

UNLV Robotics Lab

1325 East Flamingo Road
Las Vegas, Nevada 89119

UNLV Robotics Lab
Construction Documents
1325 East Flamingo Road
Las Vegas, Nevada, 89119

aptus
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1200 South 4th Street
Suite 206
Las Vegas, Nevada
89104
P 702.839.1200
F 702.839.1213

PROJECT TEAM



OWNER
University of Nevada, Las Vegas
4505 South Maryland Parkway
Las Vegas, Nevada 89154
P 702.895.2500
F 702.895.3850

aptus

ARCHITECT
aptus
1200 South 4th Street
Suite 206
Las Vegas, Nevada 89104
P 702.839.1200
F 702.839.1213



MECHANICAL ENGINEER
DG Koch Associates LLC
2000 S. Jones Blvd
Suite 110
Las Vegas, Nevada 89146
P 702.221.5160
F 702.221.5165



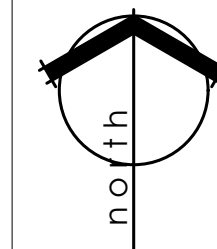
ELECTRICAL ENGINEER
TJK Consulting Engineers, Inc.
5459 Durango Drive
Suite 100
Las Vegas, Nevada 89113
P 702.871.3621
F 702.871.8353

BUILDING CODE DATA

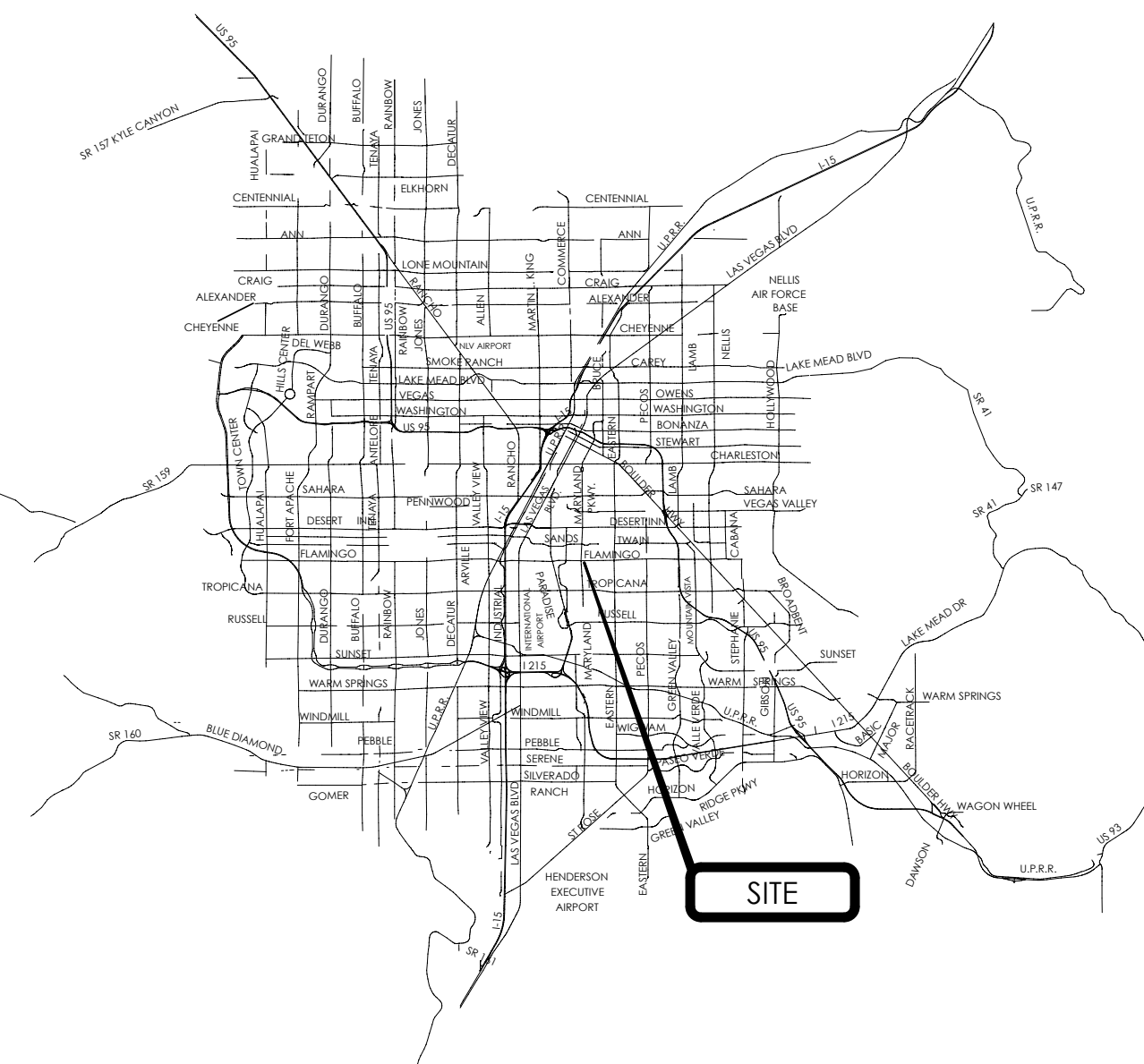
- JURISDICTION: NEVADA STATE FIRE MARSHALL & STATE PUBLIC WORKS DIVISION
- 2012 IBC WITH SOUTHERN NEVADA AMENDMENTS
- 2012 IFC WITH SOUTHERN NEVADA AMENDMENTS AND CLARK COUNTY AMENDMENTS
- 2012 UMC WITH SOUTHERN NEVADA AMENDMENTS
- 2012 UPC WITH SOUTHERN NEVADA AMENDMENTS
- 2011 NEC WITH SOUTHERN NEVADA AMENDMENTS
- 2012 IECC
- ANSI A117.1-2009 & 2010 ADA

NOTE: SEE G000 FOR BUILDING CODE ANALYSIS AND EXITING PLANS

VICINITY MAP (N.T.S.)



ASSESSOR'S PARCEL NUMBER: 162-23-101-003



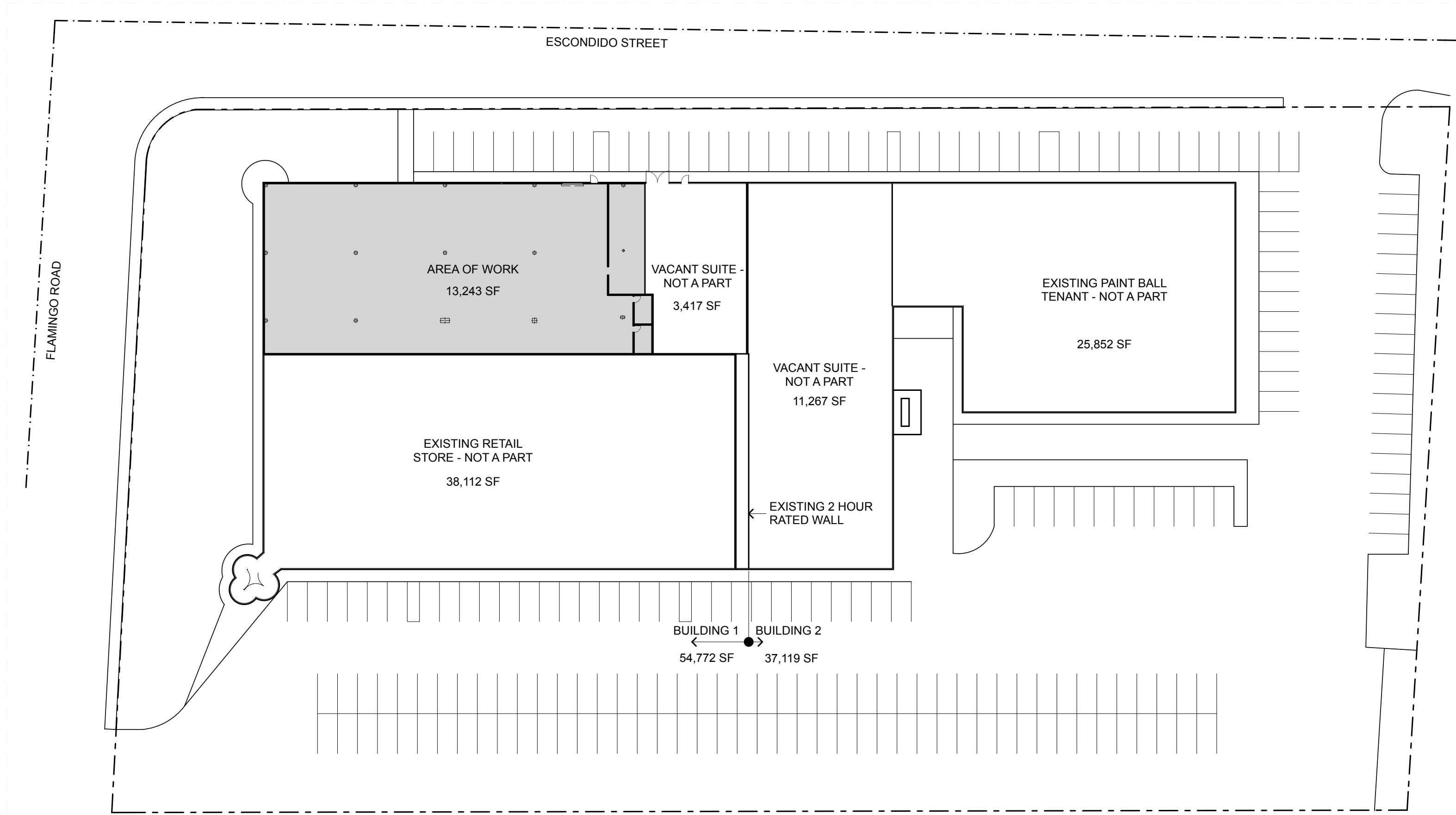
DRAWING INDEX

DRAWING INDEX			12.09.15 SHAWND Peer Check						
	NO.	SHEET TITLE		A	A	A	A	A	A
GENERAL	HELLO	PROJECT TEAM, VICINITY MAP & INDEX	*						
	G000	CODE ANALYSIS & EXITING PLAN	*						
	G001	SYMBOLS LIST, ABBREVIATIONS AND STD. MTG. HEIGHTS	*						
	G002	SPECIFICATIONS	*						
	G003	SPECIFICATIONS	*						
	G004	SPECIFICATIONS	*						
	G005	SPECIFICATIONS	*						
	G006	SPECIFICATIONS	*						
	G007	SPECIFICATIONS	*						
DEMOLITION	AD100	DEMOLITION FLOOR PLAN	*						
ARCHITECTURAL	A100	FLOOR PLAN	*						
	A101	REFLECTED CEILING PLAN	*						
	A102	DOOR AND WINDOW DETAILS	*						
MECHANICAL \	MP000	LEGEND, INDEX NOTES SCHEDULE DETAILS	*						
PLUMBING	MP001	SPECIFICATIONS	*						
	MP100	OVERALL FLOOR PLAN WATER, DWV	*						
ELECTRICAL	EG1.01	GENERAL INFORMATION	*						
	EG1.02	SPECIFICATIONS	*						
	ES1.05	SITE PLAN	*						
	E1.01	LIGHTING PLAN	*						
	E2.01	POWER PLAN	*						
	E3.01	COMMUNICATION PLAN	*						
	E5.01	ONE LINE DIAGRAM	*						

TITLE
PROJECT TEAM,
VICINITY MAP &
INDEX

DRAWING NO.
HELLO

15.058 UNLV Robotics Lab



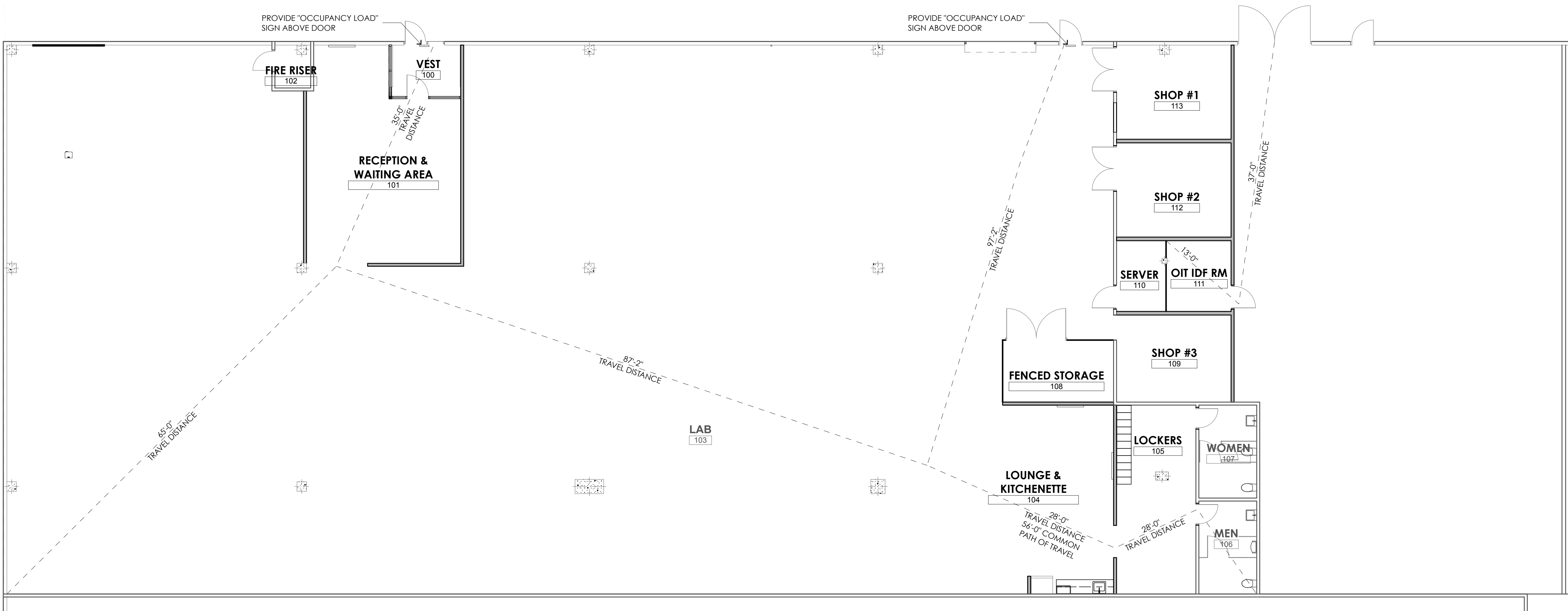
CODE ANALYSIS

NO PORTIONS OF THE ENVELOPE ARE BEING MODIFIED. SEE MECH AND ELECT. PLANS FOR IECC CALCULATIONS.

DESCRIPTION:	ROBOTICS LAB REMODEL
JURISDICTION:	Nevada State Public Works Division & Nevada State Fire Marshall
CODE:	2012 INTERNATIONAL BUILDING CODE, 2012 IFC, 2012 UMC, 2011 NEC, 2012 UPC, 2012 IECC, 2010 ADA
OCCUPANCY TYPE:	M/B
CONSTRUCTION TYPE:	IIIB
FIRE SPRINKLERS:	YES
ALLOWABLE AREA (Entire Building)	
$I_p = [F/P - 25] W/30$	
$[1314/1324 - 25]$	
$(.75) 30/30$	
$(.75)$	
$A_a = [12,500 + (12,500 \times .75)] + [12,500 \times 3]$	
$12,500 + 9375 + 37,500 =$	
$59,375$ total area allowed	
Actual Area = Building 1: 54,772 SF	
Building 2: 37,119 SF (Separated With 2 Hr Fire Wall)	
FLOOR AREA (Entire Tenant Space)	13,243 SF
SECTION 1004.1: OCCUPANT LOAD	EXISTING
SECTION 1005.1: EXIT WIDTH	
REQUIRED	133 OCC x 0.2 = 26.6"
PROVIDED	96"
SECTION 1014.3: COMMON PATH OF EGRESS TRAVEL	
ALLOWABLE	75'-0"
ACTUAL	56'-0"
SECTION 1015.1: EXIT AND EXIT ACCESS	
REQUIRED	1
PROVIDED	3
SECTION 1016.2: EXIT ACCESS TRAVEL DISTANCE	
ALLOWED	300'-0"
ACTUAL	178'-2"
PLUMBING COUNT:	
RESTROOM IS EXISTING AND NO SQUARE FOOTAGE IS BEING ADDED AND OCCUPANCY IS NOT CHANGING	

IECC SYNOPSIS

NO PORTIONS OF THE ENVELOPE ARE BEING MODIFIED. SEE MECH AND ELECTRICAL PLANS FOR IECC CALCULATIONS.



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TITLE
CODE ANALYSIS
& EXITING PLAN

DRAWING NO.
G000

15.058 UNLV Robotics Lab

ARCHITECTURAL ABBREVIATIONS LIST

A	
ABV	ABOVE
A/C	AIR CONDITIONING
ACT	ACOUSTICAL TILE
ADA	AMERICANS WITH DISABILITIES ACT
ADJ	ADJUSTABLE
AFF	ABOVE FINISHED FLOOR
ALT	ALTERNATE
ALUM	ALUMINUM
AP	ACCESS PANEL
APPROX	APPROXIMATE
ARCH	ARCHITECT(URAL)
AUTO	AUTOMATIC
A/V	AUDIO VISUAL
AVG	AVERAGE

B	
BO	BOTTOM OF BOARD
BEL	BELOW
BTWN	BETWEEN
BLKG	BLOCK(ING)
BLDG	BUILDING
BM	BEAM
BOT	BOTTOM
BS	BOTH SIDES

C	
C	CENTER
CAB	CABINET
CER	CERAMIC
CF	CUBIC FOOT (FEET)
CFCI	CONTRACTOR FURNISHED
CFOI	CONTRACTOR INSTALLED
CIR	CIRCLE
CIRC	CIRCUMFERENCE
CJ	CONTROL JOINT
CL	CENTER LINE
CLG	CEILING
CLO	CLOSET
CLR	CLEARANCE/CLEAR
CMU	CONCRETE MASONRY UNIT
COL	COLUMN
CONC	CONCRETE
CONF	CONFERENCE
CONT	CONTINUOUS OR CONTINUE
CORR	CORRIDOR
CPT	CARPET(ED)
CT	CERAMIC TILE
CW	COLD WATER
CD	CUBIC YARDS

D	
DB	DEPTH
DBL	DOUBLE
DEG	DEGREE(S)
DEPT	DEPARTMENT
DET	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DIV	DIVISION
DN	DOWN
DEPT	DEPARTMENT
DR	DOOR
DS	DOWNSPOUT
DWG	DRAWING

E	
(e)	EXISTING
E	EAST
EA	EACH
EL	ELEVATION
ELEC	ELECTRIC(AL)
ELEV	ELEVATOR
EJ	EXPANSION JOINT
EQ	EQUAL
EQUIP	EQUIPMENT
EST	ESTIMATE
EXP	EXPOSED
EXH	EXHAUST
EXIST	EXISTING
EXP	EXPANSION
EXT	EXTERIOR

F	
FD	FLOOR DRAIN
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER
CLOSET	
FFL	FINISH FLOOR LINE
FHC	FIRE HOSE CABINET
FIN	FINISHED
FLR	FLOOR(ING)
FND	FOUNDATION
FT	FOOT (FEET)
FUT	FUTURE
FV	FIELD VERIFY

G	
GA	GAGE, GAUGE
GALV	GALVANIZED
GC	GENERAL CONTRACT(OR)
GFR	GLASS FIBERGLASS REINFORCED
GFRG	GLASS FIBERGLASS REINFORCED CONCRETE
GL	GLASS, GLAZING
GYP	GYPSON

H	
H	HIGH
HB	HOSE BIBB
HC	HANDICAP
HDW	HARDWARE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HORSE POWER
H.P.	HIGH POINT
HR	HOUR
HT	HEIGHT
HVAC	HEATING/VENTILATION/ AIR CONDITIONING
HW	HOT WATER

I	
ID	INSIDE DIAMETER
IN	INCH(ES)
INCL	INCLUDE(D), (ING)
INFO	INFORMATION
INSUL	INSULATE(D), (ATION)
INT	INTERIOR

J	
JAN	JANITOR
JC	JANITOR'S CLOSET
JCT	JUNCTION
JT	JOINT

K	
KIT	KITCHEN

L	
LAM	LAMINATE(D)
LAV	LAVATORY
LB	POUND(S)
LH	LEFT HAND
LN	LINEAR
L.P.	LOW POINT
LT	LIGHT
LTG	LIGHTING
LVL	LEVEL

M	
MAT'L	MATERIAL(S)
MAX	MAXIMUM
MECH	MECHANIC(AL)
MED	MEDIUM
MEMB	MEMBRANE
MTL	METAL
MEZZ	MEZZANINE
MFR	MANUFACTURE(R), (D)
MIN	MINIMUM
MISC	MISCELLANEOUS
MO	MASONRY OPENING
MTD	MOUNTED

N	
N	NORTH
NA	NOT APPLICABLE
NIC	NOT IN CONTRACT
NOM	NOMINAL
NRC	NOISE REDUCTION COEFFICIENT
NTS	NOT TO SCALE

O	
O/	OVER
OC	ON CENTER
OD	OUTSIDE DIAMETER
OFF	OFFICE
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OH	OVERHEAD
O.H.	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE

P	
PERF	PERFORATE(D)
PERIM	PERIMETER
PERP	PERPENDICULAR
PKG	PARKING
PL	PLATE
P.L.	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLBG	PLUMBING
PR	PAIR
PREFAB	PREFABRICATE(D)
PSI	POUNDS PER SQUARE INCH
PT	POINT
PTN	PARTITION
PVC	POLYVINYL CHLORIDE
PWD	PLYWOOD
PWR	POWER

Q	
QTY	QUANTITY

R	
R	RISER
RAD	RADIUS
RB	RUBBER BASE
RD	ROOF DRAIN
REV	REVISION, REVISE(D)
REF	REFERENCE
REG	REGISTER
REQD	REQUIRED
RET	RETURN
RH	RIGHT HAND
RM	ROOM
RO	ROUGH OPENING

S	
S	SOUTH
SAN	SANITARY
SC	SOLID CORE
SCHED	SCHEDULE
SERV	SERVICE
SF	SQUARE FOOT
SGL	SAFETY GLASS
SH	SINGLE HUNG
SHT	SHEET
SIM	SIMILAR
SK	SKETCH
S.J.	SEALANT JOINT
SPEC	SPECIFICATION(S)
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STOR	STORAGE
STRUCT	STRUCTURE, (AL)

T	
T	TREAD
TO	TOP OF
T&B	TOP & BOTTOM
TEL	TELEPHONE
TEMP	TEMPERATURE
T&G	TONIQUE & GROOVE
THK	THICKNESS
TOL	TOLERANCE
TYP	TYPICAL

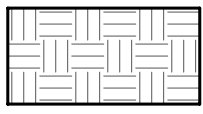
U	
UC	UNDERCUT
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE

V	
VB	VINYL BASE
VCT	VINYL COMPOSITE TILE
VERT	VERTICAL
VIF	VERIFY IN FIELD
VT	VINYL TILE

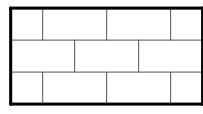
W	
W/	WITH
WC	WATER CLOSET
WD	WOOD
WH	WATER HEATER
WIN	WINDOW
W/O	WITHOUT
WP	WATERPROOFING
WPT	WORKING POINT
WT	WEIGHT

Y	
YD	YARD

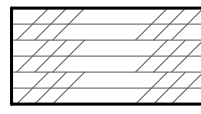
MATERIAL DESIGNATIONS



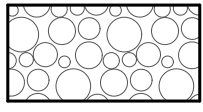
EARTH



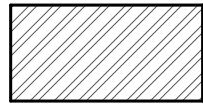
CMU



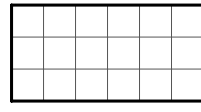
PLYWOOD



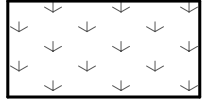
GRAVEL



STEEL



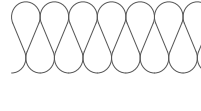
RIGID INSULATION



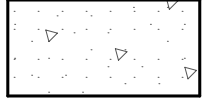
GRASS



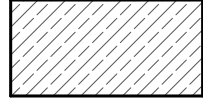
ALUMINUM



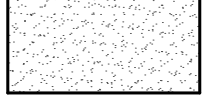
BATT INSULATION



CONCRETE



BRASS / BRONZE



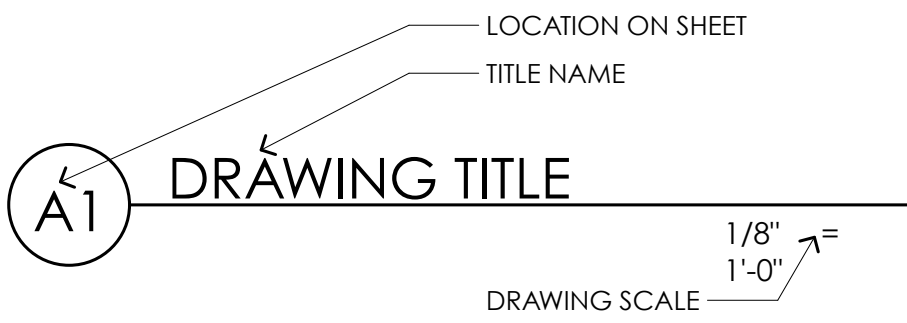
SAND / MORTAR / PLASTER



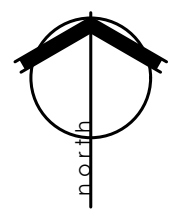
FINISH WOOD

ARCHITECTURAL SYMBOLS LIST

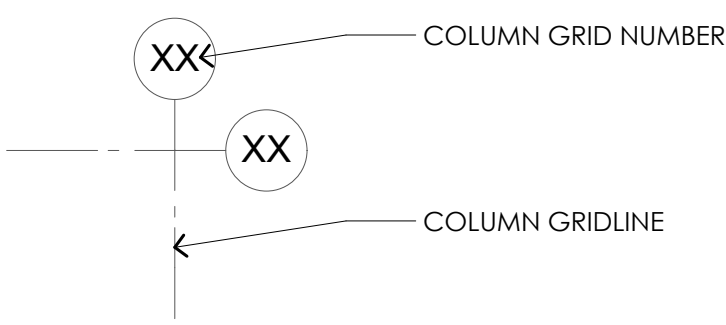
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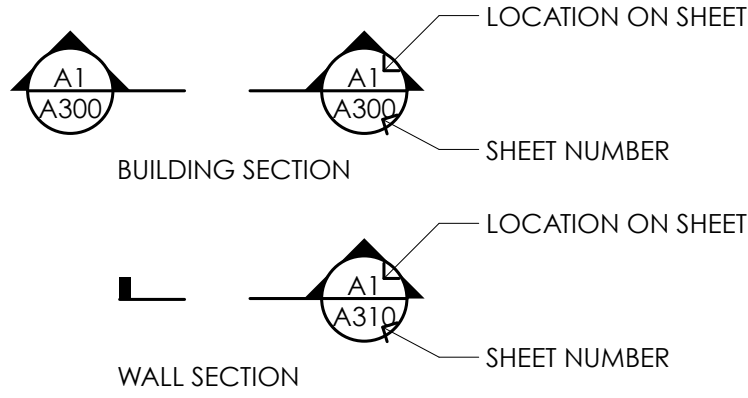
NORTH ARROW



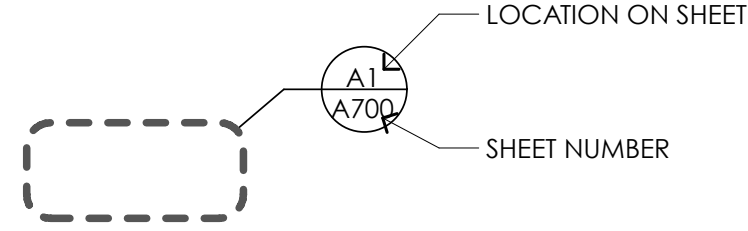
COLUMN NUMBER & GRIDLINE



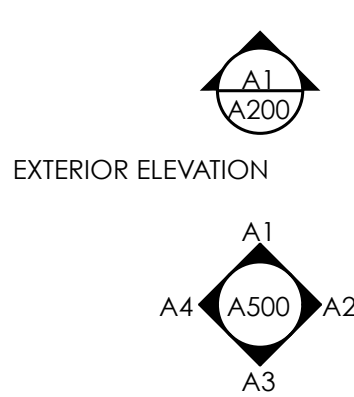
SECTION TARGET



SECTION TARGET



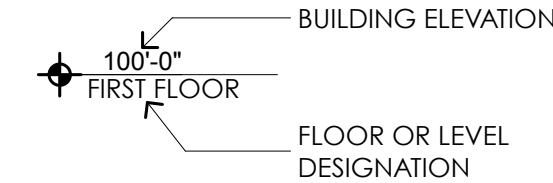
ELEVATION TARGET



ROOM NAME & NUMBER



FLOOR ELEVATION TARGET



PARTITION TYPE TARGET



DOOR TARGET



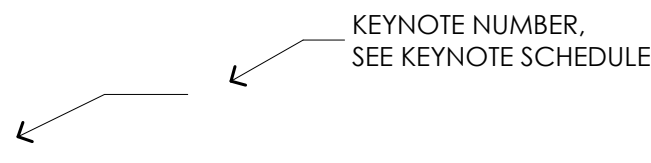
WINDOW TARGET



MATERIALS TARGET



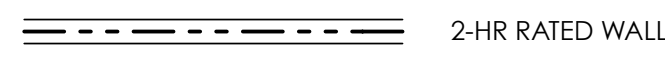
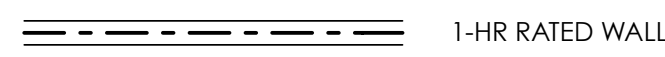
KEYNOTE TARGET



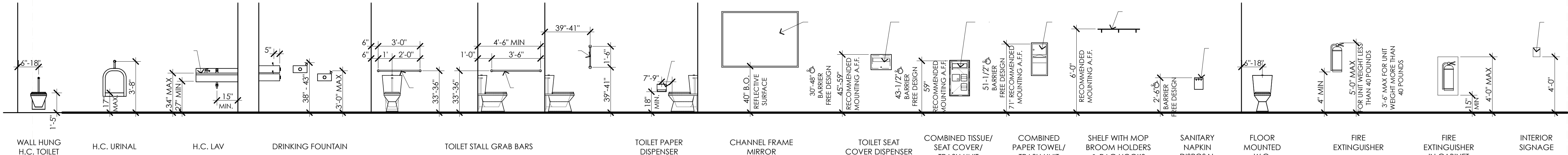
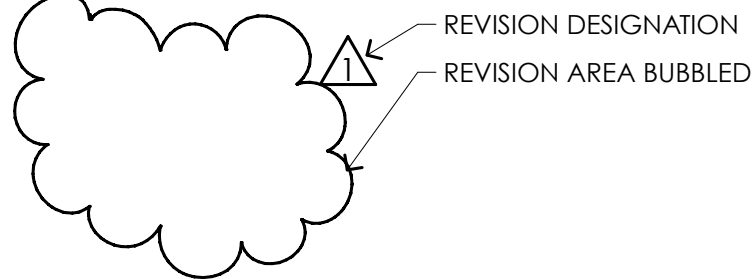
ACCESSIBILITY SYMBOLS



FIRE RATED WALL SYMBOLS



REVISION TARGET



ENERGY NOTES

- 1. ALL EXTERIOR DOORS SHALL LIMIT AIR INFILTRATION AROUND THEIR PERIMETER IN A CLOSED POSITION.
- 2. PROVIDE SEAL AT HEAD SILL AND JAMB.
- 3. OPEN EXTERIOR JOINTS AROUND WINDOW AND DOOR FRAMES, BETWEEN WALLS AND FOUNDATIONS, BETWEEN WALLS AND ROOF, BETWEEN WALL PANELS, AT PENETRATIONS OF UTILITIES THROUGH THE ENVELOPE, SHALL BE SEALED, CAULKED, OR WEATHER-STRIPPED TO LIMIT AIR LEAKAGE.

FIRE DEPARTMENT NOTES

- 1. PROVIDE FIRE EXTINGUISHERS AS REQUIRED BY THE CLARK COUNTY FIRE DEPT. FIELD INSPECTOR.
- 2. ALL EXIT DOORS SHALL SWING IN THE DIRECTION OF TRAVEL.
- 3. ALL EXIT DOORS SHALL BE OPENABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.
- 4. PROVIDE EXIT SIGNS ABOVE EXITS WITHIN MIN. 3/4" X 6" LETTERS ON CONTRASTING BACKGROUND.
- 5. PROVIDE ROOM CAPACITY SIGN AS REQUIRED BY FIRE DEPT.
- 6. MAINTAIN A MIN. OF 44" AISLES TO EXIT OR PUBLIC WAY.
- 7. ANY DECORATIONS USED SHALL BE NON-COMBUSTIBLE OR FLAME PROOFED IN AN APPROVED MANNER.
- 8. SUBMIT PLANS FOR FIXED FIRE EXTINGUISHING SYSTEM FOR APPROVAL OF INSTALLATION AND OPERATION PRIOR TO INSTALLATION TO THE CLARK COUNTY FIRE DEPT.
- 9. PROVIDE OUTSIDE GAS SHUT OFF VALVE CONSPICUOUSLY MARKED.
- 10. PROVIDE FIRE DAMPERS WHERE AIR DUCTS PENETRATE FIRE RATED WALLS OR CEILINGS.
- 11. QUANTITIES OF HAZARDOUS MATERIALS STORED OR USED IN THIS BUILDING SHALL NOT EXCEED THE QUANTITIES LISTED IN THE CURRENT EDITION OF THE IBC.

ACCESSIBILITY NOTES

- 1. ACCESS TO THESE FACILITIES SHALL BE PROVIDED AT PRIMARY ENTRANCES.
- 2. THE SLOPE OF PUBLIC WALKS SHALL NOT EXCEED 5%.
- 3. WALKING SURFACE SLOPING LESS THAT 6% SHALL BE SLIP RESISTANT.
- 4. PROVIDE A 60" X 60" MIN. LANDING ON STRIKE SIDE OF DOOR W/ 44" MIN. LENGTH IN DIRECTION OF TRAVEL.
- 5. WALKS SHALL EXTEND 24" TO THE SIDE OF THE STRIKE EDGE OF A DOOR OR GATE THAT SWINGS TOWARD THE WALK.
- 6. THE SLOPE OF RAMPS SHALL NOT EXCEED 8.33%.
- 7. RAMPS SHALL HAVE A NON-SLIP SURFACE.
- 8. RAMPS SHALL BE 48" WIDE MIN.
- 9. EVERY REQUIRED EXIT DOORWAY SHALL BE SIZED FOR A DOOR NOT LESS THAN 3' WIDE BY NOT LESS THAT 6'-8" HIGH CAPABLE OF OPENING 90° AND MOUNTED SO THAT THE CLEAR WIDTH OF THE EXIT WAY IS 32" MIN.
- 10. THRESHOLD SHOULD BE A MAX 1/2" ABOVE THE ADJACENT FLOOR OR MAX 1/2" WITHA 1/4" BEVEL AT 2:1.
- 11. MAXIMUM EFFORT TO OPERATE DOORS SHALL NOT EXCEED 5 LBS. FOR INTERIOR DOORS OR 8.5 LB. FOR EXTERIOR DOORS WHEN FIRE DOORS ARE REQUIRED THE MAXIMUM EFFORT CAN BE INCREASED BUT NOT TO EXCEED 15 LBS.
- 12. THE BOTTOM 10" OF ALL DOORS EXCEPT AUTOMATIC AND SLIDING SHALL HAVE A SMOOTH UNINTERRUPTED SURFACE.
- 13. PROVIDE LEVER TYPE HARDWARE PANIC BARS, PUSH-PULL ACTIVATING BARS, OR OTHER HARDWARE DESIGNED TO PROVIDE PASSAGE WITHOUT REQUIRING THE ABILITY TO GRASP THE OPENING HARDWARE. (30" TO 44" A.F.F.)
- 14. ALL DOORWAYS LEADING TO SANITARY FACILITIES SHALL HAVE 32" CLEAR UNOBSTRUCTED OPENINGS.
- 15. PROVIDE 1.1/4"Ø GRAB BARS AT 33" A.F.F. AT REAR AND SIDE OF W.C. GRAB BAR AT SIDE TO BE 42" LONG AND EXTEND 24" BEYOND FRONT OF TOILET. GRAB BAR TO BE 36" LONG AT BACK W/1.1/2" CLR. FROM WALL. BAR FASTENERS AND MOUNTING SUPPORTS TO WITHSTAND 250 LBS. PER FT. IN BENDING, SHEAR AND STRESS. PROVIDE 18' LONG 1 1/4"Ø GRAB BAR VERTICAL - SEE DRAWINGS
- 17. WATER CLOSETS SHALL HAVE A SEAT HEIGHT OF 17" TO 19" FLUSH VALVES TO HAVE MAX. 5 LBS. OPERATING FORCE, AND 29" CLEAR FROM FLOOR TO BOTTOM OF APRON WITH KNEE. MTD. ON WIDE SIDE OF TOILET @ 44" A.F.F.
- 18. URINAL TO HAVE A CLEAR SPACE OF 30" X 48" IN FRONT. FLUSH VALVES TO HAVE MAX. 5 LBS. OPERATING FORCE.
- 19. PROVIDE 30" X 48" CLEAR SPACE IN FRONT OF LAVATORY.
- 20. PROVIDE CLEARANCE OF 29", 8" DEPTH AT THE TOP AND A TOE CLEARANCE OF 9" FROM THE FLOOR AND 17" DEEP FROM THE FRONT OF THE LAVATORY.
- 21. INSULATE HOT WATER AND DRAIN PIPES.
- 22. FAUCET CONTROLS SHALL BE OPERABLE WITH ONE HAND AND NOT REQUIRED GRASPING, PINCHING, OR TWISTING. FAUCET TO HAVE MAX. 5 LBS. OPERATING FORCE.
- 23. LOCATE TOWEL, SANITARY NAPKIN, AND WASTE RECEPTACLES WITH ALL OPERABLE PARTS WITHIN 40" FROM FLOOR.
- 24. LOCATED TISSUE DISPENSERS ON THE WALL WITHIN 12" OF THE FRONT EDGE OF THE TOILET SEAT.
- 25. SELF CLOSING VALVES TO REMAIN OPEN FOR MIN. 10 SEC.

DIVISION 1 - GENERAL DATA

- 1. MINOR INTERIOR REMODEL OF AN EXISTING 13,214 SF ROBOTICS LABORATORY. AS SHOWN ON CONTRACT DOCUMENTS PREPARED BY:
APTUS
1200 S. 4TH STREET, SUITE 206
LAS VEGAS, NEVADA 89104
- 2. DURING THE CONSTRUCTION PERIOD THE CONTRACTOR SHALL HAVE FULL USE OF THE PREMISES FOR CONSTRUCTION OPERATIONS, INCLUDING USE OF THE SITE. THE CONTRACTORS USE OF THE PREMISES IS LIMITED ONLY BY THE OWNERS RIGHT TO PERFORM CONSTRUCTION OPERATIONS WITH ITS OWN FORCES OR TO EMPLOY SEPARATE CONTRACTORS ON PORTIONS OF THE PROJECT. CONFINE OPERATIONS TO AREAS WITHIN THE CONTRACT LIMITS INDICATED. PORTIONS OF THE SITE BEYOND AREAS IN WHICH CONSTRUCTION OPERATIONS ARE INDICATED ARE NOT TO BE DISTURBED. KEEP DRIVEWAYS AND ENTRANCES SERVING THE PREMISES CLEAR AND AVAILABLE TO THE OWNER AND OWNER'S EMPLOYEES AT ALL TIMES. DO NOT USE THESE AREAS FOR PARKING OR STORAGE OF MATERIALS.
- 3. THE OWNER RESERVES THE RIGHT TO OCCUPY AND TO PLACE AND INSTALL EQUIPMENT IN COMPLETED AREAS OF THE BUILDING, PRIOR TO SUBSTANTIAL COMPLETION PROVIDED THAT SUCH OCCUPANCY DOES NOT INTERFERE WITH COMPLETION OF THE WORK.
- 4. COORDINATE CONSTRUCTION ACTIVITIES INCLUDED UNDER VARIOUS SECTIONS OF THESE CONSTRUCTION DOCUMENTS TO ASSURE EFFICIENT AND ORDERLY INSTALLATION OF EACH PART OF THE WORK. WHERE INSTALLATION OF ONE PART OF THE WORK IS DEPENDENT ON INSTALLATION OF OTHER COMPONENTS, EITHER BEFORE OR AFTER ITS OWN INSTALLATION, SCHEDULE CONSTRUCTION ACTIVITIES IN THE SEQUENCE REQUIRED TO OBTAIN BEST RESULTS. WHERE AVAILABILITY OF SPACE IS LIMITED, COORDINATE INSTALLATION OF DIFFERENT COMPONENTS TO ASSURE MAXIMUM ACCESSIBILITY FOR REQUIRED MAINTENANCE, SERVICE AND REPAIR. MAKE ADEQUATE PROVISIONS TO ACCOMMODATE ITEMS SCHEDULED FOR LATER INSTALLATION.
- 5. COORDINATE SCHEDULING AND TIMING OF REQUIRED ADMINISTRATIVE PROCEDURES WITH OTHER CONSTRUCTION ACTIVITIES TO AVOID CONFLICTS AND ENSURE ORDERLY PROGRESS OF THE WORK. SUCH ADMINISTRATIVE ACTIVITIES INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING: PREPARATION OF SCHEDULES. INSTALLATION AND REMOVAL OF TEMPORARY FACILITIES. DELIVERY AND PROCESSING OF SUBMITTALS. PROGRESS MEETINGS. PROJECT CLOSE-OUT ACTIVITIES.
- 6. WITHIN 15 DAYS OF NOTICE TO PROCEED, SUBMIT A LIST OF THE CONTRACTOR'S PRINCIPLE STAFF ASSIGNMENTS, INCLUDING THE SUPERINTENDENT AND OTHER PERSONNEL IN ATTENDANCE AT THE SITE: IDENTIFY INDIVIDUALS, THEIR DUTIES AND RESPONSIBILITIES; LIST THEIR ADDRESSES AND TELEPHONE NUMBERS.
- 7. REQUIRE THE INSTALLER OF EACH MAJOR COMPONENT TO INSPECT BOTH THE SUBSTRATE AND CONDITIONS UNDER WHICH WORK IS TO BE PERFORMED. DO NOT PROCEED UNTIL UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED IN AN ACCEPTABLE MANNER.
- 8. COMPLY WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS AND RECOMMENDATIONS, TO THE EXTENT THAT THOSE INSTRUCTIONS AND RECOMMENDATIONS ARE MORE EXPLICIT OR STRINGENT THAN REQUIREMENTS CONTAINED IN THE CONTRACT DOCUMENTS.
- 9. INSPECT MATERIALS OR EQUIPMENT IMMEDIATELY UPON DELIVERY AND AGAIN PRIOR TO INSTALLATION. REJECT DAMAGED AND DEFECTIVE ITEMS
- 10. PROVIDE ATTACHMENT AND CONNECTION DEVICES AND METHODS NECESSARY FOR SECURING WORK. SECURE WORK TRUE TO LINE AND LEVEL. ALLOW FOR EXPANSION AND BUILDING MOVEMENT.
- 11. PROVIDE UNIFORM JOINT WIDTHS IN EXPOSED WORK. ARRANGE JOINTS IN EXPOSED WORK TO OBTAIN THE BEST VISUAL EFFECT. REFER QUESTIONABLE CHOICES TO THE ARCHITECT FOR FINAL DECISION.
- 12. RECHECK MEASUREMENTS AND DIMENSIONS, BEFORE STARTING EACH INSTALLATION.
- 13. INSTALL EACH COMPONENT DURING WEATHER CONDITIONS AND PROJECT STATUS THAT WILL ENSURE THE BEST POSSIBLE RESULTS. ISOLATE EACH PART OF THE COMPLETED CONSTRUCTION FROM INCOMPATIBLE MATERIAL AS NECESSARY TO PREVENT DETERIORATION.
- 14. WHERE MOUNTING HEIGHTS ARE NOT INDICATED, INSTALL INDIVIDUAL COMPONENTS AT STANDARD MOUNTING HEIGHTS RECOGNIZED WITHIN THE INDUSTRY FOR THE PARTICULAR APPLICATION INDICATED. REFER QUESTIONABLE MOUNTING HEIGHT DECISIONS TO THE ARCHITECT FOR FINAL DECISION.
- 15. COORDINATE PREPARATION AND PROCESSING OF SUBMITTALS WITH PERFORMANCE OF CONSTRUCTION ACTIVITIES. ALLOW SUFFICIENT REVIEW TIME SO THAT INSTALLATION WILL NOT BE DELAYED AS A RESULT OF THE TIME REQUIRED TO PROCESS SUBMITTALS, INCLUDING TIME FOR RESUBMITTALS.
- 16. SHOP DRAWINGS: SUBMIT NEWLY PREPARED INFORMATION, DRAWN TO ACCURATE SCALE: HIGHLIGHT, ENCIRCLE, OR OTHERWISE INDICATE DEVIATIONS FROM THE CONTRACT DOCUMENTS. SHOP DRAWINGS INCLUDE FABRICATION AND INSTALLATION DRAWINGS, SETTING DIAGRAMS, SCHEDULES, PATTERNS, TEMPLATES AND SIMILAR DRAWINGS. INCLUDE THE FOLLOWING INFORMATION: DIMENSIONS IDENTIFICATION OF PRODUCTS AND MATERIALS INCLUDED. COMPLIANCE WITH SPECIFIED STANDARDS. NOTATION OF COORDINATION REQUIREMENTS. NOTATION OF DIMENSIONS ESTABLISHED BY FIELD MEASUREMENT. COPIES OF ARCHITECTS/ENGINEERS DRAWINGS WILL NOT BE ACCEPTED.
- 17. SUBMIT FULL-SIZE, FULLY FABRICATED SAMPLES CURED AND FINISHED AS SPECIFIED AND PHYSICALLY IDENTICAL WITH THE MATERIAL OR PRODUCT PROPOSED. SAMPLES INCLUDE PARTIAL SECTIONS OF MANUFACTURED OR FABRICATED COMPONENTS, CUTS OR CONTAINERS OF MATERIALS, COLOR RANGE SETS, AND SWATCHES SHOWING COLOR, TEXTURE AND PATTERN.
- 18. USE SKILLED CRAFTSMEN. WORKMEN WHO DO NOT KNOW AND FOLLOW BASIC REQUIREMENTS FOR HIGH QUALITY WORK OF THE TYPE THEY ARE PERFORMING SHALL BE REMOVED FROM THE JOB. WHERE FINISH OPERATIONS DO NOT PRODUCE FINISH SURFACES AS SPECIFIED, THE WORK SHALL BE REMOVED AND CORRECTED AS DIRECTED.
- 19. EMPLOY EXPERIENCED WORKERS OR PROFESSIONAL CLEANERS FOR FINAL CLEANING. CLEAN EACH SURFACE OR UNIT TO THE CONDITION EXPECTED IN A NORMAL, COMMERCIAL BUILDING CLEANING AND MAINTENANCE PROGRAM. COMPLY WITH MANUFACTURER'S INSTRUCTIONS.

DIVISION 1 - GENERAL DATA - (CONT'D)

- 20. COMPLETE THE FOLLOWING CLEANING OPERATIONS. REMOVE LABELS THAT ARE NOT PERMANENT. CLEAN TRANSPARENT MATERIALS, INCLUDING MIRRORS AND GLASS IN DOORS AND WINDOWS. REMOVE GLAZING COMPOUND AND OTHER SUBSTANCES THAT ARE NOTICEABLE VISION-OBSCURING MATERIALS. REPLACE CHIPPED OR BROKEN GLASS AND OTHER DAMAGED TRANSPARENT MATERIALS. CLEAN EXPOSED EXTERIOR AND INTERIOR HARD-SURFACED FINISHES TO A DUST-FREE CONDITION, FREE OF STAINS, FILMS AND SIMILAR FOREIGN SUBSTANCES. RESTORE REFLECTIVE SURFACES TO THEIR ORIGINAL REFLECTIVE CONDITION. LEAVE CONCRETE FLOORS BROOM CLEAN. VACUUM CARPETED SURFACES. WIPE SURFACES OF MECHANICAL AND ELECTRICAL EQUIPMENT. REMOVE EXCESS LUBRICATION AND OTHER SUBSTANCES. CLEAN LIGHT FIXTURES AND LAMPS. CLEAN THE SITE, INCLUDING LANDSCAPE DEVELOPMENT AREAS, OF RUBBISH, LITTER AND OTHER FOREIGN SUBSTANCES. SWEEP PAVED AREAS BROOM CLEAN; REMOVE STAINS, SPILLS AND OTHER FOREIGN DEPOSITS. RAKE GROUNDS THAT ARE NEITHER PAVED NOR PLANTED, TO A SMOOTH EVEN-TEXTURED SURFACE.
- 21. REFER TO THE GENERAL CONDITIONS FOR THE TERMS OF THE CONTRACTORS SPECIAL WARRANTY OF WORKMANSHIP AND MATERIALS. MANUFACTURER'S DISCLAIMERS AND LIMITATIONS ON PRODUCT WARRANTIES DO NOT RELIEVE THE CONTRACTOR OF THE WARRANTY ON THE WORK THAT INCORPORATES THE PRODUCTS, NOR DOES IT RELIEVE SUPPLIERS, MANUFACTURERS, AND SUBCONTRACTORS REQUIRED TO COUNTERSIGN SPECIAL WARRANTIES WITH THE CONTRACTOR.
- 22. WHEN CORRECTING WARRANTED WORK THAT HAS FAILED, REMOVE AND REPLACE OTHER WORK THAT HAS BEEN DAMAGED AS A RESULT OF SUCH FAILURE OR THAT MUST BE REMOVED AND REPLACED TO PROVIDE ACCESS FOR CORRECTION OF WARRANTED WORK.
- 23. WHEN WORK COVERED BY A WARRANTY HAS FAILED AND BEEN CORRECTED BY REPLACEMENT OR REBUILDING, REINSTATE THE WARRANTY BY WRITTEN ENDORSEMENT. THE REINSTATED WARRANTY SHALL BE EQUAL TO THE ORIGINAL WARRANTY WITH AN EQUITABLE ADJUSTMENT FOR DEPRECIATION.
- 24. UPON DETERMINATION THAT THE WORK COVERED BY A WARRANTY HAS FAILED, REPLACE OR REBUILD THE WORK TO AN ACCEPTABLE CONDITION COMPLYING WITH REQUIREMENT OF THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR THE COST OF REPLACING OR REBUILDING DEFECTIVE WORK REGARDLESS OF WHETHER THE OWNER HAS BENEFITED FROM THE USE OF THE WORK THROUGH A PORTION OF ITS ANTICIPATED USEFUL SERVICE LIFE.
- 25. THE OWNER RESERVES THE RIGHT TO REJECT WARRANTIES AND TO LIMIT SELECTIONS TO PRODUCTS WITH WARRANTIES NOT IN CONFLICT WITH REQUIREMENTS OF THE CONTRACT DOCUMENTS. THE OWNER RESERVES THE RIGHT TO REFUSE TO ACCEPT WORK FOR THE PROJECT WHERE A SPECIAL WARRANTY, CERTIFICATION, OR SIMILAR COMMITMENT IS REQUIRED ON SUCH WORK OR PART OF THE WORK, UNTIL EVIDENCE IS PRESENTED THAT ENTITIES REQUIRED TO COUNTERSIGN SUCH COMMITMENT ARE WILLING TO DO SO.

DIVISION 2 - SITEWORK

NOT APPLICABLE

DIVISION 3 - CONCRETE

- 1. AFTER PLACING SLABS, PLANE SURFACE TO TOLERANCES FOR FLOOR FLATNESS OF 45 AND FLOOR LEVELNESS OF 45. SLOPE SURFACES UNIFORMLY TO DRAINS WHERE REQUIRED. AFTER LEVELING, ROUGHEN SURFACE BEFORE FINAL SET WITH STIFF BRUSHES, BROOMS, OR RAKES.
- 2. APPLY FLOAT FINISH TO MONOLITHIC SLAB SURFACES TO RECEIVE TROWEL FINISH. APPLY TROWEL FINISH TO SURFACES EXPOSED TO VIEW AND SLAB SURFACES TO BE COVERED WITH RESILIENT FLOORING, CARPET, CERAMIC OR QUARRY TILE.

DIVISION 4 - MASONRY

NOT APPLICABLE

DIVISION 5 - METALS

- 1. CLEAN AND TOUCH UP PAINTING OF FIELD WELDS, ABRADED AREAS, AND ROUGH SPOTS, AS REQUIRED AFTER ERECTION AND BEFORE PROCEEDING WITH FIELD PAINTING, AS INCLUDED IN DIVISION 9 UNDER "PAINTING."
- 2. FOR METAL FABRICATIONS EXPOSED TO VIEW UPON COMPLETION OF THE WORK, PROVIDE MATERIALS SELECTED FOR THEIR SURFACE FLATNESS, SMOOTHNESS, AND FREEDOM FROM SURFACE BLEMISHES. DO NOT USE MATERIALS WHOSE EXPOSED SURFACES EXHIBIT PITTING, SEAM MARKS, ROLLER MARKS, ROLLED TRADE NAMES, ROUGHNESS, AND, FOR STEEL SHEET, VARIATIONS IN FLATNESS EXCEEDING THOSE PERMITTED BY REFERENCE STANDARDS FOR STRETCHER-LEVELLED SHEET.
- 3. SHOP PRIMER FOR FERROUS METAL SHALL BE MANUFACTURER'S OR FABRICATOR'S STANDARD, FAST-CURING, LEAD-FREE, UNIVERSAL MODIFIED ALKYD PRIMERS SELECTED FOR GOOD RESISTANCE TO NORMAL ATMOSPHERIC CORROSION, FOR COMPATIBILITY WITH FINISH PAINT SYSTEMS INDICATED AND FOR CAPABILITY TO PROVIDE A SOUND FOUNDATION FOR FIELD-APPLIED TOP COATS DESPITE PROLONGED EXPOSURE COMPLYING WITH PERFORMANCE REQUIREMENTS OF FS TT-P- 645.
- 4. GALVANIZING REPAIR PAINT SHALL BE HIGH ZINC DUST CONTENT PAINT FOR REGALVANIZING WELDS IN GALVANIZED STEEL, WITH DRY FILM CONTAINING NOT LESS THAN 94% ZINC DUST BY WEIGHT, AND COMPLYING WITH DOD-P-21035 OR SSPC-PAINT-20.
- 5. FORM METAL FABRICATIONS FROM MATERIALS OF SIZE, THICKNESS, AND SHAPES INDICATED BUT NOT LESS THAN THAT NEEDED TO COMPLY WITH PERFORMANCE REQUIREMENTS INDICATED. WORK TO DIMENSIONS INDICATED OR ACCEPTED ON SHOP DRAWINGS, USING PROVEN DETAILS OF FABRICATION AND SUPPORT. USE TYPE OF MATERIALS INDICATED OR SPECIFIED FOR VARIOUS COMPONENTS OF EACH METAL FABRICATION.
- 6. SHEAR AND PUNCH METALS CLEANLY AND ACCURATELY. REMOVE ALL BURRS. EASE EXPOSED EDGES TO A RADIUS OF APPROXIMATELY 1/32 INCH, UNLESS OTHERWISE INDICATED. FORM BENT-METAL CORNERS TO SMALLEST RADIUS POSSIBLE WITHOUT CAUSING GRAIN SEPARATION OR OTHERWISE IMPAIRING WORK. REMOVE SHARP OR ROUGH AREAS ON EXPOSED TRAFFIC SURFACES. WELD CORNERS AND SEAMS CONTINUOUSLY TO COMPLY WITH AWS RECOMMENDATIONS AND THE FOLLOWING: USE MATERIALS AND METHODS THAT MINIMIZE DISTORTION AND DEVELOP STRENGTH AND CORROSION RESISTANCE OF BASE METALS. OBTAIN FUSION WITHOUT UNDERCUT OR OVERLAP. REMOVE WELDING FLUX IMMEDIATELY. AT EXPOSED CONNECTIONS, FINISH EXPOSED WELDS AND SURFACES SMOOTH AND BLENDED SO THAT NO ROUGHNESS SHOWS AFTER FINISHING AND CONTOUR OF WELDED SURFACE MATCHES THOSE ADJACENT.

DIVISION 5 - METALS (CONT'D)

- 7. FORM EXPOSED CONNECTIONS WITH HAIRLINE JOINTS. FLUSH AND SMOOTH, USING CONCEALED FASTENERS WHEREVER POSSIBLE. USE EXPOSED FASTENERS OF TYPE INDICATED OR, IF NOT INDICATED, PHILLIPS FLAT-HEAD. (COUNTERSINK) SCREWS OR BOLTS. LOCATE JOINTS WHERE LEAST CONSPICUOUS. PROVIDE FOR ANCHORAGE OF TYPE INDICATED; COORDINATE WITH SUPPORTING STRUCTURE. FABRICATE AND SPACE ANCHORING DEVICES TO PROVIDE ADEQUATE SUPPORT FOR INTENDED USE. PREASSEMBLE ITEMS IN SHOP TO GREATEST EXTENT POSSIBLE TO MINIMIZE FIELD SPLICING AND ASSEMBLY. DISASSEMBLE UNITS ONLY AS NECESSARY FOR SHIPPING AND HANDLING LIMITATIONS.

DIVISION 6 - WOOD & PLASTICS

- 1. ROUGH CARPENTRY:
 - a. PROVIDE AND INSTALL BLOCKING, BACKING, PLYWOOD SHEATHING, FURRING, AND MISCELLANEOUS LIGHT FRAMING REQUIRED FOR COMPLETION OF THE WORK, WHICH IS GENERALLY NOT EXPOSED; WHERE NOTED ON THE DRAWINGS AND AS SPECIFIED HEREIN.
 - b. PROVIDE BLOCKING IN PARTITIONS FOR MOUNTING OF EQUIPMENT, SHELVING, PLUMBING FIXTURES, ETC.
 - c. SET ROUGH CARPENTRY ACCURATELY TO REQUIRED LEVELS AND LINES, WITH MEMBERS PLUMB AND TRUE AND ACCURATELY CUT AND FITTED. SECURELY ATTACH WORK TO SUBSTRATE.
 - d. PLACE WALL SHEATHING WITH END JOINTS STAGGERED. SECURE SHEETS OVER FIRM BEARING. MAINTAIN MINIMUM 1/16 INCH AND MAXIMUM 1/8 INCH SPACING BETWEEN JOINTS OF SHEETS ON WALLS. PLACE PERPENDICULAR TO FRAMING MEMBERS.

DIVISION 7 - THERMAL/MOISTURE PROTECTION

- 1. INSULATION:
 - a. COMPLY WITH INSULATION MANUFACTURER'S INSTRUCTIONS APPLICABLE TO PRODUCTS AND APPLICATION INDICATED. EXTEND INSULATION FULL THICKNESS AS INDICATED TO ENVELOP ENTIRE AREA TO BE INSULATED. CUT AND FIT TIGHTLY AROUND OBSTRUCTIONS, AND FILL VOIDS WITH INSULATION. REMOVE PROJECTIONS THAT INTERFERE WITH PLACEMENT. APPLY A SINGLE LAYER OF INSULATION OF REQUIRED THICKNESS, UNLESS OTHERWISE SHOWN OR REQUIRED TO MAKE UP TOTAL THICKNESS.
 - b. PROTECT INSTALLED INSULATION AND VAPOR RETARDERS FROM DAMAGE DUE TO HARMFUL WEATHER EXPOSURES, PHYSICAL ABUSE, AND OTHER CAUSES. PROVIDE TEMPORARY COVERINGS OR ENCLOSURES WHERE INSULATION WILL BE SUBJECT TO ABUSE AND CANNOT BE CONCEALED AND PROTECTED BY PERMANENT CONSTRUCTION IMMEDIATELY AFTER INSTALLATION.
- 2. INTERIOR PARTITION ACOUSTICAL INSULATION:
 - PART 1 - GENERAL
 - 1.01 SUMMARY
 - A. PROVIDE GLASS FIBER ACOUSTICAL INSULATION FOR INTERIOR PARTITIONS AS INDICATED IN BUILDING PLANS.
 - 1.02 SUBMITTALS
 - A. PRODUCT DATA: SUBMIT OWENS-CORNING PRODUCT LITERATURE, SAMPLES AND INSTALLATION INSTRUCTIONS FOR SPECIFIED INSULATION.
 - 1.03 DELIVERY, STORAGE AND HANDLING
 - A. PROTECT INSULATION FROM PHYSICAL DAMAGE AND FROM BECOMING WET, SOILED, OR COVERED WITH ICE OR SNOW. COMPLY WITH MANUFACTURER'S RECOMMENDATIONS FOR HANDLING, STORAGE AND PROTECTION DURING INSTALLATION.
 - B. LABEL INSULATION PACKAGES TO INCLUDE MATERIAL NAME, PRODUCTION DATE AND/OR PRODUCT CODE.
 - 1.04 LIMITATIONS
 - A. DO NOT USE UNFACED INSULATION IN EXPOSED APPLICATIONS WHERE THERE IS POTENTIAL FOR SKIN CONTACT AND IRRITATION.
 - B. KRAFT AND STANDARD FOIL FACINGS WILL BURN AND MUST NOT BE LEFT EXPOSED. THE FACING MUST BE INSTALLED IN SUBSTANTIAL CONTACT WITH THE UNEXPOSED SURFACE OF THE CEILING, WALL OR FLOOR FINISH. PROTECT FACING FROM ANY OPEN FLAME OR HEAT SOURCE.
- PART 2 PRODUCTS
 - 2.01 MANUFACTURER
 - A. OWENS-CORNING (OR APPROVED EQUAL)
 - 2.02 SOUND ATTENUATION
 - A. TYPE: UNFACED GLASS FIBER ACOUSTICAL INSULATION COMPLYING WITH ASTM C 665, TYPE I
 - B. SURFACE BURNING CHARACTERISTICS:
 - 1. MAXIMUM FLAME SPREAD: 10
 - 2. MAXIMUM SMOKE DEVELOPED: 10
 - C. COMBUSTION CHARACTERISTICS:
 - PASSES ASTM E 136
 - D. FIRE RESISTANCE RATINGS:
 - PASSES ASTM E 119 AS PART OF A COMPLETE FIRE TESTED WALL ASSEMBLY.
 - E. SOUND TRANSMISSION CLASS: STC 45
 - F. DIMENSIONAL STABILITY: LINEAR SHRINKAGE LESS THAN 0.1%

- PART 3 EXECUTION
 - 3.01 INSPECTION AND PREPARATION
 - A. EXAMINE SUBSTRATES AND CONDITIONS UNDER WHICH INSULATION WORK IS TO BE PERFORMED. A SATISFACTORY SUBSTRATE IS ONE THAT COMPLIES WITH REQUIREMENTS OF THE SECTION IN WHICH THE SUBSTRATE AND RELATED WORK IS SPECIFIED.
 - B. VERIFY MECHANICAL AND ELECTRICAL SERVICES WITHIN THE WALL HAVE BEEN TESTED AND INSPECTED.
 - C. OBTAIN INSTALLER'S WRITTEN REPORT LISTING CONDITIONS DETRIMENTAL TO PERFORMANCE OF WORK IN THIS SECTION. DO NOT PROCEED WITH INSTALLATION OF INSULATION UNTIL SATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
 - D. CLEAN SUBSTRATES OF SUBSTANCES HARMFUL TO INSULATION.
 - 3.02 INSTALLATION - GENERAL
 - A. COMPLY WITH MANUFACTURER'S INSTRUCTIONS FOR PARTICULAR CONDITIONS OF INSTALLATION IN EACH CASE.
 - B. BATTS MAY BE FRICTION-FIT IN PLACE UNTIL THE INTERIOR FINISH IS APPLIED. INSTALL BATTS TO FILL ENTIRE STUD CAVITY. IF STUD CAVITY IS LESS THAN 96" IN HEIGHT, CUT LENGTHS TO FRICTION-FIT AGAINST FLOOR AND CEILING TRACKS. WALLS AND PENETRATIONS REQUIRE THAT INSULATION BE CAREFULLY CUT TO FIT AROUND OUTLETS, JUNCTION BOXES AND OTHER IRREGULARITIES.
 - C. WHERE WALLS ARE NOT FINISHED ON BOTH SIDES OR INSULATION DOES NOT FILL CAVITY DEPTH, SUPPLEMENTARY SUPPORT MUST BE PROVIDED TO HOLD PRODUCT IN PLACE.
 - D. WHERE INSULATION MUST EXTEND TO HIGHER THAN 8 FEET, TEMPORARY SUPPORT CAN BE PROVIDED TO HOLD PRODUCT IN PLACE UNTIL FINISH MATERIAL IS APPLIED.
- 3. SEALANTS:
 - a. APPLY JOINT SEALANT AT ALL INTERIOR OCCURRENCES OF CONTROL AND EXPANSION JOINTS ON EXPOSED INTERIOR SURFACES OF EXTERIOR WALLS. PERIMETER JOINTS OF EXTERIOR OPENINGS WHERE INDICATED. PERIMETER JOINTS BETWEEN INTERIOR WALL SURFACES AND FRAMES OF INTERIOR DOORS, WINDOWS AND OTHER INTERSECTIONS OF DISSIMILAR MATERIAL.
 - b. PROVIDE JOINT SEALANTS THAT HAVE BEEN PRODUCED AND INSTALLED TO ESTABLISH AND MAINTAIN AIRTIGHT CONTINUOUS SEALS THAT ARE WATER RESISTANT, AND CAUSE NO STAINING OR DETERIORATION OF JOINT SUBSTRATES. PROVIDE COLOR OF EXPOSED SEALANTS AS SELECTED BY ARCHITECT FROM MANUFACTURERS FULL RANGE OF STANDARD COLORS. SEALANTS TO BE OF TYPE APPROPRIATE FOR INTENDED APPLICATION.

DIVISION 7 - (CONT'D)

- C. ALL SEALANTS SHALL BE APPLIED IN ACCORDANCE WITH MANUFACTURERS PRINTED INSTALLATION INSTRUCTIONS APPLICABLE TO PRODUCTS AND APPLICATIONS UNLESS OTHERWISE INDICATED.

DIVISION 8 - DOORS & WINDOWS

1. FURNISH AND INSTALL GLAZING AS SHOWN ON DRAWINGS, COMPLY WITH RECOMMENDATIONS OF "FLAT GLASS MARKETING ASSOC." (FGMA) AND "SEALANT MANUAL" FOR ALL GLAZING AND SEALANTS. CLEAR FLOAT GLASS SHALL BE TYPE 1 (TRANSPARENT GLASS, FLAT); TEMPERED GLASS SHALL BE CLEAR AS SHOWN ON THE DRAWINGS AND SHALL BE TYPE "FT" (FULLY TEMPERED). INSULATING GLASS SHALL BE PREASSEMBLED UNITS OF ORGANICALLY SEALED PANES OF GLASS ENCLOSING A HERMETICALLY SEALED DEHYDRATED AIR SPACE COMPLYING WITH ASTM E774 FOR GLASS, AIR SPACE, SEALING SYSTEM, SEALANT, SPACER MATERIAL, CORNER DESIGN AND DESICCANT, EXTERIOR PANES TO BE CLEAR AS INDICATED ABOVE; INTERIOR PANES TO BE CLEAR, GLAZING SEALANTS, TAPES, ETC., FOR INSTALLATION SHALL BE AS RECOMMENDED BY THE MANUFACTURER. INSTALLATION SHALL BE IN STRICT ACCORDANCE W/ MANUFACTURER'S RECOMMENDATIONS; ALL GLAZING SHALL BE THOROUGHLY CLEANED AT THE COMPLETION OF THE PROJECT. SCRATCHED, CHIPPED, BROKEN OR OTHERWISE DAMAGED GLASS UNITS SHALL BE REPLACED AT NO COST TO THE OWNER.
2. ALUMINUM-FRAMED STOREFRONT, NON-THERMAL ON INTERIOR STOREFRONT

PART 1 - GENERAL

- 1.01 SUMMARY
- A. SECTION INCLUDES:
1. ALUMINUM-FRAMED STOREFRONT
- A. ARCADIA, INC., AG451 SERIES, 2" X 4-1/2"; CENTER GLAZED SYSTEM, SCREW SPLINE, SHEAR BLOCK, COMPENSATING STICK OR PUNCHED OPENING FABRICATION FOR 1/4" GLASS.
- 1.02 SYSTEM DESCRIPTION
- A. GENERAL: IN ADDITION TO REQUIREMENTS SHOWN OR SPECIFIED, COMPLY WITH:
1. APPLICABLE PROVISIONS OF AAMA ALUMINUM STOREFRONT AND ENTRANCE MANUAL FOR DESIGN, MATERIALS, FABRICATION AND INSTALLATION OF COMPONENT PARTS.
- B. DESIGN REQUIREMENTS: ARCADIA AG451 SERIES IS A FRAMING SYSTEM THAT PROVIDES FOR FLUSH GLAZING ON ALL SIDES WITHOUT PROJECTED STOPS, WITH GLASS IN THE CENTER OF THE FRAME. FRAMING SYSTEM SUITABLE FOR OUTSIDE OR INSIDE GLAZING.
- C. PERFORMANCE REQUIREMENTS:
1. LIMIT AIR LEAKAGE THROUGH ASSEMBLY TO 0.06 CFM/MIN/SQ. FT. (00003 M³/SQM²) OF WALL AREA AT 6.24 PSF (300 PA) AS MEASURED IN ACCORDANCE WITH ASTM E283.
2. WATER RESISTANCE: NO WATER LEAKAGE WHEN MEASURED IN ACCORDANCE WITH ASTM E331 WITH A STATIC TEST PRESSURE OF 12PSF(480 PA).
3. LIMIT MULLION WINDLOAD DEFLECTION OF L/175 WITH FULL RECOVERY OF GLAZING MATERIALS, WHEN MEASURED IN ACCORDANCE WITH ASTM E 330.
4. SYSTEM SHALL NOT DEFLECT MORE THAN 1/8" AT THE CENTER POINT, OR 1/16" AT THE CENTER POINT OF A HORIZONTAL MEMBER, ONCE DEADLOAD POINTS HAVE BEEN ESTABLISHED.
5. SYSTEM SHALL ACCOMMODATE EXPANSION AND CONTRACTION MOVEMENT DUE TO SURFACE TEMPERATURE DIFFERENTIAL OF 180 DEGREES F.
6. SEISMIC TESTING SHALL CONFORM TO AAMA RECOMMENDED STATIC TEST METHOD FOR EVALUATING PERFORMANCE OF CURTAIN WALLS AND STOREFRONT WALL SYSTEMS DUE TO HORIZONTAL DISPLACEMENTS ASSOCIATED WITH SEISMIC MOVEMENTS AND BUILDING SWAY.
7. THERMAL PERFORMANCE - WHEN TESTED IN ACCORDANCE WITH AAMA 1503.1 THE FOLLOWING RESULTS SHOULD BE ATTAINED; U- MAXIMUM .63CFR/ F - MINIMUM OF .59.

1.03 QUALITY ASSURANCE

- A. SINGLE SOURCE RESPONSIBILITY:
1. OBTAIN ENTRANCES, STOREFRONTS, RIBBON WALLS, WINDOW WALLS, CURTAIN WALLS, WINDOW SYSTEMS, AND FINISH THROUGH ONE SOURCE FROM A SINGLE MANUFACTURER.
- B. PROVIDE TEST REPORTS FROM AAMA ACCREDITED LABORATORIES CERTIFYING THE PERFORMANCES AS SPECIFIED IN 1.03.
- 1.04 WARRANTY
- A. SYSTEM SHALL BE WARRANTED AGAINST FAILURE AND/OR DETERIORATION OF METALS DUE TO MANUFACTURING PROCESS FOR A PERIOD OF TWO (2) YEARS.

PART 2 - PRODUCTS

- 2.01 MANUFACTURERS
- A. ACCEPTABLE MANUFACTURERS: (OR APPROVED EQUAL)
1. ARCADIA, INC., 2301 E VERNON, VERNON, CA, TELEPHONE 323/269-7300, FAX 323/269-7390.
- B. ACCEPTABLE PRODUCTS: CR LAURENCE
1. ARCADIA, INC., AG451 SERIES
- 2.02 FRAMING MATERIALS AND ACCESSORIES
- A. FRAMING MEMBERS, TRANSITION MEMBERS, MULLIONS, ADAPTORS, AND MOUNTING: EXTRUDED 6063-T6 ALUMINUM ALLOY (ASTM B221 - ALLOY G.S. 10A 16).
- B. SCREWS, FASTENING DEVICES, AND INTERNAL COMPONENTS: ALUMINUM, STAINLESS STEEL, OR ZINC-PLATED STEEL IN ACCORDANCE WITH ASTM-A-164. PERIMETER ANCHORS SHALL BE ALUMINUM OR STEEL, PROVIDING THE STEEL IS PROPERLY ISOLATED FROM ALUMINUM.
- C. GLAZING GASKET
1. COMPRESSION-TYPE DESIGN, REPLACEABLE, MOLDED OR EXTRUDED, OR ETHYLENE PROPYLENE DIENE MONOMER (EPDM).
2. SHALL BE OF TYPE THAT LOCKS SECURELY INTO THE GLAZING REGLET TO PREVENT GLAZING GASKETS FROM DISENGAGING.
- 2.03 FINISH
- A. FINISH ALL EXPOSED AREAS OF ALUMINUM AND COMPONENTS AS INDICATED.
1. AN ARCHITECTURAL CLASSES II OR I ANODIC COATING CONFORMING WITH AA-M12C22A31/AA-M12C22A41.
- B. ANODIZE FINISH COLOR SHALL BE COLORNODIC CLEAR ANODIZED.
- 2.04 SYSTEM FABRICATION
- A. CONTINUOUS SUB-SILL SHALL BE PROVIDED UNDER SILL MEMBERS TO COLLECT WATER INFILTRATION AND DIVERT FROM THE INTERIOR OF THE SYSTEM.
- B. FRAMING MEMBERS SHALL BE INTERNALLY REINFORCED AND SECURED AT HEAD AND SILL AS NECESSARY FOR STRUCTURAL PERFORMANCE REQUIREMENTS. FOR HARDWARE ATTACHMENT, AND AS INDICATED.
- C. FASTENERS SHALL BE SO LOCATED AS TO ENSURE CONCEALMENT FROM VIEW IN THE FINAL ASSEMBLY.

DIVISION 8 - (CONT'D)

PART 3 - EXECUTION

- 3.01 EXAMINATIONS
- A. EXAMINE CONDITIONS AND VERIFY SUBSTRATE CONDITIONS ARE ACCEPTABLE FOR PRODUCT INSTALLATION.
- 3.02 INSTALLATION
- A. INSTALL IN ACCORDANCE WITH APPROVED SHOP DRAWINGS AND MANUFACTURERS INSTALLATION INSTRUCTIONS.
- 3.03 FIELD QUALITY CONTROL
- A. TEST THE STOREFRONT FOR WATER LEAKS IN ACCORDANCE WITH AAMA 501-2-94. CONDUCT TEST IN THE PRESENCE OF THE ARCHITECT. CORRECT DEFICIENCIES OBSERVED AS A RESULT OF THIS TEST.
3. FLUSH WOOD DOORS AND WOOD FRAMES
- 3.1 FLUSH WOOD DOORS
- PART 1 - GENERAL
- 1.1 RELATED DOCUMENTS
- A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.
- 1.2 SUMMARY
- A. SECTION INCLUDES:
1. SOLID-CORE DOORS WITH WOOD-VENEER, HARDBOARD OR MDF AND PLASTIC-LAMINATE FACES AS SHOWN ON THE DOOR SCHEDULE.
2. FACTORY FINISHING FLUSH WOOD DOORS.
3. FACTORY FITTING FLUSH WOOD DOORS TO FRAMES AND FACTORY MACHINING FOR HARDWARE.
- B. RELATED SECTIONS:
1. DIVISION 06 SECTION INTERIOR FINISH CARPENTRY, INTERIOR ARCHITECTURAL WOODWORK FOR WOOD DOOR FRAMES INCLUDING FIRE-RATED WOOD DOOR FRAMES.
2. DIVISION 06 SECTION INTERIOR ARCHITECTURAL WOODWORK FOR REQUIREMENTS FOR VENEERS FROM THE SAME FLITCHES FOR BOTH FLUSH WOOD DOORS AND WOOD PANELING.
3. DIVISION 08 SECTION "GLAZING" FOR GLASS VIEW PANELS IN FLUSH WOOD DOORS.
4. DIVISION 08 SECTION FINISH HARDWARE.
5. DIVISION 09 SECTIONS INTERIOR PAINTING, STAINING AND TRANSPARENT FINISHING FOR FIELD FINISHING DOORS.

1.3 ACTION SUBMITTALS

- A. PRODUCT DATA: FOR EACH TYPE OF DOOR INDICATED. INCLUDE DETAILS OF CORE AND EDGE CONSTRUCTION AND TRIM FOR OPENINGS. INCLUDE FACTORY-FINISHING SPECIFICATIONS.
- C. SHOP DRAWINGS: INDICATE LOCATION, SIZE, AND HAND OF EACH DOOR; ELEVATION OF EACH KIND OF DOOR; CONSTRUCTION DETAILS NOT COVERED IN PRODUCT DATA; LOCATION AND EXTENT OF HARDWARE BLOCKING; AND OTHER PERTINENT DATA.
1. INDICATE DIMENSIONS AND LOCATIONS OF MORTISES AND HOLES FOR HARDWARE.
2. INDICATE DIMENSIONS AND LOCATIONS OF CUTOUTS.
3. INDICATE REQUIREMENTS FOR VENEER MATCHING.
4. INDICATE DOORS TO BE FACTORY FINISHED AND FINISH REQUIREMENTS.
5. INDICATE FIRE-PROTECTION RATINGS FOR FIRE-RATED DOORS.
- D. SAMPLES FOR INITIAL SELECTION: FOR PLASTIC-LAMINATE DOOR FACES AND FACTORY FINISHED DOOR.
- E. SAMPLES FOR VERIFICATION:
1. FACTORY FINISHES APPLIED TO ACTUAL DOOR FACE MATERIALS, APPROXIMATELY 8 BY 10 INCHES (200 BY 250 MM), FOR EACH MATERIAL AND FINISH
2. PLASTIC LAMINATE, 6 INCHES (150 MM) SQUARE, FOR EACH COLOR, TEXTURE, AND PATTERN SELECTED.
3. CORNER SECTIONS OF DOORS, APPROXIMATELY 8 BY 10 INCHES (200 BY 250 MM), WITH DOOR FACES AND EDGES REPRESENTING ACTUAL MATERIALS TO BE USED.
- a. PROVIDE SAMPLES FOR EACH SPECIES OF VENEER AND SOLID LUMBER REQUIRED.
- b. PROVIDE SAMPLES FOR EACH COLOR, TEXTURE, AND PATTERN OF PLASTIC LAMINATE REQUIRED.
- c. FINISH VENEER-FACED DOOR SAMPLES WITH SAME MATERIALS PROPOSED FOR FACTORY-FINISHED DOORS.
4. LOUVER BLADE AND FRAME SECTIONS, 6 INCHES (150 MM) LONG, FOR EACH MATERIAL AND FINISH SPECIFIED.
5. FRAMES FOR LIGHT OPENINGS, 6 INCHES (150 MM) LONG, FOR EACH MATERIAL, TYPE, AND FINISH REQUIRED.

1.4 INFORMATIONAL SUBMITTALS

- A. WARRANTY: SAMPLE OF SPECIAL WARRANTY.

1.5 QUALITY ASSURANCE

- A. MANUFACTURER QUALIFICATIONS: A QUALIFIED MANUFACTURER THAT IS CERTIFIED FOR CHAIN OF CUSTODY BY AN FSC-ACCREDITED CERTIFICATION BODY.
- B. SOURCE LIMITATIONS: OBTAIN FLUSH WOOD DOORS FROM SINGLE MANUFACTURER.

1.6 DELIVERY, STORAGE, AND HANDLING

- A. COMPLY WITH REQUIREMENTS OF REFERENCED STANDARD AND MANUFACTURER'S WRITTEN INSTRUCTIONS.
- B. PACKAGE DOORS INDIVIDUALLY IN CARDBOARD CARTONS AND WRAP BUNDLES OF DOORS IN PLASTIC SHEETING.
- C. MARK EACH DOOR ON TOP RAIL WITH OPENING NUMBER USED ON SHOP DRAWINGS.
- 1.7 PROJECT CONDITIONS
- A. ENVIRONMENTAL LIMITATIONS: DO NOT DELIVER OR INSTALL DOORS UNTIL SPACES ARE ENCLOSED AND WEATHERTIGHT, WET WORK IN SPACES IS COMPLETE AND DRY, AND HVAC SYSTEM IS OPERATING AND MAINTAINING AMBIENT TEMPERATURE AND HUMIDITY CONDITIONS AT OCCUPANCY LEVELS DURING THE REMAINDER OF THE CONSTRUCTION PERIOD.
- B. ENVIRONMENTAL LIMITATIONS: DO NOT DELIVER OR INSTALL DOORS UNTIL SPACES ARE ENCLOSED AND WEATHERTIGHT, WET WORK IN SPACES IS COMPLETE AND DRY, AND HVAC SYSTEM IS OPERATING AND MAINTAINING TEMPERATURE BETWEEN 60 AND 90 DEG F (16 AND 32 DEG C) AND RELATIVE HUMIDITY BETWEEN 17 AND 50 PERCENT DURING THE REMAINDER OF THE CONSTRUCTION PERIOD.

1.8 WARRANTY

- A. SPECIAL WARRANTY: MANUFACTURER'S STANDARD FORM IN WHICH MANUFACTURER AGREES TO REPAIR OR REPLACE DOORS THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD.
1. FAILURES INCLUDE, BUT ARE NOT LIMITED TO, THE FOLLOWING:
- a. WARPING (BOW, CLIP, OR TWIST) MORE THAN 1/4 INCH (6.4 MM) IN A 42-BY-84-INCH (1067-BY-2134-MM) SECTION.
- b. TELEGRAPHING OF CORE CONSTRUCTION IN FACE VENEERS EXCEEDING 0.01 INCH IN A 3-INCH (0.25 MM IN A 76.2-MM) SPAN.
2. WARRANTY SHALL ALSO INCLUDE INSTALLATION AND FINISHING THAT MAY BE REQUIRED DUE TO REPAIR OR REPLACEMENT OF DEFECTIVE DOORS.
3. WARRANTY PERIOD FOR SOLID-CORE EXTERIOR DOORS: ONE YEARS FROM DATE OF SUBSTANTIAL COMPLETION.
4. WARRANTY PERIOD FOR SOLID-CORE INTERIOR DOORS: LIFE OF INSTALLATION.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
1. GRAHAM; AN ASSA ABLOY GROUP COMPANY.
2. MAIMAN; AN ASSA ABLOY GROUP COMPANY.

DIVISION 8 - (CONT'D)

2.2 DOOR CONSTRUCTION, GENERAL

- A. CERTIFIED WOOD: FABRICATE DOORS WITH CORES NOT LESS THAN 70 PERCENT OF WOOD PRODUCTS PRODUCED FROM WOOD OBTAINED FROM FORESTS CERTIFIED BY AN FSC-ACCREDITED CERTIFICATION BODY TO COMPLY WITH FSC STD-01-001, "FSC PRINCIPLES AND CRITERIA FOR FOREST STEWARDSHIP."
- B. LOW-EMITTING MATERIALS: FABRICATE DOORS WITH ADHESIVES AND COMPOSITE WOOD PRODUCTS THAT DO NOT CONTAIN UREA FORMALDEHYDE.
- C. LOW-EMITTING MATERIALS: FABRICATE DOORS WITH ADHESIVES THAT COMPLY WITH THE TESTING AND PRODUCT REQUIREMENTS OF THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES' "STANDARD PRACTICE FOR THE TESTING OF VOLATILE ORGANIC EMISSIONS FROM VARIOUS SOURCES USING SMALL-SCALE ENVIRONMENTAL CHAMBERS."
- D. WDMA 1.3.1-A PERFORMANCE GRADE: EXTRA HEAVY DUTY.
- E. WDMA 1.5.1-A PERFORMANCE GRADE:
1. EXTRA HEAVY DUTY.
- F. PARTICLEBOARD-CORE DOORS:
1. PARTICLEBOARD: ANSI A208.1, GRADE LD-2.
2. PARTICLEBOARD: STRAW-BASED PARTICLEBOARD COMPLYING WITH ANSI A208.1, GRADE LD-2 OR M-2, EXCEPT FOR DENSITY.
3. BLOCKING: PROVIDE WOOD BLOCKING IN PARTICLEBOARD-CORE DOORS AS FOLLOWS:
- a. 5-INCH (125-MM) TOP-RAIL BLOCKING, IN DOORS INDICATED TO HAVE CLOSERS.
- b. 5-INCH (125-MM) BOTTOM-RAIL BLOCKING, IN EXTERIOR DOORS AND DOORS INDICATED TO HAVE KICK, MOP, OR ARMOR PLATES.
- c. 5-INCH (125-MM) MIDRAIL BLOCKING, IN DOORS INDICATED TO HAVE EXIT DEVICES.
4. PROVIDE DOORS WITH EITHER GLUED-WOOD-STAVE OR STRUCTURAL-COMPOSITE-LUMBER CORES INSTEAD OF PARTICLEBOARD CORES FOR DOORS INDICATED TO RECEIVE EXIT DEVICES.

2.3 DOORS FOR OPAQUE FINISH

- A. INTERIOR SOLID-CORE DOORS:
1. GRADE: CUSTOM.
2. FACES: ANY CLOSED-GRAIN HARDWOOD OF MILL OPTION, HARDBOARD OR MDF.
- a. HARDBOARD FACES: AHA A135.4, CLASS 1 (TEMPERED) OR CLASS 2 (STANDARD).
- b. MDF FACES: ANSI A208.2, GRADE 150 OR 160.
3. EXPOSED VERTICAL AND TOP EDGES: ANY CLOSED-GRAIN HARDWOOD.
4. CORE: PARTICLEBOARD TYPE LD-2.
5. CONSTRUCTION: FIVE PILES. STILES AND RAILS ARE BONDED TO CORE, THEN ENTIRE UNIT ABRASIVE PLANED BEFORE VENEERING.

2.5 FABRICATION

- A. FACTORY FIT DOORS TO SUIT FRAME-OPENING SIZES INDICATED. COMPLY WITH CLEARANCE REQUIREMENTS OF REFERENCED QUALITY STANDARD FOR FITTING UNLESS OTHERWISE INDICATED.
1. COMPLY WITH REQUIREMENTS IN NFPA 80 FOR FIRE-RATED DOORS.
- B. FACTORY MACHINE DOORS FOR HARDWARE THAT IS NOT SURFACE APPLIED. LOCATE HARDWARE TO COMPLY WITH DHI-WDHS-3. COMPLY WITH FINAL HARDWARE SCHEDULES, DOOR FRAME SHOP DRAWINGS, DHI A 1.5-W SERIES STANDARDS, AND HARDWARE TEMPLATES.
- C. COORDINATE WITH HARDWARE MORTISES IN METAL FRAMES TO VERIFY DIMENSIONS AND ALIGNMENT BEFORE FACTORY MACHINING.
- D. METAL ASTRAGALS: FACTORY MACHINE ASTRAGALS AND FORMED-STEEL EDGES FOR HARDWARE FOR PAIRS OF FIRE-RATED DOORS.
- E. TRANSOM AND SIDE PANELS: FABRICATE MATCHING PANELS WITH SAME CONSTRUCTION, EXPOSED SURFACES, AND FINISH AS SPECIFIED FOR ASSOCIATED DOORS. FINISH BOTTOM EDGES OF TRANSOMS AND TOP EDGES OF RABBETED DOORS SAME AS DOOR STILES.
1. FABRICATE DOOR AND TRANSOM PANELS WITH FULL-WIDTH, SOLID-LUMBER (RABBETED) MEETING RAILS. PROVIDE FACTORY-INSTALLED SPRING BOLTS FOR CONCEALED ATTACHMENT INTO JAMBS OF METAL DOOR FRAMES.
- D. OPENINGS: CUT AND TRIM OPENINGS THROUGH DOORS IN FACTORY.
1. LIGHT OPENINGS: TRIM OPENINGS WITH MOLDINGS OF MATERIAL AND PROFILE INDICATED.
2. GLAZING: FACTORY INSTALL GLAZING IN DOORS INDICATED TO BE FACTORY FINISHED. COMPLY WITH APPLICABLE REQUIREMENTS IN DIVISION 08 SECTION "GLAZING."
3. LOUVERS: FACTORY INSTALL LOUVERS IN PREPARED OPENINGS.

2.6 SHOP PRIMING

- A. DOORS FOR OPAQUE FINISH: SHOP PRIME DOORS WITH ONE COAT OF WOOD PRIMER SPECIFIED IN DIVISION 09 SECTION "INTERIOR PAINTING". SEAL ALL FOUR EDGES, EDGES OF CUTOUTS, AND MORTISES WITH PRIMER.
- B. DOORS FOR TRANSPARENT FINISH: SHOP PRIME DOORS WITH STAIN (IF REQUIRED), OTHER REQUIRED PRETREATMENTS, AND FIRST COAT OF FINISH AS SPECIFIED IN DIVISION 09 SECTION "INTERIOR PAINTING OR STAINING AND TRANSPARENT FINISHING." SEAL ALL FOUR EDGES, EDGES OF CUTOUTS, AND MORTISES WITH FIRST COAT OF FINISH.

2.7 FACTORY FINISHING

- A. GENERAL: COMPLY WITH REFERENCED QUALITY STANDARD FOR FACTORY FINISHING. COMPLETE FABRICATION, INCLUDING FITTING DOORS FOR OPENINGS AND MACHINING FOR HARDWARE THAT IS NOT SURFACE APPLIED, BEFORE FINISHING.
1. FINISH FACES, ALL FOUR EDGES, EDGES OF CUTOUTS, AND MORTISES. STAINS AND FILLERS MAY BE OMITTED ON TOP AND BOTTOM EDGES, EDGES OF CUTOUTS, AND MORTISES.
- B. FINISH DOORS AT FACTORY.
- C. FINISH DOORS AT FACTORY THAT ARE INDICATED TO RECEIVE TRANSPARENT FINISH. FIELD FINISH DOORS INDICATED TO RECEIVE OPAQUE FINISH.
- D. FINISH DOORS AT FACTORY WHERE INDICATED IN SCHEDULES OR ON DRAWINGS AS FACTORY FINISHED.
- E. USE ONLY PAINTS AND COATINGS THAT COMPLY WITH THE TESTING AND PRODUCT REQUIREMENTS OF THE CALIFORNIA DEPARTMENT OF HEALTH SERVICES' "STANDARD PRACTICE FOR THE TESTING OF VOLATILE ORGANIC EMISSIONS FROM VARIOUS SOURCES USING SMALL-SCALE ENVIRONMENTAL CHAMBERS."
- F. TRANSPARENT FINISH:
1. GRADE: PREMIUM.
2. FINISH: WDMA TR-6 CATALYZED POLYURETHANE <INSERT FINISH MATERIALS>.
3. STAINING: AS SELECTED BY ARCHITECT FROM MANUFACTURER'S FULL RANGE.
4. EFFECT: SEMIFILLER FINISH, PRODUCED BY APPLYING AN ADDITIONAL FINISH COAT TO PARTIALLY FILL THE WOOD PORES.
5. SHEEN: SATIN.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. EXAMINE DOORS AND INSTALLED DOOR FRAMES BEFORE HANGING DOORS.
1. VERIFY THAT FRAMES COMPLY WITH INDICATED REQUIREMENTS FOR TYPE, SIZE, LOCATION, AND SWING CHARACTERISTICS AND HAVE BEEN INSTALLED WITH LEVEL HEADS AND PLUMB JAMBS.
2. REJECT DOORS WITH DEFECTS.
- B. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.

3.2 INSTALLATION

- A. HARDWARE: FOR INSTALLATION, SEE DIVISION 08 SECTION "DOOR HARDWARE."
- B. EXTERIOR HARDWARE: FOR INSTALLATION, SEE DIVISION 08 SECTION "DOOR HARDWARE."
- C. PRE-SUBMITTAL CONFERENCE: CONDUCT CONFERENCE IN COMPLIANCE WITH REQUIREMENTS IN DIVISION 01 SECTION "PROJECT MEETINGS" WITH ATTENDANCE BY REPRESENTATIVES OF SUPPLIER, INSTALLER, AND CONTRACTOR TO REVIEW PROPER METHODS AND PROCEDURES FOR INSTALLING HOLLOW METAL DOORS AND FRAMES AND TO VERIFY INSTALLATION OF ELECTRICAL KNOCKOUT BOXES AND CONDUIT AT FRAMES WITH ELECTRIFIED OR ACCESS CONTROL HARDWARE.
- 1.3 EXAMINATION
- A. DELIVER HOLLOW METAL WORK PALLETIZED, WRAPPED, OR CRATED TO PROVIDE PROTECTION DURING TRANSIT AND PROJECT SITE STORAGE. DO NOT USE NON-VENTED PLASTIC.
- B. DELIVER WELDED FRAMES WITH TWO REMOVABLE SPREADER BARS ACROSS BOTTOM OF FRAMES, TACK WELDED TO JAMBS AND MULLIONS.
- C. STORE HOLLOW METAL WORK UNDER COVER AT PROJECT SITE. PLACE IN STACKS OF FIVE UNITS MAXIMUM IN A VERTICAL POSITION WITH HEADS UP, SPACED BY BLOCKING, ON MINIMUM 4-INCH HIGH WOOD BLOCKING. DO NOT STORE IN A MANNER THAT TRAPS EXCESS HUMIDITY.
1. PROVIDE MINIMUM 1/4-INCH SPACE BETWEEN EACH STACKED DOOR TO PERMIT AIR CIRCULATION. DOOR AND FRAMES TO BE STACKED IN A VERTICAL UPRIGHT POSITION.

DIVISION 8 - (CONT'D)

- C. JOB-FITTED DOORS: ALIGN AND FIT DOORS IN FRAMES WITH UNIFORM CLEARANCES AND BEVELS AS INDICATED BELOW; DO NOT TRIM STILES AND RAILS IN EXCESS OF LIMITS SET BY MANUFACTURER OR PERMITTED FOR FIRE-RATED DOORS. MACHINE DOORS FOR HARDWARE. SEAL EDGES OF DOORS, EDGES OF CUTOUTS, AND MORTISES AFTER FITTING AND MACHINING.
1. CLEARANCES: PROVIDE 1/8 INCH (3.2 MM) AT HEADS, JAMBS, AND BETWEEN PAIRS OF DOORS. PROVIDE 1/8 INCH (3.2 MM) FROM BOTTOM OF DOOR TO TOP OF DECORATIVE FLOOR FINISH OR COVERING UNLESS OTHERWISE INDICATED. WHERE THRESHOLD IS SHOWN OR SCHEDULED, PROVIDE 1/4 INCH (6.4 MM) FROM BOTTOM OF DOOR TO TOP OF THRESHOLD UNLESS OTHERWISE INDICATED.
- a. COMPLY WITH NFPA 80 FOR FIRE-RATED DOORS.
2. BEVEL NON-FIRE-RATED DOORS 1/8 INCH IN 2 INCHES (3-1/2 DEGREES) AT LOCK AND HINGE EDGES.
3. BEVEL FIRE-RATED DOORS 1/8 INCH IN 2 INCHES (3-1/2 DEGREES) AT LOCK EDGE; TRIM STILES AND RAILS ONLY TO UNIFORM PERMITTED BY LABELING AGENCY.
- D. FACTORY-FITTED DOORS: ALIGN IN FRAMES FOR UNIFORM CLEARANCE AT EACH EDGE.
- E. FACTORY-FINISHED DOORS: RESTORE FINISH BEFORE INSTALLATION IF FITTING OR MACHINING IS REQUIRED AT PROJECT SITE.

3.3 ADJUSTING

- A. OPERATION: RE-HANG OR REPLACE DOORS THAT DO NOT SWING OR OPERATE FREELY.
- B. FINISHED DOORS: REPLACE DOORS THAT ARE DAMAGED OR THAT DO NOT COMPLY WITH REQUIREMENTS. DOORS MAY BE REPAIRED OR REFINISHED IF WORK COMPLIES WITH REQUIREMENTS AND SHOWS NO EVIDENCE OF REPAIR OR REFINISHING.
- C. OPAQUE FINISH: FIELD APPLIED SOLID PAINTED COLORS OVER SPECIFIED PAINT GRADE VENEER.
- 1.10 EXAMINATION
- A. EXAMINE DOORS AND INSTALLED DOOR FRAMES BEFORE HANGING DOORS.
1. VERIFY THAT FRAMES COMPLY WITH INDICATED REQUIREMENTS FOR TYPE, SIZE, LOCATION, AND SWING CHARACTERISTICS AND HAVE BEEN INSTALLED WITH LEVEL HEADS AND PLUMB JAMBS.
2. REJECT DOORS WITH DEFECTS.
- B. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
- 1.11 INSTALLATION
- A. HARDWARE: FOR INSTALLATION, SEE DIVISION 8 SECTION "DOOR HARDWARE."
- B. CONSTRUCTION: FIVE PILES.
- C. INSTALLATION INSTRUCTIONS: INSTALL DOORS TO COMPLY WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND THE REFERENCED QUALITY STANDARD, AND AS INDICATED.
1. INSTALL FIRE RATED DOORS IN CORRESPONDING FIRE RATED FRAMES ACCORDING TO NFPA 80.
- C. FACTORY FITTED DOORS: ALIGN IN FRAMES FOR UNIFORM CLEARANCE AT EACH EDGE.
- D. FACTORY FINISHED DOORS: RESTORE FINISH BEFORE INSTALLATION IF FITTING OR MACHINING IS REQUIRED AT PROJECT SITE.
- 1.12 ADJUSTING
- A. OPERATION: RE-HANG OR REPLACE DOORS THAT DO NOT SWING OR OPERATE FREELY.
- B. FINISHED DOORS: REPLACE DOORS THAT DO NOT COMPLY WITH REQUIREMENTS. DOORS MAY BE REPAIRED OR REFINISHED IF WORK COMPLIES WITH REQUIREMENTS AND SHOWS NO EVIDENCE OF REPAIR OR REFINISHING.

4. HOLLOW METAL DOORS AND FRAMES

1.1 SUBMITTALS

- A. PRODUCT DATA: FOR EACH TYPE OF PRODUCT INDICATED, INCLUDE CONSTRUCTION DETAILS, MATERIAL DESCRIPTIONS, CORE DESCRIPTIONS, HARDWARE REINFORCEMENTS, PROFILES, ANCHORS, FIRE-RESISTANCE RATING, AND FINISHES.
- B. DOOR HARDWARE SUPPLIER IS TO FURNISH TEMPLATES, TEMPLATE REFERENCE NUMBER AND/OR PHYSICAL HARDWARE TO THE STEEL DOOR AND FRAME SUPPLIER IN ORDER TO PREPARE THE DOORS AND FRAMES TO RECEIVE THE FINISH HARDWARE ITEMS.
- C. SHOP DRAWINGS: INCLUDE THE FOLLOWING:
1. ELEVATIONS OF EACH DOOR DESIGN.
2. DETAILS OF DOORS, INCLUDING VERTICAL AND HORIZONTAL EDGE DETAILS AND METAL THICKNESSES.
3. FRAME DETAILS FOR EACH FRAME TYPE, INCLUDING DIMENSIONED PROFILES AND METAL THICKNESSES.
4. LOCATIONS OF REINFORCEMENT AND PREPARATIONS FOR HARDWARE.
5. DETAILS OF ANCHORAGES, JOINTS, FIELD SPLICES, AND CONNECTIONS.
6. DETAILS OF ACCESSORIES.
7. DETAILS OF MOLDINGS, REMOVABLE STOPS, AND GLAZING.
8. DETAILS OF CONDUIT AND PREPARATIONS FOR POWER, SIGNAL, AND DATA.
- D. SAMPLES FOR VERIFICATION:
1. SAMPLES ARE ONLY REQUIRED BY REQUEST OF THE ARCHITECT AND FOR MANUFACTURERS THAT ARE NOT CURRENT MEMBERS OF THE STEEL DOOR INSTITUTE.
- E. INFORMATIONAL SUBMITTALS:
- 1.2 QUALITY ASSURANCE
- A. SOURCE LIMITATIONS: OBTAIN HOLLOW METAL DOORS AND FRAMES THROUGH ONE SOURCE FROM A SINGLE MANUFACTURER WHEREVER POSSIBLE.
- B. QUALITY STANDARD: IN ADDITION TO REQUIREMENTS SPECIFIED, COMPLY WITH ANSIS/SDI A250.8, LATEST EDITION, "RECOMMENDED SPECIFICATIONS FOR STANDARD STEEL DOORS AND FRAMES".
- C. PRE-SUBMITTAL CONFERENCE: CONDUCT CONFERENCE IN COMPLIANCE WITH REQUIREMENTS IN DIVISION 01 SECTION "PROJECT MEETINGS" WITH ATTENDANCE BY REPRESENTATIVES OF SUPPLIER, INSTALLER, AND CONTRACTOR TO REVIEW PROPER METHODS AND PROCEDURES FOR INSTALLING HOLLOW METAL DOORS AND FRAMES AND TO VERIFY INSTALLATION OF ELECTRICAL KNOCKOUT BOXES AND CONDUIT AT FRAMES WITH ELECTRIFIED OR ACCESS CONTROL HARDWARE.
- 1.3 EXAMINATION
- A. DELIVER HOLLOW METAL WORK PALLETIZED, WRAPPED, OR CRATED TO PROVIDE PROTECTION DURING TRANSIT AND PROJECT SITE STORAGE. DO NOT USE NON-VENTED PLASTIC.
- B. DELIVER WELDED FRAMES WITH TWO REMOVABLE SPREADER BARS ACROSS BOTTOM OF FRAMES, TACK WELDED TO JAMBS AND MULLIONS.
- C. STORE HOLLOW METAL WORK UNDER COVER AT PROJECT SITE. PLACE IN STACKS OF FIVE UNITS MAXIMUM IN A VERTICAL POSITION WITH HEADS UP, SPACED BY BLOCKING, ON MINIMUM 4-INCH HIGH WOOD BLOCKING. DO NOT STORE IN A MANNER THAT TRAPS EXCESS HUMIDITY.
1. PROVIDE MINIMUM 1/4-INCH SPACE BETWEEN EACH STACKED DOOR TO PERMIT AIR CIRCULATION. DOOR AND FRAMES TO BE STACKED IN A VERTICAL UPRIGHT POSITION.

1.4 PROJECT CONDITIONS

- A. FIELD MEASUREMENTS: VERIFY ACTUAL DIMENSIONS OF OPENINGS BY FIELD MEASUREMENTS BEFORE FABRICATION.
- 1.5 COORDINATION
- A. COORDINATE INSTALLATION OF ANCHORAGES FOR HOLLOW METAL FRAMES. FURNISH SETTING DRAWINGS, TEMPLATES, AND DIRECTIONS FOR INSTALLING ANCHORAGES, INCLUDING SLEEVES, CONCRETE INSERTS, ANCHOR BOLTS, AND ITEMS WITH INTEGRAL ANCHORS. DELIVER SUCH ITEMS TO PROJECT SITE IN TIME FOR INSTALLATION.

DIVISION 8 - (CONT'D)

1.6 WARRANTY

- A. SPECIAL WARRANTY: MANUFACTURER'S STANDARD FORM IN WHICH MANUFACTURER AGREES TO REPAIR OR REPLACE DOORS THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD.
- B. WARRANTY INCLUDES INSTALLATION AND FINISHING THAT MAY BE REQUIRED DUE TO REPAIR OR REPLACEMENT OF DEFECTIVE DOORS.

PART 2 - PRODUCTS

2.1 MANUFACTURERS

- A. MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
1. CECO DOOR PRODUCTS.
2. CURRIES COMPANY.
3. SECURITY METAL PRODUCTS.

2.2 MATERIALS

- A. COLD-ROLLED STEEL SHEET: ASTM A 1008/A 1008M, COMMERCIAL STEEL (CS), TYPE B; SUITABLE FOR EXPOSED APPLICATIONS.
- B. METALLIC-COATED STEEL SHEET: ASTM A 653/A 653M, COMMERCIAL STEEL (CS), TYPE B; WITH MINIMUM G60 (Z180) OR A60 (ZF180) METALLIC COATING.
- C. FRAME ANCHORS: ASTM A 653/A 653M, COMMERCIAL STEEL (CS), COMMERCIAL STEEL (CS), TYPE B; WITH MINIMUM G60 (Z180) OR A60 (ZF180) METALLIC COATING.
- 2.3 STANDARD HOLLOW METAL DOORS
- A. GENERAL: PROVIDE 1-3/4 INCH DOORS OF DESIGN INDICATED, NOT LESS THAN THICKNESS INDICATED; FABRICATED WITH SMOOTH SURFACES, WITHOUT VISIBLE JOINTS OR SEAMS ON EXPOSED FACES UNLESS OTHERWISE INDICATED. COMPLY WITH ANSIS/SDI A250.8.
- B. EXTERIOR DOORS: FACE SHEETS FABRICATED OF COMMERCIAL QUALITY HOT-DIPPED ZINC COATED STEEL THAT COMPLIES WITH ASTM A 653/A 653M, COATING DESIGNATION A60. PROVIDE DOORS COMPLYING WITH REQUIREMENTS INDICATED BELOW BY REFERENCING ANSIS/SDI A250.8 FOR LEVEL AND MODEL AND ANSIS/SDI A250.4 FOR PHYSICAL PERFORMANCE LEVEL:

1. DESIGN: FLUSH PANEL.
2. CORE CONSTRUCTION: MANUFACTURER'S STANDARD POLYSTYRENE, POLYURETHANE, MINERAL CORE, OR VERTICAL STEEL-STIFFENER CORE.
- A. POLYSTYRENE AND POLYURETHANE (INSULATED) DOORS: WHERE INDICATED, PROVIDE DOORS FABRICATED AS THERMAL-RATED ASSEMBLIES WITH A MINIMUM R-VALUE 11 OR BETTER.
- B. STANDARD VERTICAL STEEL-STIFFENER CORE: MINIMUM 22 GAUGE STEEL-STIFFENERS AT 6 INCHES ON-CENTER CONSTRUCTION ATTACHED BY SPOT WELDS SPACED NOT MORE THAN 5" ON CENTERS. SPACES BETWEEN STIFFENERS FILLED WITH FIBERGLASS INSULATION (MINIMUM DENSITY 0.8#/CUBIC FT.).
- C. FIRE DOOR CORE: AS REQUIRED TO PROVIDE FIRE-PROTECTION AND TEMPERATURE-RISE RATINGS INDICATED.
3. LEVEL/MODEL: LEVEL 3 AND PHYSICAL PERFORMANCE LEVEL A (EXTRA HEAVY DUTY). MINIMUM 16 GAUGE (0.053-INCH - 1.3-MM) THICK STEEL, MODEL 2.
4. VERTICAL EDGES: VERTICAL EDGES TO HAVE THE FACE SHEETS JOINED BY A CONTINUOUS WELD EXTENDING THE FULL HEIGHT OF THE DOOR. WELDS ARE TO BE GROUND, FILLED AND DRESSED SMOOTH. BEVELED LOCK EDGE, 1/8 INCH IN 2 INCHES (3 MM IN 50 MM).
5. TOP AND BOTTOM EDGES: REINFORCE TOPS AND BOTTOMS OF DOORS WITH A CONTINUOUS STEEL CHANNEL NOT LESS THAN 16 GAUGE. EXTENDING THE FULL WIDTH OF THE DOOR AND WELDED TO THE FACE SHEET. DOORS WITH AN INVERTED TOP CHANNEL TO INCLUDE A STEEL CLOSURE CHANNEL. SCREW ATTACHED, WITH THE WEB OF THE CHANNEL FLUSH WITH THE FACE SHEETS OF THE DOOR. PLASTIC OR COMPOSITE CHANNEL FILLERS ARE NOT ACCEPTABLE.
6. HINGE REINFORCEMENT: MINIMUM 7 GAUGE (3/16") PLATE 1-1/4" X 9" OR MINIMUM 14 GAUGE CONTINUOUS CHANNEL WITH PIERCED HOLES, DRILLED AND TAPPED.
7. HARDWARE REINFORCEMENTS: FABRICATE ACCORDING TO ANSIS/SDI A250.4 WITH REINFORCING PLATES FROM SAME MATERIAL AS DOOR FACE SHEETS.
- C. INTERIOR DOORS: FACE SHEETS FABRICATED OF COMMERCIAL QUALITY COLD ROLLED STEEL THAT COMPLIES WITH ASTM A 1008/A 1008M. PROVIDE DOORS COMPLYING WITH REQUIREMENTS INDICATED BELOW BY REFERENCING ANSIS/SDI A250.8 FOR LEVEL AND MODEL AND ANSIS/SDI A250.4 FOR PHYSICAL PERFORMANCE LEVEL:

1. DESIGN: FLUSH PANEL.
2. CORE CONSTRUCTION: MANUFACTURER'S STANDARD ONE-PIECE POLYSTYRENE CORE, SECURELY BONDED TO BOTH FACES.
- A. FIRE DOOR CORE: AS REQUIRED TO PROVIDE FIRE-PROTECTION AND TEMPERATURE-RISE RATINGS INDICATED.
3. LEVEL/MODEL: LEVEL 3 AND PHYSICAL PERFORMANCE LEVEL A (EXTRA HEAVY DUTY). MINIMUM 16 GAUGE (0.053-INCH - 1.3-MM) THICK STEEL, MODEL 2.
4. VERTICAL EDGES: VERTICAL EDGES TO HAVE THE FACE SHEETS JOINED BY A CONTINUOUS WELD EXTENDING THE FULL HEIGHT OF THE DOOR. WELDS ARE TO BE GROUND, FILLED AND DRESSED SMOOTH. BEVELED LOCK EDGE, 1/8 INCH IN 2 INCHES (3 MM IN 50 MM).
5. TOP AND BOTTOM EDGES: REINFORCE TOPS AND BOTTOMS OF DOORS WITH A CONTINUOUS STEEL CHANNEL NOT LESS THAN 16 GAUGE. EXTENDING THE FULL WIDTH OF THE DOOR AND WELDED TO THE FACE SHEET. DOORS WITH AN INVERTED TOP CHANNEL TO INCLUDE A STEEL CLOSURE CHANNEL. SCREW ATTACHED, WITH THE WEB OF THE CHANNEL FLUSH WITH THE FACE SHEETS OF THE DOOR. PLASTIC OR COMPOSITE CHANNEL FILLERS ARE NOT ACCEPTABLE.
6. HINGE REINFORCEMENT: MINIMUM 7 GAUGE (3/16") PLATE 1-1/4" X 9" OR MINIMUM 14 GAUGE CONTINUOUS CHANNEL WITH PIERCED HOLES, DRILLED AND TAPPED.
7. HARDWARE REINFORCEMENTS: FABRICATE ACCORDING TO ANSIS/SDI A250.4 WITH REINFORCING PLATES FROM SAME MATERIAL AS DOOR FACE SHEETS.
- D. MANUFACTURERS BASIS OF DESIGN:
1. CECO DOOR PRODUCTS (C): LEGION SERIES.
2. CURRIES COMPANY (CU): 707 SERIES.
3. SECURITY METAL PRODUCTS

2.4 STANDARD HOLLOW METAL FRAMES

- A. GENERAL: COMPLY WITH ANSIS/SDI A250.8 AND WITH DETAILS INDICATED FOR TYPE AND PROFILE.
- B. EXTERIOR MASONRY FRAMES: FABRICATED OF HOT-DIPPED ZINC COATED STEEL THAT COMPLIES WITH ASTM A 653/A 653M, COATING DESIGNATION A60.
1. FABRICATE FRAMES WITH MITERED OR COPED CORNERS.
2. FABRICATE FRAMES, WITH THE EXCEPTION OF KNOCK DOWN TYPES, WITH "CLOSED AND TIGHT" MITER SEAMS CONTINUOUSLY WELDED ON FACE, FINISHED SMOOTH WITH NO VISIBLE SEAM UNLESS OTHERWISE INDICATED.
3. FRAMES FOR LEVEL 3 STEEL DOORS (UP TO 48 INCHES IN WIDTH): MINIMUM 14 GAUGE (0.067-INCH - 1.7-MM) THICK STEEL SHEET.
4. FRAMES FOR LEVEL 3 STEEL DOORS (48 INCHES AND UP IN WIDTH): MINIMUM 12 GAUGE (0.081-INCH - 2.7-MM) THICK STEEL SHEET.
5. FRAMES FOR LEVEL 2 STEEL DOORS: MINIMUM 16 GAUGE (0.053-INCH - 1.3-MM) THICK STEEL SHEET.
6. MANUFACTURERS BASIS OF DESIGN:
- A. CECO DOOR PRODUCTS (C) - SU SERIES.
- B. CURRIES COMPANY (CU) - M SERIES.
- C. SECURITY METAL PRODUCTS
- C. FIRE RATED FRAMES: FABRICATE FRAMES IN ACCORDANCE WITH NFPA 80, LISTED AND LABELED BY A QUALIFIED TESTING AGENCY, FOR FIRE-RESISTANCE RATING.
- D. HARDWARE REINFORCEMENT: FABRICATE ACCORDING TO ANSIS/SDI A250.6 TABLE 4 WITH REINFORCEMENT PLATES FROM SAME MATERIAL AS FRAMES.

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DIVISION 8 - (CONT'D)

- 2.5 FRAME ANCHORS
- A. JAMB ANCHORS:
1. MASONRY TYPE: ADJUSTABLE STRAP-AND-STIRRUP OR T-SHAPED ANCHORS, 3/4" DIA. STEEL, FORMED FROM A60 METAL COATED MATERIAL, NOT LESS THAN 0.042 INCH THICK, WITH CORRUGATED OR PERFORATED STRAPS NOT LESS THAN 2 INCHES WIDE BY 10 INCHES LONG; OR WIRE ANCHORS NOT LESS THAN 0.177 INCH THICK.
 2. STUD WALL TYPE: DESIGNED TO ENGAGE STUD AND NOT LESS THAN 0.042 INCH THICK.
- B. FLOOR ANCHORS: FLOOR ANCHORS TO BE PROVIDED AT EACH JAMB, FORMED FROM A60 METALLIC COATED MATERIAL, NOT LESS THAN 0.042 INCHES THICK.
- C. MORTAR GUARDS: FORMED FROM SAME MATERIAL AS FRAMES, NOT LESS THAN 0.016 INCHES THICK.
- 2.6 LIGHT OPENINGS AND GLAZING
- A. STOPS AND MOLDINGS: PROVIDE STOPS AND MOLDINGS AROUND GLAZED LITES WHERE INDICATED. FORM CORNERS OF STOPS AND MOLDINGS WITH BUTTED OR MITERED HAIRLINE JOINTS AT FABRICATORS SHOP. FIXED AND REMOVABLE STOPS TO ALLOW MULTIPLE GLAZED LITES EACH TO BE REMOVED INDEPENDENTLY. COORDINATE FRAME RABBIT WIDTHS BETWEEN FIXED AND REMOVABLE STOPS WITH THE TYPE OF GLAZING AND INSTALLATION INDICATED.
- B. MOLDINGS FOR GLAZED LITES IN DOORS AND LOOSE STOPS FOR GLAZED LITES IN FRAMES: MINIMUM 20 GAUGE THICK, FABRICATED FROM SAME MATERIAL AS DOOR FACE SHEET IN WHICH THEY ARE INSTALLED.
- C. FIXED FRAME MOLDINGS: FORMED INTEGRAL WITH HOLLOW METAL FRAMES, A MINIMUM OF 5/8 INCH (16 MM) HIGH UNLESS OTHERWISE INDICATED. PROVIDE FIXED FRAME MOLDINGS AND STOPS ON OUTSIDE OF EXTERIOR AND ON SECURE SIDE OF INTERIOR DOORS AND FRAMES
- D. PREFORMED METAL FRAMES FOR LIGHT OPENINGS: MANUFACTURER'S STANDARD FRAME FORMED OF 0.048-INCH-THICK, COLD ROLLED STEEL SHEET WITH BAKED ENAMEL OR POWDER COATED FINISH; AND APPROVED FOR USE IN DOORS OF FIRE PROTECTION RATING INDICATED. MATCH PRE-FINISHED DOOR PAINT COLOR WHERE APPLICABLE.
- E. GLAZING: COMPLY WITH REQUIREMENTS IN DIVISION 08 SECTION "GLAZING" AND WITH THE HOLLOW METAL DOOR MANUFACTURER'S WRITTEN INSTRUCTIONS.
1. FACTORY GLAZING: FACTORY INSTALL GLAZING IN DOORS AS INDICATED. DOORS WITH FACTORY INSTALLED GLASS TO INCLUDE ALL OF THE REQUIRED GLAZING MATERIAL.
- 2.7 ACCESSORIES
- A. MULLIONS AND TRANSOM BARS: JOIN TO ADJACENT MEMBERS BY WELDING OR RIGID MECHANICAL ANCHORS.
- B. GROUT GUARDS: FORMED FROM SAME MATERIAL AS FRAMES, NOT LESS THAN 0.016 INCHES THICK.
- 2.8 FABRICATION
- A. FABRICATE HOLLOW METAL WORK TO BE RIGID AND FREE OF DEFECTS, WARP, OR BUCKLE. ACCURATELY FORM METAL TO REQUIRED SIZES AND PROFILES, WITH MINIMUM RADIUS FOR THICKNESS OF METAL, WHERE PRACTICAL. FIT AND ASSEMBLE UNITS IN MANUFACTURER'S PLANT. WHEN SHIPPING LIMITATIONS SO DICTATE, FRAMES FOR LARGE OPENINGS ARE TO BE FABRICATED IN SECTIONS FOR SPLICING OR SPLINING IN THE FIELD BY OTHERS.
- B. TOLERANCES: FABRICATE HOLLOW METAL WORK TO TOLERANCES INDICATED IN ANS/SDI A250.8.
- C. HOLLOW METAL DOORS:
1. EXTERIOR DOORS: PROVIDE OPTIONAL WEEP-HOLE OPENINGS IN BOTTOM OF EXTERIOR DOORS TO PERMIT MOISTURE TO ESCAPE WHERE SPECIFIED.
 2. GLAZED LITES: FACTORY CUT OPENINGS IN DOORS WITH APPLIED TRIM OR KITS TO FIT. FACTORY INSTALL GLAZING WHERE INDICTED.
 3. LOUVERS: FACTORY CUT OPENINGS IN DOOR AND INSTALL LOUVERS INTO PREPARED OPENINGS WHERE INDICATED.
 4. ASTRAGALS: PROVIDE OVERLAPPING ASTRAGALS AS NOTED IN DOOR HARDWARE SETS IN DIVISION 08 SECTION "DOOR HARDWARE" ON ONE LEAF OF PAIRS OF DOORS WHERE REQUIRED BY NFPA 80 FOR FIRE-PERFORMANCE RATING OR WHERE INDICATED. EXTEND MINIMUM 3/4 INCH BEYOND EDGE OF DOOR ON WHICH ASTRAGAL IS MOUNTED.
 5. CONTINUOUS HINGE REINFORCEMENT: PROVIDE WELDED CONTINUOUS 12 GAUGE STRAP FOR CONTINUOUS HINGES SPECIFIED IN HARDWARE SETS IN DIVISION 08 SECTION "DOOR HARDWARE".
- D. HOLLOW METAL FRAMES:
1. SHIPPING LIMITATIONS: WHERE FRAMES ARE FABRICATED IN SECTIONS DUE TO SHIPPING OR HANDLING LIMITATIONS, PROVIDE ALIGNMENT PLATES OR ANGLES AT EACH JOINT, FABRICATED OF SAME THICKNESS METAL AS FRAMES.
 2. WELDED FRAMES: WELD FLUSH FACE JOINTS CONTINUOUSLY; GRIND, FILL, DRESS, AND MAKE SMOOTH, FLUSH, AND INVISIBLE.

A. WELDED FRAMES ARE TO BE PROVIDED WITH TWO STEEL SPREADERS TEMPORARILY ATTACHED TO THE BOTTOM OF BOTH JAMBS TO SERVE AS A BRACE DURING SHIPPING AND HANDLING. SPREADER BARS ARE FOR BRACING ONLY AND ARE NOT TO BE USED TO SIZE THE FRAME OPENING.
 3. SIDELIGHT AND TRANSOM BAR FRAMES: PROVIDE CLOSED TUBULAR MEMBERS WITH NO VISIBLE FACE SEAMS OR JOINTS, FABRICATED FROM SAME MATERIAL AS DOOR FRAME. FASTEN MEMBERS AT CROSSINGS AND TO JAMBS BY BUTT WELDING.
 4. EQUAL RABBIT FRAMES: PROVIDE FRAMES WITH EQUAL RABBIT DIMENSIONS UNLESS GLAZING AND REMOVABLE STOPS REQUIRE WIDER DIMENSIONS ON GLASS SIDE OF FRAME.
 5. HIGH FREQUENCY HINGE REINFORCEMENT: PROVIDE HIGH FREQUENCY HINGE REINFORCEMENTS AT DOOR OPENINGS 48-INCHES AND WIDER WITH MORTISE BUTT TYPE HINGES AT TOP HINGE LOCATIONS.
 6. CONTINUOUS HINGE REINFORCEMENT: PROVIDE WELDED CONTINUOUS 12 GAUGE STRAPS FOR CONTINUOUS HINGES SPECIFIED IN HARDWARE SETS IN DIVISION 08 SECTION "DOOR HARDWARE".
 7. PROVIDE COUNTERSUNK, FLAT- OR OVAL-HEAD EXPOSED SCREWS AND BOLTS FOR EXPOSED FASTENERS UNLESS OTHERWISE INDICATED FOR REMOVABLE STOPS. PROVIDE SECURITY SCREWS AT EXTERIOR LOCATIONS.
 8. MORTAR GUARDS: PROVIDE GROUT BOXES AT BACK OF HARDWARE MORTISES IN FRAMES AT ALL HINGES AND STRIKE PREPS REGARDLESS OF GROUTING REQUIREMENTS.
 9. FLOOR ANCHORS: WELD ANCHORS TO BOTTOM OF JAMBS AND MULLIONS WITH AT LEAST FOUR SPOT WELDS PER ANCHOR.
 10. JAMB ANCHORS: PROVIDE NUMBER AND SPACING OF ANCHORS AS FOLLOWS:

A. MASONRY TYPE: LOCATE ANCHORS NOT MORE THAN 18 INCHES FROM TOP AND BOTTOM OF FRAME. SPACE ANCHORS NOT MORE THAN 32 INCHES O.C. AND AS FOLLOWS:

 - 1) TWO ANCHORS PER JAMB UP TO 60 INCHES HIGH.
 - 2) THREE ANCHORS PER JAMB FROM 60 TO 90 INCHES HIGH.
 - 3) FOUR ANCHORS PER JAMB FROM 90 TO 120 INCHES HIGH
 - 4) FOUR ANCHORS PER JAMB PLUS 1 ADDITIONAL ANCHOR PER JAMB FOR EACH 24 INCHES OR FRACTION THEREOF ABOVE 120 INCHES HIGH.
 - B. STUD WALL TYPE: LOCATE ANCHORS NOT MORE THAN 18 INCHES FROM TOP AND BOTTOM OF FRAME. SPACE ANCHORS NOT MORE THAN 32 INCHES O.C. AND AS FOLLOWS:
- 1) THREE ANCHORS PER JAMB UP TO 60 INCHES HIGH.
 - 2) FOUR ANCHORS PER JAMB FROM 60 TO 90 INCHES HIGH.
 - 3) FIVE ANCHORS PER JAMB FROM 90 TO 96 INCHES HIGH.
 - 4) FIVE ANCHORS PER JAMB PLUS 1 ADDITIONAL ANCHOR PER JAMB FOR EACH 24 INCHES OR FRACTION THEREOF ABOVE 96 INCHES HIGH.
 - 5) TWO ANCHORS PER HEAD FOR FRAMES ABOVE 42 INCHES WIDE AND MOUNTED IN METAL STUD PARTITIONS.

DIVISION 8 - (CONT'D)

- C. SEVERE STORM SHELTER OPENINGS: PROVIDE JAMB, HEAD, AND SILL ANCHORS IN ACCORDANCE WITH MANUFACTURER'S TESTED AND APPROVED ASSEMBLIES.
11. DOOR SILencers: EXCEPT ON WEATHERSTRIPPED OR GASKETED DOORS, DRILL STOPS TO RECEIVE DOOR SILencers. SILencers TO BE SUPPLIED BY FRAME MANUFACTURER REGARDLESS IF SPECIFIED IN DIVISION 08 SECTION "DOOR HARDWARE".
 12. BITUMINOUS COATING: WHERE FRAMES ARE FULLY GROUTED WITH AN APPROVED PORTLAND CEMENT BASED GROUT OR MORTAR, COAT INSIDE OF FRAME THROAT WITH A WATER BASED BITUMINOUS OR ASPHALTIC EMULSION COATING TO A MINIMUM THICKNESS OF 3 MILS DFT, TESTED IN ACCORDANCE WITH UL 10C AND APPLIED TO THE FRAME UNDER A 3RD PARTY INDEPENDENT FOLLOW-UP SERVICE PROCEDURE.
- E. HARDWARE PREPARATION: FACTORY PREPARE HOLLOW METAL WORK TO RECEIVE TEMPLATE MORTISED HARDWARE: INCLUDE CUTOITS, REINFORCEMENT, MORTISING, DRILLING, AND TAPPING ACCORDING TO THE DOOR HARDWARE SCHEDULE AND TEMPLATES FURNISHED AS SPECIFIED IN DIVISION 08 SECTION "DOOR HARDWARE."
1. LOCATE HARDWARE AS INDICATED, OR IF NOT INDICATED, ACCORDING TO ANS/SDI A250.8.
 2. REINFORCE DOORS AND FRAMES TO RECEIVE NON-TEMPLATE, MORTISED AND SURFACE MOUNTED DOOR HARDWARE.
 3. COMPLY WITH APPLICABLE REQUIREMENTS IN ANS/SDI A250.6 AND ANS/DH1 A115 SERIES SPECIFICATIONS FOR PREPARATION OF HOLLOW METAL WORK FOR HARDWARE.
 4. COORDINATE LOCATIONS OF CONDUIT AND WIRING BOXES FOR ELECTRICAL CONNECTIONS WITH DIVISION 26 SECTIONS.
- 2.9 STEEL FINISHES
- A. PRIME FINISHES: DOORS AND FRAMES TO BE CLEANED, AND CHEMICALLY TREATED TO INSURE MAXIMUM FINISH PAINT ADHESION. SURFACES OF THE DOOR AND FRAME EXPOSED TO VIEW TO RECEIVE A FACTORY APPLIED COAT OF RUST INHIBITING SHOP PRIMER.
1. SHOP PRIMER: MANUFACTURER'S STANDARD, FAST-CURING, LEAD AND CHROMATE FREE PRIMER COMPLYING WITH ANS/SDI A250.10 ACCEPTANCE CRITERIA; RECOMMENDED BY PRIMER MANUFACTURER FOR SUBSTRATE; AND COMPATIBLE WITH SUBSTRATE AND FIELD-APPLIED COATINGS.
- B. FACTORY PRE-FINISHES: FACTORY APPLY ELECTROSTATIC PAINT FINISH TO DOORS AND FRAMES IN ACCORDANCE WITH ANS/SDI A250.3 TEST PROCEDURE ACCEPTANCE CRITERIA FOR STEEL DOORS AND FRAMES WITH FACTORY APPLIED FINISHED COATINGS.
- PART 3 - EXECUTION
- 3.1 EXAMINATION
- A. EXAMINE SUBSTRATES, AREAS, AND CONDITIONS, WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS FOR INSTALLATION TOLERANCES AND OTHER CONDITIONS AFFECTING PERFORMANCE OF THE WORK.
- B. GENERAL CONTRACTOR TO VERIFY THE ACCURACY OF DIMENSIONS GIVEN TO THE STEEL DOOR AND FRAME MANUFACTURER FOR EXISTING OPENINGS OR EXISTING FRAMES (STRIKE HEIGHT, HINGE SPACING, HINGE BACK SET, ETC.).
- C. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
- 3.2 PREPARATION
- A. REMOVE WELDED IN SHIPPING SPREADERS INSTALLED AT FACTORY. RESTORE EXPOSED FINISH BY GRINDING, FILLING, AND DRESSING, AS REQUIRED TO MAKE REPAIRED AREA SMOOTH, FLUSH, AND INVISIBLE ON EXPOSED FACES.
- B. PRIOR TO INSTALLATION, ADJUST AND SECURELY BRACE WELDED HOLLOW METAL FRAMES FOR SQUARENESS, ALIGNMENT, TWIST, AND PLUMBNESS.
- C. TOLERANCES SHALL COMPLY WITH SDI-117 "MANUFACTURING TOLERANCES STANDARD STEEL DOORS AND FRAMES."
- D. DRILL AND TAP DOORS AND FRAMES TO RECEIVE NON-TEMPLATE, MORTISED, AND SURFACE-MOUNTED DOOR HARDWARE.
- 3.3 INSTALLATION
- A. GENERAL: INSTALL HOLLOW METAL WORK PLUMB, RIGID, PROPERLY ALIGNED, AND SECURELY FASTENED IN PLACE; COMPLY WITH DRAWINGS AND MANUFACTURER'S WRITTEN INSTRUCTIONS.
- B. HOLLOW METAL FRAMES: INSTALL HOLLOW METAL FRAMES OF SIZE AND PROFILE INDICATED. COMPLY WITH ANS/SDI A250.11 AND NFPA 80 AT FIRE RATED OPENINGS.
1. SET FRAMES ACCURATELY IN POSITION, PLUMBED, ALIGNED, AND BRACED SECURELY UNTIL PERMANENT ANCHORS ARE SET. AFTER WALL CONSTRUCTION IS COMPLETE AND FRAMES PROPERLY SET AND SECURED, REMOVE TEMPORARY BRACES, LEAVING SURFACES SMOOTH AND UNDAMAGED. SHIM AS NECESSARY TO COMPLY WITH INSTALLATION TOLERANCES.
 2. FLOOR ANCHORS: PROVIDE FLOOR ANCHORS FOR EACH JAMB AND MULLION THAT EXTENDS TO FLOOR, AND SECURE WITH POST-INSTALLED EXPANSION ANCHORS.
 3. MASONRY WALLS: COORDINATE INSTALLATION OF FRAMES TO ALLOW FOR SOLIDLY FILLING SPACE BETWEEN FRAMES AND MASONRY WITH MORTAR.
 4. GROUT REQUIREMENTS: DO NOT GROUT HEAD OF FRAMES UNLESS REINFORCING HAS BEEN INSTALLED IN HEAD OF FRAME. DO NOT GROUT VERTICAL OR HORIZONTAL CLOSED MULLION MEMBERS.
- C. HOLLOW METAL DOORS: FIT HOLLOW METAL DOORS ACCURATELY IN FRAMES, WITHIN CLEARANCES SPECIFIED BELOW. SHIM AS NECESSARY.
1. NON-FIRE-RATED STANDARD STEEL DOORS:

A. JAMBS AND HEAD: 1/8-INCH PLUS OR MINUS 1/16 INCH.

B. BETWEEN EDGES OF PAIRS OF DOORS: 1/8-INCH PLUS OR MINUS 1/16 INCH.

C. BETWEEN BOTTOM OF DOOR AND TOP OF THRESHOLD: MAXIMUM 3/8 INCH.

D. BETWEEN BOTTOM OF DOOR AND TOP OF FINISH FLOOR (NO THRESHOLD): MAXIMUM 3/4 INCH.
 2. FIRE-RATED DOORS: INSTALL DOORS WITH CLEARANCES ACCORDING TO NFPA 80.
- D. FIELD GLAZING: COMPLY WITH INSTALLATION REQUIREMENTS IN DIVISION 08 SECTION "GLAZING" AND WITH HOLLOW METAL MANUFACTURER'S WRITTEN INSTRUCTIONS.
- 3.4 ADJUSTING AND CLEANING
- A. FINAL ADJUSTMENTS: CHECK AND READJUST OPERATING HARDWARE IMMEDIATELY AFTER FINAL INSPECTION. LEAVE WORK IN COMPLETE AND PROPER OPERATING CONDITION. REMOVE AND REPLACE DEFECTIVE WORK, INCLUDING HOLLOW METAL WORK THAT IS WARPED, BOWED, OR OTHERWISE UNACCEPTABLE.
- B. REMOVE GROUT AND OTHER BONDING MATERIAL FROM HOLLOW METAL WORK IMMEDIATELY AFTER INSTALLATION.
- C. PRIME-COAT AND PAINTED FINISH TOUCHUP: IMMEDIATELY AFTER ERECTION, SAND SMOOTH RUSTED OR DAMAGED AREAS OF PRIME COAT, OR PAINTED FINISHES, AND APPLY TOUCHUP OF COMPATIBLE AIR DRYING, RUST-INHIBITIVE PRIMER, ZINC RICH PRIMER (EXTERIOR AND GALVANIZED OPENINGS) OR FINISH PAINT.

- SECTION 087100 -- DOOR HARDWARE
- PART 1 - GENERAL
- 1.1 RELATED DOCUMENTS
- A. DRAWINGS AND GENERAL PROVISIONS OF THE CONTRACT, INCLUDING GENERAL AND SUPPLEMENTARY CONDITIONS AND DIVISION 01 SPECIFICATION SECTIONS, APPLY TO THIS SECTION.
- 1.2 SUMMARY
- A. SECTION INCLUDES:
1. MECHANICAL AND ELECTRIFIED DOOR HARDWARE FOR:

a. SWINGING DOORS.

b. SLIDING DOORS.

c. GATES.

DIVISION 8 - (CONT'D)

2. ELECTRONIC ACCESS CONTROL SYSTEM COMPONENTS, INCLUDING:

a. ELECTRONIC ACCESS CONTROL LOCKSETS AND ELECTRIC STRIKES.
 3. FIELD VERIFICATION, PREPARATION AND MODIFICATION OF EXISTING DOORS AND FRAMES TO RECEIVE NEW DOOR HARDWARE.
 4. LEAD-LINING DOOR HARDWARE ITEMS REQUIRED FOR RADIATION PROTECTION AT DOOR OPENINGS.
- B. EXCLUSIONS: UNLESS SPECIFICALLY LISTED IN HARDWARE SETS, HARDWARE IS NOT SPECIFIED IN THIS SECTION FOR:
1. WINDOWS
 2. CABINETS (CASEWORK), INCLUDING LOCKS IN CABINETS
 3. SIGNAGE
 4. TOILET ACCESSORIES
 5. OVERHEAD DOORS
- C. RELATED SECTIONS:
1. DIVISION 01 SECTION "ALTERNATES" FOR ALTERNATES AFFECTING THIS SECTION.
 2. DIVISION 07 SECTION "JOINT SEALANTS" FOR SEALANT REQUIREMENTS APPLICABLE TO THRESHOLD INSTALLATION SPECIFIED IN THIS SECTION.
 3. DIVISION 09 SECTIONS FOR TOUCHUP FINISHING OR REFINISHING OF EXISTING OPENINGS MODIFIED BY THIS SECTION.
 4. DIVISION 13 SECTION "RADIATION PROTECTION" FOR REQUIREMENTS FOR LEAD-LINING FOR DOOR HARDWARE AT OPENINGS INDICATED TO RECEIVE RADIATION PROTECTION.
 5. DIVISION 24 SECTIONS FOR CONNECTIONS TO ELECTRICAL POWER BY SYSTEM AND FOR LOW-VOLTAGE WIRING.
 6. DIVISION 28 SECTIONS FOR COORDINATION WITH OTHER COMPONENTS OF ELECTRONIC ACCESS CONTROL SYSTEM.
- 1.3 REFERENCES
- A. FIRE/LIFE SAFETY
1. NFPA - NATIONAL FIRE PROTECTION ASSOCIATION

a. NFPA 70 -- NATIONAL ELECTRIC CODE

b. NFPA 80 -- STANDARD FOR FIRE DOORS AND FIRE WINDOWS

c. NFPA 101 - LIFE SAFETY CODE

d. NFPA 105 - SMOKE AND DRAFT CONTROL DOOR ASSEMBLIES
 2. STATE FIRE SAFETY CODE.
- B. UL - UNDERWRITERS LABORATORIES
1. UL 108 - FIRE TEST OF DOOR ASSEMBLIES
 2. UL 10C - POSITIVE PRESSURE TEST OF FIRE DOOR ASSEMBLIES
 3. UL 1784 - AIR LEAKAGE TESTS OF DOOR ASSEMBLIES
 4. UL 305 - PANIC HARDWARE
- C. ACCESSIBILITY
1. ADA - AMERICANS WITH DISABILITIES ACT .
 2. ANSI A117.1 - ACCESSIBLE AND USABLE BUILDINGS AND FACILITIES.
- D. DHI - DOOR AND HARDWARE INSTITUTE
1. SEQUENCE AND FORMAT FOR THE HARDWARE SCHEDULE
 2. RECOMMENDED LOCATIONS FOR BUILDERS HARDWARE
 3. KEY SYSTEMS AND NOMENCLATURE
- E. ANSI - AMERICAN NATIONAL STANDARDS INSTITUTE
1. ANS/BHMA A156.1 - A156.29, AND ANSI A156.31 - STANDARDS FOR HARDWARE AND SPECIALTIES
- 1.4 SUBMITTALS
- A. GENERAL:
1. SUBMIT IN ACCORDANCE WITH CONDITIONS OF CONTRACT AND DIVISION 01 REQUIREMENTS.
 2. HIGHLIGHT, ENCIRCLE, OR OTHERWISE SPECIFICALLY IDENTIFY ON SUBMITTALS DEVIATIONS FROM CONTRACT DOCUMENTS, ISSUES OF INCOMPATIBILITY OR OTHER ISSUES WHICH MAY DETRIMENTALLY AFFECT THE WORK.
 3. PRIOR TO FORWARDING SUBMITTAL, COMPLY WITH PROCEDURES FOR VERIFYING EXISTING DOOR AND FRAME COMPATIBILITY FOR NEW HARDWARE, AS SPECIFIED IN PART 3, "EXAMINATION" ARTICLE, HEREIN.
- B. ACTION SUBMITTALS:
1. PRODUCT DATA: PRODUCT DATA INCLUDING MANUFACTURERS' TECHNICAL PRODUCT DATA FOR EACH ITEM OF DOOR HARDWARE, INSTALLATION INSTRUCTIONS, MAINTENANCE OF OPERATING PARTS AND FINISH, AND OTHER INFORMATION NECESSARY TO SHOW COMPLIANCE WITH REQUIREMENTS.
 2. RISER AND WIRING DIAGRAMS: AFTER FINAL APPROVAL OF HARDWARE SCHEDULE, SUBMIT DETAILS OF ELECTRIFIED DOOR HARDWARE, INDICATING:

a. WIRING DIAGRAMS: FOR POWER, SIGNAL, AND CONTROL WIRING AND INCLUDING:

 - 1) DETAILS OF INTERFACE OF ELECTRIFIED DOOR HARDWARE AND BUILDING SAFETY AND SECURITY SYSTEMS.
 - 2) SCHEMATIC DIAGRAM OF SYSTEMS THAT INTERFACE WITH ELECTRIFIED DOOR HARDWARE.
 - 3) POINT-TO-POINT WIRING.
 - 4) RISERS.
 3. SAMPLES FOR VERIFICATION: IF REQUESTED BY ARCHITECT, SUBMIT PRODUCTION SAMPLE OR SAMPLE INSTALLATIONS OF EACH TYPE OF EXPOSED HARDWARE UNIT IN FINISH INDICATED, AND TAGGED WITH FULL DESCRIPTION FOR COORDINATION WITH SCHEDULE.
 4. SAMPLES WILL BE RETURNED TO SUPPLIER IN LIKE-NEW CONDITION. UNITS THAT ARE ACCEPTABLE TO ARCHITECT MAY, AFTER FINAL CHECK OF OPERATIONS, BE INCORPORATED INTO WORK, WITHIN LIMITATIONS OF KEY COORDINATION REQUIREMENTS.
 4. DOOR HARDWARE SCHEDULE: SUBMIT SCHEDULE WITH HARDWARE SETS IN VERTICAL FORMAT AS ILLUSTRATED BY SEQUENCE OF FORMAT FOR THE HARDWARE SCHEDULE AS PUBLISHED BY THE DOOR AND HARDWARE INSTITUTE. INDICATE COMPLETE DESIGNATIONS OF EACH ITEM REQUIRED FOR EACH DOOR OR OPENING, INCLUDE:

a. DOOR INDEX: INCLUDE DOOR NUMBER, HEADING NUMBER, AND ARCHITECTS HARDWARE SET NUMBER.

b. OPENING LOCK FUNCTION SPREADSHEET: LIST LOCKING DEVICE AND FUNCTION FOR EACH OPENING.

c. TYPE, STYLE, FUNCTION, SIZE, AND FINISH OF EACH HARDWARE ITEM.

d. NAME AND MANUFACTURER OF EACH ITEM.

e. FASTENINGS AND OTHER PERTINENT INFORMATION.

f. LOCATION OF EACH HARDWARE SET CROSS-REFERENCED TO INDICATIONS ON DRAWINGS.

g. EXPLANATION OF ALL ABBREVIATIONS, SYMBOLS, AND CODES CONTAINED IN SCHEDULE.

h. MOUNTING LOCATIONS FOR HARDWARE.

i. DOOR AND FRAME SIZES AND MATERIALS.

j. NAME AND PHONE NUMBER FOR LOCAL MANUFACTURER'S REPRESENTATIVE FOR EACH PRODUCT.

k. OPERATIONAL DESCRIPTION OF OPENINGS WITH ANY ELECTRIFIED HARDWARE (LOCKS, EXITS, ELECTROMAGNETIC LOCKS, ELECTRIC STRIKES, AUTOMATIC OPERATORS, DOOR POSITION SWITCHES, MAGNETIC HOLDERS OR CLOSER/HOLDER UNITS, AND ACCESS CONTROL COMPONENTS). OPERATIONAL DESCRIPTION SHOULD INCLUDE HOW DOOR WILL OPERATE ON EGRESS, INGRESS, AND FIRE AND SMOKE ALARM CONNECTION.

 - 1) SUBMITTAL SEQUENCE: SUBMIT DOOR HARDWARE SCHEDULE CONCURRENT WITH SUBMISSIONS OF PRODUCT DATA, SAMPLES, AND SHOP DRAWINGS. COORDINATE SUBMISSION OF DOOR HARDWARE SCHEDULE WITH SCHEDULING REQUIREMENTS OF OTHER WORK TO FACILITATE FABRICATION OF OTHER WORK THAT IS CRITICAL IN PROJECT CONSTRUCTION SCHEDULE.
5. KEY SCHEDULE:

a. AFTER KEYING CONFERENCE, PROVIDE KEYING SCHEDULE LISTING FUNCTIONS OF KEYING AS WELL AS EXPLANATION OF KEY SYSTEMS, LEVEL, KEY SYMBOLS USED AND DOOR NUMBERS CONTROLLED.

DIVISION 8 - (CONT'D)

- b. USE ANSI A156.28 "RECOMMENDED PRACTICES FOR KEYING SYSTEMS" AS GUIDELINE FOR NOMENCLATURE, DEFINITIONS, AND APPROACH FOR SELECTING OPTIMAL KEYING SYSTEM.
 - c. DOORS AND KEYING SCHEDULE FOR REVIEW PREPARED AND DETAILED IN ACCORDANCE WITH REFERENCED DHI PUBLICATION. INCLUDE SCHEMATIC KEYING DIAGRAM AND INDEX EACH KEY TO UNIQUE DOOR DESIGNATIONS.
 - d. INDEX KEYING SCHEDULE BY DOOR NUMBER, KEYSET, HARDWARE HEADING NUMBER, CROSS KEYING INSTRUCTIONS, AND SPECIAL KEY STAMPING INSTRUCTIONS.
 - e. PROVIDE ONE COMPLETE BITTING LIST OF KEY CUTS AND ONE KEY SYSTEM SCHEMATIC ILLUSTRATING SYSTEM USAGE AND EXPANSION.
 - 1) FORWARD BITTING LIST, KEY CUTS AND KEY SYSTEM SCHEMATIC DIRECTLY TO OWNER, BY MEANS AS DESIGNATED BY OWNER.
 - f. PREPARE KEY SCHEDULE BY OR UNDER SUPERVISION OF SUPPLIER, DETAILING OWNER'S FINAL KEYING INSTRUCTIONS FOR LOCKS.
6. TEMPLATES: AFTER FINAL APPROVAL OF HARDWARE SCHEDULE, PROVIDE TEMPLATES FOR DOORS, FRAMES AND OTHER WORK SPECIFIED TO BE FACTORY PREPARED FOR DOOR HARDWARE INSTALLATION.
- C. INFORMATIONAL SUBMITTALS:
1. QUALIFICATION DATA: FOR SUPPLIER, INSTALLER AND ARCHITECTURAL HARDWARE CONSULTANT.
 2. CERTIFICATES FOR ELECTRIFIED DOOR HARDWARE, SIGNED BY MANUFACTURER:

a. CERTIFY THAT DOOR HARDWARE APPROVED FOR USE ON TYPES AND SIZES OF LABELED FIRE-RATED DOORS COMPLIES WITH LISTED FIRE-RATED DOOR ASSEMBLIES.
 3. CERTIFICATES OF COMPLIANCE:

a. CERTIFICATES OF COMPLIANCE FOR FIRE-RATED HARDWARE AND INSTALLATION INSTRUCTIONS IF REQUESTED BY ARCHITECT OR AUTHORITY HAVING JURISDICTION.

b. INSTALLER TRAINING MEETING CERTIFICATION; LETTER OF COMPLIANCE, SIGNED BY CONTRACTOR, ATTESTING TO COMPLETION OF INSTALLER TRAINING MEETING SPECIFIED IN "QUALITY ASSURANCE" ARTICLE, HEREIN.

c. ELECTRIFIED HARDWARE COORDINATION CONFERENCE CERTIFICATION: LETTER OF COMPLIANCE, SIGNED BY CONTRACTOR, ATTESTING TO COMPLETION OF ELECTRIFIED HARDWARE COORDINATION CONFERENCE, SPECIFIED IN "QUALITY ASSURANCE" ARTICLE, HEREIN.
 4. PRODUCT TEST REPORTS: FOR COMPLIANCE WITH ACCESSIBILITY REQUIREMENTS, BASED ON EVALUATION OF COMPREHENSIVE TESTS CONDUCTED BY MANUFACTURER AND WITNESSED BY QUALIFIED TESTING AGENCY, FOR DOOR HARDWARE ON DOORS LOCATED IN ACCESSIBLE ROUTES.
 5. WARRANTY: SPECIAL WARRANTY SPECIFIED IN THIS SECTION.
- D. CLOSEOUT SUBMITTALS:
1. OPERATIONS AND MAINTENANCE DATA : PROVIDE IN ACCORDANCE WITH DIVISION 01 AND INCLUDE:

a. COMPLETE INFORMATION ON CARE, MAINTENANCE, AND ADJUSTMENT; DATA ON REPAIR AND REPLACEMENT PARTS, AND INFORMATION ON PRESERVATION OF FINISHES.

b. CATALOG PAGES FOR EACH PRODUCT.

c. NAME, ADDRESS, AND PHONE NUMBER OF LOCAL REPRESENTATIVE FOR EACH MANUFACTURER.

d. PARTS LIST FOR EACH PRODUCT.

e. FINAL APPROVED HARDWARE SCHEDULE, EDITED TO REFLECT CONDITIONS AS-INSTALLED.

f. FINAL KEYING SCHEDULE

g. COPIES OF FLOOR PLANS WITH KEYING NOMENCLATURE

h. AS-INSTALLED WIRING DIAGRAMS FOR EACH OPENING CONNECTED TO POWER, BOTH LOW VOLTAGE AND 110 VOLTS.

i. COPY OF WARRANTIES INCLUDING APPROPRIATE REFERENCE NUMBERS FOR MANUFACTURERS TO IDENTIFY PRODUCT.
 - 1.5 QUALITY ASSURANCE

A. PRODUCT SUBSTITUTIONS: COMPLY WITH PRODUCT REQUIREMENTS STATED IN DIVISION 01 AND AS SPECIFIED HEREIN.

 1. WHERE SPECIFIC MANUFACTURER'S PRODUCT IS NAMED AND ACCOMPANIED BY "NO SUBSTITUTE," INCLUDING MAKE OR MODEL NUMBER OR OTHER DESIGNATION, PROVIDE PRODUCT SPECIFIED. (NOTE: CERTAIN PRODUCTS HAVE BEEN SELECTED FOR THEIR UNIQUE CHARACTERISTICS AND PARTICULAR PROJECT SUITABILITY.)
 - a. WHERE NO ADDITIONAL PRODUCTS OR MANUFACTURERS ARE LISTED IN PRODUCT CATEGORY, REQUIREMENTS FOR "NO SUBSTITUTE" GOVERN PRODUCT SELECTION.
 2. WHERE PRODUCTS INDICATE "ACCEPTABLE SUBSTITUTE" OR "ACCEPTABLE MANUFACTURER", PROVIDE PRODUCT FROM SPECIFIED MANUFACTURERS, SUBJECT TO COMPLIANCE WITH SPECIFIED REQUIREMENTS AND "SINGLE SOURCE RESPONSIBILITY" REQUIREMENTS STATED HEREIN.
 3. SUPPLIER QUALIFICATIONS AND RESPONSIBILITIES: RECOGNIZED ARCHITECTURAL HARDWARE SUPPLIER WITH RECORD OF SUCCESSFUL IN-SERVICE PERFORMANCE OF DOOR HARDWARE SIMILAR IN QUANTITY, TYPE, AND QUALITY TO THAT INDICATED FOR THIS PROJECT AND THAT PROVIDES CERTIFIED ARCHITECTURAL HARDWARE CONSULTANT (AHC) AVAILABLE TO OWNER, ARCHITECT, AND CONTRACTOR, AT REASONABLE TIMES DURING THE WORK FOR CONSULTATION.
 1. WAREHOUSING FACILITIES: IN PROJECTS VICINITY.
 2. SCHEDULING RESPONSIBILITY: PREPARATION OF DOOR HARDWARE AND KEYING SCHEDULES.
 3. ENGINEERING RESPONSIBILITY: PREPARATION OF DATA FOR ELECTRIFIED DOOR HARDWARE, INCLUDING SHOP DRAWINGS, BASED ON ENGINEERING ANALYSIS OF MANUFACTURER'S STANDARD UNITS IN ASSEMBLIES SIMILAR TO THOSE INDICATED FOR THIS PROJECT.
 4. COORDINATION RESPONSIBILITY: COORDINATE INSTALLATION OF ELECTRONIC SECURITY HARDWARE WITH ARCHITECT AND ELECTRICAL ENGINEERS AND PROVIDE INSTALLATION AND TECHNICAL DATA TO ARCHITECT AND OTHER RELATED SUBCONTRACTORS.
 - a. UPON COMPLETION OF ELECTRONIC SECURITY HARDWARE INSTALLATION, INSPECT AND VERIFY THAT ALL COMPONENTS ARE WORKING PROPERLY.

C. INSTALLATION QUALIFICATIONS: QUALIFIED TRADESMEN, SKILLED IN APPLICATION OF COMMERCIAL GRADE HARDWARE WITH RECORD OF SUCCESSFUL IN-SERVICE PERFORMANCE FOR INSTALLING DOOR HARDWARE SIMILAR IN QUANTITY, TYPE, AND QUALITY TO THAT INDICATED FOR THIS PROJECT.

D. ARCHITECTURAL HARDWARE CONSULTANT QUALIFICATIONS: PERSON WHO IS EXPERIENCED IN PROVIDING CONSULTING SERVICES FOR DOOR HARDWARE INSTALLATIONS THAT ARE COMPARABLE IN MATERIAL, DESIGN, AND EXTENT TO THAT INDICATED FOR THIS PROJECT AND MEETS THESE REQUIREMENTS:

 1. FOR DOOR HARDWARE, DHI-CERTIFIED, ARCHITECTURAL HARDWARE CONSULTANT (AHC).
 2. CAN PROVIDE INSTALLATION AND TECHNICAL DATA TO ARCHITECT AND OTHER RELATED SUBCONTRACTORS.
 3. CAN INSPECT AND VERIFY COMPONENTS ARE IN WORKING ORDER UPON COMPLETION OF INSTALLATION.
 4. CAPABLE OF PRODUCING WIRING DIAGRAMS.
 5. CAPABLE OF COORDINATING INSTALLATION OF ELECTRIFIED HARDWARE WITH ARCHITECT AND ELECTRICAL ENGINEERS.

E. SINGLE SOURCE RESPONSIBILITY: OBTAIN EACH TYPE OF DOOR HARDWARE FROM SINGLE MANUFACTURER, INCLUDING DELIVERY TO PROJECT, BUT NOT YET INSTALLED. CONTROL HANDLING AND INSTALLATION OF HARDWARE ITEMS SO THAT COMPLETION OF WORK WILL NOT BE DELAYED BY HARDWARE LOSSES BOTH BEFORE AND AFTER INSTALLATION.

D. PROTECTION AND DAMAGE:

 1. PROMPTLY REPLACE PRODUCTS DAMAGED DURING SHIPPING.
 2. HANDLE HARDWARE IN MANNER TO AVOID DAMAGE, MARRING, OR SCRATCHING. CORRECT, REPLACE OR REPAIR PRODUCTS DAMAGED DURING WORK.
 3. PROTECT PRODUCTS AGAINST MALFUNCTION DUE TO PAINT, SOLVENT, CLEANSER, OR ANY CHEMICAL AGENT.

E. DELIVER KEYS TO MANUFACTURER OF KEY CONTROL SYSTEM FOR SUBSEQUENT DELIVERY TO OWNER.

F. DELIVER KEYS AND PERMANENT CORES TO: JJ LAMB, LEAD LOCKSMITH, UNLV LOCK SHOP BY REGISTERED MAIL OR OVERNIGHT PACKAGE SERVICE.

1.7 COORDINATION

A. COORDINATE LAYOUT AND INSTALLATION OF FLOOR-RECESSED DOOR HARDWARE WITH FLOOR CONSTRUCTION. CAST ANCHORING INSERTS IN SINGLE MANUFACTURER'S RECESSED ANCHORS, AND FORMWORK REQUIREMENTS ARE SPECIFIED IN DIVISION 03.

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- F. FIRE-RATED DOOR OPENINGS: PROVIDE DOOR HARDWARE FOR FIRE-RATED OPENINGS THAT COMPLIES WITH NFPA 80 AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION. PROVIDE ONLY ITEMS OF DOOR HARDWARE AND KEYING SCHEDULE FOR REVIEW DOORS TESTED BY UNDERWRITERS LABORATORIES, INTERTEK TESTING SERVICES, OR OTHER TESTING AND INSPECTING ORGANIZATIONS ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION FOR USE ON TYPES AND SIZES OF DOORS INDICATED, BASED ON TESTING AT POSITIVE PRESSURE AND ACCORDING TO NFPA 252 OR UL 10C AND IN COMPLIANCE WITH REQUIREMENTS OF FIRE-RATED DOOR AND DOOR FRAME LABELS.
- G. SMOKE- AND DRAFT-CONTROL DOOR ASSEMBLIES: WHERE SMOKE- AND DRAFT-CONTROL DOOR ASSEMBLIES ARE REQUIRED, PROVIDE DOOR HARDWARE THAT MEETS REQUIREMENTS OF ASSEMBLIES TESTED ACCORDING TO UL 1784 AND INSTALLED IN COMPLIANCE WITH NFPA 105.
1. AIR LEAKAGE RATE: MAXIMUM AIR LEAKAGE OF 0.3 CFM/SQ. FT. (3 CU. M PER MINUTE/SQ. M) AT TESTED PRESSURE DIFFERENTIAL OF 0.3-INCH WG (75 PA) OF WATER.
- H. ELECTRIFIED DOOR HARDWARE: LISTED AND LABELED AS DEFINED IN NFPA 70, ARTICLE 100, BY TESTING AGENCY ACCEPTABLE TO AUTHORITIES HAVING JURISDICTION.
- I. MEANS OF EGRESS DOORS: LATCHES DO NOT REQUIRE MORE THAN 15 LBF (67 N) TO RELEASE LATCH. LOCKS DO NOT REQUIRE USE OF KEY, TOOL, OR SPECIAL KNOWLEDGE FOR OPERATION.
- J. ACCESSIBILITY REQUIREMENTS: FOR DOOR HARDWARE ON DOORS IN AN ACCESSIBLE ROUTE, COMPLY WITH GOVERNING ACCESSIBILITY REGULATIONS CITED IN "REFERENCES" ARTICLE, HEREIN.
1. PROVIDE OPERATING DEVICES THAT DO NOT REQUIRE TIGHT GRASPING, PINCHING, OR TWISTING OF WRIST AND THAT OPERATE WITH FORCE OF NOT MORE THAN 5 LBF (22.2 N).
 2. MAXIMUM OPENING-FORCE REQUIREMENTS:

a. INTERIOR, NON-FIRE-RATED HINGED DOORS: 5 LBF (22.2 N) APPLIED PERPENDICULAR TO DOOR.

b. SLIDING OR FOLDING DOORS: 5 LBF (22.2 N) APPLIED PARALLEL TO DOOR AT LATCH.

c. FIRE DOORS: MINIMUM OPENING FORCE ALLOWABLE BY AUTHORITIES HAVING JURISDICTION.

 - 3. BEVEL RAISED THRESHOLDS WITH SLOPE OF NOT MORE THAN 1:2. PROVIDE THRESHOLDS NOT MORE THAN 1/2 INCH (13 MM) HIGH.
 - 4. ADJUST DOOR CLOSER SWEEP PERIODS SO THAT, FROM OPEN POSITION OF 70 DEGREES, DOOR WILL TAKE AT LEAST 3 SECONDS TO MOVE TO 3 INCHES (75 MM) FROM LATCH, MEASURED TO LEADING EDGE OF DOOR.
- K. KEYING CONFERENCE: CONDUCT CONFERENCE AT PROJECT SITE TO COMPLY WITH REQUIREMENTS IN DIVISION 01.
1. ATTENDEES: OWNER, CONTRACTOR, ARCHITECT, INSTALLER, AND SUPPLIER'S ARCHITECTURAL HARDWARE CONSULTANT.
 2. INCORPORATE KEYING CONFERENCE DECISIONS INTO FINAL KEYING SCHEDULE AFTER REVIEWING DOOR HARDWARE KEYING SYSTEM INCLUDING:

a. FUNCTION OF BUILDING, FLOW OF TRAFFIC, PURPOSE OF EACH AREA, DEGREE OF SECURITY REQUIRED, AND PLANS FOR FUTURE EXPANSION.

b. PRELIMINARY KEY SYSTEM SCHEMATIC DIAGRAM.

c. REQUIREMENTS FOR KEY CONTROL SYSTEM.

d. REQUIREMENTS FOR ACCESS CONTROL.

e. ADDRESS FOR DELIVERY OF KEYS.
 - L. PRE-INSTALLATION CONFERENCE: CONDUCT CONFERENCE AT PROJECT SITE
1. REVIEW AND FINALIZE CONSTRUCTION SCHEDULE AND VERIFY AVAILABILITY OF MATERIALS, INSTALLER'S PERSONNEL, EQUIPMENT, AND FACILITIES NEEDED TO MAKE PROGRESS AND AVOID DELAYS.
 2. INSPECT AND DISCUSS PREPARATORY WORK PERFORMED BY OTHER TRADES.
 3. INSPECT AND DISCUSS ELECTRICAL ROUGHING-IN FOR ELECTRIFIED DOOR HARDWARE.
 4. REVIEW SEQUENCE OF OPERATION FOR EACH TYPE OF ELECTRIFIED DOOR HARDWARE.
 5. REVIEW REQUIRED TESTING, INSPECTING, AND CERTIFYING PROCEDURES.
- M. COORDINATION CONFERENCES:
1. INSTALLATION COORDINATION CONFERENCE: PRIOR TO HARDWARE INSTALLATION, SCHEDULE AND HOLD MEETING TO REVIEW QUESTIONS OR CONCERNS RELATED TO PROPER INSTALLATION AND ADJUSTMENT OF DOOR HARDWARE.

a. ATTENDEES: DOOR HARDWARE SUPPLIER, DOOR HARDWARE INSTALLER, CONTRACTOR.
 2. AFTER MEETING, PROVIDE LETTER OF COMPLIANCE TO ARCHITECT, INDICATING WHEN MEETING WAS HELD AND WHO WAS IN ATTENDANCE.
 2. ELECTRIFIED HARDWARE COORDINATION CONFERENCE: PRIOR TO ORDERING ELECTRIFIED HARDWARE, SCHEDULE AND HOLD MEETING TO COORDINATE DOOR HARDWARE WITH SECURITY, ELECTRICAL, DOORS AND FRAMES, AND OTHER RELATED SUPPLIERS.

a. ATTENDEES: DOOR HARDWARE SUPPLIER, CONTRACTOR -- VEGAS VALLEY LOCKING SYSTEMS, ELECTRIFIED DOOR HARDWARE SUPPLIER, DOORS AND FRAMES SUPPLIER, ELECTRIFIED DOOR HARDWARE INSTALLER, ELECTRICAL SUBCONTRACTOR, OWNER, ARCHITECT AND CONTRACTOR.

b. AFTER MEETING, PROVIDE LETTER OF COMPLIANCE TO ARCHITECT, INDICATING WHEN COORDINATION CONFERENCE WAS HELD AND WHO WAS IN ATTENDANCE.
- 1.6 DELIVERY, STORAGE, AND HANDLING
- A. INVENTORY DOOR HARDWARE ON RECEIPT AND PROVIDE SECURE LOCK-UP FOR HARDWARE DELIVERED TO PROJECT SITE.
- B. TAG EACH ITEM OR PACKAGE SEPARATELY WITH IDENTIFICATION COORDINATED WITH FINAL DOOR HARDWARE SCHEDULE, AND INCLUDE INSTALLATION INSTRUCTIONS, TEMPLATES, AND NECESSARY FASTENERS WITH EACH ITEM OR PACKAGE.
1. DELIVER EACH ARTICLE OF HARDWARE IN MANUFACTURER'S ORIGINAL PACKAGING.
- C. PROJECT CONDITIONS:
1. MAINTAIN MANUFACTURER-RECOMMENDED ENVIRONMENTAL CONDITIONS THROUGHOUT STORAGE AND INSTALLATION PERIODS.
 2. DELIVER HARDWARE TO PROJECT SITE, STORED IN A DRY, CLEAN, AND PROTECTED AREA, BUT NOT YET INSTALLED. CONTROL HANDLING AND INSTALLATION OF HARDWARE ITEMS SO THAT COMPLETION OF WORK WILL NOT BE DELAYED BY HARDWARE LOSSES BOTH BEFORE AND AFTER INSTALLATION.
- D. PROTECTION AND DAMAGE:
1. PROMPTLY REPLACE PRODUCTS DAMAGED DURING SHIPPING.
 2. HANDLE HARDWARE IN MANNER TO AVOID DAMAGE, MARRING, OR SCRATCHING. CORRECT, REPLACE OR REPAIR PRODUCTS DAMAGED DURING WORK.
 3. PROTECT PRODUCTS AGAINST MALFUNCTION DUE TO PAINT, SOLVENT, CLEANSER, OR ANY CHEMICAL AGENT.
- E. DELIVER KEYS TO MANUFACTURER OF KEY CONTROL SYSTEM FOR SUBSEQUENT DELIVERY TO OWNER.
- F. DELIVER KEYS AND PERMANENT CORES TO: JJ LAMB, LEAD LOCKSMITH, UNLV LOCK SHOP BY REGISTERED MAIL OR OVERNIGHT PACKAGE SERVICE.
- 1.7 COORDINATION
- A. COORDINATE LAYOUT AND INSTALLATION OF FLOOR-RECESSED DOOR HARDWARE WITH FLOOR CONSTRUCTION. CAST ANCHORING INSERTS IN SINGLE MANUFACTURER'S RECESSED ANCHORS, AND FORMWORK REQUIREMENTS ARE SPECIFIED IN DIVISION 03.

DIVISION 8 - (CONT'D)

- B. INSTALLATION TEMPLATES: DISTRIBUTE FOR DOORS, FRAMES, AND OTHER WORK SPECIFIED TO BE FACTORY PREPARED. CHECK SHOP DRAWINGS OF OTHER WORK TO CONFIRM THAT ADEQUATE PROVISIONS ARE MADE FOR LOCATING AND INSTALLING DOOR HARDWARE TO COMPLY WITH INDICATED REQUIREMENTS.
- C. SECURITY: COORDINATE INSTALLATION OF DOOR HARDWARE, KEYING, AND ACCESS CONTROL WITH OWNER'S SECURITY CONSULTANT.
- D. ELECTRICAL SYSTEM ROUGH-IN: COORDINATE LAYOUT AND INSTALLATION OF ELECTRIFIED DOOR HARDWARE WITH CONNECTIONS TO POWER SUPPLIES AND BUILDING SAFETY AND SECURITY SYSTEMS.
- E. EXISTING OPENINGS: WHERE HARDWARE COMPONENTS ARE SCHEDULED FOR APPLICATION TO EXISTING CONSTRUCTION OR WHERE MODIFICATIONS TO EXISTING DOOR HARDWARE ARE REQUIRED, FIELD VERIFY EXISTING CONDITIONS AND COORDINATE INSTALLATION OF DOOR HARDWARE TO SUIT OPENING CONDITIONS AND TO PROVIDE PROPER DOOR OPERATION.
- F. DIRECT SHIPMENTS NOT PERMITTED, UNLESS APPROVED BY CONTRACTOR.
- 1.8 WARRANTY
- A. SPECIAL WARRANTY: MANUFACTURER'S STANDARD FORM IN WHICH MANUFACTURER AGREES TO REPAIR OR REPLACE COMPONENTS OF DOOR HARDWARE THAT FAIL IN MATERIALS OR WORKMANSHIP WITHIN SPECIFIED WARRANTY PERIOD.
1. WARRANTY PERIOD: YEARS FROM DATE OF SUBSTANTIAL COMPLETION, FOR DURATIONS INDICATED.
- a. CLOSERS:
1. MECHANICAL: 30 YEARS FOR LCN 4000
2. ELECTRIFIED: 2 YEARS.
- b. AUTOMATIC OPERATORS: 1 YEAR
- c. EXIT DEVICES:
1. MECHANICAL: 3 YEARS.
2. ELECTRIFIED: 1 YEAR.
- d. LOCKSETS:
1. MECHANICAL: 7 YEARS.
2. ELECTRIFIED: 1 YEAR.
- e. CONTINUOUS HINGES: LIFETIME WARRANTY
- f. KEY BLANKS: LIFETIME
2. WARRANTY DOES NOT COVER DAMAGE OR FAULTY OPERATION DUE TO IMPROPER INSTALLATION, IMPROPER USE OR ABUSE.
- 1.9 MAINTENANCE
- A. EXTRA MATERIALS:
1. FURNISH EXTRA MATERIALS THAT MATCH PRODUCTS INSTALLED AND THAT ARE PACKAGED WITH PROTECTIVE COVERING FOR STORAGE AND IDENTIFIED WITH LABELS DESCRIBING CONTENTS.
- a. DOOR HARDWARE: COORDINATE WITH UNLV LOCK SHOP
- b. ELECTRICAL PARTS: COORDINATE WITH UNLV LOCK SHOP
- B. MAINTENANCE TOOLS:
1. FURNISH COMPLETE SET OF SPECIAL TOOLS REQUIRED FOR MAINTENANCE AND ADJUSTMENT OF HARDWARE, INCLUDING CHANGING OF CYLINDERS.
- PART 2 - PRODUCTS
- 2.1 MANUFACTURERS
- A. THE OWNER REQUIRES USE OF CERTAIN PRODUCTS FOR THEIR UNIQUE CHARACTERISTICS AND PARTICULAR PROJECT SUITABILITY TO INSURE CONTINUITY OF EXISTING AND FUTURE PERFORMANCE AND MAINTENANCE STANDARDS. AFTER INVESTIGATING AVAILABLE PRODUCT OFFERINGS AWARDDING AUTHORITY HAS ELECTED TO PREPARE PROPRIETARY SPECIFICATIONS. THESE PRODUCTS ARE SPECIFIED WITH THE NOTATION: "NO SUBSTITUTE."
1. WHERE "NO SUBSTITUTE" IS NOTED, SUBMITTALS AND SUBSTITUTION REQUESTS FOR OTHER PRODUCTS WILL NOT BE CONSIDERED.
- B. APPROVAL OF MANUFACTURERS OTHER THAN THOSE LISTED SHALL BE IN ACCORDANCE WITH QUALITY ASSURANCE ARTICLE, HEREIN.
- C. APPROVAL OF PRODUCTS FROM MANUFACTURERS INDICATED AS "ACCEPTABLE MANUFACTURER" IS CONTINGENT UPON THOSE PRODUCTS PROVIDING ALL FUNCTIONS AND FEATURES AND MEETING ALL REQUIREMENTS OF SCHEDULED MANUFACTURER'S PRODUCT.

ITEM	SCHEDULED MANUFACTURER	ACCEPTABLE MANUFACTURER
HINGES	IVES (IVE)	HAGER, STANLEY
CONTINUOUS HINGES	IVES (IVE)	MARKAR, STANLEY
ELECTRIC POWER TRANSFER	IVES (IVE)	ABH
FLUSH BOLT	IVES (IVE)	HAGER, ROCKWOOD
SURFACE BOLTS	IVES (IVE)	HAGER, ROCKWOOD
COORDINATORS	IVES (IVE)	HAGER, ROCKWOOD
LOCKSETS & DEADLOCKS	SCHLAGE (SCH)	NO SUBSTITUTE
ALUMINUM DOOR LOCKS – NARROW STYLE	MEDECO KEYMARK - (MED)	NO SUBSTITUTE
SLIDING DOOR LOCKS	ADAMS RITE (ADA)	AS PRE-APPROVED
POCKET DOOR LOCKS	ACCURATE (ACC)	AS PRE-APPROVED
EXIT DEVICES & MULLIONS	VON DUFRIN (VON)	NO SUBSTITUTE
ELECTRONIC ACCESS CONTROL - HARDWIRED	MILLENNIUM	NO SUBSTITUTE
ACCESS CONTROL READERS	SCHLAGE ELECTRONICS (SCE)	NO SUBSTITUTE
ACCESS CONTROL CREDENTIALS	SCHLAGE – ELECTRONIC (SCE)	NO SUBSTITUTE
ELECTRIC STRIKES	SCHLAGE – ELECTRONIC (SCE)	HES
MAGNETIC LOCKS - SURFACE TYPE	HES (HES)	NO SUBSTITUTE
MAGNETIC LOCKS - SHEAR TYPE	SCHLAGE ELECTRONICS (SCE)	SECURITRON
CYLINDERS & KEYING	MEDECO KEYMARK (MED)	NO SUBSTITUTE
DOOR CLOSERS	LCN (LCN)	NO SUBSTITUTE
CLOSER/HOLDER UNIT	LCN (LCN)	NO SUBSTITUTE
ELECTRO-MECHANICAL AUTOMATIC OPERATORS	STANLEY (STN)	LCN SR, SWING
PROTECTION PLATES	IVES (IVE)	HAGER, ROCKWOOD
OVERHEAD STOPS	IVES (IVE)	HAGER, ROCKWOOD
THRESHOLDS & WEATHERSTRIP	IVES (IVE)	PEMCO, ZERO
SILENCERS	IVES (IVE)	PEMCO, ZERO
MAGNETIC HOLDERS	LCN (LCN)	HAGER, ROCKWOOD
LATCH PROTECTOR	IVES (IVE)	HAGER, ROCKWOOD
SLIDING DOOR HARDWARE	IVES (IVE)	HAGER, ROCKWOOD

- D. HAND OF DOOR: DRAWINGS SHOW DIRECTION OF SLIDE, SWING, OR HAND OF EACH DOOR LEAF. FURNISH EACH ITEM OF HARDWARE FOR PROPER INSTALLATION AND OPERATION OF DOOR MOVEMENT AS SHOWN.
- E. WHERE SPECIFIED HARDWARE IS NOT ADAPTABLE TO FINISHED SHAPE OR SIZE OF MEMBERS REQUIRING HARDWARE, FURNISH SUITABLE TYPES HAVING SAME OPERATION AND QUALITY AS TYPE SPECIFIED, SUBJECT TO ARCHITECT'S APPROVAL.
- 2.2 EXISTING MATERIALS
- A. WHERE EXISTING DOOR HARDWARE IS INDICATED TO BE REMOVED AND REINSTALLED:
1. CAREFULLY REMOVE DOOR HARDWARE AND COMPONENTS.
2. CLEAN, PROTECT AND STORE EXISTING DOOR HARDWARE IN ACCORDANCE WITH STORAGE AND HANDLING REQUIREMENTS SPECIFIED HEREIN.
3. REINSTALL IN ACCORDANCE WITH INSTALLATION REQUIREMENTS FOR NEW DOOR HARDWARE.

DIVISION 8 - (CONT'D)

- 2.3 MATERIALS
- A. FASTENERS
1. PROVIDE HARDWARE MANUFACTURED TO CONFORM TO PUBLISHED TEMPLATES, GENERALLY PREPARED FOR MACHINE SCREW INSTALLATION.
2. FURNISH SCREWS FOR INSTALLATION WITH EACH HARDWARE ITEM, FINISH EXPOSED (EXPOSED UNDER ANY CONDITION) SCREWS TO MATCH HARDWARE FINISH, OR, IF EXPOSED IN SURFACES OF OTHER WORK, TO MATCH FINISH OF THIS OTHER WORK INCLUDING PREPARED FOR PAINT SURFACES TO RECEIVE PAINTED FINISH.
3. PROVIDE CONCEALED FASTENERS FOR HARDWARE UNITS EXPOSED WHEN DOOR IS CLOSED EXCEPT WHEN NO STANDARD UNITS OF TYPE SPECIFIED ARE AVAILABLE WITH CONCEALED FASTENERS. DO NOT USE THRU-BOLTS FOR INSTALLATION WHERE BOLT HEAD OR NUT ON OPPOSITE FACE IS EXPOSED IN OTHER WORK UNLESS THRU-BOLTS ARE REQUIRED TO FASTEN HARDWARE SECURELY. REVIEW DOOR SPECIFICATION AND ADVISE ARCHITECT IF THRU-BOLTS ARE REQUIRED.
4. INSTALL HARDWARE WITH FASTENERS PROVIDED BY HARDWARE MANUFACTURER.
- B. MODIFICATION AND PREPARATION OF EXISTING DOORS: PROVIDE NECESSARY FILLERS, DUTCHMEN, REINFORCEMENTS, AND FASTENERS, COMPATIBLE WITH EXISTING MATERIALS, AS REQUIRED FOR MOUNTING NEW OPENING HARDWARE AND TO COVER EXISTING DOOR AND FRAME PREPARATIONS:
1. USE MATERIALS WHICH MATCH MATERIALS OF ADJACENT MODIFIED AREAS.
2. WHEN MODIFYING EXISTING FIRE-RATED OPENINGS, PROVIDE MATERIALS PERMITTED BY NFPA 80 AS REQUIRED TO MAINTAIN FIRE-RATING.
- C. PROVIDE SCREWS, BOLTS, EXPANSION SHIELDS, DROP PLATES AND OTHER DEVICES NECESSARY FOR HARDWARE INSTALLATION.
1. WHERE FASTENERS ARE EXPOSED TO VIEW: FINISH TO MATCH ADJACENT DOOR HARDWARE MATERIAL.
- D. CABLE AND CONNECTORS: HARDWIRED ELECTRONIC ACCESS CONTROL LOCKSET AND EXIT DEVICE TRIM:
1. DATA: 24AWG, 4 CONDUCTOR SHIELDED, BELDEN 9843, 9841 OR COMPARABLE.
2. DC POWER: 18 AWG, 2 CONDUCTOR, BELDEN 8760 OR COMPARABLE.
3. PROVIDE TYPE OF DATA AND DC POWER CABLING REQUIRED BY ACCESS CONTROL DEVICE MANUFACTURER FOR THIS INSTALLATION.

- 2.4 HINGES
- A. PROVIDE FIVE-KNUCKLE, BALL BEARING HINGES.
1. MANUFACTURERS AND PRODUCTS:
- a. SCHEDULED MANUFACTURER AND PRODUCT: IVES 58B SERIES.
- b. ACCEPTABLE MANUFACTURERS AND PRODUCTS: HAGER BB SERIES, STANLEY FBB SERIES, STANLEY FBB SERIES.
- B. REQUIREMENTS:
1. 1-3/4 INCH (44 MM) THICK DOORS, UP TO AND INCLUDING 36 INCHES (914 MM) WIDE:
- a. EXTERIOR: STANDARD WEIGHT, BRONZE OR STAINLESS STEEL, 4-1/2 INCHES (114 MM) HIGH
- b. INTERIOR: STANDARD WEIGHT, STEEL, 4-1/2 INCHES (114 MM) HIGH
2. 1-3/4 INCH (44 MM) THICK DOORS OVER 36 INCHES (914 MM) WIDE:
- a. EXTERIOR: HEAVY WEIGHT, BRONZE/STAINLESS STEEL, 5 INCHES (127 MM) HIGH
- b. INTERIOR: HEAVY WEIGHT, STEEL, 5 INCHES (127 MM) HIGH
3. 2 INCHES OR THICKER DOORS:
- a. EXTERIOR: HEAVY WEIGHT, BRONZE OR STAINLESS STEEL, 5 INCHES (127 MM) HIGH
- b. INTERIOR: HEAVY WEIGHT, STEEL, 5 INCHES (127 MM) HIGH
4. PROVIDE THREE HINGES PER DOOR LEAF FOR DOORS 90 INCHES (2286 MM) OR LESS IN HEIGHT, AND ONE ADDITIONAL HINGE FOR EACH 30 INCHES (762 MM) OF ADDITIONAL DOOR HEIGHT.
5. WHERE NEW HINGES ARE SPECIFIED FOR EXISTING DOORS OR EXISTING FRAMES, PROVIDE NEW HINGES OF IDENTICAL SIZE TO HINGE PREPARATION PRESENT IN EXISTING DOOR OR EXISTING FRAME.
6. HINGE PINS: EXCEPT AS OTHERWISE INDICATED, PROVIDE HINGE PINS AS FOLLOWS:
- a. STEEL HINGES: STEEL PINS
- b. NON-FERROUS HINGES: STAINLESS STEEL PINS
- c. OUT-SWINGING EXTERIOR DOORS: NON-REMOVABLE PINS
- d. OUT-SWINGING INTERIOR LOCKABLE DOORS: NON-REMOVABLE PINS
- e. INTERIOR NON-LOCKABLE DOORS: NON-RIISING PINS
7. WIDTH OF HINGES: 4-1/2 INCHES (114 MM) AT 1-3/4 INCH (44 MM) THICK DOORS, AND 5 INCHES (127 MM) AT 2 INCHES (51 MM) OR THICKER DOORS. ADJUST HINGE WIDTH AS REQUIRED FOR DOOR, FRAME, AND WALL CONDITIONS TO ALLOW PROPER DEGREE OF OPENING.
8. DOORS 36 INCHES (914 MM) WIDE OR LESS FURNISH HINGES 4-1/2 INCHES (114 MM) HIGH; DOORS GREATER THAN 36 INCHES (914 MM) WIDE FURNISH HINGES 5 INCHES (127 MM) HIGH, HEAVY WEIGHT OR STANDARD WEIGHT AS SPECIFIED.
9. PROVIDE SPRING HINGES WITH ELECTRIC OPTIONS AS SCHEDULED IN THE HARDWARE SETS. PROVIDE WITH SUFFICIENT NUMBER AND WIRE GAGE TO ACCOMMODATE ELECTRIC FUNCTION OF SPECIFIED HARDWARE. LOCATE ELECTRIC HINGE AT SECOND HINGE FROM BOTTOM OR NEAREST TO ELECTRIFIED LOCKING COMPONENT.
10. PROVIDE MORTAR GUARD FOR EACH ELECTRIFIED HINGE SPECIFIED, UNLESS SPECIFIED IN HOLLOW METAL FRAME SPECIFICATION.
11. PROVIDE SPRING HINGES WHERE SPECIFIED. PROVIDE TWO SPRING HINGES AND ONE BEARING HINGE PER DOOR LEAF FOR DOORS 90 INCHES (2286 MM) OR LESS IN HEIGHT. PROVIDE ONE ADDITIONAL BEARING HINGE FOR EACH 30 INCHES (762 MM) OF ADDITIONAL DOOR HEIGHT.

- 2.5 CONTINUOUS HINGES
- A. STAINLESS STEEL
1. MANUFACTURERS:
- a. SCHEDULED MANUFACTURER: IVES
- b. ACCEPTABLE MANUFACTURERS: MARKAR, STANLEY
2. REQUIREMENTS:
- a. PROVIDE PIN AND BARREL CONTINUOUS HINGES CONFORMING TO ANSI A156.26, GRADE 2.
- b. PROVIDE PIN AND BARREL CONTINUOUS HINGES FABRICATED FROM 14 GAUGE, TYPE 304 STAINLESS STEEL.
- c. PROVIDE TWIN SELF-LUBRICATED NYLON BEARINGS AT EACH HINGE KNUCKLE. WITH 0.25-INCH (6 MM) DIAMETER STAINLESS STEEL PIN.
- d. PROVIDE HINGES CAPABLE OF SUPPORTING DOOR WEIGHTS UP TO 600 POUNDS, AND SUCCESSFULLY TESTED FOR 1,500,000 CYCLES.
- e. ON FIRE-RATED DOORS, PROVIDE PIN AND BARREL CONTINUOUS HINGES THAT ARE CLASSIFIED FOR USE ON RATED DOORS BY TESTING AGENCY ACCEPTABLE TO AUTHORITY HAVING JURISDICTION.
- f. PROVIDE PIN AND BARREL CONTINUOUS HINGES WITH ELECTRIFIED OPTIONS AS SCHEDULED IN THE HARDWARE SETS. PROVIDE WITH SUFFICIENT NUMBER AND WIRE GAGE TO ACCOMMODATE ELECTRIC FUNCTION OF SPECIFIED HARDWARE.
- g. INSTALL HINGES WITH FASTENERS SUPPLIED BY MANUFACTURER.
- h. PROVIDE HINGES WITH SYMMETRICAL HOLE PATTERN.
- B. COLD-ROLLED STEEL
1. MANUFACTURERS:
- a. SCHEDULED MANUFACTURER: IVES
- b. ACCEPTABLE MANUFACTURERS: MARKAR, STANLEY

DIVISION 8 - (CONT'D)

2. REQUIREMENTS:
- a. PROVIDE PIN AND BARREL CONTINUOUS HINGES CONFORMING TO ANSI A156.26, GRADE 2.
- b. PROVIDE PIN AND BARREL CONTINUOUS HINGES FABRICATED FROM TYPE 1012 COLD ROLLED STEEL.
- c. PROVIDE TWIN SELF-LUBRICATED NYLON BEARINGS AT EACH HINGE KNUCKLE. WITH 0.25-INCH (6 MM) DIAMETER STAINLESS STEEL PIN.
- d. PROVIDE HINGES CAPABLE OF SUPPORTING DOOR WEIGHTS UP TO 600 POUNDS, AND SUCCESSFULLY TESTED FOR 1,500,000 CYCLES.
- e. ON FIRE-RATED DOORS, PROVIDE PIN AND BARREL CONTINUOUS HINGES THAT ARE CLASSIFIED FOR USE ON RATED DOORS BY TESTING AGENCY ACCEPTABLE TO AUTHORITY HAVING JURISDICTION.
- f. PROVIDE PIN AND BARREL CONTINUOUS HINGES WITH ELECTRIFIED OPTIONS AS SCHEDULED IN THE HARDWARE SETS. PROVIDE WITH SUFFICIENT NUMBER AND WIRE GAGE TO ACCOMMODATE ELECTRIC FUNCTION OF SPECIFIED HARDWARE.
- g. INSTALL HINGES WITH FASTENERS SUPPLIED BY MANUFACTURER.
- h. PROVIDE HINGES WITH SYMMETRICAL HOLE PATTERN.
- C. ALUMINUM GEARED
1. MANUFACTURERS:
- a. SCHEDULED MANUFACTURER: IVES.
- b. ACCEPTABLE MANUFACTURERS: MARKAR, STANLEY.
2. REQUIREMENTS:
- a. PROVIDE ALUMINUM GEARED CONTINUOUS HINGES CONFORMING TO ANSI A156.25, GRADE 2.
- b. PROVIDE ALUMINUM GEARED CONTINUOUS HINGES, WHERE SPECIFIED IN THE HARDWARE SETS, FABRICATED FROM 6063-T6 ALUMINUM, WITH 0.25-INCH (6 MM) DIAMETER TEFLON COATED STAINLESS STEEL HINGE PIN.
- c. PROVIDE SPLIT NYLON BEARINGS AT EACH HINGE KNUCKLE FOR QUIET, SMOOTH, SELF-LUBRICATING OPERATION.
- d. PROVIDE HINGES CAPABLE OF SUPPORTING DOOR WEIGHTS UP TO 450 POUNDS, AND SUCCESSFULLY TESTED FOR 1,500,000 CYCLES.
- e. ON FIRE-RATED DOORS, PROVIDE ALUMINUM GEARED CONTINUOUS HINGES THAT ARE CLASSIFIED FOR USE ON RATED DOORS BY TESTING AGENCY ACCEPTABLE TO AUTHORITY HAVING JURISDICTION.
- f. PROVIDE ALUMINUM GEARED CONTINUOUS HINGES WITH ELECTRIFIED OPTION SCHEDULED IN THE HARDWARE SETS. PROVIDE WITH SUFFICIENT NUMBER AND WIRE GAGE TO ACCOMMODATE ELECTRIC FUNCTION OF SPECIFIED HARDWARE.
- g. INSTALL HINGES WITH FASTENERS SUPPLIED BY MANUFACTURER.
- h. PROVIDE HINGES WITH SYMMETRICAL HOLE PATTERN.
- 2.6 ELECTRIC POWER TRANSFER
- A. MANUFACTURERS:
- a. SCHEDULED MANUFACTURER: VON DUFRIN
- b. ACCEPTABLE MANUFACTURERS: ABH
- B. PROVIDE POWER TRANSFER WITH ELECTRIFIED OPTIONS AS SCHEDULED IN THE HARDWARE SETS. PROVIDE WITH NUMBER AND GAGE OF WIRES SUFFICIENT TO ACCOMMODATE ELECTRIC FUNCTION OF SPECIFIED HARDWARE.
- C. LOCATE ELECTRIC POWER TRANSFER PER MANUFACTURER'S TEMPLATE AND UL REQUIREMENTS, UNLESS INTERFERENCE WITH OPERATION OF DOOR OR OTHER HARDWARE ITEMS.
- 2.7 FLUSH BOLTS
- A. MANUFACTURERS:
1. SCHEDULED MANUFACTURER: IVES
2. ACCEPTABLE MANUFACTURERS: HAGER, ROCKWOOD
- B. REQUIREMENTS:
1. PROVIDE AUTOMATIC, CONSTANT LATCHING, AND MANUAL FLUSH BOLTS WITH FORGED BRONZE OR STAINLESS STEEL FACE PLATES, EXTRUDED BRASS LEVERS, AND WITH WROUGHT BRASS GUIDES AND STRIKES. PROVIDE 12 INCH (305 MM) STEEL OR BRASS RODS AT DOORS UP TO 90 INCHES (2286 MM) IN HEIGHT. FOR DOORS OVER 90 INCHES (2286 MM) IN HEIGHT INCREASE TOP RODS BY 6 INCHES (152 MM) FOR EACH ADDITIONAL 6 INCHES (152 MM) OF DOOR HEIGHT. PROVIDE DUST-PROOF STRIKES AT EACH BOTTOM FLUSH BOLT.
- 2.8 SURFACE BOLTS
- A. MANUFACTURERS:
1. SCHEDULED MANUFACTURER: IVES
2. ACCEPTABLE MANUFACTURERS: HAGER, ROCKWOOD
- B. REQUIREMENTS:
1. SURFACE BOLT S TO HAVE 1" THROW FOR MAXIMUM SECURITY WITH CONCEALED MOUNTING THAT PREVENTS VANDALISM. UNITS TO BE CONSTRUCTED OF HEAVY DUTY STEEL AND CUL LISTED UP TO THREE (3) HOURS WHEN USED ON THE INACTIVE DOOR OF A PAIR UP TO 8" IN HEIGHT.
- 2.9 COORDINATORS
- A. MANUFACTURERS:
1. SCHEDULED MANUFACTURER: IVES
2. ACCEPTABLE MANUFACTURERS: HAGER, ROCKWOOD
- B. REQUIREMENTS:
1. WHERE PAIRS OF DOORS ARE EQUIPPED WITH AUTOMATIC FLUSH BOLTS, AN ASTRAGAL, OR OTHER HARDWARE THAT REQUIRES SYNCHRONIZED CLOSING OF THE DOORS, PROVIDE BAR-TYPE COORDINATING DEVICE, SURFACE APPLIED TO UNDERSIDE OF STOP AT FRAME HEAD.
2. PROVIDE FILLER BAR OF CORRECT LENGTH FOR UNIT TO SPAN ENTIRE WIDTH OF OPENING, AND APPROPRIATE BRACKETS FOR PARALLEL ARM DOOR CLOSERS AND SURFACE VERTICAL ROD EXIT DEVICE STRIKES. FACTORY-PREP COORDINATORS FOR VERTICAL ROD DEVICES IF REQUIRED.
- 2.10 ALUMINUM DOOR LOCKS – NARROW STYLE
- A. MANUFACTURER AND PRODUCT: ADAMS RITE 4900 SERIES X 4568/9 LEVER OR 4590/1 PADDLE
- B. REQUIREMENTS:
1. PROVIDE NARROW STYLE ALUMINUM DOOR LOCKS AS SPECIFIED. CYLINDERS: REFER TO "KEYING" ARTICLE, HEREIN.
2. PROVIDE LOCKS WITH [1-1/8 INCHES (29 MM)] [1-1/2 INCHES (38 MM)] BACKSET AS REQUIRED FOR DOOR DETAIL WITH FULL 5/8 INCH (16 MM) THROW LATCHBOLT.
3. PROVIDE MANUFACTURER'S STANDARD STRIKES UNLESS EXTENDED LIP STRIKES ARE NECESSARY TO PROTECT TRIM.
- 2.11 CYLINDRICAL LOCKS – GRADE 1
- A. MANUFACTURERS AND PRODUCTS:
1. SCHEDULED MANUFACTURER AND PRODUCT: SCHLAGE ND SERIES
- B. REQUIREMENTS:
1. PROVIDE CYLINDRICAL LOCKS CONFORMING TO ANSI A156.2 SERIES 4000, GRADE 1. CYLINDERS: REFER TO "KEYING" ARTICLE, HEREIN.
2. IF REQUIRED: PROVIDE CYLINDRICAL LOCKS WITH CLASSROOM SECURITY FUNCTION WITH AN INSIDE INDICATOR THAT PROVIDES CLEAR DIRECTION FOR USERS TO SAFELY AND QUICKLY SECURE THE ROOM.
3. PROVIDE LOCKSETS ABLE TO WITHSTAND 1500 LBS POUNDS OF TORQUE APPLIED TO LOCKED OUTSIDE LEVER WITHOUT GAINING ACCESS PER ANSI A156.2 ABUSIVE LOCKED LEVER TORQUE TEST AND CYCLE TESTED TO 3 MILLION CYCLES PER ANSI A156.2 CYCLE TEST.
4. PROVIDE SOLID STEEL ROTATIONAL STOPS TO CONTROL EXCESSIVE ROTATION OF LEVER.
5. PROVIDE COMPLETELY RE-FUNCTIONABLE LOCKSET THAT ALLOWS LOCK FUNCTION TO BE CHANGED TO OVER TWENTY OTHER COMMON FUNCTIONS BY SWAPPING EASILY ACCESSIBLE PARTS.
6. PROVIDE LOCKS WITH STAMPEDED 2-3/4 INCHES (70 MM) BACKSET, UNLESS NOTED OTHERWISE, WITH 1/2 INCH LATCH THROW. PROVIDE PROPER LATCH THROW FOR UL LISTING AT PAIRS.
7. PROVIDE LOCKSETS WITH SEPARATE ANTI-ROTATION THRU-BOLTS, AND NO EXPOSED SCREWS.

DIVISION 8 - (CONT'D)

8. PROVIDE INDEPENDENTLY OPERATING LEVERS WITH TWO EXTERNAL RETURN SPRING CASSETTES MOUNTED UNDER ROSES TO PREVENT LEVER SAG.
9. PROVIDE STANDARD ASA STRIKES UNLESS EXTENDED LIP STRIKES ARE NECESSARY TO PROTECT TRIM.
10. PROVIDE ELECTRIFIED OPTIONS AS SCHEDULED IN THE HARDWARE SETS.
11. LEVER TRIM: SOLID CAST LEVERS WITHOUT PLASTIC INSERTS, AND WROUGHT ROSES ON BOTH SIDES.
- a. LEVER DESIGN: SCHLAGE RHODES.
- b. ONTACTE WARNING (KNURLING): WHERE REQUIRED BY AUTHORITY HAVING JURISDICTION, PROVIDE ON LEVERS ON EXTERIOR (SECURE SIDE) OF DOORS SERVING ROOMS CONSIDERED TO BE HAZARDOUS.
- 2.12 EXIT DEVICES: VON DUFRIN AND/OR THE CONCEALED CABLE DEVICE MANUFACTURER AND PRODUCT: VON DUFRIN 99/33 SERIES OPTION 98/35 SERIES, NO SUBSTITUTE
- A. REQUIREMENTS:
1. PROVIDE EXIT DEVICES TESTED TO ANSI/BHMA A156.3 GRADE 1, [OPTION FOR SPECIFIC COMPLIANT PRODUCTS/APPLICATIONS: UL CERTIFIED TO MEET MAXIMUM 5 POUND REQUIREMENTS ACCORDING TO THE CALIFORNIA BUILDING CODE SECTION 11B-309.4.] AND UL LISTED FOR PANIC EXIT OR FIRE EXIT HARDWARE. CYLINDERS: REFER TO "KEYING" ARTICLE, HEREIN.
2. PROVIDE TOUCHPAD TYPE EXIT DEVICES, FABRICATED OF BRASS, BRONZE, STAINLESS STEEL, OR ALUMINUM, PLATED TO STANDARD ARCHITECTURAL FINISHES TO MATCH BALANCE OF DOOR HARDWARE.
3. QUIET OPERATION: INCORPORATE FLUID DAMPER OR OTHER DEVICE THAT ELIMINATES NOISE OF EXIT DEVICE OPERATION.
4. TOUCHPAD: EXTEND MINIMUM OF ONE HALF OF DOOR WIDTH, BUT NOT THE FULL LENGTH OF EXIT DEVICE RAIL. PROVIDE END-CAP WITH TWO-POINT ATTACHMENT TO DOOR. MATCH EXIT DEVICE FINISH, STAINLESS STEEL FOR US26, US26D, US28, US32, AND US32D FINISH; AND FOR ALL OTHER FINISHES, PROVIDE COMPATIBLE FINISH TO EXIT DEVICE. PROVIDE COMPRESSION SPRINGS IN DEVICES, LATCHES, AND OUTSIDE TRIMS OR CONTROLS; TENSION SPRINGS PROHIBITED.
5. PROVIDE RIM DEVICES WITH A DUAL CYLINDER OR INSIDE THUMB TURN CYLINDER OPTION WITH A VISUAL SECURITY INDICATOR THAT IDENTIFIES THE TRIMS LOCKED/UNLOCKED STATUS OF THE DOOR FROM THE INSIDE OF THE ROOM. INDICATOR IN UNLOCKED STATE PRESENTS A 1/2 INCH X 1/2 INCH WHITE METAL FLAG WITH BLACK ICON AT TOP OF DEVICE HEAD. INDICATOR IN LOCKED STATE HAS NO FLAG PRESENT. PROVIDE RIM DEVICES WITHOUT THE DUAL CYLINDER OR INSIDE THUMB TURN CYLINDER OPTION CAPABLE OF BEING RETROFITTED WITH THE VISUAL SECURITY INDICATOR.
6. PROVIDE EXIT DEVICES WITH DEADLATCHING FEATURE FOR SECURITY AND FOR FUTURE ADDITION OF ALARM KITS AND/OR OTHER ELECTRICAL REQUIREMENTS.
7. OPTION XP 98/99 ONLY:STATIC LOAD RESISTANCE, RIM EXIT DEVICES: 2000+ LBS.
8. OPTION XP 98/99 ONLY:LATCHBOLT, RIM EXIT DEVICES: NON-TAPERED SMART LATCHBOLT WITH 90° LATCHBOLT TO STRIKE ENGAGEMENT UNDER STRESS.
9. OPTION 98/9949 AND/OR 33/3549A, ONLY:CONCEALED VERTICAL CABLE EXIT DEVICES: CABLE-ACTUATED CONCEALED VERTICAL LATCH SYSTEM IN TWO-POINT AND LESS BOTTOM LATCH (LBL) CONFIGURATIONS. VERTICAL RODS NOT PERMITTED.
- a. CABLE: STAINLESS STEEL CORE WIRE IN STAINLESS STEEL WITH POLYTETRAFLUOROETHYLENE (TEFLON®) LINER COLOR-CODED TO LATCHES AND CENTER SLIDES. CONDUIT AND CORE WIRE ENDS SNAP INTO LATCH AND CENTER SLIDES WITHOUT USE OF TOOLS.
- b. LATCHBOLTS AND BLOCKING CAMS: MANUFACTURED FROM SINTERED METAL LOW CARBON COPPER-INFILTRATED STEEL, WITH MOLYBDENUM DISULFIDE LOW FRICTION COATING.
- c. TOP LATCHBOLT: MINIMUM 0.382 INCH (10 MM) AND GREATER THAN 90 DEGREE ENGAGEMENT WITH STRIKE TO PREVENT DOOR AND FRAME SEPARATION UNDER HIGH STATIC LOAD.
- d. BOTTOM LATCHBOLT: MINIMUM OF 0.44 INCH (11 MM) ENGAGEMENT WITH STRIKE.
- e. PRODUCT CYCLE LIFE: 1,000,000 CYCLES.
- f. LATCH OPERATION: TOP AND BOTTOM LATCH OPERATE INDEPENDENTLY OF EACH OTHER. TOP LATCH FULLY ENGAGES TOP STRIKE EVEN WHEN BOTTOM LATCH IS COMPROMISED. SEPARATE TRIGGER MECHANISMS NOT PERMITTED.
- g. LATCH RELEASE DOES NOT REQUIRE SEPARATE TRIGGER MECHANISM.
- h. CABLE AND LATCHING SYSTEM CHARACTERISTICS:
- 1) ASSEMBLED PRIOR TO BEING INSTALLED IN DOOR.
- 2) INSTALLED IN DOOR AS COMPLETE ASSEMBLY.
- 3) INSTALLED INDEPENDENTLY OF EXIT DEVICE INSTALLATION, AND CAPABLE OF FUNCTIONING ON DOOR PRIOR TO DEVICE AND TRIM INSTALLATION.
- 4) CONNECTED TO EXIT DEVICE AT SINGLE ATTACHMENT POINT.
- 5) BOTTOM LATCH HEIGHT ADJUSTED FROM SINGLE POINT, AFTER SYSTEM IS INSTALLED AND CONNECTED TO EXIT DEVICE, WHILE DOOR IS HANGING.
- 6) LATCH POSITION ALTERED UP AND DOWN 2 INCHES (51 MM) WITHOUT ADDITIONAL ADJUSTMENT.
- 7) SYSTEM MAY BE REMOVED WHILE DOOR IS HANGING.
- 8) CONFIGURE LATCHBOLT MOUNTING: DOUBLE OR SINGLE TAB MOUNT FOR STEEL DOORS, AND WOOD DOORS, FACE MOUNT FOR ALUMINUM DOORS, ELIMINATING REQUIREMENT OF TABS.
- 9) PROVIDE ADJUSTABLE EXIT DEVICE TO LATCH CENTER LINE ADJUSTMENT. ENSURES DOUBLE TAB MOUNTING OPTION FOR TOP LATCH, REGARDLESS OF EXIT DEVICE CENTERLINE.
10. PROVIDE EXIT DEVICES WITH MANUFACTURER'S APPROVED STRIKES.
11. PROVIDE EXIT DEVICES CUT TO DOOR WIDTH AND HEIGHT, LOCATE EXIT DEVICES AT HEIGHT RECOMMENDED BY EXIT DEVICE MANUFACTURER, ALLOWABLE BY GOVERNING BUILDING CODES, AND APPROVED BY ARCHITECT.
12. MOUNT MECHANISM CASE FLUSH ON FACE OF DOORS, OR PROVIDE SPACERS TO FILL GAPS BEHIND DEVICES. WHERE GLASS TRIM OR MOLDING PROJECTS OFF FACE OF DOOR, PROVIDE GLASS BEAD KITS.
13. PROVIDE CYLINDER[HEX KEY] DOGGING AT NON-FIRE-RATED EXIT STRIKES ARE NECESSARY TO PREVENT DOGGING.
14. REMOVABLE MULLIONS: 2 INCHES (51 MM) X 3 INCHES (76 MM) STEEL TUBE. WHERE SCHEDULED AS KEYED REMOVABLE MULLION THAT IS REMOVED BY USE OF A KEVED CYLINDER, WHICH IS SELF-LOCKING WHEN RE-INSTALLED.
15. WHERE LEVER HANDLES ARE SPECIFIED AS OUTSIDE TRIM FOR EXIT DEVICES, PROVIDE HEAVY-DUTY LEVER TRIMS WITH FORGED OR CAST ESCUTCHEON PLATES. PROVIDE VANDAL-RESISTANT LEVERS THAT WILL TRAVEL TO 90-DEGREE DOWN POSITION WHEN MORE THAN 35 POUNDS OF TORQUE ARE APPLIED, AND WHICH CAN EASILY BE RE-SET.
- a. LEVER STYLE: MATCH LEVER STYLE OF LOCKSETS.
- b. TACTILE WARNING (KNURLING): WHERE REQUIRED BY AUTHORITY HAVING JURISDICTION, PROVIDE ON LEVERS ON EXTERIOR (SECURE SIDE) OF DOORS SERVING ROOMS CONSIDERED TO BE HAZARDOUS.
16. PROVIDE UL LABELED FIRE EXIT HARDWARE FOR FIRE RATED OPENINGS.
17. PROVIDE FACTORY DRILLED WEEP HOLES FOR EXIT DEVICES USED IN FULL EXTERIOR APPLICATION, HIGHLY CORROSIVE AREAS, AND WHERE NOTED IN HARDWARE SETS.
18. PROVIDE ELECTRIFIED OPTIONS AS SCHEDULED IN THE HARDWARE SETS.
- 2.13 A. MANUFACTURERS AND PRODUCTS:
1. SCHEDULED MANUFACTURER AND PRODUCT: APTIQ MT15, NO SUBSTITUTE.

DIVISION 8 - (CONT'D)

- B. REQUIREMENTS: READ ONLY MULTI-TECHNOLOGY CONTACTLESS READER
1. ACCESS CONTROL CARD READERS SHALL BE AS MANUFACTURED BY A GLOBAL COMPANY WHO IS A RECOGNIZED LEADER IN THE PRODUCTION OF ACCESS CONTROL DEVICES. CARD READER MANUFACTURED FOR NON-ACCESS CONTROL APPLICATIONS SHALL NOT BE ACCEPTABLE.
2. MULTI-TECHNOLOGY CONTACTLESS READER SHALL READ ACCESS CONTROL DATA FROM BOTH 125 KHZ AND 13.56 MHZ CONTACTLESS SMART CARDS AND NFC-COMPATIBLE. THE MULTI-TECHNOLOGY CONTACTLESS READER SHALL BE OPTIMALLY DESIGNED FOR USE IN ACCESS CONTROL APPLICATIONS THAT REQUIRE READING BOTH 125 KHZ PROXIMITY AND 13.56 MHZ CONTACTLESS SMART CARDS BY PROVIDING:
- a. CONFIGURATION ALLOWS READER TO BE ENABLED TO READ SMART, PROXIMITY OR BOTH TECHNOLOGIES AT THE SAME TIME.
- b. A MIGRATION PLATFORM TO UPGRADE FROM THE MOST POPULAR 125 KHZ PROXIMITY TECHNOLOGIES TO MIFARE OR MIFARE DESFIRE EV1 BY READING BOTH 125 KHZ PROXIMITY TECHNOLOGY AND 13.56 MHZ CONTACTLESS SMART CARD TECHNOLOGY.
- c. GUARANTEED COMPATIBILITY TO READ ALL STANDARD DATA FORMATS ENSURING CARD-TO-READER INTEROPERABILITY IN MULTI-LOCATION INSTALLATIONS AND MULTI-CARD/READER POPULATIONS.
- d. SECURE ACCESS CONTROL DATA EXCHANGE BETWEEN THE SMART CARD AND THE READER UTILIZING DIVERSIFIED KEYS AND MUTUAL AUTHENTICATION SEQUENCES.
- e. UNIVERSAL COMPATIBILITY WITH MOST ACCESS CONTROL SYSTEMS.
- f. EASE OF INSTALLATION THROUGH INDUSTRY STANDARD WIRING METHODS.
- g. COMPATIBILITY WITH LEGACY 125 KHZ PROXIMITY ACCESS CONTROL FORMATS (ALL STANDARD FORMATS UP TO 37 BITS, INCLUDING HID CORPORATE 1000 FORMATS).
- h. OPTIMAL READ RANGE AND READ SPEED FOR INCREASED ACCESS CONTROL THROUGHPUT.
- i. GLOBAL AVAILABILITY.
- j. PRODUCT CONSTRUCTION SUITABLE FOR BOTH INDOOR AND OUTDOOR APPLICATIONS.
- k. CUSTOMIZABLE BEHAVIOR FOR INDICATOR LIGHTS AND BEEPER.
3. MULTI-TECHNOLOGY CONTACTLESS READER SHALL COMPLY WITH THE FOLLOWING 13.56MHZ-RELATED STANDARDS TO ENSURE PRODUCT COMPATIBILITY AND PREDICTABILITY OF PERFORMANCE:
- a. ISO 14443
4. MULTI-TECHNOLOGY CONTACTLESS READER SHALL BE CONFIGURABLE TO READ 13.56MHZ DATA FROM THE FOLLOWING CARDS (MULTIPLE CREDENTIAL SUPPORT BASED ON READER CONFIGURATION):
- a. SECURE SUPPORT - MIFARE DESFIRE EV1WITH PACSA, MIFARE CLASSIC, FIPS 201 PIV CREDENTIAL.
- b. UID/CSN SUPPORT – DESFIRE CLASSIC V0.06, HID ICLASS, ISOX (MAY D).
- c. PROXIMITY – SCHLAGE PROXIMITY, XID PROXIMITY, HID PROX, AUID, GE/CASI, LENEL PROX, INSIDE PICTOTAG, TITAGIT, ST MICRO.
5. MULTI-TECHNOLOGY CONTACTLESS READER SHALL BE CONFIGURABLE TO READ DATA FROM ANY COMPATIBLE 125 KHZ TECHNOLOGY SIMULTANEOUSLY WITH 13.56 MHZ DATA. COMPATIBLE 125 KHZ TECHNOLOGIES INCLUDE:
- a. XCEEDID/SCHLAGE/HID PROX (FORMAT IN THE CARD – FORMATS UP TO 37-BITS SUPPORTED).
- b. AUID PROX (SAME AS LENEL PROX - FORMAT IN THE CARD – FORMATS UP TO 42-BITS).
- c. GE PROX - TWO POSSIBLE FORMAT OPTIONS.
6. MULTI-TECHNOLOGY CONTACTLESS READER SHALL PROVIDE THE ABILITY TO READ CARD ACCESS DATA STORED IN THE SECURE ACCESS CONTROL SECTOR/APPLICATION AREA OF THE ISO 14443 XCEEDID MIFARE OR MIFARE DESFIRE EV1 CARD.
7. THE MULTI-TECHNOLOGY CONTACTLESS READER SHALL BE CONFIGURABLE TO PROVIDE MULTIPLE HIERARCHICAL DEGREES OF KEY COMPATIBILITY FOR ACCESSING THE SMART CARD ACCESS CONTROL DATA. COMPATIBILITY SHALL BE PROVIDED FOR THE FOLLOWING KEY STRUCTURE OPTIONS:
- a. COMPATIBILITY WITH THE DEFAULT MANUFACTURE'S KEY STRUCTURE TO ENSURE CONVENIENT OFF THE SHELF COMPATIBILITY WITH MANUFACTURER'S CARDS AND READERS.
- b. COMPATIBILITY WITH CUSTOM KEYS MANAGED BY MANUFACTURER WHICH PROVIDE A SITE-SPECIFIC, UNIQUE, PROTECTED KEY STRUCTURE.
- c. COMPATIBILITY WITH HIGH SECURITY CUSTOMER MANAGED CUSTOM KEYS.
8. THE MULTI-TECHNOLOGY CONTACTLESS READER SHALL BE CONFIGURABLE TO PROVIDE COMPATIBILITY WITH ALL STANDARD PROX FORMATS UP TO 37 BITS (INCLUDING CORPORATE 1000°).
9. MULTI-TECHNOLOGY CONTACTLESS READER SHALL ALLOW THE READER FIRMWARE TO BE UPGRADED IN THE FIELD WITHOUT THE NEED TO REMOVE THE READER FROM THE WALL THROUGH THE USE OF FACTORY-PROVIDED DEVICE.
10. MULTI-TECHNOLOGY CONTACTLESS READER SHALL BE SUITABLE FOR GLOBAL DEPLOYMENT BY MEETING WORLDWIDE RADIO AND SAFETY REGULATORY COMPLIANCE INCLUDING:
- a. FCC CERTIFICATION (US)
- b. CE (EU)
- c. C-TICK (AUSTRALIA, NEW ZEALAND)
- d. R&TIE DIRECTIVE (15EU)
- e. UL294 (US)
- f. ULC-3319
- g. IC (CANADA)
- h. FIPS201 / PIV I
- i. IP65
11. MULTI-TECHNOLOGY CONTACTLESS READER SHALL BE FULLY COMPLIANT WITH RESTRICTION OF HAZARDOUS SUBSTANCES DIRECTIVE (ROHS) RESTRICTING THE USE OF SPECIFIC HAZARDOUS MATERIALS FOUND IN ELECTRICAL AND ELECTRONIC PRODUCTS.
12. MULTI-TECHNOLOGY CONTACTLESS READER SHALL PROVIDE UNIVERSAL COMPATIBILITY WITH MOST ACCESS CONTROL SYSTEMS BY A SELECTABLE ACTION COMPATIBLE WITH VARIOUS TAMPER COMMUNICATION SCHEMES PROVIDED BY ACCESS CONTROL PANEL MANUFACTURERS. THE SELECTABLE ACTION SHALL INCLUDE ONE OF THE FOLLOWING:
- a. THE READER OPEN COLLECTOR LINE CHANGES FROM A HIGH STATE (5V) TO A LOW STATE (GROUND).
- b. IF UTILIZING OSDP PROTOCOL READER SHALL REPORT A TAMPER CONDITION VIA RS485.
15. MULTI-TECHNOLOGY CONTACTLESS READER SHALL PROVIDE THE ABILITY FOR MOUNTING TO STANDARD ELECTRICAL BOXES THROUGH A SELECTABLE ACTION COMPATIBLE WITH VARIOUS TAMPER COMMUNICATION SCHEMES PROVIDED BY ACCESS CONTROL PANEL MANUFACTURERS. THE SELECTABLE ACTION SHALL INCLUDE ONE OF THE FOLLOWING:
- a. THE READER OPEN COLLECTOR LINE CHANGES FROM A HIGH STATE (5V) TO A LOW STATE (GROUND).
- b. IF UTILIZING OSDP PROTOCOL READER SHALL REPORT A TAMPER CONDITION VIA RS485.
17. MULTI-TECHNOLOGY CONTACTLESS READER SHALL BE PROVIDED WITH A QUICK CONNECT WIRE HARNSS.

DIVISION 8 - (CONT'D)

18. THE MULTI-TECHNOLOGY CONTACTLESS READER SHALL PROVIDE CUSTOMIZABLE READER BEHAVIOR OPTIONS EITHER FROM THE FACTORY, OR DEFINED IN THE FIELD THROUGH THE USE OF PRE-CONFIGURED COMMAND CARDS. READER BEHAVIOR PROGRAMMING OPTIONS SHALL INCLUDE:
- a. LED & AUDIO CONFIGURATIONS.
 - b. ABILITY TO DISABLE READING OF SPECIFIC CARD TECHNOLOGIES OR FREQUENCIES.
 - c. ISO 14443/15693 CSN OUTPUT CONFIGURATION.
 - d. WIEGAND OUTPUT SPACING AND TIMING.
19. MULTI-TECHNOLOGY CONTACTLESS READER SHALL PROVIDE THE FOLLOWING PROGRAMMABLE AUDIO/VISUAL INDICATION:
- a. AN AUDIO BEEPER SHALL PROVIDE TONE SEQUENCE TO SIGNIFY: ACCESS GRANTED, ACCESS DENIED, POWER UP, AND DIAGNOSTICS.
 - b. A LIGHT BAR SHALL PROVIDE CLEAR VISUAL STATUS (RED/GREEN/AMBER).
20. MULTI-TECHNOLOGY CONTACTLESS READER SHALL BE DESIGNED FOR LOW CURRENT OPERATION TO ENABLE MIGRATION FROM MOST LEGACY PROXIMITY APPLICATIONS WITHOUT THE NEED TO REPLACE EXISTING ACCESS CONTROL PANELS AND/OR POWER SUPPLIES. CONTACTLESS SMART CARD POWER REQUIREMENTS SHALL BE:
- a. OPERATING VOLTAGE: 5 – 16 VDC, REVERSE VOLTAGE PROTECTED.
 - b. LINEAR POWER SUPPLY RECOMMENDED.
 - c. CURRENT REQUIREMENTS: 160 MA DC, 195 MA PEAK @ 12 VDC
21. MULTI-TECHNOLOGY CONTACTLESS READER SHALL MEET THE FOLLOWING PHYSICAL SPECIFICATIONS:
- a. DIMENSIONS: 5.1" X 3.25" X 0.83" (12.9 CM X 8.3 CM X 2.1 CM)
 - b. WEIGHT: 9.6 OZ. (272.15 G)
 - c. MATERIAL: UL94 POLYCARBONATE
 - d. PLASTICS: CONSIST OF THREE-PIECE DESIGN WITH MOUNTING PLATE, POTTED CASE AND AESTHETIC COVER.
 - e. COLOR: BLACK, GRAY, BROWN OR CREAM AS APPROVED BY THE PROJECT ARCHITECT.
22. MULTI-TECHNOLOGY CONTACTLESS READER SHALL MEET THE FOLLOWING ENVIRONMENTAL SPECIFICATIONS:
- a. OPERATING TEMPERATURE: -31 TO 151 DEGREES F (-35 TO 67 DEGREES C)
 - b. OPERATING HUMIDITY: 5% TO 95% RELATIVE HUMIDITY NON-CONDENSING
 - c. WEATHERIZED DESIGN SUITABLE TO WITHSTAND HARSH ENVIRONMENTS
 - 1) CERTIFIED RATING OF IP65
23. MULTI-TECHNOLOGY CONTACTLESS READER CABLING REQUIREMENTS SHALL BE:
- a. CABLE DISTANCE: (WIEGAND): 500 FEET (150M)
 - b. CABLE TYPE: 5-CONDUCTOR #22 AWG
 - c. STANDARD READER TERMINATION: 18" (0.5M) WIRE HARNESS
- 2.14 ELECTRIC STRIKES
- A. MANUFACTURERS AND PRODUCTS:
1. SCHEDULED MANUFACTURER AND PRODUCT: SCE, HES
- B. REQUIREMENTS:
- 1. PROVIDE ELECTRIC STRIKES DESIGNED FOR USE WITH TYPE OF LOCKS SHOWN AT EACH OPENING.
 - 2. PROVIDE ELECTRIC STRIKES UL LISTED AS BURGLARY-RESISTANT.
 - 3. WHERE REQUIRED, PROVIDE ELECTRIC STRIKES UL LISTED FOR FIRE DOORS AND FRAMES.
 - 4. PROVIDE FAIL-SECURE TYPE ELECTRIC STRIKES, UNLESS SPECIFIED OTHERWISE.
 - 5. COORDINATE VOLTAGE AND PROVIDE TRANSFORMERS AND RECTIFIERS FOR EACH STRIKE AS REQUIRED.
- 2.15 CYLINDERS
- A. MANUFACTURERS:
- 1. SCHEDULED MANUFACTURER: MEDECO KEYMARK.
 - 2. COORDINATE KEYING REQUIREMENTS WITH JJ HALL, LOCKSMITH LEAD, UNLV LOCK SHOP.
- B. SMALL FORMAT IC CYLINDERS DISTRIBUTED THROUGHOUT THE PROJECT AS INDICATED.
- 1. SECURITY: DUAL-LOCKING CYLINDER WITH INTERCHANGEABLE CORE REQUIRING RESTRICTED, PATENTED KEYWAY. MEDECO KEYMARK
- 2.16 CYLINDERS OPTION: FOR EXISTING KEY SYSTEM
- A. MANUFACTURER: MEDECO
- B. REQUIREMENTS: PROVIDE CYLINDERS/CORES COMPLYING WITH THE FOLLOWING REQUIREMENTS.
- 1. CYLINDERS/CORES COMPLIANT WITH ANSI/BHMA A156.5; LATEST REVISION, SECTION 12, GRADE 1; PERMANENT CYLINDERS: CYLINDER FACE FINISHED TO MATCH LOCKSET, MANUFACTURER'S SERIES AS INDICATED.
- C. MANUFACTURER-KEYED PERMANENT CYLINDERS/CORES, CONFIGURED INTO EXISTING KEYING SYSTEM PER "KEYING" ARTICLE HEREIN. MUST COORDINATE KEYING WITH JJ HALL, LOCKSMITH LEAD, UNLV LOCK SHOP.
- D. NICKEL SILVER BOTTOM PINS.
- E. MARK PERMANENT CYLINDERS/CORES AND KEYS WITH APPLICABLE BLIND CODE PER DHI PUBLICATION "KEYING SYSTEMS AND NOMENCLATURE" FOR IDENTIFICATION. BLIND CODE MARKS SHALL NOT INCLUDE ACTUAL KEY CUTS.
- F. IDENTIFICATION STAMPING PROVISIONS MUST BE APPROVED BY THE ARCHITECT AND OWNER.
- G. FAILURE TO COMPLY WITH STAMPING REQUIREMENTS SHALL BE CAUSE FOR REPLACEMENT OF CYLINDERS/CORES INVOLVED AT NO ADDITIONAL COST TO OWNER.
- 1. FORWARD CYLINDERS/CORES TO OWNER, SEPARATELY FROM KEYS, BY MEANS AS DIRECTED BY OWNER.
EDIT – DESCRIPTIONS BELOW ARE PROVIDED AS A GUIDE FOR CYLINDER MECHANISM TYPE DISTRIBUTION THROUGHOUT THE P ROJECT. MODIFY AS REQUIRED FOR PROJECT REQUIREMENTS AND COORDINATE WITH "SERIES" DESCRIPTIONS ABOVE.
 - 2. EXTERIOR DOORS: SECURITY CYLINDERS WITH [PERMANENT] [INTERCHANGEABLE] CORES REQUIRING USE OF RESTRICTED, PATENTED KEYS INCORPORATING DUAL-LOCKING MECHANISM WITH 5 INTERLOCKING PINS TO CHECK FOR PATENTED KEY FEATURES.
NOTE – HIGH SECURITY MAY NOT BE AVAILABLE WITH INTERCHANGEABLE CORES. COORDINATE WITH TEMPORARY CONSTRUCTION CYLINDER KEYING BELOW.
 - 3. DOORS DESIGNATED AS HIGH SECURITY: HIGH SECURITY CYLINDERS WITH PERMANENT CORES REQUIRING USE OF RESTRICTED, PATENTED KEYS INCORPORATING DUAL-LOCKING MECHANISM WITH 5 INTERLOCKING PINS TO CHECK FOR PATENTED KEY FEATURES; COMPLIANT WITH UL437 FOR DRILL AND PICK RESISTANCE; AND INTEGRATED INTO EXTERIOR KEYING SYSTEM WITHOUT CHANGE TO BITTING COMBINATIONS.
EDIT – FOLLOWING DESCRIPTION IS FOR CONVENTIONAL CYLINDERS WITH ABILITY TO BE OPERATED WITH A HIGH SECURITY KEYING SYSTEM.
 - 4. INTERIOR DOORS [AND EXTERIOR EXIT DEVICE CYLINDER DOGGING]: CONVENTIONAL CYLINDERS WITH [PERMANENT] [INTERCHANGEABLE] CORES [REQUIRING USE OF RESTRICTED, PATENTED KEYS INCORPORATING DUAL-LOCKING MECHANISM WITH 1 NICKEL SILVER BLOCKING PIN TO CHECK FOR PATENTED KEY FEATURES; AND INTEGRATED INTO EXTERIOR SYSTEM WITHOUT CHANGE TO BITTING COMBINATIONS.]
EDIT – SELECT ONLY ONE OF THE FOLLOWING OPTIONS.
- 2.17 DOOR CLOSERS OPTION
- A. MANUFACTURER AND PRODUCT: LCN 4040XP SERIES. NO SUBSTITUTE

DIVISION 8 - (CONT'D)

- B. REQUIREMENTS:
- 1. PROVIDE DOOR CLOSERS CONFORMING TO ANSI/BHMA A156.4 GRADE 1 REQUIREMENTS BY BHMA CERTIFIED INDEPENDENT TESTING LABORATORY CARDS, ISO 9000 CERTIFY CLOSERS. STAMP UNITS WITH DATE OF MANUFACTURE CODE.
 - 2. PROVIDE DOOR CLOSERS WITH FULLY HYDRAULIC, FULL RACK AND PINION ACTION WITH HIGH STRENGTH CAST IRON CYLINDER, AND FULL COMPLEMENT BEARINGS AT SHAFT.
 - 3. CYLINDER BODY: 1-1/2 INCH (38 MM) DIAMETER WITH 3/4 INCH (19 MM) DIAMETER DOUBLE HEAT-TREATED PINION JOURNAL.
 - 4. HYDRAULIC FLUID: FIREPROOF, PASSING REQUIREMENTS OF UL10C, AND REQUIRING NO SEASONAL CLOSER ADJUSTMENT FOR TEMPERATURES RANGING FROM 120 DEGREES F TO -30 DEGREES F.
 - 5. SPRING POWER: CONTINUOUSLY ADJUSTABLE OVER FULL RANGE OF CLOSER SIZES, AND PROVIDING REDUCED OPENING FORCE AS REQUIRED BY ACCESSIBILITY CODES AND STANDARDS.
 - 6. HYDRAULIC REGULATION: BY TAMPER-PROOF, NON-CRITICAL VALVES, WITH SEPARATE ADJUSTMENT FOR LATCH SPEED, GENERAL SPEED, AND BACKCHECK.
 - 7. PROVIDE CLOSERS WITH SOLID FORGED STEEL MAIN ARMS AND FACTORY ASSEMBLED HEAVY-DUTY FORGED FOREARMS FOR PARALLEL ARM CLOSERS.
 - 8. PRESSURE RELIEF VALVE (PRV) TECHNOLOGY: NOT PERMITTED.
 - 9. FINISH FOR CLOSERS: HAGER, HAGER, HAGER, HAGER, AND METAL COVERS: POWDER COATING FINISH WHICH HAS BEEN CERTIFIED TO EXCEED 100 HOURS SALT SPRAY TESTING AS DESCRIBED IN ANSI STANDARD A156.4 AND ASTM B117, OR HAS SPECIAL RUST INHIBITOR (SRI).
 - 10. PROVIDE SPECIAL TEMPLATES, DROP PLATES, MOUNTING BRACKETS, OR ADAPTERS FOR ARMS AS REQUIRED FOR DETAILS, OVERHEAD STOPS, AND OTHER DOOR HARDWARE ITEMS INTERFERING WITH CLOSER MOUNTING.
- 2.18 ELECTRO-MECHANICAL AUTOMATIC OPERATORS
- A. MANUFACTURERS AND PRODUCTS:
1. SCHEDULED MANUFACTURER AND PRODUCT: STANLEY MAGIC FORCE
- B. REQUIREMENTS:
- 1. PROVIDE LOW ENERGY AUTOMATIC OPERATOR UNITS THAT ARE ELECTRO-MECHANICAL DESIGN COMPLYING WITH ANSI A156.19.
 - a. OPENING: POWERED BY DC MOTOR WORKING THROUGH REDUCTION GEARS.
 - b. CLOSING: SPRING FORCE.
 - c. MANUAL, HYDRAULIC, OR CHAIN DRIVE CLOSERS: NOT PERMITTED.
 - d. OPERATION: MOTOR IS DIE THROTTLED IN CLOSING MODE. DOOR CAN BE MANUALLY OPERATED WITH POWER ON OR OFF WITHOUT DAMAGE TO OPERATOR. PROVIDE VARIABLE ADJUSTMENTS, INCLUDING OPENING AND CLOSING SPEED ADJUSTMENT.
 - e. COVER: ALUMINUM.
 - 2. PROVIDE UNITS WITH MANUAL OFF/AUTO/HOLD-OPEN SWITCH, PUSH AND GO FUNCTION TO ACTIVATE POWER OPERATOR, VESTIBULE INTERFACE DELAY, ELECTRIC LOCK DELAY, HOLD-OPEN DELAY ADJUSTABLE FROM 2 TO 30 SECONDS, AND LOGIC TERMINAL TO SHOWIN AT EACH OPENING.
 - 3. PROVIDE DROP PLATES, BRACKETS, OR ADAPTERS FOR ARMS AS REQUIRED TO SUIT DETAILS.
 - 4. PROVIDE HARD-WIRED MOTION SENSORS AND/OR ACTUATOR SWITCHES FOR OPERATION AS SPECIFIED. PROVIDE WEATHER-RESISTANT ACTUATORS AT EXTERIOR APPLICATIONS.
 - 5. PROVIDE KEY SWITCHES, WITH LED'S, RECOMMENDED AND APPROVED BY MANUFACTURER OF AUTOMATIC OPERATOR AS REQUIRED FOR FUNCTION AS DESCRIBED IN OPERATION DESCRIPTION OF HARDWARE SETS. CYLINDERS: REFER TO "KEYING" ARTICLE, HEREIN.
 - 6. PROVIDE COMPLETE ASSEMBLIES OF CONTROLS, SWITCHES, POWER SUPPLIES, RELAYS, AND PARTS/MATERIAL RECOMMENDED AND APPROVED BY MANUFACTURER OF AUTOMATIC OPERATOR FOR EACH INDIVIDUAL LEAF. ACTUATORS CONTROL BOTH DOORS SIMULTANEOUSLY AT PAIRS. SEQUENCE OPERATION OF EXTERIOR AND VESTIBULE DOORS WITH AUTOMATIC OPERATORS TO ALLOW INGRESS OR EGRESS THROUGH BOTH SETS OF OPENINGS AS DIRECTED BY ARCHITECT. LOCATE ACTUATORS, KEY SWITCHES, AND OTHER CONTROLS AS DIRECTED BY ARCHITECT.
 - 7. PROVIDE UNITS WITH INPUTS FOR SMOKE EVACUATION DOORS, WHERE SPECIFIED, WHICH ALLOW DOORS TO POWER OPEN UPON FIRE ALARM ACTIVATION AND HOLD OPEN INDEFINITELY OR UNTIL FIRE ALARM IS RESET. PRESENCE DETECTOR INPUT, WHICH PREVENTS CLOSED DOOR FROM OPENING OR DOOR THAT IS FULLY OPENED FROM CLOSING, HOLD OPEN TOGGLE INPUT, WHICH ALLOWS REMOTE ACTIVATION FOR INDEFINITE HOLD OPEN AND CLOSE SECOND TIME INPUT IS ACTIVATED, VESTIBULE INPUTS, WHICH ALLOW SEQUENCING OPERATION OF TWO UNITS, AND SPDT RELAY FOR INTERFACING WITH LATCHING OR LOCKING DEVICES.
- 2.19 DOOR TRIM
- A. MANUFACTURERS:
1. SCHEDULED MANUFACTURER: IVES.
- B. REQUIREMENTS:
- 1. PROVIDE PUSH PLATES 4 INCHES (102 MM) WIDE BY 16 INCHES (406 MM) HIGH BY 0.050 INCH (1 MM) THICK AND BEVELED 4 EDGES, WHERE WIDTH OF DOOR STYLE PREVENTS USE OF 4 INCHES (102 MM) WIDE PLATE, ADJUST WIDTH TO FIT.
 - 2. PROVIDE PUSH BARS OF SOLID BAR STOCK, DIAMETER AND LENGTH AS SCHEDULED. PROVIDE PUSH BARS OF SUFFICIENT LENGTH TO SPAN FROM CENTER TO CENTER OF EACH STYLE. WHERE REQUIRED, MOUNT BACK TO BACK WITH PULL.
 - 3. PROVIDE OFFSET PULLS OF SOLID BAR STOCK, DIAMETER AND LENGTH AS SCHEDULED. WHERE REQUIRED, MOUNT BACK TO BACK WITH PUSH BAR.
 - 4. PROVIDE FLUSH PULLS AS SCHEDULED. WHERE REQUIRED, PROVIDE BACK-TO-BACK MOUNTED MODEL.
 - 5. PROVIDE PULLS OF SOLID BAR STOCK, DIAMETER AND LENGTH AS SCHEDULED. WHERE REQUIRED, MOUNT BACK TO BACK WITH PUSH BAR.
 - 6. PROVIDE PULL PLATES 4 INCHES (102 MM) WIDE BY 16 INCHES (406 MM) HIGH BY 0.050 INCH (1 MM) THICK, BEVELED 4 EDGES, AND PREPPED FOR PULL, WHERE WIDTH OF DOOR STYLE PREVENTS USE OF 4 INCHES (102 MM) WIDE PLATE, ADJUST WIDTH TO FIT.
 - 7. PROVIDE WIRE PULLS OF SOLID BAR STOCK, DIAMETER AND LENGTH AS SCHEDULED.
 - 8. PROVIDE DECORATIVE PULLS AS SCHEDULED, WHERE REQUIRED, MOUNT BACK TO BACK WITH PULL.
- 2.20 PROTECTION PLATES
- A. MANUFACTURERS:
1. SCHEDULED MANUFACTURER: IVES.
- B. REQUIREMENTS:
- 1. PROVIDE KICK PLATES, MOP PLATES, AND ARMOR PLATES MINIMUM OF 0.050 INCH (1 MM) THICK AS SCHEDULED. FURNISH WITH SHEET METAL OR WOOD SCREWS, FINISHED TO MATCH PLATES.
 - 2. SIZES OF PLATES:
 - a. KICK PLATES: 10 INCHES (254 MM) HIGH BY 2 INCHES (51 MM) LESS WIDTH OF DOOR ON SINGLE DOORS, 1 INCH (25 MM) LESS WIDTH OF DOOR ON PAIRS
 - b. MOP PLATES: 4 INCHES (102 MM) HIGH BY 2 INCHES (51 MM) LESS WIDTH OF DOOR ON SINGLE DOORS, 1 INCH (25 MM) LESS WIDTH OF DOOR ON PAIRS
 - c. ARMOR PLATES: 36 INCHES (914 MM) HIGH BY 2 INCHES (51 MM) LESS WIDTH OF DOOR ON SINGLE DOORS, 1 INCH (25 MM) LESS WIDTH OF DOOR ON PAIRS

DIVISION 8 - (CONT'D)

- 2.21 OVERHEAD STOPS AND OVERHEAD STOP/HOLDERS
- A. MANUFACTURERS:
1. SCHEDULED MANUFACTURERS: GLYNN-JOHNSON
- B. REQUIREMENTS:
- 1. PROVIDE HEAVY DUTY CONCEALED MOUNTED OVERHEAD STOP OR HOLDER AS SPECIFIED FOR EXTERIOR AND INTERIOR VESTIBULE SINGLE ACTING DOORS.
 - 2. PROVIDE HEAVY DUTY CONCEALED MOUNTED OVERHEAD STOP OR HOLDER AS SPECIFIED FOR DOUBLE ACTING DOORS.
 - 3. PROVIDE HEAVY OR MEDIUM DUTY AND CONCEALED OR SURFACE MOUNTED OVERHEAD STOP OR HOLDER FOR INTERIOR DOORS AS SPECIFIED. PROVIDE MEDIUM DUTY SURFACE MOUNTED OVERHEAD STOP FOR INTERIOR DOORS AND AT ANY DOOR THAT SWINGS MORE THAN 140 DEGREES BEFORE STRIKING WALL. OPEN AGAINST EQUIPMENT, CASEWORK, SIDELIGHTS, AND WHERE CONDITIONS DO NOT ALLOW WALL STOP OR FLOOR STOP PRESENTS TRIPPING HAZARD.
 - 4. WHERE OVERHEAD HOLDERS ARE SPECIFIED PROVIDE FRICTION TYPE AT DOORS WITHOUT CLOSER AND POSITIVE TYPE AT DOORS WITH CLOSER.
- 2.22 DOOR STOPS AND HOLDERS
- A. MANUFACTURERS:
1. SCHEDULED MANUFACTURER: IVES.
- B. REQUIREMENTS:
- 1. PROVIDE DOOR STOPS AT EACH DOOR LEAF:
 - 1. PROVIDE WALL STOPS WHEREVER POSSIBLE. PROVIDE CONVEX TYPE WHERE MORTISE TYPE LOCKS ARE USED AND CONCAVE TYPE WHERE CYLINDRICAL TYPE LOCKS ARE USED.
 - 2. WHERE A WALL STOP CANNOT BE USED, PROVIDE UNIVERSAL FLOOR STOPS FOR LOW OR HIGH RISE OPTIONS.
 - 3. WHERE WALL OR FLOOR STOP CANNOT BE USED, PROVIDE MEDIUM DUTY SURFACE MOUNTED OVERHEAD STOP.
- 2.23 THRESHOLDS, SEALS, DOOR SWEEPS, AUTOMATIC DOOR BOTTOMS, AND GASKETING
- A. MANUFACTURERS:
1. SCHEDULED MANUFACTURER: NATIONAL GUARD PRODUCTS.
- B. REQUIREMENTS:
- 1. PROVIDE THRESHOLDS, WEATHERSTRIPPING (INCLUDING DOOR SWEEPS, SEALS, ASTRAGALS) AND GASKETING SYSTEMS (INCLUDING SMOKE, SOUND, AND LIGHT) AS SPECIFIED AND PER ARCHITECTURAL DETAILS. MATCH FINISH OF OTHER ITEMS.
 - 2. SIZE OF THRESHOLDS:
 - a. SADDLE THRESHOLDS: 1/2 INCH (13 MM) HIGH BY JAMB WIDTH BY DOOR WIDTH.
 - b. BUMPER SEAL THRESHOLDS: 1/2 INCH (13 MM) HIGH BY 5 INCHES (127 MM) WIDE BY DOOR WIDTH
 - 3. PROVIDE DOOR SWEEPS, SEALS, ASTRAGALS, AND AUTO DOOR BOTTOMS ONLY OF TYPE WHERE RESILIENT OR FLEXIBLE SEAL STRIP IS EASILY REPLACEABLE AND READILY AVAILABLE.
- 2.24 SILENCERS
- A. MANUFACTURERS:
1. SCHEDULED MANUFACTURER: IVES.
- B. REQUIREMENTS:
- 1. PROVIDE "PUSH-IN" TYPE SILENCERS FOR HOLLOW METAL OR WOOD FRAMES.
 - 2. PROVIDE ONE SILENCER PER 30 INCHES (762 MM) OF HEIGHT ON EACH SINGLE FRAME, AND TWO FOR EACH PAIR FRAME.
 - 3. OMIT WHERE GASKETING IS SPECIFIED.
- 2.25 MAGNETIC HOLDERS
- A. MANUFACTURERS:
1. SCHEDULED MANUFACTURER: LCN.
- B. REQUIREMENTS:
- 1. PROVIDE WALL OR FLOOR MOUNTED ELECTROMAGNETIC DOOR RELEASE AS SPECIFIED WITH MINIMUM OF 25 POUNDS OF HOLDING FORCE. COORDINATION PROJECTION OF HOLDER AND ARMATURE WITH OTHER HARDWARE AND WALL CONDITIONS TO ENSURE THAT DOOR SITS PARALLEL TO WALL WHEN FULLY OPEN. WIRE MAGNETIC HOLDERS ON FIRE-RATED DOORS INTO THE FIRE CONTROL PANEL FOR FAIL-SAFE OPERATION.
- 2.26 LATCH PROTECTORS
- A. MANUFACTURERS:
1. SCHEDULED MANUFACTURER: IVES.
- B. REQUIREMENTS:
- 1. PROVIDE LATCH PROTECTORS OF TYPE REQUIRED TO FUNCTION WITH SPECIFIED LOCK.
- 2.27 FINISHES
- A. FINISH: BHMA 626/652 (US26D); EXCEPT:
- 1. HINGES AT EXTERIOR DOORS: BHMA 630 (US32D)
 - 2. CONTINUOUS HINGES: BHMA 630 (US32D)
 - 3. PUSH PLATES, PULLS, AND PUSH BARS: BHMA 630 (US32D)
 - 4. PROTECTION PLATES: BHMA 630 (US32D)
 - 5. OVERHEAD STOPS AND HOLDERS: BHMA 630 (US32D)
 - 6. DOOR CLOSERS: POWDER COAT TO MATCH
 - 7. WALL STOPS: BHMA 630 (US32D)
 - 8. LATCH PROTECTORS: BHMA 630 (US32D)
 - 9. WEATHERSTRIPPING: CLEAR ANODIZED ALUMINUM
 - 10. THRESHOLDS: MILL FINISH ALUMINUM
- PART 3 - EXECUTION
- 3.1 EXAMINATION
- A. PRIOR TO INSTALLATION OF DOORS AND FRAMES IS REQUIRED: WITH INSTALLER PRESENT, FOR COMPLIANCE WITH REQUIREMENTS FOR INSTALLATION TOLERANCES, LABELED FIRE-RATED DOOR ASSEMBLY CONSTRUCTION, WALL AND FLOOR CONSTRUCTION, AND OTHER CONDITIONS AFFECTING PERFORMANCE.
- B. EXISTING DOOR AND FRAME COMPATIBILITY: FIELD VERIFY EXISTING DOORS AND FRAMES RECEIVING NEW HARDWARE AND EXISTING CONDITIONS RECEIVING NEW OPENINGS. VERIFY THAT NEW HARDWARE IS COMPATIBLE WITH EXISTING DOOR AND FRAME PREPARATION AND EXISTING CONDITIONS.
- C. EXAMINE ROUGHING-IN FOR ELECTRICAL POWER SYSTEMS TO VERIFY ACTUAL LOCATIONS OF WIRING CONNECTIONS BEFORE ELECTRIFIED DOOR HARDWARE INSTALLATION.
- D. PROCEED WITH INSTALLATION ONLY AFTER UNSATISFACTORY CONDITIONS HAVE BEEN CORRECTED.
- 3.2 PREPARATION
- A. WHERE ON-SITE MODIFICATION OF DOORS AND FRAMES IS REQUIRED:
- 1. REMOVE EXISTING HARDWARE BEING REPLACED, TAG, AND STORE ACCORDING TO CONTRACT DOCUMENTS.
 - 2. FIELD MODIFY AND PREPARE EXISTING DOOR AND FRAME FOR NEW HARDWARE BEING INSTALLED.
 - 3. WHEN MODIFICATIONS ARE EXPOSED TO VIEW, USE CONCEALED FASTENERS, WHEN POSSIBLE.
 - 4. PREPARE HARDWARE LOCATIONS IN ACCORDANCE WITH:
 - a. STEEL DOORS AND FRAMES: FOR SURFACE APPLIED DOOR HARDWARE, DRILL AND TAP DOORS AND FRAMES ACCORDING TO ANSI/SOI A250.6.
 - b. WOOD DOORS: DHI WDHS.5, "RECOMMENDED HARDWARE REINFORCEMENT LOCATIONS FOR MINERAL CORE WOOD FLUSH DOORS."
 - c. DOORS IN RATED ASSEMBLIES: NFPA 80 FOR RESTRICTIONS ON ON-SITE DOOR HARDWARE PREPARATION.

DIVISION 8 - (CONT'D)

- 3.3 INSTALLATION
- A. MOUNTING HEIGHTS: MOUNT DOOR HARDWARE UNITS AT HEIGHTS TO COMPLY WITH THE FOLLOWING, UNLESS OTHERWISE INDICATED OR REQUIRED TO COMPLY WITH GOVERNING REGULATIONS.
- 1. STANDARD STEEL DOORS AND FRAMES: ANSI/SDI A250.8.
 - 2. CUSTOM STEEL DOORS AND FRAMES: HMMA 831.
 - 3. WOOD DOORS: DHI WDHS.3, "RECOMMENDED LOCATIONS FOR ARCHITECTURAL HARDWARE FOR WOOD FLUSH DOORS."
- B. INSTALL EACH HARDWARE ITEM IN COMPLIANCE WITH MANUFACTURER'S INSTRUCTIONS AND RECOMMENDATIONS, USING ONLY FASTENERS PROVIDED BY MANUFACTURER.
- C. DO NOT INSTALL SURFACE MOUNTED ITEMS UNTIL FINISHES HAVE BEEN COMPLETED ON SUBSTRATE. PROTECT ALL INSTALLED HARDWARE DURING PAINTING.
- D. SET UNITS LEVEL, PLUMB AND TRUE TO LINE AND LOCATION. ADJUST AND REINFORCE ATTACHMENT SUBSTRATE AS NECESSARY FOR PROPER INSTALLATION AND OPERATION.
- E. DRILL AND COUNTERSINK UNITS THAT ARE NOT FACTORY PREPARED FOR ANCHORAGE FASTENERS. SPACE FASTENERS AND ANCHORS ACCORDING TO INDUSTRY STANDARDS.
- F. INSTALL OPERATING PARTS SO THEY MOVE FREELY AND SMOOTHLY WITHOUT BINDING, STICKING, OR EXCESSIVE CLEARANCE.
- G. HINGES: INSTALL TYPES AND IN QUANTITIES INDICATED IN DOOR HARDWARE SCHEDULE BUT NOT FEWER THAN QUANTITY RECOMMENDED BY MANUFACTURER FOR APPLICATION INDICATED OR ONE HINGE FOR EVERY 30 INCHES (750 MM) OF DOOR HEIGHT, WHICHEVER IS MORE STRINGENT, UNLESS OTHER EQUIVALENT MEANS OF SUPPORT FOR DOOR, SUCH AS SPRING HINGES OR PIVOTS, ARE PROVIDED.
- H. INTERMEDIATE OFFSET PIVOTS: WHERE OFFSET PIVOTS ARE INDICATED, PROVIDE INTERMEDIATE OFFSET PIVOTS IN QUANTITIES INDICATED IN DOOR HARDWARE SCHEDULE BUT NOT FEWER THAN ONE INTERMEDIATE OFFSET PIVOT PER DOOR AND ONE ADDITIONAL INTERMEDIATE OFFSET PIVOT FOR EVERY 30 INCHES (750 MM) OF DOOR HEIGHT GREATER THAN 90 INCHES (2286 MM).
- I. LOCK CYLINDERS: INSTALL CONSTRUCTION CORES TO SECURE BUILDING AND AREAS DURING CONSTRUCTION PERIOD.
- 1. REPLACE CONSTRUCTION CORES WITH PERMANENT CORES AS INDICATED IN KEYING SECTION.
 - 2. OPTION: FURNISH PERMANENT CORES TO OWNER FOR INSTALLATION.
- J. LEAD PROTECTION: LEAD WRAP HARDWARE PENETRATING LEAD-LINED DOORS, LEVERS AND ROSES TO BE LEAD LINED. APPLY KICK AND ARMOR PLATES ON LEAD-LINED DOORS WITH ADHESIVE AS RECOMMENDED BY MANUFACTURER.
- K. WIRE MANAGEMENT WITH DIVISION 26, ELECTRICAL SECTIONS FOR:
- 1. CONDUIT, JUNCTION BOXES AND WIRE PULLS.
 - 2. CONNECTIONS TO AND FROM POWER SUPPLIES TO ELECTRIFIED HARDWARE.
 - 3. CONNECTIONS TO FIRE/SMOKE ALARM SYSTEM AND SMOKE EVACUATION SYSTEM.
 - 4. CONNECTION OF WIRE TO DOOR POSITION SWITCHES AND WIRE RUNS TO CENTRAL ROOM OR AREA, AS DIRECTED BY ARCHITECT.
 - 5. TESTING AND LABELING WIRES WITH ARCHITECT'S OPENING NUMBER.
- L. KEY CONTROL SYSTEM: TAG KEYS AND PLACE THEM ON MARKERS AND HOOKS IN KEY CONTROL SYSTEM CABINET, AS DETERMINED BY FINAL KEYING SCHEDULE.
- M. DOOR CLOSERS: MOUNT CLOSERS ON ROOM SIDE OF CORRIDOR DOORS, INSIDE OF EXTERIOR DOORS, AND STAIR SIDE OF STAIRWAY DOORS FROM CORRIDORS. CLOSERS SHALL NOT BE VISIBLE IN CORRIDORS, LOBBIES AND OTHER PUBLIC SPACES UNLESS APPROVED BY ARCHITECT.
- N. CLOSER/HOLDERS: MOUNT CLOSER/HOLDERS ON ROOM SIDE OF CORRIDOR DOORS, INSIDE OF EXTERIOR DOORS, AND STAIR SIDE OF STAIRWAY DOORS.
- O. POWER SUPPLIES: LOCATE POWER SUPPLIES AS INDICATED OR, IF NOT INDICATED, ABOVE ACCESSIBLE CEILINGS OR IN EQUIPMENT ROOM, OR ALTERNATE LOCATION AS DIRECTED BY ARCHITECT.
- 1. CONFIGURATION: PROVIDE [ONE POWER SUPPLY FOR EACH DOOR OPENING](LEAST NUMBER OF POWER SUPPLIES REQUIRED TO ADEQUATELY SERVE DOORS) WITH ELECTRIFIED DOOR HARDWARE.
 - P. THRESHOLDS: SET THRESHOLDS IN FULL BED OF SEALANT COMPLYING WITH REQUIREMENTS SPECIFIED IN DIVISION 07 SECTION "JOINT SEALANTS."
 - Q. STOPS: PROVIDE FLOOR STOPS FOR DOORS UNLESS WALL OR OTHER TYPE STOPS ARE INDICATED IN DOOR HARDWARE SCHEDULE. DO NOT MOUNT FLOOR STOPS WHERE THEY MAY IMPEDE TRAFFIC OR PRESENT TRIPPING HAZARD.
- R. PERIMETER GASKETING: APPLY TO HEAD AND JAMB, FORMING SEAL BETWEEN DOOR AND FRAME.
- S. MEETING STYLE GASKETING: FASTEN TO MEETING STILES, FORMING SEAL WHEN DOORS ARE CLOSED.
- T. DOOR BOTTOMS: APPLY TO BOTTOM OF DOOR, FORMING SEAL WITH THRESHOLD WHEN DOOR IS CLOSED.
- 3.4 FIELD QUALITY CONTROL
- A. ARCHITECTURAL HARDWARE CONSULTANT: ENGAGE QUALIFIED INDEPENDENT ARCHITECTURAL HARDWARE CONSULTANT TO PERFORM INSPECTIONS AND TO PREPARE INSPECTION REPORTS.
- 1. ARCHITECTURAL HARDWARE CONSULTANT WILL INSPECT DOOR HARDWARE AND STATE IN EACH REPORT WHETHER INSTALLED WORK COMPLIES WITH OR DEVIATES FROM REQUIREMENTS, INCLUDING WHETHER DOOR HARDWARE IS PROPERLY INSTALLED AND ADJUSTED.
- 3.5 ADJUSTING
- A. INITIAL ADJUSTMENT: ADJUST AND CHECK EACH OPERATING ITEM OF DOOR HARDWARE AND EACH DOOR TO ENSURE PROPER OPERATION OR FUNCTION OF EVERY UNIT. REPLACE UNITS THAT CANNOT BE ADJUSTED TO OPERATE AS INTENDED. ADJUST DOOR CONTROL DEVICES TO COMPENSATE FOR FINAL OPERATION OF HEATING AND VENTILATING EQUIPMENT AND TO COMPLY WITH REFERENCED ACCESSIBILITY REQUIREMENTS.
- 1. SPRING HINGES: ADJUST TO ACHIEVE POSITIVE LATCHING WHEN DOOR IS ALLOWED TO CLOSE FREELY FROM AN OPEN POSITION OF 30 DEGREES.
 - 2. ELECTRIC STRIKES: ADJUST HORIZONTAL AND VERTICAL ALIGNMENT OF KEEPER TO PROPERLY ENGAGE LOCK BOLT.
 - 3. DOOR CLOSERS: ADJUST SWEEP PERIOD TO COMPLY WITH ACCESSIBILITY REQUIREMENTS AND REQUIREMENTS OF AUTHORITIES HAVING JURISDICTION.
- B. OCCUPANCY ADJUSTMENT: APPROXIMATELY THREE[6X] <INSERT NUMBER> MONTHS AFTER DATE OF SUBSTANTIAL COMPLETION, INSTALLER'S ARCHITECTURAL HARDWARE CONSULTANT SHALL EXAMINE AND READJUST EACH ITEM OF DOOR HARDWARE, INCLUDING ADJUSTING OPERATING FORCES, AS NECESSARY TO ENSURE FUNCTION OF DOORS, DOOR HARDWARE, AND ELECTRIFIED DOOR HARDWARE.
- 3.6 CLEANING AND PROTECTION
- A. CLEAN ADJACENT SURFACES SOILED BY DOOR HARDWARE INSTALLATION.
- B. CLEAN OPERATING ITEMS AS NECESSARY TO RESTORE PROPER FUNCTION AND FINISH.
- C. PROVIDE FINAL PROTECTION AND MAINTAIN CONDITIONS THAT ENSURE DOOR HARDWARE IS WITHOUT DAMAGE OR DETERIORATION AT TIME OF SUBSTANTIAL COMPLETION.
- 3.7 DEMONSTRATION
- A. PROVIDE TRAINING FOR OWNER'S MAINTENANCE PERSONNEL TO ADJUST, OPERATE, AND MAINTAIN DOOR HARDWARE AND DOOR HARDWARE FINISHES. REFER TO DIVISION 01 SECTION "DEMONSTRATION AND TRAINING."
- 3.8 DOOR HARDWARE SCHEDULE
- A. DOORS, EXIT DEVICES, AND OTHER HARDWARE ITEMS ARE REFERENCED IN THE FOLLOWING HARDWARE SETS FOR SERIES, TYPE AND FUNCTION. REFER TO THE ABOVE SPECIFICATIONS FOR SPECIAL FEATURES, OPTIONS, CYLINDERS/KEYING, AND OTHER REQUIREMENTS.

DIVISION 8 - (CONT'D)

HW SET 01 - POWER SUPPLY, ELECTRIC STRIKE, DOOR CONTACT, AND WIRING, BY OWNER SUPPLIED SECURITY CONTRACTOR-VVLS

Qty	Description	Catalog Number	Finish	Mfr
3	EA HINGE: 5BB1 4.5 X 4.5	652	IVE	
1	EA STOREROOM LOCK	L9080BDC 03B	626	SCH
1	EA SFC PERMANENT CORE	RESTRICTED - CONFIRM W/ OWNER		
1	EA ELECTRIC STRIKE	1006 SERIES		
	-SUPPLIED AND INSTALLED BY VVLS	630	HES	IVE
1	EA KICK PLATE	8400 10" X 2" LDW B4E	630	IVE
1	EA WALL STOP	WS406/407CCV	630	IVE
3	EA SILENCER	SR64	GRY	IVE
1	EA MULTITECH READER	MT15		
	-SUPPLIED AND INSTALLED BY VVLS	BLK	SCE	
1	EA DOOR CONTACT	SENTROL 1076		
	-SUPPLIED AND INSTALLED BY VVLS		SEN	

HW SET 02

Qty	Description	Catalog Number	Finish	Mfr
1	EA CONT. HINGE	112HD		
1	EA PANIC HARDWARE	XP-98-L-03-GBK	628	IVE
1	EA SFC RIM CYLINDER	80-116	626	VON
1	EA SFC PERMANENT CORE	RESTRICTED - CONFIRM W/ OWNER		
1	EA ELECTRIC STRIKE	6300 FSE		
	-SUPPLIED AND INSTALLED BY VVLS	630	VON	IVE
1	EA SURFACE CLOSER	4040XP SCUSH TBWMS	689	LCN

Head, jamb, and meeting-stile seals: integral part of alum/glass frame and door system.

HW SET 03

Qty	Description	Catalog Number	Finish	Mfr
6	EA HINGE: 5BB1 4.5 X 4.5 NRP	630	IVE	
1	SET AUTO FLUSH BOLT	FB41P	630	IVE
1	EA DUST PROOF STRIKE	DP2	626	IVE
1	EA STOREROOM LOCK	L9080BDC 03B	626	SCH
1	EA SFC PERMANENT CORE	RESTRICTED - CONFIRM W/ OWNER		
1	EA COORDINATOR	COR X FL	628	IVE
2	EA SURFACE CLOSER	4040XP SCUSH TBWMS	689	LCN
2	EA KICK PLATE	8400 10" X 2" LDW B4E	630	IVE
1	EA ASTRAGAL	176A	CL	NGP
2	EA SILENCER	SR64	GRY	IVE

HW SET 04 - VERIFY EXISTING HARDWARE TO MAKE SURE NEW HARDWARE MATCHES PREPS

Qty	Description	Catalog Number	Finish	Mfr
3	EA HINGE: 5BB1 4.5 X 4.5	652	IVE	
1	EA STOREROOM LOCK	L9080BDC 03B	626	SCH
1	EA SFC PERMANENT CORE	RESTRICTED - CONFIRM W/ OWNER		
1	EA KICK PLATE	8400 10" X 2" LDW B4E	630	IVE
3	EA SILENCER	SR64	GRY	IVE

HW SET 05

Qty	Description	Catalog Number	Finish	Mfr
3	EA HINGE: 5BB1 5 X 4.5	652	IVE	
1	EA PUSH PLATE	8200 4" X 16"	630	IVE
1	EA PULL PLATE	8302 10" 4" X 16"	630	IVE
1	EA SURFACE CLOSER	4040XP RW/PA TBWMS	689	LCN
1	EA KICK PLATE	8400 10" X 2" LDW B4E	630	IVE
1	EA MOP PLATE	8400 4" X 2" LDW B4E	630	IVE
1	EA WALL STOP	WS407CCV	630	IVE
3	EA SILENCER	SR64	GRY	IVE

HW SET 06 - POWER SUPPLY, ELECTRIC STRIKE, DOOR CONTACT, AND WIRING, BY OWNER SUPPLIED SECURITY CONTRACTOR-VVLS

Qty	Description	Catalog Number	Finish	Mfr
3	EA HINGE: 5BB1 4.5 X 4.5 NRP	630	IVE	
1	EA PANIC HARDWARE	XP-98-L-03	626	VON
1	EA SFC RIM CYLINDER	80-116	626	SCH
1	EA SFC PERMANENT CORE	RESTRICTED - CONFIRM W/ OWNER		

1	EA ELECTRIC STRIKE	6300 FSE		
	-SUPPLIED AND INSTALLED BY VVLS	630	VON	
1	EA SURFACE CLOSER	4040XP SCUSH TBWMS	689	LCN
1	EA MULTITECH READER	MT15		
	-SUPPLIED AND INSTALLED BY VVLS	BLK	SCE	
1	EA DOOR CONTACT	SENTROL 1076		
	-SUPPLIED AND INSTALLED BY VVLS		SEN	

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DIVISION 9 - FINISHES

1. GYPSUM DRYWALL SYSTEMS: SHALL CONSIST OF METAL FRAMING SUPPORT MEMBERS (STUDS AND/OR FURRING CHANNELS) AND SHALL INCLUDE INSTALLATION OF SYSTEMS, ANCHORING, TAPING, BEDDING, AND TEXTURING; ALL MEMBERS SHALL COMPLY WITH THICKNESSES AND SPACINGS AS SHOWN ON THE DRAWINGS. FURNISH ALL MATERIALS REQUIRED FOR COMPLETE INSTALLATION. FURNISH AND INSTALL METAL CORNER BEADS AT ALL EXTERIOR CORNERS AND J-MOLDINGS AT ALL LOCATIONS WHERE GYPSUM BOARD ABUTTS A DISSIMILAR MATERIAL.FURNISH AND INSTALL WATERPROOF DRYWALL WHERE SHOWN ON THE DRAWINGS AND, SPECIFICALLY, ON ALL WALLS OF TOILET ROOMS. ATTACH ALL WALLBOARD WITH DRYWALL SCREWS SPECIFICALLY DESIGNED AND SIZED FOR THE PURPOSE OF THE INSTALLATION. ISOLATE STEEL FRAMING FROM BUILDING STRUCTURE TO PREVENT TRANSFER OF LOADING IMPOSED BY STRUCTURAL MOVEMENTS; PROVIDE SLIP JOINTS WHERE PARTITIONS AND WALL FRAMING ABUTTS OVERHEAD STRUCTURE. FINISH ALL DRYWALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS, BUT IN NO CASE SHALL FINISH TREATMENT BE LESS THAN 3 COAT FINISH WORK. TEXTURE OF DRYWALL TO BE LIGHT "ORANGE PEEL" TEXTURE.
2. ACOUSTICAL TILE SYSTEMS: SHALL CONSIST OF A MINERAL-BASED TILE, WATER FELTED, WITH PERFORATED PATTERN AND PAINTED FINISH, NON-FIRE RESISTANT RATED, WITH A FLAME SPREAD OF 25 OR LESS AND SMOKE DEVELOPED OF 50 OR LESS. TILES SHALL BE NON-DIRECTIONAL IN PATTERN. SUSPENSION SYSTEM SHALL BE BY MANUFACTURER OF CEILING TILE UNITS, EXPOSED "T" GRID SYSTEM, WHITE BAKED ENAMEL FINISH. ATTACHMENT DEVICES OF SUSPENSION SYSTEM SHALL BE SIZED FOR 5 TIMES THE DESIGN LOAD INDICATED IN ASTM C-635, TABLE 1, DIRECT HUNG. WIRE SHALL BE AS RECOMMENDED BY THE MANUFACTURER AND SIZED AT 3 TIMES HANGER DESIGN LOAD IN ACCORDANCE W/ ASTM STANDARD HEREINBEFORE MENTIONED. PROVIDE EDGE MOLDINGS OF METAL TO MATCH GRID SYSTEM AT ALL LOCATIONS WHERE TILE ABUTTS ADJACENT WALLS. SUSPEND CEILING SUSPENSION SYSTEM FROM BUILDING STRUCTURAL MEMBERS. HANGERS SHALL BE SPACED NO MORE THAN 4'-0" O.C. AND PROVIDE HANGERS NOT MORE THAN 8" FROM ENDS OF EACH MEMBER. FURNISH AND INSTALL DIAGONAL WIRE TIES AS REQUIRED TO MEET UNIFORM BUILDING CODE REQUIREMENTS FOR LATERAL STABILITY. REPLACE ANY TILE WHICH IS DAMAGED EITHER DURING SHIPPING, HANDLING OR INSTALLATION OR BECOMES OTHERWISE DAMAGED DURING CONSTRUCTION, INCLUDING CHIPPED OR BROKEN EDGES AND/OR CORNERS.
3. RESILIENT BASE: FURNISH AND INSTALL 4" RESILIENT BASE. SEE SCHEDULE FOR COLORS. ALL ADHESIVES SHALL BE WATERPROOF. USE ONLY PRODUCTS ACCEPTABLE TO AND/OR RECOMMENDED BY MANUFACTURER OF BASE MATERIALS. ALL JOINTS SHALL BE TIGHT AND CAREFULLY ALIGNED; ALL BASE SHALL BE NEATLY LEVELED. REPLACE ANY MATERIALS DAMAGED DURING CONSTRUCTION AT NO ADDITIONAL COST TO THE OWNER. USE PREMOLDED INSIDE AND OUTSIDE CORNERS.
4. PAINTING: INCLUDES FIELD PAINTING OF ALL EXPOSED BARE DUCTWORK, PIPES, HANGERS, EXPOSED STEEL AND IRON WORK, AS WELL AS PRIMED METAL SURFACES OF MECHANICAL AND ELECTRICAL EQUIPMENT, GYPSUM DRYWALL, FERROUS METALS, WOOD DOORS (WHERE SCHEDULED). IN GENERAL, ALL MATERIALS EXPOSED TO VIEW AND NOT FACTORY PREFINISHED SHALL BE PREPARED AND PAINTED. ALL PAINT MATERIALS SHALL BE NEW, DELIVERED TO PROJECT SITE IN UN-OPENED CONTAINERS. DO NOT APPLY PAINT TO DAMP OR WET SURFACES. RE-PRIME SURFACES PRIOR TO PAINTING IF FACTORY PRIME IS SCRATCHED OR MARRED DURING DELIVERY OR INSTALLATION. CLEAN ALL SURFACES THOROUGHLY PRIOR TO PAINTING, INCLUDING THE REMOVAL OF OIL OR GREASE. SCHEDULE PAINTING SO THAT DUST AND OTHER CONTAMINANTS FROM THE CLEANING PROCESS WILL NOT FALL ON NEWLY PAINTED SURFACES. PROVIDE BARRIER COATS OVER INCOMPATIBLE PRIMERS OR REMOVE AND RE-PRIME. USE NON-PETROLEUM BASED SOLVENTS TO CLEAN GALVANIZED SURFACES PRIOR TO PAINTING. DO NOT PAINT OVER DIRT, RUST, SCALE, GREASE, MOISTURE, SCUFFED SURFACES OR OTHER CONDITIONS DETRIMENTAL TO FORMATION OF A HARD, DURABLE, SMOOTH PAINT FILM. SEE DRAWINGS FOR PAINT COLORS.

EXTERIOR & INTERIOR PAINT SCHEDULE - "LOW VOC"

THE FOLLOWING PRODUCTS ARE BASED ON FRAZEE PAINT. OTHER PRODUCTS ARE ACCEPTABLE UPON APPROVAL BY THE ARCHITECT.

EXTERIOR SURFACES

FERROUS METAL
1st COAT: C309 ULTRA TECH UNIVERSAL PRIMER
2nd COAT: 520 ACRYLIC DTM SEMI-GLOSS
3rd COAT: 520 ACRYLIC DTM SEMI-GLOSS

METAL - GALVANIZED / ALUMINUM (ENAMEL FINISH)
PRETREATMENT: KRUD KUTTER METAL ETCH
1st COAT: C309 ULTRA TECH UNIVERSAL PRIMER
2nd COAT: 124 MIRRO GLIDE SG
3rd COAT: 124 MIRRO GLIDE SG

CEMENT PLASTER (STUCCO) - ELASTOMERIC FINISH
PRIME COAT: C251 FLEX LOX HIGH ph MASONRY PRIMER
FINISH COAT: C252 FLEX LX HB 100% ACRYLIC ELASTOMERIC COATING
COATING SYSTEM - 15-18 mils DFT APPLY IN STRIC
ACCORDANCE WITH PRODUCT DATA RECOMMENDATIONS

MASONRY - CMU BLOCK
PRIME COAT: C302 ULTRATECH ACRYLIC BLOCK SEALER
FINISH COAT: C203 DURATEC II

ENAMEL FINISH:
GLOSS: 144 ENDURABLE ACRYLIC LATEX ENAMEL
143 MIRRO GLIDE 100% ACRYLIC ENAMEL
SEMIGLOSS: 124 MIRRO GLIDE 100% ACRYLIC ENAMEL
EGGSHELL: 126 MIRRO GLIDE 100% ACRYLIC ENAMEL

INTERIOR SURFACES
GYPSUM DRYWALL SYSTEMS
1st COAT: C152 ULTRA TECH PRIMER/SEALER
2nd COAT: ENDURABLE SHEEN AS SELECTED BY OWNER
3rd COAT: ENDURABLE SHEEN AS SELECTED BY OWNER

WOOD - PAINTED
1ST COAT: C312 ULTRA TECH INT/EXT ACRYLIC WOOD PRIMER
2nd COAT: 124 MIRRO GLIDE SG
3rd COAT: 124 MIRRO GLIDE SG

WOOD - CLEAR FINISH - WATER BASED POLYURETHANE
3 COATS: VARATHANE DIAMOND POLYURETHANE SATIN OR SEMIGLOSS FINISH

WOOD - SEMI-TRANSPARENT STAIN FINISH
1st COAT: OLD MASTERS SEMI-TRANSPARENT STAIN
3 COATS: VARATHANE DIAMOND POLYURETHANE SATIN OR SEMIGLOSS FINISH

FERROUS METAL
1st COAT: C309 ULTRA TECH UNIVERSAL PRIMER
2nd COAT: 520 ACRYLIC DTM SG
3rd COAT: 520 ACRYLIC DTM SG

DIVISION 9 - FINISHES (CONT'D)

METAL - GALVANIZED / ALUMINUM (ENAMEL FINISH)
PRETREATMENT: KRUD KUTTER METAL ETCH
1st COAT: C309 ULTRA TECH UNIVERSAL PRIMER
2nd COAT: 520 ACRYLIC DTM SG
3rd COAT: 520 ACRYLIC DTM SG

ENAMEL FINISHES:
GLOSS: 144 ENDURABLE ACRYLIC LATEX ENAMEL
143 MIRRO GLIDE 100% ACRYLIC ENAMEL
SEMIGLOSS: 124 MIRRO GLIDE 100% ACRYLIC ENAMEL
EGGSHELL: 126 MIRRO GLIDE 100% ACRYLIC ENAMEL
LOW SHEEN: 022 LOW GLO ACRYLIC LOW SHEEN
FLAT FINISH: 015 MAJESTIC FLAT FINISH

DIVISION 10 - SPECIALTIES
SEE DRAWINGS FOR TOILET ACCESSORY SCHEDULE

DIVISION 11 - EQUIPMENT
NOT APPLICABLE

DIVISION 12 - FURNISHINGS
NOT APPLICABLE

DIVISION 13 - SPECIAL CONSTRUCTION
NOT APPLICABLE

DIVISION 14 - CONVEYING SYSTEMS
NOT APPLICABLE

DIVISION 15 - MECHANICAL
SEE MECHANICAL DRAWINGS FOR SPECIFICATIONS

DIVISION 16 - ELECTRICAL
SEE ELECTRICAL DRAWINGS FOR SPECIFICATIONS

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SPECIFICATIONS

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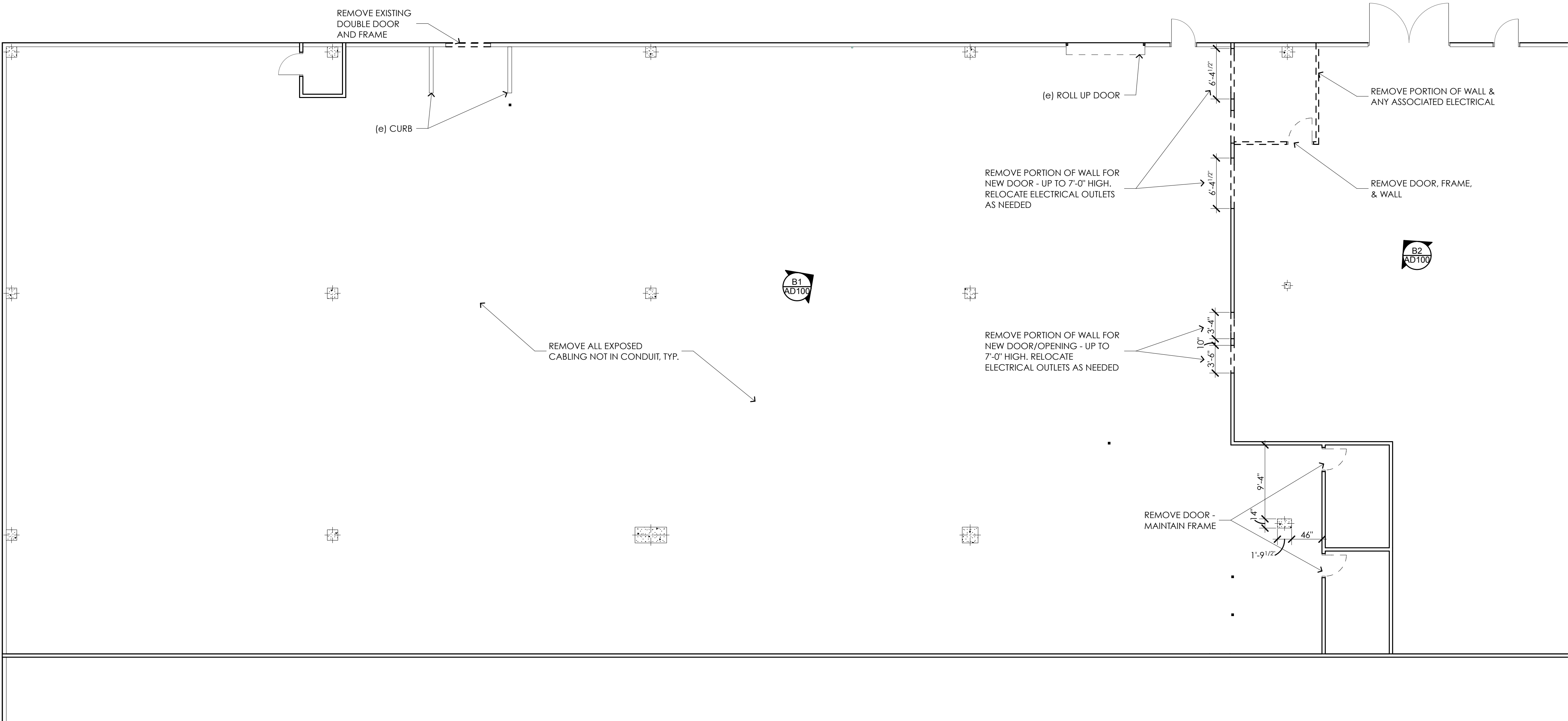
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DEMOLITION GENERAL CONDITIONS

1. COORDINATE CONSTRUCTION ACTIVITIES INCLUDED UNDER VARIOUS SECTIONS OF THESE CONSTRUCTION DOCUMENTS TO ASSURE EFFICIENT AND ORDERLY INSTALLATION OF EACH PART OF THE WORK. WHERE INSTALLATION OF ONE PART OF THE WORK IS DEPENDENT ON INSTALLATION OF OTHER COMPONENTS, EITHER BEFORE OR AFTER ITS OWN INSTALLATION. SCHEDULE CONSTRUCTION ACTIVITIES IN THE SEQUENCE REQUIRED TO OBTAIN BEST RESULTS. WHERE AVAILABILITY OF SPACE IS LIMITED, COORDINATE INSTALLATION OF DIFFERENT COMPONENTS TO ASSURE MAXIMUM ACCESSIBILITY FOR REQUIRED MAINTENANCE, SERVICE AND REPAIR. MAKE ADEQUATE PROVISIONS TO ACCOMMODATE ITEMS SCHEDULED FOR LATER INSTALLATION.
2. SCHEDULE DEMOLITION DURING WEATHER CONDITIONS AND PROJECT STATUS THAT WILL ENSURE THE BEST POSSIBLE RESULTS.
3. DUST PERMIT FEES ARE BY CONTRACTOR.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY FENCING, MAINTAINING TEMPORARY FENCING AND SECURING THE PROPERTY AND BUILDING ACCESS DURING CONSTRUCTION.
5. DO NOT ALLOW MATERIALS AND DEBRIS GENERATED BY DEMOLITION ACTIVITIES TO ACCUMULATE ON THE JOB SITE. REMOVE DAILY AND DISPOSE OF IN A LEGAL MANNER.
6. THE CONTRACTOR MUST TAKE ALL NECESSARY PRECAUTIONS TO ENSURE THE SAFETY OF THE PUBLIC AND/OR WORKMEN ON THE SITE TO PREVENT ACCIDENTS OR INJURY TO ANY PERSON ON, ABOUT OR ADJACENT TO THE PREMISES. THE CONTRACTOR SHALL COMPLY WITH ALL LAWS, ORDINANCES, CODES AND REGULATIONS PERTAINING TO SAFETY AND THE PREVENTION OF ACCIDENTS.
7. THE CONTRACTOR MUST MAINTAIN ADEQUATE SUPPORT, INSULATION, WATERPROOFING, EMERGENCY LIGHTING, SECURITY, ALARMS, ETC. FOR ALL OR PART OF ITEMS WHICH ARE TO REMAIN.
8. PROPERLY DISPOSE OF EXISTING FLOOR FIXTURES AND WALL FIXTURES TO BE REMOVED. EXISTING ELECTRICAL WIRING TO BE REMOVED BACK TO THE SOURCE.
9. REMOVE EXISTING FLOOR FINISHES WHERE INDICATED, PATCH AND REPAIR SUB-FLOOR AS REQUIRED FOR NEW FLOOR FINISHES.
10. WHERE EQUIPMENT IS BEING REMOVED, REMOVE THE CONDUCTORS FEEDING THE EQUIPMENT BACK TO THE POINT OF POWER (CIRCUIT BREAKER OR BRANCH CIRCUIT TAP). REMOVE ACCESSIBLE CONDUITS, ABANDON IN-PLACE INACCESSIBLE CONDUITS, AFTER REMOVAL OF EQUIPMENT.
11. REMOVAL ALL DEMOLISHED EQUIPMENT FROM THE PROPERTY AND DISPOSE OF IT PROPERLY (IN ACCORDANCE WITH LOCAL, STATE AND FEDERAL ENVIRONMENTAL REGULATIONS).



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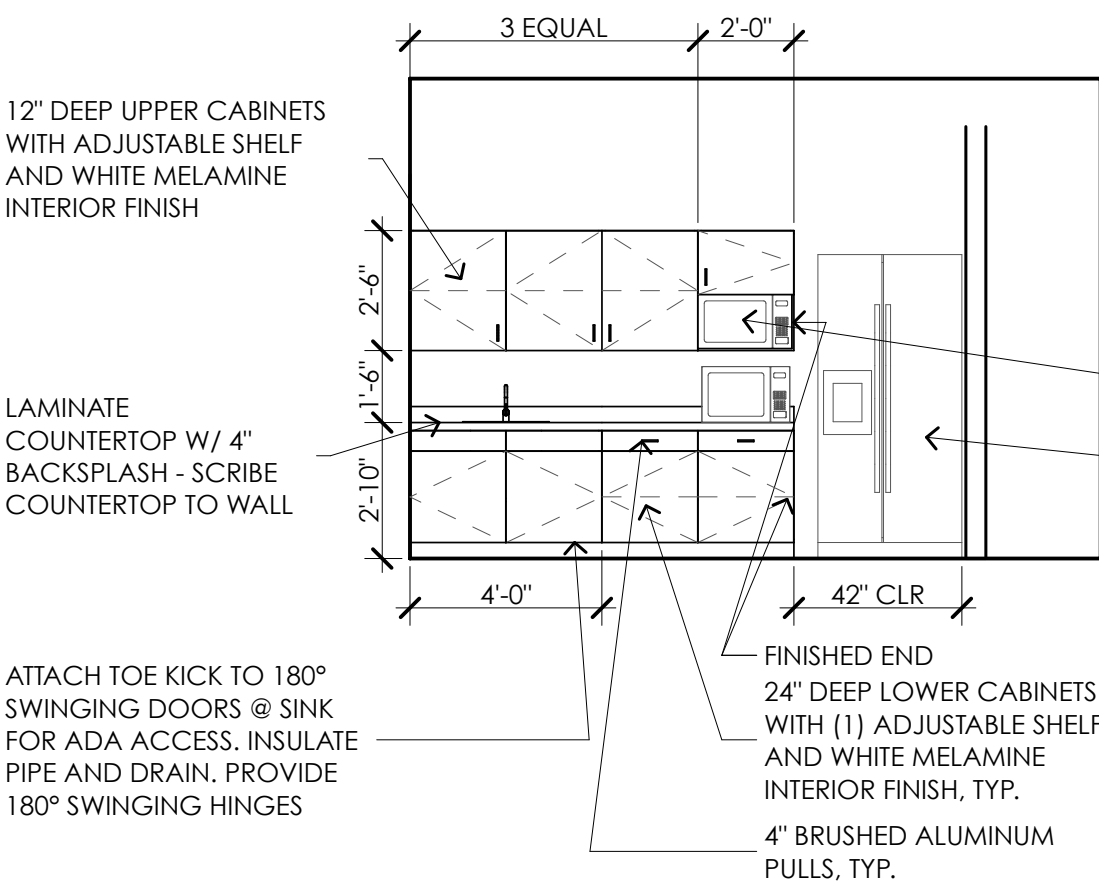
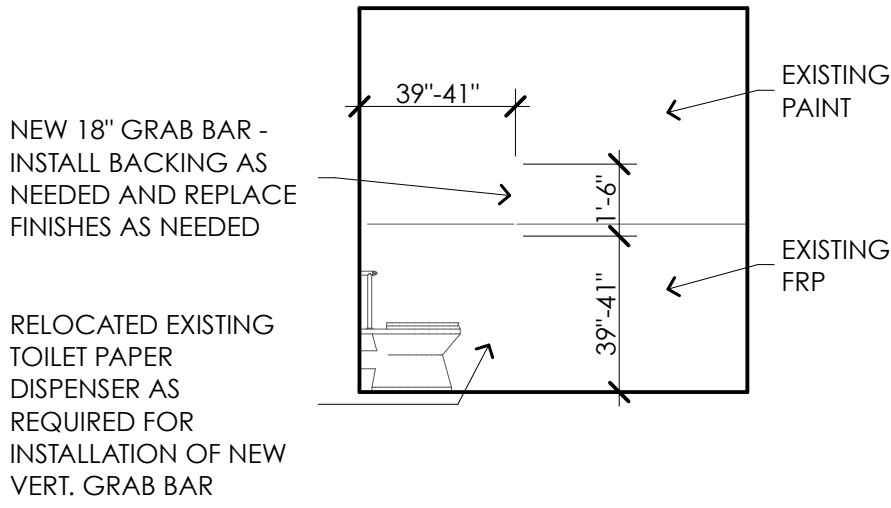
TITLE
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FLOOR PLAN

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NOTE: WALLS OF VESTIBULE WILL FOLLOW THE EXISTING CURB

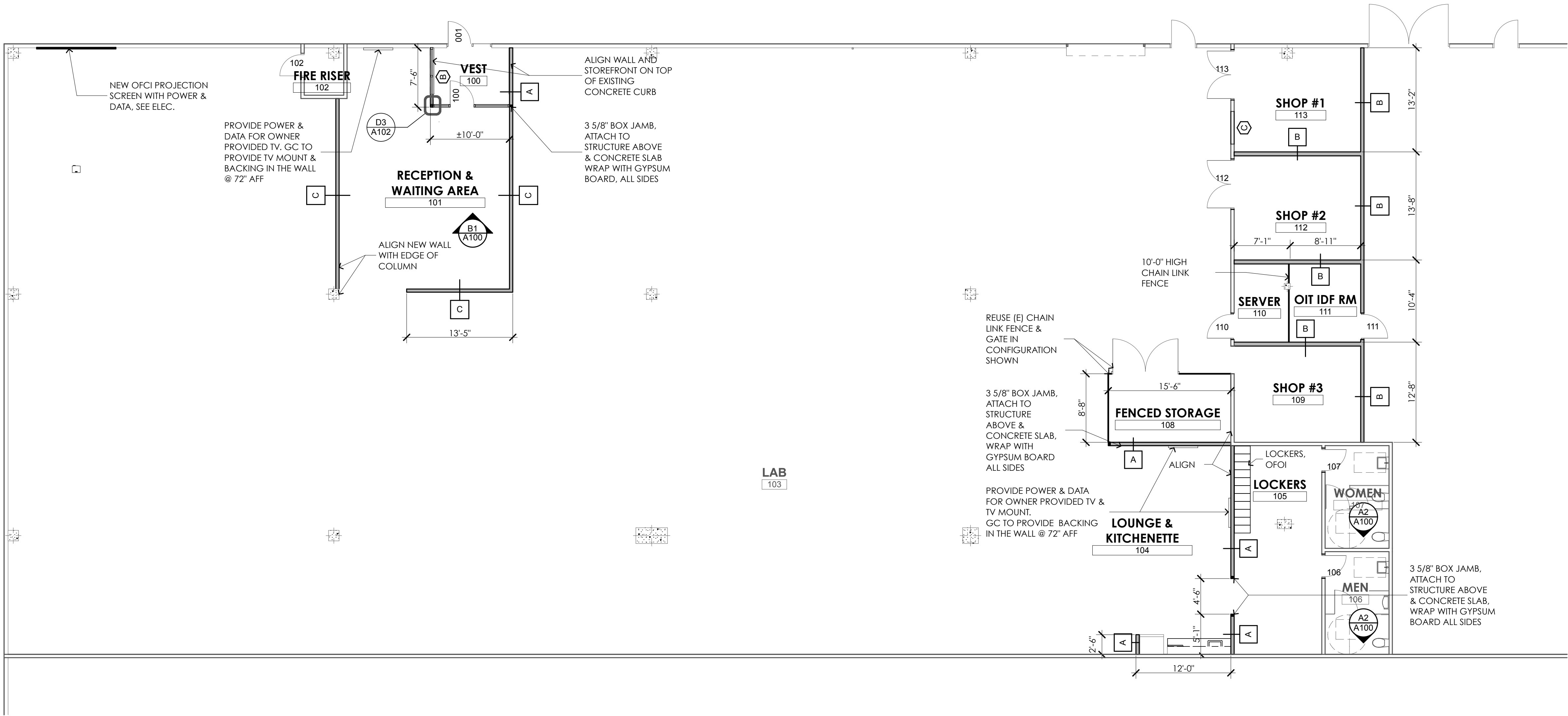


PAINT ALL
NEW WALLS TO
MATCH EXISTING

NO.	ROOM NAME	FLOOR	BASE	ROOM FINISH SCHEDULE				CEILING	COMMENTS
				NORTH	EAST	SOUTH	WEST		
100	VEST	EXISTING	EXIST					EXISTING	
101	RECEPTION & WAITING AREA	EXISTING	EXIST					EXISTING	
102	FIRE RISER	EXISTING	EXIST					EXISTING	
103	LAB	EXISTING	EXIST					EXISTING	
104	LOUNGE & KITCHENETTE	EXISTING	RB-1					EXISTING	
105	LOCKERS	EXISTING	RB-1					EXISTING	
106	MEN	EXISTING	EXIST					EXISTING	
107	WOMEN	EXISTING	EXIST					EXISTING	
108	FENCED STORAGE	EXISTING	RB-1					EXISTING	
109	SHOP #3	EXISTING	RB-1					ACT-1	
110	SERVER	EXISTING	RB-1					EXPOSED	ADD BLACK SCRIM OVER EXISTING INSULATION
111	OIT IDF RM	EXISTING	RB-1					EXPOSED	ADD BLACK SCRIM OVER EXISTING INSULATION
112	SHOP #2	EXISTING	RB-1					ACT-1	
113	SHOP #1	EXISTING	RB-1					ACT-1	

- GENERAL NOTES:
- ALL C.F.C.I. COLORS AND MATERIALS SHALL BE AS SPECIFIED OR APPROVED EQUAL
 - GYPSUM BOARD - ALL GYP. BD. SHALL BE 5/8". USE WATER RESISTANT IN TOILET ROOMS AND WET AREAS. TEXTURE TO MATCH EXISTING. SQUARE CORNERS.
 - REPLACE FLOORING TO MATCH EXISTING WHERE CONCRETE IS REMOVED FOR PLUMBING LINES.
 - RB-1 TO MATCH EXISTING BASE
 - ACT-1 TO MATCH EXISTING ACOUSTICAL CEILING.

CASEWORK	FINISH	MANUFACTURER	STYLE/NAME
COUNTERTOP	LAMINATE	FORMICA	EARTH WASH MATTE FINISH 7213-58
UPPER CABINETS	LAMINATE	FORMICA	BLACK RIFTWOOD NATURAL GRAIN 6414-NG (VERTICAL)
LOWER CABINETS	LAMINATE	FORMICA	BLACK RIFTWOOD NATURAL GRAIN 6414-NG (VERTICAL)



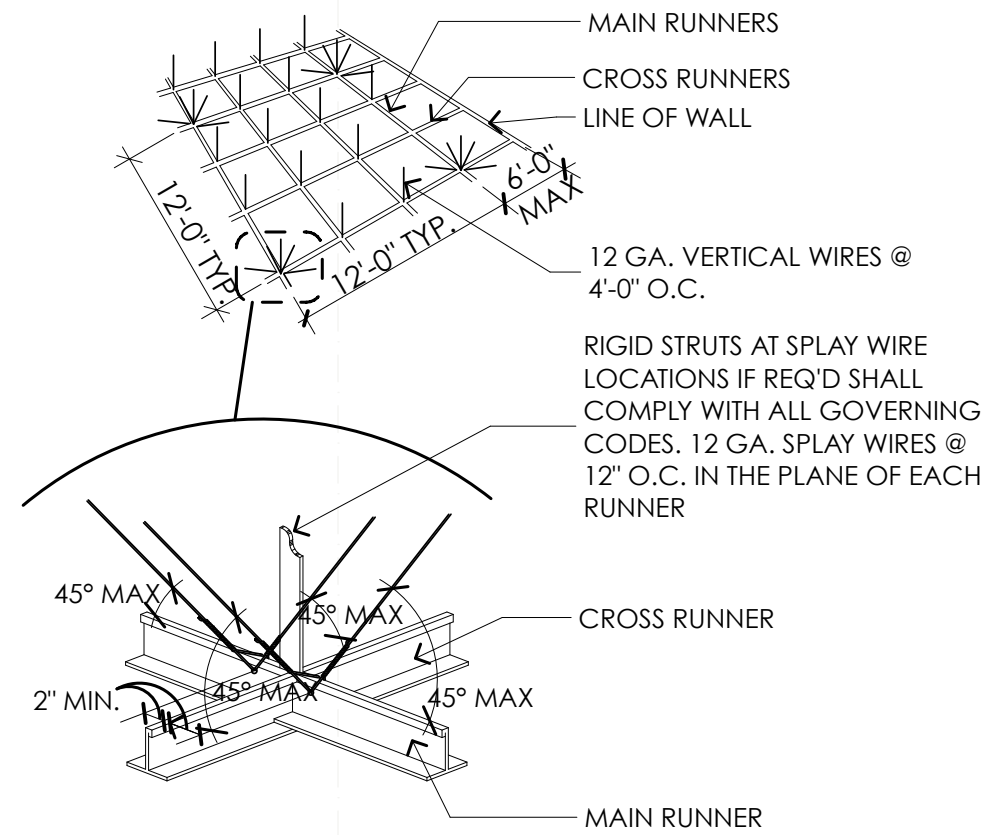
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TITLE
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A 100

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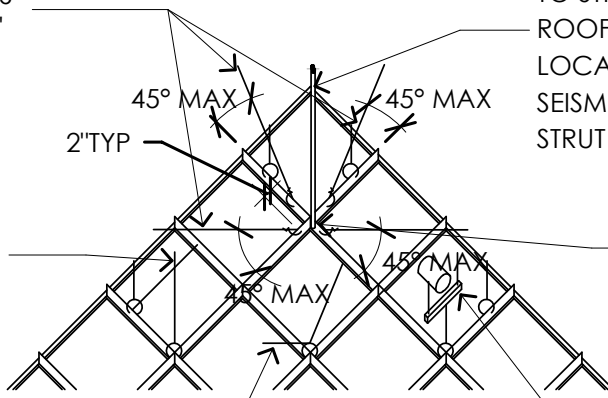


SEISMIC HANGER WIRES SPLAYED 45D FROM MAIN RUNNER IN EACH DIRECTION AND 45D FROM CROSS RUNNER IN EACH DIRECTION 12'-0" O.C. EACH WAY & 6'-0" FROM WALLS

VERTICAL HANGER WIRES @ 4'-0" O.C. EACH WAY & 8" FROM WALLS

STRUT SCHEDULE	
EMT SIZE (NOMINAL)	LENGTH (L/1' < 200)
1/2"	< 3'-10"
3/4"	< 5'-0"
1"	< 6'-6"
1 1/4"	< 8'-6"
1 1/2"	< 9'-10"

EMT - ELECTRICAL METALLIC TUBING



EMT CONDUIT STRUT FASTENED TO MAIN RUNNER AND EXTENDED TO AND FASTENED TO STRUCTURAL MEMBERS SUPPORTING THE ROOF OR FLOOR ABOVE. IF REQ'D BY LOCAL JURISDICTION, LOCATE STRUT @ ALL SEISMIC HANGER WIRES, SEE SCHEDULE FOR STRUT SIZE.

SLOT CONDUIT END TO FIT OVER CEILING RUNNER AND ATTACH W/ #10 SELF-TAPPING SCREWS

DO NOT BEND WIRE AROUND INTERFERING EQUIPMENT, PROVIDE TWO 1 1/2" CHANNEL TRAPEZE

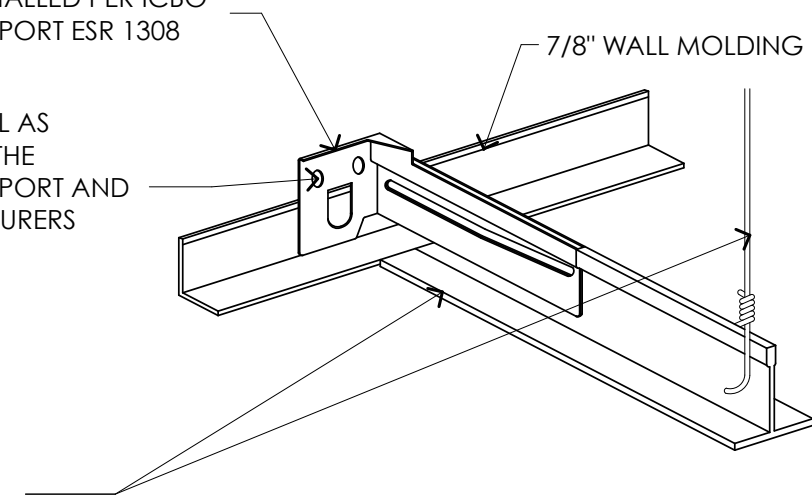
- HANGER WIRES MUST BE NO. 12 GA. MIN. SOFT-ANNEALED, MILD STEEL WIRE. WIRES SHALL BE WRAPPED TIGHTLY AT RUNNERS AND SUPPORTS AND TIED WITH A MIN. OF 3 TURNS.
- CLIPS SHALL HOLD RUNNERS TIGHTLY TOGETHER. SPLICE CLIPS SHALL BE CAPABLE OF RESISTING AT LEAST 50 LBS. IN TENSION OR COMPRESSION.
- FOR MANUFACTURED SYSTEMS, SUBMIT SUBSTANTIATION IN ACCORDANCE WITH 2012 IBC.
- RUNNERS SHALL BE CAPABLE OF SUPPORTING CEILING SYSTEM WITH DEFLECTIONS LESS THAN 0.133 INCH.
- LOCAL KINKS AND BENDS SHALL NOT BE MADE IN HANGER WIRES FOR LEVELING.
- SHALL COMPLY WITH ALL GOVERNING CODES, ASTM C 635 & ASTM C 636, AS WELL AS CISCA REQUIREMENTS.

ELONGATED ARMSTRONG 2" BERC2 CLIP INSTALLED PER ICBO EVALUATION REPORT ESR 1308 OR EQUAL

FASTEN TO WALL AS REQUIRED PER THE EVALUATION REPORT AND THE MANUFACTURERS REQUIREMENTS.

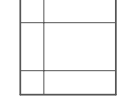
MAIN RUNNER STANDARD SUSPENDED CEILING GRID SUPPORTS

NOTE: ARMSTRONG BERC2 CLIP ILLUSTRATED ABOVE CAN BE USED IN LIEU OF IBC SEISMIC REQUIREMENTS FOR SUSPENDED CEILING CONSTRUCTION. REFER TO MANUFACTURER "ARMSTRONG" FOR INSTALLATION AND ADDITIONAL INFORMATION OR EQUAL.

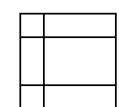


CEILING LEGEND

CENTER ALL GRIDS IN ROOM U.N.O.
CENTER ALL LIGHTS IN CEILING TILES U.N.O.
CENTER ALL FIRE SPRINKLERS IN CEILING TILES U.N.O.



EXISTING SUSPENDED ACOUSTIC TILES TO REMAIN



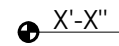
NEW 2' x 4' SUSPENDED ACOUSTIC TILES TO MATCH EXISTING. SEE TYP. DETAIL ON A101.

NEW 2' x 4' FLUORESCENT LIGHT FIXTURES, SEE ELEC. DWGS.

NEW SUPPLY, SEE MECH. DWGS.

NEW RETURN, SEE MECH. DWGS.

NEW EXHAUST FAN, SEE MECH. DWGS.



CEILING HEIGHT

TYPICAL ACOUSTICAL CEILING TILE LAYOUT

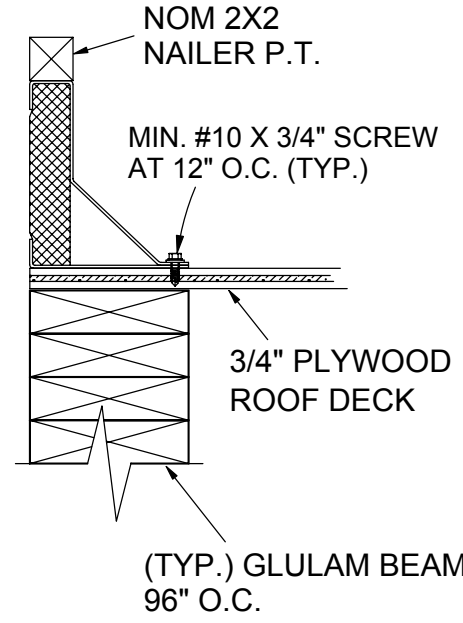
ROOF PRODUCTS, INC. 1-800-262-6669

INSTALLATION INSTRUCTIONS FOR RPC-2 STRUCTURAL ROOF CURB

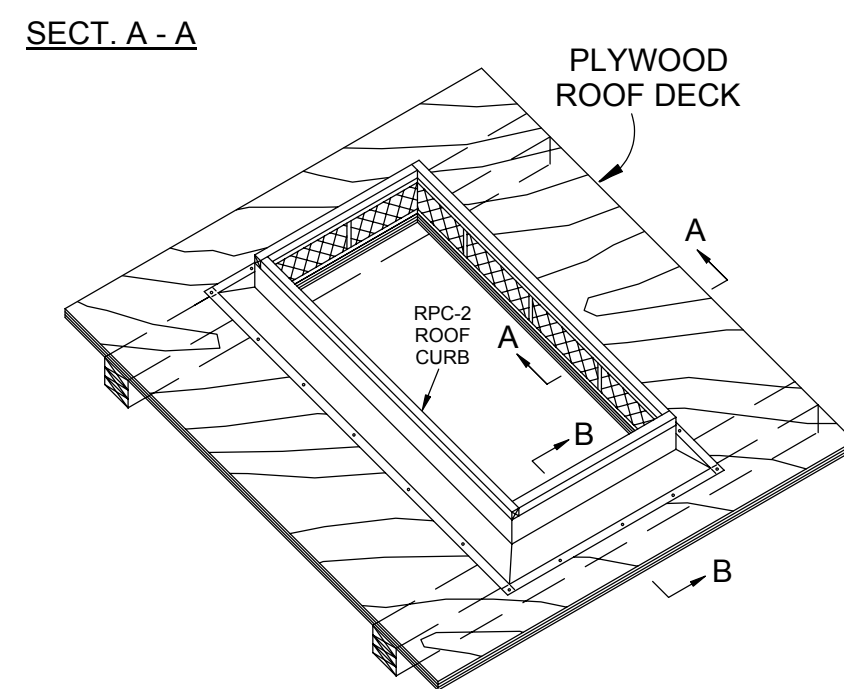
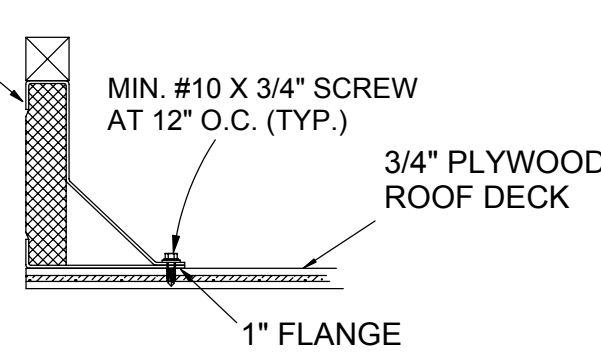
Model RPC-2 is designed to be installed directly on top of plywood Roof Deck.

To install an RPC-2 directly onto the roof structure, you must:

- Locate curb per plans.
- Curb mechanically fastened to plywood roof deck at 12" o.c.



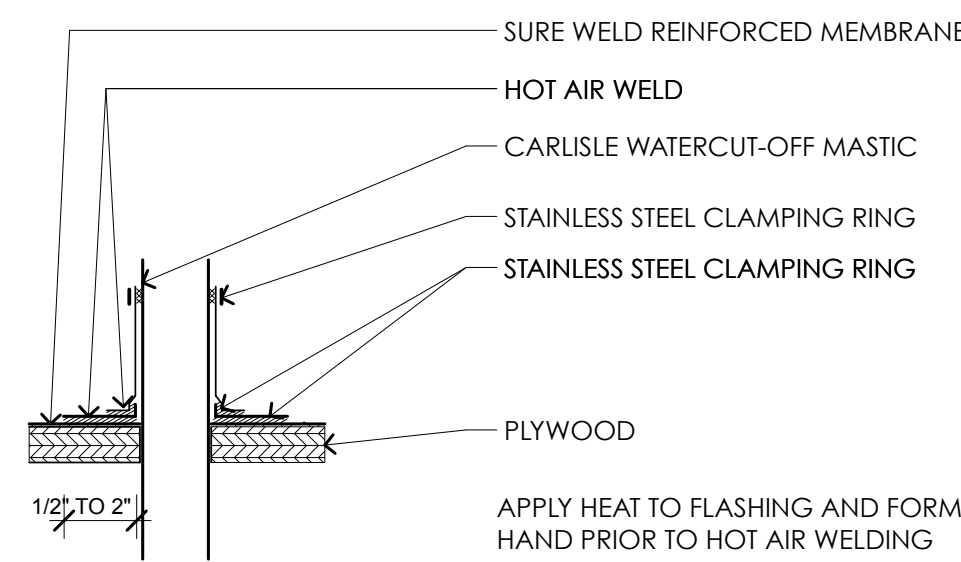
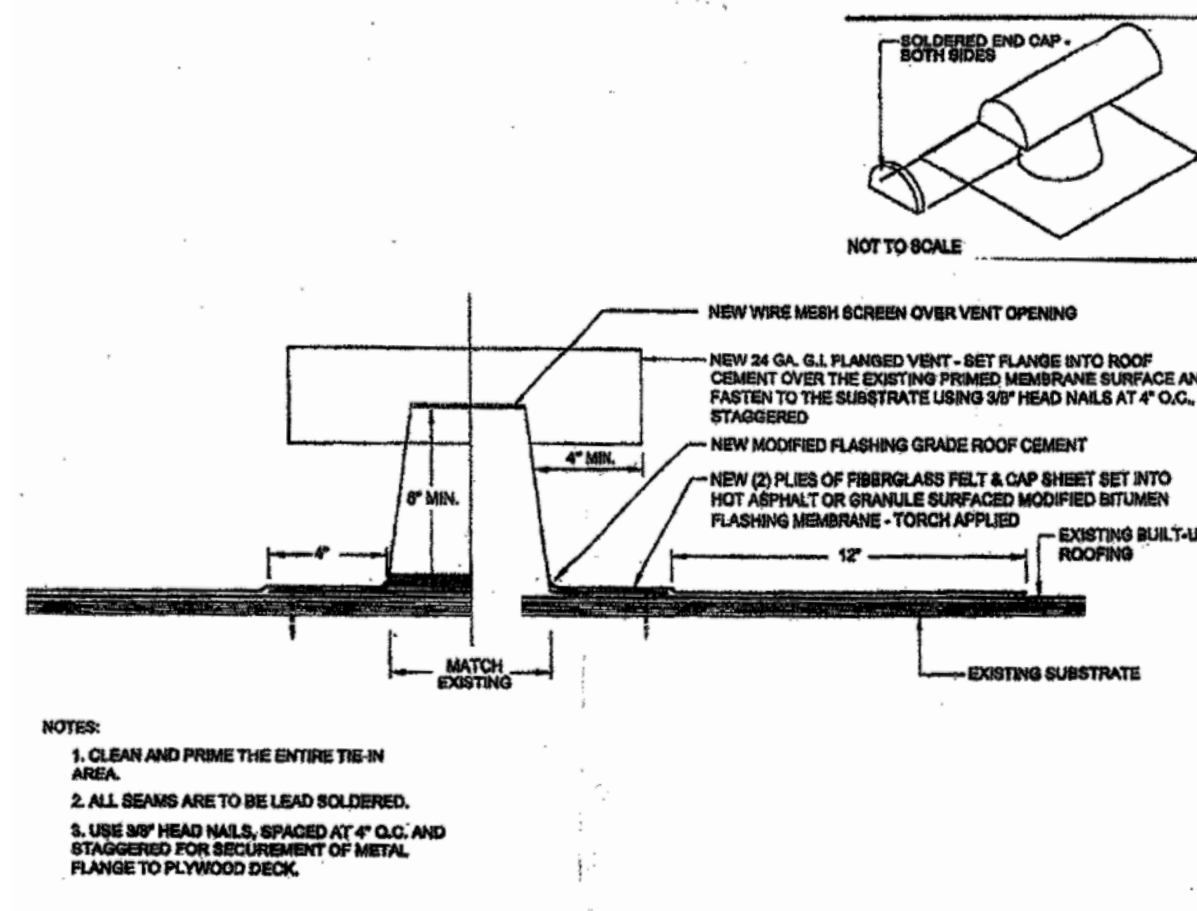
SECT. A - A



SECT. B - B

NOT TO SCALE

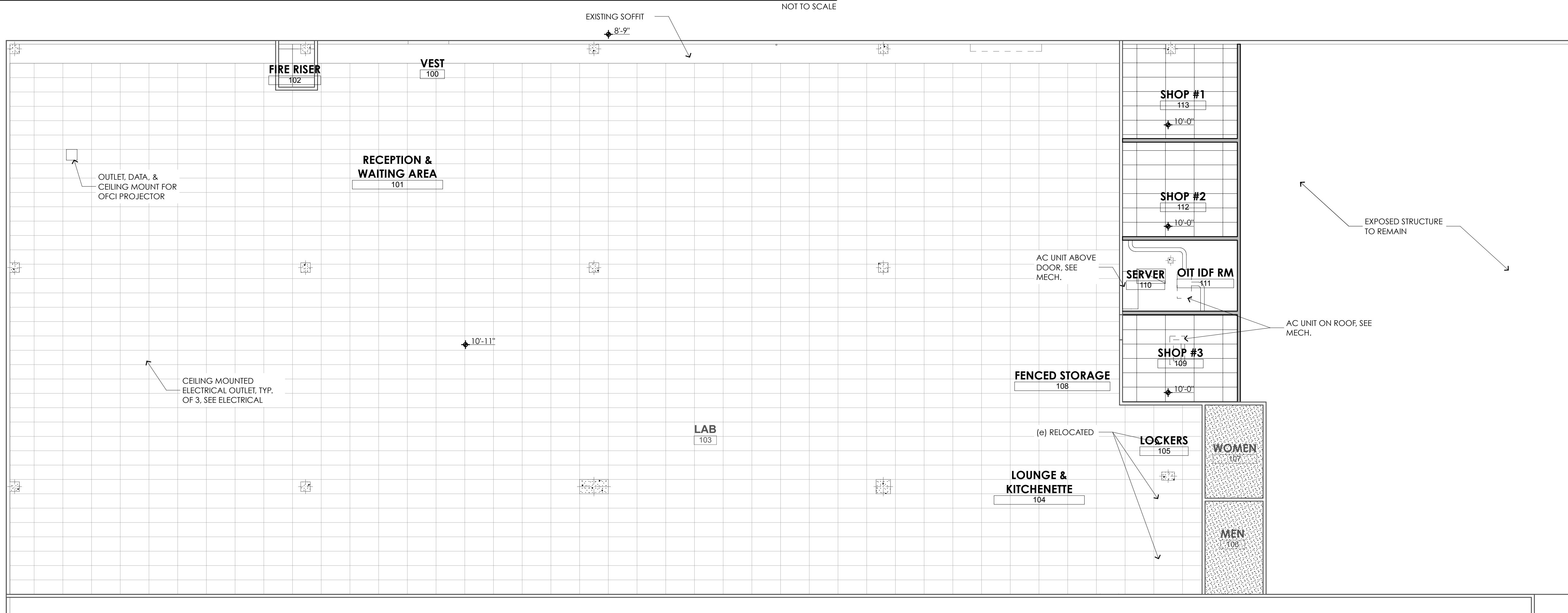
SUSPENDED CEILING SEISMIC CLIP



NOTES:

- REMOVE ALL LEAD AND OTHER FLASHING BEFORE INSTALLING FIELD FABRICATED PIPE SEAL.
- TEMPERATURE OF PIPE MUST NOT EXCEED 120° F (49° C).
- SURE-WELD NON-REINFORCED MEMBRANE WRAPPED AROUND PIPE SHALL HAVE MINIMUM 1-1/2" (40 mm) VERTICAL HOT AIR WELD.
- FASTENERS/PLATES ARE NOT REQUIRED ON ADHERED SYSTEMS UNLESS PIPE DIAMETER EXCEEDS 18" (500 mm).

TYPICAL CURB DETAIL @ ROOF EQUIPMENT



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TITLE
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CEILING PLAN

DRAWING NO.

A101

15.058 UNLV Robotics Lab