# HOOK FARMS SW 26TH TERRACE & SW PRYOR RD LEE'S SUMMIT, MO PERMIT SET 18 OCTOBER 2021 COLLINS WEBB #: 20032



### OWNER

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### ARCHITECT

COLLINS | WEBB ARCHITECTURE 307B SW MARKET STREET LEE'S SUMMIT, MISSOURI 64063 P: 816.249.2270 www.collinsandwebb.com

### STRUCTURAL ENGINEER

LEIGH + O'KANE 250 NE MULBERRY, SUITE 201 LEE'S SUMMIT, MO 64086 P: 816.444.3144

### MEP ENGINEER

PKMR 13300 W. 98TH ST. LENEXA, KS 66215 P: 913.492.2400

GENERAL				
SHEET NUMBER	SHEET NAME			
CS	COVER SHEET			
G001	GENERAL INFORMATION			
G002	ACCESSIBILITY GUIDELINES			
G500	GENERAL PROJECT SPECIFICATIONS			
G501	GENERAL PROJECT SPECIFICATIONS			

### CIVIL

SHEET NUMBER	SHEET NAME
C01	TITLE SHEET
C02	GENERAL NOTES
C03	GENERAL NOTES
C04	EXISTING CONDITIONS
C05	SITE PLAN
C06	GRADING PLAN
C07	SPOT ELEVATIONS
C08	SPOT ELEVATIONS
C09	EROSION CONTROL PLAN
C09A	STORM SEWER 1
C09B	STORM SEWER 2
C09C	SANITARY SEWER
C09D	UTILITY PLAN
C10	EROSION CONTROL PLAN
C11	EROSION CONTROL PLAN - FINAL PLACEMENT
C12	DETAIL SHEET
C13	DETAIL SHEET
C14	DETAIL SHEET
C15	STORM SEWER CALCULATIONS
E01	SITE LIGHTING PHOTOMETRICS PLAN
E02	SITE LIGHTING POWER PLAN
E03	SITE LIGHTING DETAILS
E04	SITE LIGHTING SPECIFICATIONS
L1-L3	LANDSCAPE PLANS

STRUCTURAL				
SHEET NUMBER	SH	IEET NAME		
S101	PLANS			
S102	SECTIONS			
S103	ELEVATIONS			

ARCHITECTURAL				
SHEET NO.	SHEET NAME			
AS101	ARCHITECTURAL SITE PLAN			
A101	1ST FLOOR PLANS			
A201	EXTERIOR ELEVATIONS			
A325	SECTIONS, DETAILS & SCHEDULES			
MEP				

SHEET NUMBER	SHEET NAME
ME001	COVER SHEET
ME002	SPECIFICATIONS
ME101	SITE PLAN
M101	MECHANICAL PLAN
M201	MECHANICAL SCHEDULES & DETAILS
E101	ELECTRICAL PLAN
E201	ELECTRICAL SCHEDULE & DETAILS

#### GENERAL DESCRIPTION

PROJECT NAME: HOOK FARMS POOL HOUSE PROJECT LOCATION: SW 26TH TERRACE & SW PRYOR RD. LEE'S SUMMIT, MO

COLLINS WEBB ARCHITECTURE

13A SW 3RD STREET LEES SUMMIT, MISSOURI 64063

APPLICABLE CODES: 2018 INTERNATIONAL BUILDING CODE

2018 INTERNATIONAL FIRE CODE

2018 INTERNATIONAL MECHANICAL CODE

2018 INTERNATIONAL PLUMBING CODE 2017 NATIONAL ELECTRICAL CODE

2012 ENERGY CONSERVATION CODE ICC/ ANSI A117.1-2009, ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES

CODE INFORMATION

BUILDING/PROJECT USE: CONSTRUCTION TYPE OCCUPANCY CLASSIFICAT BUILDING FRAME	ION	POOL HOUSE - NON CONDITIONED SPAC TYPE VB (NON-SPRINKLERED) GROUP "U" UTILITY WOOD FRAME	CE
BASE ALLOWABLE AREA " ACTUAL AREA (GROSS)	U"	5,500 SQ. FT. 534 SQ. FT.	
ALLOWABLE STORIES ACTUAL NUMBER OF STOP	RIES	1 STORY 1 STORY	
ALLOWABLE HEIGHT ACTUAL HEIGHT IN FEET		40'-0" 15'-6"	
FIRE RESISTIVE	REQUIREME	ENTS	T/
RIMARY FRAME ION-BEARING WALLS BEARING WALLS INT./ EXT. LOOR CONSTRUCTION EILING/ROOF CORRIDORS (NOT APPLICABLE)	0 HR 0 HR 0 HR 0 HR 0 HR 0 HR	S S S S S OCC. < 30 OCCUPANTS	IB IB IB IB IB
CEILING HEIGHT	NOTES: (IB	C 1207)	
ALL MEANS OF EGRESS TO HA OCCUPIED SPACES, HABITABL BATHROOMS, TOILET ROOMS,	VE A MINIMUM CEILING E SPACES AND CORRID STORAGE ROOMS SHA	HEIGHT OF 7'-6" A.F.F., NOR SHALL HAVI ORS SHALL HAVE A CEILING HEIGHT OF LL HAVE A CEILING HEIGHT OF NOT LES	E A N( S 1
NTERIOR FINISH	IES		_
ROUP U	MAX. FLAME SPREAD		

GROUP U	MAX. FLAME SPREAD	
EXIT ENCLOSURES	NO RESTRICTIONS	IBC
LOBBIES & CORRIDORS	NO RESTRICTIONS	IBC
ALL OTHER SPACES	NO RESTRICTIONS	IBC
TEXTILES	CLASS A (0-25)	IBC
SMOKE DEVELOPED	0-450	TAB



NORTH
POOL DECK: 332 OCCUPANTS
POOL: 37 OCCUPANTS
TABLE/SECTION/REFERENCE
IBC SECTION 312 IBC TABLE 601
IBC SECTION 312
IBC TABLE 506.2
IBC TABLE 504.4
IBC TABLE 504.3
ABLE/SECTION/REFERENCE
C TABLE 601 C TABLE 601
C TABLE 601 C TABLE 601
C TABLE 601 C TABLE 1020.1
NY PROJECTION FROM THE CEILING BE LESS THAN 7'-0" A.F.F. DT LESS THAN 7'-6" A.F.F. 'HAN 7'-0" A.F.F.
C TABLE 803.13
C TABLE 803.13
C 803.5.2
ABLE/SECTION/REFERENCE







![](_page_1_Figure_6.jpeg)

![](_page_2_Figure_0.jpeg)

![](_page_2_Figure_1.jpeg)

![](_page_2_Figure_2.jpeg)

![](_page_2_Figure_3.jpeg)

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#### SPECIFICATIONS - PRODUCT & INSTALLATION GENERAL REQUIREMENTS

#### GENERAL REQUIREMENTS APPLICABLE TO ALL MATERIALS FOR THE PROJECT:

1. NO SUBSTITUTIONS OF MATERIALS WITHOUT COMPLETION OF A SUBSTITUTION REQUEST FORM & APPROVAL OF SUBSTITUTION BY BOTH ARCHITECT & OWNER PROJECT MANAGER. FORM CAN BE REQUESTED FROM ARCHITECT. 2. A CONDENSED SET OF SPECIFICATIONS ARE PROVIDED FOR THE PROJECT, STRICT ADHEARANCE TO MANUFACTURER REQUIREMENTS AND INSTALLATION ARE REQUIRED TO BE FOLLOWED WITH SECTIONS PROVIDED WITHIN. IF REQUIRED THE ARCHITECT WILL ISSUE ADDITIONAL SECTIONS TO PROVIDE CLARITY TO PRODUCTS OR INSTALLATION REQUIREMENTS.

- DIVISION 1 GENERAL REQUIREMENTS 1.1 SEE ADMINISTRATIVE SPECIFICATION FOR GENERAL REQUIREMENTS RELATED TO ADMINISTATION OF THIS CONTRACT
- . CONTRACTOR LICENSES THE CONTRACTOR AND ALL SUBCONTRACTORS INVOLVED IN THE PROJECT SHALL BE REQUIRED TO OBTAIN AND PAY FOR ALL NECESSARY LICENSES AS REQUIRED BY ANY LAW OR AGENCIES HAVING JURISDICTION (AHJ) OVER THE PROJECT
- B. <u>Building Permits</u> HE GENERAL CONTRACTOR WILL PAY FOR ALL PERMITS REQUIRED BY ANY AGENCY HAVING JURISDICTION (AHJ) OVER THE PROJECT FOR ALL WORK TO BE PREFORMED BY THE GENERAL CONTRACTOR.
- THE CONTRACTOR SHALL PAY THE NECESSARY FEES TO CONNECT TO EXISTING UTILITIES AT THE PROPERTY LINE OR IN ADJACENT STREETS AND RIGHT OF WAY AS SPECIFIED, NECESSARY, AND/OR INCLUDED IN THE CONSTRUCTION DOCUMENTS. THE CONTRACTOR SHALL PAY ALL UTILITY COSTS (BILLS) DURING CONSTRUCTION UNTIL OWNER TAKES POSSESSION OF THE FACILITY OR THE FACILITY IS CERTIFIED AS SUBSTANTIALLY COMPLETE.
- D. PROTECTION OF FINISHED WORK IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROTECT FINISHED SURFACES. PROTECTION FOR FINISHES SUCH AS DOORS, WALLS AND FLOORS SHOULD BE PROVIDED AS REQUIRED. ANY DAMAGES TO THESE AREAS WILL BE THE RESPONSIBILITY OF THE CONTRACTOR TO REPAIR OR REPLACE.
- E. <u>GENERAL CONDITIONS</u> ANY DISCREPANCY OR CONFLICT WITHIN OR BETWEEN DRAWINGS AND ANY DISCREPANCY OR CONFLICT BETWEEN ANY DRAWING AND ANY SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT. NOTWITHSTANDING, DISCREPANCIES OR CONFLICTS NOT BROUGHT TO THE ARCHITECT'S AND/ OWNERS ATTENTION AND CLARIFIED DURING THE BIDDING OF THE PROJECT WILL BE DEEMED TO HAVE BEEN BID OR PROPOSED IN THE MORE COSTLY OR DIFFICULT MANNER, AND THE BETTER QUALITY OR GREATER QUANTITY OF THE WORK SHALL BE PROVIDED BY THE CONTRACTOR IN ACCORDANCE WITH ARCHITECT'S INTERPRETATION. 2. THE GENERAL CONTRACTOR SHALL KEEP A COMPLETE PROTOTYPE SET OF DOCUMENTS ON THE PROJECT SITE AT ALL
- TIMES FOR REFERENCE DURING CONSTRUCTION. 3. THE GENERAL CONTRACTOR SHALL SUPERVISE AND DIRECT THE WORK, USING THE CONTRACTOR'S BEST SKILLS AND ATTENTION. THE GENERAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND HAVE CONTROL OVER CONSTRUCTION MEANS AND METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT . THE GENERAL CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR AND HAVE CONTROL OVER ALL JOB SITE SAFETY
- PROCEDURES AND POLICIES. THE GENERAL CONTRACTOR SHALL HAVE A SAFETY COORDINATOR AND BE RESPONSIBLE TO HOLD REGULARLY SCHEDULED SAFETY TRAINING WITH ALL JOB SITE PERSONNEL, INCLUDING ALL SUB CONTRACTOR PERSONNEL 5. NEITHER THE ARCHITECT'S OR THE OWNERS INSPECTION NOR FAILURE TO INSPECT SHALL RELIEVE THE CONTRACTOR
- OF ANY OBLIGATION HEREUNDER. IF ANY WORK FAILS TO CONFORM TO THE CONTRACT DOCUMENTS. THE CONTRACTOR SHALL PROMPTLY REMEDY AND/OR REPLACE THE SAME AT THE CONTRACTOR'S EXPENSE. NO ACCEPTANCE OR PAYMENT BY THE OWNER OR ARCHITECT SHALL CONSTITUTE A WAIVER OF THE FOREGOING AND NOTHING HEREIN SHALL EXCLUDE OR LIMIT ANY WARRANTIES IMPLIED BY LAW. 6. THE GENERAL CONTRACTOR SHALL SO CONDUCT ITS OPERATIONS AS NOT TO UNREASONABLY INTERFERE WITH TRAFFIC ON PUBLIC THOROUGHFARES ADJACENT OR NEAR TO THE PROJECT SITE.

#### 7. DO NOT SCALE DRAWINGS. E PROJECT REQUIREMENT

- THE GENERAL CONTRACTOR REPRESENTS THAT IT POSSESSES THE SKILLS REQUIRED FOR THE WORK, ASSUMES THE RESPONSIBILITIES OF AN EMPLOYER FOR PERFORMANCE OF THE WORK, AND ACTS AS AN EMPLOYER OF ONE OR MORE EMPLOYEES BY PAYING WAGES. DIRECTING ACTIVITIES AND PERFORMING OTHER SIMILAR FUNCTIONS. THE GENERAL CONTRACTOR IS AN INDEPENDENT CONTRACTOR, FREE TO DETERMINE THE MANNER IN WHICH THE WORK IS PERFORMED
- . THE GENERAL CONTRACTOR SHALL PROVIDE, AND MAINTAIN IN GOOD WORKING ORDER, THE FOLLOWING ITEMS FOR USE BY THE PROJECT SUPERINTENDENT DAILY DURING THE ENTIRE DURATION OF THE PROJECT: A. LAPTOP WITH INTERNET ACCESS. B. EMAIL ACCESS .
- C. A PRINTER/SCANNER CELL PHONE
- 3. THE GENERAL CONTRACTOR SHALL HAVE A CONSTRUCTION SUPERINTENDENT ASSIGNED TO THIS PROJECT, AND THIS SUPERINTENDENT SHALL BE ON SITE EVERY DAY THERE IS ANY CONSTRUCTION ON THIS PROJECT. THE SUPERINTENDENT SHALL BE REACHABLE BY PHONE DURING NORMAL BUSINESS HOURS. ONCE ASSIGNED, THE SUPERINTENDENT SHALL NOT BE REMOVED OR REPLACED WITHOUT WRITTEN APPROVAL FROM OWNER & ARCHITECT, UNLESS SPECIFICALLY REQUESTED TO BE REPLACED BY OWNER. THE SUPERINTENDENT WILL BE REQUIRED TO PROVIDE PHOTOGRAPHS (VIA EMAIL USING A DIGITAL CAMERA) TO THE OWNER & ARCHITECT EACH FRIDAY BY NOON CST, SHOWING THE PROGRESS OF CONSTRUCTION. THE GENERAL CONTRACTOR IS ENCOURAGED TO TAKE PHOTOS SEVERAL TIMES EACH WEEK TO HELP MAINTAIN PROOF OF CONSTRUCTION PROGRESS, RECORD UNCOVERED CONDITIONS, RECORD CONDITION AND AMOUNTS OF VENDOR GOODS UPON RECEIPT, AND RECORD CONSTRUCTION THAT VARIES FROM THE CD'S (AS PART OF THE AS-BUILTS). ALL PHOTOS WILL HAVE A 'DATE STAMP'.

#### 6. INSPECTIONS/OBSERVATION

- . IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO OVERSEE CONSTRUCTION OF THE PROJECT, CONTINUALLY INSPECTING THE WORK, MATERIALS, AND WORKMANSHIP PROVIDED BY ALL OF HIS TRADESMEN, SUBCONTRACTORS, AND SUPPLIERS. EXCELLENCE IN QUALITY OF CONSTRUCTION CAN ONLY BE ACHIEVED IF THE CONTRACTOR ENFORCES HIGH STANDARDS OF ACCEPTABILITY. THE GENERAL CONTRACTOR CANNOT DELEGATE HIS RESPONSIBILITY TO THE SUBCONTRACTORS, BUT MUST CONTINUALLY MONITOR THE WORK OF EACH TRADE ON THE PROJECT. 2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ARRANGE AND SCHEDULE ALL AGENCIES HAVING JURISDICTION (AHJ) INSPECTIONS NECESSARY TO OBTAIN THE CERTIFICATE OF OCCUPANCY (CERTIFICATE OF COMPLIANCE). PRIOR TO THE DATE OF THE AGENCY INSPECTION. THE GENERAL CONTRACTOR SHOULD INSPECT THE PROJECT TO INSURE THAT CONSTRUCTION COMPLIES WITH THE AGENCY REQUIREMENTS. SCHEDULING FINAL INSPECTIONS WITH AGENCY REPRESENTATIVES WHEN THE PROJECT IS NOT COMPLETE MUST BE AVOIDED. COPIES OF FINAL INSPECTIONS MUST BE PROVIDED TO OWNER & ARCHITECT AS THEY ARE AVAILABLE.
- PRIOR TO REQUESTING THE SUBSTANTIAL COMPLETION INSPECTION, IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONDUCT HIS OWN PRE-SUBSTANTIAL COMPLETION INSPECTION OF THE CONSTRUCTION FOR QUALITY OF CONSTRUCTION AND COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS. 4. THE FOLLOWING PEOPLE SHOULD BE IN ATTENDANCE FOR THE SUBSTANTIAL COMPLETION INSPECTION: A. GENERAL CONTRACTOR **B. GENERAL CONTRACTOR SUPERINTENDENT**
- C. MECHANICAL CONTRACTOR D. ELECTRICAL CONTRACTOR E. PLUMBING CONTRACTOR
- F. PAINTING CONTRACTOR H. FLOORING CONTRACTOR 5. ITEMS TO BE SUBMITTED AS A PREREQUISITE TO THE REQUEST FOR THE CERTIFICATE OF SUBSTANTIAL COMPLETION AND OWNER / ARCHITECT OBSERVATION OF ITEMS TO BE COMPLETED AND CORRECTED. A. GENERAL CONTRACTOR'S PUNCH LISTS
- B. HVAC TEST AND BALANCE REPORT C. SPRINKLER SYSTEM ACCEPTANCE INSPECTION REPORT D. COPY OF VIDEO OF COMPLETED SEWER SYSTEM
- THE REVIEW TEAM SHOULD PROCEED IN AN ORGANIZED MANNER THROUGHOUT THE BUILDING INSPECTING EACH SPACE OR ROOM. THE PUNCH LIST GENERATED BY THE SUBSTANTIAL COMPLETION INSPECTION TOUR IS TO BE PREPARED BY THE CONTRACTOR. ALONG WITH THE PUNCH LIST, THE ARCHITECT SHALL PREPARE THE "CERTIFICATE OF SUBSTANTIAL COMPLETION ' . IMMEDIATELY AFTER RECEIPT OF THE PUNCH LIST, THE GENERAL CONTRACTOR AND SUBCONTRACTORS ARE EXPECTED TO BEGIN CORRECTION OF THE OUTSTANDING ITEMS. AFTER COMPLETION OF PUNCHLIST, THE CONTRACTOR SHALL NOTIFY OWNER & ARCHITECT IN WRITTING THAT FULL LIST OF ITENMS TO BE COMPLETED AND OR CORRECT IS

#### . <u>RECORD (CLOSE-OUT) DOCUMENTS</u>

FINALIZED.

- THE OWNER REQUIRES THE GENERAL CONTRACTOR AND SUBCONTRACTORS TO MAINTAIN AN ACCURATE, CURRENT SET OF RECORD DOCUMENTS (AS-BUILTS) AS CONSTRUCTION PROGRESSES. ALL PERTINENT INFORMATION RELATING TO THE PROJECT MUST BE TIMELY MAINTAINED ON THE AS-BUILTS. THE AS-BUILTS MUST BE MAINTAINED ON-SITE IN THE GENERAL CONTRACTOR'S OFFICE AND WILL NOT BE USED FOR ANY OTHER PURPOSE. SINCE THE OWNER WILL OWN AND OPERATE THE FACILITY, IT IS IMPERATIVE THAT ALL PARTIES MAINTAIN ACCURATE INFORMATION REGARDING THE ACTUAL CONSTRUCTION OF THE PROJECT. ALL DEVIATIONS FROM THE CONTRACT SET OF DRAWINGS MUST BE NOTED ON THE AS-BUILTS IN RED WITH CLOUDS FOR CLEAR IDENTIFICATION. THE OWNER WILL REVIEW THE AS-BUILTS FOR ACCURACY AND COMPLETENESS MONTHLY, DURING THE PAYMENT APPLICATION REVIEW PROCESS. FAILURE TO POST CHANGES TO THE PROJECT ON THE AS-BUILTS AS IDENTIFIED DURING THE ON-SITE MONTHLY REVIEW WILL BE CAUSE TO SUSPEND PAYMENT UNTIL RECTIFIED. IT IS THE GENERAL CONTRACTOR'S RESPONSIBILITY TO ENFORCE THE TIMELY POSTING OF AS-BUILT CHANGES WITH THE SUBCONTRACTORS.
- FINAL CLOSE-OUT OF THE PROJECT . WITHIN THIRTY (30) CALENDAR DAYS AFTER THE FINAL PROJECT SUBSTANTIAL COMPLETION, THE GENERAL CONTRACTOR SHALL COMPILE ALL CLOSE-OUT DOCUMENTS AND SUBMIT THEM TO THE OWNER FOR REVIEW. IF THE CONTRACTOR FAILS TO COMPLETE ITS REQUIREMENTS WITHIN THIS TIMELINE NOTED ABOVE THE CONTRACTOR MAY BE SUBJECT TO ADDITONAL ADMINISTATION FEES.
- **CLOSE-OUT DOCUMENTS** 1. THE CATEGORIES LISTED BELOW SHOULD BE SUBMITTED AT THE SAME TIME. A. A FLASH DRIVE WITH ALL PHOTOS TAKEN DURING CONSTRUCTION.
- B. ASI'S, RFI'S, CHANGE ORDERS AND ALL ADDENDA ATTACHED AND POSTED TO THE AS-BUILT DRAWINGS. C. AS-BUILT DRAWINGS: ONE HARD COPY TO REMAIN ON SITE AND IN PLAN TUBE; ONE ELECTRONIC COPY TO BE SENT WITH CLOSE-OUT PAPERWORK. D. PROVIDE ALL APPROVED SUBMITTALS.
- E. OPERATION AND MAINTENANCE MANUALS (O&M) PROVIDE O&M MANUALS BOXED AND BOUND. THIS ITEM IS OF SIGNIFICANT IMPORTANCE TO MSI FUTURE MAINTENANCE ACTIVITIES. F. ALL HVAC TEST AND BALANCE REPORTS.
- H. RELEASE OF LIEN (AIA FORM 706A), PAYMENT OF DEBT (AIA FORM 706), I. WARRANTIES, CERTIFICATES, AFFIDAVITS
- 2. ALL INFORMATION INCLUDED IN THIS CATEGORY WILL BE FURNISHED IN ONE (1) COPY AND BOUND IN A STURDY THREE-RING BINDER WITH A LABEL ON THE OUTSIDE READING "GENERAL CLOSE-OUT DOCUMENTS" TO INCLUDE AN INDEX OF THE CONTENTS. ALL AIA DOCUMENTS WILL BE ORIGINAL (WITH RED LETTERING ON THE BOTTOM OF THE FORM) AND NOTARIZED. IF THE ELECTRONIC VERSION IS USED A COPY WITH ORIGINAL SIGNATURES WILL BE SUBMITTED. THE GENERAL CONTRACTOR AND EACH SUBCONTRACTOR WILL HAVE SEPARATE TABS IDENTIFYING EACH BY NAME. THE GENERAL CONTRACTOR WILL LIST EACH SUBCONTRACTOR ALPHABETICALLY AND WILL CHECK TO INSURE THAT A "RELEASE OF LIEN" - AIA FORM G706A AND A "PAYMENT OF DEBT-AIA FORM G706 IS INCLUDED FOR HIMSELF AND EACH SUBCONTRACTOR. THE GENERAL CONTRACTOR WILL INCLUDE A "CONSENT OF SURETY" - AIA FORM G707. IN ADDITION. THE GENERAL CONTRACTOR WILL INCLUDE BEHIND HIS TAB THE FOLLOWING INFORMATION: A. A LIST OF NAMES, BUISNESS ADDRESSES, PHONE NUMBERS AND EMAIL ADRESSES FOR THE GENERAL CONTRACTOR AND EACH SUBCONTRACTOR.
- B. AN ANNOTATED COPY OF THE SUBSTANTIAL COMPLETION PUNCH LIST INDICATING ACTION TAKEN ON EACH ITEM. C. WARRANTIES, CERTIFICATES AND AFFIDAVITS SHALL BE INCLUDED FOR ANY EQUIPMENT, MATERIALS OR SYSTEMS, COMBINED WITH ALL OF THE ABOVE INFORMATION AND PLACED BEHIND THE TAB OF THE CONTRACTOR THAT ISSUED IT.

#### **DIVISION 4 - MASONRY**

- **4.1 MASONRY VENEERS & SIMULATED STONES**
- AND COLOR SAMPLES. B. BASIS OF DESIGN: DUTCH QUALITY STONE, FALLBROOK STACK LEDGE

- 1. MORTAR: TYPE "N" TINTED TO A COLOR SELECTED BY OWNER. 2. METAL LATH SHALL BE MINIMUM 2.5 LB. PAPER BACKED GALVANIZED METAL LATH (DIAMOND MESH) ATTACHED WITH
- 1-1/4" TYPE S-12 GALVANIZED NAILS. GALVANIZED FLASHING MAY ALSO BE USED. 3. IN WALL AND CAP FLASHING SHALL BE CARLISLE "PRE-KLEENED" EPDM OR COMPARABLE PRODUCTS MANUFACTURED BY W.R. GRACE OR ALCO. 4. BUILDING FELT SHALL BE 15# ASPHALT IMPREGNATED BUILDING FELT OVER WEATHER BARRIER OVER WALL SHEATHING.

### C. FABRICATIONS: FABRICATE ITEMS IN LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.

- 1. FOLLOW MANUFACTURER RECOMMENDED INSTALLATION INSTRUCTIONS TO MAINTAIN WARRANTY. 2. APPLY MORTAR 1/2" TO 3/4" THICK TO PREPARED SURFACE AREA USING A PLASTERER'S OR MASON'S TROWEL AND LAY SIMULATED STONE UNITS LEVEL AND TRUE TO LINE IN FULL BEDS OF MORTAR. ALL JOINTS MUST BE COMPLETELY FILLED. APPLY ONLY ENOUGH MORTAR TO ALLOW STONES TO BE SET BEFORE MORTAR BEGINS TO HARDEN
- 3. ALL JOINTS IN SIMULATED STONE WORK SHALL NOT EXCEED AN AVERAGE OF 1/2" IN WIDTH. 4. RETAIN 1/2" DEEP X 1/4" WIDE SEALANT JOINTS AT PERIMETER OF EXTERIOR DOORS, WINDOW FRAMES AND OTHER WALL OPENINGS.
- 5. DO NOT ALLOW MORTAR DROPPINGS TO HARDEN ON EXPOSED SURFACES. 6. WALLS SHALL BE COVERED WITH 15 LB. BUILDING FELT AND GALVANIZED METAL LATH SHALL BE INSTALLED PRIOR
- 7. UPON FINAL COMPLETION OF STONE PRODUCT INSTALLATION, APPLY W.R. MEADOWS- DECRA -SEAL NATURAL PRODUCT. CONSULT WITH REP CONCERNING PROPER APPLICATION.

#### **DIVISION 6 - WOOD AND PLASTICS**

PRIOR TO FINISH INSTALLATIONS.

- 06 1000- ROUGH CARPENTRY 1. PROVIDE SUFFICIENT BLOCKING AS REQUIRED TO SECURE ITEMS WITHOUT COMPRIMISE TO INTEGRETY. 2. PRESERVATIVE TREATED LUMBER IS REQUIRED FOR ALL ITEMS TO REMAIN IN CONTACT WITH CONCRETE OR
- MASONRY TO CONFORM TO AWPA STANDARD 5. 3. PLYWOOD SHALL BE CD GRADE APA FIR OR YELLOW PINE.
- 4. BLOCKING SHALL BE CLOSELY FITTED, ACCURATELY SET TO REQUIRED LINES & LEVELS, SECURELY CONNECTED & RIGIDLY FIXED IN PLACE, USING NAILS, SCREWS, &/OR BOLTS AS INDICATED OR REQUIRED BY GOOD PRACTICE AND MANUFACTURER'S RECOMMENDATIONS

#### 06 2000 - FINISH CARPENTRY A. SUBMITTALS: SAMPLES OF FINISH MATERIALS, CATALOG CUTS OF HARDWARE, AND SHOP DRAWINGS INCLUDING DIMENSIONED PLANS, ELEVATIONS, AND SECTIONS.

- B. <u>QUALITY STANDARD</u>: ARCHITECTURAL WOODWORK INSTITUTE'S "ARCHITECTURAL WOODWORK QUALITY
- 1. SOFTWOOD LUMBER: MAXIMUM MOISTURE CONTENT OF 6 PERCENT; WITH VERTICAL GRAIN, OF QUALITY SUITABLE FOR SCHEDULED FINISH.
- 2. HARDWOOD LUMBER: MAXIMUM MOISTURE CONTENT OF 6 PERCENT; WITH VERTICAL GRAIN, OF QUALITY SUITABLE FOR SCHEDULED FINISH. 3. SHEET MATERIALS: SOFTWOOD PLYWOOD, EXPOSED TO VIEW: FACE SPECIES AS INDICATED, PLAIN SAWN, MEDIUM DENSITY FIBERBOARD CORE; PS 1 GRADE A-B, GLUE TYPE AS RECOMMENDED FOR APPLICATION.
- 1. DO NOT DELIVER OR INSTALL WOODWORK UNTIL BUILDING IS ENCLOSED AND WOODWORK IS CONDITIONED TO PREVAILING CONDITIONS
- 2. INSTALL WOODWORK LEVEL AND PLUMB AND SHIM AS REQUIRED WITH CONCEALED SHIMS TO 8 TOLERANCE OF 1 "/96" AND TO COMPLY WITH REFERENCED QUALITY STANDARD FOR GRADE SPECIFIED. 3. SCRIBE AND CUT WOODWORK TO FIT ADJOINING WORK, SEAL CUT SURFACES, AND REPAIR DAMAGED FINISH
- AT CUTS. 4. INSTALL TRIM WITH MINIMUM NUMBER OF JOINTS POSSIBLE USING FULL-LENGTH PIECES TO GREATEST EXTENT
- POSSIBLE. STAGGER JOINTS IN ADJACENT AND RELATED MEMBERS. 5. LUMBER FOR TRANSPARENT FINISH (STAINED OR CLEAR): USE PIECES MADE OF SOLID LUMBER STOCK.
- 6. LUMBER FOR PAINTED FINISH: AT CONTRACTOR'S OPTION, USE PIECES WHICH ARE EITHER GLUED-UP OR MADE OF SOLID LUMBER STOCK.
- 7. DISCARD UNITS OF MATERIAL WHICH ARE UNSOUND, WARPED, BOWED, TWISTED, IMPROPERLY TREATED, NOT ADEQUATELY SEASONED OR TOO SMALL TO FABRICATE WORK WITH MINIMUM OF
- JOINTS OR OPTIMUM JOINTING ARRANGEMENTS, OR WHICH ARE DEFECTIVELY MANUFACTURED WITH RESPECT TO SURFACES, SIZES OR PATTERNS, 8. INSTALL THE WORK PLUMB, LEVEL, TRUE AND STRAIGHT WITH NO DISTORTIONS. SHIM AS REQUIRED
- USING CONCEALED SHIMS. 9. SCRIBE AND CUT WORK TO FIT ADJOINING WORK, AND REFINISH CUT SURFACES OR REPAIR DAMAGED
- FINISH AT CUTS. 10. SAND WORK SMOOTH AND SET EXPOSED NAILS AND SCREWS.
- 11. APPLY WOOD FILLER IN EXPOSED NAIL AND SCREW INDENTATIONS. 12. FINISH WORK SHALL BE SMOOTH, FREE FROM ABRASION, TOOL MARKS, RAISED GRAIN MARKINGS, OR SIMILAR DEFECTS ON EXPOSED SURFACES.

#### **DIVISION 7 - THERMAL AND MOISTURE PROTECTION** 07 2500 - WEATHER BARRIERS

A. <u>SUBMITTALS</u>: PRODUCT DATA: PROVIDE DATA ON MATERIAL CHARACTERISTICS. SHOP DRAWINGS: PROVIDE DRAWINGS OF SPECIAL JOINT CONDITIONS.

- B. MOCK-UP: INSTALL AIR BARRIER, VAPOR RETARDER, AND WATER-RESISTIVE BARRIER MATERIALS IN MOCK-UP.
- C. <u>PRODUCTS</u>: AIR BARRIER, FLUID APPLIED: VAPOR PERMEABLE, ELASTOMERIC WATERPROOFING.
- D. <u>BASIS OF DESIGN</u>: BASF CORPORATION; MASTERSEAL AWB 665:
- 1. SEALANTS, TAPES, AND ACCESSORIES FOR SEALING WEATHER BARRIER AND SEALING WEATHER BARRIER TO ADJACENT SUBSTRATES: AS SPECIFIED OR AS RECOMMENDED BY WEATHER BARRIER MANUFACTURER. 2. FLEXIBLE FLASHING: SHEATHING FABRIC SATURATED WITH AIR BARRIER COATING AND COMPLYING WITH THE APPLICABLE REQUIREMENTS OF ICC-ES AC148. 3. LIQUID FLASHING: ONE PART, FAST CURING, NON-SAG, ELASTOMERIC, GUN GRADE, TROWELABLE LIQUID FLASHING.
- 1. VERIFY THAT SURFACES AND CONDITIONS ARE READY TO ACCEPT THE WORK OF THIS SECTION. 2. REMOVE PROJECTIONS, PROTRUDING FASTENERS, AND LOOSE OR FOREIGN MATTER THAT MIGHT INTERFERE WITH PROPER INSTALLATION. 3. CLEAN AND PRIME SUBSTRATE SURFACES TO RECEIVE ADHESIVES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.

- 1. INSTALL MATERIALS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. 2. AIR BARRIERS: INSTALL CONTINUOUS AIR TIGHT BARRIER OVER SURFACES INDICATED, WITH SEALED SEAMS AND WITH SEALED JOINTS TO ADJACENT SURFACES. 3. PREPARE SUBSTRATE IN MANNER RECOMMENDED BY COATING MANUFACTURER; TREAT JOINTS IN SUBSTRATE
- AND BETWEEN DISSIMILAR MATERIALS AS RECOMMENDED BY MANUFACTURER. 4. MASTIC COATING: INSTALL BY TROWEL OR ROLLER TO MINIMUM THICKNESS OF 1/4 INCH; USE SHEET SEAL TO
- JOIN TO ADJACENT CONSTRUCTION, SEAL AIR TIGHT WITH SEALANT. 5. USE FLASHING TO SEAL TO ADJACENT CONSTRUCTION AND TO BRIDGE JOINTS. 6. INSTALL FLASHING OVER SILLS, COVERING ENTIRE SILL FRAME MEMBER, EXTENDING AT LEAST 5 INCHES ONTO
- WEATHER BARRIER AND AT LEAST 6 INCHES UP JAMBS; MECHANICALLY FASTEN STRETCHED EDGES. 7. AT OPENINGS TO BE FILLED WITH FRAMES HAVING NAILING FLANGES, SEAL HEAD AND JAMB FLANGES USING A CONTINUOUS BEAD OF SEALANT COMPRESSED BY FLANGE AND COVER FLANGES WITH SEALING TAPE AT LEAST 4
- INCHES WIDE; DO NOT SEAL SILL FLANGE. FRAMING, USING FLASHING AT LEAST 9 INCHES WIDE, COVERING ENTIRE DEPTH OF FRAMING.

JOINT SEALANT OVER BACKER ROD.

9. AT HEAD OF OPENINGS, INSTALL FLASHING UNDER WEATHER BARRIER EXTENDING AT LEAST 2 INCHES BEYOND FACE OF JAMBS; SEAL WEATHER BARRIER TO FLASHING. 10. AT INTERIOR FACE OF OPENINGS, SEAL GAP BETWEEN WINDOW/DOOR FRAME AND ROUGH FRAMING, USING

#### A. SUBMITTALS: SHOP DRAWINGS AND CALCULATIONS INDICATING PRODUCTS TYPES AND LAYOUT, VERTICAL AND HORIZONTAL DIMENSIONS, EDGE CONDITIONS, AND CONNECTION DETAILS TO SUBSTRATES. PROVIDE GROUT TYPES

TO APPLICATION OF THE MORTAR BASE. MORTAR BASE MAY BE APPLIED DIRECTLY TO MASONRY BACK-UP.

5. COMPLETE FINAL INSPECTIONS OF CONCEALED BLOCKING IN COORDINATION WITH CONTRACT DOCUMENTS

8. AT OPENINGS TO BE FILLED WITH NON-FLANGED FRAMES, SEAL WEATHER BARRIER TO EACH SIDE OF OPENING

#### 07 4113 - METAL ROOFING & ACCESSORIES A. <u>SUBMITTALS</u>: PRODUCT DATA, AND SAMPLES OF EACH PRODUCT AND COLOR OPTIONS.

B. WARRANTY: SPECIAL 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 PERIOD 1. WARRANTY PERIOD: TWO YEARS FROM DATE OF SUBSTANTIAL COMPLETION. 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-

1. FINISH WARRANTY PERIOD: 20 YEARS FROM DATE OF SUBSTANTIAL COMPLETION.

SPECIAL WEATHERTIGHTNESS WARRANTY: MANUFACTURER'S STANDARD FORM IN WHICH MANUFACTURER AGREES TO REPAIR OR REPLACE STANDING-SEAM METAL ROOF PANEL ASSEMBLIES THAT FAIL TO REMAIN WEATHERTIGHT, INCLUDING LEAKS, WITHIN SPECIFIED WARRANTY PERIOD. 1. WARRANTY PERIOD: 20 YEARS FROM DATE OF SUBSTANTIAL COMPLETION.

C. BASIS OF DESIGN: DREXEL METALS . METALLIC-COATED STEEL SHEET: ZINC-COATED (GALVANIZED) STEEL SHEET COMPLYING WITH ASTM A 653/A 653M, G90 (Z275) COATING DESIGNATION, OR ALUMINUM-ZINC ALLOY-COATED STEEL SHEET COMPLYING WITH ASTM A 792/A 792M, CLASS AZ50 (CLASS AZM150) COATING DESIGNATION; STRUCTURAL QUALITY. PREPAINTED BY THE COIL-COATING PROCESS TO COMPLY WITH ASTM A 755/A 755M. A. NOMINAL THICKNESS: 0.034 INCH, 22 GA. B. EXTERIOR FINISH: TWO-COAT FLUOROPOLYMER. C. COLOR: AS SELECTED BY ARCHITECT & OWNER.

D. PANEL COVERAGE: NOMINAL 18 INCHES. E. PANEL HEIGHT: 1.0 INCH.

APPLIED FINISHES WITHIN SPECIFIED WARRANTY PERIOD.

1. SELF-ADHERING, HIGH-TEMPERATURE UNDERLAYMENT: PROVIDE SELF-ADHERING, COLD-APPLIED, SHEET UNDERLAYMENT, A MINIMUM OF 30 MILS 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. 2. FELT UNDERLAYMENT: ASTM D 226/D 22M, TYPE II (NO. 30), ASPHALT-SATURATED ORGANIC FELTS.

3. SLIP SHEET: MANUFACTURER'S RECOMMENDED SLIP SHEET, OF TYPE REQUIRED FOR APPLICATION. 4. 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) COATING DESIGNATION UNLESS OTHERWISE INDICATED. PROVIDE MANUFACTURER'S STANDARD SECTIONS AS REQUIRED FOR SUPPORT AND ALIGNMENT OF METAL PANEL SYSTEM.

e. <u>Accessories</u> 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. A. CLOSURES: PROVIDE CLOSURES AT EAVES AND RIDGES, FABRICATED OF SAME METAL AS METAL PANELS.

B. BACKING PLATES: PROVIDE METAL BACKING PLATES AT PANEL END SPLICES, FABRICATED FROM MATERIAL RECOMMENDED BY MANUFACTURER. 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, EAVES, RAKES, CORNERS, BASES, FRAMED OPENINGS, RIDGES, FASCIAE, AND FILLERS.

FINISH FLASHING AND TRIM WITH SAME FINISH SYSTEM AS ADJACENT METAL PANELS. D. PANEL FASTENERS: SELF-TAPPING SCREWS DESIGNED TO WITHSTAND DESIGN LOADS. 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; 1/2 INCH WIDE AND 1/8 INCH THICK.

2. JOINT SEALANT: ASTM C 920; AS RECOMMENDED IN WRITING BY METAL PANEL MANUFACTURER. 3. BUTYL-RUBBER-BASED, SOLVENT-RELEASE SEALANT: ASTM C 1311.

1.INSTALL ACCORDING TO MANUFACTURER'S WRITTEN INSTRUCTIONS

07 4643 - ENGINEERED SIDING A. SUBMITTALS: PRODUCT DATA, AND SAMPLES OF LOCATIONS FOR EACH TYPE OF SIDING B. <u>BASIS OF DESIGN</u>: 1. VERTICAL SIDING, LP SMARTSIDE PANEL SIDING. CEDAR TEXTURE PANEL

2. HORIZONTAL SIDING, LP SMARTSIDE LAP SIDING. CEDAR TEXTURE LAP. SOFFIT, VENTED / NONVENTED, LP SMARTSIDE SOFFIT. CEDAR TEXTURE. C. <u>ACCESSORY MATERIAL</u>

1. EXTERIOR TRIM SHALL BE LOUISIANA-PACIFIC SMARTSIDE TRIM-FASCIA TREATED ENGINEERED WOOD TRIM OR APPROVED EQUAL, UNLESS OTHERWISE INDICATED, IN SIZES INDICATED ON THE DRAWINGS 2. CELLULAR PVC TRIM SHALL BE AS MANUFACTURED BY AZEK BUILDING PRODUCTS OR APPROVED EQUAL. GLUED-UP MEMBERS SHALL BE GLUED WITH MANUFACTURER'S STANDARD ADHESIVE TO CREATE A CHEMICAL BOND AND CUT TO SHAPES INDICATED.

1. GENERAL: INSTALL PRODUCTS IN ACCORDANCE WITH THE LATEST INSTALLATION GUIDELINES OF THE MANUFACTURER AND ALL APPLICABLE BUILDING CODES AND OTHER LAWS, RULES, REGULATIONS AND ORDINANCES. REVIEW ALL MANUFACTURER INSTALLATION, MAINTENANCE INSTRUCTIONS, AND OTHER APPLICABLE DOCUMENTS BEFORE INSTALLATION.

07 9200 - JOINT SEALANTS

A. <u>SUBMITTALS</u>: PRODUCT DATA, AND SCHEDULE OF LOCATIONS FOR EACH TYPE OF SEALANT SUBMITTED. 3. ENVIRONMENTAL LIMITATIONS: DO NOT PROCEED WITH INSTALLATION OF JOINT SEALANTS WHEN AMBIENT AND SUBSTRATE TEMPERATURE CONDITIONS ARE OUTSIDE LIMITS PERMITTED BY JOINT SEALANT MANUFACTURER OR ARE BELOW 40 deg F (4.4 deg C).

C. COMPATIBILITY: PROVIDE JOINT SEALANTS, JOINT FILLERS, AND OTHER RELATED MATERIALS THAT ARE COMPATIBLE WITH ONE ANOTHER AND WITH JOINT SUBSTRATES UNDER SERVICE AND APPLICATION CONDITIONS. D. JOINT SEALANTS:

1. INTERIOR TOILET ROOMS, AND AROUND PLUMBING FIXTURES: SINGLE COMPONENT, MILDEW-RESISTANT SILICONE SEALANT, ASTM C 920, TYPE S; GRADE NS, CLASS 25; USES NT, G, A, AND O; FORMULATED WITH FUNGICIDE.

2. INTERIOR JOINTS AROUND PERIMETERS OF DOORS AND FRAMES: LATEX SEALANT, SINGLE COMPONENT, NONSAG, MILDEW-RESISTANT, PAINTABLE, ACRYLIC EMULSION SEALANT COMPLYING WITH ASTM C 834. 3. EXTERIOR SEALANTS, AROUND FINISHED TRIM, WINDOWS AND DOORS SHALL BE PAINTABLE SILICONE SEALANT.

E. JOINT SEALANT BACKING: CYLINDRICAL CLOSED CELL PVC ROD COMPLYING WITH ASTM C330; SIZE 30% TO 50% LARGER THAN JOINT WIDTH F. BOND-BREAKER TAPE: POLYETHYLENE TAPE OR OTHER PLASTIC TAPE RECOMMENDED BY SEALANT MFR. FOR

PREVENTING SEALANT FROM ADHERING TO RIGID, INFLEXIBLE JOINT-FILLER MATERIALS OR JOINT SURFACES AT BACK OF JOINT. 3. INSTALLATION: COMPLY WITH ASTM C 1193; ASTM C 919 FOR ACOUSTICAL JOINTS; AND AS FOLLOWS: 1. REMOVE ALL LOOSE MATERIAL, CLEAN AND PRIME JOINTS IN ACCORDANCE WITH MANUFACTURER'S

INSTRUCTIONS, AND PROTECT ADJACENT SURFACES. 2. INSTALL BOND-BREAKER TAPE WHERE JOINT BACKINGS ARE NOT USED. 3. INSTALL SEALANT TOOLED CONCAVE, FREE OF AIR POCKETS, FOREIGN EMBEDDED MATTER, RIDGES, AND SAGS, AND PROTECT UNTIL FULLY CURED. SEALANT WITH DUST AND DEBRIS EMBEDDED IN SURFACE SHALL BE CAUSE FOR REJECTION.

**DIVISION 8 - OPENINGS** 08 0671 - DOOR HARDWARE

> COORDINATE REVIEW OF HARDWARE SCHEDULE. OWNER.

B. PRODUCTS: REFER TO HARDWARE SCHEDULE AND ARCHITECTURAL DRAWINGS. STRIKE PLATES FOR INTERIOR DOORS WHERE WOOD DOOR FRAMES ARE USED. SCHEDULE

3. SUPPLY OUT SWINGING EXTERIOR DOORS WITH NON REMOVABLE PINS. 4. PROVIDE 2 KEY SYSTEM , NO DEADBOLT, A SEPARATE MASTER KEY TO ALL SPACES, COORDINATE LOCKING WITH OWNER

5. HOME OWNERS TO HAVE KEY ACCESS TO GATES AND BATHROOMS.

: INSTALLATION:

HANDICAPPED AT HEIGHTS RECOMMENDED FOR USE BY THE HANDICAPPED. 2. INSTALL EACH HARDWARE ITEM IN COMPLIANCE WITH THE MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS. WHEREVER CUTTING AND FITTING IS REQUIRED TO INSTALL HARDWARE ONTO OR INTO THE SUBSTRATE

FASTENERS AND ANCHORS IN ACCORDANCE WITH INDUSTRY STANDARDS. 5.METAL THRESHOLDS SHALL BE SET IN A SOLID BED OF NON STAINING THIOKOL BASE CAULKING. SMOOTHLY AS INTENDED FOR THE APPLICATION MADE.

AND VENTILATING EQUIPMENT

HARDWARE GROUP NO. 1 STORAGE & MECHANICAL ROOMS FOR USE ON DOOR(S) 101.104

PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING FOR EACH DOOR: BASIS IF DESIGN: SCHLAGE OR STANLEY

DESCRIPTION HINGE 6 EA 1 EA STOREROOM LOCK 1 EA OH STOP SURFACE CLOSER, AT ACTIVE LEAF 1 EA

2 EA KICK PLATE, INSIDE ONLY GASKETING 2 EA DOOR SWEEP 1 EA MEETING STILE

HARDWARE GROUP NO. 2 RESTROOMS FOR USE ON DOOR(S):

2 EA

102, 103 PROVIDE EACH PR DOOR(S) WITH THE FOLLOWING FOR EACH DOOR: BASIS IF DESIGN: SCHLAGE OR STANLEY

QTY DESCRIPTION 3 EA HINGE 1 EA SURFACE CLOSER, PULL SIDE MOUNT 2 EA KICK PLATE, BOTH SIDES OF DOOR 1 EA WALL STOP 1 EA GASKETING 1 EA DOOR SWEEP

08 1113 - HOLLOW METAL DOORS AND FRAMES GLAZING, FRAME PROFILES, AND ANY INDICATED FINISH REQUIREMENTS. B. FRAME MANUFACTURERS 1. CECO DOOR, AN ASSA ABLOY GROUP COMPANY: WWW.ASSAABLOYDSS.COM. 2. DE LA FONTAINE INC: WWW.DELAFONTAINE.COM 3. REPUBLIC DOORS, AN ALLEGION BRAND: WWW.REPUBLICDOOR.COM

1. MESKER- EMBOSSED PANEL- D6

ASTM A1011/A1011M, COMMERCIAL STEEL (CS) TYPE B FOR EACH. 2. TYPICAL DOOR FACE SHEETS: FLUSH. DRAWINGS. STYLE: MANUFACTURERS STANDARD.

ACCORDANCE WITH ASTM A653/A653M, WITH MANUFACTURER'S STANDARD COATING THICKNESS, UNLESS NOTED OTHERWISE FOR SPECIFIC HOLLOW METAL DOORS AND FRAMES. 6. HOLLOW METAL PANELS: SAME CONSTRUCTION, PERFORMANCE, AND FINISH AS DOORS.

REQUIREMENTS CONFLICT. COMPLY WITH THE MOST STRINGENT.

E. <u>HOLLOW METAL DOOR</u> . EXTERIOR DOORS: THERMALLY INSULATED A. ASED ON SDI STANDARDS: ANSI/SDI A250.8 (SDI-100). B. LEVEL 1 - STANDARD-DUTY

D MODEL 1 - FULL FLUSH E. DOOR FACE METAL THICKNESS: 18 GAGE, 0.032 INCH, MINIMUM. WITH REQUIREMENTS

G. DOOR THICKNESS: 1-3/4 INCH, NOMINAL. H. TOP CLOSURES FOR OUTSWINGING DOORS: FLUSH WITH TOP OF FACES AND EDGES. I. WEATHERSTRIPPING: REFER TO SECTION 08 7100. J. DOOR FINISH: FACTORY PRIMED AND FIELD FINISHED.

. HOLLOW METAL FRAMES: 1.COMPLY WITH STANDARDS AND/OR CUSTOM GUIDELINES AS INDICATED FOR CORRESPONDING DOOR IN ACCORDANCE WITH APPLICABLE DOOR FRAME REQUIREMENTS. 2. DOOR FRAMES, NON-FIRE RATED: FACE WELDED TYPE, FRAME FINISH: FACTORY FINISHED, A. FULL LENGTH STOPS

B. FRAME METAL THICKNESS: 14 GAGE OPENING WITHOUT CUTTING MASONRY UNITS.

1. GLAZING: AS INDICATED IN DRAWINGS OR AS SPECIFIED. CORNERS: PREPARED FOR COUNTERSINK STYLE TAMPER PROOF SCREWS.

4. TEMPORARY FRAME SPREADERS: PROVIDE FOR FACTORY- OR SHOP-ASSEMBLED FRAMES. I. INSTALLATION: 2. INSTALL PREFINISHED FRAMES AFTER PAINTING AND WALL FINISHES ARE COMPLETE.

4. COORDINATE FRAME ANCHOR PLACEMENT WITH WALL CONSTRUCTION.

A. SUBMITTALS: PRODUCT DATA AND HARDWARE SCHEDULE INDICATING HARDWARE ITEM, FINISH, AND QUANTITY LOCATED ON EACH DOOR WITH DOOR AND HARDWARE SET NUMBERING CORRESPONDING TO THOSE USED IN CONSTRUCTION DOCUMENTS. REFER TO ARCHITECTURAL PLANS AND HARDWARE SCHEDULES PROVIDED. 1. HARDWARE SUPPLIER SHALL SUBMIT FOUR COPIES OF FINAL HARDWARE SCHEDULE AT EARLIEST POSSIBLE DATE PARTICULARLY WHERE ACCEPTANCE OF HARDWARE SCHEDULE MUST PRECEDE FABRICATION OF OTHER WORK WHICH IS CRITICAL IN THE PROJECT CONSTRUCTION SCHEDULE. INCLUDE WITH SCHEDULE SHOP DRAWINGS OF OTHER WORK AFFECTED BY BUILDERS HARDWARE, AND OTHER INFORMATION ESSENTIAL TO THE 2. KEYING SCHEDULE. SUBMIT SEPARATE DETAILED SCHEDULE INDICATING CLEARLY HOW THE OWNER'S FINAL INSTRUCTIONS ON KEYING OF LOCKS HAS BEEN FULFILLED. ALL KEYING SHALL BE COORDINATED WITH THE

. STRIKES, PROVIDE MANUFACTURER'S STANDARD WROUGHT BOX STRIKE FOR EACH LATCH OR LOCK BOLT. WITH CURVED LIP EXTENDED TO PROTECT FRAME, FINISH TO MATCH HARDWARE SET, PROVIDE STANDARD (OPEN) IN GENERAL, HARDWARE FINISH SHALL BE (BLACK) UNLESS SPECIFIED DIFFERENTLY ON HARDWARE

6. HOA MANAGEMENT (MASTER KEY) – FRONT GATE, BATHROOMS, STORAGE ROOM, POOL EQUIPMENT

1. MOUNT HARDWARE UNITS AT HEIGHTS INDICATED IN "RECOMMENDED LOCATIONS FOR BUILDERS HARDWARE FOR STANDARD STEEL DOORS AND FRAMES" BY THE DOOR AND HARDWARE INSTITUTE, EXCEPT AS SPECIFICALLY INDICATED OR REQUIRED TO COMPLY WITH GOVERNING REGULATIONS, AND EXCEPT AS MAY BE OTHERWISE DIRECTED BY ARCHITECT. MOUNT HARDWARE IN UNITS DESIGNATED FOR USE BY THE

SURFACES WHICH ARE LATER TO BE PAINTED OR FINISHED IN ANOTHER WAY, COORDINATE REMOVAL, STORAGE REINSTALLATION OR APPLICATION OF SURFACE PROTECTIONS WITH FINISHING WORK SPECIFIED IN THE DIVISION 9 SECTIONS, DO NOT INSTALL SURFACE MOUNTED ITEMS UNTIL FINISHES HAVE BEEN COMPLETED ON 3. SET UNITS LEVEL, PLUMB AND TRUE TO LINE AND LOCATION. ADJUST AND REINFORCE THE ATTACHMENT SUBSTRATE AS NECESSARY FOR PROPER INSTALLATION AND OPERATION. 4 DRILL AND COUNTERSINK UNITS WHICH ARE NOT FACTORY PREPARED FOR ANCHORAGE FASTENERS. SPACE

6. ADJUST AND CHECK EACH OPERATING ITEM OF HARDWARE AND EACH DOOR, TO ENSURE PROPER OPERATION OR FUNCTION OF EVERY UNIT. REPLACE UNITS WHICH CANNOT BE ADJUSTED TO OPERATE FREELY AND 7.FINAL ADJUSTMENT: WHEREVER HARDWARE INSTALLATION IS MADE MORE THAN ONE MONTH PRIOR TO ACCEPTANCE OR OCCUPANCY OF A SPACE OR AREA, RETURN TO THE WORK DURING THE WEEK PRIOR TO

ACCEPTANCE OR OCCUPANCY, AND MAKE FINAL CHECK AND ADJUSTMENT OF ALL HARDWARE ITEMS IN SUCH SPACE OR AREA. CLEAN OPERATING ITEMS AS NECESSARY TO RESTORE PROPER FUNCTION AND FINISH OF HARDWARE AND DOORS. ADJUST DOOR CONTROL DEVICES TO COMPENSATE FOR FINAL OPERATION OF HEATING

A. SUBMITTALS: PRODUCT DATA AND SHOP DRAWINGS WITH DETAILS OF EACH OPENING, SHOWING ELEVATIONS,

4. STEELCRAFT, AN ALLEGION BRAND: WWW.ALLEGION.COM

. STEEL USED FOR FABRICATION OF DOORS AND FRAMES SHALL COMPLY WITH ONE OR MORE OF THE FOLLOWING REQUIREMENTS; GALVANNEALED STEEL CONFORMING TO ASTM A653/A653M, COLD-ROLLED STEEL CONFORMING TO ASTM A1008/A1008M, OR HOT-ROLLED PICKLED AND OILED (HRPO) STEEL CONFORMING TO

3. GLAZED LIGHTS: NON-REMOVABLE STOPS ON NON-SECURE SIDE; SIZES AND CONFIGURATIONS AS INDICATED ON 4. HARDWARE PREPARATIONS, SELECTIONS AND LOCATIONS: COMPLY WITH NAAMM HMMA 830 AND NAAMM HMMA 831 OR BHMA A156.115 AND ANSI/SDI A250.8 (SDI-100) IN ACCORDANCE WITH SPECIFIED REQUIREMENTS. 5. ZINC COATING FOR TYPICAL INTERIOR AND/OR EXTERIOR LOCATIONS: PROVIDE METAL COMPONENTS ZINC-COATED (GALVANIZED) AND/OR ZINC-IRON ALLOY-COATED (GALVANNEALED) BY THE HOT-DIP PROCESS IN

7. COMBINED REQUIREMENTS: IF A PARTICULAR DOOR AND FRAME UNIT IS INDICATED TO COMPLY WITH MORE THAN ONE TYPE OF REQUIREMENT, COMPLY WITH THE SPECIFIED REQUIREMENTS FOR EACH TYPE: FOR INSTANCE, AN EXTERIOR DOOR THAT IS ALSO INDICATED AS BEING SOUND-RATED MUST COMPLY WITH THE REQUIREMENTS SPECIFIED FOR EXTERIOR DOORS AND FOR SOUND-RATED DOORS; WHERE TWO

C. PHYSICAL PERFORMANCE LEVEL C, 250,000 CYCLES; IN ACCORDANCE WITH ANSI/SDI A250.4.

F. DOOR CORE MATERIAL: MANUFACTURERS STANDARD CORE MATERIAL/CONSTRUCTION AND IN COMPLIANCE

3. FRAMES IN MASONRY WALLS: SIZE TO SUIT MASONRY COURSING WITH HEAD MEMBER 4 INCH HIGH TO FILL 4. FRAMES WIDER THAN 48 INCHES: REINFORCE WITH STEEL CHANNEL FITTED TIGHTLY INTO FRAME HEAD, FLUSH

1.PRIMER: RUST-INHIBITING. COMPLYING WITH ANSI/SDI A250.10. DOOR MANUFACTURER'S STANDARD.

2. REMOVABLE STOPS: FORMED SHEET STEEL, SHAPE AS INDICATED ON DRAWINGS, MITERED OR BUTTED 3. SILENCERS: RESILIENT RUBBER, FITTED INTO DRILLED HOLE; PROVIDE THREE ON STRIKE SIDE OF SINGLE DOOR. THREE ON CENTER MULLION OF PAIRS, AND TWO ON HEAD OF PAIRS WITHOUT CENTER MULLIONS.

I.INSTALL DOORS AND FRAMES IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND RELATED REQUIREMENTS OF SPECIFIED DOOR AND FRAME STANDARDS OR CUSTOM GUIDELINES INDICATED.

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#### **SPECIFICATIONS - PRODUCT & INSTALLATION GENERAL REQUIREMENTS**

- 08 3100 ACCESS DOORS AND PANELS A. <u>SUBMITTALS</u>: PRODUCT DATA.
- B. BASIS OF DESIGN: JL INDUSTRIES , TM MULTI-PURPOSE FLUSH STEEL ACCESS PANEL
- C. PRODUCTS: PRIME-PAINTED FLUSH, UNINSULATED ACCESS DOORS FOR WALLS WITH TRIMLESS FRAME AND KEY OPERATED LOCK FLUSH WITH FINISHED SURFACE.
- D. INSTALLATION: INSTALL FLUSH TO FINISHED DRYWALL SURFACE WITH FRAME TAPED AND SANDED FLUSH WITH WALL OR CEILING SURFACE AND FINISH TO MATCH ADJACENT SURFACE.

#### 08 5113 - ALUMINUM WINDOWS A. SUBMITTALS: PRODUCT DATA: PROVIDE COMPONENT DIMENSIONS, DESCRIBE COMPONENTS WITHIN ASSEMBLY, ANCHORAGE AND FASTENERS, GLASS AND INFILL, DOOR HARDWARE, INTERNAL DRAINAGE DETAILS. 1. SHOP DRAWINGS: INDICATE SYSTEM DIMENSIONS, FRAMED OPENING REQUIREMENTS AND TOLERANCES, AFFECTED RELATED WORK, EXPANSION AND CONTRACTION JOINT LOCATION AND DETAILS, AND FIELD WELDING REQUIRED

- B. WARRANTY: WARRANTY: SUBMIT MANUFACTURER WARRANTY AND ENSURE FORMS HAVE BEEN COMPLETED IN OWNER'S NAME AND REGISTERED WITH MANUFACTURER. 1. CORRECT DEFECTIVE WORK WITHIN A FIVE YEAR PERIOD AFTER DATE OF SUBSTANTIAL COMPLETION. 2. PROVIDE FIVE YEAR MANUFACTURER WARRANTY AGAINST FAILURE OF GLASS SEAL ON INSULATING GLASS UNITS, INCLUDING INTERPANE DUSTING OR MISTING. INCLUDE PROVISION FOR REPLACEMENT OF FAILED UNITS. 3. PROVIDE FIVE YEAR MANUFACTURER WARRANTY AGAINST EXCESSIVE DEGRADATION OF EXTERIOR FINISH. INCLUDE PROVISION FOR REPLACEMENT OF UNITS WITH EXCESSIVE FADING, CHALKING, OR FLAKING.
- C. BASIS OF DESIGN: COLUMBIA WINDOWS, 3100 SERIES , ALUMINUM BLACK FRAME, FROSTED GLASS
- 1. ALUMINUM-FRAMED STOREFRONT: FACTORY FABRICATED, FACTORY FINISHED ALUMINUM FRAMING MEMBERS WITH INFILL, AND RELATED FLASHINGS, ANCHORAGE AND ATTACHMENT DEVICES. 2. ALUMINUM FRAMING MEMBERS: TUBULAR ALUMINUM SECTIONS, DRAINAGE HOLES AND INTERNAL WEEP DRAINAGE SYSTEM. 3. EXTRUDED ALUMINUM:
- 5. FASTENERS: STAINLESS STEEL 6. CONCEALED FLASHINGS: STAINLESS STEEL, 26 GAGE, 0.0187 INCH MINIMUM THICKNESS.
- 7. SEALANT AS RECOMMEND BY MANUFACTURER 8. GLAZING GASKETS: TYPE TO SUIT APPLICATION TO ACHIEVE WEATHER, MOISTURE, AND AIR INFILTRATION REQUIREMENTS.
- E. <u>FINISHES:</u> 1. BLACK ALUMINUM
- I. STANDARD TYPE TO SUIT APPLICATION.
- 1. VERIFY DIMENSIONS, TOLERANCES, AND METHOD OF ATTACHMENT WITH OTHER WORK. 2. VERIFY THAT WALL OPENINGS AND ADJOINING AIR AND VAPOR SEAL MATERIALS ARE READY TO RECEIVE WORK OF THIS SECTION. 3. INSTALL WALL SYSTEM IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
- 4. ATTACH TO STRUCTURE TO PERMIT SUFFICIENT ADJUSTMENT TO ACCOMMODATE CONSTRUCTION TOLERANCES AND OTHER IRREGULARITIES. 5. ALIGN ASSEMBLY PLUMB AND LEVEL, FREE OF WARP OR TWIST. MAINTAIN ASSEMBLY DIMENSIONAL TOLERANCES, ALIGNING WITH ADJACENT WORK.
- 6. PROVIDE THERMAL ISOLATION WHERE COMPONENTS PENETRATE OR DISRUPT BUILDING INSULATION. 7. INSTALL SILL FLASHINGS. TURN UP ENDS AND EDGES; SEAL TO ADJACENT WORK TO FORM WATER TIGHT DAM.
- 8. WHERE FASTENERS PENETRATE SILL FLASHINGS, MAKE WATERTIGHT BY SEATING AND SEALING FASTENER HEADS TO SILL FLASHING. 9. PACK FIBROUS INSULATION IN SHIM SPACES AT PERIMETER OF ASSEMBLY TO MAINTAIN CONTINUITY OF THERMAL
- BARRIER 10. SET THRESHOLDS IN BED OF SEALANT AND SECURE. 11. INSTALL HARDWARE USING TEMPLATES PROVIDED. ADJUST OPERATING HARDWARE AND SASH FOR SMOOTH
- OPERATION 12. WASH DOWN SURFACES WITH A SOLUTION OF MILD DETERGENT IN WARM WATER, APPLIED WITH SOFT, CLEAN
- WIPING CLOTHS, AND TAKE CARE TO REMOVE DIRT FROM CORNERS AND TO WIPE SURFACES CLEAN. 13. PROTECT INSTALLED PRODUCTS FROM DAMAGE UNTIL DATE OF SUBSTANTIAL COMPLETION.

#### **DIVISION 9 - FINISHES**

CEILINGS

- 09 2116 GYPSUM BOARD ASSEMBLIES A. <u>STEEL FRAMING MEMBERS:</u> COMPLY WITH ASTM C754 IN DEPTHS AND GAGES AS INDICATED IN THE CONSTRUCTION DRAWINGS AND AS FOLLOWS: 1. STEEL SHEET COMPONENTS: COMPLY WITH ASTM C645 WITH MANUFACTURER'S STANDARD CORROSION-RESISTANT ZINC COATING.
- 2. TIE WIRE: ASTM A 641/A 641M, CLASS 1 ZINC COATING, SOFT TEMPER. .0625" DIAMETER OR DOUBLE STRAND OF .0475" DIAMETER WIRE.
- 3. WIRE HANGERS: ASTM A 641/A 641M, CLASS 1 ZINC COATING, SOFT TEMPER. .0162" DIAMETER. B. PANEL PRODUCTS: PROVIDE 5/8 THICKNESS AND TYPE INDICATED IN THE CONSTRUCTION DRAWINGS IN MAXIMUM LENGTHS AVAILABLE TO MINIMIZE END-TO-END BUTT JOINTS AND AS FOLLOWS: 1. GYPSUM WALLBOARD: ASTM C 36, TYPE 'X' WITH TAPERED EDGES, SAG-RESISTANT TYPE FOR
- CEILING SURFACES 2. WATER-RESISTANT GYPSUM BACKING BOARD: ASTM C 630. TYPE 'X' ON ALL TOILET ROOM AND STORAGE ROOM, EQUIPMENT ROOM WALLS AS WELL AS BEHIND ALL PLUMBING FIXTURES, AND AS INDICATED.
- ACCESSORIE 1. TRIM: ASTM 1047, FORMED FROM GALVANIZED OR ALUMINUM COATED STEEL SHEET, ROLLED ZINC, OR PLASTIC
- a. OUTSIDE CORNERS: PROVIDE CORNER BEAD UNLESS NOTED OTHERWISE b. EXPOSED PANEL EDGES: PROVIDE LC-BEAD (J-BEAD) UNLESS NOTED OTHERWISE; USE
- TEAR-AWAY BEAD WHERE GYP. BD. MEETS WINDOW FRAMES OR CEILING GRID. c. CONTROL JOINTS: PROVIDE WHERE INDICATED OR APPROXIMATELY 30'-0" MAX. CONTACT
- ARCHITECT FOR LOCATIONS IF NOT INDICATED. 2. SOUND-ATTENUATION BLANKETS: ASTM C 665, TYPE I (UNFACED) 3. ACOUSTICAL SEALANT: COMPLY WITH ASTM C 834, NONSAG, PAINTABLE, NONSTAINING LATEX.
- ). INSTALLATION I. FRAMING: COMPLY WITH ASTM C 754 AND ASTM C 840 AND WITH U.S. GYPSUM'S "GYPSUM
- CONSTRUCTION HANDBOOK" ISOLATE FRAMING FROM BUILDING STRUCTURE TO PREVENT TRANSFER OF LOADING IMPOSED BY STRUCTURAL MOVEMENT AND PROVIDE BRACING AS NECESSARY FOR PROPER SUPPORT WHETHER INDICATED OR NOT.
- 2. GYPSUM PANELS AND FINISH: COMPLY WITH ASTM C 840 AND GA-216. ISOLATE GYPSUM BOARD ASSEMBLIES FROM ABUTTING STRUCTURAL AND MASONRY WORK AND FINISH AS FOLLOWS: A. LEVEL 1 (EMBED TAPE AT JOINTS): AT CONCEALED AREAS UNLESS A HIGHER LEVEL IS INDICATED OR REQUIRED FOR FIRE-RESISTANCE-RATED ASSEMBLY.
- B. LEVEL 2 (EMBED TAPE AND APPLY SEPARATE FIRST COAT OF JOINT COMPOUND TO TAPE. FASTENERS, AND TRIM FLANGES AND SAND SMOOTH AFTER EACH COAT): AT SUBSTRATES BEHIND TILE.
- C. LEVEL 4 (EMBED TAPE AND APPLY SEPARATE FIRST, FILL, AND FINISH COATS OF JOINT COMPOUND TO TAPE, FASTENERS, AND TRIM FLANGES AND SAND SMOOTH AFTER EACH COAT): AT ALL WALLS RECEIVING FLAT, EGGSHELL, OR SATIN SHEEN PAINT OR
- WALLCOVERING) D. LEVEL 5 (EMBED TAPE, APPLY SEPARATE FIRST, FILL, AND FINISH COATS OF JOINT COMPOUND TO TAPE, FASTENERS, AND TRIM FLANGES, AND APPLY THIN SKIM COAT OF JOINT COMPOUND OVER ENTIRE SURFACE AND SAND SMOOTH AFTER EACH COAT); AT ALL WALLS RECEIVING SEMI-GLOSS OR GLOSS SHEEN PAINT, AND ALL GYPSUM BOARD

- 09 9000 PAINTING AND COATING A. <u>SUBMITTALS:</u> PRODUCT DATA AND THREE (3) DRAW-DOWN SAMPLES OF EACH COLOR AND SHEEN
- PROPERLY LABELED AND SEALED. C. PRODUCTS: PROVIDE MANUFACTURER'S BEST QUALITY PAINTS OF COLOR AND SHEEN AS INDICATED IN THE CONSTRUCTION DOCUMENTS THAT ARE FORMULATED AND RECOMMENDED BY MANUFACTURER FOR APPLICATION INDICATED. PROVIDE MATERIALS THAT ARE COMPATIBLE WITH ONE ANOTHER AND WITH SUBSTRATES.
- D. PAINT SYSTEMS 1. ALL PAINT, STAIN, AND VARNISH SHALL BE PRODUCTS OF DEVOE, KWAL, SHERWIN WILLIAMS, PPG INDUSTRIES, PRATT & LAMBERT OR APPROVED EQUAL. 2. ALL MATERIAL SHALL BE OF THE STANDARD RESIDENTIAL GRADE OF THE TYPES DESIGNATED. 3. ALL MATERIAL SHALL BE DELIVERED TO THE JOB SITE IN THE ORIGINAL, UNOPENED, LABELED CONTAINERS. COLORS NOT SPECIFICALLY CALLED FOR IN THE PAINT SCHEDULE WILL BE SELECTED BY THE ARCHITECT.
- 1. EQUIPMENT: APPLY COATINGS BY BRUSH, ROLLER, SPRAY, OR OTHER APPLICATORS ACCORDING TO COATING MANUFACTURER'S WRITTEN INSTRUCTIONS. WHEN SPRAYED, EXTERIOR COATINGS SHALL BE BACK-ROLLED FOLLOWING SPRAY APPLICATION. USE ROLLERS FOR FINISH COAT ON INTERIOR WALLS AND CEILINGS. 2. PIGMENTED (OPAQUE) FINISHES: COMPLETELY COVER SURFACES TO PROVIDE A SMOOTH, OPAQUE SURFACE OF UNIFORM APPEARANCE. PROVIDE A FINISH FREE OF CLOUDINESS, SPOTTING, HOLIDAYS, LAPS, BRUSH MARKS, RUNS, SAGS, ROPINESS, OR OTHER SURFACE IMPERFECTIONS 3. APPLY PRODUCTS PER MANUFACTURER RECOMMENDED GUIDELINES. PRODUCT COVERAGE MINIMUM ONE COAT OF PRIMER AND TWO FINAL COATS ON MATERIALS.APPLY PRODUCTS TO MATERIALS APPROVED BY MANUFCTURER PRODUCT DATA SHEETS.
- A. EXTERIOR WORK:
- 1. ALL EXTERIOR GALVANIZED METAL FLASHINGS, CONNECTORS, ETC.
- 2. ALL EXPOSED STEEL FRAMES, ANGLES, STEEL BRACKETS ETC.
- 3. ALL EXPOSED MISC. FERROUS METAL ITEMS INCLUDING RAILS, PLATES, ANGLES, BOLTS, GRATES, CONDUITS, POSTS, PIPING, ETC.
- 4. ALL UNPRIMED EXTERIOR MILLWORK. TRIM, SMOOTH WOOD MATERIALS, ETC. SEMI-GLOSS PAINT.
- 5. PRIMED MILLWORK AND TRIM.
- 6. CEDAR TRIM, BEAMS, COLUMNS, ETC.
- 7. PRIMED METAL ENTRY DOORS, FRENCH DOORS AND METAL FRAMES, GARAGE DOORS.
- 8. ANY OTHER PAINTING REQUIRED BY THE DRAWINGS.
- B. INTERIOR WORK:
- 1. GYPSUM BOARD WALLS EXCEPT IN KITCHENS, BATHROOMS, LAUNDRIES AND COMMON AREA CORRIDORS, UNLESS SCHEDULED FOR WALLCOVERING
- 2. GYPSUM BOARD WALLS IN KITCHENS, BATHROOMS AND LAUNDRIES UNLESS SCHEDULED FOR WALLCOVERING OR TILE.
- 3. GYPSUM BOARD WALLS IN COMMON AREA CORRIDORS
- 4. GYPSUM BOARD CEILINGS.
- 5. DOOR CASINGS, BASE, WOOD, MILL-WORK, ETC. (PRE-PRIMED.)
- 6. PRIMED HARDWOOD DOORS.
- 7. ALL MISCELLANEOUS FERROUS METAL. INCLUDING GRILLES, REGISTERS, ETC.
- 8. ANY OTHER PAINTING WORK REQUIRED BY THE DRAWINGS.

B. ATTIC STOCK: FURNISH ONE (1) GALLON OF EACH PAINT COLOR AND SHEEN, IN CONTAINERS,

ONE COAT COMMERCIAL METAL ETCH. ONE COAT EXTERIOR METAL PRIMER. TWO COATS EXTERIOR SEMI-GLOSS METAL PAINT.

TWO COATS SEMI-GLOSS METAL PAINT. (PRIME COAT CHANNELS, POSTS, RAILINGS, BEAMS, ETC. SURFACES THAT ARE NOT PRIMED.) TWO COATS SEMI-GLOSS METAL PAINT.

(PRIME COAT SURFACES THAT ARE NOT PRIMED.)

PRIME AND BACK LATEX PRIMER. TWO COATS OF EXTERIOR LATEX SATIN OR

TOUCH-UP PRIME. TWO COATS OF EXTERIOR 100% SATIN OR SEMI-GLOSS ACRYLIC LATEX PAINT.

TWO COATS LINSEED OIL. APPLY WITH SMALL ROLLER. APPLY FIRST COAT 6 WEEKS AFTER INSTALL AND 5 DAYS AFTER RAIN EVENT. MINIMUM 7 DAYS BETWEEN COATS.

PATCH DENTS, TOUCH UP PRIMER. TWO COATS OF OIL BASE SEMI-GLOSS PAINT INSIDE AND OUTSIDE.

TWO COATS TO MATCH ADJACENT

SURFACES.

ACCENT COLORS.

COVERAGE.)

ONE COAT OF PRIME LATEX PAINT AND ONE FINISH COAT OF LATEX EGGSHELL WALL PAINT. (TWO COATS IF REQUIRED TO ACHIEVE FULL COVERAGE.) ONE WALL IN EACH APARTMENT UNIT LIVING SPACE AND EACH BEDROOM SHALL BE PAINTED

ONE COAT OF EPOXY COMPATABLE PRIMER PAINT AND ONE FINISH COAT OF EPOXY EGGSHELL WALL PAINT. (TWO COATS IF REQUIRED TO ACHIEVE FULL

ONE COAT OF PRIME LATEX PAINT AND ONE FINISH COAT OF SCRUBABLE LATEX FLAT WALL PAINT. (TWO COATS IF REQUIRED TO ACHIEVE FULL COVERAGE.)

TWO COATS OF LATEX FLAT PAINT. TWO COATS OF CLASS II VAPOR RETARDER PAINT AT CEILINGS ADJACENT TO ATTICS.

ONE PRIME COAT OF LATEX PAINT, ONE COAT LATEX PAINT AND ONE FINISH COAT

OF LATEX SEMI-GLOSS PAINT. ONE COAT OF LATEX PAINT AND ONE FINISH

COAT OF LATEX SEMI-GLOSS PAINT. TWO COATS METAL PAINT TO MATCH

ADJACENT SURFACES UNLESS FACTORY PREFINISHED WHITE

FINISH TO MATCH SIMILAR CONDITIONS.

**DIVISION 10 - SPECIALTIES** 

10 2800 TOILET AND BATH ACCESSORIES A. REFERENCE CONSTRUCTION DRAWINGS & SCHEDULES FOR TYPE, QUANTITY, AND LOCATIONS OF TOILET AND BATH ACCESSORIES.

1. PRODUCT DATA: MANUFACTURER'S DATA SHEETS ON EACH PRODUCT TO BE USED, INCLUDING: 2. PREPARATION INSTRUCTIONS AND RECOMMENDATIONS. 3. STORAGE AND HANDLING REQUIREMENTS AND RECOMMENDATIONS.

4. INSTALLATION METHODS.

1.PROVIDE & INSTALL (1) OF EACH ITEM BELOW FOR EACH RESTROOM. UNLESS NOTED OTHERWISE. A. BRADLEY GRAB BAR, CONCEALED MOUNTING - MODEL NO. 8120-001180 B. BRADLEY GRAB BAR, CONCEALED MOUNTING - MODEL NO. 8120-001360 C. BRADLEY GRAB BAR, CONCEALED MOUNTING - MODEL NO. 8120-001420

D. BRADLEY MIRROR, CHANNEL FRAME, 18X36 - MODEL NO. 781-018360 E. BRADLEY SEMI - RECESSED WASTE RECEPTACLE 12 GALLON - MODEL NO. 346-10 F. BRADLEY PAPER TOWEL DISP. SURFACE MOUNTED - MODEL NO. 250-150000

G. BRADLEY SURFACE MOUNTED FOAM SOAP DISP. 40 OZ. - MODEL NO. 6562-730000 H. BRADLEY HAT & COAT HOOKS, POLISHED STAINLESS STEEL, - MODEL NO. 9135-000000

PROVIDE (6) HOOKS PER RESTROOM J. BRADLEY RECTANGULAR BABY CHANGING STATION, LIGHT GRAY - MODEL NO. 9631-000000 K. BRADLEY SURFACE MOUNTED DUAL ROLL TOILET PAPER DISPENSER - MODEL NO. 5126-000000 D. INSTALLATION

- 1. INSTALLER MUST EXAMINE SUBSTRATES, PREVIOUSLY INSTALLED INSERTS AND ANCHORAGES NECESSARY FOR MOUNTING OF TOILET ACCESSORIES, AND OTHER CONDITIONS UNDER WHICH INSTALLATION IS TO OCCUR, AND MUST NOTIFY CONTRACTOR IN WRITING OF CONDITIONS DETRIMENTAL TO PROPER AND TIMELY COMPLETION OF WORK. DO NOT PROCEED WITH WORK UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED IN MANNER ACCEPTABLE TO INSTALLER. 2. INSTALL ACCESSORIES ACCORDING TO RESPECTIVE MANUFACTURERS' WRITTEN INSTRUCTIONS, USING
- FASTENERS APPROPRIATE TO SUBSTRATE INDICATED AND RECOMMENDED BY UNIT MANUFACTURER. INSTALL UNITS LEVEL, PLUMB, AND FIRMLY ANCHORED IN LOCATIONS AND AT HEIGHTS INDICATED. ADHESIVE INSTALLATIONS ARE NOT PERMITTED.
- 3. MOUNTING HEIGHTS SHALL BE AS RECOMMENDED BY THE ACCESSORY MANUFACTURER AND AT HEIGHTS RECOMMENDED BY USE FOR PHYSICALLY HANDICAPPED TO COMPLY WITH THE AMERICANS WITH DISABILITIES ACT. 4. GRAB BARS: INSTALL TO WITHSTAND A DOWNWARD LOAD OF AT LEAST 250 LBF, WHEN TESTED
- ACCORDING TO ASTM F 446. 5. ADJUST ACCESSORIES FOR PROPER OPERATION AND VERIFY THAT MECHANISMS FUNCTION SMOOTHLY. 6. CLEAN AND POLISH ALL EXPOSED SURFACES AFTER REMOVING PROTECTIVE COATINGS.

**10 3000** SOLID PLASTIC TOILET COMPARTMENTS A. REFERENCE CONSTRUCTION DRAWINGS & SCHEDULES FOR TYPE, QUANTITY, AND LOCATIONS OF TOILET AND BATH ACCESSORIES.

- BASIS OF DESIGN: ASI ACCURATE TOILET PARTITIONS 1. STYLE: FLOOR MOUNTED OVERHEAD-BRACED TOILET COMPARTMENTS. 2. DOORS AND PANELS: HIGH DENSITY POLYETHYLENE (HDPE), FABRICATED FROM SEQ
  - CHAPTER 1 EXTRUDED POLYMER RESINS, FORMING SINGLE THICKNESS PANEL. A. WATERPROOF AND NONABSORBENT, WITH SELF-LUBRICATING SURFACE, RESISTANT TO MARKS BY PENS, PENCILS, MARKERS, AND OTHER WRITING INSTRUMENTS. B. THICKNESS: 1 INCH (25 MM).
- C. EDGES: SHIPLAP. 3. PANEL COLOR: CHARCOAL 9237 4. DOORS AND PANELS: HIGH PRIVACY: HEIGHT: 62 INCHES (1575 MM) HIGH AND MOUNTED AT 8 TO 14 INCHES (203 TO 356 MM) ABOVE THE FINISHED FLOOR.
- 1. PRODUCT DATA: MANUFACTURER'S DATA SHEETS ON EACH PRODUCT TO BE USED, INCLUDING: 2. PREPARATION INSTRUCTIONS AND RECOMMENDATIONS. 3. STORAGE AND HANDLING REQUIREMENTS AND RECOMMENDATIONS.
- 4. INSTALLATION METHODS. 5. SHOP DRAWINGS: PROVIDE LAYOUT DRAWINGS AND INSTALLATION DETAILS WITH LOCATION AND TYPE OF HARDWARE REQUIRED. 6. SELECTION SAMPLES: FOR EACH FINISH PRODUCT SPECIFIED, TWO COMPLETE SETS OF COLOR CHIPS
- REPRESENTING MANUFACTURER'S FULL RANGE OF AVAILABLE COLORS AND PATTERNS. D. POSTS. RAILS AND HARDWARE 1. METAL POSTS: 82.75 INCHES (2102 MM) HIGH, HEAVY DUTY EXTRUDED ALUMINUM, CLEAR ANODIZED
- FINISH FASTENED TO FOOT WITH STAINLESS STEEL TAMPER RESISTANT SCREW 2. HIDDEN SHOE (FOOT): ONE-PIECE MOLDED POLYETHYLENE INVISIBLE SHOE INSERTED INTO METAL POST AND SECURED TO METAL POST WITH STAINLESS STEEL TAMPER RESISTANT SCREW.
- 3. HEADRAIL CAP AND CORNER CAP: ONE-PIECE MOLDED POLYETHYLENE SECURED TO METAL POST WITH STAINLESS STEEL TAMPER RESISTANT SCREW: ADJUSTABLE TO LEVEL HEADRAIL TO FINISHED FLOOR. 4. WALL BRACKETS: CONTINUOUS HEAVY DUTY EXTRUDED ALUMINUM, CLEAR ANODIZED FINISH, INSERTED INTO SLOTTED PANEL AND FASTENED TO PANELS WITH STAINLESS STEEL TAMPER RESISTANT SCREWS.
- 5. HEADRAIL: HEAVY DUTY EXTRUDED ALUMINUM, CLEAR ANODIZED FINISH, SECURED TO WALL WITH STAINLESS STEEL TAMPER SCREWS. 6. DOOR HARDWARE: A. HINGES: EDGE-MOUNTED HELIX STYLE STAINLESS STEEL CONTINUOUS HINGE. CLOSING DEGREE: 5
- DEGREES. COMES TO A FULL CLOSE ON ITS OWN WEIGHT. B.OCCUPANCY INDICATOR LATCH AND HOUSING: MATERIAL: SATIN STAINLESS STEEL. OCCUPANCY INDICATORS: GREEN FOR OCCUPIED AND RED NOT OCCUPIED. SLIDE BOLT AND BUTTON. C.COAT HOOK AND DOOR BUMPER COMBINATION: MATERIAL: CHROME PLATED ZAMAK. HANDICAP DOOR: EQUIP WITH SECOND DOOR PULL AND DOOR STOP. D. DOOR PULLS: CHROME PLATED ZAMAK:

I. CLEAN SURFACES THOROUGHLY PRIOR TO INSTALLATION. 2. INSTALL IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS AND APPROVED SHOP DRAWINGS.

- 3. INSTALL PARTITIONS RIGID, STRAIGHT, PLUMB, AND LEVEL. 4. LOCATE BOTTOM EDGE OF DOORS AND PANELS INCHES ABOVE FINISHED FLOOR. 5. CLEARANCE AT VERTICAL EDGES OF DOORS SHALL BE UNIFORM TOP TO BOTTOM AND SHALL NOT
- EXCEED 3/8 INCH (9.5 MM). 6. NO EVIDENCE OF CUTTING, DRILLING, AND/OR PATCHING SHALL BE VISIBLE ON THE FINISHED WORK. 7. FINISHED SURFACES SHALL BE CLEANED AFTER INSTALLATION AND BE LEFT FREE OF IMPERFECTIONS. 8. ADJUST DOORS AND LATCHES TO OPERATE CORRECTLY.
- 9. PROTECT INSTALLED PRODUCTS UNTIL COMPLETION OF PROJECT. 10. TOUCH-UP, REPAIR OR REPLACE DAMAGED PRODUCTS BEFORE SUBSTANTIAL COMPLETION.

10 4400 - FIRE PROTECTION SPECIALTIES A. REFERENCE CONSTRUCTION DRAWINGS FOR LOCATIONS OF FIRE EXTINGUISHERS

AND CABINETS. B. <u>TYPE:</u> ABC DRY CHEMICAL- 5 LBS CAPACITY

C. INSTALLATION: HANGING - NO CABINET REQUIRED

**DIVISION 31 - EARTHWORK** 

31 3116 - TERMITE CONTROL A. SOIL TREATMENT WITH TERMITICIDE FOR THE BUILDING

PRODUCT DATA: FOR EACH TYPE OF TERMITE CONTROL PRODUCT. 1. INCLUDE THE EPA-REGISTERED LABEL FOR TERMITICIDE PRODUCTS. 2. QUALIFICATION DATA: FOR QUALIFIED INSTALLER B. PRODUCT CERTIFICATES: FOR TERMITE CONTROL PRODUCTS, FROM MANUFACTURER.

C. SOIL TREATMENT APPLICATION REPORT: AFTER APPLICATION OF TERMITICIDE IS COMPLETED, SUBMIT REPORT FOR OWNER'S RECORDS AND INCLUDE THE FOLLOWING: 1. DATE AND TIME OF APPLICATION. 2. MOISTURE CONTENT OF SOIL BEFORE APPLICATION. 3. TERMITICIDE BRAND NAME AND MANUFACTURER. 4. QUANTITY OF UNDILUTED TERMITICIDE USED.

5. DILUTIONS, METHODS, VOLUMES USED, AND RATES OF APPLICATION. 6. AREAS OF APPLICATION.

7. WATER SOURCE FOR APPLICATION.

CAUSED BY TERMITE INFESTATION.

1. WARRANTY PERIOD: FIVE YEARS FROM DATE OF SUBSTANTIAL COMPLETION. D. SOIL TREATMENT:

A. TERMITICIDE: PROVIDE AN EPA-REGISTERED TERMITICIDE, COMPLYING WITH REQUIREMENTS OF REGISTERED LABEL

A. BASF CORPORATION, AGRICULTURAL PRODUCTS; TERMIDOR. B. BAYER ENVIRONMENTAL SCIENCE: PREMISE 75. C. FMC CORPORATION, AGRICULTURAL PRODUCTS GROUP; DRAGNET FT, TALSTAR, OR PREVAIL. D. SYNGENTA; DEMON TC, PRELUDE, OR PROBUILD TC].

YEARS AGAINST INFESTATION OF SUBTERRANEAN TERMITES. PREPARATION:

CONSTRUCTION WASTE WOOD FROM SOIL WITHIN AND AROUND FOUNDATIONS.

MANUFACTURER 1. FIT FILLING HOSE CONNECTED TO WATER SOURCE AT THE SITE WITH A BACKFLOW PREVENTER, COMPLYING WITH REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.

C. COMPLY WITH ALL MANUFACTURER GUIDELINES.

. APPLICATION GENERAL WITH MANUFACTURER'S EPA-REGISTERED LABEL FOR PRODUCTS.

- B. GENERAL: COMPLY WITH ALL MANUFACTURER GUIDELINES. C. APPLICATION: MIX SOIL TREATMENT TERMITICIDE SOLUTION TO A UNIFORM CONSISTENCY. BEFORE CONCRETE FOOTINGS AND SLABS ARE PLACED. AND ALONG THE ENTIRE OUTSIDE PERIMETER, FROM GRADE TO BOTTOM OF FOOTING. AVOID SOIL WASHOUT AROUND FOOTINGS.
- 3. MASONRY: TREAT VOIDS.
- GROUND-SUPPORTED SLABS ARE INSTALLED. USE WATERPROOF BARRIER ACCORDING TO EPA-REGISTERED LABEL INSTRUCTIONS
- F. POST WARNING SIGNS IN AREAS OF APPLICATION. LANDSCAPING, OR OTHER CONSTRUCTION ACTIVITIES FOLLOWING APPLICATION.

**DIVISION 32 - EXTERIOR IMPROVEMENTS** 32 3113 - FENCES, GATES & HARDWARE

A. REFERENCE CONSTRUCTION DRAWINGS FOR QUANTITY, AND LOCATIONS

WARRANTY: LIFETIME NON-PRORATED LIMITED TRANSFERABLE WARRANTY APPLIES TO ORIGINAL APPLICATIONS.

D. BASIS OF DESIGN: 6'-0"

- VIOLET (U.V.) RESISTANT, RIGID PVC, AND SHALL COMPLY WITH ASTM D 1784, CLASS 14344B. 3.RAILS: ONE PIECE EXTRUDED, OF LENGTHS INDICATED PRE-ROUTED TO RECEIVE PICKETS AT SPACING INDICATED.
- PROVIDE CROSS SECTION, WALL THICKNESS AND CORNER RADIUS MINIMUM TOLERANCES. CORNER RADIUS MINIMUM TOLERANCES. PICKET SPACING FULL PRIVACY.
- CROSS SECTION, WALL THICKNESS AND CORNER RADIUS MINIMUM TOLERANCES. POSTS AND GATE. ACCESSORIES: MANUFACTURERS' STANDARD GATE BRACE, SCREW CAPS, RAIL END REINFORCERS, AND OTHER ACCESSORIES AS REQUIRED.
- GAUGE (MINIMUM). 8. FASTÈNERS AND ANCHORAGE: STAINLESS STEEL. ALL FASTENERS TO BE CONCEALED OR COLORED HEADS TO MATCH. PROVIDE SIZES AS RECOMMENDED BY FENCE MANUFACTURER. 9. PVC CEMENT: AS RECOMMENDED BY FENCE MANUFACTURER.

REQUIREMENTS: HINGES FOR EACH GATE.

MANUFACTURER. STOREROOM LOCK, LEVER & PANIC HARDWARE TO MEET ADA REQUIREMENTS.

2. PACKAGES CONCRETE MIX: MIX DRY-PACKAGED NORMAL-WEIGHT CONCRETE CONFORMING TO ASTM C 387 WITH CLEAN WATER TO OBTAIN A 2 TO 3 INCH SLUMP.

- H. INSTALLATION:
- INSTALL COMPONENTS IN SEQUENCE AS RECOMMENDED BY FENCE MANUFACTURER. A. INSTALL FENCING AS INDICATED ON THE DRAWINGS PROVIDED. B. VARIATIONS FROM THE INSTALLATION INDICATED MUST BE APPROVED. REPLACEMENT WILL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- D. ALLOW MINIMUM 72 HOURS TO LET CONCRETE SET-UP BEFORE OPENING GATES. E. CLEANING, REMOVE ALL TRACES OF DIRT AND SOILED AREAS.

C. WARRANTY: SOIL TREATMENT SPECIAL WARRANTY: MANUFACTURER'S STANDARD FORM, SIGNED BY APPLICATOR AND CONTRACTOR, CERTIFYING THAT TERMITE CONTROL WORK, CONSISTING OF APPLIED SOIL TERMITICIDE TREATMENT, WILL PREVENT INFESTATION OF SUBTERRANEAN TERMITES. IF SUBTERRANEAN TERMITE ACTIVITY OR DAMAGE ISDISCOVERED DURING WARRANTY PERIOD, RE-TREAT SOIL AND REPAIR OR REPLACE DAMAGE

AUTHORITIES HAVING JURISDICTION, IN AN AQUEOUS SOLUTION FORMULATED TO PREVENT TERMITE INFESTATION. PROVIDE QUANTITY REQUIRED FOR APPLICATION AT THE LABEL VOLUME AND RATE FOR THE MAXIMUM TERMITICIDE CONCENTRATION ALLOWED FOR EACH SPECIFIC USE, ACCORDING TO PRODUCT'S EPA-

1. PRODUCTS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, AVAILABLE PRODUCTS THAT MAY BE INCORPORATED INTO THE WORK INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:

2. SERVICE LIFE OF TREATMENT: SOIL TREATMENT TERMITICIDE THAT IS EFFECTIVE FOR NOT LESS THAN FIVE

A. GENERAL: COMPLY WITH THE MOST STRINGENT REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION AND WITH MANUFACTURER'S WRITTEN INSTRUCTIONS FOR PREPARATION BEFORE BEGINNING APPLICATION OF TERMITE CONTROL TREATMENT. REMOVE ALL EXTRANEOUS SOURCES OF WOOD CELLULOSE AND OTHER EDIBLE MATERIALS SUCH AS WOOD DEBRIS, TREE STUMPS AND ROOTS, STAKES, FORMWORK, AND

B. SOIL TREATMENT PREPARATION: REMOVE FOREIGN MATTER AND IMPERMEABLE SOIL MATERIALS THAT COULD DECREASE TREATMENT EFFECTIVENESS ON AREAS TO BE TREATED. LOOSEN, RAKE, AND LEVEL SOIL TO BE TREATED EXCEPT PREVIOUSLY COMPACTED AREAS UNDER SLABS AND FOOTINGS. TERMITICIDES MAY BE APPLIED BEFORE PLACING COMPACTED FILL UNDER SLABS IF RECOMMENDED IN WRITING BY TERMITICIDE

A. COMPLY WITH THE MOST STRINGENT REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION AND

1. SLABS-ON-GRADE AND BASEMENT SLABS: UNDER GRADE-SUPPORTED SLAB CONSTRUCTION, INCLUDING FOOTINGS, BUILDING SLABS, AND ATTACHED SLABS AS AN OVERALL TREATMENT. TREAT SOIL MATERIALS 2. FOUNDATIONS: ADJACENT SOIL, INCLUDING SOIL ALONG THE ENTIRE INSIDE PERIMETER OF FOUNDATION WALLS: ALONG BOTH SIDES OF INTERIOR PARTITION WALLS: AROUND PLUMBING PIPES AND ELECTRIC CONDUIT PENETRATING THE SLAB; AROUND INTERIOR COLUMN FOOTERS, PIERS, AND CHIMNEY BASES;

4. PENETRATIONS: AT EXPANSION JOINTS. CONTROL JOINTS. AND AREAS WHERE SLABS WILL BE PENETRATED. D. AVOID DISTURBANCE OF TREATED SOIL AFTER APPLICATION. KEEP OFF TREATED AREAS UNTIL COMPLETELY E. PROTECT TERMITICIDE SOLUTION, DISPERSED IN TREATED SOILS AND FILLS, FROM BEING DILUTED UNTIL

G. REAPPLY SOIL TREATMENT SOLUTION TO AREAS DISTURBED BY SUBSEQUENT EXCAVATION, GRADING,

B.SUBMITTALS: THE CONTRACTOR SHALL PREPARE, AND SUBMIT TO THE ARCHITECT FOR APPROVAL, COMPLETE SHOP DRAWINGS FOR ALL WORK INCLUDED. PROVIDE PRODUCT DATA IN THE FORM OF MANUFACTURER'S TECHNICAL DATA, SPECIFICATIONS, AND INSTALLATIONS FOR FENCE, POSTS, GATE UPRIGHTS, POST CAPS, GATES, GATE HARDWARE AND ACCESSORIES. VERIFY LAYOUT INFORMATION FOR FENCES AND GATES SHOWN ON THE DRAWINGS IN RELATION TO THE PROPERTY SURVEY AND EXISTING STRUCTURES. VERIFY DIMENSIONS BY FIELD MEASUREMENTS. PROVIDE SAMPLES IN THE FORM OF 3" LENGTHS OF ACTUAL PRODUCT USED.

HOMEOWNER/CONSUMER, OR 30 YEAR NON-PRORATED LIMITED WARRANTY APPLIES TO COMMERCIAL

1. POSTS, RAILS, PICKETS, GATE UPRIGHTS, POST CAPS, AND ACCESSORIES SHALL BE OF HIGH IMPACT, ULTRA 2.FENCE POSTS: ONE PIECE EXTRUDED, OF LENGTHS INDICATED AND PRE-ROUTED TO RECEIVE RAILS AT SPACING INDICATED. PROVIDE CROSS SECTION, WALL THICKNESS AND CORNER RADIUS MINIMUM TOLERANCES.

4. PICKETS: ONE PIECE EXTRUDED, OF LENGTHS INDICATED. PROVIDE CROSS SECTION, WALL THICKNESS AND 5.GATE UPRIGHTS: ONE PIECE EXTRUDED, OF LENGTHS INDICATED WITH ALUMINUM U CHANNEL INSERT. PROVIDE 6. POST CAPS: MOLDED, ONE PIECE. CROSS SECTION TO MATCH POST OR GATE SECTION. PROVIDE MINIMUM THICKNESS REQUIREMENTS. CONFIGURATION: FLAT OR FOUR-SIDED AS REQUIRED FOR INSTALLATION TO TOP OF

7. STIFFENER CHANNELS, GALVANIZED STEEL STRUCTURAL CHANNEL. CONFIGURE CHANNELS FOR CONCEALED INSTALLATION WITHIN PVC RAILS WITH PRE-DRILLED HOLES FOR DRAINAGE. ALUMINUM EXTRUDED CHANNEL AVAILABLE UPON REQUEST. CROSS SECTION: 1.775 X 1.700 GALVANIZED STEEL CHANNEL THICKNESS: 0.040

1. GENERAL: PROVIDE HARDWARE AND ACCESSORIES FOR EACH GATE ACCORDING TO THE FOLLOWING

2. HINGES: COLOR- BLACK, SIZE AND MATERIAL TO SUIT GATE SIZE, NON LIFT-OFF TYPE, SELF CLOSING, GLASS FILLED NYLON WITH ADJUSTER PLATE, OFFSET TO PERMIT 120 DEGREE GATE OPENING. PROVIDE ONE PAIR OF 3. LATCH: FINISH TO MATCH HINGE. MANUFACTURERS' STANDARD SELF LATCHING, GLASS FILLED NYLON AND STAINLESS STEEL COMPOSITION SINGLE OR DUAL ACCESS GRAVITY LATCH. PROVIDE ONE LATCH PER GATE. 4. HARDWARE: FINISH TO MATCH HINGE.STAINLESS STEEL. PROVIDE SIZES AS RECOMMENDED BY FENCE

1. CONCRETE: PROVIDE CONCRETE CONSISTING OF PORTLAND CEMENT PER ASTM C 150, AGGREGATES PER ASTM C 33, AND POTABLE WATER. MIX MATERIALS TO OBTAIN CONCRETE WITH A MINIMUM 28-DAY COMPRESSIVE STRENGTH OF 2000 PSI. USE AT LEASE FOUR SACKS OF CEMENT PER CUBIC YARD, 1-INCH MAXIMUM SIZE AGGREGATE, 3-INCH MAXIMUM SLUMP. USE 1/2 INCH MAXIMUM SIZE AGGREGATE IN POST WHERE REQUIRED.

I. INSTALL FENCE IN COMPLIANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS. DURING INSTALLATION. PVC COMPONENTS SHALL BE CAREFULLY HANDLED AND STORED TO AVOID CONTACT WITH ABRASIVE SURFACES.

C. VARIATIONS FROM THE FENCE AND GATE INSTALLATION INDICATED AND ALL COSTS FOR REMOVAL AND

![](_page_4_Picture_173.jpeg)

DESIGN LOADS A. ROOF LOAD (5 PSF NET UPLIFT) 1. DEAD LOAD TOP CHORD 2. DEAD LOAD BOT. CHORD 3. LIVE LOAD TOP CHORD 3. LIVE LOAD TOP CHORD	14.       ROUGH CARPENTRY         A.       HEADERS, JOISTS, AND RAFTERS SHALL MEET OR EXCEED THE FOLLOWING MINIMUM         REQUIREMENTS. (EXAMPLE SPECIES: #2 SPRUCE PINE FIR)         1.       FB         2.       Fv         3       Fa
3.       LIVE LOAD FOR CHORD       25 PSF         4.       LIVE LOAD BOT. CHORD       0 PSF (U.N.O)         B.       ROOF SNOW LOAD       13 PSF         1.       SLOPED ROOF SNOW LOAD, Ps       13 PSF         2.       DESIGN SNOW LOAD FOR ROOF TRUSSES (MIN.)       20 PSF         3.       SNOW EXPOSURE FACTOR, Ce       1.0         4.       SNOW LOAD IMPORTANCE FACTOR, I       1.0	J. $r_{C}$ 1150 PSI4.E1400 KSIB.INTERIOR WALLS AND EXTERIOR WALLS SHALL MEET OR EXCEED THE FOLLOWING MINIMUM REQUIREMENTS. (EXAMPLE SPECIES: #2 SPRUCE PINE FIR)1.1. $F_{B}$ 875 PSI2. $F_{V}$ 135 PSI3. $F_{C}$ 1150 PSI
5.       THERMAL FACTOR, CT       1.1         6.       DRIFTING       PER CODE         C.       WIND LOADS       105 MPH         2.       WIND IMPORTANCE FACTOR, I       1.0         3.       BUILDING CATEGORY       II	4.E1400 KSIC.PERGOLA MEMBERS SHALL MEET OR EXCEED THE FOLLOWING MINIMUM REQUIREMENTS. (EXAMPLE SPECIES: #2 WESTERN CEDAR)700 PSI1. $F_B$ 700 PSI2. $F_V$ 155 PSI3. $F_C$ 650 PSI
4.WIND EXPOSUREB5.INTERNAL PRESSURE COEFF. $0.15$ 6.COMPONENTS AND CLADDING DESIGN VALUE (U.N.O.) $25 \text{ PSF}$ D.SEISMIC LOADS $1.$ 1.CATEGORYII2. $S_S$ = $0.109$	<ul> <li>4. E 1000 KSI</li> <li>D. ALL WOOD FRAMING MEMBERS INDICATED ARE NOMINAL SIZES. PROVIDE ACTUAL DRESSED SIZES, KILN-DRIED, WITH MAXIMUM IN-PLACE MOISTURE CONTENT OF 19%.</li> <li>E. ALL BOLTS ARE A36 OR A307, GRADE 1, AND ALL NAILS ARE COMMON WIRE NAILS UNLESS NOTED OTHERWISE.</li> <li>F. LAY ALL STRUCTURAL PANELS WITH FACE GRAIN PERPENDICULAR TO SUPPORTING MEMBER!</li> </ul>
3. $S_1=$ 0.062         4.       SEISMIC IMPORTANCE FACTOR, I       1.0         5. $S_{DS}=$ 0.116         6. $S_{D1}=$ 0.099         7.       SITE CLASS       D         8.       SEISMIC DESIGN CATEGORY       B	<ul> <li>AND OFFSET END JOINTS 4'-0". PANELS TO BE APA RATED AND STAMPED FOR THE LOADING SHOWN IN SECTION 2 "DESIGN" AND SHOULD MATCH THE SUPPORT SPACING SHOWN ON TH PLANS.</li> <li>G. ROOF DECKING SHALL BE 19/32" THICK APA RATED EXTERIOR GRADE SHEATHING FASTENED WITH 10d NAILS AT 6" O.C. ON EDGES AND 12" O.C. IN FIELD UNLESS NOTED OTHERWISE.</li> <li>H. FASTENER QUALITY, QUANTITY, SIZE, AND SPACING SHALL COMPLY WITH IBC FASTENING</li> </ul>
<ul> <li>9. SEISMIC FORCE-RESISTING SYSTEM LIGHT-FRAME WOOD SHEATHED WITH WOOD STRUCTURAL PANELS RATED FOR SHEAR RESISTANCE</li> <li>10. DESIGN BASE SHEAR; V</li> <li>11. C<sub>S</sub>=</li> <li>12. R=</li> <li>13. ANALYSIS PROCEDURE</li> <li>14 CONCE</li> </ul>	SCHEDULE (TABLE 2304.9) UNLESS NOTED OTHERWISE. I. ALL WOOD IN CONTACT WITH CONCRETE OR EXPOSED TO WEATHER SHALL BE PRESERVATIV TREATED.
<ol> <li>CONTRACTOR SHALL FIELD VERIFY ALL EXISTING DIMENSIONS PRIOR TO FABRICATION.</li> <li>IF DISCREPANCIES EXIST BETWEEN SPECIFICATIONS, CONTRACT DRAWINGS, AND/OR SHOP DRAWINGS NOTIFY THE ENGINEER OF RECORD.</li> <li>THE CONTRACTOR SHALL REVIEW DRAWINGS FROM ALL OTHER DISCIPLINES FOR PERTINENT MISC. ITEMS OR INFORMATION RELATED TO THE STRUCTURAL WORK AND COORDINATE AS REQUIRED.</li> <li>THE BUILDING IS NOT STRUCTURALLY STABLE UNTIL ALL CONNECTIONS FRAMING SHEAR WALLS</li> </ol>	<ol> <li>POST CONSTRUCTION ANCHORS         <ul> <li>POST INSTALLED ANCHORS ARE NOT TO BE SUBSTITUTED FOR ANCHORS SHOWN ON TH DRAWINGS. IF CAST IN PLACE ANCHOR IS DETERMINED TO BE OUT OF TOLERANCE OR OMITTED, CONTRACTOR MUST GENERATE A REQUEST FOR INFORMATION IN REGARDS SOLUTION. THIS SECTION IS NOT MEANT AS A DIRECT SUBSTITUTION FOR CAST IN PL4 ANCHORS.</li> <li>EMBEDMENT DEPTH SHALL BE DEFINED AS THE DISTANCE FROM THE SURFACE OF THE BEARING BASE MATERIAL TO THE DEEPEST PART OF THE ANCHOR AFTER THE ANCHOR BEEN DRIVEN INTO THE HOLE</li> </ul> </li> </ol>
<ul> <li>PERMANENT BRACING, AND EXTERIOR LOAD-BEARING WALLS ARE COMPLETE AND HAVE ACHIEVED THEIR RESPECTIVE DESIGN STRENGTHS. CONTRACTOR IS SOLELY RESPONSIBLE FOR MAINTAINING STRUCTURAL STABILITY DURING ERECTION AND CONSTRUCTION. TEMPORARY BRACING SYSTEMS ARE NOT TO BE REMOVED UNTIL STRUCTURAL WORK IS COMPLETE.</li> <li>PROVIDE ADEQUATE SHORING DURING CONSTRUCTION TO RESIST FORCES SUCH AS WIND AND UNBALANCED LOADS DUE TO CONSTRUCTION. DO NOT BACKFILL UNTIL CONCRETE HAS CURED 14 DAYS.</li> </ul>	<ul> <li>C. OBSERVATION AND VERIFICATION OF EMBEDMENT HOLE CLEANING, DEPTH, AND ANCH INSTALLATION IS REQUIRED FOR ALL EPOXY ANCHORS.</li> <li>D. EQUIVALENT ANCHORS MAY BE SUBMITTED FOR THE ENGINEER'S APPROVAL. SUBMITTA THE CONTRACTOR'S RESPONSIBILITY AND MUST INCLUDE EVALUATION REPORTS FROM INTERNATIONAL CONFERENCE OF BUILDING OFFICIALS, CURRENT WITH THE REQUIREN OF THE PROJECT.</li> </ul>
<ul> <li>8. FOUNDATIONS</li> <li>A. FOUNDATIONS ARE DESIGNED TO BEAR ON 1500 PSF FOR STRIP FOOTINGS ON SOIL AND 1500 PSF FOR SPREAD FOOTINGS ON SOIL.</li> <li>B. CONTRACTOR SHALL REMOVE EXISTING FOOTINGS AND FOUNDATIONS THAT ARE LOCATED WITHIN THE FOOTPRINT OF THE NEW BUILDING.</li> </ul>	<ul> <li>STRUCTURAL ENGINEER SITE OBSERVATIONS</li> <li>A. THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINI STRUCTURE AND, EXCEPT WHERE SPECIFICALLY SHOWN, DO NOT INDICATE THE MET OR MEANS OF CONSTRUCTION. THE CONTRACTOR SHALL SUPERVISE AND DIRECT TH WORK AND SHALL BE SOLELY RESPONSIBLE FOR ALL CONSTRUCTION MEANS, METHO PROCEDURES, TECHNIQUES, AND SEQUENCES.</li> </ul>
<ul> <li>9. CONCRETE <ul> <li>A. CAST-IN-PLACE CONCRETE CONSTRUCTION SHALL CONFORM TO LATEST APPLICABLE AMERICAN CONCRETE INSTITUTE DOCUMENTS, ACI-301, 305, 306, 315, 318, AND 347 UNLESS NOTED OTHERWISE IN THESE CONTRACT DOCUMENTS.</li> <li>B. ALL CONCRETE, UNLESS NOTED OTHERWISE, SHALL DEVELOP A 28 DAY COMPRESSIVE STRENGTH AND HAVE MAXIMUM WATER/CEMENT RATIOS AS FOLLOWS: <ol> <li>FOOTINGS, GRADE BEAMS, WALLS, BEAMS, COLUMNS: 4000 PSI (w/c MAX 0.45)</li> <li>SLAB ON GRADE: 4000 PSI (w/c MAX 0.42)</li> </ol> </li> </ul></li></ul>	<ul> <li>B. THE ENGINEER SHALL NOT HAVE CONTROL NOR CHARGE OF, AND SHALL NOT BE RESPONSIBLE FOR, CONSTRUCTION MEANS, METHODS, PROCEDURES, TECHNIQUES, C SEQUENCES, FOR SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE WORK, FOR THE ACTS OR OMISSION OF THE CONTRACTOR, SUBCONTRACTOR, OR AN OTHER PERSONS PERFORMING ANY OF THE WORK, OR THE FAILURE OF ANY OF THEN CARRY OUT THE WORK IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.</li> <li>C. PERIODIC SITE OBSERVATION BY FIELD REPRESENTATIVES OF LEIGH &amp; O'KANE L.L.C. SOLELY FOR THE PURPOSE OF DETERMINING IF THE WORK OF THE CONTRACTOR IS PROCEEDING IN ACCORDANCE WITH THE STRUCTURAL CONTRACT DOCUMENTS. THIL LIMITED SITE OBSERVATION SHOULD NOT BE CONSTRUED AS EXHAUSTIVE OR CONTINUOUS TO CHECK THE QUALITY OR QUANTITY OF WORK, BUT RATHER PERIOE</li> </ul>
<ul> <li>3. ELEVATED COMPOSITE SLAB: 4000 PSI (w/c MAX 0.42)</li> <li>4. PROVIDE 6% AIR ENTRAINMENT IN ALL CONCRETE MIX DESIGNS</li> <li>C. SLABS-ON-GRADE SHALL DEVELOP A 90 DAY COMPRESSIVE STRENGTH.</li> <li>D. IT IS THE INTENT OF THESE CONCRETE SPECIFICATIONS THAT THE CONTRACTOR SUPPLY CONCRETE MIXES WITH A MINIMUM AMOUNT OF WATER IN ORDER TO LIMIT PLASTIC SHRINKAGE CRACKING IN FRESHLY PLACED CONCRETE. IT IS EXPECTED THAT PRODUCING WORKABILITY FOR CONCRETE MIXES WILL REQUIRE THE ADDITION OF WATER-REDUCING CHEMICAL ADMIXTURES.</li> </ul>	AN EFFORT TO GUARD THE OWNER AGAINST DEFECTS AND DEFICIENCIES IN THE W THE CONTRACTOR. 22. SUBMITTALS A. ALL SHOP DRAWINGS AND SUBMITTALS MUST BE REVIEWED AND APPROVED BY THE CONTRACTOR PRIOR TO SUBMITTAL. ENGINEER'S REVIEW OF SHOP DRAWINGS IS LIM CHECKING FOR GENERAL CONFORMANCE WITH DESIGN DRAWINGS AND STREMETH OF
<ul> <li>E. CONCRETE MIX DESIGNS SHALL INCLUDE ALL APPLICABLE ADMIXTURES.</li> <li>F. CONCRETE SLUMP SHALL BE A MAXIMUM OF 4" +/- 1" (ASTM C-145) AS DELIVERED IN THE FIELD. CONTRACTOR MAY USE CHEMICAL ADMIXTURES TO ATTAIN A MAXIMUM SLUMP OF 8" FOR WORKABILITY IF ADMIXTURE IS TO BE ADDED IN THE FIELD IS SHALL BE ADDED THROUGH THE USE OF AN EXTERNAL MEASURING DEVICE (I.E. 5 GALLON BUCKET).</li> <li>G. CONCRETE EXPOSED TO WEATHER, PARKED VEHICLES, AND/OR DEICING CHEMICAL SHALL CONTAIN 6% (+/- 1%) ENTRAINED AID BY VOLUME.</li> </ul>	<ul> <li>COMPONENTS AND MATERIALS. CONTRACTOR IS RESPONSIBLE FOR ANY CHANGES FRO DESIGN DRAWINGS, QUANTITIES, DIMENSIONAL ERRORS, OR OMISSIONS IN THE SHO DRAWINGS.</li> <li>B. ALL SHOP DRAWINGS MUST BE ORIGINAL DOCUMENTS AND SHALL NOT BE REPRODUC THESE CONTRACT DOCUMENTS.</li> <li>C. SUBMIT SHOP DRAWINGS DETAILING FABRICATION OF EACH MEMBER AND ITS CONNE</li></ul>
<ul> <li>H. CHAMFER ALL EXPOSED CORNERS OF CONCRETE WALLS, 3/4" UNLESS NOTED OTHERWISE.</li> <li>I. ALL CONTROL JOINTS IN CONCRETE SLABS-ON-GRADE SHALL BE CUT TO 1/3 OF DEPTH WHEN USING WET-CUTTING PROCESS AND 1/4 OF DEPTH WHEN USING EARLY-ENTRY DRY-CUT PROCESS. CUT JOINTS AS SOON AS APPLICABLE PER PROCESS USED AFTER CONCRETE HAS BEEN PLACED WITHOUT DISLODGING AGGREGATE, OR USE A KEYED COLD JOINT.</li> <li>J. CUT SLABS-ON-GRADE INTO AREAS OF APPROXIMATELY 225 SQUARE FEET MAINTAINING AS CLOSE TO SQUARE AREAS AS POSSIBLE. LENGTH TO WIDTH RATIOS OF JOINTED PANELS SHALL NOT EXCEED 1.5:1. COORDINATE LOCATIONS OF CONTROL JOINTS WITH ARCHITECT.</li> </ul>	<ul> <li>DETAIL DRAWINGS ARE TO BE PREPARED UNDER THE SUPERVISION OF A LICENSED PROFESSIONAL ENGINEER IN THE STATE OF MISSOURI FOR THE FOLLOWING ITEMS.</li> <li>1. PREFABRICATED WOOD TRUSSES</li> <li>D. CONTRACTOR SHALL SUBMIT STRUCTURAL SHOP DRAWINGS FOR THE FOLLOWING ITE</li> <li>1. CONCRETE MIX DESIGN AND MATERIALS</li> <li>2. CONCRETE REINFORCING STEEL</li> <li>E. PROVIDE A FINAL, "FOR CONSTRUCTION" SET OF ALL SHOP DRAWINGS TO THE ENGIN RECORD PRIOR TO FABRICATION OR CONSTRUCTION OF THOSE ITEMS.</li> </ul>
<ul> <li>CONTROL JOINTS IN WALLS SHALL BE PLACED AT 20-0" O.C. MAXIMUM UNLESS NOTED OTHERWISE. LOCATE JOINTS BESIDE PIERS INTEGRAL WITH WALLS, NEAR CORNERS, AND IN CONCEALED LOCATIONS WHERE POSSIBLE. CONSTRUCTION JOINTS MAY BE PLACED IN LIEU OF CONTROL JOINTS AT CONTRACTOR'S DISCRETION. COORDINATE LOCATION OF CONTROL JOINTS WITH ARCHITECT.</li> <li>PRIOR TO PLACING CONCRETE IN ANY LOCATION, IT IS THE RESPONSIBILITY OF THE GENERAL CONTRACTOR TO HAVE THOROUGHLY CHECKED AND COORDINATED ALL DIMENSIONS, ELEVATIONS, OPENINGS, RECESS, AND BLOCKOUTS AS SHOWN ON ANY CONTRACT DRAWINGS. IN THE EVENT ERRORS. CONFLICTS. OR OMISSIONS FXIST IT SHALL BE THE CONTRACTOR'S</li> </ul>	<ul> <li>23. SPECIAL INSPECTIONS <ul> <li>A. THE FOLLOWING MINIMUM ITEMS REQUIRE SPECIAL INSPECTION IN ACCORDANCE W</li> <li>BUILDING CODE. LOCAL CITY MAY REQUIRE ADDITIONAL SPECIAL INSPECTIONS.</li> <li>1. CONCRETE PLACING</li> <li>2. CONCRETE REINFORCING</li> <li>3. BOLTS EMBEDDED IN CONCRETE / POST-INSTALLED ANCHORS</li> <li>4. ANCHOR RODS</li> <li>5. POOE DIADHDAGM ATTACHMENT</li> </ul> </li> </ul>
<ul> <li>RESPONSIBILITY TO CONTACT THE ARCHITECT OR ENGINEER FOR NECESSARY CORRECTIVE ACTION.</li> <li>M. EMBEDDED ITEMS ARE TO BE FURNISHED AND INSTALLED BY THE CONTRACTOR PRIOR TO PLACING CONCRETE.</li> <li>N. ANCHOR RODS AND ANCHOR BOLTS SHALL BE HELD IN PLACE WITH A RIGID TEMPLATE</li> <li>O. HORIZONTAL JOINTS BEYOND THOSE SHOWN IN THE CONTRACT DOCUMENTS SHALL NOT BE CONSTRUCTED WITHOUT THE APPROVAL OF THE ARCHITECT AND ENGINEER.</li> </ul>	<ul> <li>6. SOIL VERIFICATION</li> <li>B. THE CONTRACTOR SHALL REQUEST SPECIAL INSPECTION OF THE ITEMS LISTED ABON TO THOSE ITEMS BECOMING INACCESSIBLE AND UNOBSERVABLE DUE TO PROGRESSI THE WORK.</li> </ul>
<ol> <li>REINFORCING STEEL</li> <li>A. ALL REINFORCING SHALL BE ASTM A615 GRADE 60, EXCEPT WELDED REINFORCING WHICH SHALL BE ASTM A706 GRADE 60.</li> <li>B. ALL WELDED WIRE FABRIC SHALL BE ASTM A82 COLD DRAWN WIRE.</li> <li>C. ALL ACCESSORIES FOR SUPPORTING REINFORCING SHALL BE GALVANIZED OR HAVE PLASTIC-</li> </ol>	
<ul> <li>COATED FEET.</li> <li>D. PROVIDE CORNER BARS AT THE EXTERIOR FACE OF ALL WALL AND FOOTING CORNERS EQUAL TO HORIZONTAL BARS.</li> <li>E. REINFORCING SHALL BE DETAILED, FABRICATED, PLACE, AND SUPPORTED IN ACCORDANCE WITH ACI 315, LATEST APPLICABLE EDITION.</li> <li>F. STANDARD COVERAGE OF REINFORCING SHALL BE AS FOLLOWS UNLESS NOTED OTHERWISE.</li> <li>1. PERMANENTLY EXPOSED TO WEATHER</li> <li>A. CAST AGAINST EARTH 3"</li> </ul>	
B. IN CONTACT WITH WATER 3" C. FORMED 2" 2. NOT EXPOSED TO EARTH OR WEATHER A. SLABS AND WALLS 3/4" B. BEAMS AND COLUMNS 1 1/2" G. SPLICE LENGTH 1. 3000 PSI CONCRETE	
A.NON-COATED55 db (BAR DIAMETER)B.EPOXY COATED83 db2.4000 PSI CONCRETE48 dbA.NON-COATED48 dbB.EPOXY COATED72 db3.5000 PSI CONCRETE43 db	
<ul> <li>B. EPOXY COATED</li> <li>B. EPOXY COATED</li> <li>64 db</li> <li>H. REINFORCEMENT PARTIALLY EMBEDDED IN CONCRETE SHALL NOT BE FIELD BENT, EXCEPT AS SHOWN AND NOTED ON THE CONTRACT DRAWINGS OR PERMITTED BY THE ENGINEER OF RECORD.</li> <li>I. ALL REINFORCEMENT AND EMBEDDED ITEMS INCLUDING PLATES AND ANCHOR RODS SHALL BE ACCURATELY PLACED, ADEQUATELY SUPPORTED, AND SECURED AGAINST DISPLACEMENT BEFORE CONCRETE IS PLACED. NEITHER REINFORCEMENT NOR EMBEDDED ITEMS SHALL BE PLACED INTO FRESHLY PLACED CONCRETE UNLESS APPROVED BY THE ENGINEER OF RECORD.</li> </ul>	<b>15</b> <u>PERGOLA GIRDER FRAMING</u>
<ol> <li>PREFABRICATED WOOD TRUSSES         <ul> <li>TRUSS SPACING TO BE AS SHOWN ON DRAWINGS.</li> <li>LOADS SHOWN IN SECTION 2 "DESIGN LOADS" ARE A MINIMUM. TRUSS DESIGNER IS RESPONSIBLE FOR ESTABLISHING FINAL LOADS USED FOR DESIGN, INCLUDING LIVE, DEAD, SNOW (WITH DRIFTS), WIND, AND SEISMIC LOADS. TRUSS FABRICATOR IS TO SUPPLY SEALED TRUSS SHOP DRAWINGS AND SEALED PLAN PLACEMENT DRAWINGS PREPARED UNDER THE SUPERVISION OF THE SAME LICENSED PROFESSIONAL ENGINEER IN THE STATE OF MISSOURI.</li> <li>TRUSS MANUFACTURER IS RESPONSIBLE FOR DESIGNING, DETAILING, AND PROVIDING ALL TRUSS-TO-TRUSS, TRUSS-TO-WALL, AND TRUSS-TO-BEAM CONNECTIONS, UNLESS NOTED</li> </ul> </li> </ol>	
<ul> <li>OTHERWISE.</li> <li>D. ROOF SHOP DRAWINGS SHALL INCLUDE DETAILED ERECTION DRAWINGS, AS WELL AS DESIGN INFORMATION FOR EACH TRUSS. PROVIDE ALL INFORMATION AS REQUIRED IN THE INTERNATIONAL BUILDING CODE SECTION 2303.4 "TRUSSES", INCLUDING CONNECTION DESIGN.</li> <li>E. TRUSS MEMBERS AND COMPONENTS SHALL NOT BE CUT, NOTCHED, DRILLED, SPLICED, OR OTHERWISE ALTERED IN ANY WAY WITHOUT WORTTON CONCURPTING TO THE DATE OF THE ANY WAY WITHOUT WORTTON CONCURPTING.</li> </ul>	

2 ROOF FRAMING PLAN 1/4" = 1'-0"

—2'x2x18" FTG. \_\_\_\_

-2x8 JOIST PER PLAN 

SHEAR WALL HOLDOWN PER DETAIL 9/S102. 10. 11. 12. 13.

TOP OF CONCRETE SLAB ELEVATION = 99'-0".

#4x5'-0" LONG AT ALL RE-ENTRANT CORNERS.

REFER TO ARCHITECTURAL FOR NON-LOAD BEARING WALL LOCATIONS. REFER TO ARCHITECTURAL FOR ALL DIMENSIONS NOT SHOWN ON THESE DRAWINGS. REFER TO SHEET S102 FOR SHEAR WALL INFOMATION.

ALL JACK STUDS TO BE CARRIED DOWN TO FOUNDATION LEVEL.

CONTRACTOR TO COORDINATE ALL FLOOR AND SLAB PENETRATIONS WITH ALL OTHER DISCIPLINES.

ALL SILL ANCHORS TO BE 1/2" DIA. SIMPSON TITEN HD @36" WITH 3 1/2" EMBEDMENT. ALL WALLS TO BE 2X4 @16" O.C. WITH SINGLE 2X4 BOTTOM PLATE AND DOUBLE 2X4 TOP PLATE. GRADE AND SPECIES PER GENERAL NOTES

DURING INSTALLATION OF ALL POST CONSTRUCTION ANCHORS, CARE MUST BE TAKEN TO AVIOD ALL REINFORCING.

**ROOF FRAMING PLAN NOTES:** 

ROOF DECK TO BE 19/32" PLYWOOD. 1.

OPENINGS IN THE ROOF DECK AND WALLS TO BE COORDINATED WITH ALL OTHER DISCIPLINES.

REFER TO ARCHITECTURAL FOR ALL DIMENSIONS NOT SHOWN ON THESE PLANS.

ALL HEADER SIZES PER PLAN. GRADE AND SPECIES PER GENERAL NOTES

4. PROVIDE (2) JACK STUDS UNDER ALL HEADERS UNLESS NOTED OTHERWISE ON PLANS OR SCHEDULES.

ALL JACK STUDS TO BE CARRIED DOWN TO FOUNDATION LEVEL.

NON-LOAD BEARING STUD WALLS SHALL HAVE 1" GAP BETWEEN TOP OF STUD AND BOTTOM OF ROOF FRAMING 8.

REFER TO SHEET S102 FOR SHEAR WALL INFORMATION.

9. ALL PERGOLA FRAMING TO BE WESTERN CEDAR #2 GRADE UNLESS NOTED OTHERWISE

![](_page_5_Figure_40.jpeg)

**FOUNDATION PLAN NOTES:** 

![](_page_5_Figure_42.jpeg)

![](_page_5_Picture_43.jpeg)

![](_page_6_Figure_1.jpeg)

JOIST PER PLAN

![](_page_6_Picture_3.jpeg)

![](_page_7_Figure_0.jpeg)

![](_page_7_Picture_6.jpeg)

![](_page_8_Figure_0.jpeg)

![](_page_8_Picture_3.jpeg)

![](_page_9_Figure_0.jpeg)

56  $\sim$ 

![](_page_9_Figure_3.jpeg)

![](_page_10_Figure_0.jpeg)

![](_page_10_Figure_1.jpeg)

![](_page_10_Figure_2.jpeg)

![](_page_10_Figure_3.jpeg)

![](_page_10_Figure_5.jpeg)

![](_page_11_Figure_0.jpeg)

CONT. RIDGE VENT, TYP -

![](_page_11_Figure_2.jpeg)

![](_page_11_Figure_3.jpeg)

![](_page_11_Figure_5.jpeg)

	FLOORS		WALL FINISH			
ROOM NAME	FLOOR	NORTH WALL	EAST WALL	SOUTH WALL		
STORAGE	WC1	P1	P1	P1		
WOMEN	WC1	P1	P1	P1		
MEN	WC1	P1	P1	P1		
POOL EQUIPMENT	WC1	P1	P1	P1		
	ROOM NAME STORAGE WOMEN MEN POOL EQUIPMENT	FLOORSFLOORSSTORAGEWC1WOMENWC1MENWC1POOL EQUIPMENTWC1	FLOORSROOM NAMEFLOORNORTH WALLSTORAGEWC1P1WOMENWC1P1MENWC1P1POOL EQUIPMENTWC1P1	FLOORSWALROOM NAMEFLOORNORTH WALLEAST WALLSTORAGEWC1P1P1WOMENWC1P1P1MENWC1P1P1POOL EQUIPMENTWC1P1P1		

![](_page_11_Figure_8.jpeg)

CHAMFERED STEM WALL BELOW -

PAINTED LP TRIM BOARD -

EXTERIOR WALL SIDING -

SEALANT -

LP TRIM BOARD;LAP SIDING BEYOND 1X PAINTED TRIM BOARD BEYOND SEALANT AND BACKER ROD, TYP 1X4 PAINTED TRIM BOARD 1X PAINTED TRIM BOARD SEALANT AND BACKER ROD, TYP PREFINISHED ALUM FLASHING INSTALLED UNDER TRIM AND BEHIND

![](_page_11_Figure_13.jpeg)

 $C8 \frac{\text{WATER FOUNTAIN TRIM DETAILS}}{1 \frac{1}{2} = 1'-0''}$ 

![](_page_11_Figure_15.jpeg)

![](_page_11_Figure_16.jpeg)

![](_page_11_Figure_17.jpeg)

![](_page_11_Figure_18.jpeg)

![](_page_11_Figure_19.jpeg)

PER WALL TYPE

![](_page_11_Figure_20.jpeg)

![](_page_11_Figure_21.jpeg)

[	— 12 ———	+	- 11	-	- 10	-	- 9
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	10	I	11	1	10	1	0
L	— 12 —	1	- 11	i	- 10	i	- y <u> </u>

RCUITING		POWER DEVICE	<u>s</u>
	HOME RUN (2#12 1#12G UNO)	¢	DUPLEX RECEPTACLE.
	INDICATES 2 PHASE, 1 N, & 1 GRD CONDUCTOR	<del>\$</del>	LINE THRU DEVICE INDICATES ABOVE COUNTER
	HOME RUN: INDICATES SHARED CIRCUIT	<del>O</del> CFI	SPECIAL DUPLEX RECEPTACLE
	HOME RUN: INDICATES #10 CONDUCTORS ENTIRELY	Gri	(Grci, ISULATED GROUND, ETC.)
- UGE	UNDERGROUND ELECTRICAL	$\bigcirc_{5-50R}$	SIMPLEX RECEPTACLE W/NEMA CONFIG AS NOTED
- OHE	OVERHEAD ELECTRICAL	5-50R	MULII-POLE RECEPTACLE W/NEMA CONFIG AS NOTE
TELE	TELECOMMUNICATIONS CONDUIT		CEILING MOUNIED RECEPTACLE
- 061	UNDERGROUND TELECOMMONICATIONS CONDUIT		RECEPTACLE/DEVICE MOUNTED IN TOMBSTONE
TING			POKE-THRU WITH POWER
·	GRID-MOUNTED TROFFER LIGHT FIXTURE		POKE-THRU WITH TELECOMMUNICATIONS
0	STRIP LIGHT FIXTURE		PORE-THRU W/POWER AND TELECOM
<u>ی</u>	SURFACE/RECESSED LIGHT FIXTURE		SINGLE GANG FLOOR BOX (2, 3, 4 GANG SIMILAR)
∎ю	WALL-MOUNTED LIGHT FIXTURE		DIVIDED POWER POLE
<b>-</b>	POLE-MOUNTED LIGHT FIXTURE		CLOCK RECEPTACLE
$\otimes$	EXIT LIGHT		PLUG MOLD / WIRE MOLD AS SPECIFIED
€	BATTERY-OPERATED EMERGENCY LIGHT (WALL MTD)	$\bigcirc$	JUNCHON BOX
<b>Þ</b> ⊒¤	BATTERY-OPERATED EMERGENCY LIGHT (CEILING MTD)	LH	PUSH BUTTON
	WALL–MOUNTED COMBINATION EXIT LIGHT/ BATTERY–OPERATED EMERGENCY LIGHT LIGHT SWITCH – SINGLE POLE		MOTOR
¢ 2	LIGHT SWITCH - 3-WAY		
Ψ <u>3</u> \$	LIGHT SWITCH - 4-WAY		
¥4 \$	LIGHT SWITCH - KFY		
Ψ <i>K</i> \$_	LIGHT SWITCH - DIMMER		
Ψ <i>D</i> \$	LIGHT SWITCH - PILOT LIGHT		
Ψ <i>ΡL</i> \$	LIGHT SWITCH $-2$ POLF		
Ψ2Ρ <b>(</b> D	LIGHT SWITCH - 3-WAY DIMMER		
¥3	WALL-MOUNTED MOTION SWITCH		
¥M ⟨M⟩	CEILING-MOLINTED MOTION SWITCH		
<u>ি</u> দ্ব	SWITCHBANK - REFER TO DETAILS		
	DIMMER BOARD		
	REMOTE CONTROL SWITCH AS SCHEDULED		
	REMOTE  CONTROL  SWITCH  AS  SCHEDDLED		
	TIMECLUCK - REFER TO FLAINS / DETAILS		
JIPMENT			
C'	DISCONNECT SWITCH. RE: PLANS FOR INFORMATION.		
$\boxtimes$	MAGNETIC MOTOR STARTER		
$\boxtimes$	COMBINATION DISCONNECT SWITCH / MOTOR STARTER		
\$	TOGGLE-TYPE DISCONNECT. FURNISH WITH THERMAL MOTOR PROTECTION WHERE SERVING FANS/PUMPS.		
	SURFACE PANELBOARD		
	RECESSED PANELBOARD		
	DISTRIBUTION PANELBOARD		
	SWITCHBOARD. FEEDER/MAIN CIRCUIT BREAKER SECTION AND DISTRIBUTION SECTION.		
IERAL SYMB	<u>OLS</u>		
$\bullet$	INDICATES CONNECT TO EXISTING		
$\tilde{\oplus}$	INDICATES ELEVATION		
T	EQUIPMENT TAG. REFER TO CONNECTIONS SCHEDULE		
	FOR ELECTRICAL CONNECTIONS AND LOAD INFO FOR KITCHEN, SHOP, ETC. EQUIPMENT		

#### ABBREVIATIONS

A/E	ARCHITECT / ENGINEER	ELEV	ELEVATION	ΜН	MANHOLE
AFF	ABOVE FINISHED FLOOR	ЕМ	EMERGENCY FIXTURE/DEVICE	MLO	MAIN LUGS ONLY
AFG	ABOVE FINISHED GRADE	EWT	ENTERING WATER TEMPERATURE	NFA	NET FREE AREA
AG	ABOVE GRADE	ΕX	EXISTING ITEM	NL	NIGHT LIGHT
AHJ	AUTHORITY HAVING JURISDICTION	FFA	FROM FLOOR ABOVE	OA	OUTSIDE AIR
AHU	AIR HANDLING UNIT	FFB	FROM FLOOR BELOW	ORD	OVERFLOW ROOF DRAIN
ARCH	ARCHITECT	FFC0	FINISHED FLOOR CLEAN OUT	P/C	PLUMBING CONTRACTOR
BFP	BACKFLOW PREVENTER	FGC0	FLUSH GRADE CLEAN OUT	PSI	POUNDS PER SQUARE INCH
BG	BELOW GRADE	FL	FLOW LINE	PVC	POLYVINYLCHLORIDE
BLDG	BUILDING	FLR	FLOOR	RA	RETURN AIR
BMS	BUILDING MANAGEMENT SYSTEM	FP	FIRE PROTECTION	RE/REF	REFER / REFERENCE
С	CONDUIT	FPM	FEET PER MINUTE	RÉ	RELIEF FAN
CD	CANDELA	FWCO	FLUSH WALL CLEAN OUT	RL	RELOCATED ITEM
CD	COLD DECK	G	GROUND / GANG	RPZ	REDUCED PRESSURE ZONE
CLG	COOLING	G/C	GENERAL CONTRACTOR	RR	RESTROOM
СМ	COORDINATE MOUNTING HEIGHT	ĠFI	GROUND FAULT CIRCUIT INTERUPTER	SA	SUPPLY AIR
CO	CLEAN OUT	GFIP	GFI-PROTECTED DEVICE	SPD	SURGE PROTECTIVE DEVICE
CTE	CONNECT TO EXISTING	GPM	GALLONS PER MINUTE	ST	SHUNT TRIP
DCVA	DOUBLE CHECK VALVE ASSEMBLY	HD	HOT DECK	TA	TRANSFER AIR
DCW	DOMESTIC COLD WATER	HTG	HEATING	TFA	TO FLOOR ABOVE
DDC	DIRECT DIGITAL CONTROLS	IG	ISOLATED GROUND	TFB	TO FLOOR BELOW
DF	DRINKING FOUNTAIN	JB	JUNCTION BOX	TP	TAMPERPROOF
DHW	DOMESTIC HOT WATER	LED	LIGHT EMITTING DIODE	TYP	TYPICAL
DHWR	DOMESTIC HOT WATER RETURN	LWT	LEAVING WATER TEMPERATURE	UNO	UNLESS NOTED OTHERWISE
DIA	DIAMETER	м/с	MECHANICAL CONTRACTOR	VRF	VARIABLE REFRIGERANT FLOW
DN	DOWN	MA	MIXED AIR	VTR	VENT THROUGH ROOF
E/C	ELECTRICAL CONTRACTOR	MAU	MAKE UP AIR UNIT	WCO	WALL CLEANOUT
EA	EXHAUST AIR	мсв	MAIN CIRCUIT BREAKER	WG	WIRE GUARD
EDF	ELECTRIC DRINKING FOUNTAIN	MECH	MECHANICAL	WP	WEATHERPROOF

	NICAL AND PLUMBING	SYMBO	L LEGEND
SOME SYMBOLS A	ND ABBREVIATIONS ON THIS LEGEND MAY NOT BE USED		
SHEET METAL		PIPING SYMBOL	<u>_S</u>
┃ ┮╨ ╖╷	HIGH EFFICIENCY ROUND DUCT TAKEOFF	$-\bowtie$	SHUTOFF VALVE
	(WITH & WITHOUT MANUAL DAMPER)	— <u>+</u> >+	SHUTOFF VALVE IN RISER
I TH TH	SPIN-IN ROUND DUCT TAKEOFF		BALANCING VALVE
	(WITH & WITHOUT MANUAL DAMFER)		PLUG VALVE
	CONICAL BELLMOUTH ROUND TAKEOFF		AUTO FLOW CONTROL VALVE
			PIPING ELBOW OF
	ROUND DUCT RUNOUT WITH FLEX DUCT	—+ <u>+</u> +—	PIPING TEE
		<u>+</u> _	PIPING ELBOW
	DUCIWORK ELBOW (WITH & WITHOUT TURNING VANES)	ю́	PIPING TEE UP
	FD:FIRE DAMPER FS:FIRE/SMOKE DAMPER		PIPING TEE DOWN
	SD:SMOKE DAMPER BD:BACKDRAFT DAMPER (GRAVITY)		INCREASER / REDUCER
	AUTOMATIC MOTORIZED DAMPER	<del>  </del>	UNION
		]	CAP
<u>8"ø</u> (A) <u>225</u>	SUPPLY DIFFUSER AND DIFFUSER CALLOUT (NECK SIZE TYPE AND CEM)		PIPE FLEX
	LINEAR/SLOT DIFFUSER		SIRAINER
			CHECK VALVE INII INE STRAINER
	RETURN GRILLE OR EXHAUST REGISTER	Τ	TEST PLUG
←	SUPPLY AIR FLOW INDICATOR		GUIDE
	RETURN AND EXHAUST AIR FLOW INDICATOR		ANCHOR
$\square$	THERMOSTAT	_&_	
	IEMPERATURE SENSOR		INIFLE DOTT VALVE
	HUMIDISTAT CONTROL WIRING		AUTOMATIC 2-WAY CONTROL VALVE
	CONTROL MINING	一校一	AUTOMATIC 3-WAY CONTROL VALVE
GENERAL SYME	BOLS		SOLENOID VALVE
	INDICATES CONNECT TO EXISTING		TIES
	INDICATES ELEVATION	P $T$	
↓	FOUIPMENT TAG REFER TO CONNECTIONS SCHEDULE		PRESS/ TEMP GAUGE WITH COCK
(XXX)	FOR MECHANICAL CONNECTIONS AND LOAD INFO		
	FOR KITCHEN, SHOP, ETC. EQUIPMENT	<del></del>	THERMOMETER.
PLUMBING PIPIN	<u>NG</u>	HI LOW	PRESSURE REDUCING VALVE
·	DOMESTIC COLD WATER	$\neg \bigcirc \neg$	
·	DOMESTIC HOT WATER	–∕Ż	RELIEF VALVE
	RECIRCULATING DOMESTIC HOT WATER	l N	
SAN	WASTE ABOVE GRADE OR FLOOR	¥	WATER HAMMER ARRESTER
	WASTE BELOW GRADE OR FLOOR		
/w	WATER SERVICE		
G	GAS (NATURAL)		HOSE RIBR
			WALL HYDRANT
		b @	CLEAN OUT
		[ RPZ ]	REDUCED PRESSURE BACKFLOW PREVENTER
		DCBP	DOUBLE CHECK BACKFLOW PREVENTER
			PLUMBING FIXTURE AND CALLOUT
		$\frac{WU-1}{O} = \frac{S-1}{1}$	FD: FLOOR DRAIN, AD: AREA DRAIN,
			FS: FLOOR SINK
		(Õ) <u>RD–1</u>	KU: KUUF UKAIN ORD: OVERFLOW ROOF DRAIN
		<b>`</b>	

#### SHEET INDEX

ME001 COVER SHEET ME002 SPECIFICATIONS ME101 SITE PLAN M101 MECHANICAL PLAN M201 MECHANICAL SCHEDULES & DETAILS E101 ELECTRICAL PLAN E201 ELECTRICAL SCHEDULES & DETAILS

#### GEN. MECHANICAL NOTES

- 1. COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED VERSION OF THE INTERNATIONAL MECHANICAL CODE,
- LOCAL AND STATE CODES, AND REQUIREMENTS OF THE AHJ. 2. ANY POWER FOR CONTROL SYSTEMS TO BE PROVIDED BY E/C IS INDICATED ON ELECTRICAL PLANS. ANY ADDITIONAL LINE VOLTAGE OR LOW VOLTAGE POWER REQUIRED BY THE M/C OR SUBCONTRACTORS TO HAVE A FULLY FUNCTIONING SYSTEM SHALL BE PROVIDED BY THE M/C CONTRACTOR OR SUBS. 3. ALL EQUIPMENT SHALL BE ADEQUATELY AND PROPERLY SUPPORTED
- AND FASTENED FROM STRUCTURE. 4. ALL EQUIPMENT AND ACCESSORIES INSTALLED IN CONCEALED SPACES REQUIRING ACCESS SHALL BE PROVIDED WITH ACCESS DOORS MEETING ANY FIRE REQUIREMENTS OF THE WALL/CEILING THEY ARE INSTALLED.
- 5. EACH AIR HANDLING UNIT OVER 2000CFM SHALL BE PROVIDED WITH A SMOKE DETECTOR TO SHUT DOWN THE UNIT PER IMC 606 AS REQUIRED BY AHJ. COORDINATE WITH OTHER TRADES.
- 6. START UP AND ADJUST ALL EQUIPMENT AND VERIFY ALL MECHANICAL SYSTEMS IN OPERATE IN ACCORDANCE WITH THEIR INTENDED PURPOSES. SUBMIT BALANCE AND START UP REPORTS TO THE A/E. REFER TO SPECIFICATIONS FOR ANY ADDITIONAL REQUIREMENTS.

#### **GENERAL PLUMBING NOTES**

- 1. COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED VERSION OF THE INTERNATIONAL PLUMBING CODE, LOCAL AND STATE CODES, AND REQUIREMENTS OF THE AHJ.
- 2. NO PIPING SHALL BE INSTALLED WHERE IT WILL SUBJECT TO FREEZING TEMPERATURES. PIPING IN EXTERIOR WALLS SHALL BE INSTALLED ON THE WARM SIDE OF BUILDING INSULATION. INSULATED AND THE CHASE SHALL BE VENTILATED WITH GRILLE'S ALLOWING INDOOR AMBIENT CONDITIONS TO CIRCULATE THROUGH THE CHASE.
- 3. PROVIDE CLEANOUTS IN THE FOLLOWING LOCATIONS: 3.1. IN ALL HORIZONTAL DRAINS (WITHIN THE BUILDING) NOT MORE THAN 100 FEET APART. 3.2. IN BUILDING SEWERS LOCATED NO MORE THAN 100 FEET APART
- MEASURED FROM THE UPSTREAM ENTRANCE OF THE CLEANOUT. 3.3. EACH CHANGE OF DIRECTION OF THE BUILDING DRAIN OR HORIZONTAL WASTE OR SOIL LINES GREATER THAN 45 DEGREES. WHERE MORE THAN ONE CHANGE OF DIRECTION OCCURS IN A RUN OF PIPING, ONLY ONE CLEANOUT SHALL BE REQUIRED FOR EACH 40 FEET OF DEVELOPED LENGTH OF THE DRAINAGE PIPING.
- 3.4. AT THE BASE OF EACH WASTE OR SOIL STACK. 3.5. NEAR THE JUNCTION OF THE BUILDING DRAIN AND BUILDING SEWER.

#### **GENERAL ELECTRICAL NOTES**

- 1. COMPLETE INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST ADOPTED VERSION OF THE NATIONAL ELECTRICAL CODE, LOCAL AND STATE CODES, AND REQUIREMENTS OF THE AHJ.
- 2. COORDINATE LOCATIONS OF RECEPTACLES, SWITCHES, ETC. WITH ARCHITECTURAL CASEWORK AND ELEVATIONS. 3. REFER TO MOUNTING HEIGHTS DETAIL FOR MOUNTING HEIGHTS OF
- ALL DEVICES NOT INDICATED OTHERWISE. 4. PROVIDE ALL EMPTY CONDUITS WITH PULL STRINGS AND BUSHED ENDS.
- 5. CONTRACTOR SHALL CONCEAL ALL CONDUIT, FITTINGS, AND DEVICES FROM VIEW WHERE REASONABLY POSSIBLE.

#### **COORDINATION NOTES**

- 1. COORDINATE REQUIREMENTS FOR INSTALLATION OF SYSTEMS AND 1. SOME ROOM NAMES MAY NOT BE SHOWN FOR PURPOSE OF EQUIPMENT WITH ALL OTHER TRADES. 2. THE CONTRACTOR SHALL COORDINATE THE ROUTING AND PATH OF ALL SYSTEMS, CONDUITS, PIPES, DUCTS, ETC WITH THE POSITION 2. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MAINTAIN AND LAYOUT OF THE STRUCTURE. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING NECESSARY OFFSETS, TURNS, RISES AND DROPS FOR SYSTEMS AND COMPONENTS AS NEEDED TO INSTALL THE MEP SYSTEMS TO CLEAR STRUCTURE, CEILINGS, ETC AND OTHER SYSTEMS IN POTENTIAL CONFLICT WITH ROUTING. 3. COORDINATE WORK WITH OTHER TRADES TO INSTALL SYSTEMS ABOVE 3. THESE DRAWINGS ARE DIAGRAMMATIC. THE CONTRACTOR SHALL
- CEILING HEIGHTS INDICATED ON ARCHITECTURAL PLANS. 4. CHECK SPACE REQUIREMENTS WITH OTHER TRADES AND STRUCTURE/CONSTRUCTION TO ENSURE THAT ALL MATERIALS AND EQUIPMENT CAN BE INSTALLED IN THE SPACE ALLOTTED INCLUDING FINISHED SUSPENDED CEILINGS AND OTHER SPACES, CHASES, ETC WITHIN THE BUILDING. MAKE MODIFICATIONS THERETO AS REQUIRED 4. FINAL LOCATIONS OF ALL DEVICES, LIGHT FIXTURES, EQUIPMENT AND APPROVED.
- 5. TRANSMIT TO OTHER TRADES ALL INFORMATION REQUIRED FOR WORK TO BE PROVIDED UNDER THEIR RESPECTIVE SECTIONS IN AMPLE TIME FOR INSTALLATION. 6. WHEREVER WORK INTERCONNECTS WITH WORK OF OTHER TRADES, 5. THE CONTRACTOR SHALL OBTAIN ALL REQUIRED PERMITS,
- COORDINATE WITH THOSE TRADES TO ENSURE THAT ALL SUBCONTRACTORS HAVE THE INFORMATION NECESSARY SO THAT THEY MAY PROPERLY INSTALL ALL CONNECTIONS AND EQUIPMENT. IDENTIFY ALL ITEMS OF WORK THAT REQUIRE ACCESS SO THAT THE CEILING TRADE WILL KNOW WHERE TO INSTALL ACCESS DOORS AND PANELS. 7. COORDINATE, PROJECT AND SCHEDULE WORK WITH OTHER TRADES IN
- ACCORDANCE WITH THE CONSTRUCTION SEQUENCE. 8. DRAWINGS SHOW THE GENERAL RUNS OF CONDUITS, PIPING AND DUCTWORK AND APPROXIMATE LOCATION OF OUTLETS. ANY SIGNIFICANT CHANGES IN LOCATION OF ITEMS NECESSARY IN ORDER TO MEET FIELD CONDITIONS SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT/ENGINEER AND RECEIVE HIS APPROVAL BEFORE SUCH ALTERATIONS ARE MADE. ALL SUCH MODIFICATIONS
- SHALL BE MADE WITHOUT ADDITIONAL COST TO THE OWNER. 9. CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION AND REPAIR OF SURFACES, AREAS AND PROPERTY THAT MAY BE DAMAGED AS A RESULT OF CONSTRUCTION ACTIVITIES. 10. ADJUST LOCATION OF PIPING, DUCTWORK, ETC. TO PREVENT
- INTERFERENCES, BOTH ANTICIPATED AND ENCOUNTERED. DETERMINE THE EXACT ROUTE AND LOCATION OF EACH ITEM PRIOR TO FABRICATION. MAKE OFFSETS, TRANSITIONS AND CHANGES IN DIRECTION IN SYSTEMS AS REQUIRED TO MAINTAIN ADEQUATE CLEARANCES AND HEADROOM.
- 11. WHEREVER THE WORK IS OF SUFFICIENT COMPLEXITY, PREPARE ADDITIONAL COORDINATION DRAWINGS AND ORGANIZE ON-SITE MEETINGS WITH ALL RELATED SUBCONTRACTORS TO COORDINATE THE WORK BETWEEN TRADES . DRAWINGS SHALL CLEARLY SHOW THE WORK AND ITS RELATION TO THE WORK OF OTHER TRADES, AND BE SUBMITTED FOR REVIEW PRIOR TO COMMENCING SHOP FABRICATION OR ERECTION IN THE FIELD.
- 12. COORDINATE WITH LOCAL UTILITY PROVIDERS FOR THEIR REQUIREMENTS FOR SERVICE CONNECTIONS AND PROVIDE ALL NECESSARY PAYMENTS, MATERIALS, LABOR AND TESTING TO ACCOMPLISH THE WORK. 13. COORDINATE THE MOUNTING OF SUSPENDED LIGHT FIXTURES
- UTILIZING INDIRECT LIGHT SO THAT CONDUIT, DUCTWORK, STRUCTURAL MEMBERS, ETC. ARE NOT LOCATED DIRECTLY ABOVE THE LIGHT FIXTURE. MAINTAIN A MINIMUM OF 24" CLEARANCE FROM THESE ITEMS WHENEVER POSSIBLE.

#### **GENERAL NOTES**

- CLARIFYING PLAN. REFER TO ARCHITECTURAL PLANS FOR REFERENCE TO ROOM NAMES NOT SHOWN. AND KEEP AT THE JOB SITE, AN UP TO DATE SET OF "RECORD DRAWINGS" SHOWING ALL CHANGES FROM THE ORIGINAL PLANS. THE CONTRACTOR SHALL DELIVER THE "RECORD DRAWINGS" TO THE ENGINEER AT THE CONCLUSION OF THE PROJECT ELECTRONICALLY.
- VERIFY ALL CONDITIONS (NEW AND EXISTING), DIMENSIONS, AND CLEARANCES PRIOR TO THE COMMENCEMENT OF WORK AND SHALL INCLUDE ALL COSTS, EQUIPMENT, MATERIAL, ACCESSORIES, ETC. REQUIRED FOR A FULLY COMPLETE, FUNCTIONAL AND CODE COMPLIANT INSTALLATION. ETC SHALL BE INDICATED ON THE ARCHITECTURAL DRAWINGS. ALL DIMENSIONAL INFORMATION SHALL BE OBTAINED FROM
- ARCHITECTURAL PLANS. NO DIMENSIONAL INFORMATION SHALL BE OBTAINED FROM MEP DRAWINGS. APPROVALS, LICENSES, ETC. AS NEEDED FOR THE COMPLETE INSTALLATION AND PROJECT. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER FOR ALL FEES AND DATA

NEEDED FOR THIS.

![](_page_12_Picture_39.jpeg)

![](_page_12_Picture_41.jpeg)

APPLICABILITY A. These general requirements apply to all divisions (21, 22, 23, 26, 27, 28). Refer to individual divisions as included for specific information regarding each trade or scope of

GENERAL MECHANICAL, ELECTRICAL AND PLUMBING REQUIREMENTS

- 2. GENERAL REQUIREMENTS A.Furnish & install all labor & materials required for complete, functioning, mechanical &
- plumbing systems w/ all associated equipment & apparatus as shown on plans. B. Obtain & pay for all permits required for execution of this work & shall make arrangements for modifications to water, gas & sewer connections to building as required
- C. All materials shall be new & shall bare UL label where applicable. D. Visit site & observe conditions under which work will be done. Any discrepancies shall be called to architect's attention. No subsequent allowance will be made in contract for
- any error or negligence on contractor's part. E. Final acceptance of work shall be subject to condition that all systems, equipment, apparatus & appliances operate satisfactorily as designed & intended. Work shall include required adjustment of systems & control equipment installed under these
- specifications. F. Warrant to owner quality of materials, equipment, workmanship & operation of equipment provided under these specifications for one year from & after completion of building & acceptance of mechanical systems by owner.
- G.All materials installed in plenums shall be noncombustible or have flame/smoke index of no more than 25/50 in accordance w/ ASTM e 84 H. Requirements under Division one & general & supplementary conditions of these
- specifications shall be part of this section. Contractor shall become thoroughly acquainted w/ its contents as to requirements that affect this Division of work required under this section includes material. Equipment, appliances, Transportation, Services, & labor required to complete entire system as required by drawings & specifications.
- I. The specifications & drawings for project are complementary, & portions of work described in one, shall be provided as if described in both. In event of discrepancies notify engineer & request clarification prior to proceeding w/ work involved. EXTENT OF CONTRACT WORK
- A.Provide MEP systems indicated on drawings, specified or reasonably implied. In addition to specific equipment called out in plans and specifications, provide every device, component, programming, interlocking and accessory necessary for proper operation and completion of totally functional MEP systems
- B.In no case will claims for "Extra Work" be allowed for work about which Contractor could have been informed before bids were taken
- C. Contractor shall become familiar with equipment provided by other contractors that require plumbing connections and controls.
- D. Electrical work required to install and control plumbing equipment, which is not shown on plans or specified under Division 26, shall be included in Contractor's base bid proposal.
- E. All automatic temperature control devices shall be mounted as indicated in automatic temperature control section of specifications.
- F. The cost of larger wiring, conduit, control and protective devices resulting from installation of equipment which was not used for basis of design as outlined in specifications shall be paid for by the supplying Contractor at no cost to Owner or Architect Engineer
- G.Contractor shall be responsible for providing supervision to other trade Contractors to insure that required connections, interlocking and interconnection of MEP equipment is made to attain intended control sequences and system operation. H. Contractor shall obtain complete MEP data on shop drawings and shall list this data on
- an approved form that shall be presented on request, to other trade Contractors. Data shall be complete with wiring diagrams received to date and shall contain necessary data on electrical components of plumbing equipment such as HP, voltage, amperes, watts, locked rotor current to allow other trade Contractors to order support or other equipment
- coordinated as required in his contract. 4. DEFINITIONS A. Whenever used in these specifications or drawings, following terms shall have indicated
- meanings: B. Furnish: term "Furnish" is used to mean "supply & deliver to project site. Ready for unloading, unpacking, assembly. Installation & similar operations.
- C.Install: term "Install" is used to describe operations at project site including actual "unloading, unpacking. Assembly. Erection. Placing. Anchoring. Applying, working to
- dimension. Finishing, curing, protecting, cleaning. & similar operations." D. Provide: term "Provide" means "to Furnish & Install. Complete & ready for intended use." furnished by owner or furnished by others: item will be furnished by owner or others. It is to be installed & connected under requirements of this Division, complete & ready for operation, including items incidental to work, including services necessary for proper installation & operation. Installation shall be included under guarantee required by this
- E. Engineer: where referenced in this Division, "Engineer" is engineer of record & design professional for work under this Division, & is consultant to, & an authorized representative of, architect. As defined in general &/or supplementary conditions. When used in this Division. It means increased involvement by. & obligations to, engineer, in addition to involvement by. & obligations to, "Architect".
- F. AHJ: local code &/or inspection agency (authority) having jurisdiction over work. G.The terms "Approved equal", "Equivalent". Or "Equal" are used synonymously & shall mean "accepted by or acceptable to engineer as equivalent to item or manufacturer specified".
- H. The term "approved" shall mean labeled, listed. Or both. By nationally recognized testing laboratory (e.g. UL. ETL. CSA). & acceptable to AHJ over this project. 5. PREBID SITE VISIT
- A. Prior to submitting bid. Visit site of proposed work & become fully informed as to conditions under which work is to be done. Failure to do so will not be considered sufficient justification to request or obtain extra compensation over & above contract price.
- 6. MATERIAL & WORKMANSHIP A. Provide new material, equipment. & apparatus under this contract unless otherwise stated herein. Of best quality normally used for purpose in good commercial practice & free from defects. Model numbers listed in specifications or shown on drawings are not necessarily intended to designate required trim, written descriptions of trim govern model
- numbers. B. Pipe, fittings, specialties & valves shall be manufactured in USA. Work performed under this contract shall provide neat & "workmanlike" appearance when completed to satisfaction of architect & engineer. Workmanship shall be finest possible by experienced mechanics. Installations shall comply w/ applicable codes & laws. Complete installation shall function as designed & intended w/ respect to efficiency, capacity, noise level. etc Abnormal noise caused by rattling equipment, piping, ducts, air devices & squeaks in rotating components will not be acceptable. In general materials & equipment shall be of commercial specification grade in quality. Light duty & residential equipment is not acceptable.
- C.Remove from premises waste material present from work, including cartons, crating, paper, stickers, &/or excavation material not used.
- D. Clean equipment installed under this contract to present neat & clean installation at E. Repair or replace public & private property damaged as result of work performed under
- this contract to satisfaction of authorities & regulations having jurisdiction. 7. <u>COORDINATION</u> A. Coordinate work w/ other trades so various components of systems will be installed at
- proper time will fit available space & will allow proper service access for maintenance. Components which are installed without regard to above shall be relocated at no additional cost to owner.
- B. Unless otherwise indicated, general contractor will provide chases & openings in building construction required for installation of systems specified herein. Contractor shall furnish general contractor w/ information where chases & openings are required.
- C.Keep informed as to work of other trades engaged in construction of project & execute work in manner as to not interfere w/ or delay work of other trades. Figured dimensions shall be taken in preference to scale dimensions.
- D. Contractor shall take his own measurements at building, as variations may occur. Contractor will be held responsible for errors that could have been avoided by proper checking & inspection.
- E. Provide materials w/ trim that will properly fit types of ceiling, wall. Or floor finishes actually installed. Model numbers listed in specifications or shown on drawings are not
- intended to designate required trim F. Obtain equipment submittal information for all pieces of equipment to be connected to from other trades that clearly indicates all connection requirements, locations, sizes, and similar requirements. Obtain this information in ample time to coordinate other trade submittals and equipment coordination. Where requirements differ from that on plans or differs from provisions made in the work, immediately notify the architect/engineer. Do not proceed with work that is incompatible with equipment provided.
- G.Coordinate construction operations included in different sections of the specifications to ensure efficient and orderly installation of each part of the work. Coordinate construction operations, included in different sections, that depend on each other for proper installation, connection, and operation
- H.Each contractor shall coordinate its construction operations with those of other contractors and entities to ensure efficient and orderly installation of each part of the work. Each contractor shall coordinate its operations with operations, included in different sections, that depend on each other for proper installation, connection, and
- I. Schedule construction operations in sequence required to obtain the best results where installation of one part of the work depends on installation of other components, before or after its own installation
- J. Coordinate installation of different components with other contractors to ensure maximum accessibility for required maintenance, service, and repair K Make adequate provisions to accommodate items scheduled for later installation.
- L. Where availability of space is limited, coordinate installation of different components to ensure maximum performance and accessibility for required maintenance, service, and repair of all components, including mechanical and electrical.
- M.Prepare coordination drawings if limited space availability necessitates maximum utilization of space for efficient installation of different components or if coordination is required for installation of products and materials fabricated by separate entities. Content: project-specific information, drawn accurately to scale. Do not base coordination drawings on reproductions of the contract documents or standard printed data. Include the following information, as applicable:
- 1) Indicate functional and spatial relationships of components of architectural, structural, civil, mechanical, and electrical systems. Indicate required installation sequences.
- 3) Indicate dimensions shown on the contract drawings and make specific note of dimensions that appear to be in conflict with submitted equipment and minimum clearance requirements. Provide alternate sketches to architect for resolution of such conflicts. Minor dimension changes and difficult installations will not be considered changes to the contract. N.Meetings: conduct project coordination meetings at regular intervals. Project
- coordination meetings are in addition to specific meetings held for other purposes, such as progress meetings and preinstallation conferences. 1) Attendees: each contractor, subcontractor, supplier, and other entity concerned with current progress or involved in planning, coordination, or performance of future activities shall be represented at these meetings. All participants at the conference
- shall be familiar with project and authorized to conclude matters relating to the work. Notify architect of meeting. 2) Agenda: review and correct or approve minutes of the previous coordination meeting. Review other items of significance that could affect progress.

#### GENERAL MECHANICAL/ELECTRICAL SPECIFICATIONS/ DIVISION 220000 - PLUMBING/ DIVISION 230000 - MECHANICAL/ DIVISION 26000 - ELECTRICAL

20. EXCAVATION AND BACKFILL

3) Combined contractor's construction schedule: review progress since the last coordination meeting. Determine whether each contractor is on time, ahead or behind schedule, in relation to construction schedule. Discuss whether schedule revisions are required to ensure that current and subsequent activities will be completed within the contract time. Discuss impact of various contractor schedules upon other contractors and how to remedy impacts. 4) Review present and future needs of each contractor present

O.After shop drawings have been reviewed and approved by all parties, transmit a set of submittals to each other trade (eg Plumbing, Mechanical, Electrical, Controls, etc) that will interface with installation. Each other contractor shall review the submittal for coordination and return a stamped submittal indicating they have reviewed the submittal for coordination purposes.

8. ARCHITECTURAL VERIFICATION AND RELATED DOCUMENTS A. Contractor shall consult all Architectural Drawings and specifications in their entirety incorporating and certifying all millwork, furniture, and equipment rough-in including utility characteristics such as voltage, phase, amperage, pipe sizes, duct sizes, including height, location and orientation. Shop drawings incorporating these requirements should be submitted to the Architect for approval prior to installation or rough in. ORDINANCES & CODES

A. Work performed under this contract shall. At minimum, be in conformance w/ applicable national, state & local codes having jurisdiction B. Installation work performed under this contract shall be in strict compliance w/ current applicable codes adopted by local AHJ including any amendments & standards as set forth by National Fire Protection Association (NFPA). Underwriters Laboratories (UL), Occupational Safety & Health Administration (OSHA). American Society of Mechanical

Engineers (ASME), American Society of Heating, Refrigeration, & Air Conditioning Engineers (ASHRAE). American national standards institute (ANSI), American Society of Testing Materials (ASTM) & other national standards & codes where applicable. C. Where contract documents exceed requirements of referenced codes. Standards, etc. contract documents shall take precedence. D. Procure & pay for permits & licenses required for accomplishment of work herein

described. Where required, obtain. Pay for & furnish certificates of inspection to owner. Contractor will be held responsible for violations of law. A. Drawings and specifications indicate minimum construction standard. Should any work

10. STANDARDS

trades.

formats

15. TRAINING

letterina.

indicated be sub standard to any ordinances, laws, codes, rules or regulations bearing on work. Contractor shall promptly notify Architect Engineer in writing before proceeding with work so that necessary changes can be made. However, if the Contractor proceeds with work knowing it to be contrary to any ordinances, laws, rules, and regulations. Contractor shall thereby have assumed full responsibility for and shall bear all costs required to correct non complying work. 1. PROTECTION OF EQUIPMENT & MATERIALS

A. Store & protect from damage equipment & materials delivered to job site. Cover as required to protect from dirt & damage. Plug or cap open ends of ductwork & piping systems while stored & installed during construction when not in use to prevent entrance of debris into systems. Equipment & material that has been damaged by construction activities will be rejected, & contractor is obligated to furnish new equipment & material of like kind. Keep premises broom clean from foreign material created during work performed under this contract. Piping, equipment, etc. Shall have neat & clean appearance at completion. 2. SUBSTITUTIONS

A. The base bid shall include only products from manufacturers specifically named in drawings & specifications. No substitution will be considered prior to receipt of bids unless written request for approval to bid has been received by engineer at least ten calendar days prior to date for receipt of bids. Request shall include name of material or equipment for substitution & complete description of proposed substitute including drawings, cuts, performance & test data & other information for evaluation. Statement setting forth changes in other materials, equipment or other work that incorporation of substitute would require shall be included.

B. The intent of these specifications is to allow ample opportunity for Contractor to use his ingenuity and abilities to perform the work to his and the Owner's best advantage, and to permit maximum competition in bidding on standards of materials and equipment C.Material and equipment installed under this contract shall be first class quality, new, unused and without damage.

D.In general, these specifications identify required materials and equipment by naming one or more manufacturer's brand model catalog number and/or other identification. The first named manufacturer or product is used as the basis for design; other manufacturers named must furnish products consistent with specifications of first named product as determined by Engineer. Base bid proposal shall be based only on materials and equipment by manufacturers named, except as hereinafter provided

E. Where materials or equipment are described but not named, provide required items of first quality, adequate in every respect for intended use. Such items shall be submitted to Architect Engineer for review prior to procurement F. Materials and equipment proposed for substitutions shall be equal to or superior to that

specified in construction, efficiency, utility, aesthetic design, and color as determined by Architect Engineer whose decision shall be final and without further recourse. Physical size of substitute brand shall be no larger than space provided including allowances for access for installation and maintenance. Requests must be accompanied by complete descriptive and technical data including manufacturer's name, model and catalog number, photographs or cuts, physical dimensions, operating characteristics and any other information needed for comparison.

G.The burden of proof of merit of proposed substitute is upon proposer. Engineer's decision of approval or disapproval to bid of proposed substitution shall be final. Terms approved" "approved equal", & "equal" refer to approval by engineer as an acceptable alternate bid. No substitutions will be considered that are not bid as an alternate H.No material substitutions shall be considered for approval after to award of contract. Coordinate & verify w/ other trades whether or not substituted equipment can be installed as shown on construction drawings without modification to associated systems or architectural or engineering design. Include additional costs for architectural &

engineering design fees in bid if drawing modifications are required because of substituted equipment. 13. SHOP DRAWINGS A.Equipment to be furnished under this contract, items requiring coordination between contractors & sheet metal ductwork fabrication drawings. Before submitting shop

drawings verify equipment submitted is mutually compatible & suitable for intended use & will fit available space & allow ample room for maintenance. Engineer's checking & subsequent approval of such shop drawings will not relieve contractor from responsibility for errors in dimensions, details, size of members, quantities, omissions of components or fittings; coordination of electrical requirements; or for coordinating items w/ actual building conditions. Proceed w/ procurement & installation of equipment only after receiving approved shop drawings relative to each item. B. Submittal data shall be neatly organized, identified & indexed. Each item or model number shall be clearly marked & accessories indicated. Label catalog data w/ equipment identification acronym or number as used on drawings & include performance curves, capacities, sizes, materials, finishes, wiring diagrams & deviations from specified

equipment or materials. Mark out inapplicable items. Shop drawings will be returned without review if above mentioned requirements are not met. C.Requirements shall be met electronically & submitted as pdf in files less than 10mb. D. Contractor's stamp, which shall certify that stamped drawings have been checked by contractor, comply w/ drawings & specifications, & have been coordinated w/ other E. Transmit submittals as early as required to support project schedule. Allow for two weeks

a/e review time, plus duplication of this time for resubmittals, if required. Transmit submittals as soon as possible after notice to proceed & before construction starts. Engineer's submittal reviews will not relieve contractor from responsibility for errors in dimensions, details, size of members, or quantities; or for omitting components or fittings; or for not coordinating items w/ actual building conditions. F. Final copies shall be furnished to owner as part of O&M documents in hard & electronic

I. OPERATION & MAINTENANCE INSTRUCTIONS A. Collect & compile complete brochure of equipment furnished & installed on this project. Include operational & maintenance instructions, manufacturer's catalog sheets, wiring diagrams, parts lists, approved shop drawings, test & balance reports, & descriptive literature as furnished by equipment manufacturer. Include an inside cover sheet that lists project name, date, owner, architect, consulting engineer, general contractor, sub-contractor, & an index of contents. Submit three copies of literature bound in 3-ring binders w/ index & tabs separating equipment types to architect at termination of work. Final approval of plumbing systems will be withheld until manual is received & deemed complete by architect & engineer. Provide "as-built" drawings (see Division 1 & general conditions).

B. These requirements may shall also be provided to the owner in a well organized pdf electronic submission & delivered on a DVD or USB thumbdrive.

A.Provide factory trained & authorized representative to train owner's designated personnel

on operation & maintenance of equipment provided for this project. Provide training to include but not be limited to an overview of system &/or equipment as it relates to facility as whole; operation & maintenance procedures & schedules related to startup & shutdown, troubleshooting, servicing, preventive maintenance & appropriate operator intervention; & review of data included in operation & maintenance manuals. Submit certification letter to architect stating that owner's designated representative has been trained as specified herein. Letter shall include date, time, attendees & subject of training. Contractor & owner's representative shall sign certification letter indicating agreement that training has been provided. Schedule owner training w/ at least 7 days' advance notice.

16. SPARE PARTS A.Furnish to owner, w/ receipt one set of spare filters of each type required for each unit. In addition to spare set of filters, install new filters prior to testing, adjusting, & balancing work & before turning system over to owner. B. Furnish one complete set of belts for each fan.

17. EQUIPMENT LABELS: A.Material and thickness: multilayer, multicolor, plastic labels for mechanical engraving 1/16 inch thick, and having predrilled holes for attachment hardware. Black letters on white background

B. Minimum label size: length and width vary for required label content, but not less than 2-1/2 by 3/4 inch. C.Minimum letter size: 1/4" for name of units if viewing distance is less than 24 inches, 1/2"

for viewing distances up to 72" & proportionately larger lettering for greater viewing distances. Include secondary lettering two-thirds to three-fourths the size of principal 18. <u>WARRANTIES</u>

A. Warrant each system & each element thereof against all defects due to faulty workmanship design or material for period of 12 months from date of substantial completion unless specific items are noted to carry longer warranty in construction documents or manufacturer's standard warranty exceeds 12 months. Remedy all defects, occurring within warranty period(s) stated in general conditions & Division 1. Warranties shall include labor & material. Make repairs or replacements without any additional costs to owner. Perform remedial work promptly, upon written notice from engineer or owner. B. At time of substantial completion, deliver to owner all warranties in writing & properly executed including term limits for warranties extending beyond one year period. Each warranty instrument being addressed to owner & stating commencement date & term.

9. <u>CUTTING & PATCHING</u> A.Perform cutting of walls, floors, ceilings, etc. As required to install work under this section. Obtain permission from architect prior to cutting. Do not cut or disturb structural members without prior approval from architect. Cut holes as small as possible. General contractor shall patch walls, floors, etc. As required by work under this section. Patching shall match original material & construction. Repair & refinish areas disturbed by work to condition of adjoining surfaces in manner satisfactory to architect.

- A.Perform necessary excavation to receive work. Provide necessary sheathing, shoring, cribbing, tarpaulins, etc. For this operation, and remove it at completion of work. Perform excavation in accordance with appropriate section of these specifications, and in compliance with osha safety standards B. Excavate trenches of sufficient width to allow ample working space, and no deeper than
- necessary for installation work. C.Conduct excavations so no walls or footings are disturbed or injured. Backfill excavations made under or adjacent to footing with selected earth or sand and tamp to compaction required by architect engineer. Mechanically tamp backfill under concrete
- and pavings in six inch layers to 95% standard density, reference Division 2. D.Backfill trenches and excavations to required heights with allowance made for settlement. Tamp fill material thoroughly and moistened as required for specified
- compaction density. Dispose of excess earth, rubble and debris as directed by architect. E. When available, refer to test hole information on architectural or civil drawings or specifications for types of soil to be encountered in excavations.
- 21.<u>ROUGH-IN</u> A. Coordinate rough-in w/ general construction & other trades. Conceal piping & conduit rough-in except in unfinished areas & where otherwise shown. 3. ACCESS DOORS
- V.Provide access doors in ceilings, walls, etc. Where indicated or required for access or maintenance to concealed valves & equipment installed under this section. Provide concealed hinges, screwdriver-type lock, anchor straps; manufactured by Milcor, Zurn, Titus, or equal. Obtain architect's approval of type, size. Location & color before ordering. 24.PENETRATIONS
- A. Seal mechanical floor, exterior wall & roof penetrations watertight & weathertight. Seal around mechanical penetrations w/ 3M CP-25 fire barrier caulk (thickness as required & recommended by manufacturer) to maintain resistance rating of fire-rated assemblies. Provide prefabricated roof curbs manufactured by Custom Curb, Pate, Thycurb or approved equal. Provide roof curb w/ factory installed wood nailer: welded, 18 gauge galvanized steel shell, base plate & flashing; 1-1/2" thick, 3 pound rigid insulation; fully mitered 3-inch raised cant: cover of weather-resistant, weather-proof material & pipe collar of weather-resistant material w/ stainless steel pipe clamps. Make roof penetrations by authorized roofing contractor when required. MOTORS & STARTERS
- A.Provide motors & starting equipment where not furnished w/ equipment package. Motors shall have copper windings, class b insulation, & standard squirrel cage w/ starting torque characteristics suitable for equipment served. Motors for air handling equipment shall be selected for quiet operation. Each motor shall be checked for proper rotation after electrical connection has been completed. Provide dripproof enclosure for locations protected from weather & not in air stream of fan: & totally enclosed fan cooled enclosure for motors exposed to weather. Motors shall be manufactured by Century, GE. Westinghouse, or approved equal. Provide every motor, except fractional horsepower single phase motors w/ an approved type of "built-in" thermal overload protection. w/ motor starter. Each starter shall be provided w/ overload heaters sized to motor rating, 8 every three phase motor starter shall have overload heaters in each phase. Ambient compensated heaters shall be installed wherever necessary. Unless noted otherwise. motor starters shall be furnished by Division 22/23 contractor for installation & connection by Division 26 contractor. Starters shall be Allen-Bradley, Clark, Furnas, Square D, or approved equal.
- 26. ELECTRICAL WIRING A.Line voltage wiring shall be provided by Division 26. Line voltage control & interlock wiring for mechanical systems shall also be provided by Division 26 contractor. Low voltage control wiring shall be provided by Division 22/23 contractor. Furnish wiring diagrams to Division 26 contractor as required for proper equipment hookup. Coordinate w/ Division 26 contractor actual wire sizing amps for submitted mechanical equipment to ensure proper installation DISCONNECT SWITCHES
- A.Provide heavy-duty horsepower rated safety switches rated in accordance with NEMA enclosed switch standard KS 1\_1969 and I98 standard. B. Each piece of electrical equipment shall be provided with a disconnecting means.
- C.Equivalents by: GE, Eaton, Siemens, Square D. 28.REFRIGERANT & OIL
- A. Provide full refrigerant & oil charge in refrigeration systems. Maintain for full term of warranty
- 29. FINAL TESTING & ADJUSTMENTS A.Final system testing. Balancing & adjustments shall be performed by contractor certified by NEBB, AABC or other approved agency. Perform test readings on fans, units, coils, etc. & adjust equipment to deliver specified amounts of air or water. Prepare testing & balancing report log showing air supply quantities, air entering & leaving temperatures & pressures, fan & unit test readings, motor voltage & amp draws. etc., & submit PDF of final compilation of data to architect for evaluation & approval before final inspection of project. Balance air systems to within plus or minus 10 percent for terminal devices & branch lines & plus or minus 5 percent for main ducts & air handling equipment of amount of air shown on drawings. Further adjustments shall be made to obtain uniform temperature in spaces. Adjust equipment to operate as intended by specification. Align bearings & replace bearings that have dirt or foreign material in them w/ new bearings without additional cost to owner. Balance contractor shall include in report any improperly installed or missing balancing devices that would negatively impact system operation. Adjust thermostats & control devices to operate as intended. Adjust burners, pumps, fans, etc. For proper & efficient operation. Certify to architect that adjustments have been made & that system is operating satisfactorily. Further adjustments shall be made to obtain uniform temperature in spaces. Calibrate, set, & adjust automatic temperature controls. Check proper sequencing of interlock systems, & operation of safety controls.
- D. EQUIPMENT FURNISHED BY OTHERS A. Provide necessary equipment & accessories that are not provided by equipment supplie or owner to complete installation of cooking equipment, washing equipment, etc., furnished by others, in locations as indicated on drawings &/or described in general notes to this contractor. Equipment & accessories not provided by equipment supplier may include flues, vents, intakes, associated roof jacks & caps to outdoors, dampers, In-line fans, roof fans, control interlocks, etc. As required for proper operation of complete system in accordance w/ manufacturer's instructions. Contractor shall be responsible for correct rough-in dimensions, & shall verify same w/ architect &/or equipment supplier prior to service installations.
- SETTING, ADJUSTMENT AND EQUIPMENT SUPPORTS A. Work shall include mounting, alignment and adjustment of systems and equipment. Set
- equipment level on adequate foundation and provide proper anchor bolts and isolation as shown, specified or required by manufacturers in installation instructions. Level, shim and grout equipment bases as recommended by manufacturer. Mount motors, align and adjust drive shafts and belts according to manufacturer's instructions. B. Equipment failures resulting from improper installation or field alignment shall be repaired
- or replaced by Contractor at no cost to Owner. C.Floor or pad mounted equipment shall not be held in place solely by its own dead weight. Include anchor fastening in all cases.
- D. Provide floor or slab mounted equipment with 3 1/2" high concrete bases unless specified otherwise. Individual concrete pad shall be no less than 4" wider and 4" longer than equipment, and shall extend no less than 2" from each side of equipment. E. Provide each piece of equipment or apparatus suspended from ceiling or mounted above
- floor level with suitable structural support, platform or carrier in accordance with best-recognized practice. Verify that structural members of buildings are adequate to support equipment and unless otherwise indicated on plans or specified, arrange for their inclusion and attachment to building structure. Provide hangers with vibration isolators. F. Submit details of hangers, platforms and supports together with total weights of mounted equipment to Architect\_Engineer for review before proceeding with fabrication or
- 34.<u>FIRE BARRIERS</u> General: for penetrations through fire-resistance-rated constructions, including both empty openings and openings containing penetrating items, provide through-penetration firestop systems that are produced and installed to resist spread of fire according to requirements indicated, resist passage of smoke and other gases, and maintain original fire-resistance rating of construction penetrated.
- END OF GENERAL MEP REQUIREMENTS

#### DIVISION 220000 - PLUMBING . PLUMBING GENERAL REQUIREMENTS

- AI. Refer to GENERAL MECHANICAL, ELECTRICAL AND PLUMBING requirements 2. PIPING & INSULATION
- A. Water service piping shall be copper type K tubing, ductile iron with mechanical joints or PVC AWWA C900 piping properly bedded and supported B. Water piping - all water piping shall be 95-5 tin-antimony joined type L copper. Insulate
- w/ fiberglass w/ ASJ & PVC covers. Thickness in accordance w/ ASHRAE 90.1. C. Waste & vent piping - CI bell & spigot below grade or hubless CI w/ neoprene gasket fittings w/ stainless steel bands above grade. Sched 40 PVC w/ solvent welds may be
- used where allowed by local code. PVC not allowed in plenums. . PIPING IDENTIFICATION A.Provide pipe markers and flow direction arrows at 10' 0" maximum spacing to identify
- piping in mechanical rooms and 20'\_0" maximum spacing in all other areas. B. Pipe marker nomenclature/colors shall meet applicable ANSI standard and OSHA requirements from Seaton or equal. Submit for approval list of colors and wording prior to purchase of pipe markers.
- VALVES A. Equivalent valves listed on current comparison charts of specified valve manufacturers by Milwaukee, Stockham, Powell, Red-White, Crane, Apollo, Mueller, Muessco, Watts,
- Havs. Rockwell-Nordstrom. B. Ball valves - 2" & under - bronze full port w/ teflon seats, bronze ball & insulated handle. C.Installation
- 1) Install necessary valves within piping systems to provide required flow control, to allow isolation for inspection, maintenance and repair of each piece of equipment or fixture, and on each main and branch service loop. 2) Each valve shall be installed so that it is easily accessible for operation, visual
- inspection, and maintenance and wherever possible, gate, check and ball valves shall be installed on a horizontal run with the handle upright and within 15 degrees of vertical. Butterfly valves shall be installed with the stem in the horizontal position and the handle at 90 degrees from vertical. 3) Valves installed in piping systems shall be compatible with system maximum test
- pressure, pipe materials, pipe joining method, and fluid or gas conveyed in system. 5. FIXTURES A. See schedules for further requirements and specific fixtures.
- B. Fixtures: American Standard, Kohler, Crane, Zurn, Toto,
- C. Stainless steel fixtures: Elkay, Just, Moen Commercial
- D. Fittings & supports: Josam, Smith, Wade, Zurn, Or Jonespec. E. Seats: Church, Olsonite, Bemis Or Beneke.
- F. Trim by Moen, Delta, Eljer, Kohler, American St&Ard, Crane, Sloan.
- G.Flushvalves: Sloan, Zurn, Toto H.Drains by Wade, Zurn, Woodford, Smith, Josam.
- I. Wall hydrants Josam series 71000 w/ connections for 3/4" pipe & hose. Non-freezing w/
- key, vacuum breaker, locking cover. Equivalent by J.R. Smith, Wade, Woodford or Zurn. 6. PLUMBING EQUIPMENT

- B. Tankless water heaters as scheduled by State. Rheem. Rinnai. Noritz. A.O. Smith. Bosch. Refer to schedule for capacities and characteristics. Standard: ANSI Z21.10.3/CSA 4.3 for gas-fired, instantaneous, domestic-water heaters for indoor application. Construction: Copper piping or tubing complying with NSF 61 barrier materials for potable water, without storage capacity. C.Backflow preventers provide where shown on plans the following types of backflow preventers. Provide isolation valve ahead of backflow preventers. Equivalent backflow prevents by Watts, Febco, Lawler.
- 1) Reduced pressure zone principle (1/4"-1/2"): watts series 009 reduced pressure backflow preventer complete with strainers and valves. 2)Reduced pressure zone principle (3/4"-10"): watts series 909 reduced pressure backflow preventer complete with strainers and valves. Provide isolation valve ahead of backflow preventers. Provide with air gap fitting and pipe to floor drain.
- 3) Pressure vacuum breakers (1/2"-2"): watts series 800m4qt pressure vacuum breaker with integral ball valve shut offs. 4) Pressure vacuum breakers (3/8"-1/2"): watts series 008qt pressure vacuum breaker for anti-spill applications, with integral ball valve shut offs.
- breaker in plain brass finish. 6) Hose bibb vacuum breakers vacuum breakers for hose end connections shall be Watts series 8 non-removable type.
- E. Provide thermometers and wells at all water heaters. Provide pressure test plugs and gauges at water/fire services, booster pumps, etc. so that proper testing/ balancing & trouble shooting can be accomplished. PLUMBING EXECUTION
- A.Provide unions or flanged joints in each pipe line preceding connections to equipment to allow removal for repair or replacement Provide all screwed & control valves w/ unions adjacent to each connection. Provide screwed end valves w/ union adjacent to valve unless valve can be otherwise easily removed from line.
- B. All piping shall be properly supported with hangers and supports specifically intended for that purpose. Provide clevis hangers, unistrut brackets and pipe clamps and similar systems. Protect integrity of insulation and provide rigid insulation inserts or pipe saddles as necessary. C. After piping is in place test lines to insure no leaks.
- D. All piping & equipment shall be supported properly from structure. E. Escutcheons - provide nickel-brass or chrome plated on all exposed pipes when passing thru wall or ceiling of finished rooms.
- F. Verify floor materials used from architectural plans & provide proper cleanout tops, where they occur in carpet, guarry tile, vinyl tile or ceramic tile.
- any capacity. Locate arrester between last two fixtures served on branch line.
- END OF DIVISION 22000 **DIVISION 230000 - MECHANICAL**
- 1. MECHANICAL GENERAL REQUIREMENTS A.Refer to GENERAL MECHANICAL, ELECTRICAL & PLUMBING requirements
- 2. SHEET METAL WORK A.HVAC ductwork shall be galv sheet metal of gauges & joint types specified in SMACNA manual. Provide turning vanes in elbows. B. Coordinate routing of ductwork w/ other contractors such that piping, electrical conduit, & associated supports are not routed through ductwork. Construct supply ducts to meet
- SMACNA positive pressure of 3" WG. Construct return, outdoor & exhaust ductwork upstream of fans to meet SMACNA negative pressure of 1" WG, construct exhaust ductwork downstream of fans to meet SMACNA positive pressure of 1" WG. C Seal ductwork w/ heavy liquid sealant Hardcast Irongrip 601 Design Polymer DP 1010 United McGill duct sealer or approved equal, applied according to sealant manufacturer's
- instructions. D. Ducts shall be connected to fans, fan casings & fan plenums by means of flexible connectors. Elexible connectors shall be neoprene coated glass cloth canvas connections, Duro-Dyne, Elgen, Ventfabric or equal. Flexible connectors shall have flame spread of 25 or less & smoke developed rating not higher than 50. Make airtight
- joints & install w/ minimum 1-1/2" slack. E. All ductwork must be supported properly from structure. 4. DUCT INSULATION WORK A.Duct insulation & wraps shall meet flame/smoke rating of 25/50 per ASTM E 84.
- B. Line all low pressure supply & return air ductwork w/ 1/2" liner. Line all medium pressure supply w/ 1" liner. 7. EXHAUST FANS
- A.Equivalent by Cook, Penn, Acme, Greenheck, Jennaire. B. Provide w/ 14" min. Curb. Provide grease trim & ventilated curb extensions for grease C.Bearings shall be designed for 200,000 hours operation. Variable pitch motor sheaves
- shall be standard. D Fans shall be furnished with acceptable electrical disconnect & birdscreen Provide single phase motor equipped fans with motor rated start relay. Provide multiphase motor
- equipped fans with magnetic motor starter. Provide local disconnect means for all fans. Coordinate location of starter & disconnects with other trades 8. PROGRAMMABLE THERMOSTATS A. Thermostats by Honeywell, Johnson Controls, White-Rogers, Trane, Carrier or approved
- 11. MECHANICAL EXECUTION A.Coordinate w/ e/c to provide all wiring between equipment, dampers, thermostats & all other required controls & devices. M/C is responsible for all control & interlock wiring unless specifcally shown on electrical drawings. All electrical work shall comply w/ electrical specifications.

### END OF DIVISION 23000

- SECTION 26000 ELECTRICAL
- 1. GENERAL ELECTRICAL REQUIREMENTS A.Refer to GENERAL MECHANICAL, ELECTRICAL & PLUMBING requirements. B. Wiring of Mechanical Equipment
- 1) Provide all raceways & power wiring for all division 23 equipment requiring electrical connections, including, but not limited to, pumps, water heaters, & HVAC equipment, & all line voltage control & interlock wiring not provided under division 23. Connect per manufacturers' wiring diagrams. Coordinate with division 23 for disconnects furnished w/ equipment, & provide all disconnect switches as required.
- After installing wiring, verify that each motor load has correct phase rotation. 2) Verify actual "maximum overcurrent protection" (MOCP) device ratings & "minimum circuit ampacity" (MCA) conductor sizing for mechanical equipment from equipment nameplate. Base electrical installations on actual required amperages, which may vary somewhat from conductor & equipment sizes shown on drawings; however, in no case, reduce size of conductors indicated on drawings without authorization from engineer. Provide properly sized electrical wiring & equipment without extra cost to owner. Notify engineer of all changes required in electrical installation due to equipment variances so that effects on feeders, branch circuits, panelboards, fuses & circuit breakers can be checked prior to purchasing & installation. Be
- responsible for coordinating w/ division 23 to verify actual ampacities & correct sizes of all conductors & overcurrent protective devices for all equipment, & correct overload heaters for all motors, when starters are provided under division 26.
- C. Wiring of Thermostats. Time, & Temperature Controls 1) Provide all raceways, power wiring, & line-voltage control and interlock wiring not provided under division 23, for all thermostats, temperature control devices, & controls, including, but not limited to, night-stats, water heater interlocks, time switches & override timers. See mechanical drawings for locations & temperature control diagrams. Low-voltage conductors for thermostats & temperature control system may be run exposed above finished accessible ceilings, if approved & listed for this purpose, but shall be installed in conduit within walls & where exposed in work areas.
- 2. CONDUIT & CONDUCTORS smaller than #12 ga. Unless noted otherwise.
- A.Follow circuiting shown on plans. Use no conduit smaller than 3/4" & no conductors B. Conductors #10 and smaller shall be solid.
- C.If no conductor size is indicated on drawings for branch circuit, provide conductors & conduit sized per NFPA 70 & based on indicated branch circuit overcurrent protective device (OCPD) rating & number of poles.
- D. Wire shall be in non-flexible metallic conduit (EMT, IMC or RMC) for: 1) All circuits & feeders greater than 30A. 2) Kitchen circuits. 3) Home runs.

fixture manufacturers recommended rating.

"circuit runs" were indicated in their entirety.

unsupported lengths

not in conduit.

conductors, & cover box.

#### A. See schedules for further requirements and specific equipment.

- 5) Atmospheric vacuum breaker (1/4"-3"): watts series 288a atmospheric vacuum
- G.Provide water hammer arrestors for all plumbing banks w/ fixtures utilizing flush valves in

- E.MC cable acceptable for branch convenience circuits & lighting circuits. Do not daisy chain light fixtures. Provide cable whips of sufficient lengths to allow for relocating each light fixture within 5-foot radius of its installed location, but not exceeding 6 feet in
- 1) Do not use MC cable for following: homeruns to panelboards, where exposed to view or damage, hazardous locations, in concrete, block walls or wet locations, & when disallowed by local AHJ or landlord.
- 2) Provide health care rated MC for patient care areas (as defined by the NEC) when F. Conduit installed below grade shall be schedule 80 PVC heavy wall plastic conduit
- ating NEMA standards & UL listed for underground & exposed use. Provide GRS radius bends & risers as conduits rise above grade or above floor slab. G.Lighting & receptacle circuit conductors shall be copper THHN-THWN-2 600 volt, 75 deg c, color coded as described under applicable codes. No romex, plastic flex tubing etc permitted. Light fixture wire insulation shall have temp rating not less than individual
- H. Circuits w/ no. 8 or larger conductors, motor circuits, power & feeder circuits & building service feeders shall be copper THHN-THWN-2 600 volt, 75 deg c.
- I. All materials used to terminate, splice or tap conductors: designed for, properly sized for. & UL listed for specific application & conductors involved, & installed in strict accordance w/ manufacturer's recommendations, using the manufacturer's recommended tools. J. Where wiring is indicated as installed, but connection is indicated "future" or "by other division, trades, or contracts", leave minimum 3-foot "pigtail" at box, tape ends of
- K. Number of conductors in specific raceway "home run" is indicated w/ cross lines (tick marks) on each "circuit run" on drawings. In general, direction of branch circuit "home run" routing is indicated on drawings, complete w/ circuit numbers & panelboard designation. Continue all such "home run" wiring to designated panelboard, as though
- L. Wiring shall have insulation of proper color to match NEC color code. In larger sizes, where properly colored insulation is not available, use vinyl plastic electrical tape of appropriate color around each conductor at all termination points, junction & pull boxes.

#### 3. <u>GROUNDING</u>

- A. Supplement grounded neutral of secondary distribution system w/ equipment grounding system installed so that metallic structures enclosures raceways junction boxes outlet boxes, cabinets, machine frames, portable equipment & other conductive items operate continuously at ground potential & provide low impedance path for ground fault currents. B. System shall comply w/ national electrical code, drawings & as specified.
- C.Provide equipment ground bus in base of low voltage, switchgear brazed or otherwise adequately connected by an approved method to ground rods D. Provide in conduit green insulated copper ground conductor to main metallic water
- service entrance & connect by means of adequate ground clamps. E. Equipment grounding conductors for branch circuit home runs shown on drawings shall indicate an individual & separate ground conductor for that branch circuit which shall be
- terminated at branch circuit panelboard, switchboard, or other distribution equipment. F. Provide low voltage distribution system w/ separate green insulated equipment grounding conductor for each single or three-phase feeder. Single phase 120 volt branch circuits for lighting & power shall consist of phase & neutral conductors & green ground conductor installed in common conduit which shall serve as grounding conductor.
- G.Grounding conductors shall be as shown on plans or if not specifically shown shall be no smaller than that required by NEC. <u>RACEWAY INSTALLATION</u>
- A.Install all conductors & cable in raceways continuous without taps or splices. Splice or tap only in approved boxes & enclosures w/ approved solderless connectors, or crimp connectors & terminal blocks for control wiring, & keep to minimum required. Insulate all splices, taps, & joints as required by codes
- B. Install all circular raceways concealed above suspended ceilings or concealed in walls or floors wherever possible except where otherwise indicated. 1) All conduit, junction boxes, etc. Above ceilings shall be supported from structure. Pipe sleeves, hangers & supports shall be furnished & set & contractor shall be responsible for proper & permanent locations
- 2) Support all conductors & cables in vertical installations, as required by NFPA 70, by installing cable supports or plug-type conduit riser supports, or wire-mesh safety C.Provide GRS for all conduits run underground, exposed to weather, or exposed to other hazardous conditions. Provide GRS installed below grade w/ corrosion resistant
- bonded-plastic or approved mastic coating. This shall include 90-degree elbow below grade & entire vertical transition to above grade. D. Provide interlocking spacers for multiple runs of UG conduits in same trench. E. All other raceway may be EMT where approved by local code. Use compression type
- fittings for EMT. w/ all fittings UL listed for environment in which they are used. F. Use FMC for final connection to each motor & transformer, & to any device that would otherwise transmit motion, vibration, or noise. Use LFMC where exposed to liquids.
- vapors or sunlight. 1) Provide all FMC & LFMC w/ an insulated bonding conductor.
- G.Install raceways parallel & perpendicular to building lines. H. Install raceways to requirements of structure & to requirements of all other work on project. Install raceway to clear all openings, depressions, pipes, ducts, reinforcing steel, & other immovable obstacles. Install raceways set in forms for concrete structure in such
- manner that installation will not affect strength of structure. I. Install raceways continuous between connections to outlets, boxes & cabinets w/ minimum possible number of bends & not more than equivalent of four 90-degree bends between connections. Use manufactured elbows for all 45- & 90-degree bends, unless approved by engineer in advance. Make other bends smooth & even & without flattening raceway or flaking galvanizing or enamel. Radii of bends shall be as long as possible &
- never shorter than corresponding trade elbow. Use long radius elbows where necessary, indicated. or both. J. Securely fasten raceways in place w/ approved straps, hangers & steel supports as required. Attach raceway supports to building structure. Hang single raceways for feeders w/ malleable split ring hangers w/ rod & turnbuckle suspension from inserts
- spaced not over 10 feet apart in construction above K. Clamp groups of horizontal feeder raceways to steel channels that are suspended from inserts spaced not over 10 feet apart in construction above. Securely clamp vertical feeder raceways to structural steel members attached to structure. Install cable clamps for support of vertical feeders where required. Add raceway supports within 12 inches of all bends, on both sides of bends. Do not support raceways from suspended ceiling
- L. Ream raceway ends, thoroughly clean raceways before installation, & keep clean after installation. Plug or cover openings & boxes as required to keep raceways clean during construction & fish all raceways clear of obstructions before pulling conductors wires. rovide raceways of ample size for pulling of wire & not smaller than code requirements & not less than 3/4", unless indicated otherwise on drawings.
- M.Protect all raceway installations against damage during construction. Repair all raceways damaged or moved out of line after roughing-in to meet engineer's approval without additional cost to owner. N. Align & install true & plumb all raceway terminations at panelboards, switchboards, motor
- control equipment & junction boxes. O.Install approved expansion/deflection fittings where raceways pass through (if embedded) or across (if exposed) expansion ioints.
- P. Install pull wire in each empty raceway that is left for installation of conductors or cables under other divisions or contracts. Use polypropylene or monofilament plastic line. Leave min. 24" slack at each end. Q.Make all joints & connections in manner that will ensure mechanical strength & electrical
- continuity. R.Effectively seal raceways, by installing conduit fitting at boundary of two spaces, & filling it w/ an approved pliable material after conductors or cables have been installed & tested, whenever raceways pass from non-cooled to cooled spaces or transition from outside facility or enclosure to inside, whether buried or exposed.
- 5. BUSHINGS & LOCKNUTS A.Rigidly terminate conduits entering sheet metal enclosures to enclosure w/ bushing & locknut on inside & locknut or an approved hub on outside. Conduit shall enter enclosure squarely
- B. Provide bushings & locknuts made of galvanized malleable iron w/ sharp, clean-cut threads. Where EMT enters box, provide approved EMT compression connectors. C.Use insulated, grounding, or combination, bushings wherever connection is subject to vibration or moisture when required by NFPA 70, or both.
- 6. JUNCTION & OUTLET BOXES A. All boxes including light fixture, switch, receptacle, & similar outlet boxes: National Electrical, Appleton, Steel City, Raco, or approved equal, galvanized steel knockout boxes, suitable in design to purpose they serve & space they occupy. Size as required for specific function or as required by NFPA 70, whichever is larger. 1) Lighting fixture boxes in ceilings shall not be less than 4" octagonal knockout type.
- B. Set all outlet boxes in walls, columns, floors, or ceilings so they are flush w/ finished surface, accurately set, & rigidly secured in position. Provide plaster rings, extension rings &/or masonry rings as req'd for flush mounting. Provide approved cast outlet boxes, w/ hubs & weatherproof covers, in all areas subject to damp, wet, or harsh conditions.
- C. Coordinate locations of outlet boxes. Outlets are only approx located on small scale drawings. Use great care in actual location by consulting various large scale detailed drawings used by other division trades, & by securing definite locations from architect.
- D. All outlets, shall be mounted w/ bottom at 18" AFF & switches w/ bottom at 44" AFF floor unless noted otherwise on plans. Refer to arch for other required elevations & cabinetry coordination. ELECTRICAL IDENTIFICATION
- A.Manufactured labels for each panelboard & transformer. Typewritten panel schedules mounted in panels B. Printed tape style label for each receptacle indicating panel & circuit #.
- C.Manufactured labels for all disconnect switches indicating equipment served.
- D.Branch circuits identify each circuit w/ wire markers when enclosure label & wire colors do not provide enough information to identify each circuit without tracing. Feeders & branch circuit home runs w/ wire marker w/ panel & ckt #. Box covers above lay-in ceilings neatly marked w/ indelible marker.
- E. Fire alarm nameplate on each fire alarm terminal cabinet. Label all wiring. 8. DIGITAL LIGHTING CONTROLS
- A.Provide DLM systems consisting of lighting control panels, room controllers, motion sensors, daylight sensors, & other other controls as necessary to achieve lighting switching & dimming control indicated on the drawings.
- B. Provide all interconnecting wiring, controls, programming & owner training for the system(s). C.Provide systems by: Cooper, Hubbell, Leviton, Phillips, Sensor Switch, Watt Stopper
- Lutron. D.Execution:
- 1) Calibrate all sensor time delays & sensitivity for proper detection of occupants & energy savings. Adjust time delays. 2) Provide documentation of room by room system configuration including: sensor
- parameters, time delays, sensitivities, & daylighting setpoints, sequence of operation, load parameters 3)Post start-up tuning - 30 days after occupancy contractor shall adjust sensors to meet the owner's requirements. Provide a detailed report to the architect / owner of
- post start-up activity. ANELBOARDS A.Branch circuit 208/240v panels shall be capacity shown w/ tin plated copper bussing &
- braced for minimum of 10 000a aic or as otherwise noted or required (series rated acceptable). Bolt on circuit breakers. 480v panels same except 14,000a aic min. or as otherwise noted. Minimum 20" wide w/ galv steel enclosure w/ hinged door & keyed lock. Coord trim w/ mounting location. Typewritten card directory. B. Distribution panels shall be capacity shown & shall be Square D I-Line w/ tin plated
- copper bussing. 65kaic min or as otherwise noted/req'd. Bolt on circuit breakers (series rated acceptable). Galv steel enclosure. CB's labeled w/ plastic printed labels to load
- C.Equivalent by Square D, Siemens, Cutler Hammer, Or GE. 10. WIRING DEVICES
- A.Color of devices as directed by architect. B. Convenience outlets:
- 1) Spec grade 20 amp duplex w/ ground & SS wall plates. Other outlets shall be verified w/ equipment suppliers for proper NEMA configurations. Provide GFCI rated devices where indicated & as reg'd per code. 2) Equivalent devices by Cooper/Eaton, Hubbell, Leviton, Pass & Seymour/Legrand
- C. Switches: 1) Light switches - spec grade 20 amp toggle switches w/ SS wall plates. 2) Wall motion switches - spec grade, pir, override.
- 3) Ceiling motion switches spec grade, dual technology, model as req'd by room configuration, all necessary power packs & relays. 4) Wall motion switches (bathroom) - dual relay, spec grade, PIR, 2nd relay for operation of exhaust fan delay.

1) Provide GFCI receptacles for weatherproof receptacles. 2) For wet locations: in-use NEMA 3R, UL-labeled plates die cast metal and lockable. 3) For damp locations: UL-listed for wet locations w/ cover(s) closed; die-cast

600W or 1200W as required by load.

curve. On-off switch positions shall bypass dimmer module.

- aluminum or type 302 SS; single-cover for switches & vertically mounted receptacles; double-cover for horizontally mounted receptacles; self-closing covers.
- 11. DISCONNECT (SAFETY) SWITCHES

dimming (100-10%).

D. Weatherproof cover plates:

- A. Disconnect (safety) switches: Square D, Siemens, Cutler Hammer, or General Electric fused or non-fused (as indicated on drawings or required) NEMA KS1, heavy duty. externally operated, visible-blade safety switches; NEMA enclosure type indicated on drawings or suitable for environment in which installed. Based on fusible switch & fuse
- sizes indicated, include class R, J, or L fuse provisions as applicable. B. Where indicated, provide fusible switches permanently labeled as suitable for use as service entrance equipment, w/ integral & separate neutral & ground assemblies, suitable
- for sizes of conductors indicated. Do not double-lug any terminations not specifically listed as suitable for more than one conductor
- C. Provide switches where not furnished w/ starting equipment, at all other points required
- by NFPA 70, & where indicated on drawings. 2. LUMINAIRES, LAMPS & BALLASTS
- A.Refer to lighting fixture schedule plans for fixture types.
- B. Equivalent luminaires by Hubbell, Infinity, Lithonia, Williams, Eaton [Cooper]. C. Fluorescent Fixtures:
- 1) Lamps shall be type recommended by fixture manuf. Lamp none above manuf recommended max wattage Color temperature shall be coordinated throughout project, with generally 4100k interior lamps and min 85 CRI. Equivalent lamps by G.E., Venture, Phillips Or Sylvania. 2) Ballasts - Fluorescent - electronic, <20% THD, Equivalent by Advance, G.E.,
- Motorola, Or Magnetek. D.LED Fixtures:

enclosures to maintain ceiling integrity.

(latest edition) & all additional requirements specified

base for pole & ground rod.

A.Prior to starting up electrical systems:

2) Lubricate items accordingly.

permanent light fixtures.

SECTION 27000 - COMMUNICATIONS

RSON KENT MCKINLEY RAAF ENGINEERS L

MO State Certificate of Authority #E-2002020886

LENEXA, KS 66215 WWW.PKMRENG.COM

13300 W 98TH STREET

913.492.2400

. GENERAL ELECTRICAL REQUIREMENTS

2. TELECOMMUNICATIONS SYSTEMS PROVISIONS

required by serving telecommunications company.

anchored to wall, at location & of size as indicated on drawings.

END OF DIVISION 26000

1) Check all components & devices.

3. ADJUSTING. ALIGNING & TESTING

- 1) Lamps & modules: Philips, General Electric, Osram/Sylvania, Cree, Nichia. 2) LED components, lamps, drivers, and fixtures shall comply with: PCC 47 CFR Part 15; UL 8750; ANSI/NEMA Standards C78.377, NEMA SSL-1, C82.77, IESNA Standards TM-16-05, RP-16, LM-79, LM-80 and TM-21, 3) Drivers shall be integral to the fixture unless otherwise shown or specified.
- E. Emergency ballasts/drivers/batteries/inverters shall be Bodine, lota. Coordinate voltages and outputs for min. 90 minute operation with fixtures scheduled and controls indicated and provided.

B. In following sections. Maintain following on project premises at all times: true RMS

B. Replace all burned-out lamps & lamps used for temporary construction lighting in

tester. Provide test data readings as requested or as required by engineer

indicated, use those specified in UL 486a & UL 486b.

by drawings & specifications & make final adjustments as necessary.

A.Refer to GENERAL MECHANICAL, ELECTRICAL & PLUMBING requirements.

C. Provide flush mounted telephone and/or data outlet boxes w/ 3/4-inch EMT stub-up

concealed to accessible ceiling space at locations as indicated on drawings.

grounding resistance, & proper phasing.

reading voltmeter, true RMS reading ammeter, & megohmmeter insulation resistance

F. Execution

14. SYSTEM START UP

![](_page_13_Picture_239.jpeg)

LED Dimmers: Modular: compatible with dimming drivers in fixture(s); if other than 0-10V dimming is provided, verify dimmer is compatible with driver for full range of

6) Equivalent devices by Leviton, Bryant, Hubbell, Wattstopper, Lithonia, Sensor

1) Provide lighting fixtures w/ lamps & accessories req'd for hanging. Coord mounting of lighting fixtures w/ architect & G/C. Additional fixture supports shall be provided by E/C. Supports shall comply w/ latest edition of NEC. Provide lighting fixture securing clips as required. Consult arch plans for ceiling types & provide surface & recessed lighting fixtures w/ appropriate mounting components & accessories. 2) Fixtures mounted in fire rated ceilings shall be provided & installed w/ fire rated

3) Poles & support components: comply w/ AASHTO LTS-4. Provide steel poles in color as specified or selected by architect. Provide bolt covers. Provide concrete

A. Adjust, align, & test all electrical equipment on this project provided under this division & all electrical equipment furnished by others for installation or wiring under this division for proper operation. Test all systems & equipment according to requirements in NETA ATS

3) Tighten screws & bolts for connectors & terminals according to manufacturer's published torque-tightening values. If manufacturer's torque values are not

4) Check & record building's service entrance voltage, grounding conditions,

C. After all systems have been inspected & adjusted, confirm all operating features required

A.Provide incoming telephone and/or data service raceways as indicated on drawings or as B. Provide 3/4-inch thick plywood board, fire-retardant- treated & stamped FRT, securely

![](_page_13_Picture_256.jpeg)

![](_page_13_Picture_257.jpeg)

![](_page_14_Figure_0.jpeg)

#### **GENERAL SITE PLAN NOTES**

- 1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
- REFER TO CIVIL PLANS FOR CONTINUATION OF SERVICES BEYOND 5'-0" FROM BUILDING UNLESS OTHERWISE SHOWN.
- 3. REFER TO RESPECTIVE FLOOR PLANS FOR CONTINUATION OF SERVICES INSIDE BUILDING AND/OR EXACT LOCATIONS OF EQUIPMENT.
- CONTACT UTILITY LOCATING SERVICE TO LOCATE EXACT LOCATION OF ALL EXISTING UTILITIES BELOW GRADE.

#### SITE PLAN KEYED NOTES

- $\langle 1 \rangle$  refer to civil plan for continuation.  $\langle 2 \rangle$  PROVIDE ROUGH–IN AND (2) 1" CONDUIT BACK TO STORAGE ROOM FOR FUTURE CARD READER.
- $\langle 3 \rangle$  all in pool lighting and rough-in by others.  $\langle 4 \rangle$  all pool deck lighting and rough–in by others.
- $\langle 5 \rangle$  All pool grounding by others.
- $\langle 6 \rangle$  2" CONDUIT FOR COMMUNICATION SERVICE.
- $\langle 7 \rangle$  REFER TO PLUMBING PLAN FOR CONTINUATION.
- 8 PROVIDE POWER TO MONUMENT SIGN. COORDINATE WITH SIGN MANUFACTURER FOR POWER REQUIREMENT.

#### <u>GENERAL NOTE:</u>

THERE ARE NO GROUND MOUNTED HVAC EQUIPMENT. ENTIRE BUILDING IS NON CONDITIONED SPACE AND ONLY UTILIZED DURING SEASONAL TIMES OF THE YEAR FOR POOL ACTIVITIES. BUILDING IS WINTERIZED DURING OFF PEAK TIMES PER NOTES WITHIN DRAWINGS.

![](_page_14_Picture_18.jpeg)

![](_page_14_Picture_19.jpeg)

![](_page_14_Picture_21.jpeg)

![](_page_15_Figure_0.jpeg)

PLUMBING RISER - DOMESTIC WATER NO SCALE

![](_page_15_Figure_2.jpeg)

PLUMBING RISER - WASTE & VENT NO SCALE

![](_page_15_Figure_4.jpeg)

- 1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
- 2. REFER TO PLUMBING FIXTURE / DRAIN SCHEDULES FOR PIPING SIZES FOR INDIVIDUAL CONNECTIONS TO FIXTURES AND RISERS NOT SHOWN ON PLANS.
- 3. NO SANITARY OR VENT PIPING BELOW GRADE SHALL BE LESS THAN 2".
- 4. NO DOMESTIC WATER PIPING SHALL BE SMALLER THAN 3/4" UNLESS NOTED OTHERWISE. 5. ALL VENT PIPING SHOWN IS DIAGRAMMATIC. USE APPROPRIATE FITTINGS FOR VENT PIPING BELOW FLOOD RIM OF FIXTURE.
- 6. NOT ALL INTERIOR CLEANOUTS ARE SHOWN FOR DRAWING CLARITY. CONTRACTOR SHALL INSTALL ALL CODE—REQUIRED CLEANOUTS (RE: GENERAL NOTES ON COVER SHEET). COORDINATE EXACT LOCATIONS OF CLEANOUTS WITH ARCHITECT.

#### PLUMBING PLAN KEYED NOTES

1) REFER TO CIVIL PLANS FOR CONTINUATION. COORDINATE EXACT LOCATION WITH CIVIL.

- 2) 1-1/2" POOL WATER MAKE-UP LINE. REFER TO POOL PLANS FOR CONNECTION.
- (3) COORDINATE EXACT LOCATION WITH POOL EQUIPMENT.
- (4) REFER TO RISER DIAGRAM ON THIS SHEET FOR PIPE ROUTING.
- 5 2" PVC POOL DRAIN LINE SECURED TO THE WALL. TURN DRAIN LINE DOWN AT EXTERIOR WALL 12" ABOVE GRADE AT DRAIN INLET, AS SHOWN ON CIVIL PLANS. PROVIDE INSECT SCREEN OR CAP TO PREVENT INSECTS AND ANIMALS IN THE DRAIN LINE.
- 6 DRAIN LINE SHALL CONNECT TO OWNER PROVIDED POOL EQUIPMENT. CONTRACTOR SHALL COORDINATE POOL DRAIN CONNECTION WITH OWNER.
- (7) shower head shall be installed at 7'-6" aff.
- 8 4' VENT THROUGH ROOF SHALL BE INSTALLED LOW ON SLOPPED ROOF. EXTERIOR VENT PIPING SHALL BE PAINTED TO MATCH ROOF. COORDINATE WITH ARCHITECT FOR COLOR AND FINISH. REFER TO ARCHITECTURAL DIMENSIONAL PLANS FOR VENT LOCATION.
- 9 PIPING SHALL NOT BE INSTALLED OVER ATTIC HATCH. PIPING SHOWN DIAGRAMMATICAL FOR CLARITY ON PLANS.

![](_page_15_Figure_20.jpeg)

**FLOOR PLAN - PLUMBING** 

### **GENERAL HVAC NOTES**

- 1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
- 2. ROUND BRANCH DUCT RUNOUTS AND FLEXIBLE DUCT SHALL BE THE SAME SIZE AS THE DIFFUSER NECK UNLESS NOTED OTHERWISE.
- 3. MAXIMUM FLEXIBLE DUCT LENGTH SHALL BE 5'-0".
- 4. ALL AIR DISTRIBUTION DEVICES SHALL HAVE LOCKABLE VOLUME CONTROL DEVICES.
- 5. ALL 90 DEGREE TURNING ELBOWS SHALL BE SMOOTH ROUND OR SQUARE WITH TURNING VANES.
- 6. DUCT SIZES SHOWN ON PLANS ARE INSIDE FREE AREA.

## $\square$ $\square$ 4 <u>18x18</u> R1 TYP. 2 R1 $\bigcirc \square$ STORAGE 101 . T T T . T T WOMEN - \_\_\_\_\_\_\_ 1 POOL EQUIPMENT <u>EF-2</u>3 **N**T $4 \frac{18\times18}{17P_{2}} R$ $\square$ $\square$

![](_page_15_Picture_30.jpeg)

- 1 TERMINATE EXHAUST DUCT WITH 6" ROOF VENT CAP. ROOF CAP TO BE PAINTED TO MATCH ROOF. COORDINATE WITH ARCHITECT FOR COLOR/FINISH. REFER TO ARCHITECTURAL DIMENSIONAL PLANS FOR ROOF VENT LOCATION.
- 2 TERMINATE EXHAUST DUCT WITH 10" ROOF VENT CAP. ROOF CAP TO BE PAINTED TO MATCH ROOF. COORDINATE WITH ARCHITECT FOR COLOR/FINISH. REFER TO ARCHITECTURAL DIMENSIONAL PLANS FOR ROOF VENT LOCATION.
- 3 INSTALL EXHAUST FAN IN ATTIC WITH GRILLE FLUSH TO CEILING. 4 INSTALL RETURN GRILLES LOW ON WALL 12" A.F.F. WITH INSECT SCREEN BETWEEN GRILLES. SEAL AROUND GRILLE FRAME. PAINT GRILLE TO MATCH WALL. COORDINATE WITH ARCHITECTURAL PLANS FOR WALL COLOR AND FINISH.

![](_page_15_Picture_34.jpeg)

![](_page_15_Picture_35.jpeg)

![](_page_15_Picture_40.jpeg)

![](_page_16_Figure_0.jpeg)

![](_page_16_Figure_1.jpeg)

WALL CLEANOUT DETAIL

NOT TO SCALE

![](_page_16_Figure_2.jpeg)

![](_page_16_Figure_4.jpeg)

### 

יבי	UMBING F	IXTURE SCHEDULE					
				FITTINGS AND TRIM	DEMARKO	PLUM	BING FIX
	FIXTURE MODEL	FIXTURE DESCRIPTION	FITTINGS MODEL	FITTINGS AND DESCRIPTION	REMARKS	WASTE	VENT
-1	AMERICAN STANDARD 0355.012	ADA-COMPLIANT WALL-HUNG LAVATORY. 20"x18" WHITE VITREOUS CHINA BOWL WITH 4" BACK FOR USE WITH CONCEALED ARM HANGER. FAUCET HOLES COORDINATED WITH FAUCET AND TRIM. PROVIDE CONCEALED ARM CARRIER. MOUNT TOP OF RIM AT 34" A.F.F.	MOEN WS84503	FAUCET: CHROM PLATED CAST BRASS, 4" CENTERS, 4-1/2" SPOUT, 0.5 GPM, SINGLE HANDLE	1,2,3,4,5	2"	1-1/2"
C-1	AMERICAN STANDARD MADERA 3043.001 CHURCH 9500C	ADA-COMPLIANT, 1.6 GALLON, FLOOR-MOUNTED FLUSH VALVE WATER CLOSET. TOP SPUD AND FLAT BOLT COVERS. WHITE VITREOUS CHINA ELONGATED BOWL. 16–1/2" HIGH. WHITE, SOLID PLASTIC, OPEN-FRONT SEAT FOR ELONGATED BOWL. INTEGRAL BUMPERS. EXTERNALCHECK HINGES WITH STAINLESS STEEL POSTS.	SLOAN ROYAL 111	EXPOSED WATER CLOSET FLUSH VALVE. CHROME-PLATED, METAL OSCILLATING NON-HOLD-OPEN HANDLE. 1" I.P.S. SCREWDRIVER BACK-CHECK ANGLE STOP WITH PROTECTIVE CAP. ADJUSTABLE TAILPIECE. 1.6 GPF, VACUUM BREAKER FLUSH CONNECTION AND SPUD COUPLING FOR 1-1/2" TOP SPUD. PROVIDE WALL AND SPUD FLANGES. HANDLE HEIGHT PER MANUFACTURER'S RECOMMENDATIONS AND IN ACCORDANCE WITH ADA GUIDELINES.	6	4"	2"
H-1	WATTS HT-440	EXPOSED, ANIT-SIPHON WALL HYDRANT. BRASS CASING, ALL-BRONZE INTERIOR PARTS. REPLACEABLE BRONZE SEAT AND SEAT WASHER. COMBINATION 3/4" FEMALE AND 1" MALE IP INLET CONNECTION STANDARD. INCLUDES OPERATING KEY.					
5-1	FIAT MSB-2424	JANITORS SINK: 24"x24"x10", WHITE, ONE-PIECE MOLDED STONE MOP BASIN. UNIT SHALL BE ONE HOMOGENOUS PIECE. STAINLESS STEEL INTEGRAL DRAIN BODY WITH CAULKED CONNECTION FOR 3" PIPE. PROVIDE STAINLESS STEEL BUMPER AND WALL GUARDS, MOP BRACKETS, HOSE RACK.	CHIČAGO FAUČET 897–CP	C.P. SERVICE SINK FITTING WITH VACUUM BREAKER, 3/4" HOSE THREAD ON SPOUT, ADJUSTABLE WALL BRACE, PAIL HOOK, AND 1/2" FLANGED FEMALE ADJUSTABLE ARMS WITH INTEGRAL STOPS. CAULK BETWEEN WALL AND FLANGE WITH GE SILICONE SEALANT. 3" C.I. "P" TRAP.		3"	2"
2	VRC8WSK	WALL MODNTED ADA-COMPLIANT, BARRIER-FREE, HEAVY DUTY ELECTRIC WATER COOLER WITH BOTTLE FILLING STATION. POWDER COATED IN COLOR SELECTED BY ARCHITECT. 18GA STAINLESS BOWL. PROVIDE WITH CARRIER FOR WALL MOUNTING. MOUNT TRAP INSIDE OF BUILIDNG.					
1-1			SYMMONS S-6601	SHOWER VALVE WITH PRESSURE BLANCING MIXING VALVE AND INTEGRAL VOLUME CONTROL. ONE-MODE SHOWER HEAD WITH BALL JOINT. PROVIDE POLISHED CHROME FINISH.			

REMARKS:

1. PROVIDE CHROME-PLATED BRASS TAILPIECE AND GRID DRAIN. 2. PROVIDE CHROME-PLATED BRASS P-TRAP.

3. PROVIDE LOOSE KEY STOPS AND FLEXIBLE RISERS.

4. PROVIDE CONCEALED ARM TYPE CARRIER WITH SQUARE, TUBULAR STEEL UP-RIGHTS AND BLOCK TYPE BASES. 5. INSULATE EXPOSED TAILPIECE, P-TRAP, AND WATER RISERS. REFER TO SPECIFICATIONS FOR INSULATION METHODS.

6. PROVIDE FLUSH VALVE HANDLE ON WIDE SIDE OF STALL.

GENERAL NOTES (APPLICABLE TO ALL FIXTURES): 1) ALL PUBLIC LAVATORIES AND SINKS SHALL BE PROVIDED WITH ANTI-SCALD ASSE 1070 LISTED VALVE ON HOT WATER SUPPLY.

PIPING					FIELD TEST	ALLOWABLE IN	INSU
SYSTEM	SIZE	TYPE/SCHED	MATERIAL	ACCEPTABLE FITTINGS	PRESSURE/TIME	PLENUMS	TYPE
DOMESTIC COLD WATER	1/2"-2-1/2"	L	COPPER	SOLDER, PRO-PRESS	130 PSI – 1/2HR	YES	FIBERGLASS W/ AS
DOMESTIC HOT WATER & HW RETURN	1/2"-1-1/4"	L	COPPER	SOLDER, PRO-PRESS	130 PSI – 1/2HR	YES	FIBERGLASS W/ AS
SOIL & WASTE ABOVE GRADE	1-1/2"-6"	NO HUB / SERVICE WT.	CAST IRON	NO HUB	10 FT – 1/2HR	YES	
SOIL & WASTE ABOVE GRADE	2"-8"	SCH. 40	PVC	SOLVENT JOINED	10 FT – 1/2HR	NO	
SOIL & WASTE BELOW GRADE	2"-8"	SCH. 40	PVC	SOLVENT JOINED	10 FT — 1/2HR	NO	
DOM. WATER SERVICE BELOW GRADE	1"-3"	К	COPPER	CONTINUOUS TUBING, BRAZED	130 PSI – 1/2HR	YES	
DOM. WATER SERVICE BELOW GRADE	1"-3"	DR 9	HDPE	CONTINUOUS TUBING, FUSED	130 PSI – 1/2HR	NO	

2. ALL INSULATION THICKNESSES SHALL MEET ADOPTED IECC AND ASHRAE 90.1 – 2016 REQUIREMENTS AT A MINIMUM. 3. REFER TO SPECIFICATIONS FOR MORE DETAILED INFORMATION.

#### **GRILLE, REGISTER & DIFFUSER SCHEDULE** PLAN<br/>MARKMADEL<br/>NUMBERMATERIALSTYLEDESCRIPTIONMOUNT<br/>TYPEFACE SIZE (IN)NECK SIZE<br/>(IN)VOLUME<br/>DAMPERMAX APD<br/>(IN. WG.)MAX<br/>NCFINISH<br/>COLORNOTESR1TITUS30RLSTEELSQUARE WALLHEAVEY DUTY GRILLE WITH 3/8" SPACING AND 0" DEFLECTIONWALLAS INDICATEDAS INDICATEDNO0.0825PAINTABLE1 GENERAL REMARKS: NOTES: . PRIME AND PAINT TO MATCH WALL COLORS. 1. PROVIDE ALL GRD WITH ALL NECESSARY MOUNTING HARDWARE. 2. PROVIDE GRD WITHOUT SCREWHOLES WHEN INSTALLED IN LAY-IN CEILINGS

#### **EXHAUST FAN SCHEDULE**

PLAN		MODEL	TVDE				FAN	I DATA				CON
IARK	MANUFACIURER	NUMBER	ITE	SERVICE	CFM	E.S.P. (IN)	HP	DRIVE	SONES	RPM	ELECTRICAL	CON
EF-1	СООК	GC-148	CEILING CABINET	BATHROOM	125	0.250	46W	DIRECT	2.5	1,075	120V / 1PH	THERM
EF-2	СООК	GC-542	CEILING CABINET	POOL EQUIP.	325	0.375	131W	DIRECT	5.5	1,600	120V / 1PH	THERM
EF-3	СООК	GC-422	CEILING CABINET	STORAGE	250	0.375	107W	DIRECT	4.5	1,500	120V / 1PH	THERM
REMARKS	5:											

1. PROVIDE WITH LINE VOLTAGE THERMOSTAT. 2. PROVIDE WITH SPEED CONTROLLER.

WA		FER S	CHED	ULE	- ELE		;		
PLAN MARK	MANUFACTURER		GALLONS	STYLE	HEIGHT	# HTG.	WATTS	RECOVERY @	V

MARK	MANUFACTURER	NUMBER	GALLONS	STYLE	(IN)	ELEMENTS	WATTS	90°F RISE	PHAS
WH—1	STATE	EN6	30	TALL	47	2	4,500	21	240V /
REMARKS	<u>S:</u>								

1. GLASS LINED TANK. 2. PROVIDE WITH TAMPER RESISTANT DRAIN VALVE.

DO	<b>MESTIC R</b>	ECIRC	CUL	ATION	N PUI	MP S	CHED
				ΗΕΔΟ		MAY	

PLAN MANUFACTURER MODEL OPM (FT. WC) WATTS RPM 
 RP-1
 BELL & GOSSETT
 NBF-12
 3.0
 7.0
 55
 2,800
 120V / 1 PH
 1,2,3
 <u>REMARKS:</u>

1. ALL BRONZE CONSTRUCTION. 2. PROVIDE WITH MOTOR RATED DISCONNECT, AQUASTAT AND TIMER FOR OPERATION OF PUMP 3. MOUNT PUMP AND ACCESSORIES NEAR WATER HEATER AND NO HIGHER THAN 6' AFF.

PLAN MARK	MANUFACTURER	MODEL NUMBER	SERVICE	TOP/GRATE SIZE	WA S
FD-1	WATTS	FD-100L-6-2	FLOOR DRAIN	6 <b>"</b> Ø	
FD-2	WATTS	FD-100L-8-4	FLOOR DRAIN	8 <b>"</b> Ø	

WATER HA	WATER HAMMER ARRESTERS:												
PROVIDE WAT ARRESTER BI	ER HAMMER ARRESTORS FOR ETWEEN THE LAST TWO FIXTU	R ALL PLUMBING BANKS IRES SERVED ON THE BR	WITH FIXTURES UTILIZING FLUSH VALVES IN ANY CAPACIT RANCH LINE.										
	FIXTURE UNITS (FU)	UNIT SIZE	ASSE 1010 OR PDI-WH 201, PISTON TYPE WITH PRI										
	1–11	А	METAL-TUBE CUSHIONING CHAMBER. SIZES INDICATE										
	12-32	В	ASSE 1010, SIZES AA AND A THROUGH F OR PDI-W										
33-60		С	THROUGH F. MANUFACTURERS: AMTRUL, JUSAM, SIUU, 711RN										
	61–113	D	20///										
	114–154	Е	WATER CLOSET=10FU, URINALS=5FU, LAVATORIES=1										
	155–330	F											
WHEN NO FL SUPPLY CON DROPPING IN OTHER EQUIF	USH VALVES ARE INSTALLED INECTION TO A PLUMBING FIX ITO MASONRY CONSTRUCTION PMENT SHALL BE PROVIDED V	ON A BRANCH OF PIPIN TURE. CONTRACTOR MAY IN LIEU OF AIR CHAMBE WITH AN APPROPRIATELY	- G PROVICE 3/4"X12" AIR CHAMBERS AT EACH HOT AND PROVIDE WATER HAMMER ARRESTERS ABOVE THE CEILIN RS. CONNECTIONS TO OTHER ITEMS SUCH AS WASHERS, SIZED WATER HAMMER ARRESTER FOR EACH WATER CON										

![](_page_16_Picture_27.jpeg)

![](_page_16_Figure_29.jpeg)

WHOSE DRAIN CONNECTION IS TWICE THE DIAMETER OF BACKFLOW DRAIN PORT SIZE

THRUST BLOCK

- SLEEVE FOUNDATION

DOMESTIC WATER SERVICE

NOT TO SCALE

WATER SERVICE W/ IRRIGATION

### **REDUCED PRESSURE BACKFLOW PREVENTER DETAIL**

![](_page_16_Figure_33.jpeg)

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![](_page_17_Figure_2.jpeg)

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### FLOOR PLAN - POWER 1/4" = 1'-0"

#### **GENERAL POWER NOTES**

- 1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.
- 2. COORDINATE EXACT NEMA CONFIGURATIONS OF RECEPTACLES SERVING EQUIPMENT WITH EXACT EQUIPMENT BEING FURNISHED.
- REFER TO THE SPECIFICATIONS FOR ADDITIONAL LOCATIONS/REQUIREMENTS FOR RECEPTACLES, INCLUDING GFCI, WEATHER-RESISTANT, HOSPITAL-GRADE, AND TAMPER-RESISTANT RECEPTACLES.
- 4. EXACT MECHANICAL EQUIPMENT LOCATIONS MAY NOT BE SHOWN FOR CLARITY. COORDINATE EXACT LOCATIONS OF ALL MECHANICAL EQUIPMENT, DUCT DETECTORS, ETC. WITH MECHANICAL DRAWINGS AND CONTRACTOR.
- 5. COORDINATE EXACT LOCATIONS OF SMOKE DETECTORS WITH CEILING FANS, HVAC DIFFUSERS, SPRINKLER HEADS, ETC. PER NFPA REQUIREMENTS. 6. ROMEX WIRE IS ACCEPTABLE WHERE IT MEETS NEC AND LOCAL CODES. NOTE THAT IT CANNOT BE INSTALLED IN EXPOSED LOCATIONS SUBJECT TO
- DAMAGE OR IN LAY-IN CEILINGS.

#### POWER PLAN KEYED NOTES

- 1 REFER TO SITE PLAN FOR CONTINUATION. 2 CONNECT TO LIGHTING CIRCUIT IN ROOM. FANS TO BE CONTROLLED BY THERMOSTAT.
- 3 EXTEND POOL BONDING GRID TO CIRCULATION PUMP ENCLOSURE PER NEC, POOL BONDING BY OTHERS.
- 4 PROVIDE ELECTRICAL CONNECTION TO POOL PUMPS AND STARTERS BY POOL EQUIPMENT PROVIDER.
- 5 PROVIDE ROUGH-IN AND (2) 1" CONDUIT WITH PULL STRINGS BACK TO STORAGE ROOM FOR FUTURE CAMERA. INSTALL JUNCTION BOX UNDER EAVE/TRELLIS. COORDINATE ROUGH-IN WITH ARCHITECT/OWNER. 6 2" CONDUIT FOR COMMUNICATION SERVICES.
- 7 ROUTE TO HOMERUN PANEL VIA PHOTOCELL.
- 8 PROVIDE ROUGH-IN AND (2) 1" CONDUIT BACK TO STORAGE ROOM FOR FUTURE CARD READER.
- 9 100A, 120/240 POOL LOAD CENTER PROVIDED BY POOL CONTRACTOR.
- 10 EMERGENCY PHONE LINE SHALL BE ROUGH-IN A 48" AFF. CONTRACTOR TO FURNISH, ROUGH-IN WIRE AND PROGRAM MODEL TYPE: VIKING ADA COMPLIANT RED EMERGENCY PHONE.

![](_page_17_Figure_22.jpeg)

1. REFER TO GENERAL NOTES ON MEP COVER SHEET FOR ADDITIONAL REQUIREMENTS OF WORK.

- 2. LIGHT FIXTURES INDICATED AS EMERGENCY FIXTURES ARE TO FUNCTION AS NIGHT LIGHTS UNLESS SPECIFICALLY SHOWN SWITCHED.
- ALL CIRCUITING SHOWN ON THIS PLAN IS DIAGRAMMATIC.
   ALL FIXTURES SHALL BE FED FROM JUNCTION BOXES WITH LIGHT FIXTURE WHIPS (<6'). DAISY-CHAINING OF FIXTURES IS NOT ALLOWED.</li>
   SWITCH BOX LOCATIONS SHALL BE WIRED SO THAT A NEUTRAL WIRE IS ANUTABLE AT THE SWITCH DOX LOCATION STATE IN THE FOR OF AVAILABLE AT THE SWITCH BOX LOCATION, EITHER IN THE BOX OR AVAILABLE TO BE ADDED VIA RACEWAY OR AN ACCESSIBLE WALL CAVITY.
- 3.3. WALL SWITCHES FOR SEPARATE LOAD TYPES (EM/NORMAL, 120/277V, ETC.) SHALL NOT BE IN A SINGLE BOX. 3.4. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

### LIGHTING PLAN KEYED NOTES

(1) ROUTE HOMERUN TO PANEL VIA PHOTOCELL. (2) TO EXHAUST FAN. (3) PHOTOCELL (TORK 2001 SERIES) ORIENT TO NORTH.

![](_page_17_Figure_29.jpeg)

<u>SYMBOLS</u>

- MALL SWITCH VACANCY SENSOR: PASSIVE INFRARED, 120/277V, WALL SWITCH DECORA STYLE SENSOR. (WATTSTOPPER PW-101, OR EQUAL)
- **WALL SWITCH MOTION SENSOR (DUAL TECHNOLOGY):** PASSIVE INFRARED AND ULTRASONIC, 120/277V, DECORA STYLE SENSOR. (WATTSTOPPER
- DSW-100, OR EQUAL) MALL <u>SWITCH MOTION SENSOR (DUAL RELAY):</u> PASSIVE INFRARED, DUAL RELAY, 120V, DECORA STYLE SENSOR. (WATTSTOPPER PW–201, OR EQUAL)

TRAINING AND PROGRAMMING

- <u>OWNER TRAINING:</u>

   PROVIDE FACTORY REPRESENTATIVE TRAINING TO OWNER FOR EACH LIGHTING CONTROL SYSTEM UTILIZED, INCLUDING PROGRAMMING FOR SCHEDULING AND OPERATION OF EACH ROOM PER OWNER DIRECTION. PROVIDE RECORD OF TIME DELAY SETTINGS ON ALL SENSOR DEVICES FOR OWNER USE.
- <u>SENSOR ADJUSTMENTS AND SETTINGS:</u>

  SYSTEMS SHALL BE SET/PROGRAMMED TO OPERATE TYPICALLY IN MANUAL ON/AUTO OFF MODE. 1. SET WALL MOUNTED MOTION SENSOR TO MANUAL ON MODE.
- 2. SET POWER PACKS AND ROOM CONTROLLERS CONTROLLED BY MOTION SENSORS TO MANUAL ON AND CONTROL WITH MOMENTARY WALL SWITCH. • PROVIDE FINAL SETTINGS/ADJUSTMENTS PER OWNER'S DIRECTION.

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STORAGE

\_\_\_\_

WOMEN

102

𝔄<sub>CL2</sub>

**MEN** 103

POOL EQUIPMENT

104

101

WL

AE A

MR

CL5

 $\square$ 

![](_page_17_Picture_40.jpeg)

FLOOR PLAN - LIGHTING / 1/4" = 1'-0"

![](_page_17_Picture_42.jpeg)

![](_page_17_Picture_44.jpeg)

![](_page_17_Picture_47.jpeg)

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![](_page_18_Figure_1.jpeg)

**MOUNTING HEIGHTS FOR WALL-MOUNTED DEVICES** NOT TO SCALE

![](_page_18_Figure_3.jpeg)

FIXTURE TYPE	MANUFACTURER CATALOG NUMBER		DESCRIPTION	LAMP NUMBER / DESCRIPTION	VOLT
CL2	LIGHTOLIER	S5R	5" SURFACE MOUNTED LED DOWNLIGHT WITH WHITE TRIM RING.	ONE (1) 9.5 WATT, 1500 LUMEN, LED MODULE. 3000K CCT.	12
CL4	WILLIAMS	SERIES 75R	4'-0" LONG STRIP FIXTURE. SURFACE MOUNT. FURNISH WITH ROUNDED ACRYLIC LENS. ALL PARTS PAINTED WHITE AFTER FABRICATION. ELECTRONIC DRIVER PRE-WIRED FOR NON-DIMMING APPLICATIONS.	ONE (1) 23 WATT, 3200 LUMEN, LED MODULE. 3000K CCT.	12
CL5	LIGHTOLIER	S5R	SAME AS FIXTURE TYPE 'CL2' EXCEPT INSTALL PER WET LOCATION.	ONE (1) 9.5 WATT, 1500 LUMEN, LED MODULE. 3000K CCT.	12
Ε	DUAL-LITE	LZ SERIES LZR REMOTE HEAD	LOW-PROFILE EMERGENCY LIGHTING UNIT. FLAME-RATED, UV-STABLE THERMOPLASTIC HOUSING. TWO (2) SEMI-RECESSED, ADJUSTABLE "EYEBALL" HEADS WITH GLASS LENS. WHITE FINISH. MAINTENANCE-FREE BATTERY FOR 90 MINUTE OPERATION OF LAMPS. INTEGRAL TEST SWITCH AND AC-ON INDICATOR. FURNISH WITH REMOTE CAPACITY WHERE INDICATED. WITH REMOTE HEAD.	TWO (2) 1 WATT LED	12
WL1	DESIGNER'S FOUNTAIN	33121-WP	EXTERIOR WALL-MOUNTED INCADESCENT LAMP. RATED FOR WET LOCATION, FINISH BY ARCHITECT.	100 WATT, 3000K	12

FURNISH WITH AND INSTALL ALL NECESSARY HARDWARE AND MOUNTING BRACKETS.

	PANEL DESIGNATION: L1					-			MAIN LU	JG AMPS:	225 200		
					#				200				
			CIRCU	D)	PHASE/WIRE 10 3W								
	200/11011			C/B		PHASE							
	DESCRIPTION	A .	В	TRIP	POLE			POLE	TRIP	A	В	DESCRIF	
	POOL SUB PANEL	9600	9600	100	2	1	2	1	20 15	540	1.35	REC POOL	
	DRINKING FOUNTAIN	1200		20	1	5	6			2250			
	IRRIGATION CONTROLLER		1200	30	1	7	8	2	30		2250		
	LTG BATHROOM	360		20	1	9	10	1	20	360		R	
	LTG EXTERIOR		90	20	1	11	12	1	20		540	REC S	
	POOL EQUIPMENT	1200		20	1	13	14	1	20	540		REC C	
	LTG STORAGE ROOM		70	20	1	15	16	1	20		540	REC C	
_	LTG EQUIPMENT ROOM	70		20	1	17	18	1	20	107			
	MONUMENT SIGNAGE		1920	20	1	19	20	1	20		-		
	SPARE	_		20	1	21	22	1	20	_			
	SPARE		-	20	1	23	24	1	20		-		
	SPARE	-		20	1	25	26	1	20	-			
	SPARE		-	20	1	27	28	1	20		-		
	SPARE	-		20	1	29	30	1	20	-			
	SPARE		-	20	1	31	32	1	20		-		
	SPACE	-		-	1	33	34	1	-	-			
	SPACE		-	-	1	35	36	1	-		-		
	SPACE	-		-	1	37	38	1	-	-			
	SPACE		-	-	1	39	40	1	-		-		
	SPACE	-		-	1	41	42	1	-	-			
	TOTALS	12430	12880							3797	3465	TOTALS	
PANELBOARD SIZING LOAD										CON	INECTED PHASE		
	LOAD DESCRIPTION	CONN	ECTED	DEM	AND		COL	DE MIN.	(VA)		PHASE	VA	
	LIGHTS	2,5	510	1.25				3,138			A	16,227	
	RECEPTACLES	2,520 1		φκνα + 50% RES		<u>97</u>		2,520			В	16,345	
	MOTORS	3,842 1.25		X LARGEST + SUM OF		REST		4,142			TOTALS	32,572	
	AIR CONDITIONING	0		1.00				0					
_	SPACE HEATING	0		0.00				0			<u>REMARKS:</u>		
	CONTINUOUS	1,200		1.25				1,500			1. CUTLER	HAMMER POW-R-LI	
	NON-CONTINUOUS	19,200		1.00		19,200				2. PROVIDE SHUNT TRIP BREA			
	MISC. LOADS 1	4,500		1.00		4,500					ACTUATION BY MUSHROOM PUS		
	MISC. LOADS 2	0		1.00		0				OUTSIDE WALL			
						35,000				- 1-1			

![](_page_18_Figure_7.jpeg)

![](_page_18_Picture_8.jpeg)

![](_page_18_Figure_10.jpeg)

![](_page_18_Figure_11.jpeg)

R-LINE 1A OR EQUAL. BREAKER WITH PUSHBUTTON ON

![](_page_18_Picture_13.jpeg)