

UNLV FAB Shell Upgrade

1325 East Flamingo Road
Las Vegas, Nevada 89119

UNLV FAB Shell Upgrade
Construction Documents
1325 East Flamingo Road
Las Vegas, Nevada, 89119

aptus
copyright 2016 © by aptus
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



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

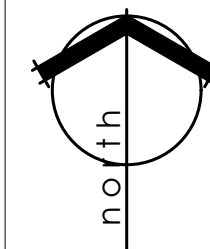


STRUCTURAL ENGINEER
Kordt Engineering Group
633 South 4th Street, Suite 2 & 3
Las Vegas, Nevada 89101
P 702.483.6666
F 702.522.9888



CODE CONSULTANT
PCNA Consulting Group Inc.
7935 Badura Ave., Ste. 1045
Las Vegas, Nevada 87113
P 702.834.3200

VICINITY MAP (N.T.S.)



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



DRAWING INDEX

NO.	SHEET TITLE	11.18.16 SRM / SPWD APPROVED
GENERAL	HELLO PROJECT TEAM, VICINITY MAP & INDEX	•
G000	SITE PLAN, CODE ANALYSIS	•
G001	SYMBOLS LIST, ABBREVIATIONS AND STD. MTG. HEIGHTS	•
G002	SPECIFICATIONS	•
G003	SPECIFICATIONS	•
G004	UL U415 & IBC TABLE 721.1(2)	•
STRUCTURAL	S100 COVER SHEET	•
S101	GENERAL NOTES	•
S200	GROUND FLOOR FRAMING PLAN	•
S600	SECTION AND DETAILS	•
ARCHITECTURAL	A100 OVERALL FLOOR PLAN	•
A101	DEMO PLAN, FLOOR PLAN	•
A102	DOOR SCHEDULE, DETAILS, AND WALL TYPES	•
MECHANICAL / PLUMBING	M0.00 LEGEND, INDEX, SPECIFICATIONS CALCULATIONS	•
M1.00	FLOOR PLANS - DEMO, HVAC	•
ELECTRICAL	E0.01 GENERAL INFORMATION	•
E0.02	ELECTRICAL SPECIFICATIONS	•
E0.21	DEMOLITION PLAN	•
E1.01	LIGHTING PLAN	•
E5.01	ONE LINE DIAGRAM	•

SCOPE OF WORK

SCOPE OF WORK TO BE TWO NEW FIRE PARTITIONS IN EXISTING STORAGE SPACE.

BUILDING CODE DATA

JURISDICTION: NEVADA STATE FIRE MARSHALL & STATE PUBLIC WORKS DIVISION

- 2012 IBC

- 2012 IFC

- 2012 UMC

- 2012 UPC

- 2011 NEC

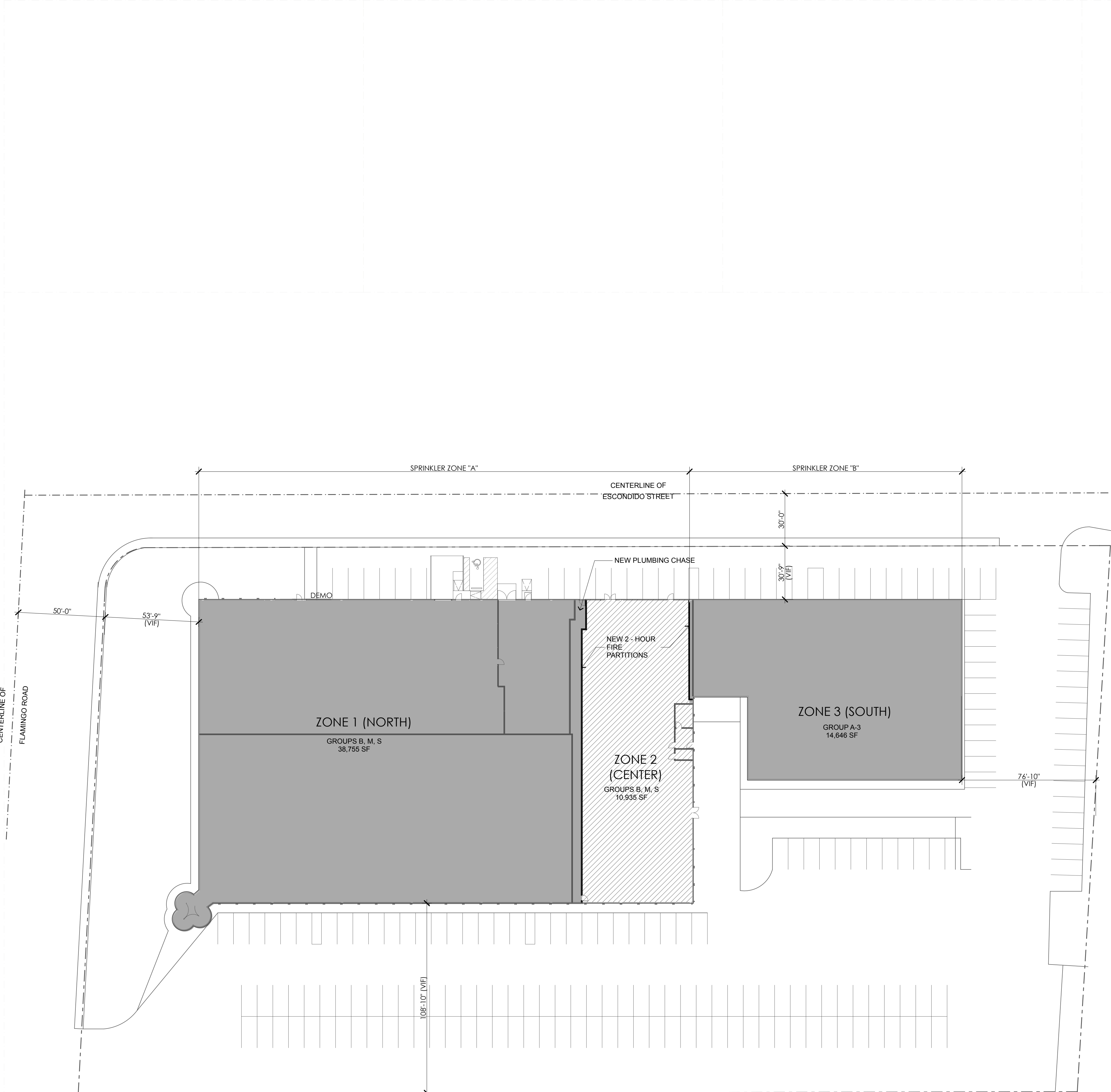
- 2012 IECC

- ANSI A117.1-2009 & 2010 ADA

NOTE: SEE G000 FOR BUILDING CODE ANALYSIS

TITLE
PROJECT TEAM,
VICINITY MAP &
INDEX

DRAWING NO.
HELLO



SITE PLAN
SCALE: 1" = 30'

CODE ANALYSIS

DESCRIPTION:	UNLV FAB SHELL UPGRADE
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, 2009 ANSI
OCCUPANCY TYPE:	(SEE ZONE BREAKDOWN BELOW)
CONSTRUCTION TYPE:	VB
FIRE SPRINKLERS:	YES
STORIES:	1
ALLOWABLE AREA (BY ZONE)	
ZONE 1 (NORTH)	
OCCUPANCY TYPE	B, M, S
PERIMETER OF BUILDING (P)	836 FT
BUILDING PERIMETER W/ FRONTAGE (F)	657 FT
WIDTH OF FRONTAGE (W)	30 + FT
TABULAR ALLOWABLE AREA (A)	9,000 SF
SPRINKLER INCREASE (I)	3
$I = [F/P - 0.25] W/30 = 0.53$	
ALLOWABLE BUILDING AREA (A + [A x I] + [A x I])	40,823 SF
9,000 + (9,000 x 3) + (9,000 x 0.53)	
ACTUAL AREA	38,755 SF
ZONE 2 (CENTER)	
OCCUPANCY TYPE	S-1
PERIMETER OF BUILDING (P)	489 FT
BUILDING PERIMETER W/ FRONTAGE (F)	255 FT
WIDTH OF FRONTAGE (W)	30 + FT
TABULAR ALLOWABLE AREA (A)	9,000 SF
SPRINKLER INCREASE (I)	3
$I = [F/P - 0.25] W/30 = 0.27$	
ALLOWABLE BUILDING AREA (A + [A x I] + [A x I])	38,430 SF
9,000 + (9,000 x 3) + (9,000 x 0.27)	
ACTUAL AREA	10,935 SF
ZONE 3 (SOUTH)	
OCCUPANCY TYPE	A-3
PERIMETER OF BUILDING (P)	512 FT
BUILDING PERIMETER W/ FRONTAGE (F)	457 FT
WIDTH OF FRONTAGE (W)	30 + FT
TABULAR ALLOWABLE AREA (A)	6,000 SF
SPRINKLER INCREASE (I)	3
$I = [F/P - 0.25] W/30 = 0.64$	
ALLOWABLE BUILDING AREA (A + [A x I] + [A x I])	27,840 SF
6,000 + (6,000 x 3) + (6,000 x 0.64)	
ACTUAL AREA	14,646 SF
SECTION 1004.1: OCCUPANT LOAD - BASED ON OVERALL SQUARE FOOTAGE, NOT INCORPORATING ACTUAL TENANT LAYOUTS	
ZONE 1 (B, S, M)	844
ZONE 2 (S)	22
ZONE 3 (A-3)	293
SPECIAL INSPECTIONS	YES, SEE S101

IECC SYNOPSIS

NO PORTIONS OF THE ENVELOPE ARE BEING MODIFIED.



11.18.16
SFW / SPWD Plan Check

TITLE
**SITE PLAN,
CODE ANALYSIS**

DRAWING NO.
G000

N:\ourname\Projects\15.058 UNLV Robotics Lab\DWGS\15.058.1 UNLV FAB Shell Upgrade.dwg, 11/17/16, 12:45 PM, Byron Rowe

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 AUTHORITY HAVING JURISDICTION'S 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 WALK.
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 AUTHORITY HAVING JURISDICTION'S 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 THAN 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 FT. WIDE BY NOT LESS THAN 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.
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. THE PROJECT CONSISTS OF ADDITION OF FIRE-RATED PARTITIONS & NEW DOOR. THE PROJECT IS LOCATED ON 1325 E. FLAMINGO ROAD, LAS VEGAS, NV. 89119 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 OWNERS' 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 CONSTRUCTION, 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.
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.

DIVISION 1 - GENERAL DATA - (CONT'D)

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 USED

DIVISION 3 - CONCRETE

NOT USED

DIVISION 4 - MASONRY

NOT USED

DIVISION 5 - METALS

NOT USED

DIVISION 6 - WOOD & PLASTICS

NOT USED

DIVISION 7 - THERMAL/MOISTURE PROTECTION

NOT USED

DIVISION 8 - DOORS & WINDOWS

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 CONTROL SYSTEMS.
 - D. SAMPLES FOR VERIFICATION:
 1. SAMPLES ARE ONLY REQUIRED BY REQUEST OF THE ARCHITECT AND FOR MANUFACTURES 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 ANSI/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 DELIVERY, STORAGE, AND HANDLING
 - 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.
 - 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.

DIVISION 8 - (CONT'D)

4. HOLLOW METAL DOORS AND FRAMES (CONTINUED)

- 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 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 EXPOSE FACES UNLESS OTHERWISE INDICATED. COMPLY WITH ANSI/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 ANSI/SDI A250.8 FOR LEVEL AND MODEL AND ANSI/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.
 - 2.4 STANDARD HOLLOW METAL FRAMES
 - A. GENERAL: COMPLY WITH ANSI/SDI A250.8 AND WITH DETAILS INDICATED FOR TYPE AND PROFILE.
 - B. EXTERIOR MASONRY FRAMES: FABRICATED OF HOT-DIPPED ZINC COATED STEEL THAT COMPLIES WI 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. MANUFACTURER'S BASIS OF DESIGN:
 - A. CECO DOOR PRODUCTS (C) - SJU 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 QUALIFIED TESTING AGENCY, FOR FIRE-PROTECTION RATINGS INDICATED.
 - D. HARDWARE REINFORCEMENT: FABRICATE ACCORDING TO ANSI/SDI A250.6 TABLE 4 WITH REINFORCEMENT PLATES FROM SAME MATERIAL AS FRAMES.
 - 2.5 FRAME ANCHORS
 - A. JAMB ANCHORS:
 1. MASONRY TYPE: ADJUSTABLE STRAP AND STIRRUP OR T-SHAPED ANCHORS TO SUIT FRAME SIZE, FORMED FROM A60 METALLIC COATED MATERIAL, NOT LESS THAN 0.042 INCH THICK, WITH CORRUGATED OR PERFORATED STRAPS NOT LESS THAN 2 INCHES WIDE BY 10 INCHES LONG; O 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 THIC

aptus

copyright 2016 © by aptus

1200 South 4th Street

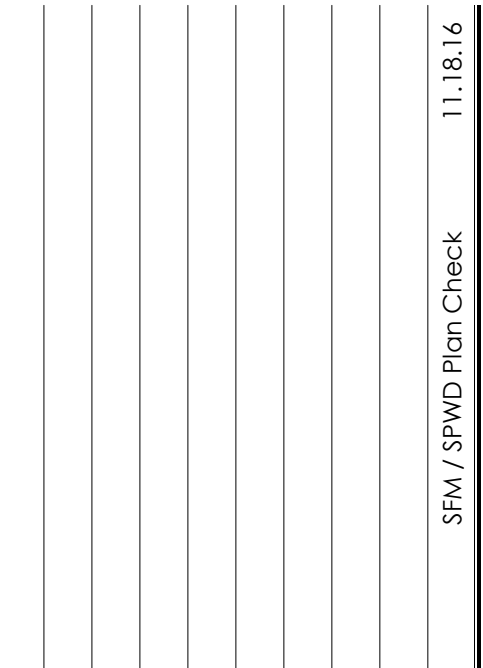
Suite 206

Las Vegas, Nevada

89104

P 702.839.1200

F 702.839.1213



TITLE
SPECIFICATIONS

DRAWING NO.

G002

ONLINE CERTIFICATIONS DIRECTORY
Design No. U415
BXUV U415
Fire Resistance Ratings - ANSI/UL 263

Design/System/Construction/Assembly Usage Disclaimer

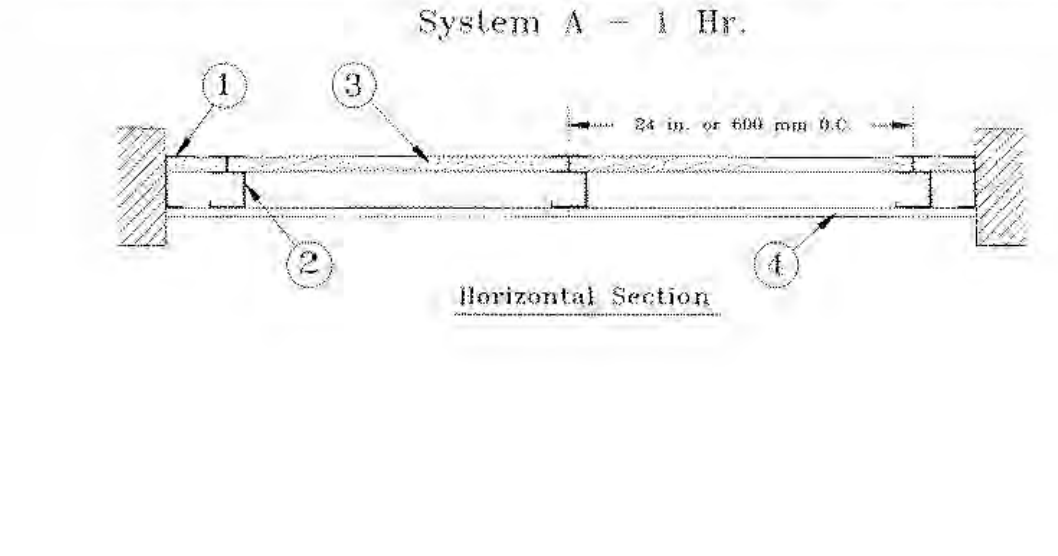
- Authority Having Jurisdiction should be consulted as to the particular requirements covering the installation and use of UL Certified products, assemblies, systems, devices, and materials.
- Authority Having Jurisdiction should be consulted before construction.
- The resistance assemblies and products are developed by the design authority and have been investigated by UL for compliance with applicable requirements. The published information cannot be used to address every construction nuance encountered in the field.
- When field issues arise, it is recommended the first contact for assistance be the technical service staff provided by the product manufacturer noted for the design. Users of the resistance assemblies are advised to consult the general data information for each product category and each group of assemblies. The data information includes specific information concerning alternative materials and alternate methods of construction.
- Only products which bear UL's Mark are considered Certified.

BXUV - Fire Resistance Ratings - ANSI/UL 263
BXUV7 - Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

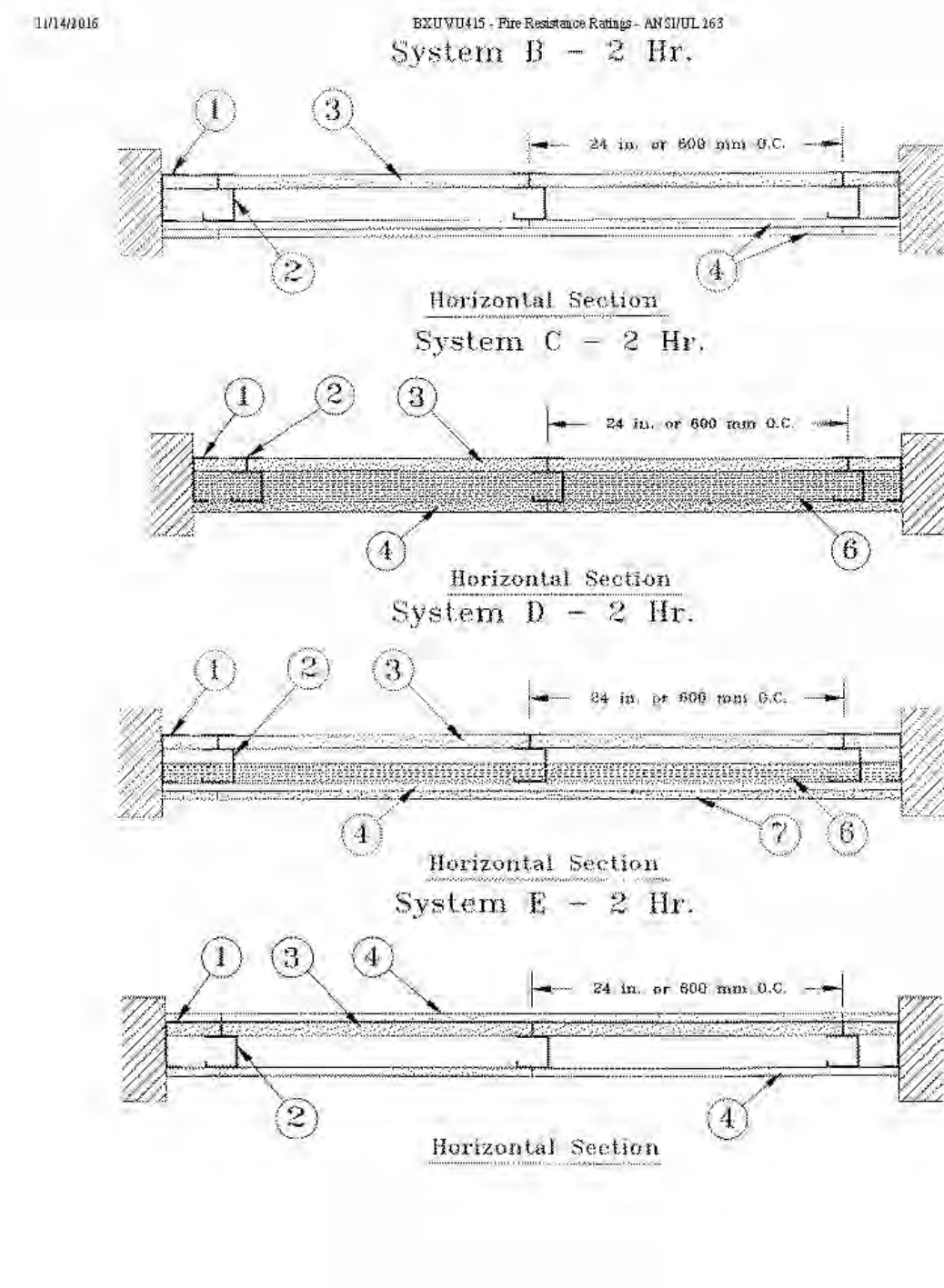
See General Information for Fire Resistance Ratings - ANSI/UL 263
 See General Information for Fire Resistance Ratings - CAN/ULC-S101 Certified for Canada

Design No. U415
 July 14, 2016

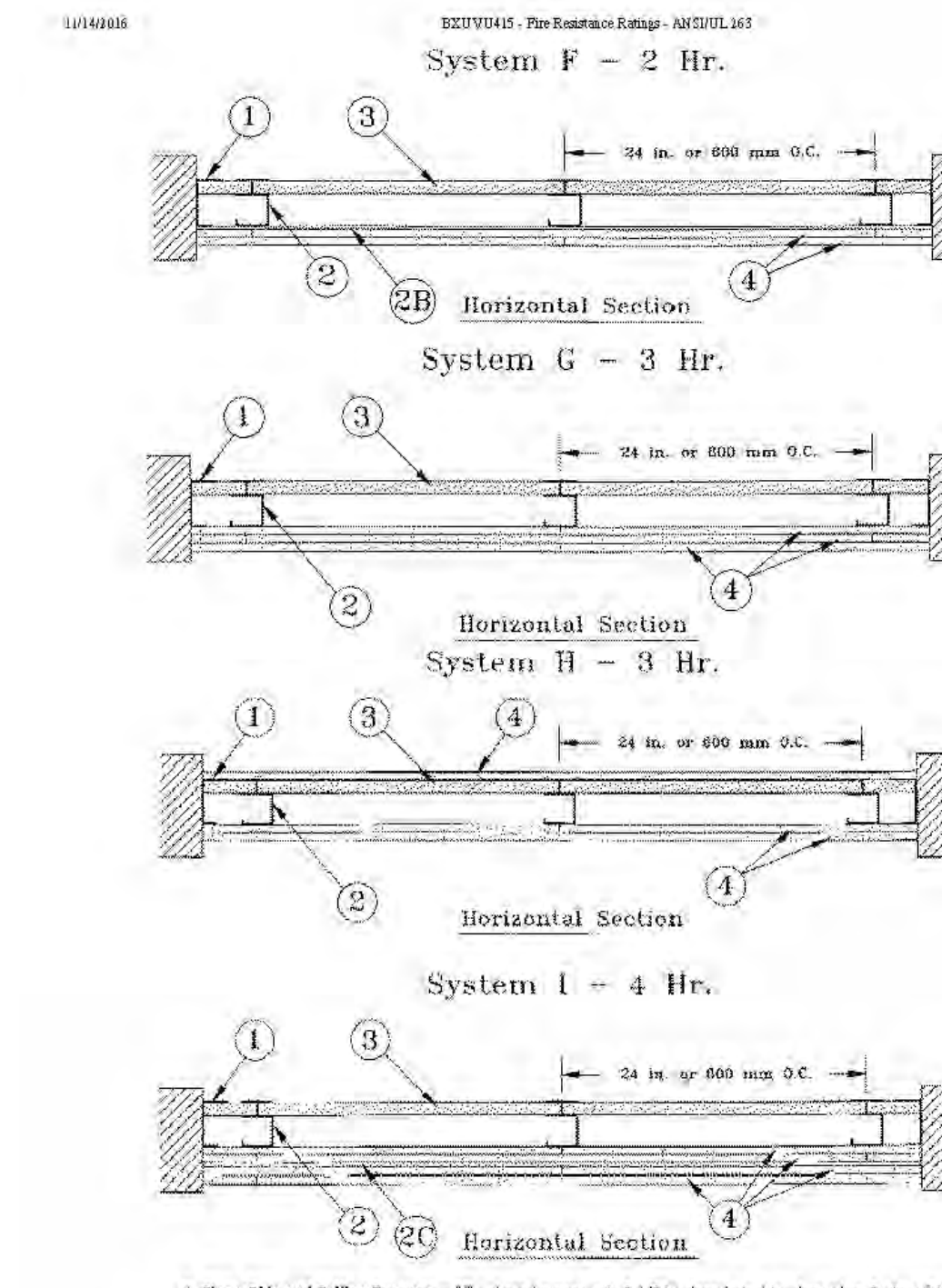
Nonbearing Wall Ratings - 1, 2, 3 or 4 Hr.
 * Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.



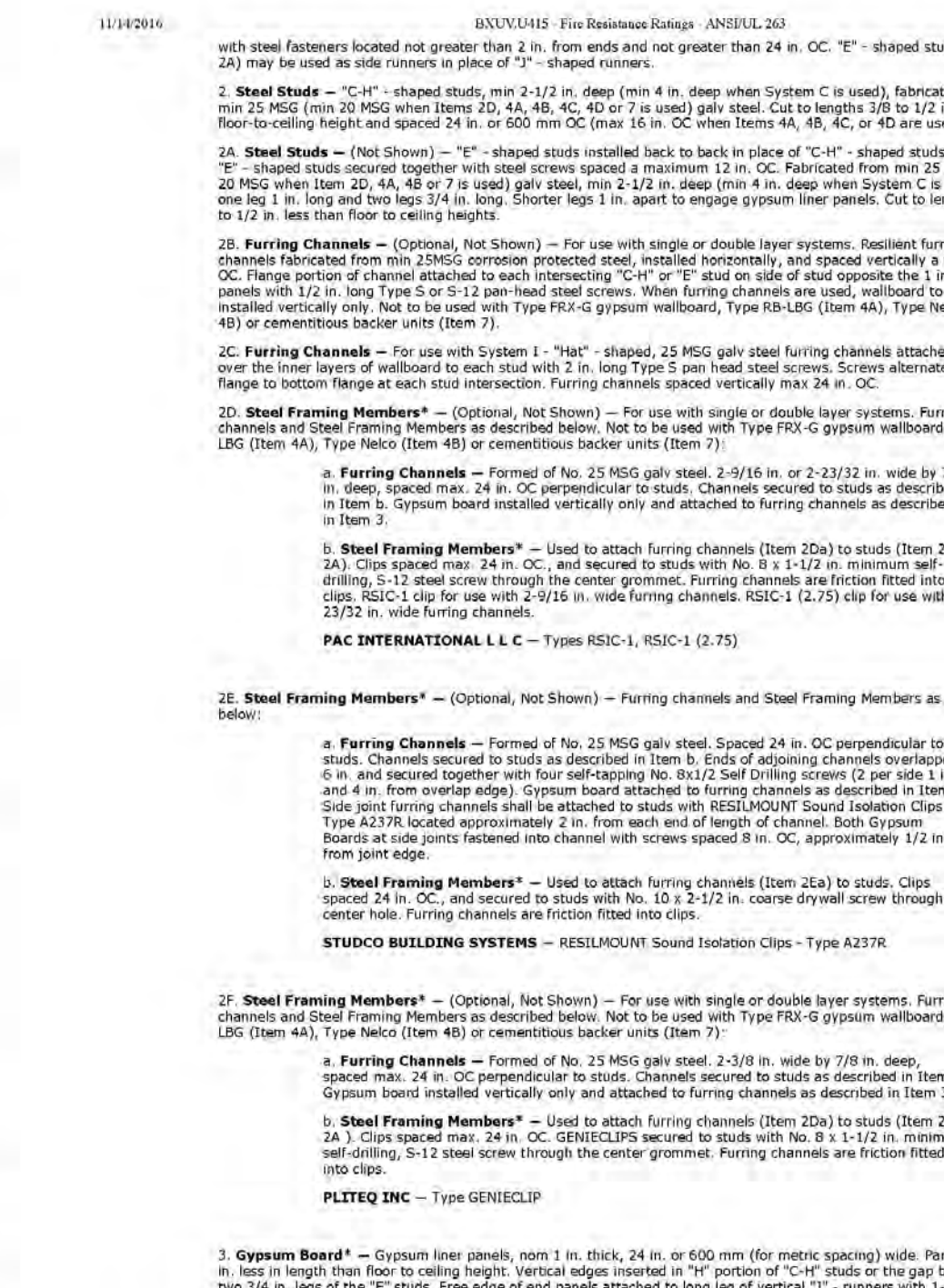
1. Floor, Sills and Ceiling Runners - "F", shaped runner; min 2-1/2 in. deep (min 4 in. deep when System C is used), with equal leg 4 in. and 2 in., fabricated from min. 24 MSG (min 20 MSG when Items 4A, 4B, 4C or 4D are used) galv steel. Runners positioned with short leg on and finished side of wall. Runners attached to structural supports



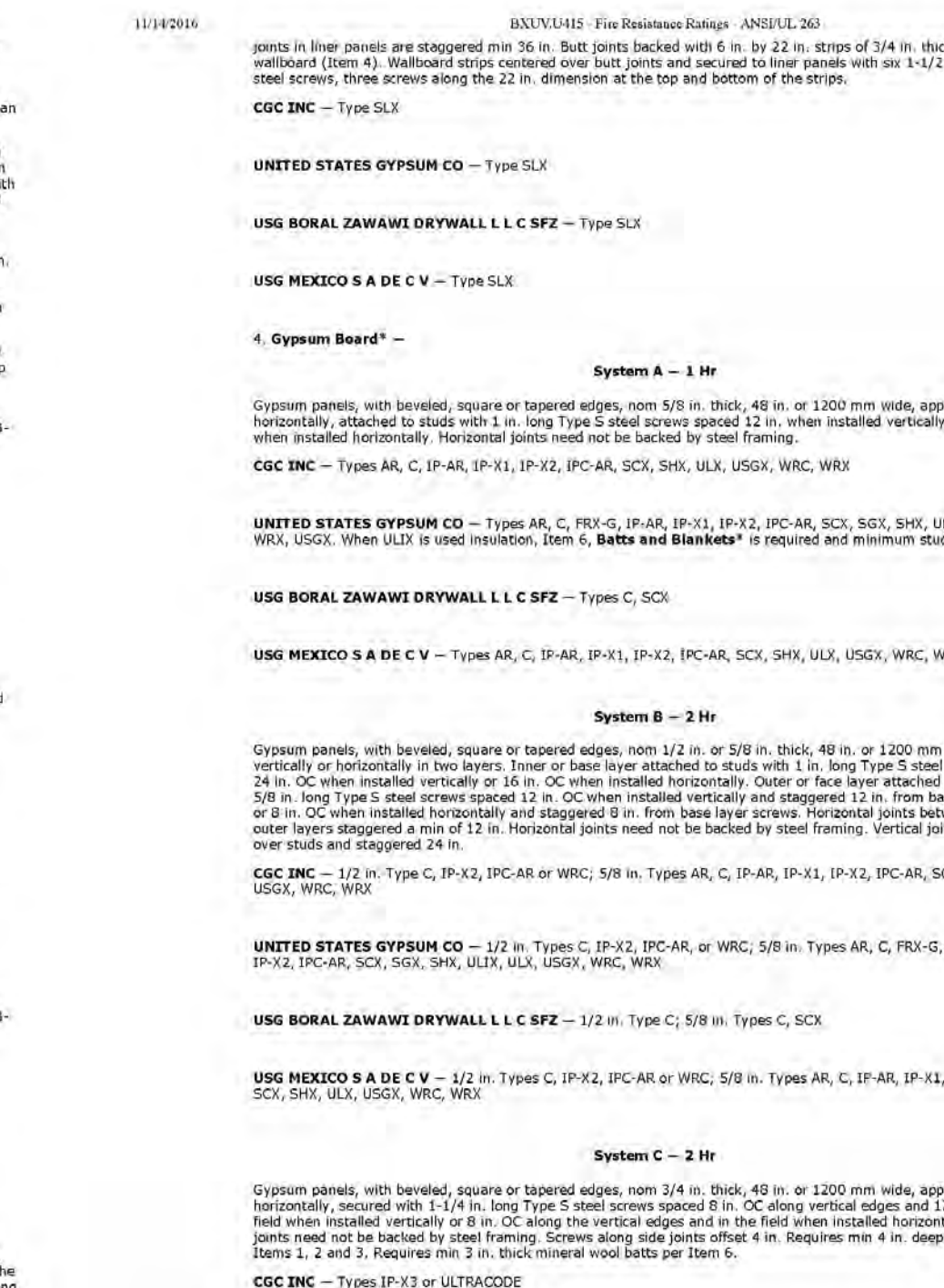
1. Floor, Sills and Ceiling Runners - "F", shaped runner; min 2-1/2 in. deep (min 4 in. deep when System C is used), with equal leg 4 in. and 2 in., fabricated from min. 24 MSG (min 20 MSG when Items 4A, 4B, 4C or 4D are used) galv steel. Runners positioned with short leg on and finished side of wall. Runners attached to structural supports



1. Floor, Sills and Ceiling Runners - "F", shaped runner; min 2-1/2 in. deep (min 4 in. deep when System C is used), with equal leg 4 in. and 2 in., fabricated from min. 24 MSG (min 20 MSG when Items 4A, 4B, 4C or 4D are used) galv steel. Runners positioned with short leg on and finished side of wall. Runners attached to structural supports



1. Floor, Sills and Ceiling Runners - "F", shaped runner; min 2-1/2 in. deep (min 4 in. deep when System C is used), with equal leg 4 in. and 2 in., fabricated from min. 24 MSG (min 20 MSG when Items 4A, 4B, 4C or 4D are used) galv steel. Runners positioned with short leg on and finished side of wall. Runners attached to structural supports



1. Floor, Sills and Ceiling Runners - "F", shaped runner; min 2-1/2 in. deep (min 4 in. deep when System C is used), with equal leg 4 in. and 2 in., fabricated from min. 24 MSG (min 20 MSG when Items 4A, 4B, 4C or 4D are used) galv steel. Runners positioned with short leg on and finished side of wall. Runners attached to structural supports

UNITED STATES GYPSUM CO - Types IP-X3 or ULTRACODE

USG BORAL ZAWAWI DRYWALL L L C SFZ - Type ULTRACODE

USG MEXICO S A DE C V - Type IP-X3 or ULTRACODE

System D - 2 Hr
 Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally in three layers. Inner or base layer attached to studs with 1 in. long Type 5 steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Horizontal joints need not be backed by steel framing. Outer or face layer attached to studs with 1-1/4 in. long Type 5 steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Horizontal joints need not be backed by steel framing. Requires face layer of 1/2 or 5/8 in. thick cementitious backer units per Item 7 and min 1-1/2 in. thick mineral wool bats per Item 8.

CCC INC - Types AR, C, IP-A8, IP-X1, IP-X2, IPCAR, SCI, SHV, ULX, USGX, WRC

UNITED STATES GYPSUM CO - Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPCAR, SCI, SHV, ULX, ULX, USGX, WRC

USG BORAL ZAWAWI DRYWALL L L C SFZ - Types C, SCX

USG MEXICO S A DE C V - Types AR, C, IP-AR, IP-X1, IP-X2, IPCAR, SCI, SHV, ULX, USGX, WRC, WRC

System E - 2 Hr
 Gypsum panels, with beveled, square or tapered edges, nom 1/2 in. or 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally, attached directly to studs with 1 in. long Type 5 steel screws spaced 24 in. OC when installed vertically or 8 in. when installed horizontally. Horizontal joints need not be backed by steel framing.

CCC INC - 1/2 in. Types C, IP-X2, IPC-A2; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPCAR, SCI, SHV, ULX, USGX, WRC

UNITED STATES GYPSUM CO - Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPCAR, SCI, SHV, ULX, ULX, USGX, WRC

USG BORAL ZAWAWI DRYWALL L L C SFZ - 1/2 in. Type C; 5/8 in. Types C, SCX

USG MEXICO S A DE C V - 1/2 in. Types C, IP-X2, IPCAR; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPCAR, SCI, SHV, ULX, USGX, WRC

System F - 2 Hr
 Gypsum panels, with beveled, square or tapered edges, nom 1/2 in. or 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally in two layers. Inner or base layer attached to resilient furring channels (Item 2B) with 1 in. long Type 5 steel screws spaced 24 in. OC and staggered 12 in. from base layer screws. Joints between inner and outer layers staggered 24 in.

CCC INC - 1/2 in. Type C, IP-X2, IPC-A2 or WRC; 5/8 in. Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPCAR, SCI, SHV, ULX, USGX, WRC

UNITED STATES GYPSUM CO - 1/2 in. Type C, IP-X2, IPCAR or WRC; 5/8 in. Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPCAR, SCI, SHV, ULX, ULX, USGX, WRC

USG BORAL ZAWAWI DRYWALL L L C SFZ - 1/2 in. Type C; 5/8 in. Types C, SCX

USG MEXICO S A DE C V - 1/2 in. Types C, IP-X2, IPCAR or WRC; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPCAR, SCI, SHV, ULX, USGX, WRC, WRC

UNITED STATES GYPSUM CO - Types IP-X3 or ULTRACODE

USG BORAL ZAWAWI DRYWALL L L C SFZ - Type ULTRACODE

USG MEXICO S A DE C V - Type IP-X3 or ULTRACODE

System D - 2 Hr
 Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally in three layers. Inner or base layer attached to studs with 1 in. long Type 5 steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Horizontal joints need not be backed by steel framing. Outer or face layer attached to studs with 1-1/4 in. long Type 5 steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Horizontal joints need not be backed by steel framing. Requires face layer of 1/2 or 5/8 in. thick cementitious backer units per Item 7 and min 1-1/2 in. thick mineral wool bats per Item 8.

CCC INC - Types C, IP-X2, IPCAR, WRC

UNITED STATES GYPSUM CO - Types C, IP-X2, IPCAR, WRC

USG BORAL ZAWAWI DRYWALL L L C SFZ - Type C

USG MEXICO S A DE C V - Types C, IP-X2, IPCAR, WRC

System H - 3 Hr
 Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally in two layers. Inner or base layer attached to studs with 1 in. long Type 5 steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Horizontal joints need not be backed by steel framing. Outer or face layer attached to studs with 1-1/4 in. long Type 5 steel screws spaced 16 in. when installed vertically or 12 in. when installed horizontally. Horizontal joints need not be backed by steel framing. Requires face layer of 1/2 or 5/8 in. thick cementitious backer units per Item 7 and min 1-1/2 in. thick mineral wool bats per Item 8.

CCC INC - Types C, IP-X2, IPCAR, WRC

UNITED STATES GYPSUM CO - Types C, IP-X2, IPCAR, WRC

USG BORAL ZAWAWI DRYWALL L L C SFZ - Type C

USG MEXICO S A DE C V - Types C, IP-X2, IPCAR, WRC

System I - 4 Hr
 Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 4 ft wide (or 1200 mm for metric spacing) wallboard with square or tapered edges. Total of four layers to be used. First and second (inner) layers applied vertically or horizontally over the steel studs. Horizontal joints need not be backed by steel framing. When applied vertically, joints centered over studs and staggered min 24 in. between all joints staggered min 12 in. First layer secured to studs with 1-1/4 in. long Type 5 self-drilling, self-tapping bugle-head steel screws spaced 24 in. OC. Second layer secured to studs with 2-1/4 in. long Type 5 self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC. Third layer applied vertically over the furring channels (Item 2B) with a 1/4 in. long Type 5 self-drilling, self-tapping bugle-head steel screws spaced 24 in. OC. Fourth layer applied vertically or horizontally with 2-1/4 in. long Type 5 self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC. When applied vertically, joints to be staggered min 24 in. from third layer, otherwise all joints staggered min 12 in.

CCC INC - Types IP-X3 or ULTRACODE

UNITED STATES GYPSUM CO - Types IP-X3 or ULTRACODE

USG BORAL ZAWAWI DRYWALL L L C SFZ - Type ULTRACODE

USG MEXICO S A DE C V - Type IP-X3 or ULTRACODE

UNITED STATES GYPSUM CO - Types IP-X3 or ULTRACODE

USG BORAL ZAWAWI DRYWALL L L C SFZ - Type ULTRACODE

USG MEXICO S A DE C V - Type IP-X3 or ULTRACODE

System G - 3 Hr
 Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally in three layers. Inner or base layer attached to studs with 1 in. long Type 5 steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Horizontal joints need not be backed by steel framing. Outer or face layer attached to studs with 1-1/4 in. long Type 5 steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Horizontal joints need not be backed by steel framing. Requires face layer of 1/2 or 5/8 in. thick cementitious backer units per Item 7 and min 1-1/2 in. thick mineral wool bats per Item 8.

CCC INC - Types C, IP-X2, IPCAR, WRC

UNITED STATES GYPSUM CO - Types C, IP-X2, IPCAR, WRC

USG BORAL ZAWAWI DRYWALL L L C SFZ - Type C

USG MEXICO S A DE C V - Types C, IP-X2, IPCAR, WRC

System H - 3 Hr
 Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally in two layers. Inner or base layer attached to studs with 1 in. long Type 5 steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Horizontal joints need not be backed by steel framing. Outer or face layer attached to studs with 1-1/4 in. long Type 5 steel screws spaced 16 in. when installed vertically or 12 in. when installed horizontally. Horizontal joints need not be backed by steel framing. Requires face layer of 1/2 or 5/8 in. thick cementitious backer units per Item 7 and min 1-1/2 in. thick mineral wool bats per Item 8.

CCC INC - Types C, IP-X2, IPCAR, WRC

UNITED STATES GYPSUM CO - Types C, IP-X2, IPCAR, WRC

USG BORAL ZAWAWI DRYWALL L L C SFZ - Type C

USG MEXICO S A DE C V - Types C, IP-X2, IPCAR, WRC

System I - 4 Hr
 Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 4 ft wide (or 1200 mm for metric spacing) wallboard with square or tapered edges. Total of four layers to be used. First and second (inner) layers applied vertically or horizontally over the steel studs. Horizontal joints need not be backed by steel framing. When applied vertically, joints centered over studs and staggered min 24 in. between all joints staggered min 12 in. First layer secured to studs with 1-1/4 in. long Type 5 self-drilling, self-tapping bugle-head steel screws spaced 24 in. OC. Second layer secured to studs with 2-1/4 in. long Type 5 self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC. Third layer applied vertically over the furring channels (Item 2B) with a 1/4 in. long Type 5 self-drilling, self-tapping bugle-head steel screws spaced 24 in. OC. Fourth layer applied vertically or horizontally with 2-1/4 in. long Type 5 self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC. When applied vertically, joints to be staggered min 24 in. from third layer, otherwise all joints staggered min 12 in.

CCC INC - Types IP-X3 or ULTRACODE

UNITED STATES GYPSUM CO - Types IP-X3 or ULTRACODE

USG BORAL ZAWAWI DRYWALL L L C SFZ - Type ULTRACODE

USG MEXICO S A DE C V - Type IP-X3 or ULTRACODE

UNITED STATES GYPSUM CO - Types IP-X3 or ULTRACODE

USG BORAL ZAWAWI DRYWALL L L C SFZ - Type ULTRACODE

USG MEXICO S A DE C V - Type IP-X3 or ULTRACODE

System G - 3 Hr
 Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally in three layers. Inner or base layer attached to studs with 1 in. long Type 5 steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Horizontal joints need not be backed by steel framing. Outer or face layer attached to studs with 1-1/4 in. long Type 5 steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Horizontal joints need not be backed by steel framing. Requires face layer of 1/2 or 5/8 in. thick cementitious backer units per Item 7 and min 1-1/2 in. thick mineral wool bats per Item 8.

CCC INC - Types C, IP-X2, IPCAR, WRC

UNITED STATES GYPSUM CO - Types C, IP-X2, IPCAR, WRC

USG BORAL ZAWAWI DRYWALL L L C SFZ - Type C

USG MEXICO S A DE C V - Types C, IP-X2, IPCAR, WRC

System H - 3 Hr
 Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally in two layers. Inner or base layer attached to studs with 1 in. long Type 5 steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Horizontal joints need not be backed by steel framing. Outer or face layer attached to studs with 1-1/4 in. long Type 5 steel screws spaced 16 in. when installed vertically or 12 in. when installed horizontally. Horizontal joints need not be backed by steel framing. Requires face layer of 1/2 or 5/8 in. thick cementitious backer units per Item 7 and min 1-1/2 in. thick mineral wool bats per Item 8.

CCC INC - Types C, IP-X2, IPCAR, WRC

UNITED STATES GYPSUM CO - Types C, IP-X2, IPCAR, WRC

USG BORAL ZAWAWI DRYWALL L L C SFZ - Type C

USG MEXICO S A DE C V - Types C, IP-X2, IPCAR, WRC

System I - 4 Hr
 Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 4 ft wide (or 1200 mm for metric spacing) wallboard with square or tapered edges. Total of four layers to be used. First and second (inner) layers applied vertically or horizontally over the steel studs. Horizontal joints need not be backed by steel framing. When applied vertically, joints centered over studs and staggered min 24 in. between all joints staggered min 12 in. First layer secured to studs with 1-1/4 in. long Type 5 self-drilling, self-tapping bugle-head steel screws spaced 24 in. OC. Second layer secured to studs with 2-1/4 in. long Type 5 self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC. Third layer applied vertically over the furring channels (Item 2B) with a 1/4 in. long Type 5 self-drilling, self-tapping bugle-head steel screws spaced 24 in. OC. Fourth layer applied vertically or horizontally with 2-1/4 in. long Type 5 self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC. When applied vertically, joints to be staggered min 24 in. from third layer, otherwise all joints staggered min 12 in.

CCC INC - Types IP-X3 or ULTRACODE

UNITED STATES GYPSUM CO - Types IP-X3 or ULTRACODE

USG BORAL ZAWAWI DRYWALL L L C SFZ - Type ULTRACODE

USG MEXICO S A DE C V - Type IP-X3 or ULTRACODE

UNITED STATES GYPSUM CO - Types IP-X3 or ULTRACODE

USG BORAL ZAWAWI DRYWALL L L C SFZ - Type ULTRACODE

USG MEXICO S A DE C V - Type IP-X3 or ULTRACODE

System G - 3 Hr
 Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally in three layers. Inner or base layer attached to studs with 1 in. long Type 5 steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Horizontal joints need not be backed by steel framing. Outer or face layer attached to studs with 1-1/4 in. long Type 5 steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Horizontal joints need not be backed by steel framing. Requires face layer of 1/2 or 5/8 in. thick cementitious backer units per Item 7 and min 1-1/2 in. thick mineral wool bats per Item 8.

CCC INC - Types AR, C, IP-AR, IP-X1, IP-X2, IPCAR, SCI, SHV, ULX, USGX, WRC, WRC

UNITED STATES GYPSUM CO - Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPCAR, SCI, SHV, ULX, ULX, USGX, WRC, WRC

USG BORAL ZAWAWI DRYWALL L L C SFZ - Types C, SCX

USG MEXICO S A DE C V - Types AR, C, IP-AR, IP-X1, IP-X2, IPCAR, SCI, SHV, ULX, USGX, WRC, WRC

System H - 3 Hr
 Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 48 in. or 1200 mm wide, applied vertically or horizontally in two layers. Inner or base layer attached to studs with 1 in. long Type 5 steel screws spaced 24 in. OC when installed vertically or 16 in. OC when installed horizontally. Horizontal joints need not be backed by steel framing. Outer or face layer attached to studs with 1-1/4 in. long Type 5 steel screws spaced 16 in. when installed vertically or 12 in. when installed horizontally. Horizontal joints need not be backed by steel framing. Requires face layer of 1/2 or 5/8 in. thick cementitious backer units per Item 7 and min 1-1/2 in. thick mineral wool bats per Item 8.

CCC INC - Types AR, C, IP-AR, IP-X1, IP-X2, IPCAR, SCI, SHV, ULX, USGX, WRC, WRC

UNITED STATES GYPSUM CO - Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPCAR, SCI, SHV, ULX, ULX, USGX, WRC, WRC

USG BORAL ZAWAWI DRYWALL L L C SFZ - 1/2 in. Type C; 5/8 in. Types C, SCX

USG MEXICO S A DE C V - 1/2 in. Types C, IP-X2, IPCAR or WRC; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPCAR, SCI, SHV, ULX, USGX, WRC, WRC

System I - 4 Hr
 Gypsum panels, with beveled, square or tapered edges, nom 5/8 in. thick, 4 ft wide (or 1200 mm for metric spacing) wallboard with square or tapered edges. Total of four layers to be used. First and second (inner) layers applied vertically or horizontally over the steel studs. Horizontal joints need not be backed by steel framing. When applied vertically, joints centered over studs and staggered min 24 in. between all joints staggered min 12 in. First layer secured to studs with 1-1/4 in. long Type 5 self-drilling, self-tapping bugle-head steel screws spaced 24 in. OC. Second layer secured to studs with 2-1/4 in. long Type 5 self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC. Third layer applied vertically over the furring channels (Item 2B) with a 1/4 in. long Type 5 self-drilling, self-tapping bugle-head steel screws spaced 24 in. OC. Fourth layer applied vertically or horizontally with 2-1/4 in. long Type 5 self-drilling, self-tapping bugle-head steel screws spaced 12 in. OC. When applied vertically, joints to be staggered min 24 in. from third layer, otherwise all joints staggered min 12 in.

CCC INC - Types IP-X2, IPCAR or WRC; 5/8 in. Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPCAR, SCI, SHV, ULX, USGX, WRC, WRC

UNITED STATES GYPSUM CO - 1/2 in. Type C, IP-X2, IPCAR or WRC; 5/8 in. Types AR, C, FRX-G, IP-AR, IP-X1, IP-X2, IPCAR, SCI, SHV, ULX, ULX, USGX, WRC, WRC

USG BORAL ZAWAWI DRYWALL L L C SFZ - 1/2 in. Type C; 5/8 in. Types C, SCX

USG MEXICO S A DE C V - 1/2 in. Types C, IP-X2, IPCAR or WRC; 5/8 in. Types AR, C, IP-AR, IP-X1, IP-X2, IPCAR, SCI, SHV, ULX, USGX, WRC, WRC



GENERAL NOTES

A GENERAL

- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS PRIOR TO STARTING FABRICATION. THE ENGINEER OF RECORD AND ARCHITECT SHALL BE NOTIFIED OF ANY DISCREPANCIES OR INCONSISTENCIES.
- DO NOT SCALE THE DRAWINGS.
- NOTES AND DETAILS ON THE STRUCTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER THESE GENERAL NOTES AND THE TYPICAL DETAILS. ANY CONFLICT SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER OF RECORD.
- ALL WORK SHALL CONFORM TO THE MINIMUM STANDARDS OF THE FOLLOWING CODES:
THE 2012 EDITION OF THE INTERNATIONAL BUILDING CODE, AND OTHER REGULATING AGENCIES WHICH HAVE AUTHORITY OVER ANY PORTION OF THE WORK, AND THOSE CODES AND STANDARDS LISTED IN THESE NOTES AND IN THE PROJECT SPECIFICATIONS.
- SEE THE ARCHITECTURAL DRAWINGS FOR THE FOLLOWING:
A. SIZES AND LOCATIONS OF INTERIOR NON-BEARING PARTITIONS.
B. DIMENSIONS NOT SHOWN ON THE STRUCTURAL DRAWINGS.
- THE CONTRACT STRUCTURAL DRAWINGS AND SPECIFICATIONS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS AND METHODS OF CONSTRUCTION.
- THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY TO PROTECT THE STRUCTURE DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING AND SHORING FOR LOADS DUE TO HYDROSTATIC, EARTH, WIND OR SEISMIC FORCES, CONSTRUCTION EQUIPMENT, ETC. OBSERVATION VISITS TO THE SITE BY THE STRUCTURAL ENGINEER SHALL NOT INCLUDE INSPECTION OF THE ABOVE ITEMS.
- NOTIFY THE STRUCTURAL ENGINEER WHEN DRAWINGS BY OTHERS INDICATE OPENINGS, POCKETS, ETC., NOT SHOWN ON THE STRUCTURAL DRAWINGS, BUT WHICH ARE LOCATED IN THE STRUCTURAL MEMBERS.
- SHOP DRAWINGS SUBMITTED TO THE STRUCTURAL ENGINEER FOR REVIEW SHALL CONSIST OF 2 BOND SETS.
- DESIGN LOADS:
ROOF DEAD LOAD = 20 PSF (EXISTING)
ROOF LIVE LOAD = 20 PSF (EXISTING)
- WIND LOAD CRITERIA:
WIND LOAD = 5 PSF (INTERIOR PRESSURE)
- BASE BUILDING STRUCTURE IS ASSUMED TO BE STRUCTURALLY SUFFICIENT TO SUPPORT THE IMPOSED CEILING LOADS AS THE CEILING IS REPLACING AN EXISTING CEILING OF EQUAL OR GREATER WEIGHT.

B STRUCTURAL STEEL

- STRUCTURAL STEEL SHALL BE DESIGNED, DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE AISC 'SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS' AND 'CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES' (LATEST EDITION AND SUPPLEMENTS).
- STRUCTURAL STEEL SHALL CONFORM TO THE ASTM DESIGNATION A992 GRADE 50, EXCEPT ANGLES, CHANNELS, PLATES AND BARS WHICH SHALL CONFORM TO ASTM A36, UNLESS NOTED OTHERWISE.
- PIPE SHALL CONFORM TO ASTM DESIGNATION A53 GRADE 'B'. ALL HOLLOW STRUCTURAL SECTIONS (HSS) SHALL CONFORM TO ASTM A500 GRADE 'B' COLD FORMED WITH FY = 46 KSI FOR RECTANGULAR SHAPES AND FY = 42 KSI FOR ROUND SHAPES.
- BOLTS SHALL CONFORM TO ASTM A325N, EXCEPT ANCHOR BOLTS WHICH SHALL CONFORM TO ASTM F1554 GRADE 36, UNLESS NOTED OTHERWISE.
- THE STRUCTURAL STEEL FABRICATOR AND STEEL DECK FABRICATOR SHALL FURNISH SHOP DRAWINGS OF ALL STRUCTURAL STEEL AND STEEL DECK, RESPECTIVELY, FOR REVIEW AND APPROVAL BY THE STRUCTURAL ENGINEER AND ARCHITECT PRIOR TO FABRICATION.
- BOLT HOLES IN STEEL SHALL BE 1/16 INCH LARGER THAN NOMINAL SIZE OF BOLT USED, EXCEPT ANCHOR BOLT HOLES.
- STRUCTURAL STEEL SURFACES THAT ARE NOT EXPOSED TO WEATHER SHALL BE LEFT UNPAINTED. SEE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS FOR ANY ADDITIONAL REQUIREMENTS.
- CHARPY V-NOTCH TESTING IS REQUIRED FOR ALL ASTM A6 GROUP 4 AND 5 ROLLED SHAPES AND CONNECTION PLATES AS SPECIFIED IN SECTION A3.1.C OF THE AISC MANUAL.
- WELDED JOINTS SHALL CONFORM TO THE PREQUALIFIED JOINT DETAILS AS INDICATED IN THE STRUCTURAL WELDING CODE (AWS D1.1) BY THE AMERICAN WELDING SOCIETY. WELDS SHALL BE MADE USING A FILLER METAL HAVING 70 KSI MINIMUM TENSILE STRENGTH. FILLER METAL SHALL HAVE A MINIMUM CHARPY V-NOTCH TOUGHNESS OF 20 FT-LBS. AT 0 DEGREES FAHRENHEIT, UNLESS NOTED OTHERWISE. SAWN OR FLOW PROCESSES ARE ACCEPTABLE PROVIDED ALL POWER, CURRENT, AND FEED RATES ARE SET IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- WELD LENGTHS CALLED FOR ON PLANS ARE THE NET EFFECTIVE LENGTH REQUIRED. WELD SIZE SHALL BE AISC MINIMUM UNLESS A LARGER SIZE IS NOTED.
- WELDING TESTS AND INSPECTIONS, SEE THE SPECIAL INSPECTION SECTION OF THE GENERAL NOTES AND PROJECT SPECIFICATIONS.
- EXCEPT AS SUBSEQUENTLY NOTED, HIGH STRENGTH BOLTS NEED NOT BE TIGHTENED BEYOND THE SNUG-TIGHT CONDITION, AS DEFINED IN SECTION 8.1 OF THE 'SPECIFICATIONS FOR STRUCTURAL JOINTS USING HIGH STRENGTH BOLTS'. FOR CONNECTIONS SUBJECT TO DIRECT TENSION, CONNECTIONS FOR BRACED FRAMES, AND OTHER CONNECTIONS INDICATED OR NOTED ON THE PLANS AS SC (SLIP CRITICAL) OR FULLY TENSIONED, BOLTS SHALL BE TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SECTION 8(b) AND TO THE MINIMUM TENSION SPECIFIED IN SECTION 8.2, TABLE 8.1.
- THE APPLICATION OF THE FIREPROOFING TO THE STEEL MEMBERS AND STEEL DECK IS THE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR MUST ENFORCE THE REQUIREMENTS OF THE MANUFACTURER AND NOT IMPOSE ANY ADDITIONAL LOADS, INCLUDING CONSTRUCTION LIVE LOADS, DURING THE APPLICATION AND CURING OF THE FIREPROOFING.

C COLD-FORMED STEEL STRUCTURAL MEMBERS

- STEEL STRUCTURAL MEMBERS SHALL BE OF THE SIZE AND GAUGE INDICATED ON THE STRUCTURAL DRAWINGS. ALL STUDS JOISTS AND TRACKS CONFORMING TO THE STEEL STUD MANUFACTURERS ASSOCIATION (SSMA) SPECIFICATIONS SHALL BE MARKED "CERTIFIED" UNDER THE SSMA CODE COMPLIANCE CERTIFICATION PROGRAM. 25 GAUGE THROUGH 18 GAUGE MEMBERS SHALL BE FORMED FROM STEEL HAVING A MINIMUM 33,000 PSI YIELD STRENGTH AND 18 GAUGE THROUGH 12 GAUGE MEMBERS SHALL BE FORMED FROM STEEL HAVING A MINIMUM 50,000 PSI YIELD STRENGTH. STEEL STRUCTURAL MEMBERS SHALL BE COLD-FORMED TO SHAPE FROM SHEET STEEL COMPLYING WITH THE REQUIREMENTS OF ASTM A1003, TYPE H.
- WELDING OF STEEL STRUCTURAL MEMBER CONNECTIONS SHALL BE DONE USING FILLET, PLUG, BUTT OR SEAM WELDS WITH A MINIMUM 3/32 IN. AWS TYPE 6013 WELDING RODS. ALL WORK SHALL BE COMPLETED BY WELDERS QUALIFIED IN WELDING OF SHEET STEEL IN ACCORDANCE WITH AMERICAN WELDING SOCIETY (AWS) D1.3 STANDARDS. WELD AREAS SHOULD BE RE-TOUCHED WITH THE APPROPRIATE PAINT OR COLD-GALVANIZING TO RETAIN CORROSION RESISTANCE.
- WELDED OR SCREWED SPLICES SHALL BE USED FOR ALL CONTINUOUS TRACKS. WIRE TYING OF STUD FRAMING COMPONENTS SHALL NOT BE PERMITTED.
- WEB PUNCH-OUTS SHOULD BE COORDINATED WITH BRACING AND UTILITY REQUIREMENTS. WEB PUNCH-OUTS OR WEB OPENINGS SHALL BE LOCATED A MINIMUM OF 6" OR MEMBER DEPTH (THE GREATER) FROM STUD OR JOIST BEARING POINTS.
- STEEL STRUCTURAL STUD TRACK OF THE SAME GAUGE AS THE STUDS SHALL BE USED AT THE TOP AND BOTTOM OF ALL STUD WALLS. STUDS SHALL SIT FLAT AGAINST THE WEB OF THE STUD TRACK AND BE ATTACHED WITH 1-#8 X 5/8" SCREW EACH SIDE OF EACH STUD.
- SCREWS SHALL BE SELF-DRILLING AND OF TYPE S-12, ASTM C1513 AND C954, EXCEPT THAT TYPE S, ASTM C1002, MAY BE USED FOR 20 GAUGE OR 22 GAUGE MATERIAL ONLY. SCREWS SHALL BE 3/8" TO 1/2" LONGER THAN TOTAL MATERIAL THICKNESS.
- SHEATHING MATERIALS FOR SHEAR WALLS MUST EXTEND AND BE CONNECTED TO THE TOP AND BOTTOM TRACKS.
- ALL 20 GA. FRAMING SHALL BE 33 MIL.

D CONCRETE

- CONCRETE: CONFORM TO THE MINIMUM REQUIREMENTS OF ACI 318 AND ACI 301, LATEST EDITIONS.
- MINIMUM CONCRETE COMPRESSIVE STRENGTH SHALL BE 4500 PSI AT 28 DAYS.
- PORTLAND CEMENT SHALL CONFORM TO ASTM C150, TYPE V IN CONTACT WITH SOIL AND TYPE II ELSEWHERE. CONCRETE EXPOSED TO SOILS CONTAINING SULFATES SHALL COMPLY WITH IBC SECTION 1904.3.
- CONCRETE MIXES MAY CONTAIN FLY ASH. THE FLY ASH SHALL CONFORM TO ASTM C618 CLASS F AND THE LOSS OF IGNITION SHALL BE LIMITED TO 2%. THE ADDITION RATE SHALL NOT EXCEED 15% OF THE CEMENT WEIGHT. THE CONTRACTOR SHALL SUBMIT ALL CERTIFICATES SHOWING THE FLY ASH CONFORMS TO THE ABOVE CRITERIA.
- AGGREGATE FOR HARD ROCK CONCRETE SHALL CONFORM TO ALL REQUIREMENTS AND TESTS OF ASTM C33 AND PROJECT SPECIFICATIONS. EXCEPTIONS MAY BE USED ONLY WITH PERMISSION OF THE STRUCTURAL ENGINEER.
- AGGREGATE FOR LIGHTWEIGHT CONCRETE SHALL CONFORM TO ASTM C330 AND PROJECT SPECIFICATIONS. LIGHTWEIGHT CONCRETE MIX DESIGN SHALL BE TESTED, PRIOR TO APPROVAL, FOR SHRINKAGE IN ACCORDANCE WITH ASTM C157. SHRINKAGE SHALL NOT EXCEED 0.0005 INCHES/INCH.
- DRY PACK OR GROUT UNDER BASEPLATES, SILL PLATES, ETC., SHALL BE 7000 PSI MIN.
- CONCRETE MIXING OPERATIONS, ETC., SHALL CONFORM TO ASTM C94.
- PLACEMENT OF CONCRETE SHALL CONFORM TO ACI STANDARD 304 AND PROJECT SPECIFICATIONS. SANDBLAST ALL CONCRETE SURFACES AGAINST WHICH CONCRETE IS TO BE PLACED
- WHEN SUPERPLASTICIZED FLOWING CONCRETE IS USED, THE SLUMP BEFORE THE ADDITION OF THE SUPERPLASTICIZING ADMIXTURES SHALL BE AS SPECIFIED, OR LOWER, AND AFTER THE ADDITION OF THE SUPERPLASTICIZING ADMIXTURE SHALL REMAIN BELOW THE POINT AT WHICH SEGREGATION WILL OCCUR.
- WHERE WALLS ARE INTEGRAL WITH COLUMNS, CAST WALLS AND COLUMNS WITH CONCRETE OF THE HIGHER SPECIFIED STRENGTH.
- ALL REINFORCING STEEL SHALL BE DETAILED AND PLACED IN CONFORMANCE WITH THE 'BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE' (ACI 318) AND THE 'MANUAL OF STANDARD PRACTICE FOR REINFORCED CONCRETE CONSTRUCTION' BY CRSI AND WCRSI, AS MODIFIED BY THE PROJECT DRAWINGS AND SPECIFICATIONS.
- DEFORMED REINFORCING BARS SHALL CONFORM TO THE REQUIREMENTS OF ASTM A615 GRADE 60, EXCEPT TIES, STIRRUPS AND STRUCTURAL BARS IN NON-STRUCTURAL CONCRETE SUCH AS SLABS ON GRADE, WHICH MAY BE GRADE 40, UNLESS NOTED OTHERWISE.
- WELDING OF REINFORCING SHALL NOT BE PERMITTED WITHOUT EXPRESS APPROVAL OF THE STRUCTURAL ENGINEER.
- ALL REINFORCING BAR BENDS SHALL BE MADE COLD.
- WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 AND A497.
- MINIMUM LAP OF WELDED WIRE FABRIC SHALL BE 6 INCHES OR ONE AND ONE HALF FULL MESH, WHICHEVER IS GREATER.
- ALL BARS SHALL BE MARKED SO THEIR IDENTIFICATION CAN BE MADE WHEN THE FINAL IN-PLACE INSPECTION OCCURS.
- POST INSTALLED ANCHORS SHALL BE SIMPSON STRONG-BOLT OR HILTI KWIK BOLT TZ.

E MASONRY

- IT SHALL BE THE RESPONSIBILITY OF THE MASONRY CONTRACTOR TO UTILIZE COMPONENTS (MASONRY UNITS, MORTAR AND GROUT) NECESSARY TO ACHIEVE THE SPECIFIED F'm (1500 PSI UNO) AS INDICATED IN THE DRAWINGS. IN NO CASE SHALL ANY OF THE COMPONENTS HAVE A COMPRESSIVE STRENGTH LESS THAN THE SPECIFIED F'm NOR SHALL THE GROUT HAVE A COMPRESSIVE STRENGTH LESS THAN 2000 PSI. STRENGTHS OF COMPONENTS MAY BE DETERMINED ACCORDING TO IBC SECTION 2105.2.2.1.2 AND 2105.2.2.2 AND BE IN COMPLIANCE WITH SECTION 1708.1 FOR MASONRY STRENGTH VERIFICATION.
 - MASONRY SUBMITTAL SHALL INCLUDE A LETTER FROM THE MASON STATING:
A. THE F'm TO BE ACHIEVED.
B. THE TYPE AND STRENGTH OF THE BLOCK TO BE USED.
C. THE TYPE AND STRENGTH OF THE MORTAR, WITH ANY ADMIXTURES TO BE USED.
D. THE TYPE AND STRENGTH OF THE GROUT, WITH ANY ADMIXTURES TO BE USED.
E. THE METHOD BEING RELIED UPON TO ACHIEVE THE F'm.
F. SPECIFIED STRENGTH OF COMPONENTS OR PRISM TESTING.
- THE FOLLOWING SHALL BE ATTACHED TO THE MASON'S LETTER:
A. CERTIFICATES FROM THE BLOCK MANUFACTURER STATING STRENGTH AND CEMENT TYPE USED.
B. MIX DESIGNS FOR THE MORTAR OR PRODUCT INFORMATION FOR PREMIXED MORTAR.
C. MIX DESIGNS FOR THE GROUT.
D. PRODUCT DATA SHEETS FOR ALL ADMIXTURES TO BE USED.
- ALL MIX DESIGNS SHALL BE PREPARED BY A QUALIFIED ENGINEER LICENSED IN THE STATE IN WHICH THE PROJECT IS LOCATED AND BEAR HIS WET SEAL AND SIGNATURE. THE DESIGNS FOR EACH TYPE OF MASONRY STRENGTH SPECIFIED SHALL STATE THE PROJECT NAME AND LOCATION OF USAGE.
 - CEMENT SHALL BE AS SPECIFIED FOR CONCRETE.
 - GROUT SHALL NOT CONTAIN FLY ASH FOR F'm GREATER THAN 2500 PSI.
 - REINFORCING BARS - SEE NOTES UNDER 'REINFORCING STEEL' FOR REQUIREMENTS. BARS SHALL BE ASTM A615 GRADE 60, UNLESS NOTED OTHERWISE.
 - PROVIDE A MINIMUM OF 1/2 INCH GROUT BETWEEN MAIN REINFORCING AND MASONRY UNITS.
 - FOR GROUT LIFT CONSTRUCTION, REFER TO ACI 530.1, PART 3, SECTION 3.5D.
 - ALL CELLS IN CONCRETE BLOCKS SHALL BE FILLED SOLID WITH GROUT, UNLESS NOTED OTHERWISE IN THE DRAWINGS.
 - MECHANICALLY VIBRATE GROUT IN VERTICAL CELLS IMMEDIATELY AFTER POURING AND AGAIN ABOUT 5 MINUTES LATER.
 - CELLS SHALL BE IN VERTICAL ALIGNMENT. DOWELS IN FOOTINGS SHALL BE SET TO ALIGN WITH CORES CONTAINING REINFORCING STEEL.
 - REFER TO ARCHITECTURAL DRAWINGS FOR SURFACE AND HEIGHT OF UNITS, LAYING PATTERN AND JOINT TYPE.
 - MECHANICAL PIPES AND ELECTRICAL CONDUITS WHICH PASS THROUGH MASONRY WALLS DO NOT REQUIRE SLEEVES, UNLESS OTHERWISE INDICATED IN THE PROJECT SPECIFICATIONS, MECHANICAL OR ELECTRICAL DRAWINGS. IF SLEEVES ARE REQUIRED, INSTALL SLEEVES BEFORE GROUTING. DO NOT CUT ANY REINFORCING WHICH MAY INTERFERE WITH SLEEVE PLACEMENT. CORING OPENINGS IN GROUTED MASONRY SHALL NOT BE PERMITTED. NOTIFY THE STRUCTURAL ENGINEER IN ADVANCE OF CONDITIONS NOT INDICATED ON THE STRUCTURAL DRAWINGS. NO PIPES OR ELECTRICAL CONDUIT SHALL PASS THROUGH MASONRY UNITS UNLESS SPECIFICALLY DETAILED.
 - THE CONTRACTOR SHALL PROVIDE CONSOLIDATED SHOP DRAWINGS OF ALL PENETRATIONS THROUGH MASONRY WALLS PRIOR TO PLACEMENT FOR ENGINEER OF RECORD REVIEW AND COMMENT.

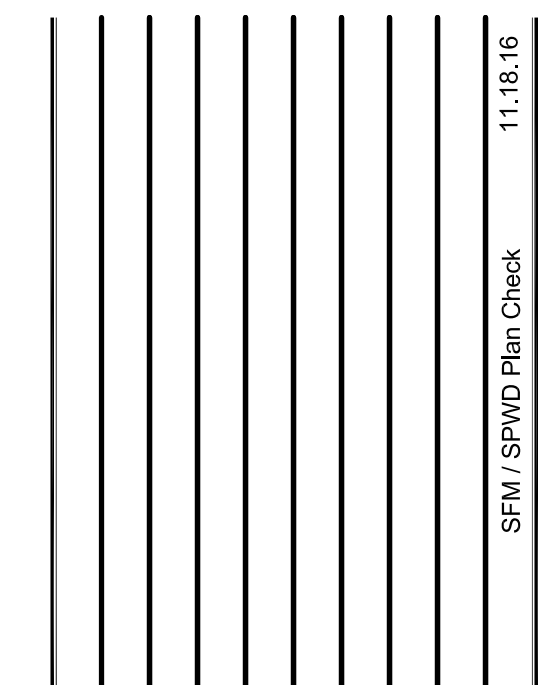
F SPECIAL INSPECTION

- SPECIAL INSPECTION SHALL BE REQUIRED FOR THE FOLLOWING TYPES OF WORK AND SHALL BE IN COMPLIANCE WITH THE IBC:
A. CONCRETE WORK WITH STRENGTHS GREATER THAN 2500 PSI, EXCEPT FOR NONSTRUCTURAL CONCRETE SUCH AS SLAB ON GRADE.
B. FIELD WELDING (EXCEPT FURRING CHANNELS, ETC.).
C. SHOP WELDING PROCEDURES AND MULTIPLE PASS WELDS.
D. HIGH STRENGTH BOLTING.
- THE OWNER SHALL RETAIN THE SERVICES OF AN APPROVED SPECIAL INSPECTION AGENCY OR FIRM TO COMPLETE THE SPECIAL INSPECTIONS AS REQUIRED ABOVE. THE AGENCY OR FIRM SHALL PROVIDE QUALITY ASSURANCE AND TESTING PROGRAMS AS REQUIRED BY THE IBC.
- THE TYPE AND FREQUENCY OF TESTING SHALL BE AS INDICATED IN THE IBC.
- THE TYPE AND FREQUENCY OF INSPECTIONS SHALL BE AS INDICATED IN THE IBC.
- THE REPORTS OF TESTING AND SPECIAL INSPECTION SHALL BE IN A WRITTEN FORMAT DELIVERED TO THE STRUCTURAL ENGINEER OF RECORD, ARCHITECT OF RECORD AND LOCAL BUILDING OFFICIAL WITHIN 5 BUSINESS DAYS OF COMPLETION OF THE REPORT OR TESTING RESULTS.

UNLV FAB Shell Upgrade
Construction Documents
1325 East Flamingo Road
Las Vegas, Nevada, 89119

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

KES
KOROT ENGINEERING GROUP
639 South 4th Street
Las Vegas, NV 89101
Tel: 702-483-8666
Fax: 702-522-9868
© 2012. All rights reserved. This document is the property of KES. It is to be used only for the project and location specified. Without the prior written permission of KES Engineering Group.



TITLE
GENERAL NOTES

DRAWING NO.

S101

16-501 UNLV FAB Shell Upgrade

SEM / SPWD Plan Check 11.18.16

MECHANICAL SPECIFICATIONS

COMPLY WITH THE INTERNATIONAL BUILDING CODE, THE UNIFORM MECHANICAL AND PLUMBING CODES, THE INTERNATIONAL ENERGY CONSERVATION CODE AND ANY AMENDMENTS ADOPTED BY THE NEVADA STATE FIRE MARSHAL. COMPLY WITH THE LOCAL AIR QUALITY REGULATIONS AND THE STATE DIVISION OF INDUSTRIAL RELATIONS REQUIREMENTS FOR BOILERS, ELEVATORS AND PRESSURE VESSELS. CONTRACTOR SHALL PAY FOR ALL PERMITS AND FEES AND SHALL OBTAIN ALL NECESSARY PERMITS, INSPECTIONS AND APPROVALS.

CONFORM WITH ASCE 7 FOR SEISMIC BRACING FOR MECHANICAL SYSTEMS. PROVIDE SEISMIC ATTACHMENTS AND RESTRAINTS FOR DUCTWORK, PIPING, AND EQUIPMENT. REFER TO THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR SEISMIC FACTORS AND ADDITIONAL REQUIREMENTS. SEISMIC ATTACHMENTS, RESTRAINTS AND SUPPORTS SHALL BE AS MANUFACTURED BY MASON INDUSTRIES OR AN APPROVED EQUAL. PROVIDE SHOP DRAWINGS AS A DEFERRED SUBMITTAL, SIGNED BY A CALIFORNIA LICENSED STRUCTURAL ENGINEER. SUBMIT SHOP DRAWINGS AND OBTAIN ARCHITECTS APPROVAL FOR SEISMIC ATTACHMENTS, RESTRAINTS AND SUPPORTS PRIOR TO BEGINNING WORK.

DEMOLITION WORK (WHERE REQUIRED): REVIEW THE ARCHITECTURAL DRAWINGS FOR THE SCOPE AND AREA OF DEMOLITION WORK. MECHANICAL WORK SHALL INCLUDE DEMOLITION AND REMOVAL OF EXISTING MECHANICAL DUCTWORK, PIPING AND EQUIPMENT REQUIRED. DELIVER EXISTING MATERIALS REMOVED UNDER THIS CONTRACT TO OWNERS STORAGE LOCATION. COORDINATE REQUIREMENTS WITH OWNERS REPRESENTATIVE. LEGALLY DISPOSE OF MATERIALS REFUSED BY THE OWNER. EXISTING MECHANICAL DUCTWORK, PIPING AND EQUIPMENT TO REMAIN IS SHOWN LIGHT, NEW IS SHOWN BOLD, AND EXISTING TO BE REMOVED DASHED.

SUBMITTALS:

- PRIOR TO BEGINNING WORK COORDINATE THE CHASE, SLEEVE, SLAB, ROOF AND WALL OPENINGS REQUIRED BEFORE CONCRETE IS POURED OR BLOCK IS LAID. WHERE CUTTING NEW OPENINGS THROUGH EXISTING CONSTRUCTION IS REQUIRED, PREPARE A SHOP DRAWING SHOWING NEW OPENINGS REQUIRED FOR REVIEW BY THE ARCHITECT. DO NOT CUT ANY STRUCTURAL (LOAD BEARING) MEMBERS WITHOUT OBTAINING WRITTEN PERMISSION OF THE ARCHITECT.
- PROVIDE A SUBMITTAL FOR THE EQUIPMENT AND CONTROLLER LABELS DESCRIBED BELOW.
- PROVIDE A SUBMITTAL FOR FIRE RATED PENETRATION SYSTEMS PROPOSED FOR THE PROJECT.
- PROVIDE A SUBMITTAL OF TEMPERATURE CONTROL WIRING DIAGRAMS FOR MECHANICAL EQUIPMENT AND DEVICES TO BE INSTALLED BY OTHER TRADES, INCLUDING, BUT NOT LIMITED TO, PACKAGE UNIT THERMOSTATS, DUCT SMOKE DETECTORS, EXHAUST FAN AND INTERLOCKS.
- PROVIDE SUBMITTAL OF ALL SCHEDULED EQUIPMENT AS A SINGLE PACKAGE FOR REVIEW BY THE ARCHITECT.
- PROVIDE A SUBMITTAL OF THE TEST AND BALANCE AGENCY QUALIFICATIONS.

EQUIPMENT SHALL BE SECURED AND INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS. DUCT DIMENSIONS SHOWN ARE INSIDE CLEAR DIMENSIONS. VERIFY "FIT" OF DUCTWORK, PIPING, PLUMBING AND ELECTRICAL SYSTEMS PRIOR TO FABRICATION. COORDINATE EQUIPMENT, DIFFUSER AND REGISTER LOCATIONS WITH THE ARCHITECTURAL REFLECTED CEILING PLAN, LIGHTING PLANS, AND THE FIRE SPRINKLER AND FIRE ALARM SHOP DRAWINGS. CONFORM TO THE CLEARANCES REQUIRED BY THE ELECTRICAL AND FIRE ALARM CODES AND ABIDE BY THE MANUFACTURER'S RECOMMENDATIONS. BRING ANY CONFLICTS NOT RESOLVABLE IN THE FIELD TO THE ATTENTION OF THE ARCHITECT FOR RESOLUTION PRIOR TO INSTALLATION. NOTIFY OWNER'S REPRESENTATIVE AND ARCHITECT OF ANY UTILITY SHUTDOWN REQUIRED BY THE EXECUTION OF THIS CONTRACT IN WRITING AT LEAST 48 HOURS PRIOR TO THE DESIRED UTILITY.

ELECTRICAL POWER REQUIREMENTS FOR THE MECHANICAL EQUIPMENT SHALL BE ERIFIED WITH THE ELECTRICAL DRAWINGS AND FIELD CONDITIONS PRIOR TO RELEASING THE EQUIPMENT ORDER. CONTRACTOR SHALL CONFIRM THAT VOLTAGE AND AMPERAGE REQUIRED BY PROPOSED MECHANICAL EQUIPMENT IS COMPATIBLE WITH ELECTRICAL SYSTEM DESIGNED WITH NO CHANGES TO THE ELECTRICAL SYSTEM. ADDITIONAL ELECTRICAL WORK RESULTING FROM EQUIPMENT SUBSTITUTION IS THE CONTRACTORS RESPONSIBILITY.

IN ADDITION TO THE STATUARY WARRANTY REQUIREMENTS, WORK SHALL BE GUARANTEED FOR ONE YEAR AFTER ACCEPTANCE BY THE OWNER. MATERIALS AND EQUIPMENT SHALL BE AS SPECIFIED AND/OR SCHEDULED OR AN APPROVED EQUAL. PROVIDE SUBMITTALS FOR MATERIALS AND EQUIPMENT TO THE ARCHITECT FOR APPROVAL PRIOR TO ORDER RELEASE. UPON COMPLETION OF THE WORK, PRIOR TO SUBMISSION OF THE FINAL REQUEST FOR PAYMENT, SUBMIT RECORD DRAWINGS, OPERATION AND MAINTENANCE MANUALS FOR REVIEW. DELIVER SPECIAL TOOLS TO THE OWNER'S REPRESENTATIVE AND OBTAIN A DELIVERY RECEIPT. OWNER'S MANUALS SHALL INCLUDE A COMPLETE LIST OF THE CONTRACTORS, SUBCONTRACTORS AND VENDORS AND THEIR CONTACT INFORMATION, COPIES OF THE WARRANTIES, THE MANUFACTURER'S INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS, REFER TO THE ARCHITECTURAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

UPON COMPLETION OF THE WORK, PRIOR TO SUBMISSION OF THE FINAL REQUEST FOR PAYMENT, SUBMIT RECORD DRAWINGS, OPERATION AND MAINTENANCE MANUALS FOR REVIEW. DELIVER SPECIAL TOOLS TO THE OWNER'S REPRESENTATIVE AND OBTAIN A DELIVERY RECEIPT. OWNER'S MANUALS SHALL INCLUDE A COMPLETE LIST OF THE CONTRACTORS, SUBCONTRACTORS AND VENDORS AND THEIR CONTACT INFORMATION, COPIES OF THE WARRANTIES, THE MANUFACTURER'S INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS AND A COPY OF ALL PERMITS AND INSPECTIONS. REFER TO THE ARCHITECTURAL SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

DUCTWORK SHALL BE CONSTRUCTED OF GALVANIZED STEEL PER THE 2005 SMACNA THIRD EDITION HVAC DUCT CONSTRUCTION STANDARDS, NFPA 90A AND NFPA 96. UNLESS NOTED OTHERWISE, DUCTS SHALL BE CONSTRUCTED FOR 2" WATER COLUMN STATIC PRESSURE, SEAL CLASS B. SPIRAL LOCK-FORMED ROUND DUCT WITH RADIUSED ELBOWS OR RECTANGULAR DUCTWORK WITH MITERED ELBOWS WITH TURNING VANES SHALL BE USED WHERE THE DRAWINGS INDICATE ROUND DUCTWORK. TURNING VANE RUNNERS SHALL HAVE A VANE IN EVERY SLOT PER THE SMACNA STANDARDS. THE CONTRACTOR MAY REVISE DUCT SIZES TO ALTERNATE SIZES OF EQUIVALENT CROSS SECTIONAL AREA.

INSULATION THICKNESS SHALL CONFORM TO THE IECC REQUIREMENTS AS AMENDED BY THE SOUTHERN NEVADA ENERGY CONSERVATION CODE ORDINANCE.

PLUMBING SPECIFICATIONS

COMPLY WITH INTERNATIONAL BUILDING CODE, UNIFORM PLUMBING CODE, 2012 IECC AND THE CODE AMENDMENTS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION. COMPLY WITH THE STATE OF NEVADA BOILER, ELEVATOR AND PRESSURE VESSELS REGULATIONS. COMPLY WITH THE CLARK COUNTY HEALTH DEPARTMENT AIR POLLUTION CONTROL REGULATIONS. PAY FOR AND OBTAIN ALL PERMITS, INSPECTIONS AND APPROVALS. CONFORM TO THE AMERICANS WITH DISABILITIES ACT (ADA). REFER TO THE ARCHITECTURAL DRAWINGS FOR PLUMBING FIXTURE STANDARD AND ADA MOUNTING HEIGHTS. PROVIDE FACTORY FABRICATED INSULATING BOOTS FOR TRAPS AND HOT WATER PIPING AT ADA ACCESSIBLE FIXTURES. LOCATE FLUSH VALVE OR LEVER ON RIGHT OR LEFT HAND SIDE OF FIXTURE AS REQUIRED BY ADA REQUIREMENTS. VERIFY ACCESSIBLE FIXTURE LOCATIONS WITH THE ARCHITECT.

MATERIALS AND EQUIPMENT SHALL BE NEW, AS SPECIFIED, SCHEDULED AND/OR OTHERWISE INDICATED ON THE DRAWINGS OR AN APPROVED EQUAL. PROVIDE SUBMITTALS FOR MATERIALS AND EQUIPMENT IN ACCORDANCE WITH THE ARCHITECTURAL REQUIREMENTS. OBTAIN APPROVAL FOR MATERIAL USED ON PROJECT PRIOR TO ORDER RELEASE. SUBMIT SHOP DRAWINGS FOR PROPOSED ATTACHMENTS AND SEISMIC RESTRAINTS PRIOR TO BEGINNING WORK. DO NOT PENETRATE STRUCTURAL BEAMS, FLOORS OR WALLS UNLESS WRITTEN APPROVAL IS FIRST OBTAINED FROM THE ARCHITECT.

COORDINATE THE PLUMBING WORK WITH THE OTHER TRADES. ROUTE PLUMBING PIPING AROUND ELECTRICAL PANELS, EQUIPMENT AND ELECTRICAL SPACES IN ACCORDANCE WITH THE ELECTRICAL CODE REQUIREMENTS. COORDINATE PIPING MAIN LOCATIONS WITH THE STRUCTURAL, CEILING, MECHANICAL, FIRE SPRINKLER, ELECTRICAL AND OTHER TRADES. PREPARE SHOP DRAWINGS SHOWING PIPE ROUTING FOR CONGESTED SPACES, PENETRATIONS THROUGH FLOOR SLABS, AND FIRE RATED PARTITIONS AND FLOORS. COORDINATE ACCESS DOOR REQUIREMENTS WITH THE ARCHITECTURAL AND INTERIOR SPECS, REFLECTED CEILING PLANS AND ELEVATIONS. PREPARE A SHOP DRAWING SHOWING THE ACCESS DOOR LOCATIONS REQUIRED, AND SUBMIT FOR APPROVAL. CONFORM REQUIREMENTS FOR TRENCHING AND BACKFILL, CONCRETE CUTTING, CORE DRILLING, AND FIRE STOPPING WITH THE ARCHITECTURAL AND STRUCTURAL DRAWINGS AND SPECIFICATIONS. PROVIDE SUBMITTALS SHOWING THE FIRE STOPPING METHOD TO BE USED FOR EACH TYPICAL WALL AND FLOOR PENETRATION, FOR EACH TYPE OF PIPING AND INSULATION PRODUCT TO BE USED ON THE PROJECT.

PRIOR TO BEGINNING WORK, VERIFY THE LOCATION, ELEVATION AND SIZE OF THE UTILITY POINTS OF CONNECTION, INCLUDING, BUT NOT LIMITED TO, THE SANITARY DRAIN-WASTE-VENT AND STORM SEWER TIE, LOCATION, SIZE AND INVERT; DOMESTIC COLD WATER LOCATION, SIZE AND PRESSURE; GAS TIE, LOCATION, SIZE AND PRESSURE, AND UTILITY POINTS OF CONNECTION INDICATED ON THE CIVIL SITE UTILITY PLAN. IF FIELD CONDITIONS VARY FROM THE DRAWINGS, GENERATE A REQUEST FOR INFORMATION AND OBTAIN DIRECTION FROM THE ARCHITECT PRIOR TO BEGINNING WORK. NOTIFY OWNER IN WRITING WITH A MINIMUM OF 48 HOURS IN ADVANCE OF ANY UTILITY SHUT DOWNS REQUIRED BY THE EXECUTION OF THIS CONTRACT.

DEMOLITION WORK (WHERE REQUIRED): REVIEW THE ARCHITECTURAL DRAWINGS FOR THE SCOPE AND AREA OF DEMOLITION WORK. PLUMBING WORK SHALL INCLUDE DEMOLITION AND REMOVAL OF EXISTING PLUMBING FIXTURES, PIPING AND EQUIPMENT REQUIRED. PLUMBING IN EXISTING WALLS TO BE REMOVED OR UNDER GROUND TO BE REMOVED SHALL BE REMOVED AND CAPPED AS REQUIRED. DIMENSION LOCATIONS AND SIZES OF EXISTING ABANDONED AND LIVE MAINS ON THE FIELD DRAWINGS; SUBMIT WITH RECORD DRAWINGS. DELIVER EXISTING MATERIALS REMOVED UNDER THIS CONTRACT TO OWNERS STORAGE LOCATION. COORDINATE REQUIREMENTS WITH OWNERS REPRESENTATIVE. LEGALLY DISPOSE OF MATERIALS REFUSED BY THE OWNER. EXISTING PLUMBING PIPING AND EQUIPMENT TO REMAIN IS SHOWN LIGHT, NEW IS SHOWN BOLD, AND EXISTING TO BE REMOVED DASHED.

SUBMITTALS: AS A MINIMUM, PROVIDE SUBMITTALS FOR THE FOLLOWING EQUIPMENT, SYSTEMS AND PIPING:

- PLUMBING EQUIPMENT.
- PLUMBING APPURTENANCES NOT SCHEDULED, BUT CALLED OUT ON THE DRAWINGS.
- PLUMBING PIPING, HANGERS AND VALVES.
- FIRE WALL PENETRATION SYSTEMS.
- CLOSE OUT DOCUMENTATION: INCLUDING AS BUILT DRAWINGS, OPERATION AND MAINTENANCE MANUALS, LIST OF VENDORS, REPAIR PARTS, INTERCEPTOR SERVICE RECOMMENDATIONS, SERVICE AGENCIES, AND A COPY OF THE TEST REPORTS, PERMITS AND APPROVALS ISSUED BY THE VARIOUS AGENCIES HAVING JURISDICTION.

SCHEDULED EQUIPMENT, LOUVERS, DIFFUSERS, REGISTERS, GRILLES, ETC. SHALL BE AS SCHEDULED OR AN APPROVED EQUAL. EXPOSED SCREWS SHALL BE THE FINISHING TYPE AND PAINTED TO MATCH THE AIR DEVICE. SQUARE TO ROUND ADAPTORS SHALL BE PROVIDED WHERE REQUIRED FOR AIR DEVICES IN CEILINGS. AIR DEVICES SHALL BE FINISHED WITH WHITE BAKED ENAMEL FINISH UNLESS NOTED OTHERWISE. CONFIRM COLORS AND FINISHES FOR ALL HVAC WORK VISIBLE FROM THE FINISHED SPACES WITH THE ARCHITECT PRIOR TO ORDER RELEASE. PROVIDE SUBMITTAL WITH MANUFACTURER'S STANDARD COLOR CHART TO ARCHITECT FOR EXPOSED EQUIPMENT, LOUVERS AND DEVICES FOR COLOR SELECTION BY ARCHITECT.

EQUIPMENT AND CONDENSATE DRAIN PIPING SHALL BE TYPE M COPPER WITH WROUGHT COPPER FITTINGS AND 95-5 TIN-ANTIMONY SOLDERED JOINTS. SCHEDULE 40 PVC PIPE WITH SOLVENT WELDED JOINTS MAY BE USED FOR COMBUSTIBLE CONSTRUCTION OUTSIDE OF RETURN AIR PLENUMS. PVC PIPE EXPOSED TO THE EXTERIOR SHALL BE PAINTED WITH UV RESISTANT PAINT. COLOR TO BE SELECTED BY THE ARCHITECT. DRAINS SHALL BE CONNECTED WITH A VENTED P TRAP AND SHALL BE ROUTED TO NOT CREATE A TRIPPING HAZARD. PROVIDE OVERFLOW CONDENSATE DRAIN SYSTEM WITH DRIP PANS AND SECONDARY PIPING SYSTEM.

CONDENSATE DRAINS, REFRIGERANT PIPE AND COLD WATER PIPING INSTALLED OUTDOORS SHALL BE INSULATED WITH ARMSTRONG, ARMAFLEX 25/50 FLAME SPREAD SMOKE DEVELOPED RATED ELASTOMERIC INSULATION. LIQUID AND SUCION LINES SHALL BE INSULATED CONTINUOUSLY FROM THE OUTDOOR UNIT. COPPER TUBING SHALL BE FREE OF EXTRANEOUS CHEMICALS OR MATERIALS PRIOR TO INSTALLATION OF THE INSULATION. A MANUFACTURER RECOMMENDED ADHESIVE SHALL BE APPLIED AT ALL SEAMS AND TERMINATIONS. INSULATION INSTALLED OUTDOORS SHALL BE UV LIGHT RESISTANT WITH AN ALUMINUM JACKET.

PROVIDE PERMANENT EQUIPMENT TAGS FOR HVAC EQUIPMENT. TAGS SHALL BE FORMED OF BAKELITE WITH MINIMUM 1/2" LETTERING. HVAC EQUIPMENT TAGS SHALL INCLUDE EQUIPMENT NAME, FILTER SIZES AND QUANTITIES, BELT SIZE AND QUANTITY, LOCATION OF THE CONTROLLER. PROVIDE ENGRAVED PLASTIC (BAKELITE) NAME TAGS FOR THERMOSTATS AND CONTROLLERS STATING EQUIPMENT SERVED.

PENETRATIONS OF FIRE RATED WALLS, FLOORS OR ROOF CEILING ASSEMBLIES BY PIPE OR DUCT SHALL BE SEALED BY A UL LISTED FIRE STOPPING SYSTEM APPROVED FOR THAT SPECIFIC APPLICATION. REFER TO ARCHITECTURAL DETAILS AND THE SPECIFICATION SECTION "FIRE STOPPING" INSTALL PENETRATION SEAL MATERIALS IN ACCORDANCE WITH PRINTED INSTRUCTIONS OF THE UL FIRE RESISTANCE DIRECTORY AND MANUFACTURER'S INSTRUCTIONS. PROVIDE SUBMITTAL OF PROPOSED SYSTEM.

THE TEMPERATURE CONTROL SYSTEM SHALL BE DESIGNED AND FURNISHED BY THE A/C UNIT MANUFACTURER. PROVIDE SUPERVISION, CHECKOUT, LOW AND LINE VOLTAGE CONDUIT, WIRING AND TERMINATIONS; SENSORS, CONTROLLERS AND MISCELLANEOUS APPURTENANCES NECESSARY FOR A COMPLETE AND OPERATING SYSTEM IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. REFER TO THE ELECTRICAL CONTRACT DOCUMENTS FOR CONDUIT, WIRE, AND TERMINATIONS INCLUDED WITH THE ELECTRICAL WORK. PROVIDE SUBMITTALS FOR REVIEW.

AN INDEPENDENT AABC OR NEBB TEST AND BALANCE AGENCY SHALL BE RETAINED FOR TESTING AND BALANCING OF AIR AND WATER SYSTEMS. THE TEST REPORT SHALL BE IN A FORMAT APPROVED BY AABC FOR SYSTEMS OF THIS TYPE AND COMPLEXITY. QUALIFICATIONS OF INDEPENDENT TEST AND BALANCE FIRM SHALL BE SUBMITTED FOR REVIEW. TEST AND BALANCING WORK SHALL INCLUDE VERIFICATION (BUT NOT CALIBRATION) OF AUTOMATIC CONTROL OPERATION. FINAL BALANCE SHALL CONFORM TO THE REQUIREMENTS OF THE AABC.

GENERAL NOTES:

- DO NOT SCALE THE DRAWINGS.
- EXISTING HVAC UNITS AND DUCT MAINS ARE PRESUMED TO REMAIN, UNLESS NOTED OTHERWISE.
- MECHANICAL EQUIPMENT ON THE ROOF SHALL BE SUPPORTED WITH PRE FABRICATED CURBS, RAILS OR OTHER MEANS AS APPROVED BY THE ARCHITECT. PROVIDE SUBMITTAL FOR ROOF CURBS, RAILS OR OTHER MEANS FOR APPROVAL.
- CUTTING AND PATCHING NECESSARY FOR THE INSTALLATION OF THE MECHANICAL SYSTEM SHALL BE PERFORMED BY THE TRADE NORMALLY PERFORMING THAT WORK, AND PAID FOR BY THE MECHANICAL CONTRACTOR. NO CUTTING OF THE BUILDING STRUCTURAL SYSTEM SHALL BE PERMITTED WITHOUT WRITTEN CONSENT OF THE ARCHITECT.
- PROVIDE EQUIPMENT SCHEDULED, NOTED OR OTHERWISE INDICATED ON THE DRAWINGS, BUT NOT INCLUDED IN THE SPECIFICATIONS. INSTALLATION SHALL CONFORM TO THE MANUFACTURER'S RECOMMENDATIONS AND APPLICABLE CODES. PROVIDE SUBMITTALS TO THE ARCHITECT FOR REVIEW.
- FLEXIBLE DUCTWORK TO CEILING DIFFUSERS AND REGISTERS SHALL BE LIMITED TO 5'-0" MAXIMUM HORIZONTAL RUN WITH ONLY ONE 90 DEGREE ELBOW PERMITTED. SECURE FLEXIBLE DUCTWORK WITH SHEET METAL SCREWS, DRAW BANDS AND FINISH WITH FOIL DUCT TAPE FOR A PROFESSIONAL APPEARANCE.
- AIR CONDITIONING CONDENSATE DRAIN TRAPS SHALL BE A MINIMUM OF 4" DEEP WITH A VENT ON THE DISCHARGE SIDE. CONDENSATE DRAINS SHALL BE EXTENDED FROM THE COOLING COILS TO TERMINATE ABOVE AN APPROVED FIXTURE WITH AN INDIRECT WASTE OR OUTDOORS IN THE LANDSCAPING. INSTALL DRAIN PIPING TO MINIMIZE SPLASHING AND TRIPPING HAZARD.
- PROVIDE 18" x 18" ACCESS DOORS IN INACCESSIBLE CEILINGS AND WALLS FOR EQUIPMENT REQUIRING ACCESS OR ADJUSTMENT. COORDINATE DOOR SPECIFICATION REQUIREMENT WITH THE ARCHITECT. PROVIDE SUBMITTALS FOR REVIEW.

LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
	SUPPLY AIR GRILLE - REGISTER	GPF	GALLONS PER FLUSH
	DUCT DETECTOR	HTG	HEATING
	PROGRAMMABLE THERMOSTAT	WPD	WATER PRESSURE DROP
	MANUAL VOLUME DAMPER	PSI	POUNDS PER SQUARE INCH
		MBH	1,000 BTU PER HOUR
SCH	SCHEDULE	BTU	BRITISH THERMAL UNIT
SS	STAINLESS STEEL	NO	NUMBER
ABV	ABOVE	TYP	TYPICAL
BLW	BELOW	MAX	MAXIMUM
SP	STATIC PRESSURE	MIN	MINIMUM
RPM	REVOLUTIONS PER MINUTE	V-PH	VOLTAGE-PHASE
CFM	CUBIC FEET PER MINUTE	HP	HORSE POWER
SA	SUPPLY AIR	KW	KILOWATT
RA	RETURN AIR	MCA	MINIMUM CIRCUIT AMPS
EA	EXHAUST AIR	MOCF	MAXIMUM OVERCURRENT PROTECTION
ENT	ENTERING	ESP	EXTERNAL STATIC PRESSURE

SHEET INDEX

SYMBOL		SHEET NO	SHEET DESCRIPTION
		M0.00	LEGEND, INDEX, SPECIFICATIONS, CALCULATIONS
		M1.00	FLOOR PLANS - DEMO, HVAC

VENTILATION CALCULATIONS

2012 UMC OUTDOOR AIR CALCULATION - 403.3 SINGLE ZONE RECIRCULATING SYSTEMS													
SINGLE ZONE VENTILATION CALCULATIONS													
Room Number	Room Name	Area Sq Ft	OCG DBHS PPL / 1000 SqFt	PPL	Rp	Ra	DIST EFF (Ez)	Vbz/6z Vbz/6z	HVAC UNIT	Supply Air CFM	OSA Scheduled	OSA %	Pass(P) Fail (F)
140	Storage area	11100	2	22	5	0.06	0.6	971	Existing 10 ton A/C unit	4000	971	24	Pass

FIRE SPRINKLER SPECIFICATIONS

PROVIDE A COMPLETE FIRE SUPPRESSION SYSTEM OF FIRE SPRINKLERS FOR THE REMODELED AREAS INDICATED ON THE ARCHITECTURAL DRAWINGS. WORK SHALL INCLUDE DESIGN, CONSTRUCTION, TESTING AND APPROVALS FOR A COMPLETE, CODE COMPLIANT SYSTEM.

COMPLY WITH NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) STANDARDS 13; THE NEVADA STATE FIRE MARSHAL REGULATIONS AND REQUIREMENTS OF THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ). COMPLY WITH THE INTERNATIONAL BUILDING CODE AND LOCAL AMENDMENTS. CONFORM TO THE REQUIREMENTS OF ASCE 7-05 FOR SEISMIC BRACING.

THE FIRE SUPPRESSION SYSTEM SHALL BE COMPLETE WITH THE PIPING; PIPING; SPRINKLERS, PRESSURE REGULATORS, VALVES, TEST STATIONS AND INTERIOR STAND PIPE CONNECTIONS, ANTI FREEZE LOOPS AND BACKFLOW PREVENTORS. PROVIDE OTHER APPURTENANCES NECESSARY OF A COMPLETE SYSTEM.

THE FIRE SPRINKLER DESIGNER SHALL BE NICET CERTIFIED, REGISTERED BY THE STATE OF NEVADA FIRE MARSHALLS OFFICE. THE ENGINEERING DRAWINGS AND HYDRAULIC CALCULATIONS SHALL BEAR THE DESIGNERS SEAL IN ACCORDANCE WITH STATE REGULATIONS. THE DESIGNER IS RESPONSIBLE FOR THE SYSTEM FROM THE POINT OF SERVICE FROM THE LOCAL WATER UTILITY. CALCULATIONS SHALL INCLUDE LOSSES FROM BACKFLOW PREVENTORS, METERS AND ON SITE PIPING NOT NORMALLY INCLUDED. WITH THE FIRE SPRINKLER CONTRACTORS SCOPE OF WORK, THE FIRE SPRINKLER DESIGNER SHALL PERFORM A FIELD FLOW TEST TO VERIFY PRESSURE AND VOLUME AVAILABLE AT THE SITE PRIOR TO SUBMITTING HIS BID.

PREPARE AND SUBMIT ENGINEERING DRAWINGS AND HYDRAULIC CALCULATIONS FOR REVIEW. AHJ REVIEW SHALL BE COMPLETE PRIOR TO SUBMITTING TO THE ARCHITECT. DESIGN SHALL BE BASED ON OCCUPANCY HAZARD CLASSIFICATION VERIFIED AND CONFIRMED WITH AHJ AND THE OWNERS INSURANCE CARRIER. SUBMIT SEISMIC BRACING SHOP DRAWINGS IN ACCORDANCE WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.

REFER TO THE ARCHITECTURAL DRAWINGS, INCLUDING THE REFLECTED CEILING PLANS, FOR DESIGNATED LOCATIONS FOR STANDPIPES, FIRE HOSE CABINETS, SPRINKLER HEAD LOCATIONS, AND OTHER PARTS OF THE FIRE SUPPRESSION SYSTEM VISIBLE FROM FINISHED SPACES. SPRINKLER HEADS SHALL BE LOCATED SYMMETRICALLY, FOLLOWING THE PATTERN ESTABLISHED IN THE ARCHITECTURAL DRAWINGS. REFER TO THE CIVIL DRAWINGS FOR ON SITE WORK AND SERVICE ENTRANCE LOCATIONS. REFER TO THE PLUMBING DRAWINGS FOR DRAINS AND THE ELECTRICAL DRAWINGS FOR POWER SOURCES AVAILABLE. COORDINATE ACTUAL POWER REQUIREMENTS FOR THE FIRE AND JOCKEY PUMPS, MONITORING PANELS AND ANY OTHER APPURTENANCES AS SOON AS POSSIBLE AFTER THE BID AWARD, PRIOR TO THE COMMENCEMENT OF THE WORK. NOTIFY THE ARCHITECT OF ANY CHANGES REQUIRED, AND OBTAIN APPROVAL PRIOR TO BEGINNING WORK.

MATERIALS AND EQUIPMENT SHALL BE NEW AND GUARANTEED FOR ONE YEAR FROM THE DATE OF ACCEPTANCE. MANUFACTURERS PRODUCT DATA SHALL BE SUBMITTED TO THE ARCHITECT FOR EQUIPMENT, VALVES, PIPING, SPRINKLERS, SPECIALTIES AND APPURTENANCES USED FOR THE FIRE SUPPRESSION SYSTEM. SUBMITTAL DATA SHALL INCLUDE MATERIAL, PRESSURE AND PERFORMANCE RATINGS, ROUGH-IN DETAILS, WEIGHTS, SUPPORT REQUIREMENTS, AND PIPING CONNECTIONS.

SUBMIT A SHOP DRAWING OF PENETRATIONS AND SLEEVES REQUIRED THRU ANY STRUCTURAL COMPONENTS, IF REQUIRED PROVIDE CAPS, PLATES, ESCUTCHEONS, FLASHING, ETC. AS REQUIRED TO CLOSE OPENINGS MADE FOR THE SPRINKLER SYSTEM. ROOFS, SHEAR WALLS, STEEL BEAMS AND OTHER STRUCTURAL COMPONENTS SHALL NOT BE CUT OR CORE DRILLED WITHOUT PRIOR APPROVAL FROM THE ARCHITECT.

WORK SHALL BE COORDINATED WITH THE WORK OF OTHER TRADES. MAINS AND BRANCHES SHALL BE ROUTED TO AVOID INTERFERENCES WITH DUCTWORK, PLUMBING, ELECTRICAL CONDUITS AND STRUCTURAL MEMBERS. DO NOT ROUTE PIPING OVER ELECTRICAL PANELS OR EQUIPMENT. NOTIFY ARCHITECT OF ANY CONFLICTS WHICH ARISE THAT CANNOT BE RESOLVED IN THE FIELD. INSTALLATION SHALL NOT PROCEED UNTIL CONFLICT HAS BEEN RESOLVED.

THOROUGHLY CLEAN EXPOSED PORTIONS OF THE FIRE SPRINKLER SYSTEM. REMOVE LABELS AND TRACES OF FOREIGN SUBSTANCES. CLEANING SOLUTIONS SHALL BE APPROVED BY THE MANUFACTURER OF THE ITEM TO BE CLEANED. DAMAGE TO FINISHED SURFACES SHALL BE REPAIRED IN ACCORDANCE WITH THE ARCHITECTS REQUIREMENTS.

FIRE SPRINKLER PIPING ABOVE GRADE SHALL BE SCHEDULE 40 BLACK STEEL WITH APPROVED MALLEABLE IRON THREADED FITTINGS. THIN-WALLED STEEL PIPE CONFORMING WITH NFPA 13 AND APPROVED BY THE AHJ MAY BE USED AT THE CONTRACTORS OPTION. PLASTIC PIPING IS PROHIBITED WITHOUT PRIOR APPROVAL FROM THE ARCHITECT AND AHJ. WHERE APPROVED BY AHJ, WELDED OR GROOVE JOINT COUPLINGS APPROVED FOR FIRE SPRINKLER SERVICE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS MAY BE USED. PIPE HANGERS SHALL CONFORM TO NFPA 13.

FIRE SPRINKLER SERVICE ENTRANCE PIPING SHALL BE WELDED ONE PIECE STAINLESS STEEL ELBOWS EQUAL TO AMES SERIES IBR. PIPE AND FITTINGS AT FOUNDATION AND FLOOR PENETRATIONS SHALL BE SLEEVED AND WRAPPED WITH A DOUBLE LAYER OF POLYETHYLENE TAPE AND ENCASED WITH POLYURETHANE INSULATION WITH HIGH DENSITY POLYETHYLENE JACKET.

SPRINKLERS IN EXPOSED AREAS SHALL BE UPRIGHT TYPE, WITH GUARD, AND WHERE APPROPRIATE. SPRINKLERS IN AREAS WITH SUSPENDED CEILING SHALL BE RECESSED PENDANT TYPE WITH MATCHING CHROME PLATED ESCUTCHEON PLATE. FUSIBLE LINKS SHALL BE FUSIBLE-SOLDER LINK TYPE TEMPERATURE RATED FOR SPECIFIC AREA HAZARD.

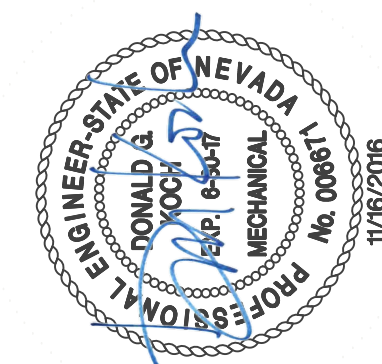
FLOW SWITCHES AND VALVES SHALL BE UL APPROVED, FM LISTED AND SHALL BE SELECTED FOR APPROPRIATE SYSTEM OPERATING PRESSURES.

SPRINKLER SYSTEMS SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA 13, 14 AND THE AHJ. CONFORM TO THE TESTING REQUIREMENTS OF THE FIRE PROTECTION REPORT. THE OWNER, BUILDING DEPARTMENT AND OWNERS INSURANCE REPRESENTATIVE SHALL HAVE THE OPTION OF WITNESSING ALL TESTS. TESTS AND INSPECTIONS SHALL BE APPROVED BY THE AHJ. PROVIDE A MINIMUM OF THREE DAYS NOTICE PRIOR TO TESTING. THE CONTRACTOR SHALL BEAR THE COST OF ALL REQUIRED TESTING.

CONTRACTOR SHALL SUBMIT RECORD DOCUMENTS, INCLUDING FINAL APPROVED COPY OF THE SHOP DRAWINGS, SUBMITTALS, AND O&M MANUALS, AS REQUIRED BY THE ARCHITECT. PROVIDE ELECTRONIC COPY OF ALL DOCUMENTS IN PDF FORMAT.

aptus
 UNLV FAB Shell Upgrade
 Construction Documents
 1325 East Flamingo Road
 Las Vegas, Nevada, 89119

copyright 2013 by aptus
 1200 South 4th Street
 Suite 206
 Las Vegas, Nevada 89104
 P 702.839.1200
 F 702.839.1213



11.18.16
 SHEET INDEX PLAN CHECK

TITLE

LEGEND, INDEX
SPECIFICATIONS
CALCULATIONS

DRAWING NO.

M0.00



2020 S. JONES BLVD SUITE 100
LAS VEGAS, NV 89146
(702) 221-6160
FAX 221-9165

16106

15.058.1 UNLV FAB Shell Upgrade

ELECTRICAL LEGEND: (NOT ALL SYMBOLS ARE USED)			
EXT	DEMO	NEW	DEFINITION
			PANELBOARD SURFACE MOUNTED
			PANELBOARD FLUSH MOUNTED
			SWITCHBOARD
			TERMINAL CABINET
			TRANSFORMER
			PULLBOX
			MOTOR STARTER
			COMBINATION MOTOR STARTER
			COMBINATION MOTOR STARTER VENDOR FURNISHED
			DISCONNECT SWITCH "F" INDICATES FUSIBLE
			DISCONNECT SWITCH VENDOR FURNISHED
			CONTACTOR
			CONTACTOR VENDOR FURNISHED
			TELEPHONE TERMINAL BOARD 4 X 8 X 3/4" FIRE TREATED PLYWOOD
			TELEPHONE TERMINAL CABINET
			FLUORESCENT FIXTURE - LETTER DENOTES TYPE (LOWER CASE LETTER DENOTES SWITCHING), NUMBER DENOTES CIRCUIT
			WALL MOUNTED FIXTURE (FLUORESCENT SHOWN) - LETTER DENOTES TYPE
			HID OR INCANDESCENT FIXTURE - LETTER DENOTES TYPE
			FLUORESCENT STRIP FIXTURE - LETTER DENOTES TYPE
			TRACK LIGHTING - LETTER DENOTES TYPE
			EMERGENCY LIGHTING UNIT - LETTER DENOTES TYPE
			EXIT FIXTURE - SHADED AREA DENOTES LIGHTED FACE, ARROWS DENOTE DIRECTION - LETTER DENOTES TYPE
			EMERGENCY OR NIGHT LIGHT CONNECTED FIXTURE (FLUORESCENT SHOWN) - LETTER DENOTES TYPE
			POLE MOUNTED HID AREA LIGHT - LETTER DENOTES TYPE
			SPORTS FIELD POLE ASSEMBLY
			SINGLE RECEPTACLE 18" AFF UNLESS NOTED OTHERWISE
			DUPLEX RECEPTACLE 18" AFF UNLESS NOTED OTHERWISE
			FLOOR MOUNTED DUPLEX RECEPTACLE
			QUADRUPLEX RECEPTACLE 18" AFF UNO
			ISOLATED GROUND TYPE (ORANGE) DUPLEX RECEPTACLE AT 18" AFF UNO.
			ISOLATED GROUND TYPE (ORANGE) QUADRUPLEX RECEPTACLE AT 18" AFF UNO.
			COUNTER HEIGHT RECEPTACLE (VERIFY HEIGHT)
			GFI DUPLEX RECEPTACLE 18" AFF UNLESS NOTED OTHERWISE
			SWITCHED DUPLEX RECEPTACLE 18" AFF UNLESS NOTED OTHERWISE
			ELECTRIC SHEET NOTE DESIGNATION
			MECHANICAL EQUIPMENT CROSS REFERENCE
			SPECIAL PURPOSE RECEPTACLE - NUMBER REFERS TO RECEPTACLE SCHEDULE
			CLOCK OUTLET
			MULTIOUTLET ASSEMBLY - ARROW HEADS INDICATE EXTENT, NUMBERS INDICATE SPACING IN INCHES
			SINGLE POLE SWITCH 48" AFF UNO
			THREE WAY SWITCH 48" AFF UNO
			FOUR WAY SWITCH 48" AFF UNO
			KEY OPERATED SWITCH
			DIMMER OPERATED SWITCH
			SWITCH WITH PILOT LIGHT
			MOTION SENSING SWITCH
			CONTROL STATION
			TELEPHONE OUTLET 18" AFF UNO
			PAY TELEPHONE OUTLET 48" AFF UNO
			FLOOR MOUNTED TELEPHONE OUTLET
			COMPUTER OUTLET OR SPECIAL PURPOSE COMMUNICATIONS
			RADIO OUTLET
			PHOTOELECTRIC CELL
			TIME CLOCK
			BRANCH CIRCUIT CONSISTING OF 2#12 IN MINIMUM SIZE CONDUIT NOT INCLUDING GROUND WIRE
			HOME RUN TO PANELBOARD OR DEVICE - NUMBER OF ARROW HEADS INDICATES NUMBER OF CIRCUITS
			BRANCH CIRCUIT - SHORT SLASHES INDICATE NUMBER OF PHASE OR SWITCH LEGS, LONG SLASHES INDICATE NUMBER OF NEUTRALS, LONG SLASH W/ A DOT INDICATES A SEPARATE ISOLATED GROUND WIRE.
			CONDUIT IN SLAB OR UNDERGROUND

ABBREVIATIONS:			
AFF	ABOVE FINISHED FLOOR	J-BOX	JUNCTION BOX
AFG	ABOVE FINISHED GRADE	KVA	KILOVOLT AMPS
AL	ALUMINUM	KW	KILOWATT
BKR	BREAKER	LTG	LIGHTING
C	CONDUIT	NTS	NOT TO SCALE
CKT	CIRCUIT	PNL	PANEL
C.O.	CONDUIT ONLY	PWR	POWER
CU	COPPER	TYP	TYPICAL
DWG	DRAWING	UNO	UNLESS NOTED OTHERWISE
ELEC	ELECTRICAL	V	VOLTS
EXT	EXISTING	VA	VOLT AMPS
GFI	GROUND FAULT INTERRUPT	WP	WEATHER PROOF
GND	GROUND	XFMR	TRANSFORMER

PROJECT GENERAL NOTES:	
1. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO LOOK THROUGH ALL DRAWINGS ASSOCIATED WITH THIS PROJECT. WORK ASSOCIATED WITH THE ELECTRICAL CONTRACTOR'S TRADE MAY BE SHOWN ON OTHER DRAWINGS. ANY ADDITIONAL COST RESULTING FROM THE FAILURE TO INCLUDE THESE ITEMS SHOWN ON THE OTHER DRAWINGS WILL BE INCURRED BY CONTRACTOR.	23. COORDINATE ELECTRICAL REQUIREMENTS FOR ALL PLUMBING AND MECHANICAL EQUIPMENT WITH FINAL CONTRACTOR SELECTION. THE CONTRACTOR SHALL SIZE DISCONNECTS BASED UPON CIRCUIT BREAKER RATINGS AND PROVIDE FUSING AS REQUIRED PER EQUIPMENT MANUFACTURER RECOMMENDATIONS AND U.L. LISTING REQUIREMENT
2. IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO ESTABLISH A STANDARD OF QUALITY. THE ENGINEER RESERVES THE RIGHT TO ALLOW OTHER METHODS AND MATERIALS NOT REFLECTED HEREIN. THE CONTRACTOR SHALL BE RESPONSIBLE TO REQUEST THE ENGINEER WAIVE THE STANDARDS TO ALLOW ALTERNATE MEANS AND METHODS PRIOR TO BEGINNING THE PROJECT. CONTRACT DOCUMENT REVISIONS TO ACCOMMODATE INSTALLED CONDITIONS, WITHOUT PRIOR APPROVAL, WILL RESULT IN ADDITIONAL DESIGN CHARGES TO THE CONTRACTOR.	24. SIZING OF MOTOR-RELATED ELECTRICAL COMPONENTS, INCLUDING FEEDER AND/OR BRANCH CIRCUITS (WIRE AND CONDUIT) AND OVERCURRENT PROTECTION (BREAKER AND/OR FUSES) IS BASED ON RATINGS INDICATED IN THE CONTRACT DOCUMENTS AS WELL AS NEC APPROXIMATED LOADS FOR A GIVEN MOTOR HORSEPOWER, VOLTAGE AND PHASE. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VERIFY ACTUAL MOTOR AND APPLIANCE RATING AND LOADS. CONTRACTOR TO PROVIDE CORRECTLY SIZED MOTOR OVERLOAD ELECTRICAL COMPONENTS BASED ON NAMEPLATE RATING. REFLECT ALL CHANGES IN THE AS-BUILT DRAWINGS.
3. ELECTRICAL WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER IN ACCORDANCE WITH THE NECA INSTALLATION STANDARDS TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER.	25. THE ELECTRICAL CONTRACTOR PRIOR TO ROUGH-IN, SHALL VERIFY ALL HVAC AMPERAGES, PHASES AND VOLTAGES AGAINST PLAN REQUIREMENTS AND NOTIFY ENGINEER/ARCHITECT OF ANY DISCREPANCIES. FAILURE TO VERIFY AND NOTIFY ENGINEER/ARCHITECT PRIOR TO ROUGH-IN SHALL RESULT IN THE ELECTRICAL CONTRACTOR ASSUMING RESPONSIBILITY FOR DESIGN AND INSTALLATION REQUIREMENTS.
4. ALL WORK, MATERIALS AND EQUIPMENT SHALL CONFORM TO THE CURRENTLY ADOPTED EDITION OF ALL APPLICABLE NATIONAL, STATE AND CITY CODES AND ORDINANCES.	26. THE ELECTRICAL CONTRACTOR SHALL INSURE FINAL COORDINATION OF THE MANUFACTURERS RECOMMENDED FUSE SIZES FOR THE INSTALLED MECHANICAL EQUIPMENT WITH THE SIZE DISCONNECT PRIOR TO OR DURING ROUGH-IN. ADVISE ENGINEER IF CHANGES IN THE FINAL SELECTION OF MECHANICAL EQUIPMENT HAVE IMPACTED DISCONNECT SWITCH, BREAKER, OR CONDUCTOR SIZES.
5. ALL ELECTRICAL SYSTEM COMPONENTS SHALL BE LISTED OR LABELED BY UL OR OTHER RECOGNIZED TESTING FACILITY AS ALLOWED BY AUTHORITY HAVING JURISDICTION.	27. CONTRACTOR SHALL ENGAGE THE SERVICES FOR A STATE LICENSED FIRE ALARM MANUFACTURER/INSTALLER TO PREPARE ALL DESIGN DRAWINGS AND CALCULATIONS REQUIRED FOR SYSTEM APPROVAL BY THE AUTHORITY HAVING JURISDICTION. SUBMIT ALL PLANS AND PROVIDE ALL PERMITS REQUIRED FOR A COMPLETE AND OPERABLE APPROVED LIFE SAFETY SYSTEM.
6. WHERE AN APPARENT DISCREPANCY EXISTS BETWEEN THE REQUIREMENTS OF THE GENERAL NOTES AND INFORMATION PORTRAYED IN THE ELECTRICAL DRAWINGS, THE CONTRACTOR SHALL INCLUDE IN THE BID THE COST OF THE GREATER QUALITY OR QUANTITY.	28. ALL PENETRATIONS OF FIRE RESISTIVE FLOORS OR WALLS SHALL BE PROTECTED BY MATERIALS AND INSTALLATION DIAGRAMS THAT CONFORM TO UL LISTING FOR "THROUGH-PENETRATION FIRE STOP SYSTEMS".
7. CONTRACTOR SHALL VISIT JOB SITE PRIOR TO BID AND VERIFY EXISTING CONDITIONS.	29. WHERE MOTORS ARE INSTALLED IN SUSPENDED CEILING, CONTRACTOR SHALL PROVIDE DISCONNECT SWITCH IN SUSPENDED CEILING WITHIN REACH FROM ACCESS POINT.
8. CONTRACTOR SHALL INCLUDE IN BASE BID ALL COSTS REQUIRED FOR PERMITS AND INSPECTIONS.	30. VERIFY DEVICE COLOR AND MOUNTING ORIENTATION (VERTICAL OR HORIZONTAL) WITH ARCHITECTURAL AND INTERIOR DESIGN DRAWINGS PRIOR TO ORDERING ANY EQUIPMENT AND PROVIDE DEVICES AS REQUIRED. UNLESS NOTED OTHERWISE, DEVICES AND DEVICE PLATES SHALL BE WHITE IN COLOR.
9. CONTRACTOR SHALL VERIFY, WITH OWNER'S REPRESENTATIVE PRIOR TO SUBMITTING BID, ALLOWABLE WORKING HOURS, EMPLOYEE PARKING AREAS, MATERIAL DELIVERY, STORAGE REQUIREMENTS, DEMOLITION AND REMOVAL OF CONSTRUCTION DEBRIS, AS WELL AS DAILY CLEAN UP REQUIREMENTS. INCLUDE ALL COSTS IN BID FOR DUST BARRIERS, DUMPSTERS ETC. AS REQUIRED FOR THE DURATION OF THE PROJECT. PERFORM ALL WORK AS DIRECTED BY OWNER'S REPRESENTATIVE AND ARCHITECT.	31. PROVIDE TYPED UPDATED PANEL DIRECTORY TO BE MOUNTED ON INSIDE OF ALL PANEL DOOR COVERS. DIRECTORY SHALL REFLECT ALL ADDITIONS OR MODIFICATIONS TO EXISTING PANELS AND SHALL REFLECT ACTUAL "AS-BUILT" CONDITIONS.
10. ALL ELECTRICAL SYSTEMS SHALL BE TESTED FOR PROPER OPERATION. IF TESTS SHOW THAT WORK IS DEFECTIVE, CONTRACTOR SHALL MAKE ALL NECESSARY CORRECTIONS AT NO ADDITIONAL COST TO OWNER.	32. ALL NEW PANELBOARDS AND SWITCHBOARDS SHALL BE OF THE SAME MANUFACTURER AND HAVE LOCKING DOORS AND BE KEYPED THE SAME U.N.O.
11. CONTRACTOR SHALL GUARANTEE ALL WORK AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP WHICH MAY OCCUR UNDER NORMAL USE FOR A PERIOD OF ONE YEAR AFTER OWNER'S ACCEPTANCE. ALL DEFECTS SHALL BE PROMPTLY CORRECTED BY CONTRACTOR WITHOUT ADDITIONAL COST TO OWNER.	33. UPON COMPLETION OF THE INSTALLATION OF LIFE SAFETY SYSTEM WIRING AND DEVICES, A PERFORMANCE TEST OF THE ENTIRE LIFE SAFETY SHALL BE PERFORMED TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION.
12. PROVIDE AS-BUILT DRAWINGS TO ARCHITECT. DRAWINGS SHALL INCLUDE ACCURATE CONDUIT AND DEVICE LOCATIONS DIMENSIONED FROM PERMANENT LANDMARKS SUCH AS BUILDING WALLS.	34. ALL EQUIPMENT ELECTRICAL TERMINATIONS TO UNDERGO A TORQUE TEST. ELECTRICAL CONTRACTOR IS RESPONSIBLE FOR MANUFACTURER'S RECOMMENDED TORQUE DOCUMENTATION AND TOOLS TO PERFORM TORQUE TEST.
13. DO NOT SCALE ELECTRICAL DRAWINGS. VERIFY EXACT LOCATION OF ALL DEVICES, JUNCTION BOXES, LIGHTING FIXTURES, ETC. WITH ARCHITECTURAL AND INTERIOR DESIGN DRAWINGS PRIOR TO INSTALLATION. CONTRACTOR SHALL VERIFY THE EXACT LOCATION OF ALL MECHANICAL EQUIPMENT AND OTHER EQUIPMENT REQUIRING ELECTRICAL CONNECTION PRIOR TO ROUGH-IN. EVERY OUTLET HEIGHT SHALL BE VERIFIED ON EACH WALL WITH THE INTERIOR PLANNING AND DESIGN DRAWINGS. COORDINATE WITH CABINET SHOP DRAWINGS TO ENSURE PROPER HEIGHT AND LOCATION WITH RESPECT TO MILLWORK, EQUIPMENT, ETC.	35. FLOOR MOUNTED ELECTRICAL EQUIPMENT SHALL BE MOUNTED ON A 4" HIGH CONCRETE PAD.
14. THESE DRAWINGS INDICATE THE FINISHED REQUIREMENTS FOR THE ELECTRICAL SYSTEMS, EQUIPMENT, LIGHTING FIXTURES, OUTLETS AND DEVICES. DUE TO STRUCTURAL CONDITIONS, MECHANICAL DUCT, PIPING CONFLICTS, OR OTHER LEGITIMATE REASONS, THE CONTRACTOR MAY DESIRE TO INSTALL THE WORK INDICATED IN A MANNER DIFFERENT FROM THAT SHOWN. SUCH CHANGES SHALL BE PRESENTED TO THE OWNER'S REPRESENTATIVE FOR REVIEW AND APPROVAL PRIOR TO PROCEEDING. UPON APPROVAL, THE WORK SHALL BE PERFORMED AND THE AS-BUILT DRAWINGS SHALL BE REVISED TO ACCURATELY REFLECT THE WORK AS ACTUALLY INSTALLED.	36. INSTALL TRANSFORMER FOLLOWING MANUFACTURER'S RECOMMENDATIONS FOR VENTILATION CLEARANCES.
15. ANY VARIANCE OR EXCEPTIONS THE THE DRAWINGS AND SPECIFICATIONS MUST BE REQUESTED AND APPROVED IN WRITING BY THE ENGINEER. WHERE UNAUTHORIZED CHANGES ARE FOUND, THE CONTRACTOR SHALL REMOVE THE INSTALLED WORK AND INSTALL ITS AS SHOWN ON THE DRAWINGS AT NO ADDITIONAL COST THE THE OWNER. COST SHALL INCLUDE ANY CUTTING, PATCHING, PAINTING AND REPAIR COST TO INSTALLED CEILINGS, WALLS ETC. AS REQUIRED FOR CORRECTING THE DEFICIENCY.	37. FURNISH AND INSTALL A COMPLETE AND OPERATIONAL ELECTRICAL SYSTEM IN ACCORDANCE WITH PLANS AND SPECIFICATIONS.
16. RACEWAY SYSTEMS ARE SHOWN DIAGRAMMATICALLY. ACTUAL LOCATION AND ROUTING OF ALL, SHALL BE DETERMINED BY CONTRACTOR TO SUIT FIELD CONDITIONS.	38. THE CONTRACTOR SHALL COORDINATE WITH THE OWNER, ARCHITECT AND ENGINEER AS REQUIRED SHUT-DOWNS OR TIE-INS RELATING TO THESE SYSTEMS. REQUESTS FOR SHUT-DOWNS SHALL BE SUBMITTED IN WRITING AT LEAST ONE WEEK IN ADVANCE FOR APPROVAL BY THE OWNER.
17. RACEWAYS SHALL BE INSTALLED CONCEALED WHENEVER POSSIBLE. RACEWAYS INSTALLED EXPOSED (AS APPROVED BY ENGINEER IN WRITING PRIOR TO ROUGH-IN) SHALL BE ROUTED OUT OF PUBLIC VIEW AS MUCH AS POSSIBLE. RACEWAYS SHALL BE RUN PARALLEL WITH, OR AT RIGHT ANGLE TO WALLS.	39. ALL EXPOSED RACEWAYS SHALL BE PAINTED TO MATCH ADJACENT SURFACES.
18. PROVIDE UL APPROVED EXPANSION FITTINGS WHERE RACEWAYS CROSS BUILDING EXPANSION JOINTS. PROVIDE BONDING JUMPER(S) SIZED PER CODE WHERE REQUIRED. PROVIDE ALL FITTINGS REQUIRED FOR A COMPLETE INSTALLATION. REFER TO ARCHITECTURAL DRAWINGS FOR EXPANSION JOINT LOCATION(S).	40. THE ELECTRICAL CONTRACTOR ASSUMES ALL RESPONSIBILITY AND LIABILITY FOR ANY "VALUE ENGINEERING" OF THE MATERIALS, SPECIFICATIONS AND DESIGN OF THIS PROJECT, INCLUDING ANY AND ALL COST FOR ANY REVISIONS TO THE CONTRACT DOCUMENTS REQUIRED AS A RESULT IF THE "VALUE ENGINEERING".
19. CONTRACTOR SHALL PROVIDE ALL RACEWAY SYSTEMS INDICATED ON THE DRAWING PER NEC REQUIREMENTS AND GENERAL NOTES. ANY DEVIATION FROM THE WIRING METHODS INDICATED SHALL BE ALLOWED ONLY BY SPECIFIC WRITTEN APPROVAL FROM EITHER THE ARCHITECT, ENGINEER OR OWNER. CONTRACTOR'S BID SHALL INCLUDE ALL COSTS FOR RACEWAY SYSTEMS AS SPECIFIED UNLESS SPECIFIC WRITTEN APPROVAL FOR AN ALTERNATIVE WIRING METHOD IS OBTAINED FROM EITHER THE ARCHITECT, ENGINEER OR OWNER AND IS SUBMITTED AS PART OF CONTRACTOR'S FORMAL BID PROPOSAL.	41. PROPOSED ALTERNATE LIGHT FIXTURES SHALL BE SUBMITTED WITH A PHOTOMETRIC STUDY SHOWING COMPLIANCE WITH ALL APPLICABLE LIGHTING CODES AND ORDINANCES.
20. PRIOR TO INSTALLATION, CONTRACTOR SHALL REVIEW THE COMPLETE SET OF CONSTRUCTION DOCUMENTS FOR CONFLICTS WITH OTHER TRADES. CONTRACTOR SHALL BE RESPONSIBLE TO COORDINATE ALL WORK WITH OTHER TRADES TO AVOID CONFLICT DURING INSTALLATION. CONTRACTOR SHALL MAKE MINOR ADJUSTMENTS IN EQUIPMENT LOCATION AND ROUTING AS NECESSARY AT NO ADDITIONAL COST TO THE OWNER.	42. AFTER COMPLETION OF THE INSTALLATION, THE ENTIRE ELECTRICAL SYSTEM SHALL BE THOROUGHLY CLEANED. REMOVE ALL FOREIGN MATERIAL, DUST, PAINT, OIL GREASE, UNNEEDED LABELS AND STICKERS FROM EQUIPMENTS. REMOVE ALL DEBRIS ACCUMULATED DURING CONSTRUCTION.
21. CONTRACTOR SHALL BE RESPONSIBLE TO PROPERLY CUT AND PATCH EXISTING CONSTRUCTION AS REQUIRED TO INSTALL NEW ELECTRICAL WORK. ALL PATCHING SHALL BE OF THE SAME MATERIALS, WORKMANSHIP AND FINISH AS THE EXISTING WORK AND SHALL ACCURATELY MATCH ALL SURROUNDING WORK TO THE SATISFACTION OF THE ARCHITECT.	43. ALL 120V AND 277V DEVICES SHALL HAVE A DEDICATED NEUTRAL.
22. ALL ELECTRICAL EQUIPMENT SHALL HAVE SUFFICIENT GUTTER SPACE AND LUGS TO ACCOMMODATE QUANTITY AND SIZE OF CONDUCTORS REQUIRED. CONTRACTORS SHALL PROVIDE EQUIPMENT WITH OVERSIZED ENCLOSURES WHERE REQUIRED.	

SHEET INDEX		90% 09/12/2016	"SFM" / SPWD PLANS CHECK" 11/18/2016
SHEET NUMBERS	SHEET TITLE		
E0.01	GENERAL INFORMATION	●	●
E0.02	ELECTRICAL SPECIFICATIONS	●	●
E0.21	DEMOLITION PLAN	●	●
E1.01	LIGHTING PLAN	●	●
E5.01	ONE LINE DIAGRAM	●	●

tjk consulting engineers, inc.
8728 Spanish Ridge Avenue
Suite 100
Las Vegas, NV 89148
P: 702.871.3621
F: 702.871.8353
www.tjkengeers.com
TJK # 16103

GENERAL INFORMATION

DRAWING NO.

E0.01

15.058.1 UNLV FAB Shell Upgrade

aptus
1200 South 4th Street
Suite 206
Las Vegas, Nevada 89104
P 702.893.1200
F 702.893.1213

UNLV FAB Shell Upgrade
Construction Documents
1325 East Flamingo Road
Las Vegas, Nevada, 89119

"SFM" / SPWD
PLANS CHECK"

November 17, 2016

TITLE

DRAWING NO.

E0.01

ELECTRICAL SPECIFICATIONS
SECTION 16000
PROJECT NUMBER 15080

PART 1 - GENERAL REQUIREMENTS:

1.1 Description

- A Scope: The electrical work consists of furnishing everything necessary for and incidental to the execution and completion of all electrical work indicated on the drawings and specified below including but not limited to:
 - 1. Lighting fixtures as indicated and specified on the plans.
 - 2. Electrical panels, controls service, disconnects, conduits, wiring, etc. for all outlets and equipment.
- B The drawings are diagrammatic unless indicated otherwise. The drawings reflect circuiting only and are not depicting exact conduit routing unless specifically noted other wise.
 - 1. Data presented on these drawings are as accurate as planning can determine, but field verification of all dimensions, locations, levels, etc., to suit field conditions is required. Discrepancies between different plans, or between drawings and specifications, or regulations and codes governing the installation shall be brought to the attention of the Engineer in writing before the date of bid opening. If discrepancies are not reported, the contractor shall bid the greater quantity or better quality, and appropriate adjustments will be made after contract award. Do not scale distances off the electrical drawings. Use actual building dimensions.
 - 2. In all cases switches controlling lighting are to be located on the strike side of doors. Location indicated for switches and outlets are approximate. Owner may make minor relocations at no additional charge
- C Examine all drawings for work required by this subcontractor.

1.2 Codes

- A All work shall be in accordance with the NEC and local governing codes.
 - 1. All utility work shall be in accordance with requirements of the serving Power and Telephone companies.
 - 2. All off site work shall be in accordance with the Uniform Standard Drawings for Clark County Area.
 - 3. All fire alarm work shall be in accordance with State Fire Marshall, NFPA and NFC.
- B All data/telecommunications work shall be in accordance with requirements of the TIA/EIA Building Telecommunications Wiring Standards.

1.3 Substitutions

- A Contractor's bid price shall reflect the costs of all materials as specified. No prior approval of materials will be given prior to award of bid. All switchgear and panelboards shall be furnished by a single manufacturer.
- B Substitutions of equal quality and of benefit to the Owner will be evaluated at the Contractor's request. Any additional cost to the owner for review of substitutions will be at the Contractor's expense.
- C After review of substitutes, the decision of the Engineer in determining equal materials will be final.

1.4 Submittals

- A Provide Submittals for the following equipment:
 - 1. Wiring Devices and Dimmers
 - 2. Lighting Fixtures
 - 3. Wire
- B Shop Drawings and Approvals
 - 1. The Contractor shall submit six (6) identically bound sets of shop drawings on the following items:
 - a. Outline drawings and data sheets of each circuit breaker, disconnect, transfer switch, generator, transformer, panel board, and switchboard.
 - 1) Highlight service conditions of equipment and the appropriate derating to meet 2.1.B.
 - b. Data sheets of all wiring devices, lighting fixtures, and fuses.

1.5 Quality Assurance

- A All work shall be completed in a neat and workmanlike manner and in accordance with NECA standards.
- B All work shall be subject to inspection and possible rejection if not in accordance with these specifications, the drawings, and installed in neat and workmanlike manner.
- C Any rejected work shall be replaced at no additional cost to the Owner.

PART 2 - PRODUCTS:

2.1 Material and Equipment

- A Material and equipment shall be new and of current production by manufacturers regularly engaged in the manufacture of such items. Electrical switchgear and components shall be the product of a single manufacturer. All material shall be UL listed.
- B Service Conditions
 - 2. Altitude- 2100 feet
 - 3. Temperature
 - a. Indoor - 40 degree C (100 degree F)
 - b. Outdoor - 60 degree C (140 degree F)
- C Conduits
 - 1. Interior conduit shall be EMT with compression or set screw fittings.
 - 2. Exterior conduit exposed to damage shall be type RGS.
 - 3. Exterior buried conduit shall be schedule 40 PVC with PVC coated RGS bends when penetrating through floor slabs.
 - 4. FMC shall be used for final connection to lighting fixtures not to exceed 72 inches.
 - a. FNC or Aluminum FMC shall not be used.
 - b. FMC shall not be used except as noted above without prior approval of the Engineer.
 - 5. Liquid-Tite FMC shall be used for final connection to motors.
 - 6. MC Cable may be used for wiring between devices in walls. Do not use for home runs.
 - 7. Conduit fittings shall be steel or malleable iron type.
- D Cable
 - 1. Conductors shall be type THHN/THWN 75 degree wire.
 - a. All underground conductors shall be type THW.
 - 2. Conductors shall be copper.
 - a. Equivalent Aluminum wire (8000 Alloy) may be used in lieu of copper for sizes #1/0 and larger. Use compression fittings on all connections and resize conduit as required. Submit sizing to Engineer for review.
 - 3. Minimum wire size shall be #12 AWG.
 - a. 120V branch circuits over 65 feet in length from the center of the load to the panel shall be #10 AWG and branch circuits over 130 feet shall be #8 AWG. Increase conduit and wire sizes as required at no additional cost to the owner.
 - 4. Unless otherwise required by local ordinances ground wires shall be green, neutral wires shall be white (120V) or gray (277V) and phase wires shall be black (Phase A), red (Phase B), and blue (Phase C) for a 120/208 volt system and brown (Phase A), orange (Phase B), and yellow (Phase C) for a 277/480 volt system. (If system is 240v with High Leg, coordinate orange marking with 277/480 volt system.)
- E Wiring Devices
 - 1. Wiring devices shall be as follows:
 - a. Receptacles - 120V, 20A, NEMA 5-20R, specification grade, side and back wired with clamp type terminals, nylon, ivory, 2 pole, 3 wire grounding.
 - 1) Provide red color for emergency circuits.
 - 2) Provide gray color for computer outlets.
 - b. Switches - 120V/277V, 20A, ivory, heavy duty, silent type specifications grade.
 - c. Dimmers - Lutron Nova T 2000W.
 - d. Isolated ground receptacles shall be equal to Pass & Seymour, cat. # IG9300-HG, color orange.
 - 2. Device plates shall be nylon, color shall match device with matching screws.
 - a. Receptacles in wet locations shall be installed with a hinged outlet cover/enclosure clearly marked suitable for wet locations while in use and UL Listed equal to:
 - 1) Tay Mac - ML400G.
 - 2) Intermatic - WP1000RC.
 - 3) Pass & Seymour - WIUFC10S.
- F Safety switches shall be General Duty type, NEMA 1 indoor and NEMA 3R outdoor.
- G Overcurrent Protection Devices:
 - 1. Circuit breakers shall be of the same manufactures as panelboards and switchboards. Provide breakers as

noted on the schedule.

- 2. Fuses used to protect motors shall be Bussman type FRN-R. All fuses installed in fused disconnects shall be Class R unless noted otherwise.
- 3. Provide HACR rated breakers for mechanical equipment.
- H Provide grounding for all branch circuits. Conduit, listed for use, may be used for grounding for 20A branch circuits only when approved for such use. All FMC and non-metallic conduit shall have a separate ground wire.
- I Outlet, Pull and Junction Boxes
 - 1. Each switch, light, receptacle or other outlet shall be provided with a code gauge, galvanized steel outlet box. Junction and pullboxes shall be code gauge, galvanized steel. Outlet boxes shall be of the one piece, knockout type, in general 4" square with plaster ring. Plaster rings shall be set to provide not more than 1/8" from wall surface to ring. In no case shall plaster ring project beyond surface of wall. Single gang rings similar to Steel City 52-C-50 shall be used for 4" boxes in unfinished brick. RACO 3180 boxes may be used for unfinished masonry flush wall outlets. Center all outlet boxes in block course and provide a smooth finish block at outlet locations.
 - 2. Boxes installed for telephone, alarm, computer and security systems shall be provided with appropriate coverplates.

PART 3 - EXECUTION

3.1 Installation

- A Equipment locations shall be as close as practical to locations shown on the plan drawings and subject to such approved revisions at no cost to the owner as may be found necessary or desirable at the time work is installed.
- B Close all openings in walls, floors, and roofs to the approval of the Architect.
- C Paint all conduits and boxes that are required to be exposed to match building surfaces. Run all exposed conduit parallel and perpendicular to building lines.
- D Provide engraved phenolic nameplates on all equipment and install typed directory in panelboards. Fasten nameplates with screws or rivets, do not use adhesive.
- E Coordinate the work with other trades.
- F Megger test all feeder circuits after installation.
- G Install 200 pound test pull nylon pull cord in all signal and communication conduits.
- H Install switches at 48" AFF and receptacles at 18" AFF unless noted otherwise.
- I Panelboards shall be installed with the top of the cabinet 6'-0" AFF.
- J Lighting fixtures shall be fastened to the structure independent of the ceiling system.
- K Conduits and outlets shall be concealed within the building structure; except that certain motor and lighting feeder conduits may be run exposed in certain areas as indicated on the drawings. Conduit and outlets shown to be installed in cabinets, counters, and casework shall be run or installed as directed by the Architect.
- L Floor mounted electrical equipment shall be mounted on a 4" high housekeeping pad extending 6" beyond equipment.
- M Patch and repair area where items have been demolished or damaged during construction to match adjacent surfaces to Owner's approval.
- N Install pullboxes such that they are located at the high point of the conduits with 24" of pea gravel installed below.
- O Conduits penetrating floor slabs shall be installed a minimum of 2" AFF.
- P Label all spare conduits/pulstrings at both ends with identification of location at the opposite end.
- Q A completely and thoroughly swab raceway before installing wire.
- R Request inspections from Local Governing Authorities.

3.2 Project Completion

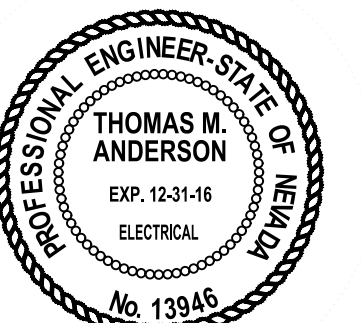
- A Remove all discarded materials from demolition and installation from the job site.
- B Provide reproducible record drawings of all completed work.
- C Guarantee all material furnished and all workmanship performed for a period of one year from the date of final acceptance of the work. Any defects developing within this period, traceable to material furnished as a part of this Section or workmanship performed hereunder, shall be made good at no additional expense to the Owner.

"END OF SECTION"

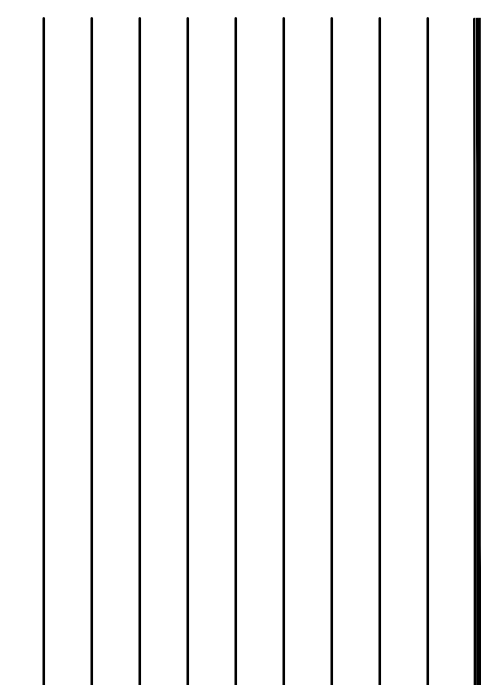
aptus
 UNLV FAB Shell Upgrade
 Construction Documents
 1325 East Flamingo Road
 Las Vegas, Nevada, 89119

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

"SFM / SPWD
 PLANS CHECK"



November 17, 2016



TITLE

tjk consulting engineers, inc.

8728 Spanish Ridge Avenue
Suite 100
Las Vegas, NV 89148
P: 702.871.3621
F: 702.871.8353
www.tjkengeers.com

ELECTRICAL SPECIFICATIONS

DRAWING NO.

E0.02

TJK # 16103

15.058.1 UNLV FAB Shell Upgrade



DEMOLITION GENERAL NOTES:

1. ALL WIRING FROM DEVICES SHALL BE REMOVED BACK TO SOURCE.
2. PROVIDE POWER CONTINUATION TO DOWN STREAM DEVICES.
3. CONDUIT IN INACCESSIBLE LOCATIONS SHALL BE CAPPED OFF AND TO REMAIN IN PLACE.
4. WIRING SHALL NOT BE ABANDONED IN INACCESSIBLE CONDUITS.
5. PROVIDE UPDATED, TYPED PANEL DIRECTORIES FOR ALL PANEL BOARDS WITH CIRCUITS MODIFIED, ADDED OR REMOVED.

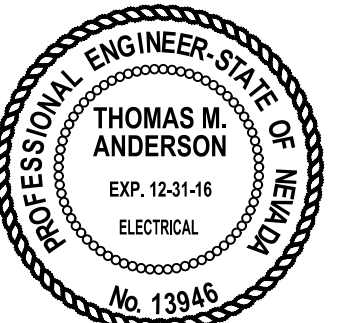
DEMOLITION KEY NOTES: (#)

1. EXISTING LIGHT FIXTURE TO BE RELOCATED FOR USE AT DIFFERENT LOCATION WITHIN PROJECT.
2. EXISTING LIGHT FIXTURE AND SWITCH TO BE DEMOLISHED.

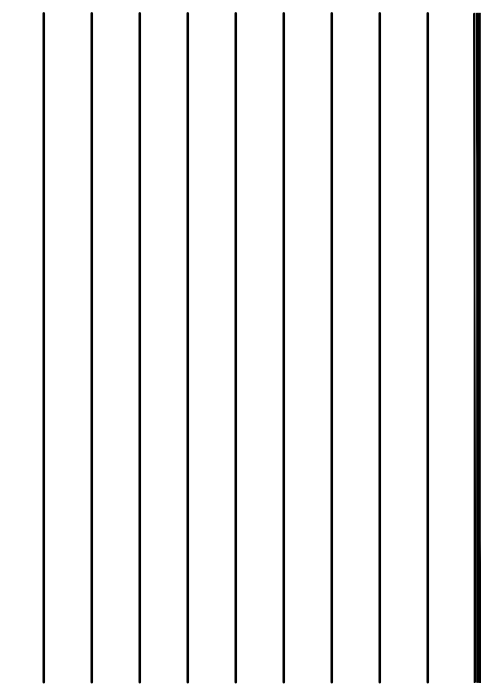
UNLV FAB Shell Upgrade
 Construction Documents
 1325 East Flamingo Road
 Las Vegas, Nevada, 89119

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

"SFM / SPWD
 PLANS CHECK"



November 17, 2016



TITLE


 tjk consulting engineers, inc.
 8728 Spanish Ridge Avenue
 Suite 100
 Las Vegas, NV 89148
 P: 702.871.3621
 F: 702.871.8353
 www.tjkengeers.com
 TJK # 16103

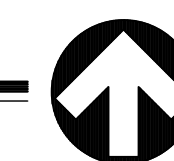
**DEMOLITION
PLAN**

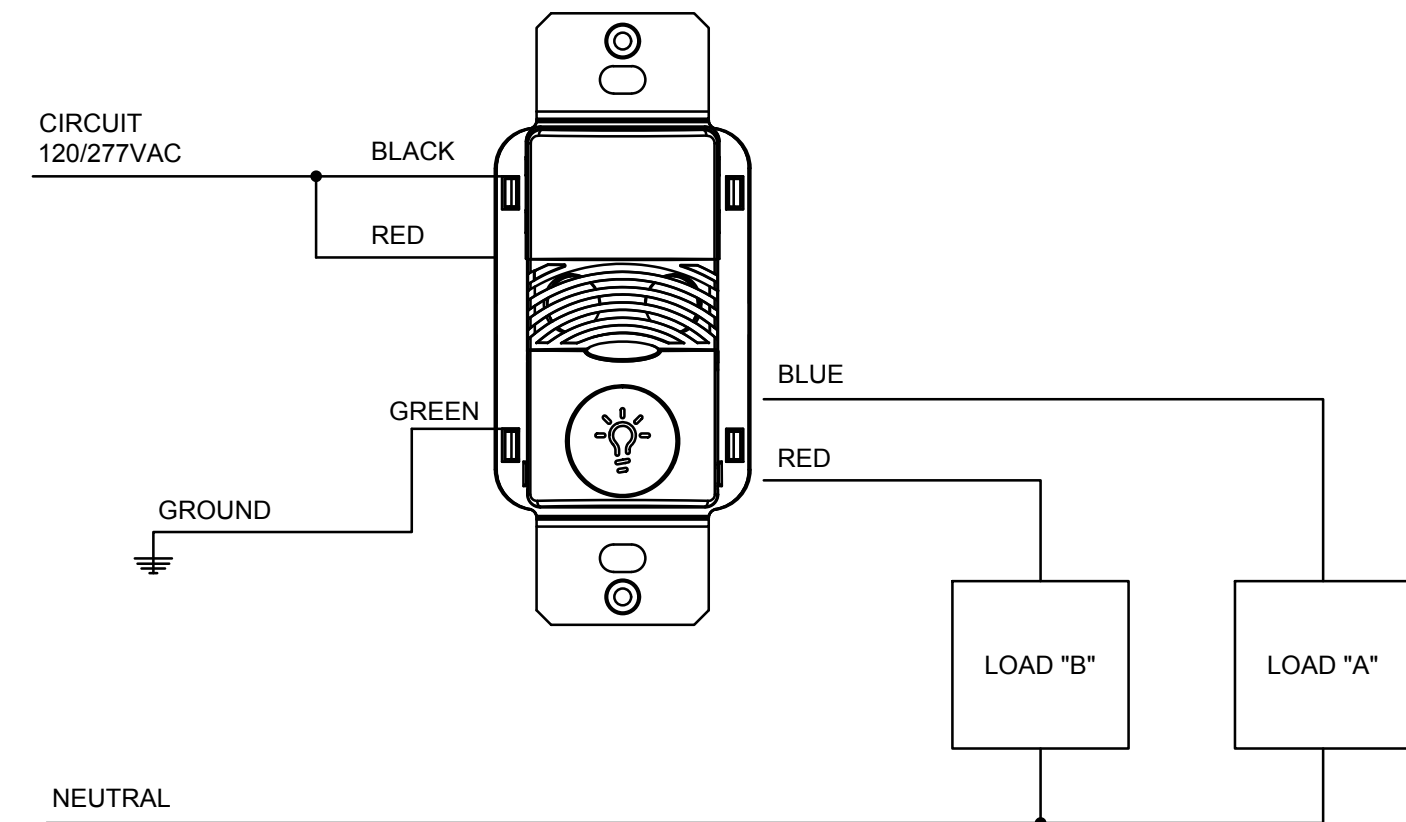
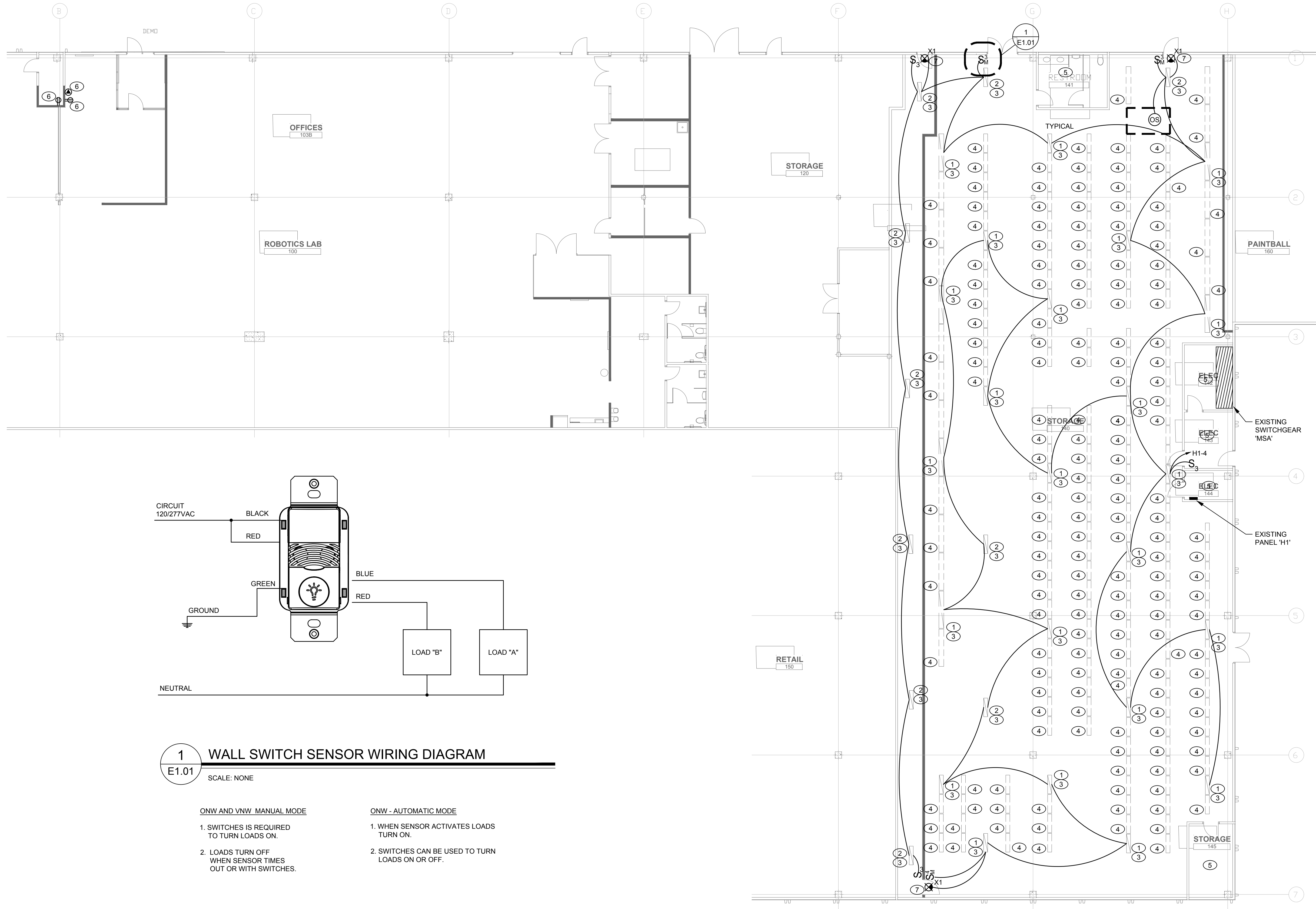
DRAWING NO.

E0.21

15.058.1 UNLV FAB Shell Upgrade

1
 DEMOLITION PLAN
 SCALE: 3/32" = 1'-0"





1 WALL SWITCH SENSOR WIRING DIAGRAM
E1.01 SCALE: NONE

- | | |
|--|--|
| <p>ONW AND VNW - MANUAL MODE</p> <ol style="list-style-type: none"> SWITCHES IS REQUIRED TO TURN LOADS ON. LOADS TURN OFF WHEN SENSOR TIMES OUT OR WITH SWITCHES. | <p>ONW - AUTOMATIC MODE</p> <ol style="list-style-type: none"> WHEN SENSOR ACTIVATES LOADS TURN ON. SWITCHES CAN BE USED TO TURN LOADS ON OR OFF. |
|--|--|

1 LIGHTING PLAN
SCALE: 3/32" = 1'-0"

- LIGHTING GENERAL NOTES:**
- REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL LIGHTING FIXTURES.
 - VERIFY EXACT CEILING CONSTRUCTION WITH ARCHITECTURAL REFLECTED CEILING PLAN AND PROVIDE LIGHTING FIXTURES WITH ALL NECESSARY MOUNTING HARDWARE.
 - COORDINATE EXACT LIGHTING FIXTURE LOCATIONS WITH MECHANICAL EQUIPMENT AND DUCT WORK PRIOR TO ROUGH-IN.
 - ALL PENETRATIONS THROUGH FIRE RATED WALLS SHALL BE PROTECTED FROM THE SPREAD OF FIRE WITH AN APPROVED FIRESTOP SYSTEM EQUAL OR GREATER THAN THE FIRE RATING OF THE WALL.
 - ALL ELECTRICAL EQUIPMENT LOCATED OUTDOORS SHALL BE WEATHERPROOF.
 - ALL WALL SWITCHES SHALL BE RECESSED IN WALLS.
 - ALL CONDUIT/CABLE INSTALLATION SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER.
 - PROVIDE UNSWITCHED CONDUCTOR FOR ALL EMERGENCY BALLAST TO MAINTAIN CHARGING CIRCUIT REGARDLESS OF ON/OFF OF RELAY.

- LIGHTING KEY NOTES: (#)**
- EXISTING LIGHT FIXTURE TO REMAIN. THOROUGHLY CLEAN LIGHT FIXTURE AND PROVIDE NEW LAMPS.
 - RELOCATED LIGHT FIXTURE.
 - CONTRACTOR TO REMOVE EXISTING BALLAST FROM EXISTING FIXTURE AND PROVIDE NEW EMERGENCY BALLAST, CAPABLE OF 1400 LUMENS FOR 90 MINUTES.
 - REMOVE EXISTING CONDUCTORS BACK TO SOURCE. EXISTING FIXTURE TO REMAIN IN PLACE.
 - EXISTING ROOM CIRCUITING TO REMAIN. MAINTAIN EXISTING CIRCUITS.
 - CONTRACTOR TO RELOCATE EXISTING RECEPTACLES AND DATA TO NEW WALL FACE. EXTEND CONDUIT AND CONDUCTORS AS NEEDED.
 - CONTRACTOR TO PROVIDE EXIT SIGNS MODEL LQM S W 3 R 120/277 EL N. OR EQUAL.

NOTE TO PLANS EXAMINER:
PER THE 2012 IECC SECTION 101, ARTICLE 101.4.3, EXEMPTION NUMBER 7, A COMPLIANCE CERTIFICATE SHALL NOT BE PROVIDED FOR THIS PROJECT. THE REQUIREMENTS OF ARTICLE 505.2 AND RELATED SUB-SECTIONS SHALL BE IMPLEMENTED. THE TOTAL WATTAGE FOR THE SPACE HAS BEEN REDUCED AS A RESULT OF THIS PROJECT.

UK
tkj consulting engineers, inc.
8728 Spanish Ridge Avenue
Suite 100
Las Vegas, NV 89148
P: 702.871.3821
F: 702.871.8353
www.tkjengineers.com
TJK # 16103

LIGHTING PLAN

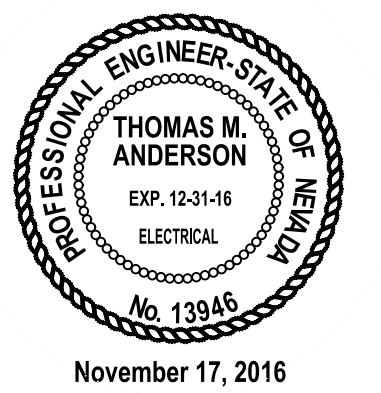
DRAWING NO.

E1.01

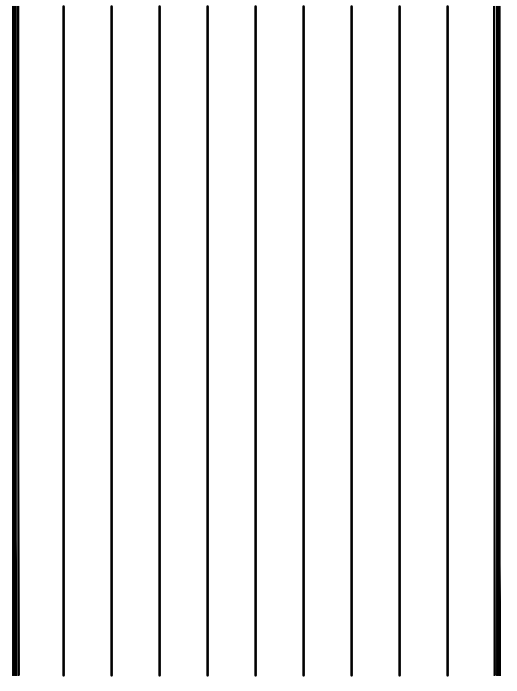
15.058.1 UNLV FAB Shell Upgrade

aptus
Construction Documents
1325 East Flamingo Road
Las Vegas, Nevada, 89119
P 702.893.1200
F 702.893.1213

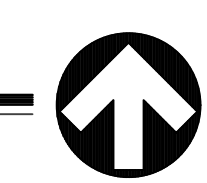
"SFM / SPWD
PLANS CHECK"



November 17, 2016



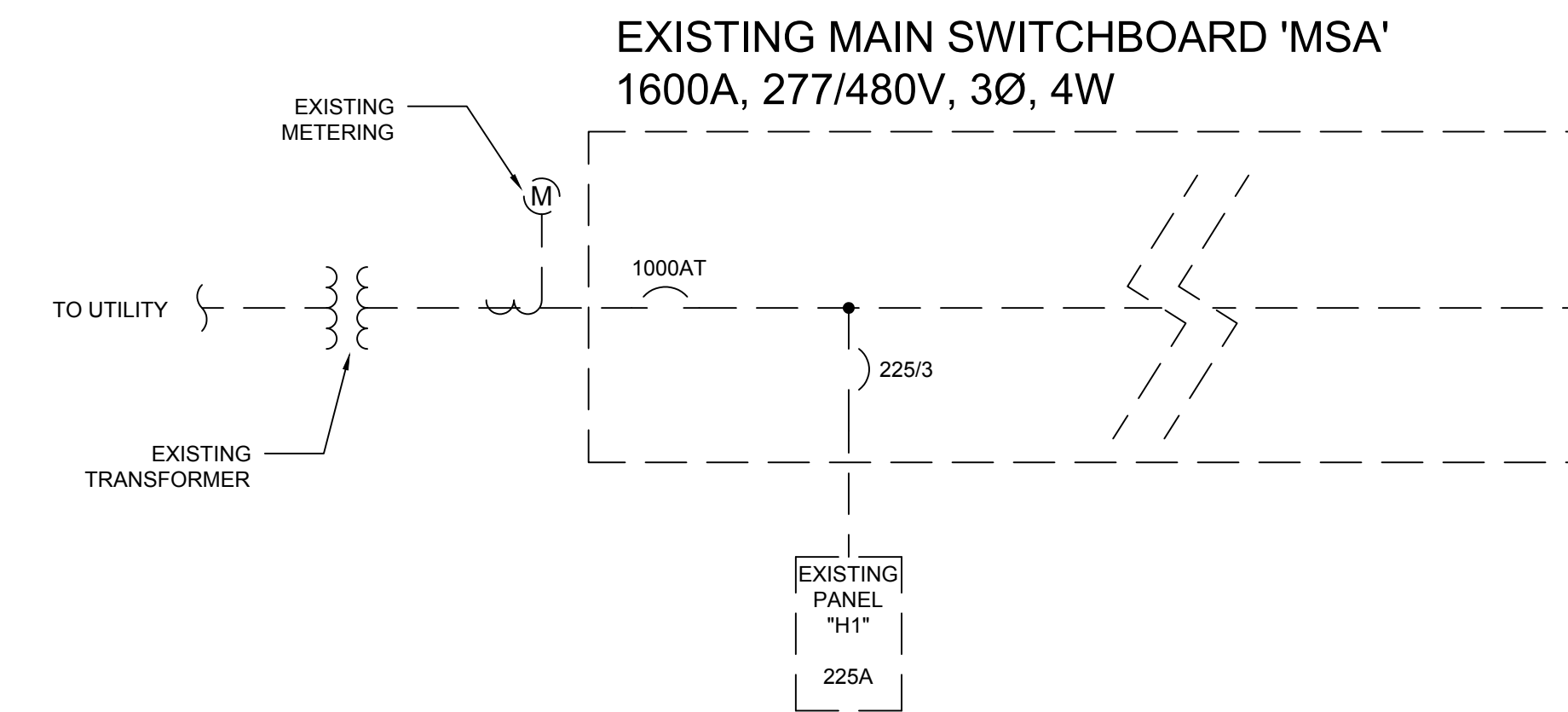
TITLE



ONE LINE DIAGRAM

GENERAL NOTES:

- THE DESIGN PROFESSIONAL HAS PERFORMED ALL REQUIRED VOLTAGE DROP CALCUATIONS AND ALL BRANCH CIRCUITS AND FEEDER COMPLY WITH NEC 210.19(A)(1).



EXISTING ELECTRICAL ONELINE DIAGRAM

NOT TO SCALE

NOTES		LOADS		LOAD DESCRIPTION		CONNECTED LOAD (VA)		LOAD DESCRIPTION		LOADS		NOTES	
NO.	DESCRIPTION	NO.	DESCRIPTION	NO.	DESCRIPTION	NO.	DESCRIPTION	NO.	DESCRIPTION	NO.	DESCRIPTION	NO.	DESCRIPTION
9 1	M					4400	A 1500	20					
9 3	M					4400	B 3072	20					
9 5	M					4400	C 3000	20					
9 7	M					4400	A 1000	20					
9 9	M					4400	B 1200	20					
9 11	M					4400	C 3400	20					
9 13	M					4400	A 1876	20					
9 15	M					4400	B 3000	20					
9 17	M					4400	C 3000	20					
9 19	M					2500	A 3000	20					
9 21	M					2500	B 3000	20					
9 23	M					2500	C 3000	20					
9 25	M					2500	A						
9 27	M					2000	B						
9 29	M					2500	C						
9 31	M					2500	A						
9 33	M					2000	B						
9 35	M					2500	C						
9 37	M					3800	A						
9 39	M					3800	B						
9 41	M					3800	C						

CONNECTED VA		DEMAND VA		AMPHASE					
TOTAL RECEPTACLE (R)	0	0%	0	A	1115	B	1125	C	133
TOTAL MOTOR (M) LOAD	73,500	104%	76,800	TOTAL CONNECTED AMP			103		
TOTAL LIGHTING (L) LOAD @ 125%	12,048	125%	15,060	TOTAL DEMAND AMP			110		
TOTAL KITCHEN (K) LOAD @ 100%	0	0%	0	PERCENT LOADED			49%		
TOTAL FIXED (F) LOAD	0	0%	0						
TOTAL OTHER (O) LOAD	0	0%	0						
TOTAL ELEVATOR (EL) LOAD @ 100%	0	0%	0						
TOTAL	85,548		91,860						

NOTES:
 1. EXISTING BREAKER
 2. PROVIDE SHUNT TRIP DEVICE
 3. PROVIDE GFCI DEVICE
 4. PROVIDE RED CIRCUIT BREAKER
 5. PROVIDE SUBFEED BREAKER
 6. CONTROLLED VIA RELAY
 7. EXISTING LOAD REMOVED. REUSE EXISTING BREAKER
 8. CIRCUIT BREAKER CONTROLLED BY OTHER EQUIPMENT
 9. PROVIDE NEW BREAKER, MOUNTING HARDWARE, MATCH TYPE AND AIC RATING.

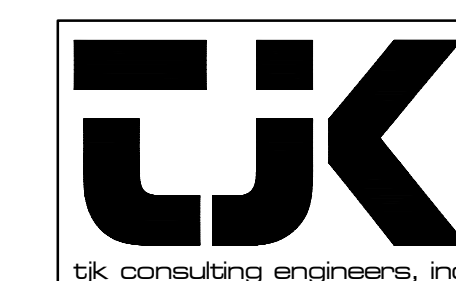
*CONNECTED PANEL (S) LOADS INCLUDED ABOVE ©2016 TJK CONSULTING ENGINEERS, INC.

ELECTRICAL LOAD CALCULATION

UNLV FAB UPGRADE
 TJK#16103
 480/277

LOAD TO BE REMOVED FROM PANEL H1	VA	PHASE	WATTAGE
96 1X4 LAMP FIXTURES	96 VA	1.00	-9220
16 1X8 LAMP FIXTURES	192 VA	1.00	-3070
TOTAL			-12290

EXISTING 225A PANEL H1 TO REMAIN



8728 Spanish Ridge Avenue
 Suite 100
 Las Vegas, NV 89148
 P: 702.871.3621
 F: 702.871.8353
 www.tjkengeers.com

TJK# 16103

ONE LINE DIAGRAM

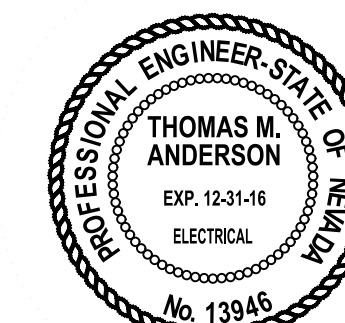
DRAWING NO.

E5.01

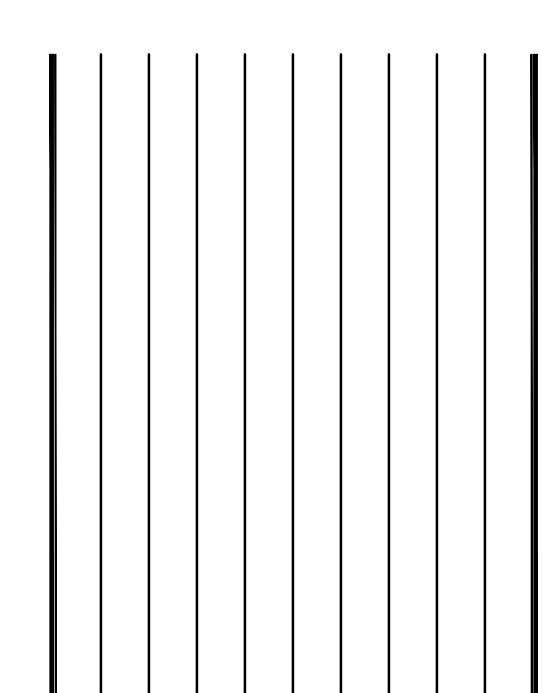
15.058.1 UNLV FAB Shell Upgrade

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

"SFM / SPWD
 PLANS CHECK"



November 17, 2016



TITLE