIDTIGHT FLEX AND APPROVED FITTINGS. DO NOT SECURE CONDUITS, DISCONNECTS, OR DEVICES TO DUCTWORK OR MECHANICAL EQUIPMENT.
- 23. ALL ELECTRICAL SYSTEMS COMPONENTS SHALL BE LISTED OR LABELED BY U.L. OR OTHER RECOGNIZED TESTING FACILITY.
- 24. WIRE TERMINATION PROVISIONS FOR PANELBOARDS. CIRCUIT BREAKERS, SAFETY SWITCHES, AND ALL OTHER ELECTRICAL APPARATUS SHALL BE LISTED AS SUITABLE FOR AT LEAST 75°C. (CU/AL) OR AS NOTED IN MANUFACTURER'S INSTRUCTIONS, WHICHEVER IS GREATER.

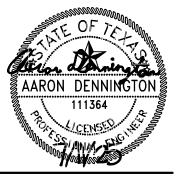
- 25. PROVIDE ALL PANELBOARDS WITH GROUND BUS SEPARATE FROM NEUTRAL BUS.
- 26. FOR EACH DATA AND FIRE ALARM DEVICE, PROVIDE OUTLET BOX AND 3/4" CONDUIT (UNLESS NOTED OTHERWISE) WITH PULL STRING ROUTED UP IN WALL TO ABOVE ACCESSIBLE CEILING. FOR COMBINATION DEVICES (I.E. TELEPHONE/DATA) PROVIDE 1" CONDUIT (UNLESS NOTED OTHERWISE). TERMINATE WITH PLASTIC BUSHING. ALL EXPOSED CABLES, REGARDLESS OF HEIGHT, SHALL BE ENCLOSED IN CONDUIT.
- 27. FIRE ALARM SYSTEM SHALL BE DESIGNED AND SUBMITTED TO THE AUTHORITY HAVING JURISDICTION BY A LICENSED FIRE ALARM CONTRACTOR. FIRE ALARM CONTRACTOR SHALL PROVIDE DESIGN DRAWINGS WHICH ARE NFPA 72 COMPLIANT FOR AHJ APPROVAL. IN ADDITION, THE LICENSED FIRE ALARM CONTRACTOR SHALL PROVIDE APPROVED/STAMPED PLANS FOR PERMIT SUBMISSION. FIRE ALARM CONTRACTOR SHALL PROVIDE NEW COMPONENTS, ACCESSORIES, EQUIPMENT, AND DEVICES AS REQUIRED FOR A COMPLETE SYSTEM CAPABLE OF SERVING THE SCOPE OF WORK INDICATED.
- 28. IT SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR TO ENSURE THAT ALL EQUIPMENT DISCONNECTS ARE PROPERLY SIZED PER THE FINAL SELECTED EQUIPMENT MANUFACTURER RECOMMENDATIONS/REQUIREMENTS AND SAID DISCONNECTS ARE PROVIDED WITH THE REQUIRED NEC WORKING CLEARANCES. TYPICAL FOR ALL EQUIPMENT DISCONNECTS.
- 29. DOCUMENTS CERTIFYING THAT THE INSTALLED LIGHTING CONTROLS MEET DOCUMENTED PERFORMANCE CRITERIA OF IECC SECTION C405 SHALL BE PROVIDED TO THE BUILDING OWNER WITHIN 90 DAYS FROM THE DATE OF RECEIPT OF THE CERTIFICATE OF OCCUPANCY PER IECC C408.3.2.
- 30. SEE PLUMBING AND MECHANICAL DRAWINGS FOR ALL DIVISION 22 AND 23 EQUIPMENT LOCATIONS AND ELECTRICAL LOAD REQUIREMENTS.

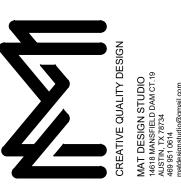
LIGHT	FIXTURE SCHEDU	JLE					
CALLOUT	LAMP	DESCRIPTION	MODEL	INPUT WATTS	VOLTS	NOTE 1	NOTE 2
A	(1) 39W LED, 3000K, 80 CRI	STEM FULL CUTOFF WALL MOUNT	SPECTRUM LIGHTING WS1210GV-15L-30K-EX-TF2-CP104-PA15-MWI-MB	39	120V 1P 2W	MOUNT AT 15'-0" AFG	
В	(1) 11W LED, 3000K, 80 CRI	LED EXT. WALL SCONCE	KUZCO LIGHTING EW61806	11	120V 1P 2W	MOUNT AT 7'-6" AFG	
С	(1) 20W LED, 3000K, 85 CRI	LED OUTDOOR WALL SCONCE	MODERN FORMS LIGHTING WS-W1122 - BK	20	120V 1P 2W	MOUNT AT 9'-6" AFG	
E	(1) 2.8W LED, 5000K	EMER. EGRESS LED W/ NORMALLY ON OPTION CONTROLLED BY PHOTOCELL AND BATTERY BACKUP	LITHONIA AFO-DB-MVOLT-N-SD	2.8	120V 1P 2W	MOUNT AT 8'-0" AFG	SET TO NORMALLY ON MODE TO ALLOW FOR FIXTURE TO FUNCTION AS BOTH NORMAL AND EMERGENCY POWER EGRESS LIGHT.
FE	(1) 17.5W LED, 3500K, 80 CRI	LED 6" RECESSED DOWNLIGHT W/ BATTERY BACKUP	LITHONIA LIGHTING LDN6 35/15 LO6 AR LD MVOLT GZ10 EL	17.5	120V 1P 2W		

*** NOTE TO CONTRACTOR: VERIFY ALL FIXTURE SELECTIONS WITH ARCHITECT PRIOR TO ORDERING/PURCHASING. ***

VOLTAGE DROP TABLE (20A CIRCUITS ONLY, Cu CONDUCTORS, 3% VD)				
208V, 1ø 120V, 1ø				
#12 AWG	0 – 98 FT.	0 – 57 FT.		
#10 AWG	99 – 157 FT.	58 – 91 FT.		
#8 AWG	158 – 251 FT.	92 – 145 FT.		
#6 AWG	252 – 397 FT.	146 – 229 FT.		
#4 AWG	398 – 633 FT.	230 – 365 FT.		
(VERIFY MINIMUM VOLTAGE DROP AND CONDUIT SIZE, PER N.E.C.)				







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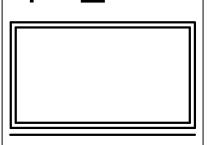
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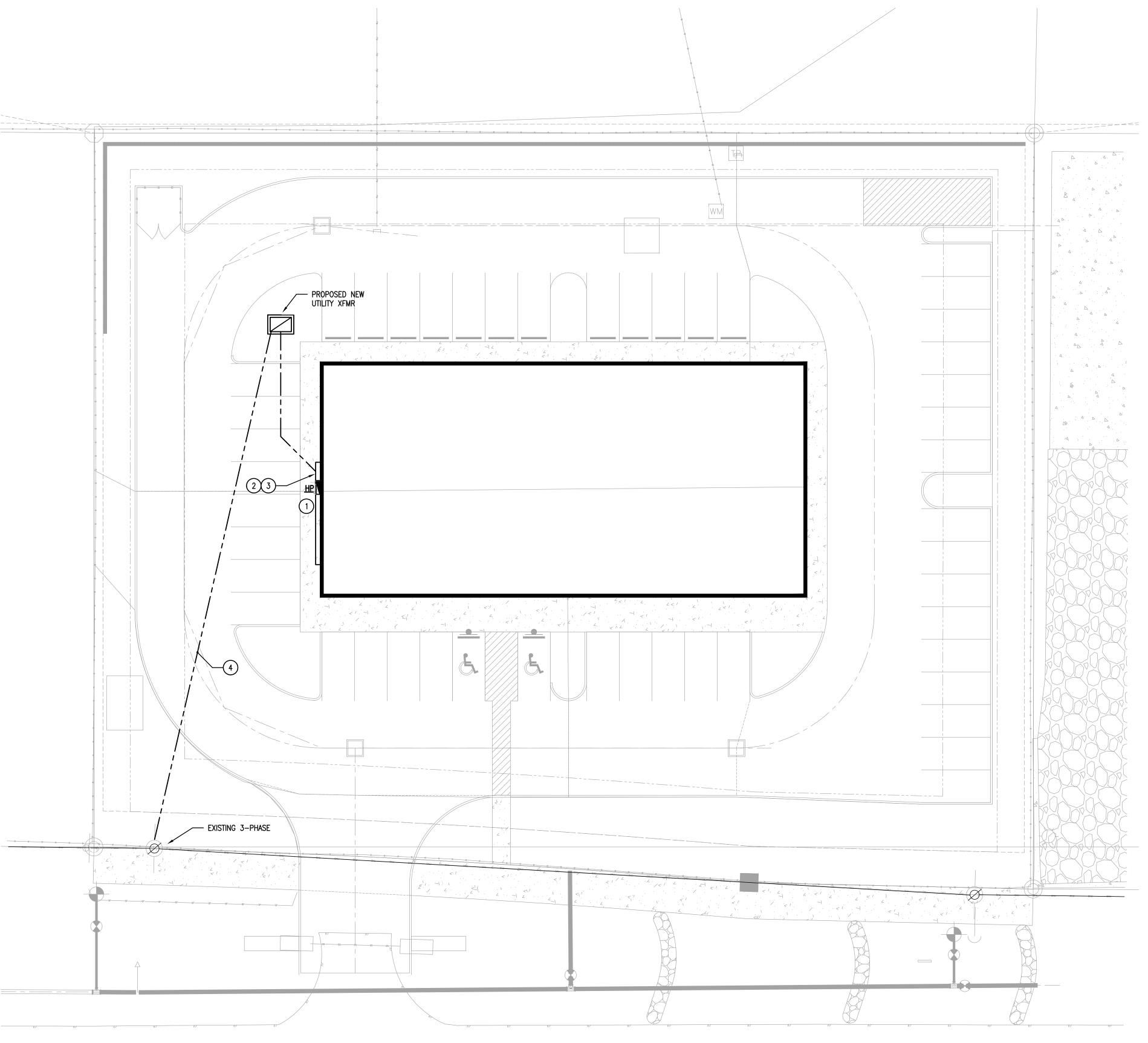
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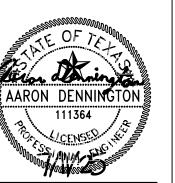




GENERAL: REFER ALSO TO GENERAL ELECTRICAL NOTES ON SHEET E100.

- ELECTRICAL SERVICE ENTRANCE LOCATION. REFER TO ELECTRICAL RISER DIAGRAM ON SHEET E300.
- COORDINATE TERMINATION/CONNECTION REQUIREMENTS FOR TELEPHONE AND CATV AT SERVICE ENTRANCE WITH SERVING UTILITY COMPANY.
- 3. DATA/TELECOMM CONDUITS TO BE QTY (2)2"C AND QTY (2)1"C, IN COMMON TRENCH WITH ELECTRICAL SECONDARY CONDUITS. INSTALLATION SHALL ADHERE TO PEC UTILITY SHARED TRENCH CRITERIA. THE COMM CONDUITS ARE SHOWN FOR PRICING PURPOSES ONLY AND SHALL BE COORDINATED WITH THE DATA/COMM UTILITY PROVIDER AND OWNER PRIOR TO BEGINNING WORK. QUANTITY OF CONDUITS, SIZES, ROUTING, AND PULL BOX LOCATIONS ARE TO BE FULLY COORDINATED PRIOR TO PURCHASE OF ANY MATERIALS OR BEGINNING OF ANY DIRT WORK.
- 4. UNDERGROUND PRIMARY ELECTRIC PER PEC REQUIREMENTS.







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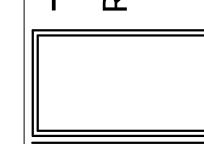
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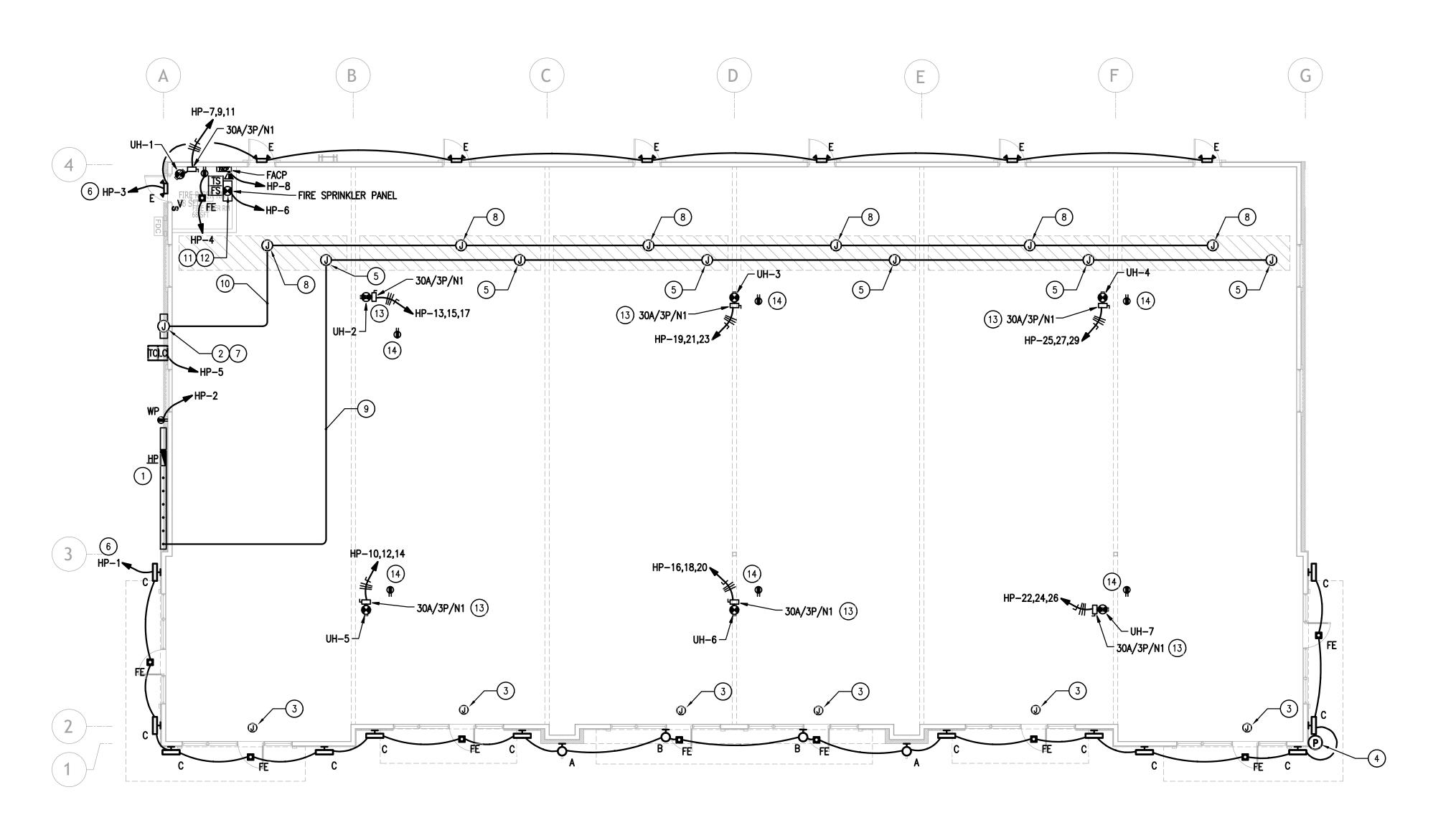


Sheet Number: EU100 Project Number:

24-015

SITE PLAN - ELECTRICAL

SCALE: 1/16" = 1'-0"





KEYED NOTES:



GENERAL: REFER ALSO TO GENERAL ELECTRICAL NOTES ON SHEET E100.

- 1. ELECTRIC SERVICE ENTRANCE LOCATION. REFER TO ELECTRICAL RISER DIAGRAM ON SHEET E300.
- COORDINATE CONNECTION AND REQUIREMENTS FOR TELEPHONE SERVICE ENTRANCE WITH LOCAL TELEPHONE COMPANY.
- 3. ROUTE 1" CONDUIT W/ PULL STRING FROM PANEL "HP" TO J-BOX IN JOISTS FOR TENANT SIGNAGE RELAY (FUTURE).
- 4. MOUNT PHOTOCELL HIGH ON WALL FACING NORTHEAST. REF. SHEET E300 FOR LIGHTING CONTROLS DIAGRAM.

5. PROVIDE J-BOX AND 2" CONDUIT W/ PULL STRING FROM FUTURE TENANT

- SPACE BACK TO TELECOMMUNICATION SERVICE ENTRANCE.

 6. TIME CLOCK CONTROLLED. REFER TO LIGHTING CONTROLS DIAGRAM ON SHEET
- E300 FOR FURTHER INFORMATION.

 7. PROVIDE 12"X12"X18" N3R JUNCTION BOX ABOVE TELEPHONE PEDESTAL ON EXTERIOR WALL AT HEIGHT MATCHING INTERIOR BAR JOISTS. ROUTE 4" PVC CONDUIT (PAINTED WTIH COLOR SPECIFIED BY ARCHITECT) W/ PULL STRING FROM TELEPHONE PEDESTAL TO J-BOX. CAULK AROUND BOX. SHOWN OFFSET
- 8. PROVIDE PULL BOX AT CEILING FOR TENANT FEEDERS. ROUTE 1-2" EMPTY CONDUIT WITH PULL STRINGS TO ABOVE ELECTRICAL SERVICE GUTTER.
- 9. PROVIDE 2" CONDUITS, (1) 2" CONDUIT FOR EACH TENANT TELECOMMUNICATION. REFER TO KEYED NOTE 5, THIS SHEET. CONTRACTOR TO RUN CONDUIT HIGH IN JOIST.
- PROVIDE 2" CONDUIT FOR TENANT FEEDERS, (2) 2" CONDUIT FOR EACH TENANT FEEDER. REFER TO KEYED NOTE 8, THIS SHEET. CONTRACTOR TO RUN CONDUIT HIGH IN JOIST.
- 11. FLOW AND TAMPER SWITCHES AT SPRINKLER SYSTEM OS&Y VALVES TO BE MONITORED BY THE FIRE ALARM SYSTEM. COORDINATE THE EXACT LOCATION AND QUANTITY WITH THE SPRINKLER SYSTEM CONTRACTOR.
- 12. SPRINKLER MONITORING SYSTEM PANEL PROVIDE PANEL MANUFACTURED BY EDWARDS TECHNOLOGY SYSTEM, OR APPROVED EQUAL. THE CONTRACTOR SHALL ROUTE 1— 1" EMPTY CONDUIT WITH PULLWIRE FROM SPRINKLER MONITORING SYSTEM PANEL TO BUILDING TELEPHONE SERVICE PANEL.
- 13. MOUNT DISCONNECT SWITCH TO NEAREST STRUCTURAL MEMBER WITH NEC-REQUIRED CLEARANCES ADJACENT TO UNIT SERVED. TYPICAL FOR ALL TOGGLE DISCONNECT SWITCHES, U.N.O.\
- 14. MOUNT GFCI MAINTENANCE RECEPTACLE TO NEAREST STRUCTURAL ELEMENT ADJACENT TO UNIT SERVED.



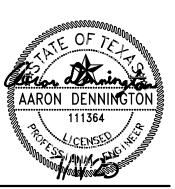
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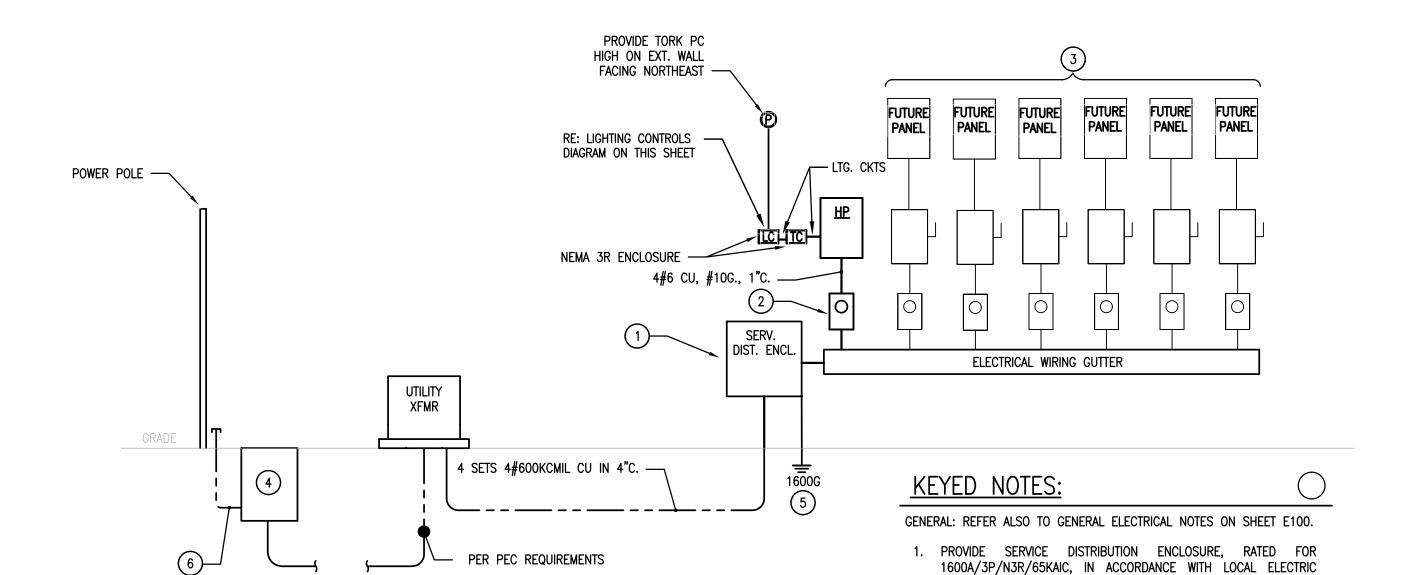
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	ROOM MOUNT FED FF NOTE	ING SUROM U	G EXTERIOR IRFACE IILITY R ENCLOSUF	RE		VOLTS BUS AMPS NEUTRAL	208Y/120 6 60 100%	V 3P 4W				AIC 22,000 MAIN BKR 6 LUGS STAND	50 ARD			
	CKT	CKT					LOAD KVA	1	CKT	CKT					LOAD KVA	١
L	#	BKR	CIRCUIT D	ESCRIPTION		Α_	В	С	#	BKR	CIRCUIT	DESCRIPTION		Α_	В	С
	1 3	20/1 20/1	FOH LIGHT BOH LIGHT	ΓING		0.48	0.02		2 4	20/1 20/1	FIRE RISE	RVICE RECEPTAC R LIGHTING, REC		0.18	0.198	
	5 7 9	20/1 -/1 -/1	TIMECLOCK SPACE SPACE	<		0	0	0.25	6 8 10	20/1 20/1 -/1	FIRE SPR FACP SPACE	INKLER PANEL		0.4	0	0.528
	11 13	-/1 -/1	SPACE SPACE			0		0	12 14	-/1 -/1	SPACE SPACE			0		0
	15 17 19	-/1 -/1	SPACE SPACE SPACE			0	0	0	16 18 20	-/1 -/1	SPACE SPACE SPACE			•	0	0
	21 23	-/1 -/1 -/1	SPACE SPACE SPACE				0	0	20 22 24	-/1 -/1 -/1	SPACE SPACE			0	0	0
	25 27	-/1 -/1	SPACE SPACE			0	0		26 28	-/1 -/1	SPACE SPACE			0	0	
ŀ	29	-/1	SPACE			1		0	30	-/1	SPACE	OOMMEDTED 14	// DV DILLOF	4.00	0.047	0
ŀ				CONN KVA	CALC K	L VA					IOTAL	CONNECTED KY	CALC KVA	1.06	0.217	0.778
	LIGH1 LARG	TING EST MOTOF	₹	0.517 0.528	0.646 0.132		:5%) %)		MOTOF RECEP CONTII	TACLES		0.528 0.76 0.25	0.528 0.76 0.313	(100) (50% (125)	>10)	
									TOTAL BALAN	LOAD CED 3-PH	ASE LOAD		2.38 6.6 A	_		

* = PROVIDE LOCKABLE-TYPE CIRCUIT BREAKER LC = LIGHTING CONTROLS ASSIGNMENT. REFER TO LIGHTING CONTROLS DIAGRAM ON THIS SHEET

SHORT CIRCUIT CALCULATIONS

	Feeder	Paralle	el				L-L				Load	Upstream		Multiplier	Calculated
Equipment Name	Length (ft)	Sets	Conduit	Wire Type	Wire Size	KVA	Voltage	%Z		C-Value	Served (A)	I[SCA]	f-Value	(M)	Values (A)
Utility Transformer*						500	208	3	1.4		1387.9			71.429	99133
SDE	50		4 Non-magnetic	Copper	#600kcmil		208	3		28033	}	99133	0.368	0.731	72461
PANEL 'HP'	10		1 Steel	Copper	#6		208	3		2425		72461	2.488	0.287	20773
* = Assumed Values Use	ed for Calcul	lation													





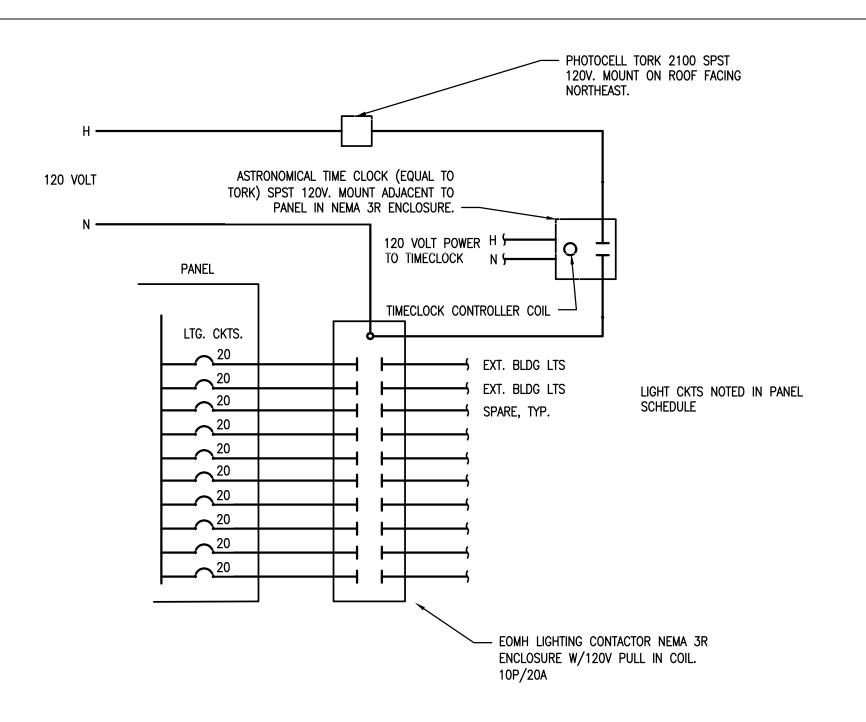
2. PROVIDE ELECTRICAL SERVICE METER PER LOCAL ELECTRIC COMPANY REQUIREMENTS.

EQUIPMENT.

3. FUTURE PANEL, METER & FUSED DISCONNECT TO BE PROVIDED UNDER THE TENANT FINISH-OUT CONTRACT.

COMPANY STANDARDS. PROVIDE ARC FLASH LABELING TO ALL NEW

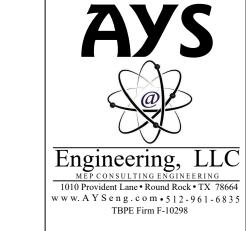
- 4. PROVIDE PRIMARY ENCLOSURE AS REQUIRED BY THE UTILITY PROVIDER.
- 5. REFER TO GROUNDING ELECTRODE CONDUCTOR SCHEDULE ON THIS SHEET.
- 6. CONDUIT PROVIDED BY DEVELOPER, INSTALLED PER P.E.C. SPECIFICATIONS.

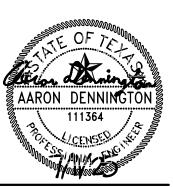


LIGHTING CONTROLS DIAGRAM

	GROUNDING	ELECTRODE CON	IDUCTOR CU WIRE SIZE FOR:						
DESIGNATION RANGE (ID)	GROUND ROD	CONCRETE—ENCASED ELECTRODE	STRUCTURAL STEEL AND METAL WATER PIPING (IF ANY)						
20G-100G	#8	#8	#8						
125G-150G	#6	#6	#6						
175G-200G	#6	#4	#4						
225G-300G	#6	#4	#2						
350G-500G	#6	#4	#1/0						
600G-800G	#6	#4	#2/0						
1000G+	#6	#4	#3/0						
NOTES:		S REFER TO AMPERAGE F . WITHIN THE 20G-100G	OLLOWED BY A "G." FOR EXAMPLE, RANGE.						
	2. CONDUCTOR CONNECTED TO FIRST ELECTRODE IN SYSTEM SHALL BE SIZED ACCORDING TO THE GROUNDING ELECTRODE REQUIRING THE LARGEST CONDUCTOR. ONLY AVAILABLE GROUNDING ELECTRODES IN SYSTEM SHALL BE CONSIDERED. ALL BONDING BETWEEN REMAINING ELECTRODES SHALL BE SIZED ACCORDING TO VALUE LISTED IN TABLE.								
	3. GROUNDING ELECTRODE SYSTEMS SHALL CONSIST OF ALL AVAILABLE GROUNDING ELECTRODES.								
	4. THIS TABLE IS BASED ON ARTICLE 250.66 OF THE NEC.								

ELECTRICAL LOAD ANALYSIS						
RETAIL BUILDING LOAD DESCRIPTION 120/208V., 3ø, 4W	LOAD KVA					
FUTURE TENANT LOAD - (8885 S.F. x 50W) RETAIL/RESTAURANT =	444.3					
HOUSE LOADS =	2.4					
TOTAL ESTIMATED CONNECTED LOAD =	446.7					
446.5 KVA / 208 / $\sqrt{3}$ = AMPS	1239					
BUILDING SERVICE AMPACITY	1600 AMPS					
BUILDING SERVICE SPARE CAPACITY	361 AMPS					







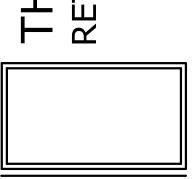
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Sheet Number: E300 Project Number:

24-015

ELECTRICAL SPECIFICATIONS:

PART 1 - GENERAL

1.01 SCOPE OF WORK: FURNISH AND INSTALL ALL MATERIALS AND EQUIPMENT AND PROVIDE ALL LABOR, TOOLS, TRANSPORTATION, SUPERINTENDENCE AND SERVICES

DRAWINGS AND/OR SPECIFIED HEREIN.

ALSO INCLUDED WILL BE ALL OTHER WORK AND MISCELLANEOUS ITEMS, NOT SPECIFICALLY MENTIONED. BUT REASONABLY INFERRED FOR A COMPLETE INSTALLATION INCLUDING ALL ACCESSORIES AND APPURTENANCES REQUIRED FOR TESTING THE SYSTEM. IT IS THE INTENT OF THE DRAWINGS AND SPECIFICATIONS THAT ALL SYSTEMS BE COMPLETE AND READY FOR OPERATION.

REQUIRED AND NECESSARY TO COMPLETE THE WORK SHOWN ON THE

1.02 REGULATORY REQUIREMENTS: ALL WORK AND MATERIALS SHALL COMPLY WITH THE LATEST RULES, CODES

AND REGULATIONS, INCLUDING, BUT NOT LIMITED TO THE FOLLOWING:

2021 INTERNATIONAL BUILDING CODE B. 2021 INTERNATIONAL FIRE CODE

2021 INTERNATIONAL PLUMBING CODE 2021 INTERNATIONAL FUEL GAS CODE E. 2021 INTERNATIONAL MECHANICAL CODE

F. 2021 INTERNATIONAL ENERGY CONSERVATION CODE/ASHRAE 90.1-2019

ENERGY CODE COMPLIANCE 2023 NATIONAL ELECTRIC CODE

H. LOCAL CODE ORDINANCES AND AMENDMENTS

I. NATIONAL ELECTRICAL MANUFACTURER ASSOCIATION (NEMA) AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

K. NATIONAL ELECTRICAL SAFETY CODE (NESC) INSTITUTE OF ELECTRICAL AND ELECTRONIC ENGINEERS (IEEE)

M. UNDERWRITERS' LABORATORIES (UL)

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

O. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) P. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)

AMERICANS WITH DISABILITIES ACT (ADA) R. APPLICABLE UTILITY COMPANIES

1.03 LICENSE FEES AND PERMITS! ELECTRICAL CONTRACTOR SHALL PAY FOR ALL LICENSES, PERMITS AND INSPECTION FEES REQUIRED BY THE AUTHORITY HAVING JURISDICTION AND SHALL ARRANGE FOR ALL REQUIRED INSPECTIONS.

1.04 SAFETY AND INDEMNITY:

THE CONTRACTOR SHALL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF WORK. THIS REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.

NO ACT, SERVICE, DRAWING REVIEW OR CONSTRUCTION REVIEW BY THE OWNER, THE ENGINEERS OR THEIR CONSULTANTS, IS INTENDED TO INCLUDE REVIEW OF THE ADEQUACY OF THE CONTRACTOR'S SAFETY MEASURES, IN, ON, OR NEAR THE CONSTRUCTION SITE.

1.05 DRAWINGS AND SPECIFICATIONS: ALL DRAWINGS AND SPECIFICATIONS SHALL BE CONSIDERED AS A WHOLE AND WORK OF THIS DIVISION SHOWN ANYWHERE THEREIN SHALL BE FURNISHED UNDER THIS DIVISION.

DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL ARRANGEMENT OF EQUIPMENT AND WIRING. MOST DIRECT ROUTING OF CONDUITS AND WIRING IS NOT ASSURED. EXACT REQUIREMENTS SHALL BE GOVERNED BY CONDITIONS OF THE JOB. CONSULT ALL OTHER DRAWINGS IN PREPARATION OF THE BID. EXTRA LENGTHS OF WIRING OR ADDITION OF PULL OR JUNCTION BOXES, ETC. NECESSITATED BY SUCH CONDITIONS SHALL BE INCLUDED.

1.06 CONDITIONS AT SITE. THE ELECTRICAL CONTRACTOR SHALL HAVE EXAMINED THE SITE AND FAMILIARIZED THEMSELVES WITH ALL DISCERNIBLE EXISTING CONDITIONS. NO EXTRA PAYMENT WILL BE ALLOWED FOR WORK REQUIRED BECAUSE OF THESE CONDITIONS, WHETHER SPECIFICALLY MENTIONED OR NOT.

1.07 WORKMANSHIP AND CONTRACTOR'S QUALIFICATIONS: ONLY QUALITY WORKMANSHIP WILL BE ACCEPTED. HAPHAZARD OR POOR INSTALLATION WILL BE CAUSE FOR REJECTION OF WORK. THE CONTRACTOR SHALL BE LICENSED IN THE STATE IN WHICH THE JOB IS LOCATED.

1.08 SHOP DRAWINGS AND MATERIALS LIST: SUBMIT TO OWNER IN A SINGLE PACKAGE SIX (6) COPIES OF COMPLETE SHOP DRAWINGS AND MATERIALS LIST, AS NOTED BELOW, FOR REVIEW WITHIN FIFTEEN (15) DAYS AFTER AWARD OF CONTRACT. SUBMITTALS REQUIRED AS

WIRING DEVICES: SWITCHES, RECEPTACLES, DEVICE PLATES. ENCLOSURES FOR UTILITY COMPANY METERING.

PANFI BOARDS. D. LIGHTING FIXTURES, LAMPS AND LIGHTING CONTROL EQUIPMENT.

1.09 SUBSTITUTIONS:

ONE OR MORE MAKES OF MATERIALS OR METHODS MAY HAVE BEEN SPECIFIED TO ESTABLISH THE STANDARD OF QUALITY, WORKMANSHIP, FINISH AND DESIGN REQUIRED, BUT OTHER MATERIALS OR METHODS EQUAL IN QUALITY. WORKMANSHIP. FINISH. DESIGN. AND GUARANTEED PERFORMANCE WILL BE ACCEPTED. HOWEVER, ALL CHANGES AND SUBSTITUTIONS SHALL BE REQUIRED IN LETTER FORM AND SHALL BE ACCOMPANIED WITH A STATEMENT OF THE AMOUNT OF MONEY TO BE RETURNED TO THE CONTRACT IF THE SUBSTITUTION IS PERMITTED.

NO WORK INVOLVING MATERIALS SUBMITTED FOR SUBSTITUTION SHALL PROCEED UNTIL WRITTEN ACCEPTANCE IS RECEIVED FROM THE OWNER. THE OWNER IS THE SOLE JUDGE OF ACCEPTABILITY OF PREFERRED SUBSTITUTIONS, IF A SUBSTITUTION ITEM IS PERMITTED, AND ANY RE-DESIGN EFFORT IS THEREBY NECESSITATED, THE REQUIRED RE-DESIGN SHALL BE AT THE CONTRACTOR'S EXPENSE.

1.10 COORDINATION:

COORDINATE WORK WITH OTHER TRADES TO AVOID CONFLICT AND TO PROVIDE CORRECT ROUGH-IN AND CONNECTION FOR EQUIPMENT FURNISHED UNDER OTHER TRADES THAT REQUIRE ELECTRICAL CONNECTIONS. INFORM CONTRACTORS OF OTHER TRADES OF THE REQUIRED ACCESS TO AND CLEARANCES AROUND ELECTRICAL EQUIPMENT TO MAINTAIN SERVICE ABILITY AND CODE COMPLIANCE.

VERIFY EQUIPMENT DIMENSIONS AND REQUIREMENTS WITH PROVISIONS SPECIFIED UNDER THIS SECTION. CHECK ACTUAL JOB CONDITIONS BEFORE FABRICATING WORK. REPORT NECESSARY CHANGES IN TIME TO PREVENT NEEDLESS WORK. CHANGES OR ADDITIONS, SUBJECT TO ADDITIONAL COMPENSATION, WHICH ARE MADE WITHOUT WRITTEN AUTHORIZATION AND IN AGREED PRICE, SHALL BE AT THE CONTRACTOR'S RISK AND EXPENSE.

1.11 ROUTINGS:

ALL CONDUIT ROUTINGS. INCLUDING MC CABLE. SHALL BE PARALLEL AND PERPENDICULAR TO THE BUILDING STRUCTURE AND LINES. CONDUITS SHALL BE CONCEALED WHERE POSSIBLE UNLESS NOTED OTHERWISE. AESTHETIC APPEARANCE IS VERY IMPORTANT FOR THE WORK OF THIS PROJECT - THE CONTRACTOR WILL BE REQUIRED TO REMOVE AND REPLACE WORK THAT IS NOT NEAT AND ACCURATE.

1.12 CUTTING AND PATCHING:

ALL CUTTING AND PATCHING REQUIRED FOR WORK OF THIS DIVISION IS INCLUDED HEREIN. COORDINATION WITH GENERAL CONTRACTOR AND OTHER TRADES IS IMPERATIVE. CONTRACTOR SHALL BEAR THE RESPONSIBILITY FOR AND THE ADDED EXPENSE OF ADJUSTING FOR IMPROPER HOLES, SUPPORTS,

1.13 ACCEPTANCE DEMONSTRATION:

UPON COMPLETION OF THE WORK, AT A TIME TO BE DESIGNATED BY THE OWNER, THE CONTRACTOR SHALL DEMONSTRATE FOR THE OWNER THE OPERATION OF THE ELECTRICAL INSTALLATION, INCLUDING ANY AND ALL SPECIAL ITEMS INSTALLED BY HIM/HER OR INSTALLED UNDER THEIR SUPERVISION. PROPERLY SET AUTOMATIC TIME SWITCHES TO PERFORM SWITCHING OPERATIONS IN ACCORDANCE WITH SCHEDULES PROVIDED BY THE OWNER'S REPRESENTATIVE AND DEMONSTRATE (USING THE MANUFACTURER'S OPERATING INSTRUCTIONS) HOW TO OVERRIDE AND/OR TEST TIME SWITCHES PROGRAMMING

1.14 RECORD DRAWINGS, EQUIPMENT DATA:

MAINTAIN ONE SET OF CLEAN WORKING DRAWINGS AT THE JOB SITE AND ENTER DAILY SUCH "AS-BUILTS" INFORMATION AS FEEDER AND SERVICE ROUTES, PULL BOX LOCATIONS AND CHANGES IN LAYOUT OR ARRANGEMENT WHICH OCCUR DURING CONSTRUCTION. DELIVER COMPLETED DRAWINGS TO THE OWNER.

DELIVER TO THE OWNER'S REPRESENTATIVE THREE COPIES OF DATA SHEETS OR OTHER CURRENT MANUFACTURERS' PUBLICATIONS FOR EACH ITEM OF ELECTRICAL EQUIPMENT FURNISHED FOR THE PROJECT INCLUDING AT LEAST THESE DATA:

A. TECHNICAL DESCRIPTION AND REPLACEABLE PARTS LIST. B. PHYSICAL DESCRIPTION AND INSTALLATION INSTRUCTIONS. C. USER'S MANUAL AND OPERATING INSTRUCTIONS.

D. MANUFACTURER'S WARRANTY.

1.15 CLEAN-UP:

RID THE PREMISES OF SCRAP MATERIALS, TRASH AND DEBRIS BOTH DURING CONSTRUCTION AND AT COMPLETION OF THE PROJECT. LEAVE THE BUILDING AND SURROUNDING AREA IN A CLEAN AND ORDERLY CONDITION.

1.16 TEMPORARY SERVICES:

PROVIDE ADEQUATE AND SAFE TEMPORARY ELECTRICAL POWER AND LIGHTING THROUGHOUT THE CONSTRUCTION AND FINISHING OF THE PREMISES FOR BENEFICIAL OCCUPANCY. IN ADDITION TO SPECIAL OR UNUSUAL REQUIREMENTS, PROVIDE AT LEAST THESE ITEMS:

A. SIX 20-AMP CIRCUITS FOR CONSTRUCTION POWER TOOLS. PROVIDE GFI TEMPORARY CIRCUITS WITH COVERPLATES TO MEET OSHA REQUIREMENTS.

B. EIGHT OR MORE LIGHT STRINGS SUSPENDED APPROXIMATELY ONE FOOT BELOW THE HEIGHT OF FINISH CEILING WITH LAMPS SPACED NOT MORE THAN TWELVE FEET ON CENTERS. STRINGS SHALL BE RUN THE LENGTH OF THE BUILDING FOOTPRINT WITH ONE STRING WITHIN EIGHT FEET OF EACH WALL AND ONE (OR MORE) INTERMEDIATE STRING(S) ARRANGED TO LIMIT THE SPACING BETWEEN ROWS TO SIXTEEN FEET OR LESS.

C. FLOOD LIGHTING AND TASK LIGHTING FOR PAINTING AND OTHER FINISH WORK. WHEN PERMANENT ELECTRICAL SERVICE IS OPERABLE. DISCONNECT AND REMOVE FROM THE PREMISES THE MATERIALS AND EQUIPMENT USED FOR TEMPORARY POWER AND LIGHTING, AND RESTORE MODIFICATIONS AND REPAIR DAMAGE CAUSED BY THE INSTALLATION, USE OR REMOVAL OF TEMPORARY SERVICE PROVISIONS.

THE CONTRACTOR SHALL UNCONDITIONALLY WARRANT ALL WORK TO BE FREE OF DEFECTS IN MATERIAL AND WORKMANSHIP FOR A PERIOD OF ONE (1 YEAR FROM THE DATE OF FINAL ACCEPTANCE AND WILL REPAIR OR REPLACE ANY DEFECTIVE WORK PROMPTLY AND WITHOUT CHARGE AND RESTORE ANY OTHER EXISTING WORK DAMAGED IN THE COURSE OF REPAIRING DEFECTIVE MATERIALS AND WORKMANSHIP.

PART 2 - PRODUCTS

2.01 MATERIAL APPROVAL:

ALL MATERIALS MUST BE NEW AND BEAR UNDERWRITER'S LABORATORIES LABEL. MATERIALS THAT ARE NOT COVERED BY UL TESTING STANDARDS SHALL BE TESTED AND APPROVED BY AN INDEPENDENT TESTING LABORATORY OR A GOVERNMENTAL AGENCY.

MATERIAL NOT IN ACCORDANCE WITH THESE SPECIFICATIONS MAY BE REJECTED EITHER BEFORE OR AFTER INSTALLATION.

2.02 CONDUITS AND OTHER RACEWAYS:

- A. RIGID STEEL: HOT-DIPPED GALVANIZED.
- B. INTERMEDIATE METAL CONDUIT (IMC): HOT-DIPPED GALVANIZED.
- C. ELECTRICAL METALLIC TUBING (EMT): ELECTRO-GALVANIZED.
- D. WIREWAY: CODE GAUGE STEEL. WITH KNOCKOUTS AND HINGED COVER. CORROSION RESISTANT, GRAY BAKED ENAMEL FINISH.
- E. PROVIDE FITTINGS AND ACCESSORIES APPROVED FOR THE PURPOSE EQUAL IN ALL RESPECTS TO THE CONDUIT OR RACEWAY. EMT CONNECTORS AND COUPLINGS SHALL BE STEEL SETSCREW TYPE INDOORS AND STEEL COMPRESSION TYPE IN WET LOCATIONS AND

2.03 WIRES AND CABLES:

OUTDOORS.

A. FOR POWER AND LIGHTING SYSTEM 600V OR LESS:

1. CONDUCTOR: MINIMUM SIZE #12 AWG.

#12 AND #10 AWG SOLID COPPER.

#8 AWG AND LARGER SHALL BE STRANDED COPPER FOR BRANCH CIRCUITS, ALUMINUM FOR SERVICE AND FEEDERS.

2. INSULATION TYPE:

a. #12 TO #1 AWG: THWN FOR WET OR UNDERGROUND AND THHN FOR DRY LOCATIONS.

#1/0 THROUGH #4/0 AWG: XHHW (55 MILS).

#250 KCMIL AND LARGER: XHHW (65 MILS). d. GROUNDING WIRE: TW.

B. FOR SIGNAL AND COMMUNICATIONS CIRCUIT:

1. CONDUCTORS FOR GENERAL USE SHALL BE STRANDED COPPER CONDUCTOR. #16 AWG MINIMUM. WITH THWN INSULATION FOR UNDERGROUND OR WET LOCATIONS AND THHN INSULATION FOR

C. ACCEPTABLE PRODUCTS: GENERAL ELECTRIC, ANACONDA, OKONITE, PARANITE OR TRIANGLE PRODUCTS CONFORMING OR EXCEEDING APPLICABLE IPCEA STANDARDS.

2.04 OUTLET BOXES, JUNCTION AND PULL BOXES:

A. OUTLET BOXES: 4" SQUARE X 1-1/2" DEEP (OR LARGER) GALVANIZED SHEET STEEL KO-TYPE WITH PLASTER RING AND COVER FOR GENERAL INTERIOR USE AND CAST METAL TYPE FS OR FD WITH MATCHING SCREW COVERS FOR EXTERIOR AND EXPOSED INTERIOR LOCATIONS (GASKETED IN DAMP OR WET LOCATIONS).

B. JUNCTION BOXES SHALL BE SAME AS OUTLET BOXES UP TO 42 CU. IN. AND CODE-GAUGE STEEL IN LARGER SIZES WITH SURFACE OR FLUSH-TYPE SCREW-MOUNTED TRIM COVERS, BOTH BOXES AND COVERS INHIBITOR-PRIMED AND PAINTED INSIDE OUT.

C. PULL BOXES SHALL BE SAME AS JUNCTION BOXES UNLESS INDICATED OTHERWISE ON THE DRAWINGS, WITH COVERS.

D. ALL BOXES AND ASSOCIATED COMPONENTS SHALL BE STEEL CITY 663 SERIES, WITH P60-3B COVERPLATE OR EQUAL.

2.05 WIRING DEVICES AND PLATES SHALL BE HUBBELL, ARROW HART, LEVITON, GE OR P&S WITH HUBBELL NUMBERS USED TO SPECIFY TYPE USED.

A. STANDARD DESIGN:

1. SWITCH AND RECEPTACLE DEVICES SHALL BE AS SPECIFIED BY

2. WALL PLATES SHALL BE AS SPECIFIED BY ARCHITECT.

3. SWITCHES SHALL BE 20 AMP, 120/277 VOLT A.C. RATED: SINGLE POLE SWITCHES SHALL BE #1221 (HUBBELL NUMBERS).

4. RECEPTACLES SHALL BE GROUNDING TYPE #5362 (HUBBELL NUMBER).

5. WALL-SWITCH VACANCY SENSORS SHALL BE DUAL-RELAY, MULTI-TECHNOLOGY WALL-SWITCH TYPE, 120/277V, ADJUSTABLE TIME DELAY UP TO 30 MINUTES, 180-DEGREE FIELD OF VIEW, EQUAL TO WATTSTOPPER LSVW-10X. LUTRON OR NLIGHT PRODUCTS ARE ALSO ACCEPTABLE.

2.06 CONDUIT HANGERS:

FOR INDIVIDUAL CONDUIT RUNS NOT DIRECTLY FASTENED TO THE STRUCTURE USE ROD HANGERS MANUFACTURED BY CADDY, UNISTRUT, OR POWERSTRUT. FOR MULTIPLE CONDUIT RUNS. USE UNISTRUT OR POWERSTRUT TRAPEZE TYPE CONDUIT SUPPORT DESIGNED FOR MAXIMUM DEFLECTION NOT GREATER THAN 1/8".

2.07 WIRE CONNECTORS:

FOR WIRE SIZES #8 AWG AND SMALLER: INSULATED PRESSURE TYPE (WITH LIVE SPRING) RATED 105 DEGREES C., 600V. FOR BUILDING WIRING AND 1000V IN SIGNS OR FIXTURES: SCOTCHLOK OR IDEAL FOR WIRE SIZE #6 AWG AND LARGER: T & B OR EQUIVALENT COMPRESSION TYPE WITH 3M #33+ OR PLYMOUTH "SLIPKNOT GRAY" TAPE INSULATION.

2.08 PANELBOARDS:

A. CONSTRUCTION: CABINETS SHALL BE OF CODE GAUGE, GALVANIZED STEEL, SURFACE OR FLUSH MOUNTED AS INDICATED. DOORS SHALL BE OF COLD-ROLLED STEEL WITH CONCEALED HINGES AND FLUSH CATCH and lock. All panels shall be keyed alike. Panels located ADJACENT TO EACH OTHER SHALL HAVE IDENTICALLY SIZED ENCLOSURE AND TRIMS, MINIMUM PANEL WIDTH SHALL BE 20". FINISH EXPOSED PART WITH ONE COAT OF PRIMER AND ONE COAT OF LIGHT GRAY ENAMEL SUITABLE FOR OVERPAINTING IN FIELD IF DESIRED.

B. BUS BARS: PROVIDE GROUND BLOCK WITH FULL COMPLEMENT OF TERMINALS IN ADDITION TO INSULATED NEUTRAL BUS. FUTURE BREAKER SPACES SHALL HAVE COMPLETE PROVISION INCLUDING BUSSES AND CONNECTING HARDWARE.

C. MANUFACTURERS: PANELBOARDS SHALL BE GENERAL ELECTRIC, SQUARE D, EATON, OR SIEMENS-ITE.

D. CIRCUIT BREAKERS: SHALL BE QUICK-MAKE, QUICK-BREAK, MOLDED CASE TYPE:

1. 120/208-240 VOLT PANELS: SHALL BE BOLT-ON TYPE WITH MINIMUM SYMMETRICAL INTERRUPTING CAPACITY AS SHOWN ON THE PLANS.

2. ALL BREAKERS MUST BE FULLY RATED. SERIES RATING NOT ALLOWED.

3. PROVIDE MULTI-POLE UNITS WITH COMMON TRIP ELEMENT.

E. IDENTIFICATION: PROVIDE SCREWED-ON (NO ADHESIVES) BAKELITE OR PHOTO-ETCHED METALLIC NAMEPLATE IDENTIFICATION ON OUTSIDE OF EACH PANEL SHOWING PANEL DESIGNATION, VOLTAGE, AND PHASE IN MINIMUM 1/4" HIGH LETTERS. EACH PANEL SHALL CONTAIN A METAL-FRAMED CIRCUIT DIRECTORY INSIDE COVER, WITH PLASTIC

F. COMPLETE SHOP DRAWINGS ARE REQUIRED. SEE ARTICLE 1.08.

2.09 INDIVIDUALLY MOUNTED MOTOR CONTROLLERS:

A. STARTERS FOR FRACTIONAL HORSEPOWER 120V MOTORS SHALL BE MANUAL TYPE UNLESS SHOWN OTHERWISE, EQUIPPED WITH BUILT-IN OVERLOAD PROTECTION

B. ACCEPTABLE MANUFACTURERS: GENERAL ELECTRIC, EATON, SIEMENS, SQUARE D. AND ALLEN BRADLEY.

2.10 MISCELLANEOUS MATERIALS:

A. SAFETY SWITCHES: HEAVY DUTY TYPE, 600V, HORSEPOWER RATED FOR MOTORS, FUSED OR NON-FUSED AS REQUIRED. MOUNT IN ENCLOSURE WITH NEMA RATING AS REQUIRED FOR THE SPECIFIC APPLICATION. GENERAL ELECTRIC, SQUARE D, EATON OR SIEMENS-ITS.

B. TIME CLOCK: TORK #DGLC, OR ACCEPTED SUBSTITUTE.

C. PHOTOCELLS: TORK EPC1, OR ACCEPTED SUBSTITUTE.

D. CONTACTORS/RELAYS: AS MANUFACTURED BY ASCO, OR ACCEPTED SUBSTITUTE, MECHANICALLY HELD WITH RELAYS AS REQUIRED TO OPERATE ON TWO WIRE CONTROL CIRCUITS.

2.11 LIGHTING:

A. LIGHTING TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR AS INDICATED ON THE DRAWINGS, SUBCONTRACTORS TO INSTALL ALL FIXTURES COMPLETE, INCLUDING LAMPS AND BALLASTS, READY FOR

B. SUPPORTS: PROPER SUPPORTS AND MOUNTING ACCESSORIES, SUCH AS HANGERS. STEMS, YOKES. PLASTER FRAMES, ETC. SHALL BE PROVIDED AS REQUIRED BY THE TYPE OF CEILING INSTALLED. FIXTURES SHALL HANG PLUMB REGARDLESS OF CEILING SLOPE.

C. FIXTURE DESIGNATION: FIXTURE TYPES ARE DESIGNATED ON DRAWINGS. FOR EXACT FIXTURE COUNT AND LOCATION, REFER TO REFLECTED CEILING PLAN.

PART 3 - EXECUTION

3.01 GENERAL:

A. ELECTRIC SYSTEM LAYOUTS INDICATED ON THE DRAWINGS ARE GENERALLY DIAGRAMMATIC AND SHALL BE FOLLOWED AS CLOSELY AS ACTUAL CONSTRUCTION AND WORK OF OTHER TRADES WILL PERMIT. GOVERN EXACT ROUTING OF CABLE AND WIRING AND THE LOCATIONS OF OUTLETS BY THE STRUCTURE AND EQUIPMENT SERVED. TAKE ALL DIMENSIONS FROM ARCHITECTURAL DRAWINGS.

B. CONSULT ALL OTHER DRAWINGS, VERIFY SCALES AND REPORT ANY DIMENSIONAL DISCREPANCIES OR OTHER CONFLICTS WITH THE ARCHITECT BEFORE SUBMITTING BID.

C. ALL HOME RUNS TO PANELBOARDS ARE INDICATED AS STARTING FROM THE OUTLET NEAREST THE PANEL AND CONTINUING IN THE GENERAL DIRECTION OF THAT PANEL. CONTINUE SUCH CIRCUITS TO THE PANEL AS THOUGH THE ROUTES WERE COMPLETELY INDICATED. TERMINATE HOMERUNS OF SIGNAL, ALARM, AND COMMUNICATION SYSTEMS IN A

D. AVOID CUTTING AND BORING HOLES THROUGH STRUCTURE OR STRUCTURAL MEMBERS WHEREVER POSSIBLE. OBTAIN PRIOR APPROVAL OF OWNER AND CONFORM TO ALL STRUCTURAL REQUIREMENTS WHEN CUTTING OR BORING THE STRUCTURE IS NECESSARY AND PERMITTED.

E. FURNISH AND INSTALL ALL NECESSARY HARDWARE, HANGERS, BLOCKING, B. INSTALL ALL WIRE CONTINUOUS FROM OUTLET TO OUTLET OR TERMINAL BRACKETS, BRACING, RUNNERS, ETC. REQUIRED FOR EQUIPMENT TO TERMINAL. SPLICES IN CABLES WHEN REQUIRED SHALL BE MADE IN SPECIFIED UNDER THIS SECTION. HAND HOLES, PULL BOXES OR JUNCTION BOXES. MAKE BRANCH CIRCUIT SPLICES IN OUTLET BOXES WITH 8" OF CORRECTLY

F. PROVIDE NECESSARY BACKING REQUIRED TO INSURE RIGID MOUNTING OF OUTLET BOXES.

3.02 WIRING METHODS:

SIMILAR MANNER.

A. NO "ROMEX" OR ARMORED CABLE WIRING IS PERMITTED — ALL ELECTRICAL WIRING MUST BE IN CONDUIT.

B. CONDUIT SHALL BE RIGID STEEL, IMC, EMT, METAL CLAD (MC) CABLE, OR SCHEDULE 40 PVC AS FOLLOWS:

1. ABOVE GROUND: USE RIGID STEEL, IMC, MC, OR EMT. MC CABLE SHALL BE INSTALLED ONLY WHERE PERMITTED BY CODE AND THE AUTHORITY HAVING JURISDICTION.

a. WET LOCATIONS: RIGID STEEL OR IMC ONLY. b. LOCATIONS SUBJECT TO MECHANICAL DEFORMATION: RIGID

STEEL OR IMC ONLY. c. DRY INTERIOR LOCATIONS FOR BRANCH CIRCUIT WIRING AND NOT SUBJECT TO MECHANICAL DEFORMATION: EMT. IMC., MC. OR RIGID STEEL CONDUIT. d. DRY INTERIOR LOCATIONS FOR OTHER THAN BRANCH CIRCUIT

WIRING AND NOT SUBJECT TO MECHANICAL DEFORMATION: EMT, IMC, OR RIGID STEEL CONDUIT. 2. UNDERGROUND: USE RIGID STEEL OR SCHEDULE 40 PVC WITH RIGID STEEL ELLS AND RIGID STEEL CONDUIT/FITTINGS WHEN

EMERGING FROM GRADE, UNLESS NOTED OTHERWISE. C. USE FLEXIBLE CONDUITS IN THE FOLLOWING APPLICATIONS (MAX 6-FT):

RECESSED LIGHTING FIXTURES.

2. MOTOR CONNECTIONS

3. AT BUILDING JOINTS.

4. AT WET LOCATIONS, FLEXIBLE CONDUIT SHALL BE LIQUIDTIGHT TYPE. 3.08 GROUNDING:

D. LIGHT FIXTURES INSTALLED IN GYP BOARD CEILINGS MAY BE WIRED FROM FIXTURE TO FIXTURE USING MC CABLE UNLESS PROHIBITED BY THE AHJ. VERIFY THAT LIGHT FIXTURES ARE PROVIDED WITH JUNCTION BOXES APPROVED FOR THIS PURPOSE. MC TYPE CABLE TO MEET ANSI/NFPA 70 REQUIREMENTS. CABLE ARMOR TO BE INTERLOCKED STEEL METAL TAPE. MC TYPE CABLE MANUFACTURED BY AFC CABLE SYSTEMS. PIRELLI CABLE CORPORATION AND SOUTHWIRE COMPANY ARE APPROVED. MC CABLE SHALL <u>NOT</u> BE USED TO WIRE LIGHT FIXTURES INSTALLED IN EXPOSED CEILINGS FROM FIXTURE TO FIXTURE (6-FT LIGHT FIXTURE WHIPS ARE PERMITTED).

E. ALL WIRING SHALL BE IN CONDUIT.

OTHERWISE ON THE PLANS.

F. ALL CONDUIT AND MC CABLE SHALL BE SUPPORTED AS REQUIRED BY

THE NEC. 3.03 INSTALLATION OF CONDUITS:

1. RUN ALL CONDUIT CONCEALED, IF POSSIBLE, UNLESS NOTED

2. RUN ALL CONDUIT PARALLEL TO OR AT RIGHT ANGLES TO CENTER LINES OF COLUMNS AND BEAMS. 3. CONDUITS SHALL NOT CROSS ANY DUCT SHAFT OR AREA

DESIGNATED AS FUTURE DUCT SHAFT HORIZONTALLY, CONDUIT RISERS, WHEN ALLOWED IN DUCT SHAFT, MUST BE COORDINATED WITH MECHANICAL WORK TO AVOID ANY CONFLICT. 4. INSTALL NO MORE THAN THE EQUIVALENT OF THREE 90-DEGREE

BENDS IN ANY CONDUIT RUN EXCEPT FOR COMMUNICATIONS

CONDUITS. FOR WHICH ONLY TWO BENDS ARE ALLOWED. PROVIDE

J-BOXES AS NEEDED WHERE MORE BENDS ARE NEEDED.

B. CONDUIT SUPPORTS: 1. SUPPORT CONDUITS WITH UNDERWRITER'S LABORATORIES LISTED STEEL CONDUIT SUPPORTS AT INTERVALS REQUIRED BY THE NATIONAL ELECTRIC CODE. WIRES OR SHEET METAL STRIPS ARE NOT ACCEPTABLE FOR CONDUIT SUPPORT. USE CONDUIT HANGERS FOR ALL CONDUITS NOT DIRECTLY FASTENED TO STRUCTURE AND FOR ALL MULTIPLE CONDUIT RUNS. DO NOT ATTACH ANY CONDUIT

TO MECHANICAL DUCTS OR PIPES. 2. AN NFPA 251 TESTED AND APPROVED CEILING SYSTEM CAN BE USED TO SUPPORT BRANCH CIRCUIT CABLING WHERE APPROVED BY

C. CONDUIT PENETRATION:

PENETRATING FIRE RATED FLOOR, CEILING OR WALL: INSTALL CONDUIT IN CONDUIT SLEEVE OR FRAMED OPENING. SEAL PENETRATION WITH FIRE RETARDANT SEALANT.

2. PENETRATING EXTERIOR WALL: AVOID PENETRATING EXTERIOR WALL WHERE POSSIBLE. WHERE PENETRATIONS ARE NECESSARY, BUILDING WEATHERPROOF INTEGRITY MUST BE PRESERVED. CONDUITS PENETRATING THROUGH ROOF SHALL HAVE ROOF FLASHING WITH

CAULK TYPE COUNTERFLASHING SLEEVE. 3. PENETRATING NON-FIRE RATED DRY WALL: CONDUIT SLEEVES ARE NOT REQUIRED. PENETRATIONS MUST BE SEALED WITH PLASTER PRIOR TO PAINTING. PENETRATIONS MADE AFTER WALL FINISH IS APPLIED MUST BE AS SMALL AS POSSIBLE AND PROVIDED WITH ESCUTCHEONS, ONE ON EACH SIDE OF WALL.

3.04 CONNECTIONS TO EQUIPMENT:

A. GENERAL:

1. FURNISH AND INSTALL REQUIRED POWER SUPPLY CONDUIT AND WIRING TO ALL EQUIPMENT. SEE BELOW FOR OTHER WIRING

2. FURNISH AND INSTALL A DISCONNECT SWITCH IMMEDIATELY AHEAD OF AND ADJACENT TO EACH MAGNETIC MOTOR STARTER OR APPLIANCE UNLESS THE MOTOR APPLIANCE IS LOCATED ADJACENT AND WITHIN SIGHT OF THE SERVING PANELBOARD, CIRCUIT BREAKER OR SWITCH. VERIFY ALL EQUIPMENT NAMEPLATE CURRENT RATINGS PRIOR TO INSTALLATION.

INSTALL ALL ROUGH-IN WORK FOR EQUIPMENT FROM APPROVED SHOP DRAWINGS TO SUIT THE SPECIFIC REQUIREMENTS OF THE FIRE ALARM SYSTEM SPECIFICATIONS:

4. FURNISH AND INSTALL MANUAL THERMAL PROTECTION FOR ALL

5. FURNISH 120 VOLT POWER TO EACH CONTROL PANEL AND TIME

CONSTRUCTION WORK WHICH MIGHT DAMAGE THE WIRE HAS BEEN

SWITCH REQUIRING A SOURCE OF POWER TO OPERATE.

A. PULL NO WIRE INTO ANY PORTION OF THE CONDUIT SYSTEM UNTIL ALL

C. SPLICES IN WIRES AND CABLES SHALL BE MADE UTILIZING MATERIALS

D. MAKE ALL GROUND, NEUTRAL AND LINE CONNECTIONS TO RECEPTACLE

E. PROVIDE BRADY WIRE MARKERS WHERE NUMBER OF CONDUCTORS IN A

COLOR CODING SHALL BE CONTINUOUS FOR WIRE #12 THROUGH #10 AWG.

PHASE CONDUCTORS #8 AND LARGER AND CONDUCTORS OF ANY SIZE IN

CABLE ASSEMBLIES MAY HAVE COLORED PHASING TAPE AT TERMINATIONS.

VOLTAGE PHASE A PHASE B PHASE C NEUTRAL GND

A. PROVIDE NAMEPLATES FOR PANELBOARDS, AND ALL SIMILAR DEVICES.

B. EACH PANELBOARD SHALL CONTAIN A METAL-FRAMED CIRCUIT

C. PANELBOARD SCHEDULE: AFTER COMPLETION OF WORK, PROVIDE

A. ELECTRICAL SERVICE ALTERNATING CURRENT SYSTEMS SHALL BE

B. GROUND NON-CURRENT CARRYING METAL PARTS OF ELECTRICAL

GROUNDED IN ACCORDANCE WITH NEC ARTICLE 250.3 TO 250.30,

ENCLOSURES, FRAMES, CABLE TRAYS OR CONDUCTOR RACEWAYS TO

PROVIDE A LOW IMPEDANCE PATH FOR LINE-TO-GROUND FAULT

CURRENT AND TO BOND ALL NON-CURRENT CARRYING METAL PARTS

TOGETHER. PROVIDE GROUND CONDUCTOR IN EACH RACEWAY SYSTEM.

WHETHER GROUND WIRE IS SPECIFICALLY LISTED OR NOT. EQUIPMENT

GROUND CONDUCTOR SHALL BE ELECTRICALLY AND MECHANICALLY

CONTINUOUS FROM THE FLECTRICAL CIRCUIT SOURCE TO THE

EQUIPMENT TO BE GROUNDED. SIZE GROUND CONDUCTORS PER NEC

ARTICLE 250.122 UNLESS LARGER CONDUCTORS ARE SHOWN ON

WHERE GREEN INSULATION IS NOT AVAILABLE ON LARGER SIZES, BLACK

INSULATION SHALL BE USED AND SUITABLY IDENTIFIED WITH GREEN

C. GROUNDING CONDUCTORS SHALL BE IDENTIFIED WITH GREEN INSULATION.

TAPE AT EACH JUNCTION BOX OR DEVICE ENCLOSURE.

TYPEWRITTEN UPDATED PANELBOARD SCHEDULES FOR ALL PANELBOARDS.

INCLUDE ROOM/EQUIPMENT DESIGNATIONS TO IDENTIFY

NAMEPLATES SHALL BE SCREWED (NO ADHESIVES) ENGRAVED BAKELITE

OR PHOTO-ETCHED METALLIC NAMEPLATE IDENTIFICATION SHOWING

PANEL DESIGNATION, VOLTAGE AND PHASE IN MINIMUM 1/4" HIGH

WHITE

120/208V RED BLACK BLUE

DIRECTORY INSIDE COVER, WITH PLASTIC PROTECTOR.

ROOM/EQUIPMENT SERVED BY CIRCUIT.

DRAWINGS.

AND WIRING DEVICE TERMINALS AS RECOMMENDED BY MANUFACTURER.

3.05 INSTALLATION OF CONDUCTORS:

BOX EXCEEDS FOUR.

COLOR CODE WIRES AS FOLLOWS:

3.06 WIRE COLOR CODE:

3.07 IDENTIFICATION:

COLOR-CODED TAILS LEFT IN THE BOX.

AND METHODS DESCRIBED HEREIN BEFORE.

MOTORS NOT INTEGRALLY EQUIPPED WITH THERMAL PROTECTION.

WHERE REQUIRED BY CODE, FIRE ALARM SYSTEM SHALL BE FURNISHED, INSTALLED AND WIRED BY THE FIRE ALARM CONTRACTOR. SHOP DRAWINGS SHALL BE PREPARED AND SUBMITTED BY A NICET LEVEL III MINIMUM CERTIFIED FIRE ALARM TECHNICIAN, TRAINED AND CERTIFIED BY MANUFACTURER IN FIRE ALARM SYSTEM DESIGN. FIRE ALARM CONTRACTOR SHALL PROVIDE A COMPLETE SYSTEM EQUAL TO NOTIFIER SYSTEM 500 OR EQUAL OF PYROTRONICS, EDWARDS SYSTEMS TECHNOLOGIES OR SIMPLEX. CONTROL PANEL TO BE MICROPROCESSOR BASED SYSTEM CONTAINING FIRE ALARM ZONES IN QTY NEEDED FOR COMPLETE SYSTEM, INITIATING ALARM POWER MODULES FOR HORNS & STROBES, CONTROL RELAY MODULE FOR CONTROL OF H.V.A.C. EQUIPMENT, AND ALL OTHER MISCELLANEOUS ITEMS FOR A COMPLETE AND OPERATING FIRE ALARM SYSTEM. CONTROL PANEL TO BE PROGRAMMED SO THAT IF ANY ONE ZONE IS IN ALARM, ALL H.V.A.C. UNITS ARE TO BE SHUT DOWN AND SMOKE PURGE SEQUENCE SHALL BE ACTIVATED.

ZONE #1 = MANUAL PULL STATIONS

ZONE #2 = DUCT DETECTORS FOR H.V.A.C. UNITS

2. THE FOLLOWING PERIPHERAL DEVICES TO BE INSTALLED AS A PART OF THE FIRE ALARM SYSTEM:

2.1. MANUAL PULL STATION, NON-CODED, DUAL-ACTION, UNIT, +3'-10" A.F.F. #NBG-10.

2.2. AREA SMOKE DETECTORS, PHOTO-ELECTRIC TYPE #2451-B402B.

2.3. DUCT MOUNTED SMOKE DETECTORS, PHOTO-ELECTRIC TYPE #2451-DH400ACDC WITH REQUIRED SAMPLING TUBES (PROVIDED BY MECHANICAL CONTRACTOR, CONNECTED BY ELECTRICAL CONTRACTOR). COORDINATE WITH MECHANICAL CONTRACTOR FOR LOCATIONS.

2.4. HORN/STROBE UNIT. MINIMUM 75cd. 80" TO BOTTOM OF UNIT. OR SOME OTHER CONSISTENT HEIGHT AT LEAST 6 INCHES BELOW THE CEILING, #SS2475ADA.

AS THAT OF THE FIRE ALARM CONTROL PANEL. INSTALL WITH TOP OF

2.5. STROBE ONLY UNIT, MINIMUM 75cd, 80" TO BOTTOM OF UNIT, OR SOME OTHER CONSISTENT HEIGHT AT LEAST 6 INCHES BELOW THE CEILING, #IS1-24-VFR.

2.6. EXTERIOR BELL, 6" GONG WITH WEATHERPROOF BACKBOX, +10'-0" ABOVE FINISHED GRADE, #KMS-624. 2.7. ANNUNCIATOR PANEL. COMPATIBLE WITH AND WITH SAME MANUFACTURER

PANEL NOT MORE THAN 72 INCHES A.F.F. 2.8. MAGNETIC DOOR HOLD-OPENS DESIGNED TO CLOSE AUTOMATICALLY UPON ACTIVATION OF THE FIRE ALARM SYSTEM.

3. CONTRACTOR TO PROVIDE 1/2" EMPTY CONDUIT FROM FIRE ALARM CONTROL CABINET TO OWNER'S TELEPHONE TERMINAL BOARD. OWNER TO PROVIDE WIRING AND CONNECTION TO "LOCAL ENERGY MUNICIPAL BOX OUTPUT". ALL FIRE ALARM CONDUCTORS TO BE AS RECOMMENDED BY MANUFACTURER AND

4. ALL FIRE ALARM MATERIALS AND INSTALLATION TO BE IN CONFORMANCE WITH N.F.P.A. 72 AND A.D.A. (AMERICANS WITH DISABILITIES ACT). IN AREAS AND CORRIDORS WHERE TWO OR MORE VISUAL STROBE UNITS ARE INSTALLED. PROVIDE SYNCHRONIZED STROBE UNITS SO AS TO PROVIDE A FLASH RATE

MUST BE INSTALLED IN CONDUIT.

BY THE ENGINEER OR ARCHITECT.

MINIMUM OF 1 Hz AND A MAXIMUM OF 3 Hz.

ADDRESSABLE NOTIFICATION APPLIANCES ARE ACCEPTABLE.

6. ALL PERIPHERAL DEVICE ADDS SHALL BE PRICED TO THE OWNER MATCHING CURRENT GSA PRICING. 7. ELECTRICAL AND FIRE ALARM CONTRACTOR SHALL PROVIDE SUBMITTAL

DOCUMENTS FOR EQUIPMENT AND DEVICES BEING INSTALLED FOR APPROVAL

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