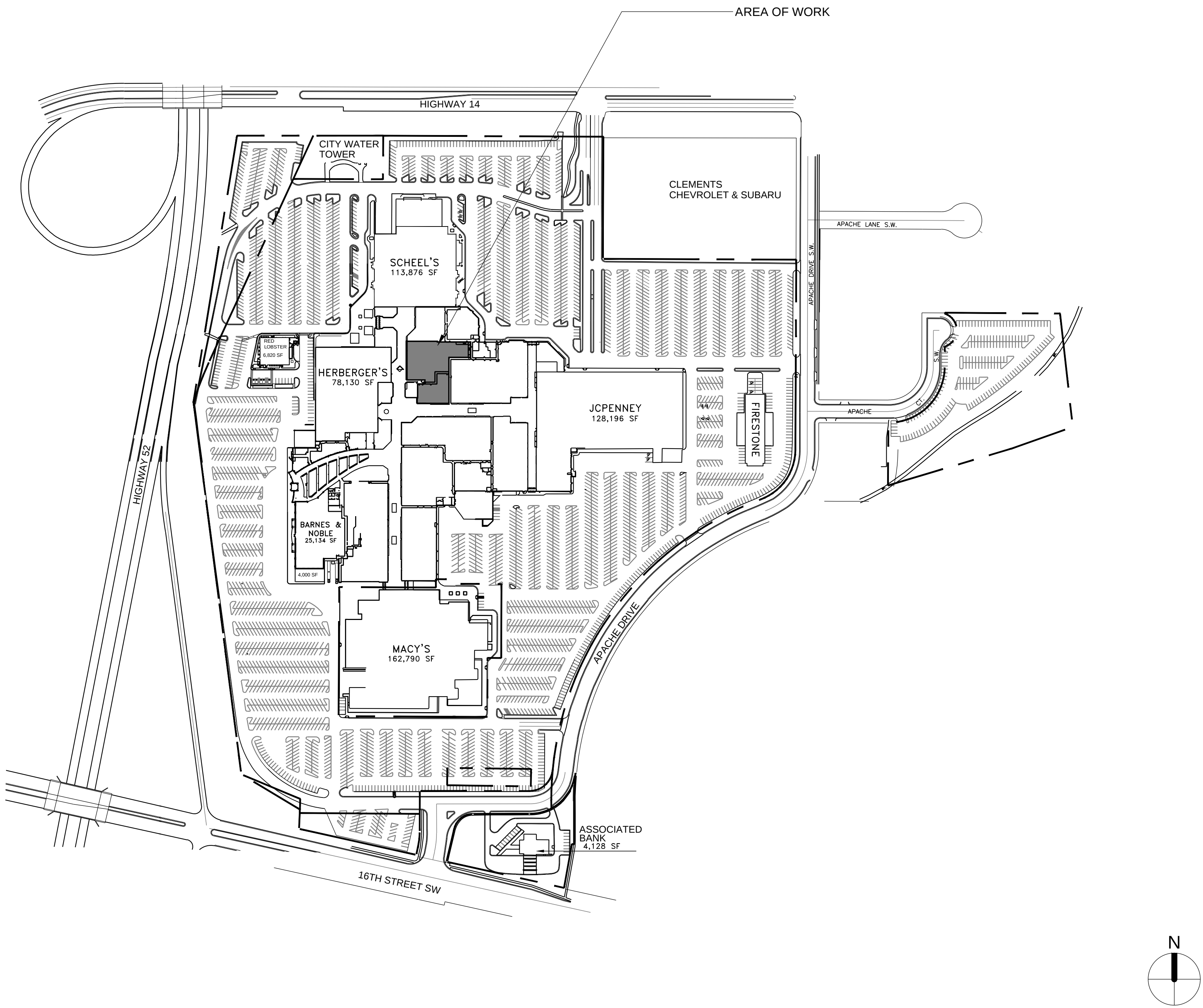


APACHE MALL
SHELL SUITE 305
333 APACHE MALL
ROCHESTER, MN 55902



FOR REFERENCE ONLY - N.T.S.

ABBREVIATIONS				SYMBOLS				GENERAL NOTES				BUILDING DATA				PROJECT DESCRIPTION				SHEET INDEX																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																		
AB	ANCHOR BOLT	NO	NUMBER	ACOUS	ACOUSTICAL	NTS	NOT TO SCALE	ACT	TILE	OC	ON CENTER	X KEYNOTE DOOR TAG REFER TO DOOR SCHEDULE WINDOW TAG REFER TO WINDOW SCHEDULE XX-X MATERIALS TAG AX-X EXTERIOR ELEVATION CALLOUT ELEVATION NUMBER SHEET NUMBER AX-X SECTION CALLOUT SECTION NUMBER SHEET NUMBER AX-X DETAIL CALLOUT DETAIL NUMBER SHEET NUMBER AX-X INTERIOR ELEVATION CALLOUT SHEET NUMBER INTERIOR ELEVATION NUMBER X REVISION X COLUMN GRID NORTH ARROW X ± 0" PLAN ELEVATION	THE INFORMATION CONTAINED IN THIS SPACE IS PROVIDED TO AID THE REVENING AGENCY IN CHECKING CODE AND/OR ORDINANCE COMPLIANCE. THE CONTRACTOR SHALL REFER TO THE DRAWINGS AND SPECIFICATIONS FOR SPECIFIC INFORMATION. ALL WORK SHALL BE IN COMPLIANCE WITH THE INTERNATIONAL BUILDING CODE, 2015 EDITION.	1. ALL DOOR HARDWARE SHALL COMPLY WITH THE REQUIREMENTS OF INTERNATIONAL BUILDING CODE CHAPTER 1008.1.9.	2. DOORS SHALL HAVE 10" MINIMUM BOTTOM RAIL.	3. EFFORT TO OPERATE BUILDING DOORS SHALL NOT EXCEED THE LIMITATIONS SET FORTH IN THE I.B.C.	4. NUMBER AND LOCATION OF FIRE EXTINGUISHERS SHALL BE DETERMINED BY FIELD INSPECTION.	5. EXIT DOORS SHALL SWING IN THE DIRECTION OF TRAVEL WHEN SERVING A HAZARDOUS AREA OR WHEN SERVING AN OCCUPANT LOAD OF 50 OR MORE.	6. INTERIOR FINISHES SHALL COMPLY WITH I.B.C. SECTION 803 AND TABLE 803.9.	7. GYPSUM BOARD CEILINGS IN CONJUNCTION WITH FIRE RATED ASSEMBLIES SHALL BE SUSPENDED AT INTERVALS NOT EXCEEDING 16" O.C.	8. MOUNT DOOR OPERATING HARDWARE AT HEIGHT BETWEEN 34" AND 44" ABOVE THE FLOOR.	9. MODIFY EXISTING AUTOMATIC FIRE SPRINKLER SYSTEM AND INSTALL NEW FIRE SPRINKLER HEADS AS REQUIRED TO CONFORM WITH NFPA, 2015 I.B.C. AND STATE FIRE MARSHAL REGULATIONS. CONTRACTOR SHALL PREPARE SHOP DRAWINGS AND CALCULATIONS AND SUBMIT TO THE ARCHITECT AND CITY FIRE DEPARTMENT PRIOR TO INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR OBTAINING CITY OF HOOVER PERMIT FOR FIRE SPRINKLER INSTALLATION.	10. A CERTIFICATE OF OCCUPANCY IS REQUIRED PRIOR TO TENANT OCCUPANCY OF THE SPACE.	11. ALL ROOF MOUNTED EQUIPMENT MUST BE SCREENED FROM VIEW FROM ADJACENT STREETS UNLESS PERMISSION IS GRANTED FROM THE CITY OF ROCHESTER AND THE PROPERTY OWNER. TENANT CONTRACTOR IS RESPONSIBLE TO COORDINATE ALL ROOF MOUNTED EQUIPMENT.	12. FIRE ALARM PLANS AND INSTALLATION SHALL COMPLY TO NFPA STANDARDS.	THE APPLICABLE CODES ARE THE CURRENT VERSION OF THE INTERNATIONAL BUILDING, THIS INCLUDES BUT IS NOT LIMITED TO THE FOLLOWING PARTS: 2015 INTERNATIONAL BUILDING CODE WITH REVISIONS 2015 INTERNATIONAL MECHANICAL CODE WITH REVISIONS 2015 INTERNATIONAL PLUMBING CODE WITH REVISIONS 2015 INTERNATIONAL FUEL GAS CODE WITH REVISIONS 2015 INTERNATIONAL FIRE CODE WITH REVISIONS 2015 INTERNATIONAL ENERGY CONSERVATION CODE WITH REVISIONS AND EXCEPTIONS 2014 NFPA NATIONAL ELECTRICAL CODE 2015 INTERNATIONAL PROPERTY MAINTENANCE CODE WITH AMENDMENTS LOCAL CODE AND AMENDMENTS THIS PROJECT SHALL ALSO COMPLY WITH THE APPLICABLE CODES AND STANDARDS OF THE NATIONAL FIRE PROTECTION ASSOCIATION (NFPA) OCCUPANCY GROUP: EXISTING - GROUP M - MERCANTILE PROPOSED - GROUP M - MERCANTILE TYPE OF CONSTRUCTION: III-B, FULLY SPRINKLERED PROJECT RENOVATION AREA: 22,202 SQUARE FEET (APPROXIMATE)	PROJECT SCOPE INCLUDES DEMOLITION OF EXISTING WALLS, FINISHES AND EQUIPMENT IN EXISTING TENANT SPACES 301, 305, 306, 308, 309, 310, 311. THE SEVEN (7) SPACES WILL BECOME ONE SPACE 305 FOR FUTURE SINGLE TENANT AND LANDLORD WORK WILL BE COMPLETED BASED ON APPROVED LANDLORD WORK LETTER AND THESE CONSTRUCTION DOCUMENTS. - DEMISING WALLS - SMOOTH CONCRETE FLOOR - STUB IN LOCATIONS AT REAR OF SPACE FOR ALL UTILITIES (EXISTING HVAC, ELECTRICAL SERVICE, TELEPHONE SERVICE, PLUMBING CLEANOUTS, ETC.). SIZE PER LL WORK LETTER. (LOCATION PER TENANT'S LAYOUT) - NEW HVAC SYSTEM (DISTRIBUTION BY TENANT UNDER SEPARATE PERMIT) SIZE PER LL WORK LETTER. (LOCATION PER TENANT'S LAYOUT) - INTERIOR STOREFRONT BARRICADE - NEW 44" REAR SERVICE DOOR PROJECT RENOVATION AREA: 22,072 SQUARE FEET (APPROXIMATE) SQUARE FOOTAGE CALCULATIONS: THE CALCULATIONS OF THE DIMENSIONS AND SQUARE FOOTAGE OF THE LEASED PREMISES ARE FROM THE CENTERLINE OF THE INTERIOR PARTITIONS, FROM THE OUTSIDE FACE OF EXTERIOR WALLS, AND FROM THE FULL THICKNESS OF CORRIDOR AND SHAFT WALLS. NO DEDUCTIONS ARE ALLOWED FOR THE SPACE OCCUPIED COLUMNS, INTERIOR PARTITIONS, OR OTHER INTERIOR CONSTRUCTION OR EQUIPMENT INSTALLED OR PLACED IN THE LEASED PREMISES.	ARCHITECTURAL DRAWINGS: A0.0 SHEET INDEX PROJECT INFORMATION SITE PLAN A0.1 EXTERIOR ACCESSIBILITY DETAILS A0.2 INTERIOR ACCESSIBILITY DETAILS A1.0 DEMOLITION PLAN A2.0 FLOOR PLAN A3.0 DETAILS STRUCTURAL DRAWINGS: S1 FOUNDATION PLAN S2 ROOF PLAN S3 STRUCTURAL NOTES & DETAILS S4 DETAILS MECHANICAL DRAWINGS: M0.1 MECHANICAL SPECIFICATIONS AND LEGEND M1.1 MECHANICAL ROOF PLAN M2.1 MECHANICAL SCHEDULE, DETAILS AND ENERGY FORM ELECTRICAL DRAWINGS: E0.1 ELECTRICAL GENERAL NOTES AND LEGEND E0.2 ELECTRICAL SPECIFICATIONS E1.2 ELECTRICAL ROOF PLAN E3.2 SINGLE LINE DIAGRAM AND LOAD CALCULATIONS PLUMBING DRAWINGS: P0.1 PLUMBING SPECIFICATIONS AND LEGEND P0.2 PLUMBING SCHEDULES P1.1 PLUMBING FLOOR PLAN - WASTE AND VENT P1.2 PLUMBING FLOOR PLAN - WATER AND GAS P1.3 PLUMBING ROOF PLAN P2.1 PLUMBING DETAILS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																										
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architecture design collaborative
14252 culver drive suite A-347
irvine, ca 92604
www.adcollaborative.com
949.267.1660
ADC Project No: 150114
Project Contact: Alexandra Hernandez
Email: ahernandez@adcollaborative.com
Principal: Craig Chinn
Project Manager: Alexandra Hernandez
Client
Company: Culp Construction
Address: 1 Technology Drive, Suite D-411
Irvine, CA 92618
Phone No. (949) 727-3552
Fax No. ----

APACHE MALL
SHELL SUITE 305
333 APACHE MALL
ROCHESTER, MN 55902

Sheet Issue & Revision Log
Sheet Issue Date 12-01-15
01/25/16 TENANT REVISIONS
02/03/16 1ST CITY SUBMITTAL
I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: CRAIG T. CHINN
SIGNATURE: *Craig Chinn*
DATE: 01/25/2016 LICENSE#: 53588

TITLE
SHEET-PROJECT
INFORMATION-SITE
PLAN

A0.0

				8" 8" ACCESSIBILITY SIGN 5'-0" A.F.F. NOTES PER SECTION 1110 2009 IBC A. ALL ACCESSIBLE ENTRIES SHALL HAVE A MIN. 5'x5' INTERNATIONAL SYMBOL OF ACCESSIBILITY DISPLAYED ON THE LATCH SIDE OF THE DOOR. B. INTERNATIONAL SYMBOL OF ACCESSIBILITY IS MOUNTED 60" IN HEIGHT ABOVE THE LANDING. C. DIRECTIONAL SIGNS TO ACCESSIBLE BUILDING ENTRANCES AND FACILITIES ARE POSTED AS NECESSARY.	ACCESSIBLE PARKING SIGN ADDITIONAL SIGN REQUIRED AT VAN ACCESSIBLE PARKING SPACES ONLY 2" X 2" STEEL POST SET IN 12" MINIMUM DIAMETER CONCRETE FOOTING CONCRETE OR ASPHALT PARKING SURFACE 80" MIN. CLEARANCE TO BOTTOM OF SIGN NOTE: AREA OF SIGN TO BE A MINIMUM OF 70 SQUARE INCHES PROVIDE SIGNAGE PER ANSI SECTION 703.6.3.1	ACCESSIBILITY SIGN SCALE: 1-1/2"=1'-0"	8	ACCESSIBLE SIGNAGE SCALE: 1"=1'-0"	4
				1 1/2" DIAMETER STANDARD PIPE RAIL, PRIMED AND PAINTED 27" MAX 8" MIN. INBED INTO CONC. SLAG DRYPACK 4'-0" O.C. MAX. EQUALLY SPACED BALLUSTER CANE RAIL TO TERMINATE AT 80" VERTICAL CLEARANCE 8"	3'-0" 10" 6" 1'-8" 1'-8" 1'-0" 1'-0" 1'-2" 1'-5 1/2" 4 1/2" 3'-0" NOTES: 1. PAINT WHITE FIGURE AND BLUE BACKGROUND (BLUE NO. 15000, FEDERAL STANDARD 5952) 2. SYMBOL MUST BE LOCATED SO THAT IT IS VISIBLE TO PARKING ENFORCEMENT PERSONNEL WHEN A VEHICLE IS PROPERLY PARKED IN THE SPACE. (CENTERED AT THE ENTRANCE OF THE STALL IS RECOMMENDED)	CANE RAIL DETAIL SCALE: 3"=1'-0"	7	PARKING SYMBOL SCALE: 1"=1'-0"	3
	406 Curb Ramps 406.1 General. Curb ramps on accessible routes shall comply with 406, 405.2 through 405.5, and 405.10. 406.2 Counter Slope. Counter slopes of adjoining gutters and road surfaces immediately adjacent to the curb ramp shall not be steeper than 1:20. The adjacent surfaces at transitions at curb ramps to walks, gutters, and streets shall be at the same level. adjoining surface maximum slope 20 1 curb ramp slope Figure 406.2 Counter Slope of Surfaces Adjacent to Curb Ramps 406.3 Sides of Curb Ramps. Where provided, curb ramp flares shall not be steeper than 1:10. flared sides 1:10 max slope slope slope Figure 406.3 Sides of Curb Ramps 406.4 Landings. Landings shall be provided at the tops of curb ramps. The landing clear length shall be 36 inches (915 mm) minimum. The landing clear width shall be at least as wide as the curb ramp, excluding flared sides, leading to the landing. EXCEPTION: In alterations, where there is no landing at the top of curb ramps, curb ramp flares shall be provided and shall not be steeper than 1:12.	36 min 115 at least as wide as curb ramp Figure 406.4 Landings at the Top of Curb Ramps 406.5 Location. Curb ramps and the flared sides of curb ramps shall be located so that they do not project into vehicular traffic lanes, parking spaces, or parking access aisles. Curb ramps at marked crossings shall be wholly contained within the markings, excluding any flared sides. 406.6 Diagonal Curb Ramps. Diagonal or corner type curb ramps with returned curbs or other well-defined edges shall have the edges parallel to the direction of pedestrian flow. The bottom of diagonal curb ramps shall have a clear space 48 inches (1220 mm) minimum outside active traffic lanes of the roadway. Diagonal curb ramps provided at marked crossings shall provide the 48 inches (1220 mm) minimum clear space within the markings. Diagonal curb ramps with flared sides shall have a segment of curb 24 inches (610 mm) long minimum located on each side of the curb ramp and within the marked crossing. 48 min 1220 24 min 610 Figure 406.6 Diagonal or Corner Type Curb Ramps 406.7 Islands. Raised islands in crossings shall be cut through level with the street or have curb ramps at both sides. Each curb ramp shall have a level area 48 inches (1220 mm) long minimum by 36 inches (915 mm) wide minimum at the top of the curb ramp in the part of the island intersected by the crossings. Each 48 inch (1220 mm) minimum by 36 inch (915 mm) minimum area shall be oriented so that the 48 inch (1220 mm) minimum length is in the direction of the running slope of the curb ramp it serves. The 48 inch (1220 mm) minimum by 36 inch (915 mm) minimum areas and the accessible route shall be permitted to overlap. 36 min 115 48 min 1220 (a) cut through at island (b) curb ramp at island Figure 406.7 Islands in Crossings <i>Note to Reader:</i> The Department of Transportation's ADA standards require detectable warnings on curb ramps: 406.8 Detectable Warnings. A curb ramp shall have a detectable warning complying with 705. The detectable warning shall extend the full width of the curb ramp (exclusive of flared sides) and shall extend either the full depth of the curb ramp or 24 inches (610 mm) deep minimum measured from the back of the curb on the ramp surface. Excerpted from ADA Standards - Chapter 4 Accessible Routes - 2010	PROVIDE SIGN MIN. 17"x22" "UNAUTHORIZED VEHICLE PARKED IN DESIGNATED ACCESSIBLE SPACES." 70 SQ. INCH SIGN 4'-0" MIN. 4'-0" MIN. 3'-0" 3'-0" PEDESTRIAN ROUTE 5% MAX. SLOPE CROSS SLOPE 1/4 INCH PER FOOT MAX. STRIPES AT 36" O.C. WHEEL STOP 2% MAX. SURFACE SLOPE IN ANY DIRECTION 8'-6" MIN. 5'-0" 8'-6" MIN. AT TYP ACCESSIBLE PARKING STALL, 8'-0" MIN AT VAN ACCESSIBLE PARKING STALL MEASURED FROM CENTER LINE OF STRIPES TYPICAL PAVEMENT SYMBOL PER ANSI SECTION 502	ACCESSIBLE CURB RAMPS SCALE: N.T.S.	9	ACCESSIBLE PARKING STALL SCALE: 3/8"=1'-0"	1		

architecture design collaborative
14252 culver drive suite A-347
irvine, ca 92604
www.adcollaborative.com
949.267.1660

ADC Project No: 150114

Project Contact: Alexandra Hernandez
Email: ahernandez@adcollaborative.com
Principal: Craig Chinn
Project Manager: Alexandra Hernandez

Client

Company: Culp Construction
Address: 1 Technology Drive, Suite D-411
Irvine, CA 92618
Phone No. (949) 727-3552
Fax No. -----

APACHE MALL
SHELL SUITE 305
333 APACHE MALL
ROCHESTER, MN 55902

Sheet Issue & Revision Log

Sheet Issue Date	Revision
12-01-15	01/25/16 TENANT REVISIONS
	02/03/16 1ST CITY SUBMITTAL

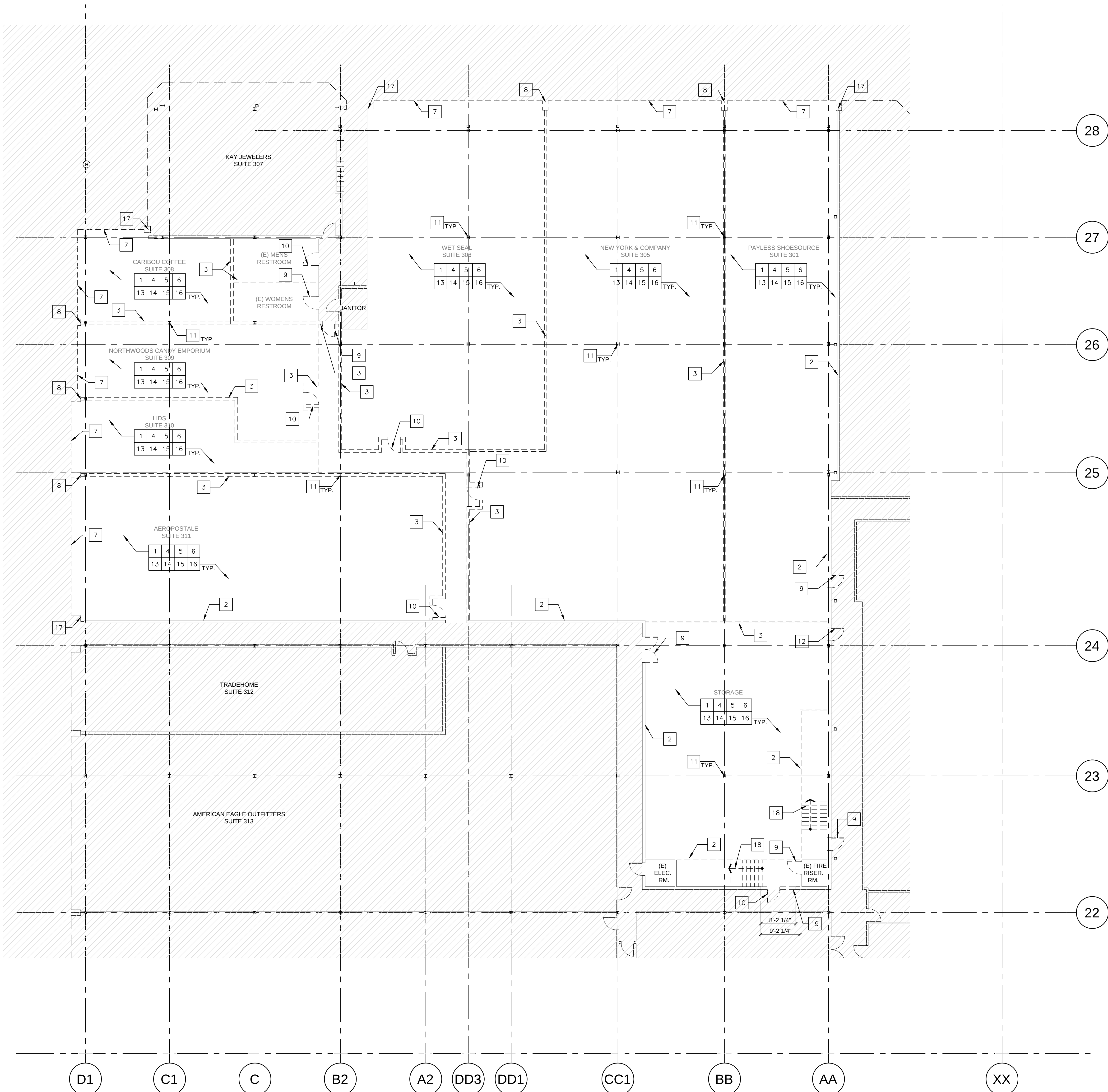
It is the client's responsibility prior to or during construction to notify the architect in writing of any perceived errors or omissions in the plans and specifications of which a contractor thoroughly knowledgeable with the building codes and methods of construction should reasonably be aware. Written instructions addressing such perceived errors or omissions shall be received from the architect prior to the client or client's subcontractors proceeding with the work. The client will be responsible for any defects in construction if these procedures are not followed.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.

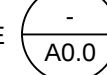
PRINT NAME: CRAIG T. CHINN
SIGNATURE:
DATE: 02/20/2016 LICENSE#: 53568

EXTERIOR
ACCESSIBILITY
DETAILS

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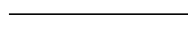
GENERAL NOTES

- REMOVE FINISHES IN THEIR ENTIRETY AS INDICATED. CLEAN EXPOSED SURFACES. REMOVE ALL MASTIC, GLUES OR BUILT UP MATERIALS FROM THE ENTIRE SURFACE. PROVIDE A SMOOTH, SUBSTRATE SURFACE.
- PRIOR TO REMOVAL OF ANY ITEMS OR ASSEMBLIES INDICATED, VERIFY WITH THE OWNER WHICH ITEMS WILL BE SALVAGED.
- IF THE OWNER DESIGNATES ITEMS TO BE SALVAGED, MOVE THE ITEMS TO A SPECIFIED LOCATION AS DIRECTED BY THE OWNER.
- BRING TO THE IMMEDIATE ATTENTION OF THE ARCHITECT IN WRITING, ANY FINDINGS, WHICH WERE NOT VISUALLY DETECTABLE PRIOR TO DEMOLITION SO THAT THE ARCHITECT CAN CLARIFY ACTIONS TO BE TAKEN BY THE CONTRACTOR.
- PRIOR TO DEMOLITION RE-ROUTE AS NEEDED EXISTING UTILITIES REQUIRED TO BE MAINTAINED.
- PROTECT ALL EXISTING ELEMENTS & UTILITIES INDICATED TO REMAIN.
- VERIFY DEPTHS & LOCATIONS OF (E) UTILITIES TO REMAIN PRIOR TO BID & PRIOR TO START OF DEMOLITION WORK.
- REMOVE IN THEIR ENTIRETY ITEMS SHOWN WITH DASHED LINES.
- ALL RE-USED FIRE EXTINGUISHERS MUST BE TESTED & CERTIFIED PRIOR TO INSTALLATION AT NEW LOCATION.
- WHERE EXISTING SURFACES ARE TO BE FRAMED OR FURRED TO RECEIVE NEW FINISHES, ENSURE THAT EXISTING SURFACES HAVE BEEN COMPLETELY CLEANED OF EXISTING MOLD, MILDEW, AND/OR SURFACE DIRT, & THAT ALL EXISTING FINISHES HAVE BEEN REMOVED DOWN TO BARE SUBSTRATE.
- PATCH & REPAIR ALL (E) ASSEMBLIES OR SURFACES & MAKE READY FOR APPLICATION OF NEW FINISHES & MATERIALS.
- USE OF ABBREVIATIONS ARE NOT LIMITED TO THE ABBREVIATIONS LIST ON THIS SHEET.
SEE  FOR ADDITIONAL ABBREVIATIONS
- FULLY INSPECT ALL (E) CONDUITS TO REMAIN AND PROVIDE ARCHITECT WITH ALL INSPECTION REPORT WITH DETAIL RECOMMENDATIONS FOR ANY NEEDED REPAIR AND UPGRADE. FOR ARCHITECTS REVIEW AND ACTION PRIOR TO THE START OF DEMOLITION
- PATCH AND REPAIR ALL EXISTING ASSEMBLIES OR SURFACES WHERE DEMOLITION IS REQUIRED TO INSTALL NEW UTILITIES.
- REMOVE EXISTING WIRING, CONDUIT, BOXES & INTERIOR LIGHT FIXTURES IN THEIR ENTIRETIES AND REMOVE ALL ELECTRICAL WIRING BACK TO NEAREST POINT OF DISCONNECTION AT A CONCEALED SPACE.
- COORDINATE WITH PLUMBING, ELECTRICAL, AND MECHANICAL DRAWINGS FOR ADDITIONAL DEMOLITION REQUIRED.
- PROTECT IN PLACE ALL EXISTING MATERIALS ASSEMBLIES AND UTILITIES INDICATED TO REMAIN. REVIEW PLUMBING, MECHANICAL, AND ELECTRICAL DRAWINGS FOR ADDITIONAL INFORMATION.
- RE-ROUTE EXISTING UTILITIES REQUIRED TO BE MAINTAINED PRIOR TO DEMOLITION WITHOUT DISRUPTION OF SERVICES TO OTHER BUILDINGS.
- REPAIR AT NO COST TO OWNER DAMAGE TO EXISTING CONDITIONS OUTSIDE LIMITS OF WORK AS A RESULT OF THE WORK PERFORMED UNDER THIS CONTRACT.
- NOTIFY THE OWNER IMMEDIATELY IN WRITING IF ANY AREAS ARE DISCOVERED TO CONTAIN HAZARDOUS MATERIAL WITHIN THE SCOPE OF WORK.
- IDENTIFY EXISTING SMOKE EVACUATION EQUIPMENT PRIOR TO DEMOLITION AND PROTECT IN PLACE DURING CONSTRUCTION.
- LANDLORD TO PROVIDE A FIRE ALARM FLOW TEST AT COMPLETION OF CONSTRUCTION.

KEY NOTES

- DEMOLISH EXISTING FLOOR FINISH AND BASE. PATCH AND REPAIR AS NEEDED.
- (E) DEMISING WALL TO REMAIN. (E) DRYWALL TO REMAIN.
- DEMOLISH EXISTING WALL.
- REMOVE EXISTING UTILITY LINES BACK TO MAIN TRUNK LINE.
- REMOVE EXISTING HVAC CHASE AND DUCTWORK, LANDLORD HVAC AND DUCTWORK FOR COMMON SPACE TO REMAIN.
- REMOVE EXISTING CEILING FEATURES AND FIXTURES
- DEMOLISH EXISTING STOREFRONT
- DEMOLISH EXISTING NEUTRAL PIER
- DEMOLISH EXISTING DOOR AND FRAME. PATCH WALL TO MATCH ADJACENT WALL TYPE AND FINISHES
- DEMOLISH EXISTING DOOR AND FRAME
- EXISTING STRUCTURAL COLUMN TO REMAIN
- EXISTING DOOR AND FRAME TO REMAIN.
- EXISTING SMOKE EVACUATION EQUIPMENT TO REMAIN
- DEMOLISH ALL INTERIOR NON-LOAD BEARING WALLS & FINISHES; REMOVE ANY EXISTING OR PRIOR OCCUPANTS IMPROVEMENTS, EQUIPMENT, ETC.
- REMOVE NON-COMMISSIONED ROOFTOP HVAC EQUIPMENT & RELATED COMPONENTS LOCATED WITHIN OR ABOVE THE LEASED PREMISES; REPAIR ANY RESULTING DAMAGE
- RELOCATE ANY CEILING UTILITIES TO REMAIN ABOVE 13'-6" TO PROVIDE AN UNOBSTRUCTED HEIGHT OF 13'-6"
- (E) NEUTRAL PIER TO REMAIN. PROTECT IN PLACE.
- DEMO (E) STAIRS & MEZZANINE ABOVE. PATCH AND REPAIR FLOOR SLAB AS NEEDED.
- DEMOLISH PORTION OF WALL, AS NOTED.

LEGEND

-  AREA NOT INCLUDED IN SCOPE OF WORK
-  EXISTING ITEMS TO REMAIN
-  EXISTING ITEMS TO BE DEMOLISHED IN ITS ENTIRETY
-  EXISTING WALL TO REMAIN

ABBREVIATIONS

B.O.	BOTTOM OF CENTERLINE	FOF	FACE OF FINISH
CE	EXISTING	FOC	FACE OF CONCRETE
EQ	EDGE OF SLAB	FOW	FACE OF WALL
EQ	EQUAL	RO	ROUGH OPENING
FE	FIRE EXTINGUISHER	T.O.	TOP OF
POS	FACE OF STUD	WP	WORK POINT

FOR FULL LIST OF ABBREVIATIONS REFER TO SHEET 



architecture design collaborative

14252 culver drive suite A-347

irvine, ca 92604

www.adcollaborative.com

949.267.1660

ADC Project No: 150114

Project Contact: Alexandra Hernandez

Email: ahernandez@adcollaborative.com

Principal: Craig Chinn

Project Manager: Alexandra Hernandez

Client

Company: Culp Construction

Address: 1 Technology Drive, Suite D-411

Irvine, CA 92618

Phone No. (949) 727-3552

Fax No. ----

APACHE MALL SHELL SUITE 305

333 APACHE MALL
ROCHESTER, MN 55902

Sheet Issue & Revision Log

Sheet Issue Date 12-01-15

01/25/16 TENANT REVISIONS

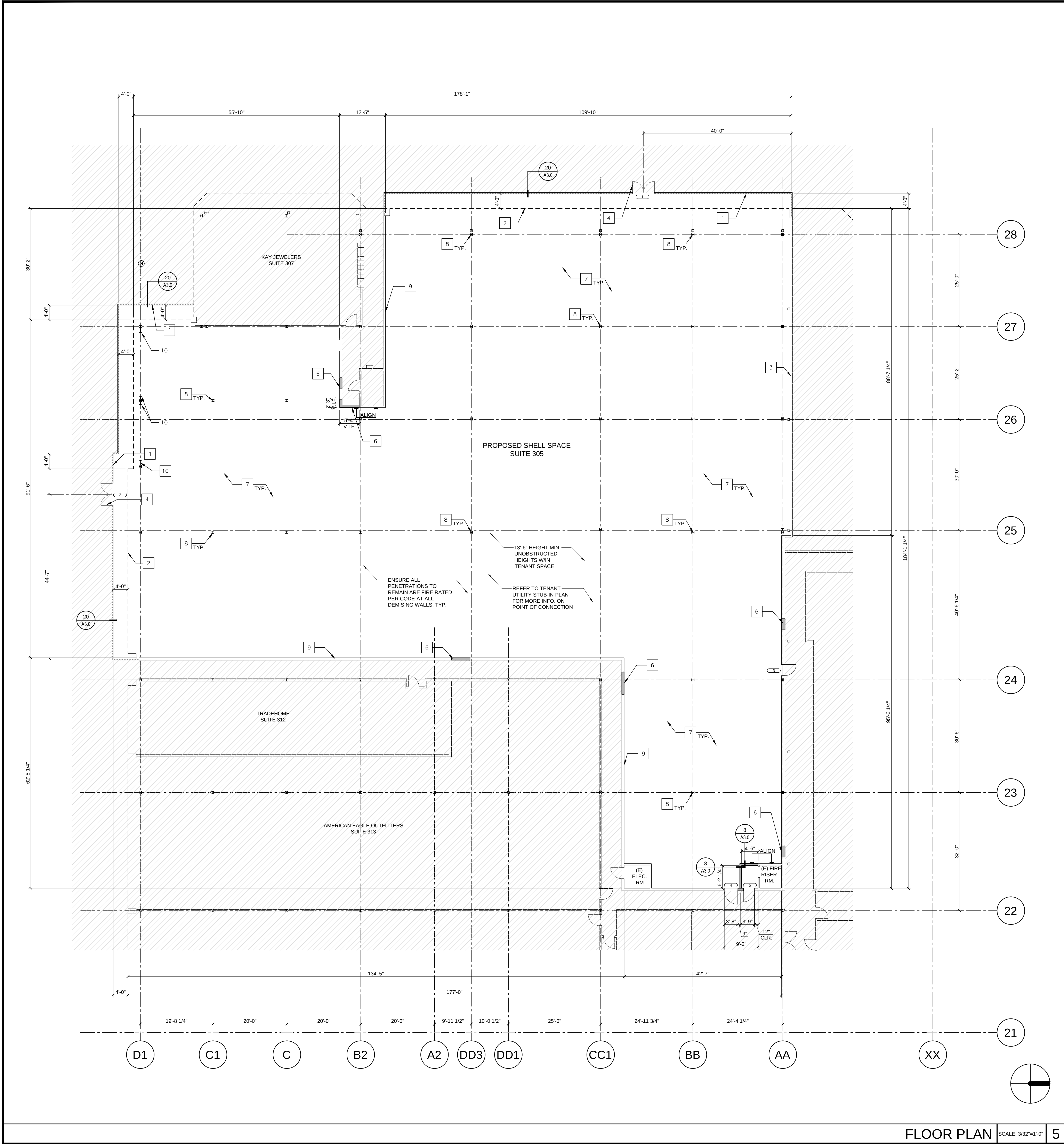
02/01/16 1ST CITY SUBMITTAL

It is the client's responsibility prior to or during construction to notify the architect in writing of any perceived errors or omissions in the plans and specifications of which a contractor thoroughly knowledgeable with the building codes and methods of construction should reasonably be aware. Written instructions addressing such perceived errors or omissions shall be received from the architect prior to the client or client's subcontractors proceeding with the work. The client will be responsible for any defects in construction if these procedures are not followed.

I HEREBY CERTIFY THAT THIS PLAN, SPECIFICATION, OR REPORT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED ARCHITECT UNDER THE LAWS OF THE STATE OF MINNESOTA.
PRINT NAME: CRAIG T. CHINN
SIGNATURE: 
DATE: 01/25/2016 LICENSE# 53888

DEMOLITION FLOOR PLAN

A1.0



FLOOR PLAN

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

5

GENERAL NOTES

- WHERE EXISTING SURFACES ARE TO BE FRAMED OR FURRED TO RECEIVE NEW FINISHES, ENSURE THAT THE EXISTING SURFACES HAVE BEEN COMPLETELY CLEANED OF EXISTING MOLD, MILDEW, AND/OR SURFACE DIRT AND THAT ALL EXISTING FINISHES HAVE BEEN REMOVED DOWN TO BARE SUBSTRATE PRIOR TO ENCLOSING OR RECEIVING NEW FINISHES.
- PATCH, REPAIR, INFILL AND SMOOTH OUT SURFACES WHERE ITEMS THAT HAVE BEEN MECHANICALLY ATTACHED LEAVE HOLES.
- PATCH AND REPAIR ALL ASSEMBLIES OR SURFACES WHERE DEMOLITION IS REQUIRED TO INSTALL NEW WORK. ALL DISTURBED ASSEMBLIES & SURFACES ARE TO BE PATCHED AND REPAIRED AS TO BE VISUALLY UNDETECTABLE IN PROFILE, LIFT, TEXTURE, COLOR AND TO MATCH ALL ADJACENT SURFACES, PROVIDE ALL MATERIALS BOTH STRUCTURALLY AND COSMETICALLY TO COMPLETE THIS WORK.

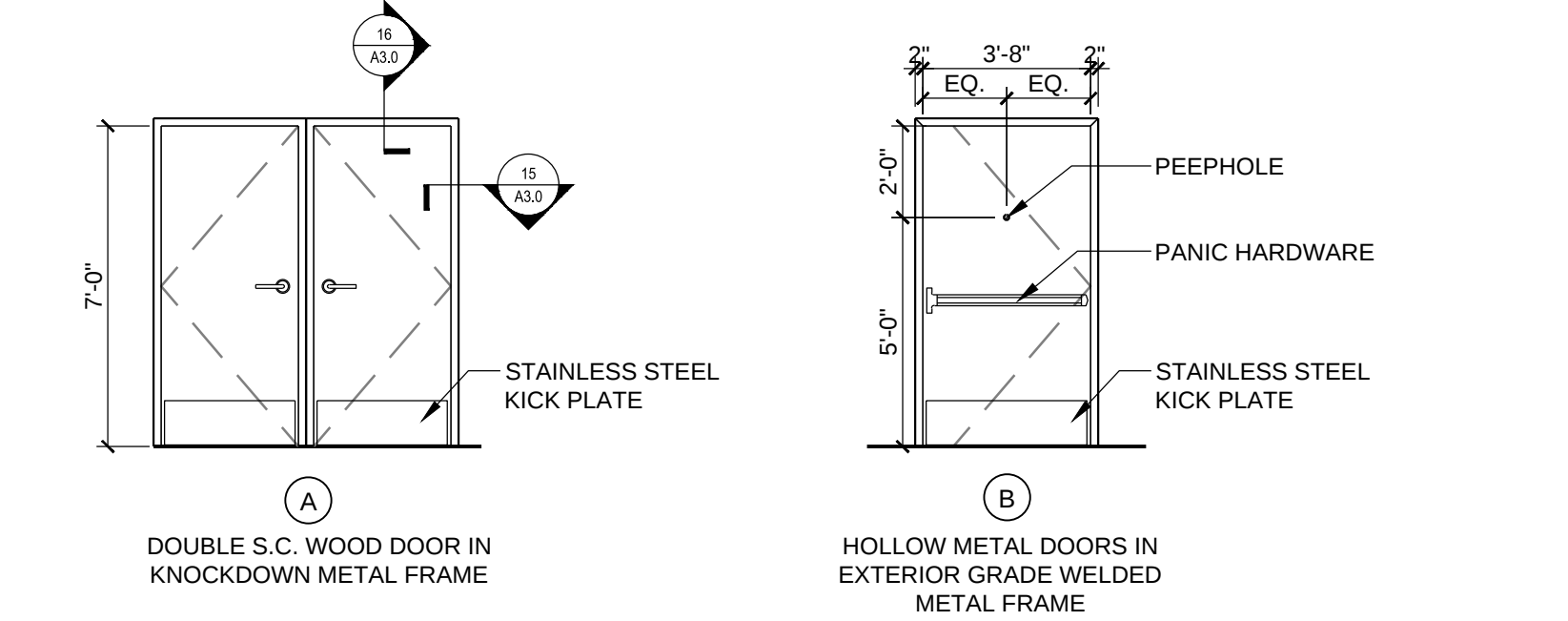
KEY NOTES

- CONSTRUCTION BARRICADE WALL 4'-0" BEYOND LEASE LINE; BARRICADE SHALL BE TAPED, SANDED, PAINTED SEMI-GLOSS WHITE
- PROPOSED LEASE LINE
- (E) DEMISING WALL, (E) DRYWALL TO REMAIN.
- (N) DOUBLE DOOR WITHIN BARRICADE
- (N) DOOR
- (N) CMU WALL; MATCH ADJACENT WALL TYPE AND FINISH. REFER TO STRUCTURAL.
- PROVIDE SMOOTH LEVEL CONCRETE FLOOR WITH A TOLERANCE OF 1/4" OVER 10'-0" AND READY TO ACCEPT TENANT FLOOR FINISHES
- (E) STRUCTURAL COLUMN TO REMAIN
- (E) CORRIDOR WALL - 1HR RATED WALL
- (N) STRUCTURAL COLUMN. REFER TO STRUCTURAL

DOOR SCHEDULE

MARK	SIZE	FIRE RATING GROUP	MDW	TYPE	DESCRIPTION
1	(2) 3'-0" X 7'-0"	-	1	(A)	DOUBLE S.C. WOOD DOOR IN KNOCKDOWN METAL FRAME
2	(2) 3'-0" X 7'-0"	-	1	(A)	DOUBLE S.C. WOOD DOOR IN KNOCKDOWN METAL FRAME
3	(E)	-	-	-	EXISTING DOOR TO REMAIN
4	3'-8" X 7'-0"	-	2	(B)	45 MIN. RATED H.M. DOOR IN 45 MIN. RATED WELDED METAL FRAME
5	3'-0" X 7'-0"	-	2	(B)	45 MIN. RATED H.M. DOOR IN 45 MIN. RATED WELDED METAL FRAME

DOOR TYPES



HARDWARE SCHEDULE

GROUP #1	FRONT DOOR ACTIVE LEAF	FRONT DOOR INACTIVE LEAF
	3- HINGES (SD) 1- STOREROOM LOCK 1- CLOSER 1- DOOR SWEEP	3- HINGES 1- SINGLE DUMMY TRIM OUTSIDE 1- SELF ADHESIVE ASTAGAL 1- CONSTANT LATCHING FLUSH BOLT 1- STRIKE PLATE 1- DOOR SWEEP
GROUP #2	PASSAGE EXTERIOR DOOR	
	3- HINGES (HD) 1- CLOSER 2- ARMOR PLATE INSIDE & OUTSIDE	1- PANIC EXIT DEVICE (INSIDE) 1- TRIM (OUTSIDE) 1- DOOR VIEWER 1- DOOR SWEEP
		1- DOOR FIRE/SMOKE SEAL
NOTE: PROVIDE HARDWARE SUBMITTALS FOR TENANT REVIEW & APPROVAL		

HARDWARE SCHEDULE

HINGES (SD):	THREE KNUCKLE CONCEALED BEARING HINGES: PBB CBB1	ARMOR PLATE INSIDE & OUT	IVES B400, STAINLESS STEEL, 36" HEIGHT X 35" WIDE, 664 FINISH
HINGES (HD):	HEAVY WEIGHT FIVE KNUCKLE BALL BEARING HINGES: PBB 4BB1	CONSTANT LATCHING FLUSH BOWL	IVES FB61T
STOREROOM LOCK:	"SCHLAGE" AL80PD	STRIKE PLATE:	SCHLAGE 10-025
CLOSER:	DOR-O-MATIC SCB1 FINISH: ALUMINUM	PANIC EXIT DEVICE:	PHI RELIANT 5100 W/ 5300 STRIKE
CLOSER:	LCN 1260 SERIES W/ HOLD-OPEN	TRIM:	PHI 603
SWEEP:	PEMKO 315, N	DOOR VIEWER:	DON-JO ULDW90
DUMMY OUTSIDE TRIM:	SCHLAGE AL170	SELF ADHESIVE ASTAGAL:	PEMKO S772W
		FIRE/SMOKE SEAL:	PEMKO S88 FIRE / SMOKE GASKETING

- DOOR NOTES:
- ALL HARDWARE REPRESENTS THE INTENDED QUALITY, STYLE AND APPEARANCE. CONTRACTOR TO PROVIDE HARDWARE CUT SHEETS TO TENANT PROJECT MANAGER PRIOR TO CONSTRUCTION.
 - ALL LOCKS TO BE PROVIDED WITH "BEST" 7-PIN INTERCHANGEABLE CORES AND CYLINDERS
 - EXIT DOORS SHALL BE OPERABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.
 - AT EXTERIOR DOORS PROVIDE WEATHER STRIPPING, BUTTS WITH TAMPERPROOF PINS AND AN ADA THRESHOLD IF NOT EXISTING - ALL THRESHOLDS SHALL NOT EXCEED 1/2" MAX. HEIGHT.
 - AT EXISTING DOORS-REPLACE DAMAGED OR MISSING HARDWARE, REPLACE LOCK CYLINDERS AND PROVIDE TENANT WITH (2) NEW KEYS
 - PROVIDE ANY REQUIRED SIGNAGE AT EXIT OF SERVICE DOOR. CONTACT LANDLORD REPRESENTATIVE.
 - PAINT DOOR & FRAME TO MATCH ADJACENT WALL.
 - INSTALL "PEMKO" SMOKE SEALS AT FIRE RATED DOORS.
 - INSTALL DOOR STOPS WHERE A DOOR WOULD STRIKE A WALL OR OTHER PART OF CONSTRUCTION WHEN OPEN.

LEGEND

- AREA NOT INCLUDED IN SCOPE OF WORK
- (E) ITEMS TO REMAIN
- (E) ITEMS TO BE DEMOLISHED IN IT'S ENTIRETY
- (E) WALL TO REMAIN
- (N) FRAMED WALL
- (N) CONSTRUCTION BARRICADE WALL

ABBREVIATIONS

B.O.	BOTTOM OF CENTERLINE	FOF	FACE OF FINISH	FOR FULL LIST OF ABBREVIATIONS REFER TO SHEET
(E)	EXISTING	FOC	FACE OF CONCRETE	
EOS	EDGE OF SLAB	FOW	FACE OF WALL	
EQ.	EQUAL	(N)	NEW	
FE	FIRE EXTINGUISHER	RO	ROUGH OPENING	
FOS	FACE OF STUD	T.O.	TOP OF WORK	
		WP	WORK POINT	

architecture design collaborative
14252 culver drive suite A-347
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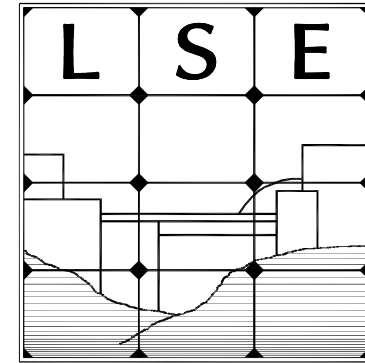
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02/01/16	1ST CITY SUBMITTAL

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PRINT NAME: CRAIG T. CHINN
SIGNATURE: *Craig Chinn*
DATE: 02/25/2016 LICENSE# 53588

FLOOR PLAN

A2.0



LSEngineers

234 N. Main St.
LeSueur, MN 56058
email: lseng@lseengineers.com
phone: (507) 665-6255
fax: (507) 665-6818

**APACHE MALL
SHELL SUITE 305**
333 APACHE MALL
ROCHESTER, MN 55902

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I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

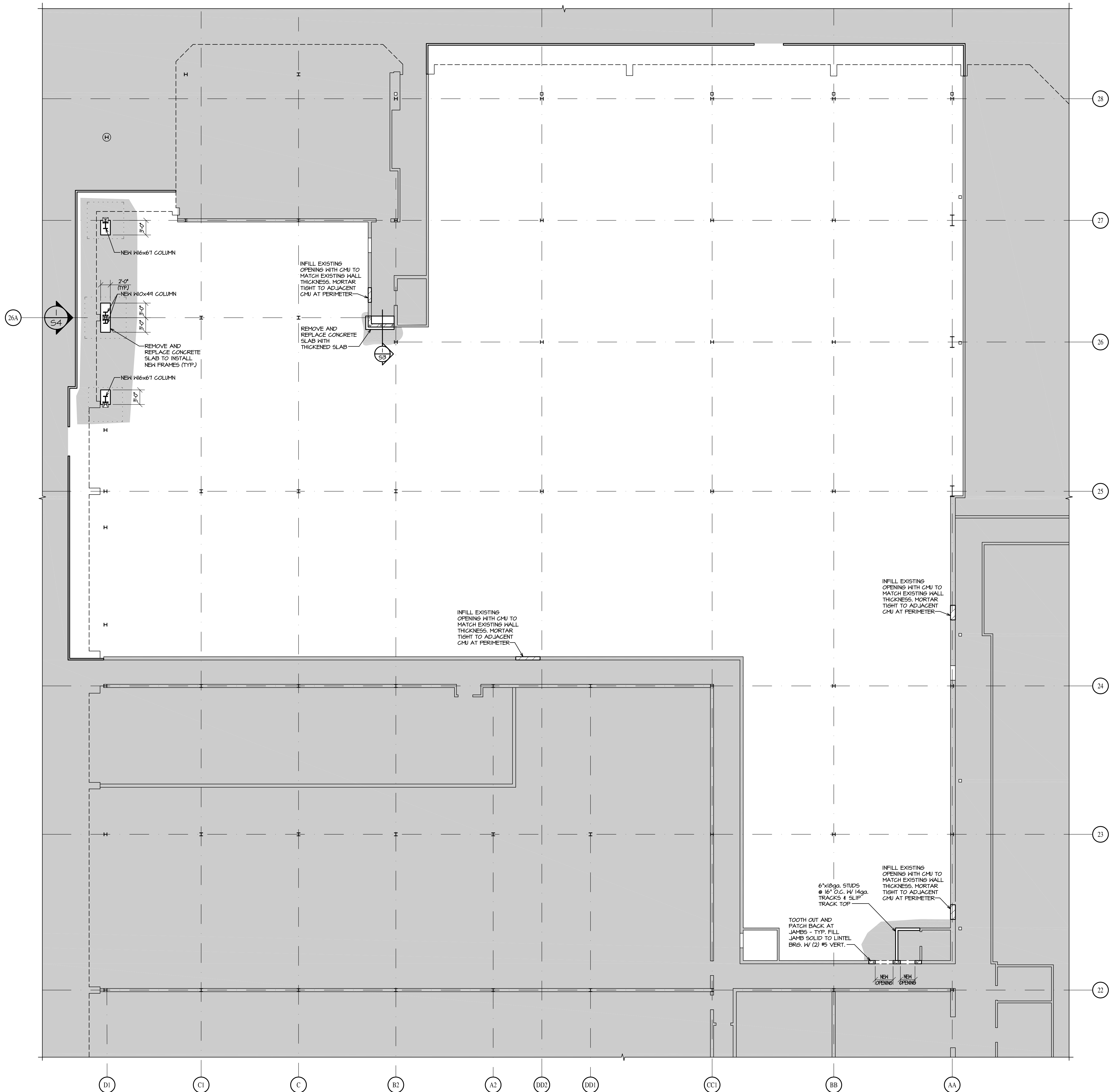
Print Name: Eugene M. Dwyer

Signature: *Eugene M. Dwyer*

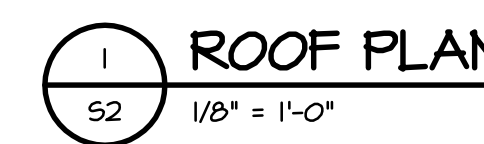
Date: 02/04/16

License #: 19951

FOUNDATION PLAN



S2



STRUCTURAL NOTES

GENERAL

- NOTES AND DETAILS ON THE STRUCTURAL DRAWINGS TAKE PRECEDENCE OVER THESE STANDARD STRUCTURAL NOTES.
- ALL MATERIAL AND WORKMANSHIP SHALL CONFORM TO THE REQUIREMENTS OF THE FOLLOWING CODES, SPECIFICATIONS, AND DESIGN MANUAL (LATEST EDITION UNLESS NOTED):
 - 2015 MINNESOTA BUILDING CODE
 - AMERICAN CONCRETE INSTITUTE (ACI)
 - CONCRETE REINFORCING STEEL INSTITUTE (CRSI) MANUAL OF STANDARD PRACTICE (FOR PLACING & DETAILING OF ALL REINFORCING)
 - AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)
 - AMERICAN WELDING SOCIETY (AWS) STANDARDS FOR WELDING AS MODIFIED BY A.I.S.C. SPEC.
 - STEEL JOIST INSTITUTE (SJI)
 - STEEL DECK INSTITUTE (SDI)
 - AMERICAN IRON & STEEL INSTITUTE (AISI) COLD-FORMED STEEL DESIGN MANUAL
 - STATE AND FEDERAL OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA) REQUIREMENTS
- REFER TO SPECIFICATIONS FOR INFORMATION NOT COVERED BY THESE NOTES OR DRAWINGS.
- THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS, AND SITE CONDITIONS BEFORE STARTING WORK AND THE ENGINEER/ARCHITECT SHALL BE IMMEDIATELY NOTIFIED, IN WRITING, OF ANY DISCREPANCIES.
- IN NO CASE SHALL DIMENSIONS BE SCALED FROM PLANS, SECTIONS, OR DETAILS ON THE STRUCTURAL DRAWINGS.
- TYPICAL DETAILS SHALL BE USED WHENEVER APPLICABLE.
- ALL OMISSIONS AND CONFLICTS BETWEEN THE VARIOUS ELEMENTS OF THE DRAWINGS AND/OR SPECIFICATIONS SHALL BE BROUGHT TO THE ATTENTION OF, AND RESOLVED WITH THE ENGINEER/ARCHITECT BEFORE PROCEEDING WITH ANY WORK SO INVOLVED.
- THE CONTRACTOR SHALL DETERMINE THE LOCATION OF UTILITY SERVICES IN THE AREA TO BE EXCAVATED BEFORE BEGINNING EXCAVATION.
- NO PIPES, DUCTS, SLEEVES, CHASES, ETC., SHALL BE PLACED IN SLABS OR WALLS, NOR SHALL ANY STRUCTURAL MEMBER BE CUT FOR PIPES, DUCTS, ETC.
- RECESSES, DEPRESSIONS, DIMENSIONS, ELEVATIONS, OPENINGS, EQUIPMENT SUPPORTS, AND DETAILS SHALL BE NOTED BY REFERENCE TO ARCHITECTURAL, MECHANICAL, AND ELECTRICAL DRAWINGS; OPENINGS, REQUIRED BUT NOT SHOWN, MUST BE PLACED BETWEEN STRUCTURAL MEMBERS.
- TEMPORARY BRACING: PROVIDE TEMPORARY BRACING FOR ALL BUILDING ELEMENTS AND COMPONENTS UNTIL THE STRUCTURE IS SUFFICIENTLY COMPLETE TO PROVIDE PERMANENT BRACING.

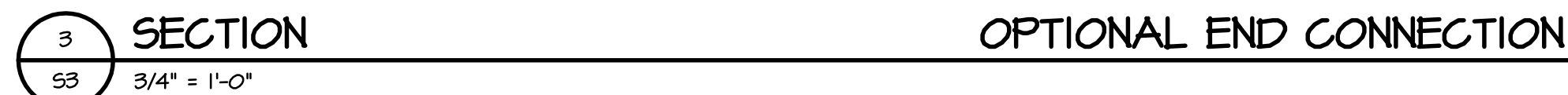
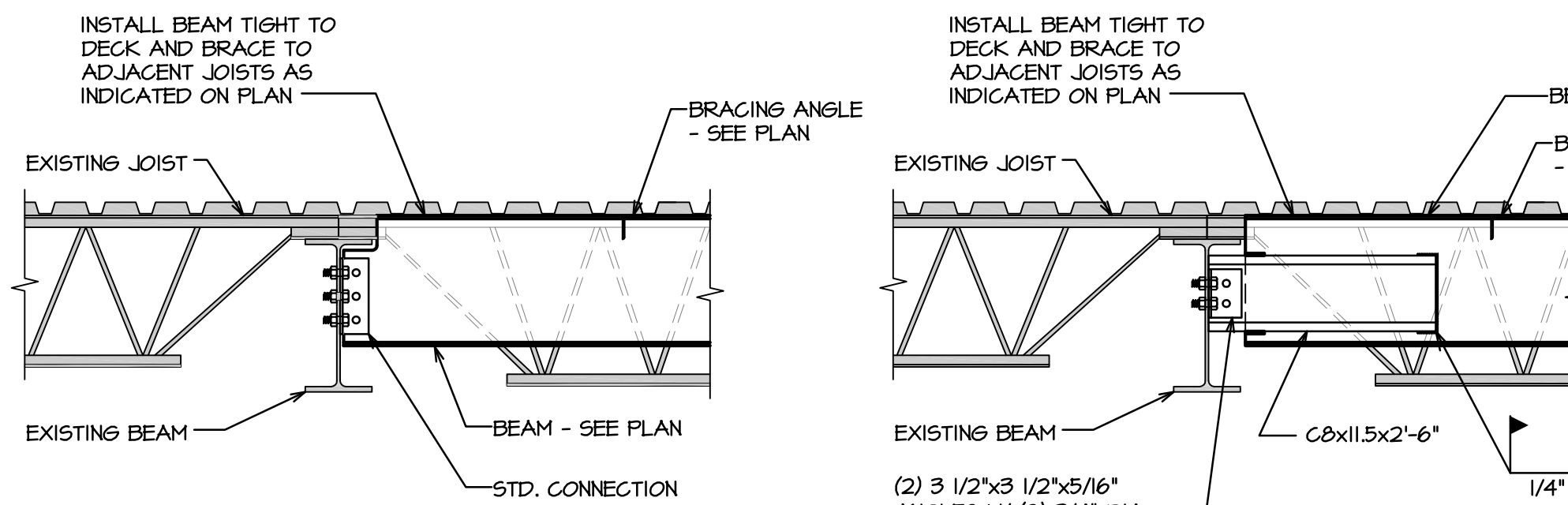
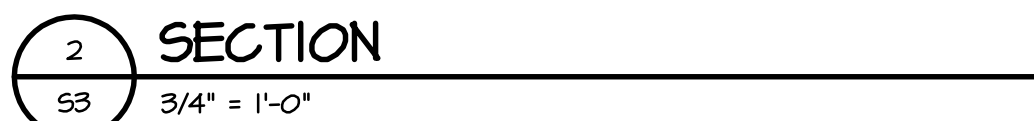
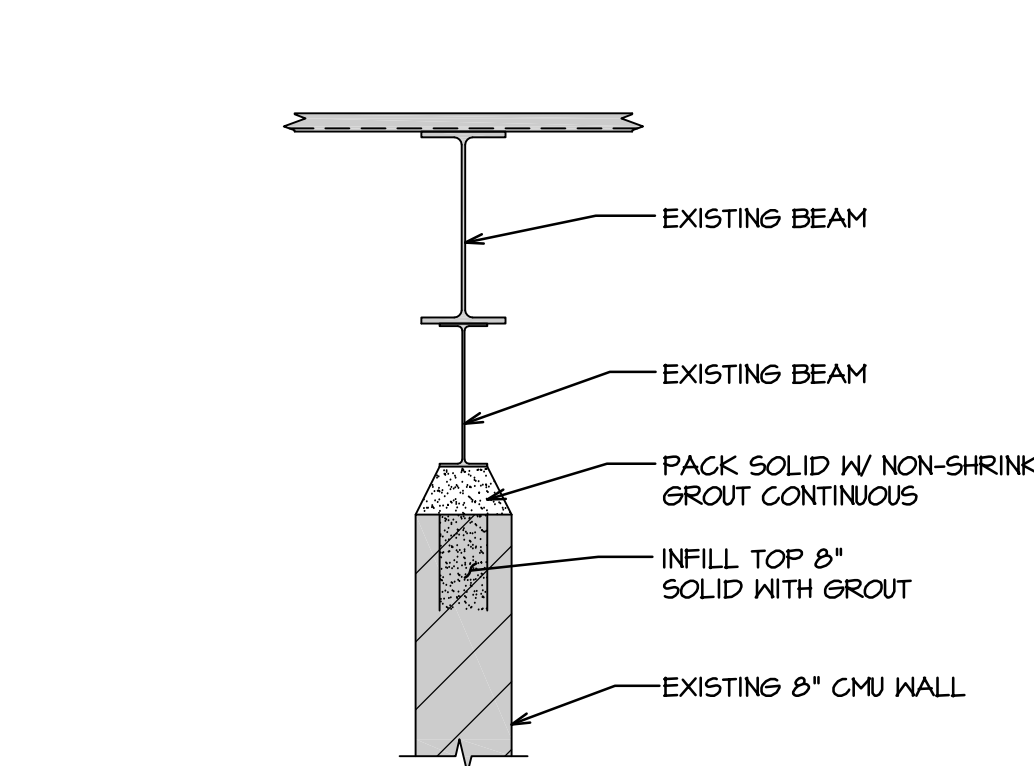
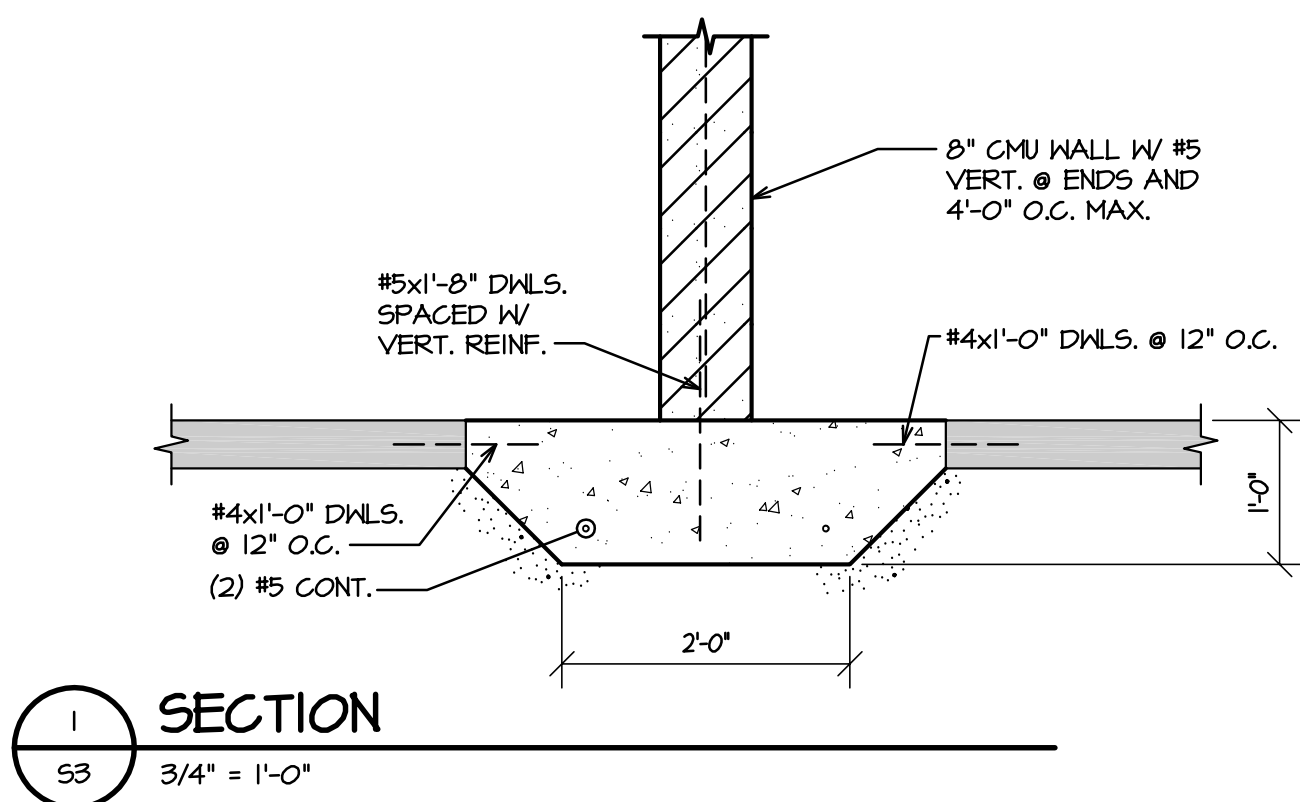
DESIGN DATA

- WIND LOAD 3 SECOND GUSTS V_{WT} = 115 MPH
V_{WD} = 89 MPH
RISK CATEGORY II
WIND EXPOSURE B
INTERNAL PRESSURE COEFFICIENT C_{pe} = ±0.18
- ROOF LOADS
GROUND SNOW P_g = 50 P.S.F.
FLAT ROOF SNOW P_f = 35 P.S.F.
IMPORTANCE FACTOR I = 1.0
EXPOSURE FACTOR C_e = 1.0
THERMAL FACTOR C_t = 1.0

REINFORCED CONCRETE

- CONCRETE SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH (f'_c), MAXIMUM WATER-CEMENT (W/C) RATIO AND MAXIMUM SLUMP AS FOLLOWS:

f' _c (P.S.I.)	MAXIMUM W/C RATIO	MAX. SLUMP (INCHES)
28 DAYS		
INTERIOR SLABS ON GRADE	3.500	0.50
MASONRY CORES/STAIRS	3.000	0.60
- CONTRACTOR SHALL SUBMIT MIX DESIGNS FOR APPROVAL 14 DAYS PRIOR TO FABRICATION AND INSTALLATION. ALL CONCRETE MIXES SHALL BE DESIGNED AND CERTIFIED BY A MATERIALS TESTING LABORATORY.
- ADMITTURES MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER (CALCIUM CHLORIDE SHALL NOT BE USED).
- ADMITTURES SHALL COMPLY WITH ASTM C484 AND BE OF A TYPE THAT INCREASES THE WORKABILITY OF THE CONCRETE, BUT SHALL NOT BE CONSIDERED TO REDUCE THE SPECIFIED MINIMUM CEMENT CONTENT.
- CEMENT SHALL CONFORM TO ASTM C150, TYPE I.
- READY-MIX CONCRETE SHALL BE MIXED AND DELIVERED IN ACCORDANCE WITH ASTM C94.
- REFER TO DRAWINGS OF OTHER DISCIPLINES FOR MOLDS, GROOVES, CLIPS, ORNAMENTS, GROUNDS, ETC. REQUIRED TO BE CAST INTO CONCRETE.
- NO CONDUIT PLACED IN A CONCRETE SLAB SHALL HAVE AN OUTSIDE DIAMETER GREATER THAN 1/3 THE THICKNESS OF THE SLAB. NO CONDUIT SHALL BE EMBEDDED IN A SLAB THAT IS LESS THAN 3-1/2" THICK, EXCEPT FOR LOCAL OFFSETS. MINIMUM CLEAR DISTANCE BETWEEN CONDUITS SHALL BE 6".



COLD-FORMED STEEL FRAMING

- DESIGN STRESSES:
F_y = 33,000 P.S.I. (STUDS/JOISTS 18ga. & 20ga.)
F_y = 50,000 P.S.I. (STUDS/JOISTS 12ga., 14ga. & 16ga.)
F_y = 33,000 P.S.I. (TRACKS)
- DESIGN STEEL THICKNESS:

GAUGE	MILS	INCHES
20	33	0.0346
18	43	0.0451
16	54	0.0566
14	68	0.0713
12	97	0.1017
- PROVIDE STUDS AND JOISTS WITH DEPTH AND THICKNESS INDICATED, AND 1 5/8" FLANGE WIDTH UNLESS NOTED, WHICH MEETS OR EXCEEDS STEEL STUD MANUFACTURERS ASSOCIATION (SSMA) SECTION PROPERTIES.
- TRACKS AND RUNNERS SHALL BE 14ga. UNLESS NOTED.
- DESIGN, MANUFACTURE, AND INSTALLATION OF LIGHT GAUGE, COLD-FORMED STEEL JOISTS, PURLINS, STUDS, AND WALL GIRTS SHALL CONFORM WITH THE LATEST EDITION OF THE SPECIFICATION FOR THE DESIGN OF COLD-FORMED STEEL STRUCTURAL MEMBERS ISSUED BY THE AISI.
- ALL COLD-FORMED PRODUCTS SHALL BE MANUFACTURED BY CURRENT STEEL STUD MANUFACTURERS ASSOCIATION (SSMA) MEMBERS.
- STRUCTURAL LIGHT GAUGE STUDS, TRACK, BRIDGING, AND ACCESSORIES SHALL BE FABRICATED FROM STEEL AND GALVANIZED AS PER AISI SPECIFICATIONS.
- ALL WELDING SHALL BE IN CONFORMANCE WITH AWS D1.3.
- ALL WELDS SHALL BE TOUCHED UP WITH A ZINC-RICH PAINT.
- PROVIDE FOR POSSIBLE VERTICAL MOVEMENT OF ROOF AT PARTITION WALLS.
- TEMPORARY BRACING SHALL BE PROVIDED AS REQUIRED UNTIL ERECTION IS COMPLETE AND SAFELY SECURED TO STRUCTURE.
- NON-BEARING METAL STUD LINTELS:
 - OPENING UP TO 6'-0" HAVE (2) R00S162-43
 - OPENING 6'-0" TO 10'-0" HAVE (2) R00S162-43

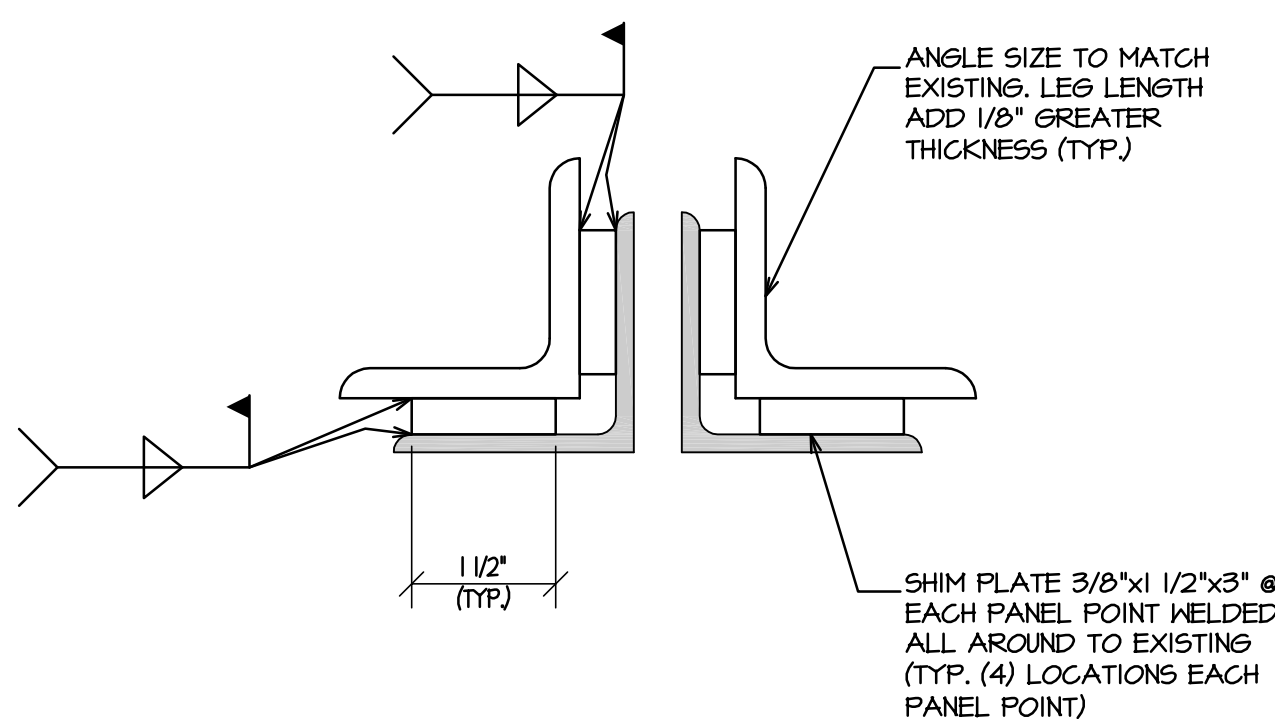
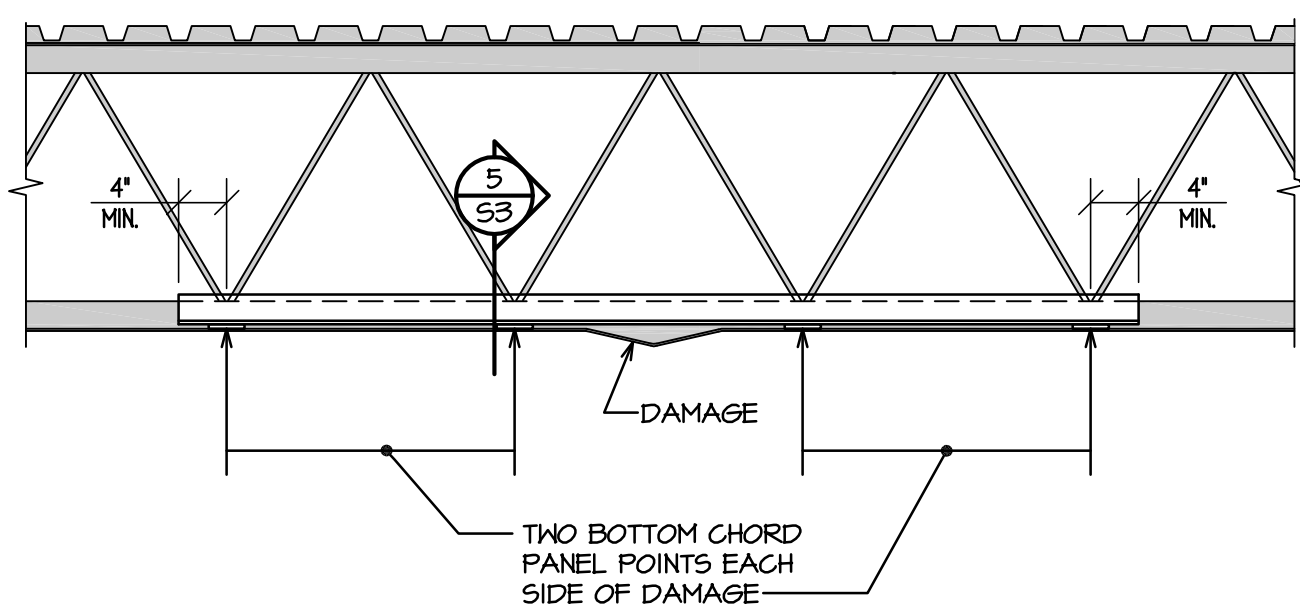
CONCRETE MASONRY

- MASONRY WORK SHALL CONFORM TO ALL REQUIREMENTS OF TMS 602 (LATEST ADDITION) "SPECIFICATION FOR MASONRY STRUCTURES" EXCEPT AS MODIFIED BY THESE NOTES.
- CONCRETE MASONRY WALLS SHALL HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH OF f'_m = 1500 P.S.I.
- CONCRETE MASONRY UNITS SHALL BE NORMAL WEIGHT UNITS CONFORMING TO ASTM C90, GRADE N.
- MORTAR SHALL BE TYPE "S" CONFORMING TO ASTM C270.
- INSTALL NO. 9 TRUSS TYPE GALVANIZED (ASTM 153 CLASS B2) HORIZONTAL JOINT REINFORCING AT EVERY OTHER JOINT (16" O.C. MINIMUM).
- REINFORCED CONCRETE BLOCK WALLS:
 - SEE PLANS FOR LOCATION OF REINFORCED WALLS.
 - PROVIDE DOWELS BETWEEN FOUNDATIONS & WALLS EQUAL TO THE SIZE AND SPACING OF THE VERTICAL REINFORCING (U.N.O.).
 - REINFORCING STEEL SHALL BE CONTINUOUS WITH 2'-6" LAP AT SPLICES UNLESS NOTED.
 - WHEN ONE BAR IN A SINGLE CORE, PLACE IN CENTER UNLESS NOTED OTHERWISE.
 - WHEN TWO BARS IN A SINGLE CORE, PLACE ONE NEAR EACH FACE.
 - RUN BOND BEAM REINFORCEMENT CONTINUOUS THROUGH CONTROL JOINTS.
 - DISCONTINUE JOINT REINFORCING AT CONTROL JOINTS (U.N.O.).
 - PROVIDE CORNER BARS WITH 2'-6" LEGS AT BOND BEAMS (TYPICAL AT BUILDING CORNERS).
 - FILL BLOCK CORE AT VERTICAL STEEL WITH 3000 P.S.I. GROUT, RODDED OR VIBRATED IN PLACE.
 - WALL CONSTRUCTION SHALL NOT EXCEED HEIGHTS OF 4'-0" BEFORE PLACEMENT OF CORE GROUT UNLESS CLEAROUT HOLES ARE PROVIDED AT THE BOTTOM OF EACH GROUT LIFT, THEN A MAXIMUM HEIGHT OF 8'-0" BEFORE PLACEMENT OF CORE GROUT.
- CONCRETE BLOCK WALL LINTELS:
 - ALL OPENINGS IN CONCRETE BLOCK WALL NOT SPECIFICALLY INDICATED TO HAVE OTHER TYPES OF LINTELS SHALL HAVE REINFORCED BLOCK LINTELS AS FOLLOWS:
 - SPANS UP TO 6'-0" HAVE 8" DEEP LINTEL WITH #5 BARS BOTTOM.
 - SPANS 6'-1" TO 10'-0" TO HAVE 16" DEEP LINTEL WITH #5 BARS TOP & BOTTOM.
 - 4 & 6" WIDE LINTELS TO HAVE (1) #5
 - 8, 10, & 12" WIDE LINTELS TO HAVE (2) #5
 - WHERE LINTEL IS CONTINUOUS OVER TWO OPENINGS WITH INTERMEDIATE SUPPORT, USE #5 BARS TOP & BOTTOM.
 - ALL BLOCK LINTELS TO BE FILLED WITH 3,000 P.S.I. CONCRETE.
 - EXTEND ALL LINTELS A MINIMUM OF 8" BEYOND EACH EDGE OF OPENING. WHERE LINTEL BEARS ON CONCRETE BLOCK, FILL TWO COURSES OF BLOCK MINIMUM WITH CONCRETE.
 - IF OPENING OCCURS NEXT TO CONCRETE WALL OR COLUMN, BOLT ANGLE TO COLUMN AND REST LINTEL ON ANGLE. OBTAIN ANGLE SIZE AND BOLT REQUIREMENTS FROM ENGINEER.
 - IF OPENING OCCURS NEXT TO STEEL COLUMN, WELD ANGLE TO COLUMN AND REST LINTEL ON ANGLE. OBTAIN ANGLE SIZE AND WELD REQUIREMENTS FROM ENGINEER.

STRUCTURAL STEEL

- STEEL PROPERTIES:

EX. (Q&P)	ASTM
STRUCTURAL WIDE FLANGE SHAPES	A992
OTHER STRUCTURAL SHAPES & PLATES, ETC.	A36
HIGH STRENGTH BOLTS, U.N.O.	A325
ANCHOR BOLTS (TENSILE STRENGTH)	A36
WELDING ELECTRODES	E70XX
STRUCTURAL PIPES	A53 TYPE E
STRUCTURAL TUBES	A500 GRADE B
EXPANSION BOLTS SHALL BE HILTI KWIK BOLT 3 OR PREAPPROVED EQUAL.	
- STRUCTURAL STEEL SUPPLIER SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO FABRICATION.
- STRUCTURAL STEEL DESIGN AND CONSTRUCTION SHALL CONFORM TO AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, ALLOWABLE STRESS DESIGN AND PLASTIC DESIGN" AND AISC "CODE OF STANDARD PRACTICE" LATEST EDITIONS.
- PAINT ALL STEEL PER SSPC STANDARDS - LATEST EDITION.
- BOLTED CONNECTIONS SHALL BE 3/4", A325 BEARING TYPE WITH THREADS INCLUDED IN THE SHEAR PLANE AND AS SUCH NEED TO BE TIGHTENED IN PROPERLY ALIGNED HOLES TO A SNUG TIGHT CONDITION AS DEFINED BY THE LATEST EDITION OF AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS" (U.N.O.).
- CONNECTIONS SHALL BE AS SHOWN ON THE DRAWINGS. WHERE REACTIONS ARE SHOWN, BUT CONNECTIONS ARE NOT DETAILED THE FABRICATOR SHALL SIZE AND DETAIL ON THE FIRST SUBMITTAL OF SHOP DRAWINGS.
- WHERE CONNECTIONS OR REACTIONS ARE NOT SHOWN ON THE DRAWINGS THE FABRICATOR SHALL PROVIDE CONNECTION TO SUPPORT 1/2 OF THE TOTAL UNIFORM LOAD CAPACITY SHOWN IN THE TABLES OF THE UNIFORM LOAD CONSTANTS, PART 2 FOR THE GIVEN BEAM, SPAN AND GRADE OF STEEL SPECIFIED.
- SLOTTED HOLES INDICATED IN THE DRAWINGS ARE INTENDED TO ALLOW MOVEMENT AND SHOULD BE INSTALLED AS INDICATED. WHERE SLOTTED HOLES WERE NOT DETAILED, BUT CHOSEN BY THE FABRICATOR FOR ERECTION TOLERANCE OR OTHERWISE, ASTM A325-SO BOLTS SHALL BE INSTALLED IN ACCORDANCE WITH AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS".
- ALL BEAMS SHALL BE MARKED AND ERECTED WITH NATURAL CAMBER UPWARD.
- THE STEEL ERECTOR SHALL PROVIDE TEMPORARY SUPPORTS UNTIL FINAL STABILITY IS ESTABLISHED. AS A MINIMUM, TEMPORARY SUPPORTS SHALL BE PROVIDED AT EX GRID IN BOTH DIRECTIONS.



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SHELL SUITE 305
333 APACHE MALL
ROCHESTER, MN 55902

Sheet Issue & Revision Log

Sheet Issue Date	12/01/15
02/01/16	1ST CITY SUBMITTAL

It is the clients responsibility prior to or during construction to notify the architect in writing of any perceived errors or omissions in the plans and specification of which a contractor thoroughly knowledgeable with the building codes and methods of construction should reasonably be aware. Written instructions addressing such perceived errors or omissions shall be received from the architect prior to the client or clients subcontractors proceeding with the work. The client will be responsible for any defects in construction if these procedures are not followed.

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Minnesota.

Print Name: Eugene M. Dwyer
Signature: *Eugene M. Dwyer*
Date: 02/04/16
License #: 19951

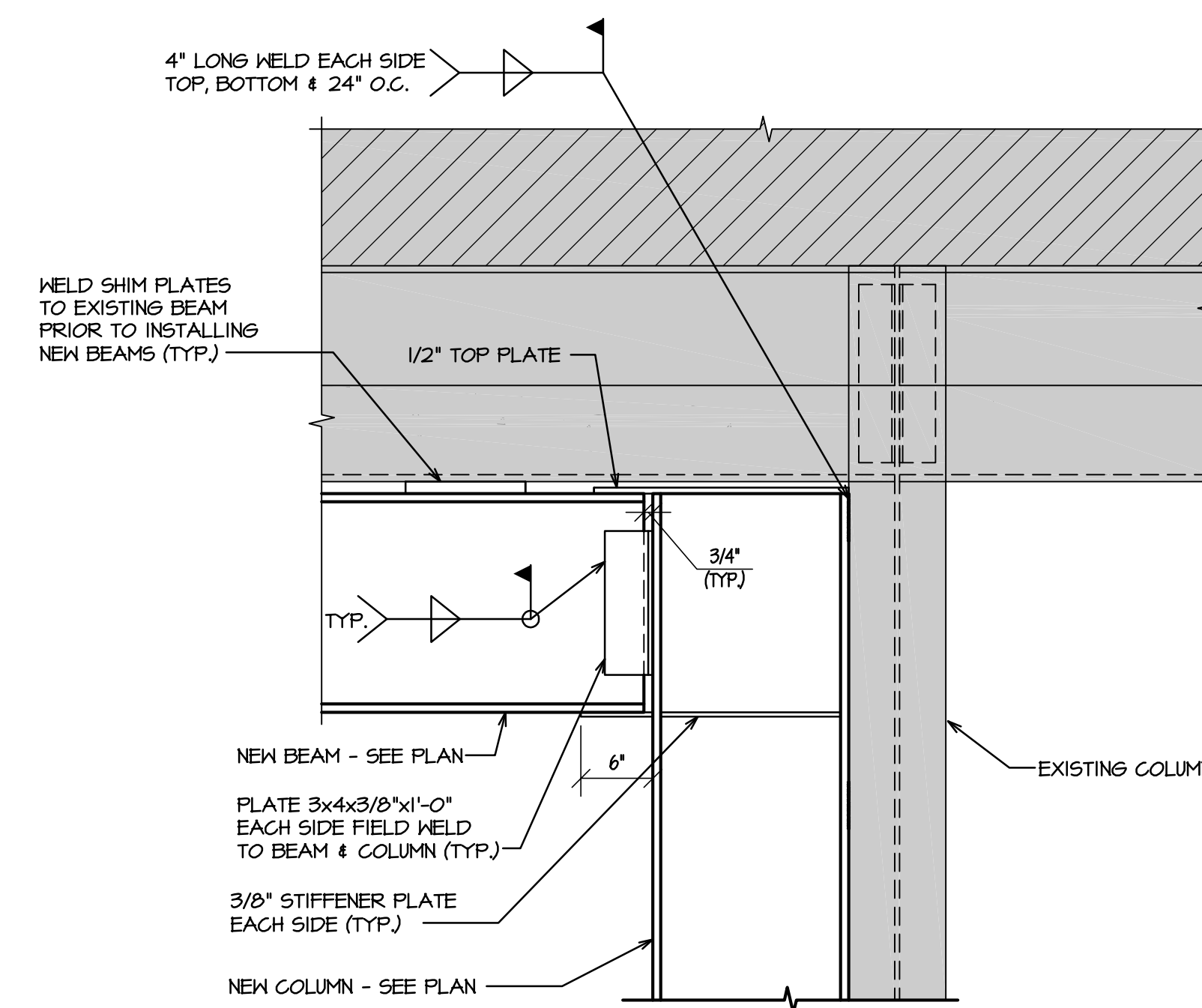
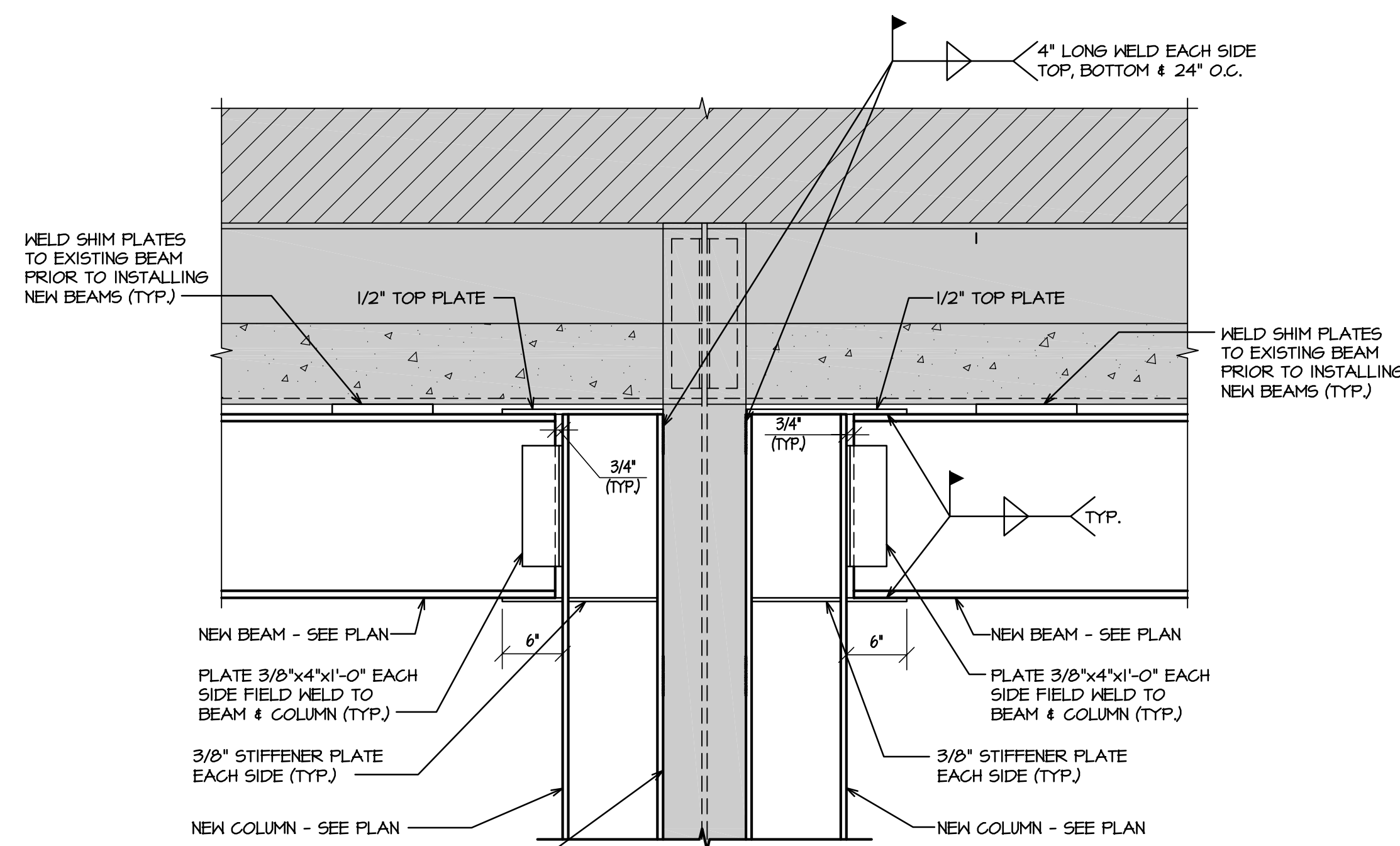
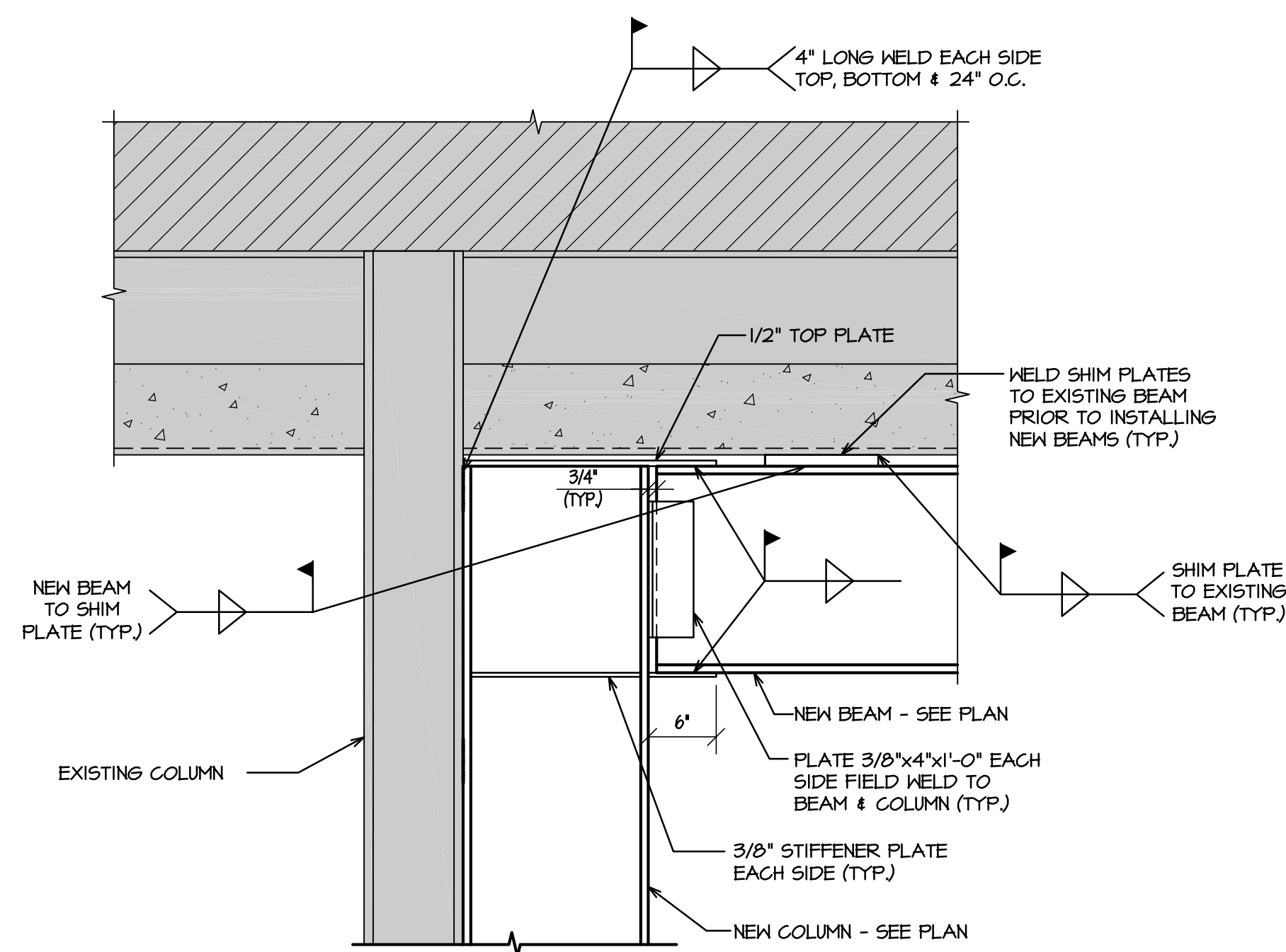
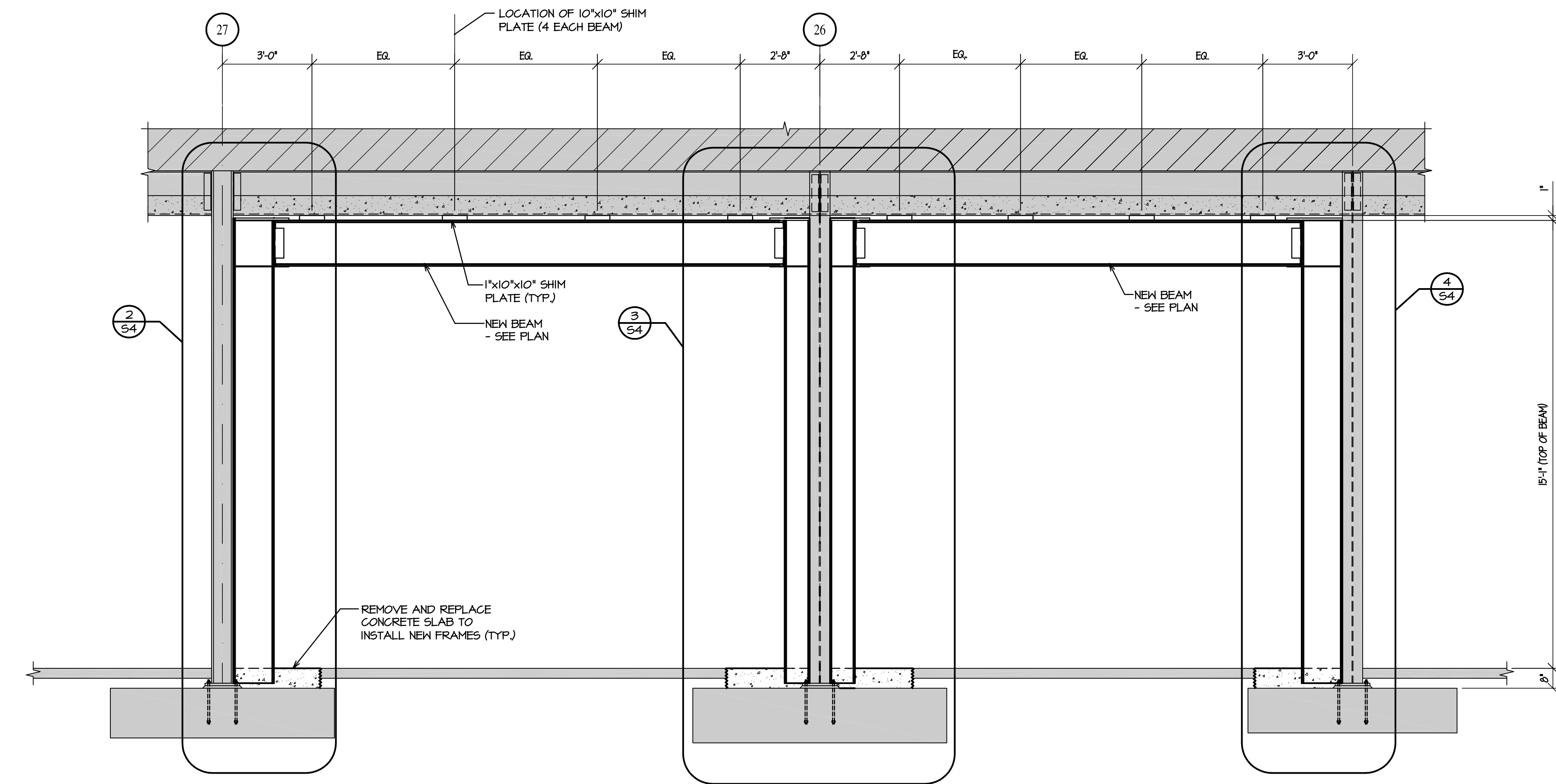
STRUCTURAL
NOTES & DETAILS

APACHE MALL
SHELL SUITE 305
333 APACHE MALL
ROCHESTER, MN 55902

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DETAILS



2 SECTION
1" = 1'-0"

3 SECTION
1" = 1'-0"

4 SECTION
1" = 1'-0"

MECHANICAL SPECIFICATIONS

PART I – GENERAL

A. CONDITIONS

- GENERAL CONDITIONS, SUPPLEMENTARY CONDITIONS, SPECIAL CONDITIONS, AND OTHER RELATED PORTIONS OF DIVISION 1, APPLY TO THIS SECTION.

B. SUMMARY OF WORK

- THE WORK INCLUDED CONSISTS OF FURNISHING LABOR, MATERIALS AND EQUIPMENT FOR THE INSTALLATION. IT ALSO INCLUDES KNOCKING DOWN EXISTING EQUIPMENT, SEISMIC RESTRAINTS, HEATING, VENTILATING AND AIR CONDITIONING SYSTEM AS SPECIFIED AND SHOWN. THIS INCLUDES, BUT IS NOT LIMITED TO: HVAC UNITS, AND ACCESSORIES, EXCEPT AS OTHERWISE NOTED.

C. REGULATIONS, CODES, PERMITS AND INSPECTIONS

- COMPLY WITH NATIONAL, STATE, COUNTY, AND CITY CODES, ORDINANCES, ETC., HAVING JURISDICTION. THIS INCLUDES RULES AND REQUIREMENTS OF UTILITY SERVING AGENCIES.
- INCORPORATE CODES, ORDINANCES, ETC., INTO THE BASE BID AND INSTALLATION OF WORK. NO ADDITIONAL PLANS WILL BE LOCATED FOR WORK REQUIRED TO CONFORM TO REGULATIONS AND REQUIREMENTS OR TO OBTAIN APPROVAL OF WORK.
- OBTAIN AND PAY FOR REQUIRED PERMITS AND LICENSES, WHEN REQUIRED BY CODE. WORK MUST BE INSPECTED AND APPROVED BY LOCAL AUTHORITIES, PRIOR TO FINAL APPROVAL. FURNISH ARCHITECT WITH CERTIFICATES OF INSPECTION AND APPROVALS BY LOCAL AUTHORITIES.
- IEEE COMPLIANCE:
 - VOLTAGE, CURRENT AND TOTAL DEMAND DISTORTION LIMITS OF THE ELECTRICAL SYSTEM WITH VFD'S IN OPERATION SHALL BE IN COMPLIANCE WITH TABLE 102 AND 103 OF IEEE 519-1992. IEEE RECOMMENDED PRACTICES AND REQUIREMENTS FOR HARMONIC CONTROL IN ELECTRICAL POWER SYSTEMS, AND AS SPECIFIED IN THIS SECTION. VFD SHALL BE BUILT TO IEEE 581 STANDARD.
 - COMPLIANCE OF IEEE 519-1992 SHALL BE AT THE LINE SIDE OF EACH INDIVIDUAL VFD SYSTEM. A VFD SYSTEM SHALL CONSIST OF THE INDIVIDUAL VFD WITH ITS RELATED ISOLATION TRANSFORMER, LINE REACTOR AND/OR FILTERS.

D. DESIGN DRAWINGS

- DESIGN DRAWINGS ARE DIAGRAMMATIC AND ARE INTENDED ONLY TO DEFINE THE BASIC FUNCTIONS REQUIRED. PROVIDE LABOR, MATERIAL, ETC., NECESSARY TO ACCOMPLISH THESE REQUIREMENTS. MINOR DEVIATIONS FROM THE DESIGN LAYOUT ARE ANTICIPATED AND SHALL BE CONSIDERED A PART OF THE WORK INCLUDED. NO CHANGES THAT ALTER THE CHARACTER OF THE WORK WILL BE PERMITTED. DO NOT SCALE THE DESIGN DRAWINGS. SEE ARCHITECTURAL DRAWINGS FOR DIMENSIONS.
- IF A CONFLICT OCCURS BETWEEN THE DESIGN DRAWINGS AND SPECIFICATIONS, PROMPTLY NOTIFY THE ARCHITECT AND/OR ENGINEER. AT THAT POINT, AN INTERPRETATION WILL BE MADE BY THE ARCHITECT AND/OR ENGINEER AND SAID DECISION SHALL BE CONSIDERED PART OF THE CONTRACT DOCUMENTS.

E. QUALIFICATIONS OF CONTRACTOR AND WORKMEN

- CONTRACTOR SHALL BE PROPERLY LICENSED TO PERFORM THE WORK.

F. BASE BID

- BASE BID SHALL INCLUDE MATERIALS AND EQUIPMENT SPECIFIED OR SCHEDULED ON THE DRAWINGS. REQUESTS FOR SUBSTITUTION OF MATERIALS AND EQUIPMENT SHALL BE BY ADDITIVE OR DEDUCTIVE ALTERNATE BID ONLY. THE FOLLOWING DATA MUST BE CLEARLY WRITTEN AT THE BEGINNING OF THE ALTERNATE PROPOSAL:
 - ADDITIVE OR DEDUCTIVE AMOUNT CLEARLY WRITTEN IN WORDS AND NUMERALS.
 - INCREASED OR REDUCED CONSTRUCTION TIME IN DAYS.
 - OTHER DEMONSTRABLE BENEFIT, FOR WHICH THE SUBSTITUTION OF SUCH ITEM WILL BE IN THE OWNER'S INTEREST.
- ONLY THOSE MATERIALS AND EQUIPMENT WHICH ARE SUBMITTED AS AN ALTERNATE BID, WHICH ARE ACCOMPANIED BY THE SUPPORTING DATA INDICATED BELOW WILL BE REVIEWED AND CONSIDERED.

G. SUBSTITUTIONS

- MATERIALS AND EQUIPMENT THAT ARE A SUBSTITUTE FROM THE LISTED MANUFACTURER MAY BE CONSIDERED. PRIOR TO PROPOSING ANY SUBSTITUTE ITEM, CONTRACTOR SHALL SATISFY HIMSELF THAT THE ITEM PROPOSED IS, IN FACT, EQUAL TO THAT SPECIFIED. THAT SUCH ITEM WILL FIT INTO THE SPACE ALLLOCATED, THAT SUCH ITEM AFFORDS COMPARABLE EASE FOR OPERATION, MAINTENANCE AND SERVICE, THAT THE APPEARANCE, LONGEVITY, CAPACITY, SUITABILITY, AND ELECTRICAL CHARACTERISTICS ARE COMPARABLE, THAT BY REASON OF COST SAVINGS, REDUCED CONSTRUCTION TIME, OR SIMILAR DEMONSTRABLE BENEFIT, THE SUBSTITUTION OF SUCH ITEM WILL BE IN THE OWNER'S INTEREST.
- THE BURDEN OF PROOF OF EQUALITY OF A PROPOSED SUBSTITUTION FOR A SPECIFIED ITEM SHALL BE UPON THE CONTRACTOR. CONTRACTOR SHALL SUPPORT HIS REQUEST WITH SUFFICIENT TEST DATA AND OTHER MEANS TO PERMIT THE ENGINEER TO MAKE A FAIR AND EQUITABLE DECISION ON THE MERITS OF THE PROPOSED SUBSTITUTION. INSUFFICIENT SUBMITTAL DATA WILL RESULT IN REJECTION OF THE PROPOSED SUBSTITUTION. ANY ITEM BY A MANUFACTURER OTHER THAN THOSE SPECIFIED, OR OF BRAND NAME, MODEL NUMBER, OR OF GENERIC SPECIES OTHER THAN THOSE SPECIFIED, WILL BE CONSIDERED A SUBSTITUTION. ENGINEER WILL BE THE SOLE JUDGE OF WHETHER OR NOT THE SUBSTITUTION IS EQUAL IN QUALITY, UTILITY AND ECONOMY TO THAT SPECIFIED.
- APPROVAL OF A SUBSTITUTION SHALL NOT RELIEVE CONTRACTOR FROM RESPONSIBILITY FOR COMPLIANCE WITH ALL REQUIREMENTS OF THE CONTRACT. CONTRACTOR SHALL BEAR THE EXPENSE FOR ANY CHANGES IN OTHER PARTS OF THIS WORK OR OTHER WORK CAUSED BY THE PROPOSED SUBSTITUTION, INCLUDING BUT NOT LIMITED TO STRUCTURAL, ELECTRICAL, PLUMBING, AND ACCESS REQUIREMENTS.
- IF ENGINEER REJECTS CONTRACTOR'S SUBSTITUTE ITEM ON THE FIRST SUBMITTAL, CONTRACTOR MAY MAKE ONLY ONE ADDITIONAL REQUEST FOR SUBSTITUTION IN THE SAME CATEGORY.
- ANY EQUIPMENT SUBSTITUTED WITHOUT THE ENGINEER'S WRITTEN APPROVAL WILL BE REMOVED AND REPLACED WITH THE SPECIFIED EQUIPMENT AT THE CONTRACTOR'S EXPENSE AND AT NO ADDITIONAL COST TO THE OWNER.

H. SUBMITTALS

- EQUIPMENT AND MATERIALS:
 - CONTRACTOR SHALL HAVE APPROVED SUBMITTALS PRIOR TO FABRICATION OR DELIVERY OF ANY MATERIAL AND/OR EQUIPMENT TO THE JOB SITE. SUBMIT A MINIMUM OF 8 (EIGHT) COPIES OF THE FOLLOWING SUBMITTALS IN A 3-RING BINDER, COMPLETELY DESCRIBING EACH MAJOR SYSTEM, MATERIAL AND EQUIPMENT PROPOSED TO BE USED. ANY PIECE OF EQUIPMENT PLACED ON THE JOB WITHOUT PRIOR APPROVAL WILL BE SUBJECT TO REMOVAL AT THE SOLE EXPENSE OF THE CONTRACTOR.
 - SUBMITTALS ARE FOR INFORMATION AND COORDINATION ONLY. REVIEW OF MATERIAL AND/OR EQUIPMENT SUBMITTALS SHALL, IN NO WAY, RELIEVE THE CONTRACTOR OF THE RESPONSIBILITY TO COMPLY WITH PLANS AND SPECIFICATIONS REQUIREMENTS. POINTS OF NON-COMPLIANCE WHICH ARE NOT NOTED SHALL NOT BE CONSIDERED TO BE AN APPROVAL OF THE NON-COMPLIANCE. SUBMITTALS SHALL CLEARLY STATE WHERE EQUIPMENT DOES NOT AGREE WITH THE CONTRACT DOCUMENTS.
 - SUBMITTALS SHALL INCLUDE MANUFACTURER'S SPECIFICATIONS, PHYSICAL DIMENSIONS, WEIGHTS AND RATINGS OF EQUIPMENT SUBMITTED. INDICATE EQUIPMENT LAYOUTS, ELECTRICAL CHARACTERISTICS, WIRING AND CONTROL DIAGRAMS, SIZES AND LOCATIONS OF PIPING, DUCT, CONDUNITS, AND OTHER CONNECTION SIZES AND LOCATIONS.
- AS BUILT DRAWINGS:
 - MAINTAIN ACCURATE RECORDS OF ANY CHANGES FROM THE CONTRACT DOCUMENTS AND SHOP DRAWINGS. UPON COMPLETION OF THE PROJECT, DELIVER TO THE ENGINEER ONE (1) SET OF LEGIBLE REPRODUCTIONS AND (3) BLUELINE SETS OF THESE RECORD DRAWINGS.
- WARRANTY:
 - UNLESS SPECIFIED OTHERWISE BY ARCHITECT, ENGINEER, OWNER OR OWNER'S REPRESENTATIVE, UPON COMPLETION OF THE PROJECT, DELIVER TO THE OWNER A WRITTEN ONE (1) YEAR WARRANTY ON THE SYSTEMS, MATERIALS AND ALL WORK PERFORMED. THIS INCLUDES THE ENTIRE COST, INCLUDING MATERIALS AND/OR LABOR, OF CORRECTIVE WORK REQUIRED AND NECESSITATED BY DEFECTS IN MATERIALS AND/OR WORKMANSHIP. CONTRACTOR SHALL ALSO PRESENT THE OWNER WITH A COPY OF ALL MANUFACTURER'S WARRANTIES THAT EXCEED THE WARRANTY PERIOD, SUCH AS AC UNIT COMPRESSORS.
- OPERATION AND MAINTENANCE INSTRUCTIONS:
 - UPON THE COMPLETION OF THE PROJECT, DELIVER TO THE OWNER THE REQUIRED NUMBER OF COPIES OF HAND BOUND O & M MANUALS. INCLUDE IN THE MANUAL, INSTRUCTIONS PREPARED SPECIFICALLY FOR THE SYSTEMS PROVIDED, ALONG WITH DESCRIPTIONS, PARTS LIST, INSTRUCTIONS, AND WARRANTIES. START-UP REPORTS FOR ALL EQUIPMENT WILL BE DELIVERED WITH THE MATERIALS AND EQUIPMENT UTILIZED IN THE PROJECT. IDENTIFY EACH ITEM BY THE DESIGNATION APPEARING ON THE DRAWINGS.
- OWNER TRAINING:
 - AT A TIME DESIGNATED BY THE OWNER, PROVIDE A SUITABLE TECHNICIAN, MECHANIC OR ENGINEER TO REVIEW THE SYSTEMS WITH OWNER'S REPRESENTATIVE TO THOROUGHLY FAMILIARIZE HIM WITH THE OPERATION AND MAINTENANCE OF THE SYSTEMS. UP TO (8) EIGHT HOURS TOTAL TRAINING TIME SHALL BE REQUIRED WITHOUT ADDITIONAL COST TO THE OWNER. PRIOR TO TRAINING THE OWNER SHALL HAVE TAKEN POSSESSION OF THE O & M MANUALS AS AND SHOWN ON THE DRAWINGS. A REASONABLE AMOUNT OF TIME FOR THE PERSONNEL TO FAMILIARIZE THEMSELVES WITH THE CONTENTS OF THE MANUALS.

PART II – PRODUCTS

A. GENERAL PRODUCTS

- SEISMIC RESTRAINTS:
 - WHERE REQUIRED BY THE BUILDING OFFICIALS/BUILDING CODES FURNISH AND INSTALL SEISMIC RESTRAINTS FOR DUCTWORK, PIPING, AND EQUIPMENT. SEISMIC RESTRAINTS SHALL BE DESIGNED TO RESIST SEISMIC FORCES PRESCRIBED IN THE BUILDING CODES FOR THE PROJECT LOCATION.
 - WHERE REQUIRED BY THE BUILDING OFFICIAL, PROVIDE STRUCTURAL CALCULATIONS SEALED AND SIGNED BY A LICENSED STRUCTURAL ENGINEER.
- REFERENCE THE LATEST EDITION OF THE SMACNA SEISMIC RESTRAINT MANUAL FOR GUIDELINES.
- FURNISH AND INSTALL NEW PRODUCTS OF ESTABLISHED AND REPUTABLE MANUFACTURERS. SEE LIST OF ACCEPTABLE MANUFACTURERS ELSEWHERE IN THESE SPECIFICATIONS. MAKE NO EQUIPMENT SUBSTITUTIONS THAT WOULD LEAVE INADEQUATE OPERATING OR SERVING SPACE. REFER TO SUBSTITUTIONS' SECTION OF THE SPECIFICATION.
- ACCESSORIES REQUIRED FOR PROPER OPERATION OF THE SYSTEMS, EVEN THOUGH NOT SPECIFICALLY INDICATED, SHALL BE INCLUDED AND INSTALLED, SUCH ACCESSORIES MAY INCLUDE, BUT ARE NOT LIMITED TO: FILTERS, CONDENSATE DRAINS, RELIEF VALVES, SERVICE VALVES, THERMOSTATS, VIBRATION ISOLATORS, ETC. MOTOR STARTERS FOR FREQUENT EQUIPMENT AND OTHER PROTECTION AND CONTROL DEVICES ARE TO BE FURNISHED UNDER THE MECHANICAL CONTRACTOR'S SCOPE OF WORK. STARTERS FOR NON-FREQUENT EQUIPMENT, IE, FANS, PUMPS, ETC., ARE UNDER THE ELECTRICAL CONTRACTOR'S SCOPE OF WORK, UNLESS NOTED OTHERWISE.
- SPECIFIC REFERENCE TO A MANUFACTURER'S PRODUCT IS ONLY TO ESTABLISH TYPE, QUALITY, AND PERFORMANCE REQUIRED. THESE QUALIFICATIONS ARE IN ADDITION TO THE REQUIREMENTS SHOWN ON THE PLANS AND ELSEWHERE IN THESE SPECIFICATIONS. LISTING OF ALTERNATE EQUIPMENT MANUFACTURERS SHALL NOT BE CONSTRUED AS AN UNCONDITIONAL APPROVAL OF THE PRODUCTS OF THOSE MANUFACTURERS.

B. AIR CONDITIONING UNITS

- FURNISH AND INSTALL HEATING/COOLING UNITS WITH CAPACITIES AS SCHEDULED. UNITS SHALL BE COMPLETE WITH HERMETICALLY SEALED COMPRESSOR WITH HIGH AND LOW PRESSURE CUT-OFFS, COILS, HEATING SECTION, BLOWERS, NECESSARY REFRIGERANT PIPING, INSULATED COMPRESSOR COMPARTMENT, AIR COOLED CONDENSER, CONDENSER BLOWER OR FAN, AUTOMATIC CONTROLS, CONTROL PANEL WITH STARTERS, RELAYS, ETC. FOR SINGLE POINT POWER CONNECTION WITHIN A LEAK-PROOF, INSULATED DECORATIVE CASING. UNITS SHALL BE FURNISHED WITH (1) ONE CONSTRUCTION SET OF FILTERS, INSTALLED PRIOR TO START-UP. REPLACE FILTERS AT SUBSTANTIAL COMPLETION BEFORE TEST AND BALANCE ACTIVITIES COME. FURNISH ONE COMPLETE SET OF SPARE FILTERS TO OWNER. FURNISH ONE COMPLETE SET OF BELTS.
- UNITS SHALL BE COMPLETELY FACTORY WIRED FOR TERMINAL CONNECTIONS OF THERMOSTAT WITH A FAN-AUTOMANUAL SWITCH AND A SYSTEM HEAT/OFF/COOL/AUTO SWITCH. UNITS SHALL BE INSTALLED IN STRICT ACCORDANCE WITH MANUFACTURER'S WRITTEN RECOMMENDATIONS, COMPLETE WITH ALL SCHEDULED AND NECESSARY ACCESSORIES FOR EFFICIENT AND PROPER OPERATION.

C. DUCT INSULATION

- THERMAL INSULATION:
 - CONCEALED SUPPLY DUCTS AND RETURN DUCTS ABOVE CEILING OR IN FURRED SPACES SHALL BE THERMALLY INSULATED.
 - THERMAL INSULATION SHALL BE FLEXIBLE BLANKET GLASS FIBER INSULATION WITH FACTORY APPLIED FLAME RETARDANT, FOIL-SCRM-KRAFT VAPOR BARRIER (F&K), MAXIMUM K OF 0.20 AT 75 DEGREES F MEAN TEMPERATURE MINIMUM 15 POUND DENSITY. INSULATION SHALL BE 1" THICK.
 - INSULATION SHALL BE APPLIED OVER SURFACES WHICH HAVE BEEN WIRED CLEAN AND DRY AND SHALL HAVE 3-INCH MINIMUM OVERLAP ON BOTH LONGITUDINAL AND TRANSVERSE SEAMS.
 - SUPPLY AND RETURN DUCTS LOCATED OUTSIDE SHALL BE LINED WITH 2" ACOUSTICAL LINER AND SEALED WATER TIGHT, OR INSULATED EXTERNALLY WITH 2" RIGID BOARD AND ALUMINUM LAGGING SEALED WATER TIGHT.

D. AIR FILTERS

- REPLACEABLE (THROUGHWAY) PANEL FILTERS:
 - PROVIDE FACTORY-FABRICATED, VISCOS-COATED, FLAT PANEL TYPE REPLACEABLE AIR FILTERS WITH HOLDING FRAMES AS INDICATED, IN SIZES INDICATED WITH 2" THICK UL CLASS 3 THROUGHWAY MEDIA MATERIAL. CONSTRUCT MEDIA OF INTERLACED GLASS FIBERS, SPRAY WITH NON-FLAMMABLE ADHESIVE, FRAME IN THROUGHWAY FIBERGLASS CASINGS, AND SANDWICH BETWEEN PERFORATED METAL GRILLES.
 - CONSTRUCT DUCTWORK-HOLDING FRAMES OF 10-GA GALVANIZED STEEL, CAPABLE OF HOLDING MEDIA AND MEDIA FRAME IN PLACE, AND GASKETED TO PREVENT UNFILTERED AIR BY-PASSING BETWEEN MEDIA FRAMES AND HOLDING MEMBERS.
 - PROVIDE FILTERS WITH RATED FACE VELOCITY OF 500 FPM, INITIAL RESISTANCE OF 0.7 GREATER THAN 0.30" W.G., FINAL RATED RESISTANCE OF 0.90" W.G. AND AVERAGE ARRESTANCE OF 80%.

PART III – EXECUTION

A. GENERAL

- INSTALL MATERIALS AND EQUIPMENT IN AN ARRANGEMENT THAT WILL GIVE THE GREATEST PRACTICAL EASE OF OPERATION AND SERVICE TO THE OWNER.
- INSTALL EQUIPMENT IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDED INSTALLATION PROCEDURES.
- PERFORM WORK IN ACCORDANCE WITH THE BEST TRADE PRACTICES. INSTALL MATERIALS AND EQUIPMENT SQUARELY WITH THE BUILDING LINES. PROVIDE RIGID PERMANENT BASES AND SUPPORTS FOR WORK.
- CONSTRUCT AND BRACE EQUIPMENT, PIPING, ETC., SO THAT THERE WILL BE NO VIBRATION AND/OR RATTLING WHEN THE SYSTEM IS IN OPERATION.
- COVER AND PROTECT EQUIPMENT AND MATERIALS FROM WEATHER, THEFT, ETC., UNTIL DATE OF COMPLETION. PLUG AND/OR CAP OPEN ENDS OF INSTALLED PIPING AND/OR DUCTWORK PENDING EXTENSION OR FINAL CONNECTION.

B. DUCTWORK

- CONSTRUCT DUCTWORK WITH MATERIAL, GAUGES, JOINTS, BRACING AND SUPPORTS IN ACCORDANCE WITH LATEST SMACNA STANDARDS.
- DUCTWORK SHALL BE RIGIDLY CONSTRUCTED AND SUBSTANTIALLY AIR-TIGHT. SEAL ALL DUCTWORK WITH A WATER BASED DUCT SEALANT (DESIGN POLYMERICS DP-1010 OR EQUIV) AND CANVAS TAPE DO NOT UTILIZE PRESSURE SENSITIVE TAPES. SEAL DUCTWORK IN ACCORDANCE WITH TABLE 4-11 APPLICABLE LEAKAGE CLASSES OF THE LATEST SMACNA HVAC LEAKAGE TEST MANUAL.
- MAKE CONNECTIONS BETWEEN FLEXIBLE DUCTS AND RIGID TRUNK DUCTS WITH FACTORY FABRICATED FITTINGS WITH DAMPERS. SECURE FLEX DUCT TO FITTING WITH CLAMPS OR HANDOUT STRAPS INSTALLED TO FACTORY RECOMMENDED TENSION. INSTALL CLAMPS ON LINER AND SECOND CLAMP OVER JACKET. JOB INSPECTION MAY REQUIRE REMOVAL AND REPLACEMENT OF A RANDOM SAMPLING OF CONNECTIONS.
- ELBOWS SHALL HAVE A THROAT RADIUS EQUAL TO 1-1/2 TIMES THE DUCT WIDTH. SQUARE ELBOWS SHALL HAVE TURNING VANES OR SPLITTER. TRANSITIONS SHALL NOT EXCEED 4 TO 1 ASPECT RATIO.

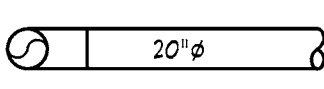
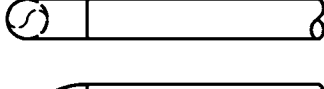
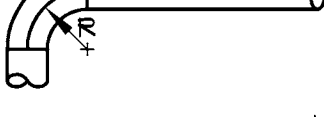
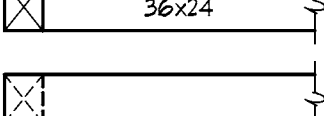
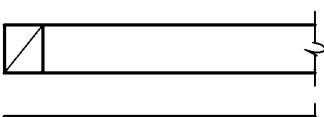
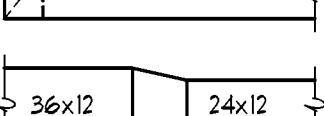
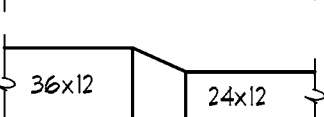
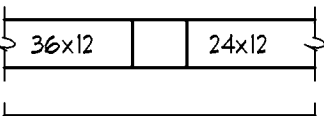
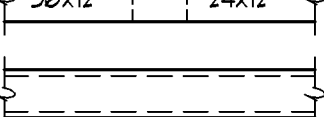
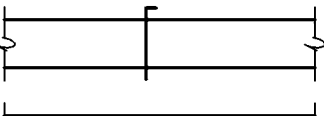
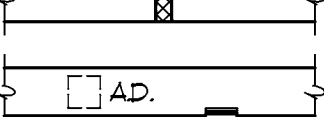
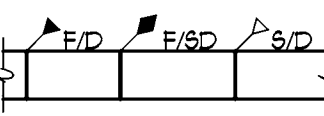
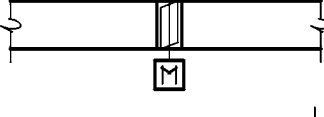
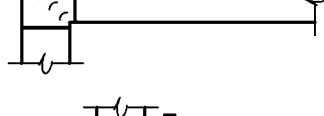
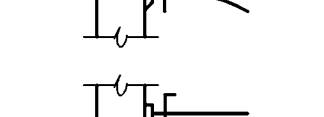
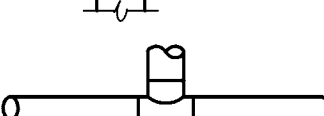
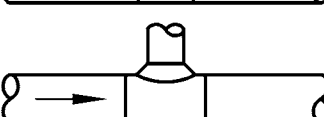
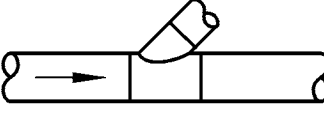
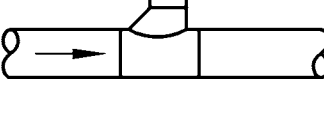
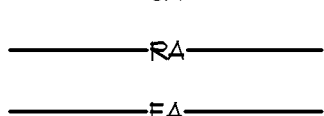
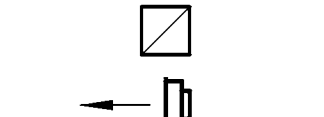
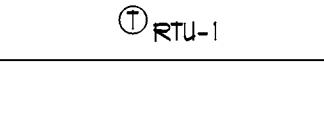
C. AUTOMATIC TEMPERATURE CONTROLS & AUTOMATIC SHUT-OFF

- ROOFTOP AC UNITS SHALL BE TURNED ON/OFF WITH PROGRAMMABLE 1-DAY THERMOSTATS. THERMOSTATS SHALL BE SET FOR CONTINUOUS FAN OPERATION.
- AIR CONDITIONING UNITS SHALL BE EQUIPPED WITH IONIZATION TYPE DUCT DETECTOR UNLESS INDICATED OTHERWISE.
- DUCT SMOKE DETECTOR SHALL BE LOCATED IN THE MAIN SUPPLY AND RETURN - AIR DUCT AHEAD OF ANY BRANCH TAKE-OFFS, AND INSTALLED PER MANUFACTURER'S WRITTEN INSTALLATION INSTRUCTIONS.
- WHERE REQUIRED BY BUILDING OFFICIALS, ACTIVATION OF ANY SMOKE DETECTOR SHALL CAUSE THE AIR-MOVING EQUIPMENT TO AUTOMATICALLY SHUT DOWN. WHERE A SYSTEM CONSISTS OF MORE THAN ONE AIR CONDITIONER, ACTIVATION OF ANY OF THE SMOKE DETECTORS IN ANY OF THE AIR CONDITIONERS SERVING THE COMMON AREA SHALL CAUSE ALL AIR-MOVING EQUIPMENT SERVING THAT COMMON AREA TO SHUT DOWN.
- WIRING OF THE SMOKE DETECTORS SHALL BE THE RESPONSIBILITY OF THE ELECTRICAL CONTRACTOR AND SHALL BE DONE IN ACCORDANCE WITH THE REQUIREMENTS OF THE NEC AND ELECTRICAL SECTIONS OF THE SPECIFICATION.
- FIRE ALARM CONTRACTOR SHALL CONNECT ALL FIRE/SMOKE DAMPERS TO THE FIRE CONTROL SYSTEM AS REQUIRED BY LOCAL BUILDING AUTHORITY. THE FIRE ALARM CONTRACTOR SHALL PROVIDE AND INSTALL THE GELING MOUNTED SMOKE DETECTOR STATUS LIGHTS.

D. TESTING AND BALANCING

- TESTING AND BALANCING SHALL BE PERFORMED DURING TENANT IMPROVEMENT PHASE.

HVAC LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
— CD —	CONDENSATE DRAIN		ELBOW UP
— HUB —	HEATING WATER SUPPLY		ELBOW DOWN
--- HUR ---	HEATING WATER RETURN		LONG RADIUS ELBOW RADIUS (R) = 15 TIMES DIAMETER OF DUCT
--- HFUR ---	HEAT PUMP WATER SUPPLY		DOUBLE SIDE TRANSITION TRANSITION SLOPE SPECIFICATION: MINIMUM SLOPE = 15" MAXIMUM SLOPE = 45"
--- HFUR ---	HEAT PUMP WATER RETURN		BOTTOM TRANSITION (SLOPE ON BOTTOM)
— CS —	CONDENSER WATER SUPPLY		TOP TRANSITION (SLOPE ON TOP)
— CR —	CONDENSER WATER RETURN		SINGLE SIDE TRANSITION
— RS —	REFRIGERANT SUCTION LINE		ACOUSTICALLY LINED SHEET METAL DUCT
— RL —	REFRIGERANT LIQUID LINE		MANUAL BALANCING DAMPER
— HG —	REFRIGERANT HOT GAS LINE		FLEX CONNECTOR
— CUS —	CHILLED WATER SUPPLY		ACCESS DOORS
— CUR —	CHILLED WATER RETURN		FIRE DAMPER FIRE/SMOKE DAMPER, SMOKE DAMPER
— LPS —	LOW PRESSURE STEAM		MOTORIZED DAMPER
— LFC —	LOW PRESSURE CONDENSATE		TURNING VANE ELBOW
— GS —	GATE (SHUT OFF) VALVE		45° LOW-LOSS TAKE-OFF FITTING W/ DAMPER & FLEX DUCT
— BV —	BALL VALVE		45° LOW-LOSS TAKE-OFF FITTING W/ DAMPER & RIGID DUCT
— BV —	BUTTERFLY VALVE		90° TEE TAKE-OFF FITTING
— GV —	GLOBE VALVE		CONICAL 90° TEE TAKE-OFF FITTING
— TV —	TRIPLE DUTY VALVE		45° TEE TAKE-OFF FITTING
— SCV —	SLUNG CHECK VALVE		LOW LOSS TAKE-OFF FITTING
— S —	STRAINER		SUPPLY AIR DUCT (SINGLE LINE)
— FC —	FLEX CONNECTOR		RETURN AIR DUCT (SINGLE LINE)
— PRV —	PRESSURE REDUCING VALVE		EXHAUST AIR DUCT (SINGLE LINE)
— SRV —	SAFETY RELIEF VALVE		RETURN/EXHAUST AIR GRILLE
— U —	UNION		SIDE WALL SUPPLY AIR REGISTER
— MV —	MOTORIZED T.C. VALVE/2-WAY		DIFFUSER, REGISTER OR GRILLE AS BRANCH DUCT, NECK SIZE SAME 4-WAY THROU PATTERN UNLESS SHOWN OTHERWISE ON DRAWINGS
— MV —	MOTORIZED T.C. VALVE/3-WAY		THERMOSTAT - CONTROLLED EQUIPMENT NOTED
— V —	VALVE IN RISER (SPECIFY TYPE)		
— T —	TEE UP		
— T —	TEE DOWN		
— E —	ELBOW UP		
— E —	ELBOW DOWN		
— M —	MANUAL FLOW BALANCING VALVE (CIRCUIT SETTER)		
— A —	AUTOMATIC FLOW BALANCING VALVE		
— X —	PIPE ALIGNMENT GUIDE		
— A —	PIPE ANCHOR		
— T —	PRESSURE/TEMP. TEST PLUG		
— D —	DIAL THERMOMETER		
— G —	PRESSURE GAUGE W/ SNUBBER		
— C —	CONNECT NEW WORK TO EXISTING		
— R —	REDUCER		
— F —	FLOW INDICATOR		

STANDARD ABBREVIATIONS

AC	AIR CONDITIONING UNIT	EUT	ENTERING WATER TEMPERATURE	OBD	OPPOSED BLADE DAMPER
AD	ACCESS DOOR	EXH	EXHAUST	PD	PRESSURE DROP
AF	ABOVE FINISHED FLOOR	FPM	FEET PER MINUTE	PSI	POUNDS/SQUARE INCH
AHU	AIR HANDLING UNIT	FT	FEET OR FOOT	RA	RETURN AIR
AMB	AMBIENT	GPM	GALLONS PER MINUTE	RH	RELATIVE HUMIDITY
AMP	AIR PRESSURE DROP	HC	HEATING COIL	RT	ROOFTOP UNIT
APPROX	APPROXIMATE	HP	HORSEPOWER	SA	SUPPLY AIR
AVG	AVERAGE	HUR	HOT WATER RETURN	SD	FIRE/SMOKE DAMPER
BOD	BACK DRAFT DAMPER	HWS	HOT WATER SUPPLY	SP	STATIC PRESSURE
BHP	BRAKE HORSE POWER	HX	HEAT EXCHANGER	SPEC	SPECIFICATIONS
BOD	BOTTOM OF DUCT	I	INCHES	SL	SEA LEVEL
BTU/H	BRITISH THERMAL UNIT/HOUR	INCH	INCHES IN WATER GAUGE	SQ	SQUARE
CAP	CAPACITY	INCH	INCHES IN WATER COLUMN	SS	STAINLESS STEEL
CFM	CUBIC FEET PER MINUTE	LAT	LEAVING AIR TEMPERATURE	TAB.	TEST AND BALANCING
CO	COOLING COIL	LUT	LEAVING WATER TEMPERATURE	TCT	TEMPERATURE CONTROL PANEL
CP	CONDENSATE PUMP	MAU	MAKEUP AIR UNIT	TEMP	TEMPERATURE
CJH	CABINET UNIT HEATER	MAX	MAXIMUM	TSP	TOTAL STATIC PRESSURE
CC	COOLING COIL	MBS	BTUS PER HOUR (THOUSAND)	T-STAT	THERMOSTAT
D/DIA	DIAMETER	MD	MOTORIZED DAMPER	TYP	TYPICAL
DB	DRY BULB TEMPERATURE	MFR	MANUFACTURER	UH	UNIT HEATER
DL	DUCT LINER	MIN	MINIMUM	VAV	VARIABLE AIR VOLUME
DEG	DEGREES	MV	MANUAL VOLUME DAMPER	VEL	VELOCITY
(E)	EXISTING	NEW	NEW	VFD	VARIABLE FREQUENCY DRIVE
EAT	ENTERING AIR TEMPERATURE	NA	NOT APPLICABLE	WTH	WITH
EAT	ENTERING DRY BULB	NC	NOT IN CONTRACT	WB	WET BULB
EFF	EFFICIENCY	NC	NORMALLY CLOSED	WPD	WATER PRESSURE DROP
ELECT	ELECTRICAL	NO	NORMALLY OPENED	WPS	WIRE MESH SCREEN
ELEV	ELEVATION	NOT	NOT TO SCALE		
ESP	EXTERNAL STATIC PRESSURE	NST	NOT TO SCALE		
ET	EXPANSION TANK	OA	OUTSIDE AIR		
EUB	ENTERING WET BULB				

SHEET INDEX

- INDICATES PREVIOUSLY / CURRENTLY ISSUED SHEETS

PLAN/CHECK SUBMITTAL	
SHEET	TITLE
M01	Mechanical Specifications and Legend
M11	Mechanical Roof Plan
M21	Mechanical Schedule, Details and Energy Form

WRIGHT
engineers

2 Ventura Suite 200
Irvine, CA 92618
949.477.4001 wrightengineers.com
MO-160185G

architecture design collaborative

14252 culver drive suite A-347
irvine, ca 92604
www.adcollaborative.com
949.267.1660

ADC Project No: 150114

Project Contact: Alexandra Hernandez
Email: ahernandez@adcollaborative.com
Principal: Craig Chinn
Project Manager: Alexandra Hernandez

Client

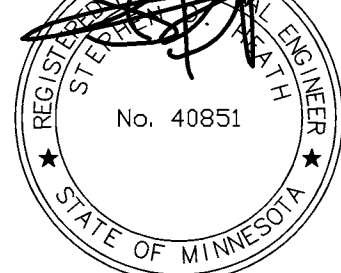
Company: Culp Construction
Address: 1 Technology Drive, Suite D-411
Irvine, CA 92618
Phone No. (949) 727-3552
Fax No.

APACHE MALL
SHELL SUITE 305
333 APACHE MALL
ROCHESTER, MN 55902

Sheet Issue & Revision Log

Sheet Issue Date	12-01-15
02/01/16 1ST CITY SUBMITTAL	

It is the clients responsibility prior to or during construction to notify the architect in writing of any perceived errors or omissions in the plans and specifications of which a contractor thoroughly knowledgeable with the building codes and methods of construction should reasonably be aware. Written instructions addressing such perceived errors or omissions shall be received from the architect prior to the client or clients subcontractors proceeding with the work. The client will be responsible for any defects in construction if these procedures are not followed.



MECHANICAL
SPECIFICATIONS
AND LEGEND

M0.1

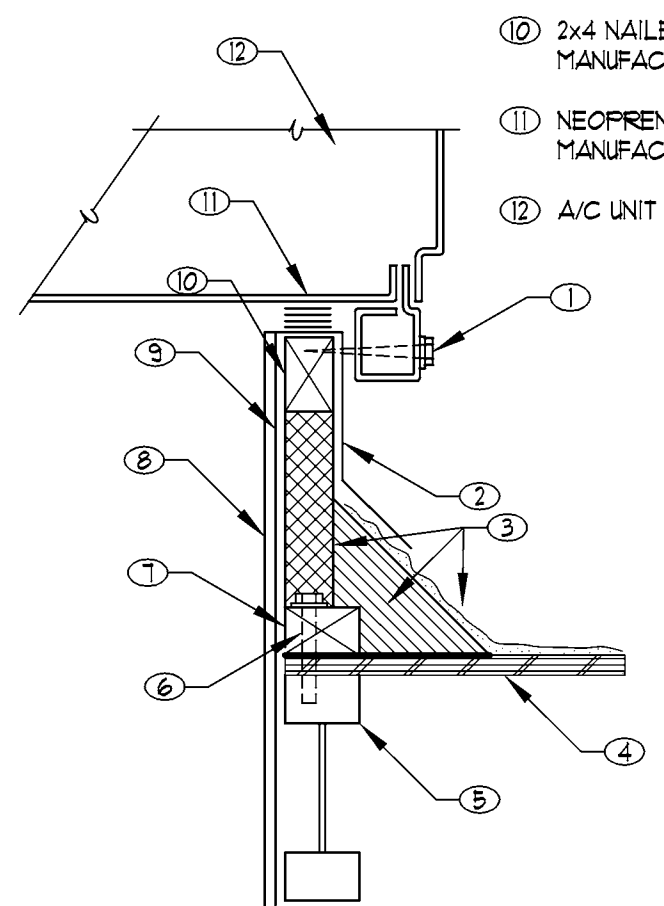
MECHANICAL ROOF PLAN
SCALE: 3/32" = 1'-0"



2 Venture Suite 200
Irvine, CA 92618
949.477.4001 wrightengineers.com
M11-160193-PR1

Sheet Issue Date	12-01-15
Sheet Issue & Revision Log	
02/01/16 1ST CITY SUBMITTAL	
It is the client's responsibility prior to or during construction to notify the architect of any perceived errors or omissions in the plans and specifications or to instruct a contractor through knowledge with the building codes to correct a construction based responsibility to correct perceived errors or omissions. All requests for correction to the client or clients subcontractors proceeding with the work. The architect will not be responsible for a construction if the procedures are not followed.	

MECHANICAL
ROOF PLAN



1. SECURE UNIT TO CURB w/ 3/16"x3" LONG SELF TAPPING SCREWS w/ FENDER WASHER. MIN. 2 EACH SIDE
2. 20 GA. G.L. FLASHING BY MECHANICAL CONTRACTOR
3. RIGID INSULATION, CANTSTRIP AND ROOFING BY ROOFING CONTRACTOR
4. ROOF
5. STRUCTURAL MEMBER - SEE STRUCTURAL DRAWINGS
6. SECURE CURB w/ 1/2"x3" LONG LAG BOLTS AT 24" O.C. PRE-DRILL STUD FOR LAG BOLTS
7. 2x4 WOOD LEVELING MEMBER AROUND PERIMETER OF EQUIPMENT CURB
8. 14" HIGH FACTORY EQUIPMENT CURB BY UNIT MFR. TOP SET LEVEL
9. DUCT - SEE PLANS

01

ROOF TOP UNIT MOUNTING

RSJ-06 0810 NO SCALE

ROOFTOP PACKAGED GAS/ELECTRIC UNIT SCHEDULE

GENERAL							FAN				ELECTRICAL			COOLING COIL				HEATING			
MARK	MANUFACTURER & MODEL No.	TONS	EER	EST. TOTAL WEIGHT W/ ACCESSORIES (LBS)	BASE DIMENSIONS (IN. WxDxH)	MIN OSA CFM	CFM	DRIVE	HP	E.S.P.	ELECTRICAL VOLTS/PH/Hz	MCA	MOCP	TEMP	EAT DB/WB	SENS. CAP. MBH	TOT. CAP. MBH	INPUT MBH	OUTPUT MBH	THERMAL EFF.	NOTES
RTU 23.4	CARRIER 4842E070	20	102	5516	165x82x10	-	8000	BELT	5	1/6	460V/3/60	66.4	80	95	80/61	184	255	525	425.25	81%	SEE NOTES BELOW
NOTES AND ACCESSORIES: 1. RA DUCT SMOKE DETECTOR 2. ECONOMIZER WITH BAROMETRIC RELIEF DAMPER AND CONTROLS AND FAULT DETECTION AND DIAGNOSTIC 3. NON-POWERED CONVENIENCE OUTLET 4. STANDARD 14" HIGH ROOF CURB 5. 2" MERV 8 FILTERS 6. PROVIDE CRANKCASE HEATER 7. POWER EXHAUST 8. 2 STAGE COOLING 9. HAIL GUARDS																					



COMcheck Software Version 4.0.0

Mechanical Compliance Certificate

Project Information

Energy Code: 2012 IECC
Project Title: H & M - Apache Mall
Location: Rochester, Minnesota
Climate Zone: 6a
Project Type: New Construction

Construction Site: 333 Apache Mall, Rochester, MN
Owner/Agent: Sergio Mangahis
Designer/Contractor: Sergio Mangahis, Wright Engineers, 2 Venture Suite 200, Irvine, CA 92618, 949.477.4001

Additional Efficiency Package

Unspecified

Mechanical Systems List

Quantity System Type & Description

4 HVAC System (Single Zone)
Heating: 1 each - Other, Gas, Capacity = 525 kBtu/h
No minimum efficiency requirement applies.
Cooling: 1 each - Single Package DX Unit, Capacity = 255 kBtu/h, Air-Cooled Condenser, Air Economizer
Proposed Efficiency = 10.20 EER, Required Efficiency = 9.80 EER
Fan System: None

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2012 IECC requirements in COMcheck Version 4.0.0 and to comply with the mandatory requirements listed in the Inspection Checklist.

Sergio Mangahis, Mechanical Designer
Name - Title Signature Date Jan. 29, 2016



COMcheck Software Version 4.0.0

Inspection Checklist

Energy Code: 2012 IECC

Requirements: 0.0% were addressed directly in the COMcheck software.

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

2012 IECC	Plan Review	Complies?	Comments/Assumptions
C103.2 [R21]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	

Additional Comments/Assumptions:

Project Title: H & M - Apache Mall
Data Filename: K:\2016\160193\MEP\Mechanical\Calcs\H&M.cck
Report date: 01/28/16
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Section & Req ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
C403.4.7 [ME55]	Hot gas bypass limited to: <=240 kBtu/h - 50% >240 kBtu/h - 25%			☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	

Additional Comments/Assumptions:

Project Title: H & M - Apache Mall
Data Filename: K:\2016\160193\MEP\Mechanical\Calcs\H&M.cck
Report date: 01/28/16
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2012 IECC	Final Inspection	Complies?	Comments/Assumptions
C403.2.4.7 [F147]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C403.2.4.2 [F138]	Thermostatic controls have a 5 °F deadband.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C403.2.4.2 [F120]	Temperature controls have setpoint overlap restrictions.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C403.2.4.3 [F139]	Each zone equipped with setback controls using automatic time clock or programmable control system.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C403.2.4.3 [F140]	Automatic Controls: Setback to 55 °F 5 (heat) and 55 °F (cool); 7-day clock, 2-hour occupant override, 10-hour backup.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C408.2.5.1 [F17]	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C303.3.4 [F18]	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C408.2.5.3 [F143]	An air and/or hydronic system balancing report is provided for HVAC systems.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C408.2.3.2 [F110]	HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C403.2.2 [F177]	HVAC systems and equipment capacity does not exceed calculated loads.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C408.2.1.1 [F128]	Commissioning plan developed by registered design professional or approved agency.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C408.2.4 [F129]	Preliminary commissioning report completed and certified by registered design professional or approved agency.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	

Project Title: H & M - Apache Mall
Data Filename: K:\2016\160193\MEP\Mechanical\Calcs\H&M.cck
Report date: 01/28/16
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Project Title: H & M - Apache Mall
Data Filename: K:\2016\160193\MEP\Mechanical\Calcs\H&M.cck
Report date: 01/28/16
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2012 IECC	Final Inspection	Complies?	Comments/Assumptions
C408.2.5.4 [F130]	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C408.2.3.3 [F133]	HVAC equipment has been tested to ensure proper operation.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C408.2.3.3 [F132]	Economizers have been tested to ensure proper operation.	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	

Additional Comments/Assumptions:

Project Title: H & M - Apache Mall
Data Filename: K:\2016\160193\MEP\Mechanical\Calcs\H&M.cck
Report date: 01/28/16
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Section & Req ID	Mechanical Rough-In Inspection	Plans Verified Value	Field Verified Value	Complies?	Comments/Assumptions
C403.2.3 [ME55]	HVAC equipment efficiency verified.	Efficiency _____	Efficiency _____	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	See the Mechanical Systems list for values.
C403.2.5 [ME59]	Demand control ventilation provided for spaces >500 ft ² and >25 people/1000 ft ² occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm.			☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C403.2.7 [ME60]	HVAC ducts and plenums insulated. Where ducts or plenums are installed in or under a slab, verification may need to occur during Foundation Inspection.	R _____	R _____	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C403.2.8 [ME41]	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5.			☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C403.2.7 [ME10]	Ducts and plenums sealed based on static pressure and location.			☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C403.2.7.1 [ME11]	Ductwork operating >3 in. water column requires air leakage testing.			☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C403.3.1.1 [ME62]	Air economizers provided where required, meet the requirements for design capacity control, signal, ventilation controls, high-limit shut-off, integrated economizer control, and provide a means to relieve excess outside air during operation.			☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C408.2.2.1 [ME53]	Air outlets and zone terminal devices have means for air balancing.			☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C403.4.2 [ME68]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐ VSD ☐ Vane axial fan ☐ Other	☐ VSD ☐ Vane axial fan ☐ Other	☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C403.2.6 [ME57]	Exhaust air energy recovery on systems meeting Table C403.2.6			☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	
C403.2.11 [ME71]	Unenclosed spaces that are heated use only radiant heat.			☐ Complies ☐ Does Not ☐ Not Observable ☐ Not Applicable	

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Data Filename: K:\2016\160193\MEP\Mechanical\Calcs\H&M.cck
Report date: 01/28/16
Page 4 of 8



architecture design collaborative
14252 culver drive suite A-347
irvine, ca 92604

www.adcollaborative.com
949.267.1660

ADC Project No: 150114

Project Contact: Alexandra Hernandez
Email: ahernandez@adcollaborative.com
Principal: Craig Chinn
Project Manager: Alexandra Hernandez

Client

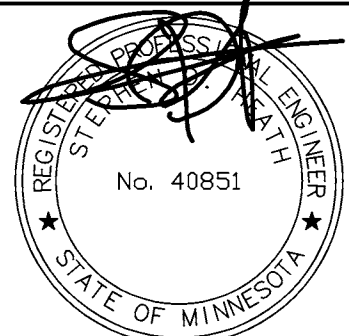
Company: Culp Construction
Address: 1 Technology Drive, Suite D-411
Irvine, CA 92618
Phone No. (949) 727-3552
Fax No.

APACHE MALL
SHELL SUITE 305
333 APACHE MALL
ROCHESTER, MN 55902

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WRIGHT
engineers

2 Venture Suite 200
Irvine, CA 92618
949.477.4001
ME-160193-D

MECHANICAL
SCHEDULE,
DETAILS AND
ENERGY FORM

M2.1

GENERAL ELECTRICAL NOTES

NOTES

- ALL SYMBOLS ARE NOT NECESSARILY USED IN THIS PROJECT.
- 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 MATERIALS 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.
- ELECTRICAL WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER IN ACCORDANCE WITH THE NATIONAL INSTALLATION STANDARDS TO THE SATISFACTION OF THE ARCHITECT AND ENGINEER.
- ALL WORK MATERIALS AND EQUIPMENT SHALL CONFORM TO THE CURRENTLY ACCEPTED EDITION OF ALL APPLICABLE NATIONAL, STATE AND CITY CODES AND ORDINANCES.
- ALL ELECTRICAL SYSTEM COMPONENTS SHALL BE LISTED OR LABELED BY UL OR OTHER RECOGNIZED TESTING FACILITY AS ALLOWED BY AUTHORITY HAVING JURISDICTION.
- WHERE AN APPARENT DISCREPANCY EXISTS BETWEEN THE REQUIREMENTS OF THE GENERAL NOTES AND INFORMATION PORTRAYED IN THE ELECTRICAL DRAWINGS, THE CONTRACTOR SHALL INCLUDE IN HIS BID THE COST OF THE GREATER QUALITY OR QUANTITY.
- CONTRACTOR SHALL VISIT JOB SITE PRIOR TO BID AND VERIFY EXISTING CONDITIONS. CONTRACTOR SHALL INCLUDE IN BASE BID ALL COSTS REQUIRED FOR PERMITS AND INSPECTIONS.
- 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. CONTRACTOR SHALL PERFORM ALL WORK AS DIRECTED BY OWNER'S REPRESENTATIVE AND ARCHITECT.
- 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.
- 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 CHARGE TO OWNER.
- PROVIDE AS-BUILT DRAWINGS TO ARCHITECT. DRAWINGS SHALL INCLUDE ACCURATE CONDUIT AND DEVICE LOCATIONS DIMENSIONED FROM PERMANENT LANDMARKS SUCH AS BUILDING WALLS.
- 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 FIELD MOUNTED 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.
- 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 DEVIATE FROM 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.
- RACEWAY SYSTEMS ARE SHOWN DIAGRAMMATICALLY. ACTUAL LOCATION AND ROUTING OF ALL SHALL BE DETERMINED BY CONTRACTOR TO SUIT FIELD CONDITIONS.
- PROVIDE DEDICATED NEUTRAL FOR EACH NEW CIRCUIT. HOME RUN CONDUCTORS MAY BE COMBINED INTO ONE CONDUIT, NO RACEWAY OR CABLE SHALL CONTAIN MORE THAN NINE (9) CURRENT CARRYING CONDUCTORS. WHERE MULTIPLE CONDUCTORS IN EXCESS OF THREE (3) ARE INDICATED ON THESE DRAWINGS, THEY HAVE BEEN DERATED AS REQUIRED BY NEC ARTICLE 310 REQUIREMENTS.
- WHERE ALLOWED, MC CABLE MAY BE INSTALLED PER NEC ARTICLE 330. WHERE MULTIPLE CABLES ARE ROUTED ADJACENT TO EACH OTHER (BUNDLED), A MINIMUM SEPARATION OF ONE (1) CABLE DIAMETER (LARGEST) SHALL BE REQUIRED.
- PLASTIC CABLE TIES SHALL NOT BE USED AS A MEANS OF SUPPORT FOR MC CABLE. USE ONLY APPROVED CABLE SUPPORTS PER CABLE MANUFACTURER'S INSTALLATION REQUIREMENTS.
- RACEWAYS SHALL BE INSTALLED CONCEALED (IN CMU OR OTHER WALL) WHENEVER POSSIBLE. RACEWAYS INSTALLED EXPOSED SHALL BE ROUTED OUT OF PUBLIC VIEW AS MUCH AS POSSIBLE. RACEWAYS SHALL BE RUN PARALLEL WITH, OR AT RIGHT ANGLE TO, WALLS.
- PROVIDE APPROVED EXPANSION FITTINGS WHERE RACEWAYS CROSS BUILDING EXPANSION JOINTS. PROVIDE BONDING JUNCTION(S) SIZED PER CODE WHERE REQUIRED. PROVIDE ALL FITTINGS REQUIRED FOR A COMPLETE INSTALLATION. REFER TO ARCHITECTURAL DRAWINGS FOR EXPANSION JOINT LOCATION(S).
- MINIMUM RACEWAY SIZE SHALL BE 1/2". MINIMUM HOMERUN SIZE SHALL BE 3/4". MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG UNO TYPICAL. ALL POWER RELATED CONDUITS SHALL HAVE A CODE SIZE GROUND WIRE INSTALLED IN EACH RUN.
- CONTRACTOR SHALL PROVIDE FULL CORDS IN ALL EMPTY CONDUITS. WHERE MORE THAN ONE CONDUIT TERMINATES IN A JUNCTION BOX, THE CONTRACTOR SHALL IDENTIFY EACH CONDUIT AND JUNCTION BOX IN A MANNER ALLOWING IDENTIFICATION AFTER ALL WALL FINISHES HAVE BEEN APPLIED.
- 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.
- CONTRACTOR SHALL BE RESPONSIBLE FOR CORRECT SIZE AND INSTALLATION OF ALL OUTLET PULL AND JUNCTION BOXES IN ACCORDANCE WITH NEC 314-16. ALL BOXES SHALL BE MINIMUM 4" SQUARE BY 1-1/2" DEEP OR AS INDICATED ON THE DRAWINGS. ALL BOXES SHALL BE RECESSED WITH COVER PLATE TO SUIT THE INTENDED APPLICATION.
- REFER TO THE ARCHITECTURAL REFLECTED CEILING PLAN(S) FOR EXACT LOCATION OF ALL CEILING MOUNTED LIGHTING FIXTURES. ARCHITECTURAL DRAWINGS SHALL GOVERN IN CASE OF CONFLICT WITH THESE DRAWINGS.
- 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.
- 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.
- 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.
- ALL NEW PANELBOARDS AND SWITCHBOARDS SHALL BE OF THE SAME MANUFACTURER AND HAVE LOCKING DOORS AND BE KEYPED THE SAME UNO.
- PROVIDE TYPE WRITTEN 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.
- 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.
- WHERE MOTORS ARE INSTALLED IN SUSPENDED CEILINGS, CONTRACTOR SHALL PROVIDE DISCONNECT SWITCH IN SUSPENDED CEILING WITHIN REACH FROM ACCESS POINT.
- 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 RATINGS AND LOADS. CONTRACTOR TO PROVIDE CORRECTLY SIZED MOTOR OVERLOAD ELECTRICAL COMPONENTS BASED ON NAMEPLATE RATINGS. REFLECT ALL CHANGES IN THE AS-BUILT DRAWINGS.

NOTES (CONT'D.)

- CONTRACTOR SHALL SUBMIT SHOP DRAWINGS TO ARCHITECT FOR REVIEW OF THE FOLLOWING EQUIPMENT:
 - ELECTRICAL SWITCHGEAR: SWITCHBOARDS, WITH PANELS, MOTOR CONTROL CENTERS AND SAFETY DEVICES.
 - OVERCURRENT DEVICES: CIRCUIT BREAKERS AND FUSES INCLUDING TIME/CURRENT TRIP CURVES.
 - LIGHTING FIXTURES, INDOOR/OUTDOOR AS SPECIFIED, PHOTO-METRIC PERFORMANCE DATA AND LAMPS.
 - DEVICES: SWITCHES, RECEPTACLES, MOTOR CONTROLLERS AND DEVICE PLATES.
 - LIFE SAFETY/FIRE ALARM SYSTEM: CONTROL, PANEL, ANNUNCIATOR PANEL, INITIATION AND NOTIFICATION DEVICES/APPLIANCES, SYSTEM WIRING REQUIREMENTS AND DIAGRAM, SYSTEM LOAD CALC., STANDARD BATTERY CALCULATIONS, AND AUXILIARY POWER SUPPLY.
- 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.
- 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.
- FIRE ALARM DEVICE WIRING SHALL BE MINIMUM #14 AWG COPPER OR PER SYSTEM MANUFACTURER REQUIREMENTS. PROVIDE MINIMUM 3/4" SEPARATE RACEWAY SYSTEM OR AS REQUIRED FOR LIFE SAFETY SYSTEM WIRING CONFIGURATION.
- 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.
- 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.
- ALL UNDERGROUND SERVICE CONDUITS SHALL BE SEALED PER NEC ARTICLE 230-8.
- FLOOR MOUNTED ELECTRICAL EQUIPMENT SHALL BE MOUNTED ON A 4" HIGH CONCRETE PAD.
- INSTALL TRANSFORMER FOLLOWING MANUFACTURER'S RECOMMENDATIONS FOR VENTILATION CLEARANCES.
- 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 FUSES AS REQUIRED PER EQUIPMENT MANUFACTURER RECOMMENDATIONS AND UL LISTING REQUIREMENTS.
- PROVIDE 10 AWG CONDUCTORS FOR 20 AMPERE, 120V BRANCH CIRCUITS LONGER THAN 75' AND 8 AWG CONDUCTORS FOR 20 AMPERE, 120V BRANCH CIRCUITS LONGER THAN 120'. PROVIDE 10 AWG CONDUCTORS FOR 20 AMPERE, 277V BRANCH CIRCUITS LONGER THAN 200'.

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
LIGHTING		SIGNAL	
	LINEAR FLUORESCENT FIXTURE		THERMOSTAT OUTLET AT +54" (HVAC UNIT DESIGNATION)
	LINEAR FLUORESCENT FIXTURE		ENCLOSED CIRCUIT BREAKER
	SUSPENDED LINEAR FLUORESCENT FIXTURE		RELAY
	FLUORESCENT WALL MOUNT FIXTURE		TIME SWITCH
	LINEAR FLUORESCENT STRIP FIXTURE		CONTACTOR
	LIGHT FIXTURE - RECESSED OR SURFACE		TRANSFORMER
	PENDANT FIXTURE		AUTOMATIC TRANSFER SWITCH
	WALL MOUNTED LIGHT FIXTURE		TELEPHONE OUTLET AT +18"
	WALL SCONCE		DATA OUTLET AT +18"
	WALL WASHER		COMBINATION TELE/COMPUTER OUTLET AT +18"
	LETTER REFERS TO FIXTURE TYPE		TELEPHONE OUTLET ABOVE COUNTER
	MONO-POINT LIGHT FIXTURE		TELE/ DATA OUTLET ABOVE COUNTER
	TRACK LIGHT FIXTURE		DATA OUTLET ABOVE COUNTER
	PARKING LOT POLE MOUNTED LIGHT FIXTURE		FLUSH FLOOR BOX WITH COMBINATION TELE/ DATA OUTLET
	BOLLARD LIGHT FIXTURE		TELEVISION OUTLET
	EXIT SIGN - CEILING MOUNTED		TELEVISION CAMERA (CCTV)
	EXIT SIGN - WALL MOUNTED		FIRE ALARM HORN/STROBE
	EXIT SIGN - WARROWS INDICATE DIRECTION		CARD READER
	EMERGENCY BATTERY UNIT WITH HEADS		FLOW SWITCH
	FIXTURE W/ EMERGENCY BATTERY OR GENERATOR		TAMPER SWITCH
	SINGLE POLE SWITCH, 20A, 120/277V		SMOKE DETECTOR
	TWO POLE SWITCH, 20A, 120/277V		FIRE/SMOKE DAMPER
	THREE-WAY SWITCH, 20A, 120/277V		CARBON MONOXIDE DETECTOR (SPECIFIED BY MECHANICAL ENGINEER)
	FOUR-WAY SWITCH, 20A, 120/277V		DUCT MOUNTED SMOKE DETECTOR
	DIMMER SWITCH, MIN 2000UL, 120/277V		HEAT DETECTOR
	HP RATED MOTOR SWITCH WITH THERMAL OVERLOAD PROTECTION		SPEAKER, CEILING OR WALL MOUNTED
	LOWER CASE LETTER DENOTES FIXTURES TO BE CONTROLLED		DOOR HOLD OPEN
	KEY SWITCH, 20A, 120/277V	NOTES: FOR PHONE AND DATA OUTLETS PROVIDE ONE (1) 3/4" C.O. RISER UP WALL WITH PULL STRING TO ACCESSIBLE CEILING SPACE.	
	PUSH BUTTON CONTROL STATION	SINGLE LINE	
	OCCUPANCY SENSOR - CEILING		CIRCUIT BREAKER
	OCCUPANCY SENSOR - WALL MOUNTED		SERVICE CABLE TERMINATION
	OCCUPANCY SENSOR W/DIMMER- WALL MOUNTED		FUSE
	LIGHTING CONTRACTOR		FUSED DISCONNECT SWITCH
	TIME CLOCK		SWITCH
	PHOTOCELL		SURGE SUPPRESSOR
POWER			CURRENT TRANSFORMER
	SINGLE RECEPTACLE, NEMA 5-20R, 20A, 125V		POTENTIAL TRANSFORMER
	DUPLEX RECEPTACLE, NEMA 5-20R, 20A, 125V		GROUNDING ELECTRODE
	GFCI DUPLEX RECEPTACLE, NEMA 5-20R, 20A, 125V		POWER METER
	DOUBLE DUPLEX RECEPTACLE, NEMA 5-20R, 20A, 125V		MOTOR
	DUPLEX RECEPTACLE / HALF-SWITCHED		GENERATOR
	DUPLEX RECEPTACLE MOUNTED ABOVE COUNTER - VERIFY MOUNTING HEIGHT		SHUNT TRIP
	GFCI RECEPTACLE, ABOVE COUNTER		GROUND FAULT INTERRUPTER
	SPECIAL PURPOSE OUTLET (TYPE AS NOTED)		TRANSFER SWITCH
	CLOCK OUTLET NEMA 5-20R, 20A, 125V W/ RECESSED COVER PLATE AT +50", UNO.		CONTACT (NORMALLY OPEN)
	DUPLEX RECEPTACLE NEMA 5-20R, 20A, 125V - FLUSH MOUNT CEILING		CONTACT (NORMALLY CLOSED)
	FLOOR OUTLET W/ DEVICE AS INDICATED		TIME SWITCH
	COMBINATION FLOOR OUTLET W/ DEVICES AS INDICATED		CONTROL SWITCH
	JUNCTION BOX		PUSH BUTTON
	JUNCTION BOX - WALL MOUNT	WIRING	
	JUNCTION BOX - FLUSH FLOOR MOUNT		CONDUIT ROUTED UNDERFLOOR / UNDERGROUND
	MULTI-OUTLET SURFACE RACEWAY W/ NEMA 5-20R, 20A, 125V AT 12" ON CENTER, UNO.		RACEWAY W/ 1/2" CONDUCTORS UNO
	PULL BOX - EXTERIOR OR INTERIOR AS INDICATED		RACEWAY TURNED UP
	TELEPHONE TERMINAL CABINET AT +12" TO TOP		RACEWAY TURNED DOWN
	TELEPHONE BACKBOARD		HOMERUN TO PANELBOARD 1/2" C W/ 1/2" CONDUCTORS UNO
	PANELBOARD - SURFACE MOUNT		CONDUIT CAP-OFF
	PANELBOARD - FLUSH MOUNT	MISCELLANEOUS	
	SWITCHBOARD OR DISTRIBUTION BOARD		EQUIPMENT TAG
	METER SERVICE PEDESTAL		DIAGRAM TAG
	NON-FUSED DISCONNECT SWITCH		REVISION SYMBOL
	FUSED DISCONNECT SWITCH		KEYNOTE SYMBOL
	MOTOR CONTROLLER OR STARTER		SCHEDULED EQUIPMENT
	COMBINATION CONTROLLER/DISCONNECT SWITCH		
	VENDOR FURNISHED COMBINATION CONTROLLER/DISCONNECT SWITCH		

STANDARD ABBREVIATIONS

A	AMPERE
AF	ABOVE FINISHED FLOOR
AF	ARC FAULT, AMP FUSE
AFG	ABOVE FINISHED GRADE
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
ARCH'L	ARCHITECTURAL
AS	AMP SWITCH
AUG	AMERICAN WIRE GAUGE
B	BASE COPPER
BLDG	BUILDING
C	CONDUIT
CAB	CABINET
CAT	CATALOG/CATEGORY
C/B	CIRCUIT BREAKER
CCT	CIRCUIT
CLG	CEILING
CO, EC	CONDUIT ONLY
COMM	COMMUNICATION
CJ	COPPER
DEMO	DEMOLITION/DEMOLISH
DISC	DISCONNECT
DN	DOWN
DWG	DRAWING
EA	EACH
ELECT.	ELECTRICAL
ELEV	ELEVATOR
EM	EMERGENCY
ENT	ELECTRICAL METALLIC TUBING
EQUIP	EQUIPMENT
(E), EXIST	EXISTING
F	FURNISHED BY OTHERS
FF	FINISHED FLOOR
FIXT	FIXTURE
FLX	FLEXIBLE METALLIC CONDUIT (STEEL)
FLUOR	FLUORESCENT
FT	FEET OR FOOT
GFA	GROUND FAULT ALARM
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
HP	HORSEPOWER
HVAC	HEATING, VENTILATING & AIR CONDITIONING
IBC	INTERNATIONAL BUILDING CODE
IMC	INTERMEDIATE METAL CONDUIT
IN	(INCHES)
IRC	INTERNATIONAL RESIDENTIAL CODE
ISC	SHORT CIRCUIT AMPERES
JB, J-BOX	JUNCTION BOX
KCMIL, MCM	THOUSAND CIRCULAR MILS
KVA	KILOVOLT AMPERE
K	KILOWATT
LTG	LIGHTING
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MECH	MECHANICAL
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MTD	MORTAR
NO	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NECA	NATIONAL ELECTRICAL CONTRACTORS' ASSOCIATION
NEMA	NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION
NEUTRAL	NEUTRAL
NFC	NATIONAL FIRE CODE
NF	NON-FUSIBLE
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NPCO	NEVADA POWER COMPANY
NTS	NOT TO SCALE
OCP	OVERCURRENT PROTECTION
P	POLE
PH	PHASE
PNL	PANEL
PV	PV PHOTOVOLTAIC
PVC	POLY(VINYL CHLORIDE)
PWR	POWER
QTY	QUANTITY
RECEP	RECEPTACLE
REQ'D	REQUIRED
RSC	RIGID STEEL CONDUIT
SCHED	SCHEDULE
SECT	SECTION
SP	SINGLE POLE
SN	SOLID NEUTRAL
SPEC	SPECIFICATION
SW	SWITCH
SWED	SWITCHBOARD
SWGR	SWITCH GEAR
SYS	SYSTEM
TEMP	TEMPORARY
TBL	TELEPHONE
T-STAT	THERMOSTAT
TTB	TELEPHONE TERMINAL BACKBOARD
TTG	TELEPHONE TERMINAL CABINET
TYP	TYPICAL
UBC	UNIFORM BUILDING CODE
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
V	VOLT OR VOLTAGE
VA	VOLT AMPERE
VD	VOLTAGE DROP
VP	VAPOR PROOF
W	WATT, WIRE
W/STAND	WITHSTAND CURRENT RATING
WCP	UL LISTED WEATHERPROOF, NEMA 3R
WTR	TRANSFORMER

SHEET INDEX

- INDICATES PREVIOUSLY / CURRENTLY ISSUED SHEETS

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	SHEET
	E0.1 Electrical General Notes and Legend
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	E3.1 Single Line Diagram and Load Calculations

Client

Sheet Issue Date	12-01-15
02/01/16 1ST CITY SUBMITTAL	

ELECTRICAL SPECIFICATIONS

PART I – GENERAL

A. CONDITIONS

- FURNISH AND INSTALL A COMPLETELY WIRED AND OPERATIONAL ELECTRICAL SYSTEM AS SHOWN ON THE DRAWINGS AND SPECIFIED HEREIN, INCLUDING BUT NOT LIMITED TO, THESE MAJOR ITEMS:
 - LIGHTING FIXTURES AS INDICATED AND SPECIFIED ON THE PLANS.
 - ELECTRICAL PANELS, SERVICE, CONDUIT, WIRING, ETC. FOR ALL OUTLETS AND EQUIPMENT.
 - TELEPHONE OUTLETS AND CONDUIT AS INDICATED.

B. RELATED WORK BY OTHERS

- THE ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUIT, TRENCH, AND BACKFILL FOR ELECTRICAL SERVICE ENTRANCE FROM THE NEAREST SERVICE UTILITY TO THE POINT OF ELECTRICAL SERVICE. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH THE INSTALLATION OF THE ELECTRICAL SERVICE ENTRANCE WITH SERVING UTILITY COMPANY.
- THE ELECTRICAL CONTRACTOR SHALL PROVIDE CONDUIT, TRENCH, AND BACKFILL FOR PRIMARY PHONE AND CATV SERVICE FROM THE TELEPHONE TERMINAL BOARD OR CABINET TO THE PHONE COMPANY AND CATV COMPANY POINT OF SERVICE.

C. CODES, REGULATIONS, AND STANDARDS

- THE INSTALLATION SHALL COMPLY WITH APPLICABLE LOCAL AND STATE CODES AND ORDINANCES, WITH THE REGULATIONS OF THE CURRENTLY ACCEPTED EDITION OF THE NATIONAL ELECTRIC CODE AND WITH THE REQUIREMENTS OF THE POWER, TELEPHONE, AND CATV COMPANIES FURNISHING SERVICES TO THIS INSTALLATION.
- THE FOLLOWING INDUSTRY STANDARDS, SPECIFICATIONS, AND CODES ARE MINIMUM REQUIREMENTS:
 - THE NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION STANDARDS.
 - THE NATIONAL ELECTRICAL CODE, INCLUDING LOCAL AMENDMENTS.
 - UNDERWRITER LABORATORIES INCORPORATED STANDARDS.
 - AMERICAN NATIONAL STANDARDS INSTITUTE.

D. INSPECTION OF SITE

- PRIOR TO SUBMITTING A BID FOR ELECTRICAL WORK, THE CONTRACTOR SHALL VISIT THE SITE OF THE PROPOSED CONSTRUCTION AND SHALL THOROUGHLY ACCQUAINT HIMSELF WITH EXISTING UTILITIES, AND WORKING CONDITIONS TO BE ENCOUNTERED, ETC. ALLOWANCE WILL NOT BE MADE FOR NONCOMPLIANCE WITH THIS CONDITION AFTER BIDDING.
- ELECTRICAL INSTALLATION SHALL MEET THE EXISTING CONDITIONS.

E. STORAGE AND HANDLING OF MATERIAL

- DELIVER MATERIALS AND EQUIPMENT TO THE PROJECT IN THE MANUFACTURER'S ORIGINAL, UNOPENED, LABELED CONTAINERS. PROTECT AGAINST MOISTURE, TAMPERING, OR DAMAGE FROM IMPROPER HANDLING OR STORAGE. CONTRACTOR SHALL PROTECT AND BE RESPONSIBLE FOR ANY DAMAGE TO WORK OR MATERIALS UNTIL FINAL ACCEPTANCE BY THE OWNER AND SHALL MAKE GOOD WITHOUT COST TO THE OWNER, ANY DAMAGE OR LOSS THAT MAY OCCUR DURING THIS PERIOD.
- ARRANGE FOR TIMELY DELIVERY OF MATERIALS AND EQUIPMENT TO THE JOB SITE IN ORDER TO MINIMIZE THE LENGTH OF THE BETWEEN DELIVERY AND INSTALLATION.
- COVER AND PROTECT ANY MATERIAL WHICH MAY BE AFFECTED BY THE WEATHER WHILE IN TRANSIT OR STORED AT THE PROJECT SITE. ANY MATERIAL FOUND DEFECTIVE OR NOT INSTALLED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS MAY BE REJECTED BY THE ENGINEER.

F. CLEANUP

- KEEP THE PREMISES FREE FROM ACCUMULATION OF WASTE MATERIALS, OR RUBBISH CAUSED BY EMPLOYEES OR WORK UNDER THIS DIVISION OF THE SPECIFICATIONS. AT THE COMPLETION OF THE WORK REMOVE ALL SURPLUS MATERIALS, TOOLS, ETC., AND LEAVE THE PREMISES BROOKE-CLEAN.

G. EXCAVATION

- PERFORM ALL EXCAVATION AND BACK FILLING REQUIRED FOR WORK PERFORMED UNDER THIS DIVISION OF THE SPECIFICATIONS. USE EXCAVATED MATERIALS FOR BACKFILL UNLESS OFF SITE MATERIALS ARE DEEMED NECESSARY.

H. DRAWINGS

- THE DRAWINGS INDICATE THE GENERAL ARRANGEMENT AND LOCATIONS OF THE ELECTRICAL WORK 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. REVIEW ALL ARCHITECTURAL, STRUCTURAL, AND MECHANICAL DRAWINGS AND ADJUST ALL WORK TO MEET THE REQUIREMENTS OF CONDITIONS SHOWN. THE ARCHITECTURAL DRAWINGS SHALL TAKE PRECEDENCE OVER ALL OTHER DRAWINGS. 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. CONTRACTOR SHALL BE RESPONSIBLE TO FIELD YIELD AREAS AND CONFIRM MOUNTING HEIGHTS AND LOCATION OF ELECTRICAL EQUIPMENT WITH RESPECT TO COUNTERS, RADIATION, ETC. DO NOT SCALE DISTANCES OFF THE ELECTRICAL DRAWINGS, USE ACTUAL BUILDING DIMENSIONS.

I. EXCAVATION, CUTTING, AND FITTING

- PERFORM THE EXCAVATION, CUTTING, FITTING, REPAIRING, AND FINISHING OF THE WORK NECESSARY FOR THE INSTALLATION OF THE EQUIPMENT OF THIS SECTION. HOWEVER, NO CUTTING OF THE WORK OF OTHER TRADES OR OF ANY STRUCTURAL MEMBERS SHALL BE DONE WITHOUT THE CONSENT OF THE ARCHITECT.

J. COOPERATION WITH OTHER CONTRACTORS

- COOPERATE WITH THE OTHER TRADES SO THAT THE INSTALLATION OF THE ELECTRICAL OUTLETS AND EQUIPMENT WILL BE PROPERLY COORDINATED. CONDUIT, LIGHTING FIXTURES, AND OTHER EQUIPMENT SHALL BE CHECKED WITH OTHER TRADES TO AVOID CONFLICT WITH THE PIPING, DUCTWORK, STEEL, BEAMS, OR OTHER OBSTRUCTIONS. CAREFULLY CHECK THE LOCATIONS OF THE OUTLET BOXES AND DETERMINE THAT THEY HAVE NOT BEEN DISTURBED DURING THE INSTALLATION OF MATERIALS OF OTHER TRADES.
- COORDINATE THE LOCATION OF THE TRENCHES AND CONDUITS FOR ELECTRICAL AND TELEPHONE UTILITY SERVICES WITH THE GENERAL CONTRACTOR.
- COORDINATE HVAC EQUIPMENT CONNECTION REQUIREMENTS WITH HVAC CONTRACTOR.

PART II – PRODUCTS AND EXECUTION

A. MATERIALS

- ALL MATERIALS SHALL BE NEW AND OF QUALITY AS SPECIFIED ON THE PLANS OR SPECIFICATIONS AND MUST CARRY THE UNDERWRITER'S LABORATORIES APPROVAL COVERING THE PURPOSE FOR WHICH THEY ARE USED, IN ADDITION TO MEETING ALL REQUIREMENTS OF THE CURRENT APPLICABLE CODES AND REGULATIONS.

B. CONDUIT

- ALL WIRING SHALL BE INSTALLED IN LISTED METALLIC CONDUIT EXCEPT AS PERMITTED BELOW. RIGS WITH A 20 MIL PVC COATING WILL BE USED WHEN IN CONTACT WITH EARTH. EMT MAY BE USED IN INDOOR LOCATIONS NOT IN CONTACT WITH EARTH, NOT IN CONCRETE SLABS OR WALLS, AND NOT SUBJECT TO DAMAGE. PVC MAY BE USED IN OR BELOW CONCRETE AND DIRECT BURIED IN EARTH. FLEXIBLE STEEL CONDUIT SHALL BE USED FOR INDOOR FINAL CONNECTIONS TO EQUIPMENT IN LINES NOT TO EXCEED 12' LOCAL TO "HIGH FLEXIBLE STEEL CONDUIT SHALL BE FOR OUTDOOR FINAL CONNECTIONS TO EQUIPMENT NOT TO EXCEED 36'.
- WHERE CONDUIT ENTERS OUTLET BOXES, FIXTURES, OR CABINETS, FIRMLY FASTEN WITH STEEL SET SCREW, COMPRESSION CONNECTORS, OR DOUBLE LOCKNUTS FOR GRC. ALL CONNECTIONS SHALL HAVE BUSHINGS OR INSULATED THROAT CONNECTIONS. FIRMLY FASTEN CONDUIT TO THE BUILDING CONSTRUCTION. RUN EXPOSED CONDUIT PARALLEL TO THE BUILDING LINES, SUPPORTED BY APPROPRIATE HANGERS (UNIBRUIT, T & B OR APPLIFLEX, OR EQUAL).
- COVER METALLIC CONDUIT IN CONTACT WITH EARTH WITH POLYETHYLENE TAPED SPIRAL WRAPPED, 1/2 LAPPED TO PROVIDE 20 MIL THICKNESS. TAPE SHALL BE SCOTCH NO 50 TAPE. CONDUIT AND DUCTS NOT UNDER BUILDINGS AND FEEDER DUCTS SHALL BE INSTALLED PER NEC 300-5. MAKE JOINTS WITH COMPOUND TO BE WATERIGHT.
- FITTINGS AND CONDUIT BODIES SHALL BE STEEL, NO DIECAST FITTINGS.
- CONDUIT SIZES SHALL BE AS REQUIRED BY CODE AND AS INDICATED OR SPECIFIED.
- ALL EMPTY CONDUIT SYSTEMS SHALL HAVE A NYLON PULL STRING TO FACILITATE INSTALLATION OF FUTURE WIRE.
- SCHEDULE 40 PVC CONDUIT SHALL BE PERMITTED UNDERGROUND WITH PROPER FITTINGS, ALL UL APPROVED AND CEMENTED JOINTS. PENETRATIONS THROUGH FLOOR SLABS AND BEAMS GREATER THAN 2" SHALL BE WRAPPED RIGID GALVANIZED STEEL ELBOUS.
- CONDUITS AND OUTLETS SHALL BE CONCEALED WITH THE BUILDING STRUCTURE, EXCEPT THAT CERTAIN MOTOR AND LIGHTING FEEDER CONDUITS MAY BE RUN EXPOSED IN CERTAIN AREAS AS INDICATED ON THE DRAWINGS. CONDUIT SHOWN TO BE INSTALLED IN CABINETS, COUNTERS, AND CABEWORK SHALL BE RUN AS DIRECTED BY THE ARCHITECT.
- ALL CONDUIT SYSTEMS SHALL HAVE A CODE SIZED COPPER GROUND CONDUCTOR INCREASE CONDUIT SIZE AS REQUIRED.

B. CONDUIT (CONTD.)

- CONDUIT PENETRATION THROUGH ROOF SHALL HAVE ROOF FLASHING WITH CAULK TYPE COUNTER FLASHING SLEEVE. INSTALLATION SHALL BE WATERIGHT.
- CONDUITS SHALL BE ROUTED SURFACE ON THE STRUCTURE, PARALLEL AND PERPENDICULAR TO THE STRUCTURE.

C. OUTLET, PULL, AND JUNCTION BOXES

- EACH SWITCH, LIGHT, RECEPTACLE OR OTHER OUTLET SHALL BE PROVIDED WITH A CODE GAUGE, GALVANIZED STEEL OUTLET BOX. JUNCTION AND PULL BOXES SHALL BE CODE GAUGE, GALVANIZED STEEL. OUTLET BOXES SHALL BE OF THE ONE PIECE, KNOCKOUT TYPE, IN GENERAL 4" SQUARE WITH PLASTER RING. PLASTER RING 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 SHALL BE 4" STEEL, CITY S2000 SHALL BE USED FOR 4" BOXES IN UNFINISHED BRICK NUMBER 180 BOXES MAY BE USED FOR UNFINISHED MASONRY FLUSH WALL. OUTLETS, CENTER ALL OUTLET BOXES IN BLOCK COURSE.
- BOXES INSTALLED IN FLOURED CEMENT FLOORS SHALL BE FLUSH TYPE CAST IRON OR STEEL WITH WATERIGHT GASKETED COVERS. WHERE BOXES ARE INSTALLED IN FLOORS WITH TILE OR CARPET FLOOR COVERING COVERS SHALL BE OF THE RECESSED TYPE TO ACCOMMODATE THE FLOOR COVERING.
- BOXES INSTALLED FOR THE ALARM, COMPUTER, AND SECURITY SYSTEM SHALL BE PROVIDED WITH APPROPRIATE COVER PLATES.
- BOXES FOR TELEPHONE, COMPUTER, T.V. FIRE ALARM, SECURITY, AND SIMILAR SYSTEMS SHALL BE MINIMUM 4" SQUARE AND 2-1/8" DEEP.

D. SWITCHBOARDS

- SWITCHBOARDS SHALL BE PROVIDED WITH FULLY RATED COPPER OR ALUMINUM BUS, HORIZONTAL TAPERED BUSHING SHALL NOT BE ALLOWED.
- ACCEPTABLE MANUFACTURERS - CUTLER HAMMER, SIEMENS, SQUARE D, OR APPROVED EQUAL.
- FACTORY ASSEMBLED DEAD FRONT, METAL ENCLOSED, AND SELF-SUPPORTING SWITCHBOARD ASSEMBLY CONFORMING TO NEMA PB 2, AND UL 891, AND COMPLETE FROM INCOMING LINE TERMINALS TO LOAD SIDE TERMINATIONS.
- LINE AND LOAD TERMINATIONS: ACCESSIBLE FROM THE FRONT ONLY OF THE SWITCHBOARD. SUITABLE FOR THE CONDUCTOR MATERIALS AND NUMBER OF CONDUCTORS USED. BUS CONNECTIONS, BOLTED. ACCESSIBLE FROM FRONT FOR MAINTENANCE. PROVIDE BELLEVILLE WASHERS FOR AND PROPERLY TORQUE ALL CONNECTIONS.
- PROVIDE FULLY-RATED NEUTRAL BUS AND FULLY RATED GROUND BUS MATCHING MATERIAL USED FOR MAIN BUS.
- FUTURE PROVISIONS: FULLY EQUIP SPACES FOR FUTURE DEVICES WITH BUSHING AND BUS CONNECTIONS. SUITABLY INSULATED AND BRACED FOR SHORT CIRCUIT CURRENTS. CONTINUOUS CURRENT RATING AS INDICATED ON DRAWINGS.

E. PANEL BOARDS

- CIRCUIT BREAKER TYPE AS INDICATED ON DRAWINGS, UNLESS INDICATED OTHERWISE, ALL PANELS SHALL HAVE PANEL BOARD TYPE CONSTRUCTION WITH BOLT-ON CIRCUIT BREAKERS FOR 34 PANELS. MANUFACTURERS SHALL BE GENERAL ELECTRIC, SQUARE D, SIEMENS, CUTLER-HAMMER OR EQUAL WITH VOLTAGE, SIZES, AND RATINGS AS INDICATED ON DRAWINGS.
- THE CIRCUIT BREAKERS SHALL BE OPERABLE IN ANY POSITION AND BE REMOVABLE FROM THE FRONT OF THE PANEL BOARD WITHOUT DISTURBING THE ADJACENT UNITS. BRANCH BREAKERS SHALL BE OF SUCH DESIGN THAT COMBINATION OF SINGLE-POLE, DOUBLE-POLE, AND THREE-POLE BREAKERS CAN BE ASSEMBLED ON THE SAME PANEL. EACH BRANCH CIRCUIT SHARED BE CLEARLY NUMBERED. BRANCH AND MAIN TERMINALS SHALL BE OF THE SOLDERLESS TYPE. HANDLE TIES TO FORM MULTI-POLE BREAKERS NOT ACCEPTABLE.
- WIRE TERMINATION FOR PANEL BOARDS AND CIRCUIT BREAKERS SHALL BE LISTED AS SUITABLE FOR 75 DEGREES C.
- PROVIDE A TYPEWRITTEN CIRCUIT INDEX BEHIND CLEAR PLASTIC COVER ON INSIDE OF DOOR. INFORMATION SHALL INCLUDE ROOM AND TYPE LOAD SERVED. ALL CIRCUIT BREAKERS SHALL BE IDENTIFIED, INCLUDING SPARES. INDEX CARD FRAME SHALL BE METAL, SECURED TO DOOR.
- WHERE PANEL BOARDS ARE INSTALLED FLUSH WITH THE WALLS, EXTEND EMPTY CONDUITS FORM THE PANEL BOARD TO AN ACCESSIBLE SPACE ABOVE OR BELOW. PROVIDE 3/4" (MINIMUM SIZE) CONDUIT FOR EVERY THREE SINGLE SPARE CIRCUIT BREAKERS OR SPACE OR EQUIVALENT MULTI-POLE ARRANGEMENT, OR FRACTION THEREOF, BUT NOT LESS THAN TWO CONDUITS FOR EACH PANEL.
- PANEL BOARDS TO BE PROVIDED WITH COPPER BUSHING ONLY.

- LOAD CENTERS SHALL NOT BE ALLOWED UNLESS NOTED OTHERWISE.
- ALL NEW PANELBOARDS SHALL COMPLY WITH NEC ARTICLE 101-6. EQUIPMENT MANUFACTURERS SHALL PROVIDE WARNING LABELS FOR ALL PANELBOARDS, GENERATORS, AUTOMATIC TRANSFER SWITCHES, ETC TO WARN QUALIFIED PERSONS OF POTENTIAL ELECTRIC ARC FLASH HAZARD. THE MARKING SHALL BE LOCATED SO AS TO BE CLEARLY VISIBLE TO QUALIFIED PERSONS BEFORE EXAMINATION, ADJUSTMENT, SERVICE, OR MAINTENANCE OF THE EQUIPMENT.

F. WIRE

- CONDUCTOR SIZES SHOWN ON THE DRAWINGS ARE BASED ON COPPER WIRE, UNLESS OTHERWISE SPECIFIED. ALL WIRE SHALL BE TYPE XHHW FOR FEEDERS OR BRANCH CIRCUITS LARGER THAN 4 AWG, TYPE THHN/THN INSULATION FOR FEEDERS AND BRANCH CIRCUITS 4 AWG AND SMALLER. ALL BRANCH CIRCUIT WIRING SHALL BE COPPER. SERVICE AND PANEL FEEDERS 4/0 AND LARGER MAY BE ALUMINUM. PROVIDED THE CONDUCTOR SIZES ARE INCREASED FOR EQUAL OR GREATER AMPACITY AND EQUAL OR LESS EQUIVALENT VOLTAGE DROP. INCREASE CONDUIT SIZE AS REQUIRED. THE WIRES SHALL BE MARKED WITH COLOR TO IDENTIFY CIRCUIT IDENTIFICATION, UNLESS OTHERWISE REQUIRED BY LOCAL ORDINANCES. GROUND WIRES SHALL BE GREEN, NEUTRAL WIRES SHALL BE 100V- WHITE, 277V- GRAY, AND LIVE WIRES 480Y/277V AND 480V/240V SHALL BE BLACK (PHASE A), RED (PHASE B), AND BLUE (PHASE C). FOR 480Y/277V CIRCUITS, THE COLOR CODE SHALL BE BROWN (PHASE A), ORANGE (PHASE B), AND YELLOW (PHASE C). THE WIRE SHALL BE 12 AWG UNLESS OTHERWISE INDICATED. CIRCUIT SHALL BE LABELED IN EACH J-BOX.
- WHERE ALUMINUM WIRE IS USED, ALUMINUM CONDUCTOR MATERIAL SHALL COMPLY WITH NEC 310-14 AND ALL CONNECTIONS AND TERMINATIONS SHALL BE MACHINE COMPRESSION TYPE EQUAL TO BUNDED "N" RULS" OR MACADAPT. NO EXCEPTIONS.
- NO WIRE SHALL BE INSTALLED IN THE CONDUIT SYSTEM UNTIL THE CONDUIT SYSTEM IS COMPLETE. USE MATERIAL NO. 100 OR EQUIVALENT AS A LUBRICANT TO FACILITATE THE INSTALLATION OF THE CONDUCTORS IN THE CONDUIT SYSTEM.
- SPLICES IN EXTERIOR PULL BOXES AND MANHOLES SHALL BE WEATHERPROOF USING "SCOTCHCAST" SPLICE KIT OR APPROVED EQUAL. SEAL ENDS OF CONDUITS AND DUCTS WITH "DUCTSEAL" OR APPROVED EQUAL.
- PROVIDE SOLID CONDUCTOR FOR 12 AWG AND SMALLER.

G. WIRING DEVICES

- WALL SWITCHES SHALL BE SPECIFICATION GRADE AC 50LENT TYPE SWITCHES, 20A, 120/277 VOLT.
- RECEPTACLES SHALL BE SPECIFICATION GRADE, DUPLEX TYPE, NEMA 5-20R, 20 AMPERE, 120 VOLT, GROUNDED TYPE. SPECIAL APPLICATION RECEPTACLES SHALL BE INDICATED ON PLANS. MOUNT WITH THE GROUND DOWN.
- DEVICE PLATES SHALL BE EQUAL TO SIEMMA SMOOTH-LINE PLASTIC WALL PLATES. COLOR SHALL BE WHITE, UNLESS OTHERWISE NOTED.
- RECEPTACLES IN OUTDOOR AND WET LOCATIONS SHALL BE INSTALLED WITH A HINGED OUTLET COVER/ENCLOSURE CLEARLY MARKED, AND UL LISTED SUITABLE FOR WET LOCATIONS WHILE IN USE, EQUAL TO TATMYAC SPECIFICATION GRADE.

H. LIGHTING FIXTURES

- PROVIDE ALL LIGHTING FIXTURES, WIRED AND CONNECTED. THE DRAWINGS INDICATE THE FIXTURES FOR EACH LOCATION. PROVIDE LAMPS FOR ALL FIXTURES. THE LAMPS SHALL BE BY THE SAME MANUFACTURER. VERIFY CEILING CONSTRUCTION BEFORE ORDERING RECESSED UNITS. PROVIDE PLASTER FRAMES AND HANGERS AS REQUIRED. CEILING CONSTRUCTION, ARCHITECTURAL ACCESSORIES, VOLTAGE, AND BALLASTS TO MEET THE EXISTING CONDITION.

I. SERVICE ENTRANCE SECTION

- THE SERVICE ENTRANCE EQUIPMENT SHALL BE AS INDICATED ON THE DRAWINGS. EQUIPMENT SHALL CARRY THE UL LABEL AND SHALL CONFORM TO THE POWER COMPANY REGULATIONS.
- SERVICE ENTRANCE EQUIPMENT SHALL BE PROVIDED WITH A FULLY RATED COPPER OR ALUMINUM BUS, HORIZONTALLY TAPERED BUSHING SHALL NOT BE ALLOWED.

J. SYSTEM GROUNDING

- GROUNDING SHALL COMPLY WITH REQUIREMENTS OF ARTICLE 250. ALL EXPOSED NONCURRENT CARRYING METALLIC PARTS OF ELECTRICAL EQUIPMENT, METALLIC RACEWAY SYSTEMS, METALLIC CABLE, ARJIOR GROUNDING CONDUCTOR OF NONMETALLIC SHEATHED CABLES, GROUNDING CONDUCTOR IN NONMETALLIC RACEWAYS, AND GROUNDING CONDUCTORS OF THE WIRING SYSTEM SHALL BE GROUNDED.
- GROUNDING CONDUCTOR (NEUTRAL) OF THE WIRING SYSTEM SHALL BE CONNECTED TO THE SYSTEM GROUNDING CONDUCTOR AT A SINGLE PLACE IN EACH SYSTEM BY REMOVABLE BONDING JUNCTIONS, SIZED ACCORDING TO THE APPLICABLE PROVISIONS OF THE NATIONAL ELECTRICAL CODE. THE GROUNDED CONDUCTOR (NEUTRAL) TO THE GROUNDING CONDUCTOR CONNECTION SHALL BE LOCATED IN THE ENCLOSURE FOR THE SYSTEM'S OVERCURRENT PROTECTION OR WHERE OTHERWISE INDICATED ON THE PLANS OR SPECIFICATIONS.
- A GROUND BUS SEPARATE FROM THE NEUTRAL BUS SHALL BE PROVIDED IN ALL SWITCHBOARDS AND PANELBOARDS. GROUND BUS SHALL BE RECONNECTED (CHECKED) PRIOR TO ENERGIZING EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS.
- GROUND BUSES AND NEUTRAL BUSES IN ALL DISTRIBUTION PANELS, SWITCHBOARDS, PANELBOARDS AND THOSE PROVIDED IN ANY EQUIPMENT SHALL BE ISOLATED EXCEPT WHERE REQUIRED TO BE CONNECTED AS SPECIFIED ABOVE FOR THE SERVICE ENTRANCE AND IN TRANSFERTER TERMINAL COMPARTMENTS.
- WHEN INDICATED ON THE DRAWINGS, EQUIPMENT GROUNDING CONDUCTORS SHALL BE EXTENDED FROM THE GROUND BUS IN THE DISTRIBUTION EQUIPMENT TO THE RECEPTACLE, FIXTURE OR DEVICE LUGS WHERE THEY ARE PROVIDED. WHERE LUGS ARE NOT PROVIDED, EQUIPMENT GROUNDING CONDUCTORS SHALL BE CONNECTED TO EQUIPMENT ENCLOSURES. THE CONNECTIONS SHALL BE ARRANGED SUCH THAT REMOVAL OF THE RECEPTACLE, EQUIPMENT GROUND CONDUCTORS, OR GROUND JUNCTIONS FROM GROUND BUSHING SHALL NOT AFFECT THE GROUND SYSTEM.
- RACEWAYS MAY NOT BE USED AS A GROUNDING CONDUCTOR FOR POWER AND LIGHTING CIRCUITS. ALL CONDUIT SHALL HAVE SEPARATE CODE SIZED GREEN GROUND WIRE INSTALLED IN THE CONDUIT TO INSURE A CONTINUOUS GROUNDING PATH.

- IN INACCESSIBLE LOCATIONS, MAKE CONNECTIONS BY EXOTHERMIC WELD PROCESS.
- IN ACCESSIBLE LOCATIONS, CONNECTIONS SHALL BE MADE WITH BOLTED THROUGH, APPROVED SOLDERLESS BRONZE GROUNDING DEVICES.
- BOND TOGETHER METAL SIDING NOT ATTACHED TO GROUNDED STRUCTURE BOND TO GROUND.

K. TELEPHONE SYSTEM

- TELEPHONE WALL OUTLETS SHALL CONSIST OF STANDARD BOXES MOUNTED 18" ABOVE THE FLOOR UNLESS OTHERWISE INDICATED. CONNECT OUTLETS TO TELEPHONE TERMINAL WITH SEPARATE 3/4" CONDUIT UNLESS OTHERWISE SHOWN ON DRAWINGS. PROVIDE A TERMINAL MOUNTING BOARD FOR THE INCOMING SERVICE CABLE.

L. LIGHTING CONTROL

- FURNISH AND INSTALL THE SWITCHES, PHOTOCELLS, CONTACTORS AND PULL LIGHTING CONTROLS AS REQUIRED FOR LIGHTING CONTROLS INDICATED ON THE DRAWINGS.
- THE SWITCHES SHALL BE EQUAL TO PARAGON, GENERAL ELECTRIC, TORK, OR INTERMATIC AND SHALL HAVE SIZE AND NUMBER OF POLES AS REQUIRED.
- PHOTOCELLS SHALL BE EQUAL TO TORK OR INTERMATIC WITH VOLTAGE AS INDICATED.

M. LIGHTING INVERTER SYSTEM

- LIGHTING INVERTERS SHALL HAVE A CENTRAL BATTERY AS EMERGENCY POWER SOURCE FOR EGRESS LIGHTING WITH SIZE AND VOLTAGE AS INDICATED ON THE DRAWINGS.
- ACCEPTABLE MANUFACTURES - DUAL-LITE, HUBBELL LIGHTING, LITHONIA LIGHTING EMERGENCY LIGHTING SYSTEMS, MCHILBEN EMERGENCY LIGHTING OR APPROVED EQUAL.
- UNIT SHALL AUTOMATICALLY SENSE LOSS OF NORMAL AC SUPPLY AND USE A BATTERY STATE SWITCH TO TRANSFER LOADS. TRANSFER IN 0.024 SECOND OR LESS FROM NORMAL SUPPLY TO BATTERY-INVERTER SUPPLY. INVERTER SHALL BE COMPATIBLE WITH INCANDESCENT, MAGNETIC AND ELECTRONIC FLUORESCENT BALLASTS, HIGH POWER FACTOR COMPACT FLUORESCENT, AND HIGH INTENSITY DISCHARGE (HID) LAMP TYPES.
- UNIT SHALL SUPPLY POWER TO OUTPUT CIRCUITS) FROM A SINGLE EXTERNAL, NORMAL SUPPLY SOURCE. UNIT AUTOMATICALLY TRANSFERS LOAD FROM NORMAL SOURCE TO INTERNAL BATTERY/INVERTER SOURCE. RETRANSFER TO NORMAL IS AUTOMATIC WHEN NORMAL POWER IS RESTORED.
- UNIT SHALL COMPLY WITH NFPA 70 AND NFPA 101, AND BE UL 924 LISTED.
- UNIT SHALL SUSTAIN A FULL-CAPACITY OUTPUT FOR A MINIMUM OF 30 MINUTES. PROVIDE MAINTENANCE FREE SEALED LEAD CALCIUM TYPED BATTERY WITH AN EXPECTED LIFE OF NO LESS THAN 10 YEARS.
- UNIT SHALL CONTAIN GROUP DISPLAYS, INDICATIONS, AND BASIC SYSTEM CONTROLS ON COMMON CONTROL PANEL ON FRONT OF CENTRAL BATTERY INVERTER ENCLOSURE.
- ENCLOSURE SHALL BE STEEL WITH HINGED LOCKABLE DOORS, SUITABLE FOR FLOOR MOUNTING. MANUFACTURER'S STANDARD CORROSION-RESISTANT FINISH.

N. DRY TYPE TRANSFORMERS

- MANUFACTURERS: SUBJECT TO COMPLIANCE WITH REQUIREMENTS, PROVIDE PRODUCTS BY ONE OF THE FOLLOWING:
 - ACME ELECTRIC CORPORATION'S POWER DISTRIBUTION PRODUCTS DIVISION.
 - GE ELECTRICAL DISTRIBUTION & CONTROL.
 - CUTLER-HAMMER.
 - SQUARE D/GROUPE SCHNEIDER NA.
- COLS: CONTINUOUS UNIDINGS WITHOUT SPLICES, EXCEPT FOR TAPS.
 - INTERNAL COIL CONNECTIONS - BRAZED OR PRESSURE TYPE.
 - COIL MATERIAL - COPPER.
- ENCLOSURE - VENTILATED, NEMA 250, TYPE 2 (NEMA 3R FOR OUTDOOR INSTALLATIONS).
- INSULATION CLASS - 220 DEG C, UL-COMPONENT-RECOGNIZED INSULATION SYSTEM WITH A MAXIMUM OF 150 DEG C RISE ABOVE 40 DEG C AMBIENT TEMPERATURE.
- TAPS FOR TRANSFORMERS 25 KVA AND LARGER - TWO 25 PERCENT TAPS ABOVE AND FOUR 25 PERCENT TAPS BELOW NORMAL FULL CAPACITY.
- WALL BRACKETS - MANUFACTURER'S STANDARD BRACKETS.
- LOW-SOUND-LEVEL REQUIREMENTS - MINIMUM OF 3 dBA LESS THAN NEMA 57 20 STANDARD SOUND LEVELS WHEN FACTORY TESTED ACCORDING TO IEEE C57.12.91.

O. GUARANTEE

- GUARANTEE ALL MATERIAL FURNISHED AND ALL WORKMANSHIP PERFORMED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF 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 EXPENSE TO THE OWNER.

P. SHOP DRAWINGS AND APPROVALS

- THE ITEMS SPECIFIED HEREIN AND ON DRAWINGS ARE USED AS A STANDARD OF QUALITY. ANY MATERIALS OF EQUAL QUALITY AND AESTHETIC VALUE WILL BE GIVEN CONSIDERATION AS A SUBSTITUTE FOR THE MATERIALS SPECIFIED. NO APPROVAL WILL BE GIVEN TO A SPECIFIC CATALOG NUMBER, MODEL, OR TYPE OF EQUIPMENT, PRIOR TO AFTER BIDDING. THE EQUIPMENT IN LINE WITH THE DECISION OF THE ARCHITECT AND/OR ENGINEER DETERMINING EQUAL MATERIALS WILL BE FINAL.
- THE CONTRACTOR SHALL SUBMIT SEVEN (7) IDENTICAL BOARD SETS OF SHOP DRAWINGS ON THE FOLLOWING ITEMS:
 - LIGHTING FIXTURE CUTS AND PERFORMANCE DATA.
 - OUTLINE DRAWINGS AND DATA SHEETS OF EACH PANELBOARD AND SWITCHBOARD.
 - OUTLINE DRAWINGS OF ALL SWITCHGEAR.
- SUBMIT ITEMS AT ONE TIME IN A NEAT AND ORDERLY MANNER WITHIN 15 DAYS OF AWARD OF CONTRACT. PARTIAL SUBMITTALS WILL NOT BE ACCEPTABLE.

Q. RECORD AND AS-BUILT DRAWINGS

- THE ELECTRICAL CONTRACTOR SHALL MAINTAIN A SET OF DRAWINGS AT THE JOB SITE FOR THE EXCLUSIVE PURPOSE OF MAINTAINING A RECORD OF ALL WORK INSTALLED AND TO SHOW ANY DEVIATIONS FROM THE WORK INDICATED ON THE DRAWINGS.
- AT THE COMPLETION OF THE PROJECT, ONE SET OF REPRODUCIBLE DRAWINGS, SHOWING ALL AS-BUILT CONDITIONS, SHALL BE DELIVERED TO THE OWNER FOR ACCEPTANCE PRIOR TO FINAL PAYMENT.

R. COORDINATION STUDY & ARC FLASH REQUIREMENTS

- THE ELECTRICAL CONTRACTOR MUST HIRE AN INDEPENDENT THIRD PARTY TO PERFORM A COORDINATION STUDY OF THE ENTIRE ELECTRICAL SYSTEM. THE COORDINATION STUDY SHALL BE PERFORMED AFTER THE ENGINEER HAS APPROVED THE SHOP DRAWINGS AND A MANUFACTURE HAS BEEN SELECTED. THE STUDY MUST BE PRESENTED TO THE ENGINEER AND OWNER FOR REVIEW TO ENSURE THE ENTIRE ELECTRICAL SYSTEM IS PROPERLY COORDINATED.
- ARC FLASH REQUIREMENTS:
 - PROVIDE AN ARC FLASH EVALUATION FOR THE NEW ELECTRICAL EQUIPMENT. PERFORM ALL CALCULATIONS AND WORK WITH COMMERCIALY AVAILABLE COMPUTER SOFTWARE IN ACCORDANCE WITH IEEE STD. 1584-2001 IEEE GUIDE FOR PERFORMING ARC-FLASH HAZARD CALCULATIONS, NFPA 101-2009 (NEC), AND NFPA 10E-2009 STANDARD FOR ELECTRICAL SAFETY IN THE WORKPLACE.
 - WHERE THE CALCULATIONS DETERMINE THAT THE SETTINGS RESULT IN PROHIBITIVE INCIDENT ENERGY LEVELS (NO CAL/CM2) THE CONTRACTOR SHALL PROVIDE RECOMMENDED SETTINGS OR OTHER MITIGATION RECOMMENDATIONS TO REDUCE THE INCIDENT ENERGY TO A LEVEL WHERE ENERGIZED WORK IS CAPABLE OF BEING PERFORMED. THE CONTRACTOR SHALL DOCUMENT THE RECOMMENDED CHANGES AND PROVIDED TIME CURRENT CURVES INDICATING THE COORDINATION THAT REFLECTS THE RECOMMENDED SETTINGS.
 - PROVIDE LABELS FOR EACH ELECTRICAL ENCLOSURE OR EQUIPMENT WHERE WORKERS COULD BE EXPOSED TO ENERGIZED CONDUCTORS. THESE LABELS SHALL COMPLY WITH THE REQUIREMENTS OF NFPA 10E-2009 AND INCLUDE BUT NOT LIMITED TO:
 - VOLTAGE PHASE TO PHASE
 - FLASH PROTECTION BOUNDARY (INCHES)
 - INCIDENT ENERGY AT THE WORKING DISTANCE (CAL/CM2)
 - RPE CLASS AND DESCRIPTION (INCLUDING GLOVE RATINGS)
 - RESTRICTED APPROACH BOUNDARY (INCHES)
 - LIMITED SHOCK APPROACH BOUNDARY (INCHES)
 - PROHIBITED SHOCK APPROACH BOUNDARY (INCHES)
 - LOCATION IDENTIFICATION



architecture design collaborative
14252 culver drive suite A-347
irvine, ca 92604
www.adcollaborative.com
949.267.1660

ADC Project No: 150114

Project Contact: Alexandra Hernandez
Email: ahernandez@adcollaborative.com
Principal: Craig Chinn
Project Manager: Alexandra Hernandez

Client

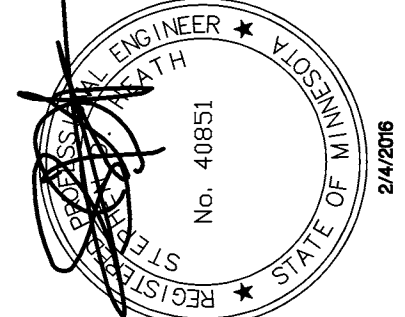
Company: Culp Construction
Address: 1 Technology Drive, Suite D-411
Irvine, CA 92618
Phone No. (949) 727-3552
Fax No. -----

APACHE MALL
SHELL SUITE 305
333 APACHE MALL
ROCHESTER, MN 55902

Sheet Issue & Revision Log

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It is the clients responsibility prior to or during construction to notify the architect in writing of any perceived errors or omissions in the plans and specifications of which a contractor thoroughly knowledgeable with the building codes and methods of construction should reasonably be aware. Written instructions addressing such perceived errors or omissions shall be received from the architect prior to the client or clients subcontractors proceeding with the work. The client will be responsible for any defects in construction if these procedures are not followed.



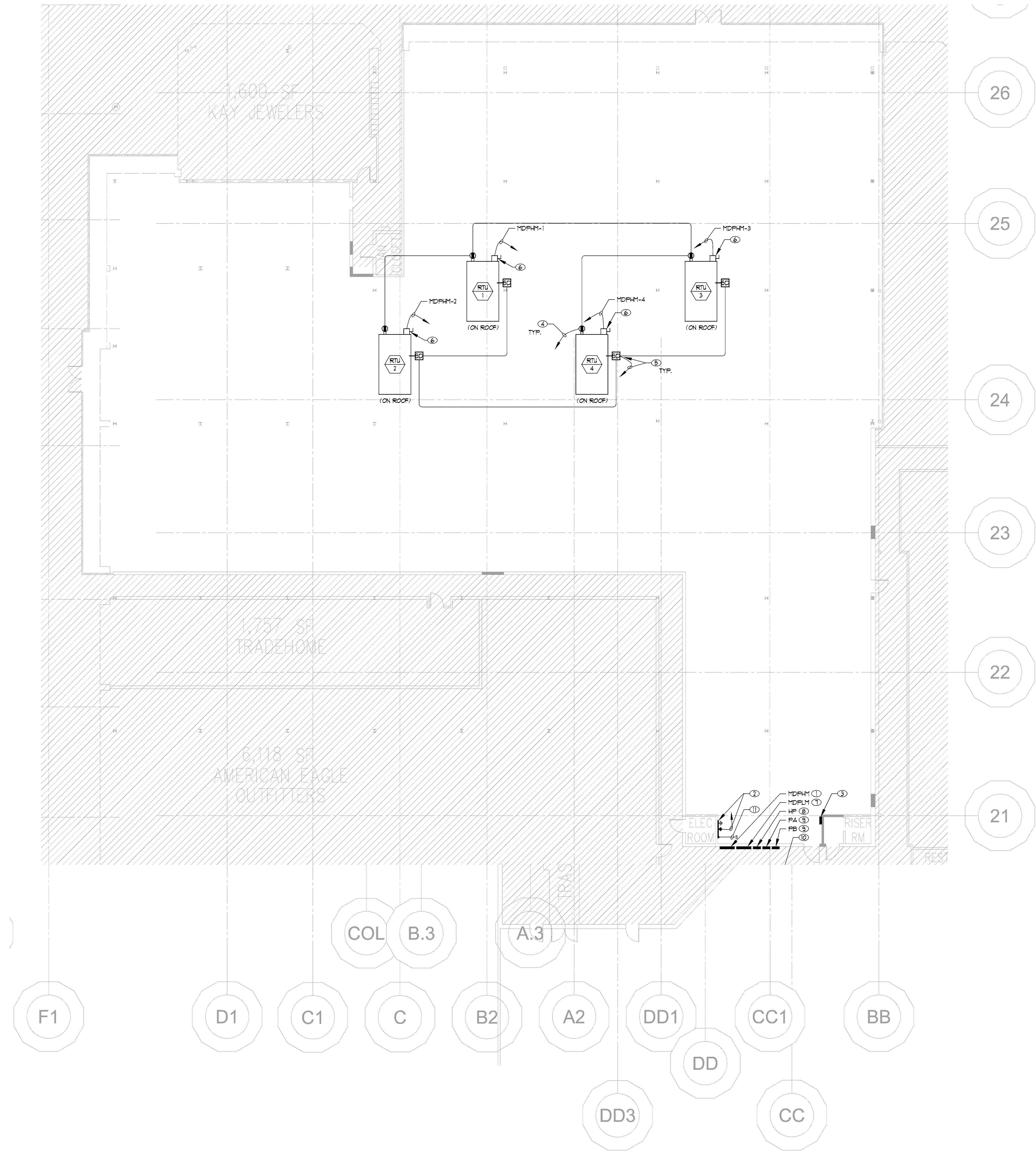
ELECTRICAL
SPECIFICATIONS

WRIGHT
engineers

2 Vantage Suite 200
Irvine, CA 92618
949.477.4001 wrightengineers.com
EOE-100195-G

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ELECTRICAL POWER PLAN

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

GENERAL NOTES

- A. PROVIDE A DISCONNECTING MEANS FOR EACH MULTI-WIRE BRANCH CIRCUIT IN ACCORDANCE WITH NEC 410.130. DISCONNECTING MEANS SHALL BE LOCATED AT POINT WHERE CIRCUIT ORIGINATES AND SHALL SIMULTANEOUSLY DISCONNECT ALL UNGROUNDED CONDUCTORS.
- B. REFER TO ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION OF ALL LIGHTING FIXTURES AND PROVIDE LIGHTING FIXTURES WITH ALL NECESSARY MOUNTING HARDWARE.
- C. COORDINATE EXACT LIGHTING FIXTURE LOCATIONS WITH MECHANICAL EQUIPMENT, DUCT WORK, AND ALL OTHER CEILING MOUNTED EQUIPMENT PRIOR TO ROUGH-IN.
- D. ALL LIGHT FIXTURES SHALL BE PROVIDED WITH STRUCTURAL SUPPORTS AS REQUIRED BY THE CURRENTLY ADOPTED EDITION OF THE BUILDING CODE, AS WELL AS ANY LOCAL CODES.
- E. ALL DIMMING BRANCH CIRCUITS SHALL BE PROVIDED WITH A DEDICATED NEUTRAL CONDUCTOR FOR EACH ZONE/CHANNEL.
- F. ALL FLUORESCENT DIMMING ZONES/CHANNELS SHALL BE PROVIDED WITH 3 LINE VOLTAGE CONDUCTORS (NEUTRAL, DIMMED HOT, SWITCHED HOT) OR 2 LINE VOLTAGE CONDUCTORS/2 CONTROL CONDUCTORS AS REQUIRED BY THE CONTROL/BALLAST TYPE.
- G. ALL EMERGENCY BATTERY PACK FIXTURES AND NIGHT LIGHT FIXTURES SHALL BE PROVIDED WITH AN UNSWITCHED CONSTANT HOT CONNECTION TO THE CHARGING LEAD.
- H. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXIT SIGN CHEVRONS AND NUMBER OF FACES PER EXIT SIGN. ANY DISCREPANCIES BETWEEN EXIT SIGNS SHOWN ON THE ELECTRICAL AND ARCHITECTURAL PLANS SHALL BE BROUGHT TO THE ATTENTION OF THE ARCHITECT PRIOR TO ORDERING EXIT SIGNS.
- I. ALL LOW VOLTAGE LIGHTING SYSTEMS SHALL COMPLY AND BE LISTED PER CEC ART. 411 OR LOCAL CODES HAVING JURISDICTION.
- J. ALL ELECTRICAL EQUIPMENT AND DEVICES LOCATED OUTSIDE SHALL BE WEATHERPROOF.
- K. ALL RECEPTACLES ON COMMON WALLS SHALL BE SEPARATE BOXES AND OFFSET 12" MINIMUM. FIRE RATED WALLS SHALL HAVE AN OFFSET OF 24" MINIMUM. COORDINATE 1/2" ARCH'L FIRE RATED WALL DETAILS.
- L. 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.
- M. HEIGHT OF ALL RECEPTACLES AT COUNTER SHELVES, ETC., SHALL BE VERIFIED WITH OWNER PRIOR TO ROUGH-IN. PROVIDE GFCI TYPE RECEPTACLE WITHIN 6 FEET OF ANY SINK.
- N. ALL UNDERGROUND CONDUITS SHALL BE PVC SCHED. 40, MINIMUM 3/4" C. RUN CODE SIZE INSULATED EQUIPMENT GROUND CONDUCTOR.
- O. CONDUITS SHALL: (A) CONTAIN NO CONTINUOUS SECTIONS LONGER THAN 30M (98FT), AND, (B) CONTAIN MORE THAN (2) 90 DEGREE BENDS OR (1) REVERSE BEND WITHOUT INSTALLING A PULLBOX. CONDUITS IN PLACE OF PULL BOXES IS UNACCEPTABLE.
- P. CONDUITS SHALL CONTAIN PLASTIC OR NYLON PULL TAPE RATED AT 20 LBS.
- Q. CONDUIT BEND RADIUS SHALL BE (A) A MINIMUM OF 6 TIMES OF THE INTERNAL CONDUIT DIAMETER FOR CONDUITS 2" IN DIAMETER OR LESS, AND (B) 10 TIMES THE INTERNAL CONDUIT DIAMETER FOR CONDUITS MORE THAN 2" IN DIAMETER.
- R. TERMINATE CONDUITS THAT PROTRUDE THROUGH STRUCTURAL FLOORS 3" ABOVE THE FLOOR SURFACE.
- S. INSTALL BUSHINGS AND BELL ENDS AS REQUIRED ON ALL CONDUITS.
- T. FLEX CONDUIT IS GENERALLY UNACCEPTABLE FOR USE AS A COMMUNICATIONS CONDUIT EXCEPT AT SEISMIC JOINTS AND AS APPROVED IN WRITING BY THE ENGINEER.
- U. ALL SUB SLAB CONDUITS SHALL BE INSTALLED IN A MANNER THAT PREVENTS WATER INFILTRATION OF THE CONDUIT. IT IS THE CONTRACTOR'S RESPONSIBILITY TO ENSURE RAIN WATER OR CONSTRUCTION WATER IS PREVENTED FROM ENTERING AND/OR REMOVED FROM THE CONDUIT PRIOR TO PLACEMENT OF CONTAMINATION CABLES.
- V. ALL PULL BOXES SHALL BE SIZED AND INSTALLED PER ANSI/AIEA-88.8A. PULL BOXES FOR UNDER FLOOR CONDUIT RUNS ARE NOT PERMITTED UNLESS OTHERWISE NOTED. PULL BOXES FOR OVERHEAD CONDUIT RUNS SHALL BE LOCATED ABOVE ACCESSIBLE CEILINGS WITHIN THE ACCESSIBLE CEILING SPACE.
- W. CONDUIT(S) SHALL EXIT A PULL BOX ON THE WALL OPPOSITE THE WALL ENTERED.
- X. IF FIRE ALARM DEVICES ARE INDICATED ON PLANS, THEN THE ELECTRICAL CONTRACTOR SHALL SUBMIT FIRE ALARM PLANS AND OBTAIN APPROVAL PRIOR TO INSTALLATION.

ELECTRICAL PLAN KEYNOTES

- 1. NEW TENANT SPACE MAIN DISTRIBUTION PANELBOARD (MDPH-1), 800 AMP, 277/480VOLTS, 3 PHASE, 4U. REFER TO SINGLE LINE DIAGRAM, VERIFY AND COORDINATE EXACT LOCATION AND RELATED REQUIREMENTS.
- 2. TENANT SPACE MAIN TELEPHONE BACKBOARD (TYP), 4" X 4" X 8" FIRE RATED PLYWOOD WITH 2" EMPTY CONDUIT CONNECTED TO THE LANDLORD MAIN TELEPHONE BOARD. PROVIDE 1/2" GROUND COPPER WIRE CONNECTED TO THE MAIN BUILDING GROUNDING SYSTEM AND 120V POWER SUPPLY CONNECTED TO THE TENANT 120VOLT PANEL. VERIFY AND COORDINATE EXACT LOCATION AND RELATED REQUIREMENTS.
- 3. TENANT FIRE ALARM SYSTEM PANEL, TENANT ELECTRICAL CONTRACTOR TO PROVIDE 120V POWER SUPPLY CONNECTED TO THE TENANT 120 VOLT PANELBOARD, VERIFY AND COORDINATE EXACT LOCATION AND RELATED REQUIREMENTS.
- 4. 120VOLT, UP, GFI RECEPTACLE MOUNTED ON THE UNIT CONNECTED TO THE 120VOLT POWER PANEL LB.
- 5. DUCT SMOKE DETECTOR WITH 120VOLT SUPPLY CONNECTED TO THE 120VOLT PANEL LB. VERIFY EXACT LOCATION AND RELATED REQUIREMENTS WITH THE FIRE ALARM CONTRACTOR.
- 6. 100A/80AF 480VOLTS, 3PHASE, UP DISCONNECT SWITCH, REFER TO SINGLE LINE DIAGRAM FOR FEEDER SIZE.
- 7. TENANT SUBPANEL DISTRIBUTION PANELBOARD (MDPH-1), 800 AMP, 120/208VOLTS, 3PHASE, 4U LOCATED AT THE BACK WALL OF THE TENANT SPACE.
- 8. TENANT PANEL 4U FOR LIGHTING, 100AMP, 277/480VOLTS, 3PHASE, 4U LOCATED AT THE BACK WALL OF THE TENANT SPACE.
- 9. TENANT PANELBOARD PA AND PB FOR POWER REQUIREMENTS, (2) 200AMP, 120/208VOLTS, 3PHASE, 4U LOCATED AT THE BACK WALL OF THE TENANT SPACE.
- 10. 300KVA, 480V/120/208VOLTS, 3PHASE, 4U STEPDOWN TRANSFORMER LOCATED IN THE LARGER OF THE TWO ELECTRICAL ROOMS.
- 11. 2" EMPTY CONDUIT CONNECTED TO THE LANDLORD MAIN TELEPHONE BACKBOARD IN THE LARGER OF THE TWO ELECTRICAL ROOMS.

ELECTRICAL PLAN CONDUIT NOTES (AS APPLICABLE)

ALL CONDUIT IN CEILING SPACE OF THE BUILDING SHALL BE RUN AT 90° ANGLES IN HANDERS AS TIGHT AS POSSIBLE TO UNDER SIDE OF ROOF DECKING. THIS SHALL INCLUDE CONDUIT(S) INSTALLED AS PART OF ANY FUTURE TENANT IMPROVEMENT. ALL CONDUIT ON ROOF SHALL REMAIN OUT OF SITE BELOW LEVEL OF PARAPET, INCLUDING DURING T.I. WORK. COORDINATE WITH ALL DISCIPLINES.

architecture design collaborative
14252 culver drive suite A-347
irvine, ca 92604
www.adcollaborative.com
949.267.1660

ADC Project No: 150114

Project Contact: Alexandra Hernandez
Email: ahernandez@adcollaborative.com
Principal: Craig Chinn
Project Manager: Alexandra Hernandez

Client

Company: Culp Construction
Address: 1 Technology Drive, Suite D-411
Irvine, CA 92618
Phone No. (949) 727-3552
Fax No.

APACHE MALL
SHELL SUITE 305
333 APACHE MALL
ROCHESTER, MN 55902

Sheet Issue & Revision Log

Sheet Issue Date	Revision Date	Revision Description
02/01/15	12/01/15	12/01/15 CITY SUBMITTAL
02/01/15	01/01/16	01/01/16 CITY SUBMITTAL
02/01/15	02/01/16	02/01/16 CITY SUBMITTAL
02/01/15	03/01/16	03/01/16 CITY SUBMITTAL
02/01/15	04/01/16	04/01/16 CITY SUBMITTAL
02/01/15	05/01/16	05/01/16 CITY SUBMITTAL
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02/01/15	07/01/16	07/01/16 CITY SUBMITTAL
02/01/15	08/01/16	08/01/16 CITY SUBMITTAL
02/01/15	09/01/16	09/01/16 CITY SUBMITTAL
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02/01/15	11/01/16	11/01/16 CITY SUBMITTAL

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ENGINEER
No. 40851
STATE OF CALIFORNIA
2/1/2016

ELECTRICAL
POWER PLAN

E1.1



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FIXTURE							TRIM			ACCESSORIES			CONNECTIONS				NOTES
MARK	DESCRIPTION	MANUFACTURER	MODEL	TYPE	MATERIAL	COLOR/FINISH	ITEM	MANUFACTURER	MODEL	ITEM	MANUFACTURER	MODEL	COLD	HOT	WASTE	VENT	
HB-1	HOSE BIBB	ZURN	Z1330	RECESSED	BRONZE	POLISHED CHROME	-	-	-	-	-	-	3/4"	-	-	-	w/ INTEGRAL ANTI-SIPHON VACUUM BREAKER AND QUICK COUPLER.
WCO	WALL CLEAN OUT	ZURN	ZB1468	WALL	BRONZE	POLISHED BRONZE	-	-	-	-	-	-	-	①	-		
GCO	GRADE CLEAN OUT	ZURN	ZB1414NDCC1	HEAVY DUTY	C.I. BODY	NICKEL BRONZE	-	-	-	-	-	-	-	①	-		
RD-1	ROOF DRAIN	ZURN	ZC100	PRIMARY	CAST IRON	STANDARD	DECK CLAMP	ZURN	-C	SUMP RECEIVER	ZURN	-R	-	-	①	-	
ORD-1	OVERFLOW ROOF DRAIN	ZURN	ZC100	OVERFLOW	CAST IRON	STANDARD	DECK CLAMP	ZURN	-C	SUMP RECEIVER	ZURN	-R	-	-	①	-	WITH 2" EXTERNAL WATER DAM

NOTES:
① SEE PLANS FOR PIPE SIZES

[illegible]

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14252 culver drive suite A-347
irvine, ca 92604
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949.267.1660

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333 APACHE MALL
ROCHESTER, MN 55902

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sue Date 12-01-15

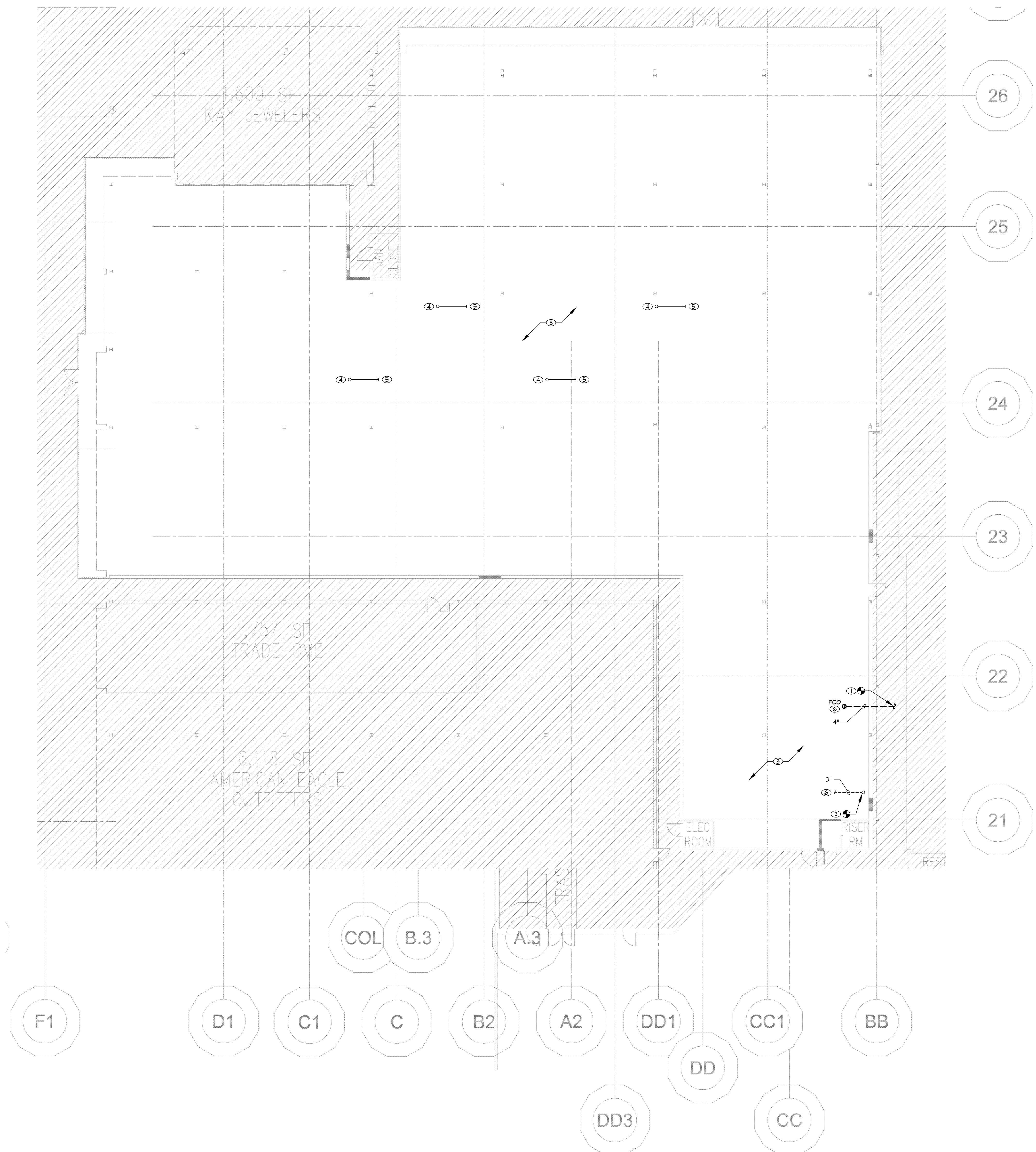
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PLUMBING SCHEDULES

P0.2



- GENERAL NOTES**
- A. ALL PLUMBING FIXTURES SHALL BE WATER CONSERVATION TYPE AS MANDATED BY LOCAL BLDG. DEPT.
 - B. ALL WATER CLOSETS DESIGNATED AS HANDICAP SHALL BE INSTALLED SUCH THAT THE ACTUATOR IS OPERABLE FROM THE WIDE SIDE OF WATER CLOSET.
 - C. PRIOR TO INSTALLATION OF SEWER AND WATER PIPING BELOW GRADE COORDINATE EXACT LOCATIONS AND DEPTHS OF BURIAL WITH CIVIL AND FOUNDATION DRAWINGS AND CORRESPONDING ENGINEERS.
 - D. PRIOR TO DETAILING & INSTALLING PLUMBING AND FIRE PROTECTION PIPING COORDINATE EXACT ROUTING AND ELEVATIONS WITH MECHANICAL, ELECTRICAL AND FIRE SPRINKLER CONTRACTORS. PROVIDE WRITTEN COORDINATION THAT THIS COORDINATION HAS BEEN IMPLEMENTED PRIOR TO PROCEEDING WITH INSTALLATION OF PIPING.
 - E. ALL PLUMBING FIXTURES SHALL HAVE A TRAP INSTALLED AND SHALL BE PROPERLY VENTED IN ORDER TO MAINTAIN THE TRAP SEAL.

- PLUMBING PLAN KEYNOTES**
- ① POINT OF CONNECTION OF NEW 4" SANITARY SEWER WASTE SYSTEM TO EXISTING ON SITE WASTE. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION. THESE CONDITIONS SHALL INCLUDE BUT NOT BE LIMITED TO DEPTH, SCOPE, DIRECTION OF FLOW, CONDITION OF PIPE AND CAPACITY TO HANDLE NEW FIXTURE COUNTS.
 - ② POINT OF CONNECTION OF NEW 3" VENT SYSTEM TO EXISTING ON SITE VENT. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION. THESE CONDITIONS SHALL INCLUDE BUT NOT BE LIMITED TO DEPTH, SCOPE, DIRECTION OF FLOW, CONDITION OF PIPE AND CAPACITY TO HANDLE NEW FIXTURE COUNTS.
 - ③ DEMO ALL EXISTING PLUMBING FIXTURES IN THIS AREA AND CAP EXISTING PLUMBING LINES BELOW FINISH SLAB. FIELD VERIFY.
 - ④ 1" CONDENSATE DRAIN DOWN FROM RTU.
 - ⑤ CAP 1" CONDENSATE DRAIN FOR FUTURE CONNECTION.
 - ⑥ VERIFY ACTUAL PLUMBING STUB-IN LOCATION WITH TENANT.

architecture design collaborative
14252 culver drive suite A-347
irvine, ca 92604
www.adcollaborative.com
949.267.1660

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APACHE MALL
SHELL SUITE 305
333 APACHE MALL
ROCHESTER, MN 55902

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Sheet Issue Date	12-01-15
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PLUMBING FLOOR PLAN - WASTE AND VENT

P1.1

PLUMBING FLOOR PLAN - WASTE AND VENT

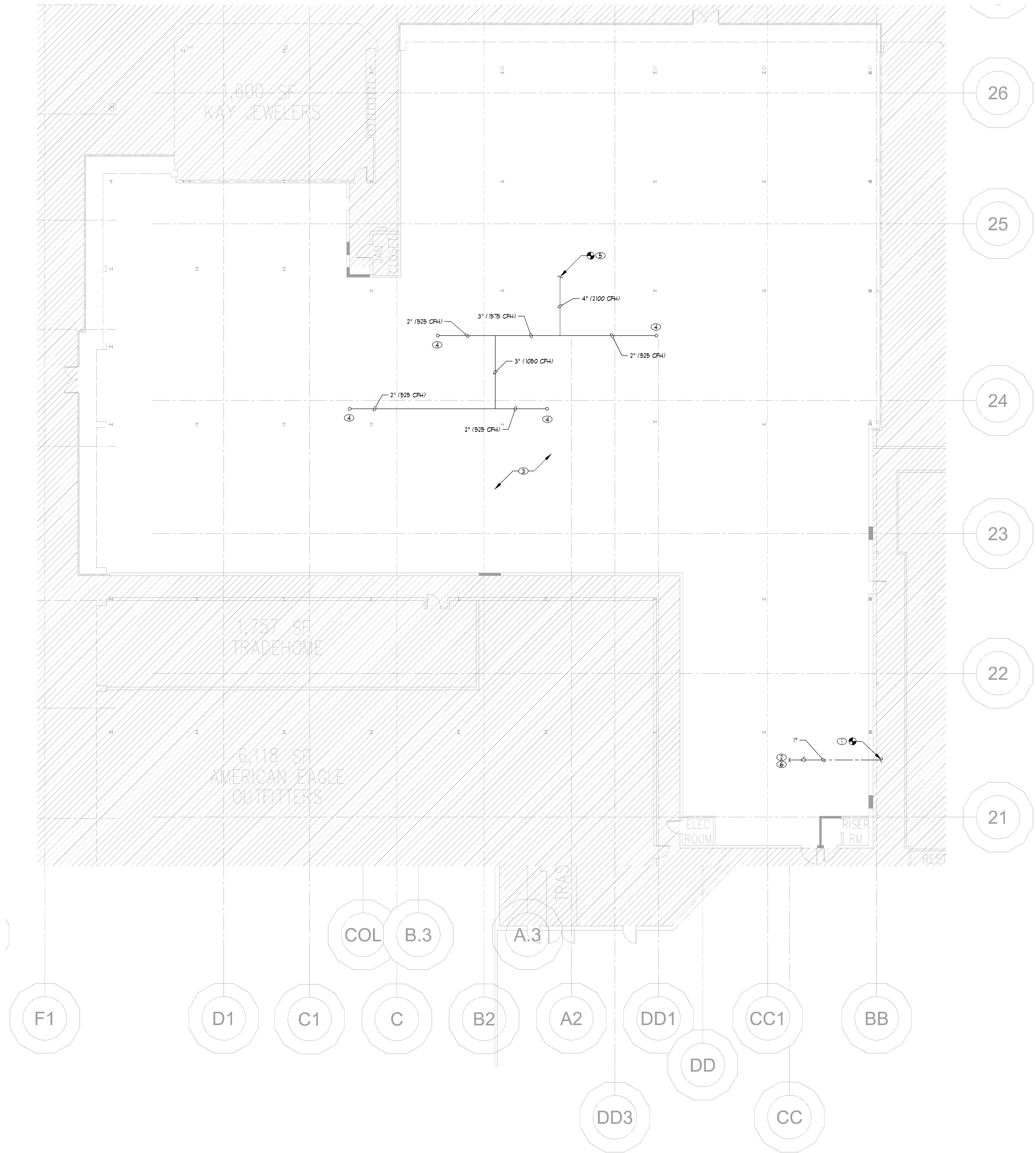
SCALE: 3/32" = 1'-0"



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- GENERAL NOTES**
- A. ALL PLUMBING FIXTURES SHALL BE WATER CONSERVATION TYPE AS MANDATED BY LOCAL BLDG. DEPT.
- B. ALL WATER CLOSETS DESIGNATED AS HAND/CAP SHALL BE INSTALLED SUCH THAT THE ACTUATOR IS OPERABLE FROM THE WIDE SIDE OF WATER CLOSET.
- C. PRIOR TO INSTALLATION OF SEWER AND WATER PIPING BELOW GRADE COORDINATE EXACT LOCATIONS AND DEPTHS OF BURIAL WITH CIVIL AND FOUNDATION DRAWINGS AND CORRESPONDING ENGINEERS.
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- E. ALL PLUMBING FIXTURES SHALL HAVE A TRAP INSTALLED AND SHALL BE PROPERLY VENTED IN ORDER TO MAINTAIN THE TRAP SEAL.

- PLUMBING PLAN KEYNOTES**
- ① POINT OF CONNECTION OF NEW 1 1/2" COLD WATER LINE TO EXISTING COLD WATER BUILDING SERVICE. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION. THESE CONDITIONS SHALL INCLUDE BUT NOT BE LIMITED TO SCOPE, AVAILABLE PRESSURE, CONDITION OF PIPE AND CAPACITY TO HANDLE NEW FUTURE COUNTS.
- ② 1 1/2" COLD WATER STUB. PROVIDE SHUT-OFF VALVE AND CAP FOR FUTURE CONNECTION.
- ③ DEMO ALL EXISTING PLUMBING FIXTURES IN THIS AREA AND CAP EXISTING PLUMBING LINES BELOW SLAB. FIELD VERIFY.
- ④ 2" GAS PIPE DOWN FROM RTU.
- ⑤ POINT OF CONNECTION OF NEW 4" GAS LINE TO EXISTING GAS BUILDING SERVICE. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS PRIOR TO CONSTRUCTION. THESE CONDITIONS SHALL INCLUDE BUT NOT BE LIMITED TO SCOPE, AVAILABLE PRESSURE, CONDITION OF PIPE AND CAPACITY TO HANDLE NEW AFFLIANCE COUNTS.
- ⑥ VERIFY ACTUAL PLUMBING STUB-IN LOCATION WITH TENANT.

architecture design collaborative
14252 culver drive suite A-347
irvine, ca 92604
www.adcollaborative.com
949.267.1660

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**APACHE MALL
SHELL SUITE 305**

333 APACHE MALL
ROCHESTER, MN 55902

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Sheet Issue Date	12-01-15
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**PLUMBING FLOOR
PLAN - WATER AND
GAS**

P1.2

PLUMBING FLOOR PLAN - WATER AND GAS

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



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irvine, ca 92604
www.adcollaborative.com
949.267.1660

ADC Project No: 150114

Project Contact: Alexandra Hernandez
Email: ahernandez@adcollaborative.com
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Client

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Phone No. (949) 727-3555
Fax No. _____

APACHE MALL
SHELL SUITE 305
333 APACHE MALL
ROCHESTER, MN 55902

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PLUMBING PLAN KEYNOTES

- ① 1" CONDENSATE DRAIN PIPE DOWN TO CEILING SPACE BELOW.
② 2" GAS PIPE DOWN TO CEILING SPACE BELOW.

PLUMBING ROOF PLAN

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



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sue Date 12-01-15

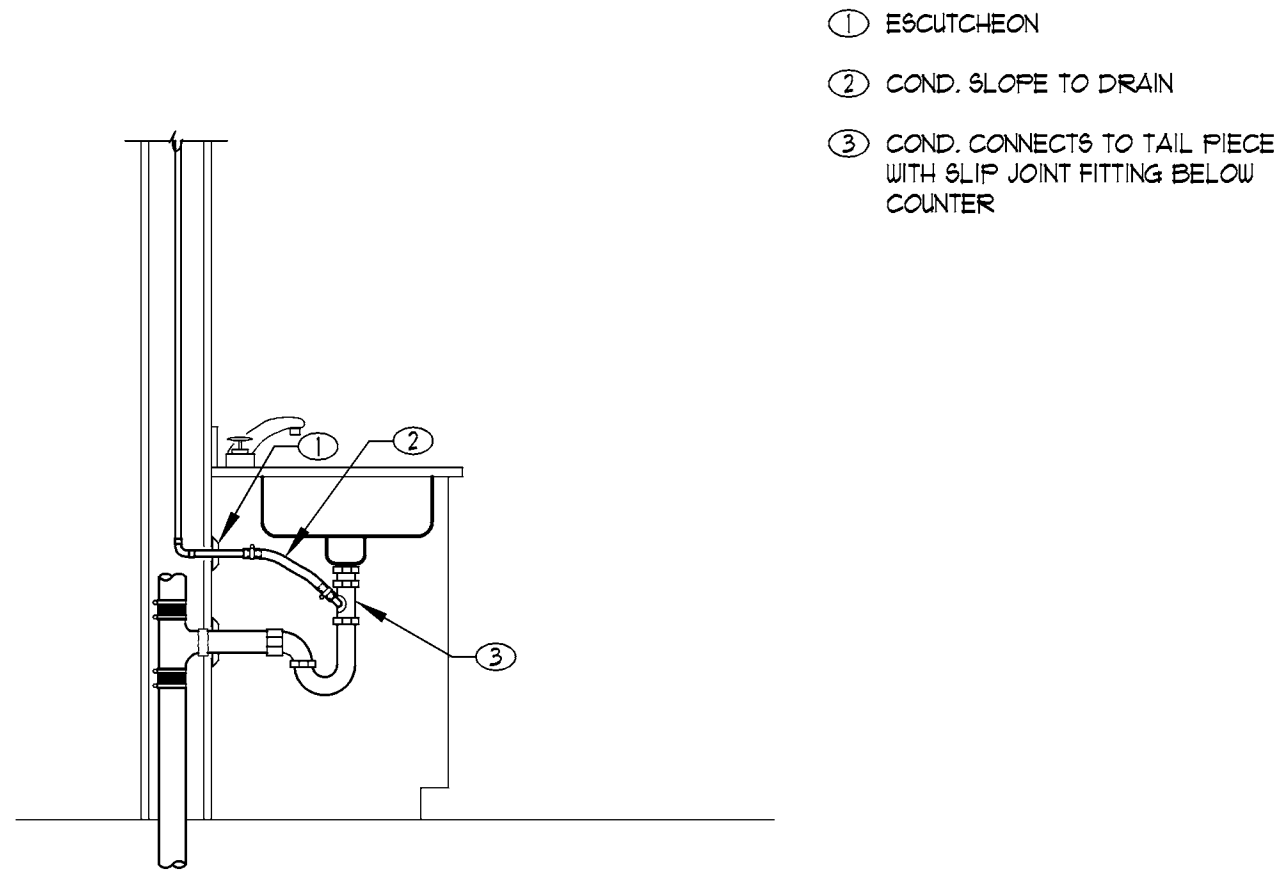
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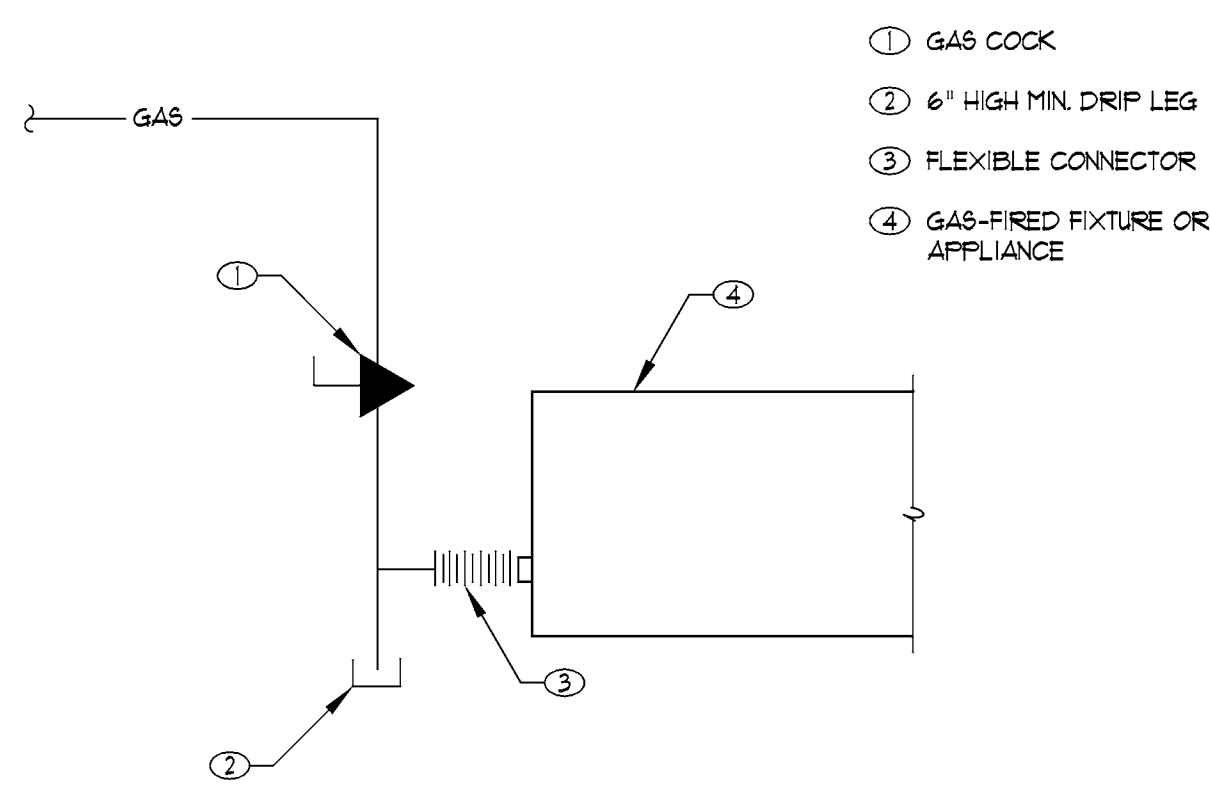


PLUMBING ROOF PLAN

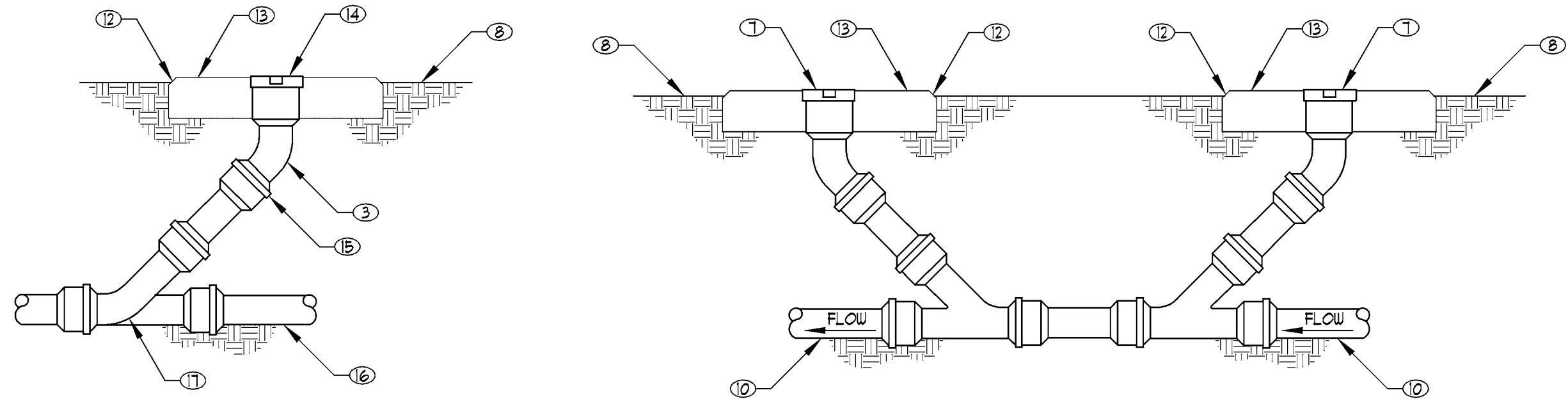
P1.3



06 CONDENSATE TO LAVATORY
06-090433 NO SCALE



08 GAS PIPE CONNECTION
08-02 NO SCALE

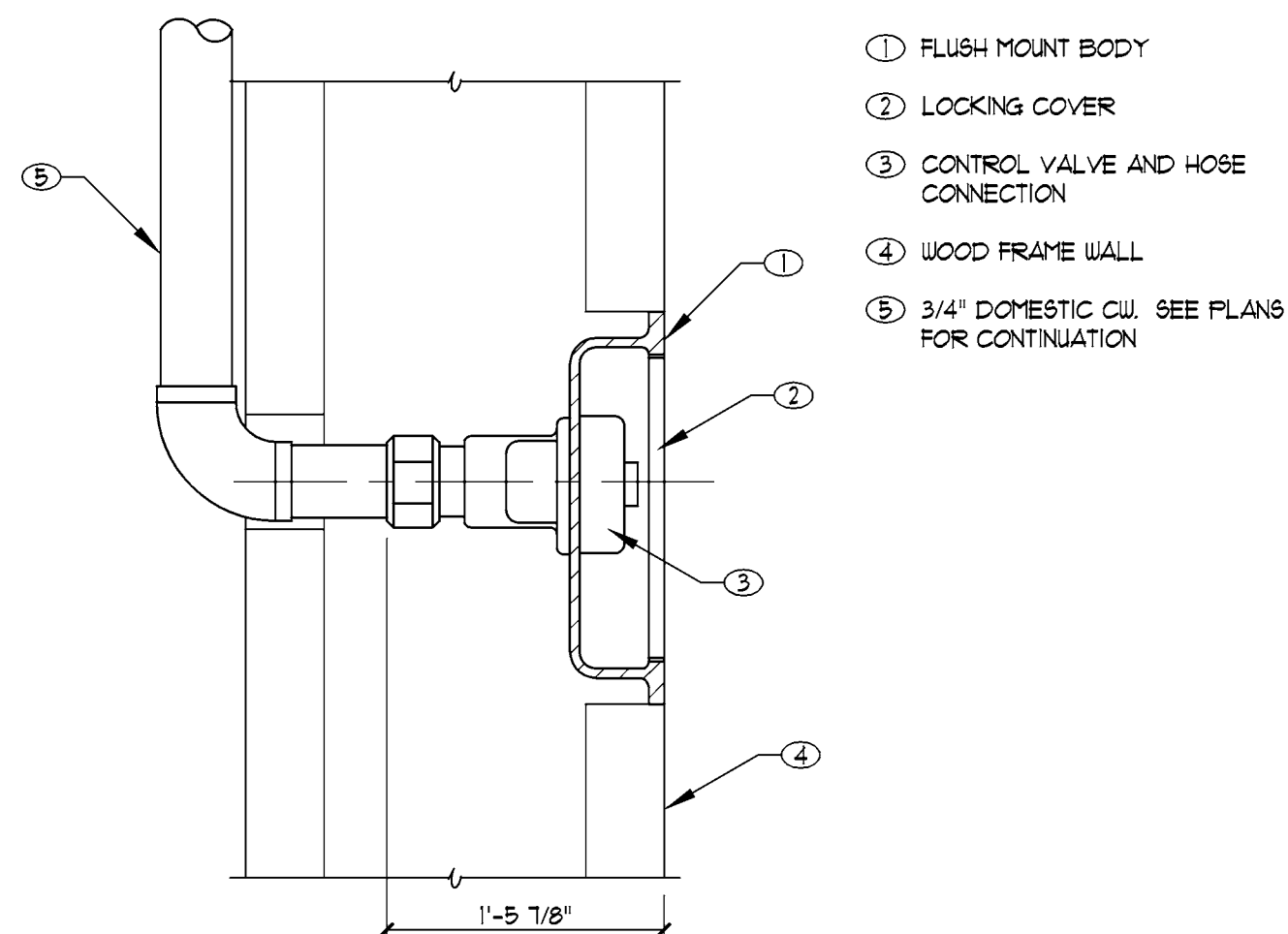


D GRADE CLEANOUT (GCO) B TWO-WAY GRADE CLEANOUT (2-WAY GCO)

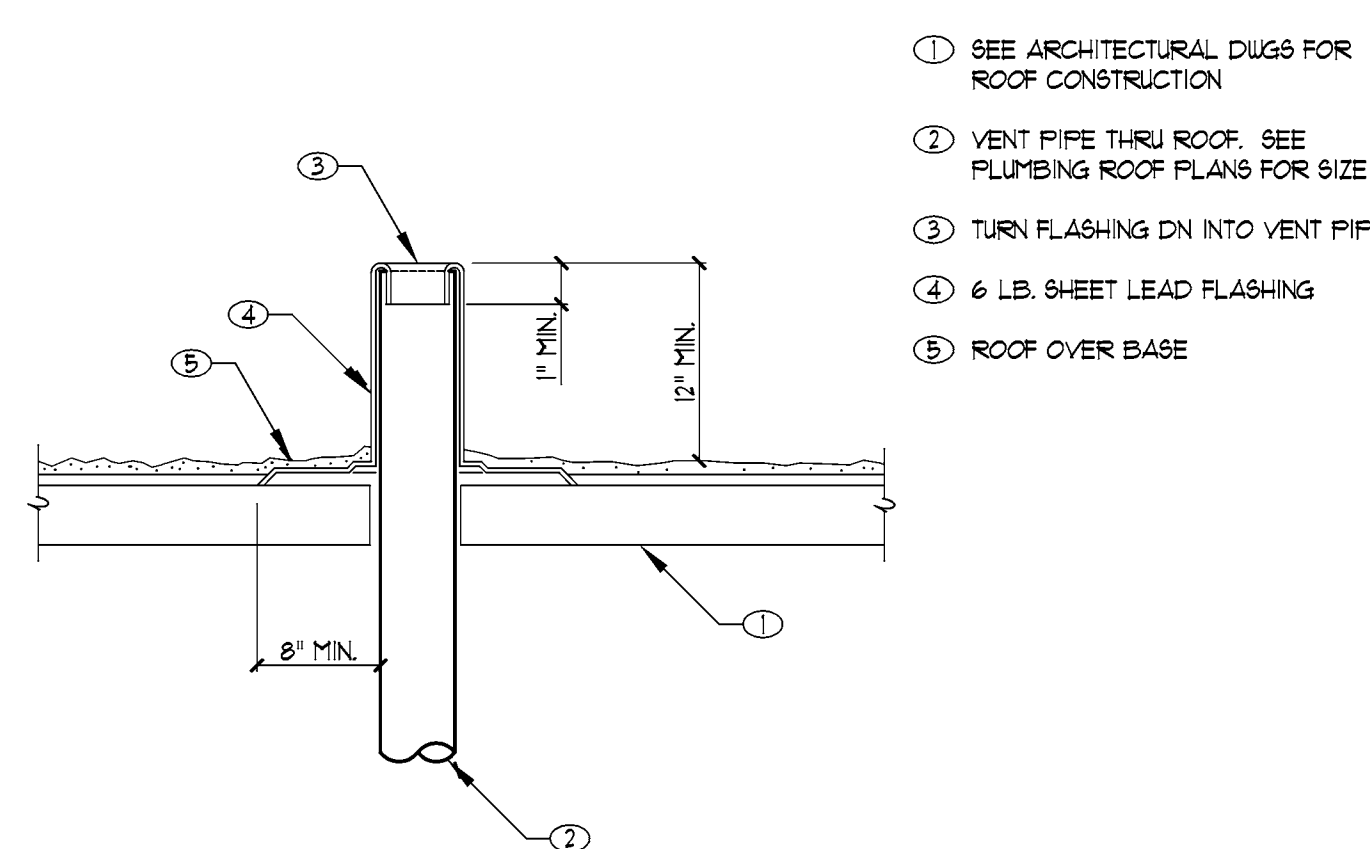


C FLOOR CLEANOUT (FCO) A WALL CLEANOUT (WCO)

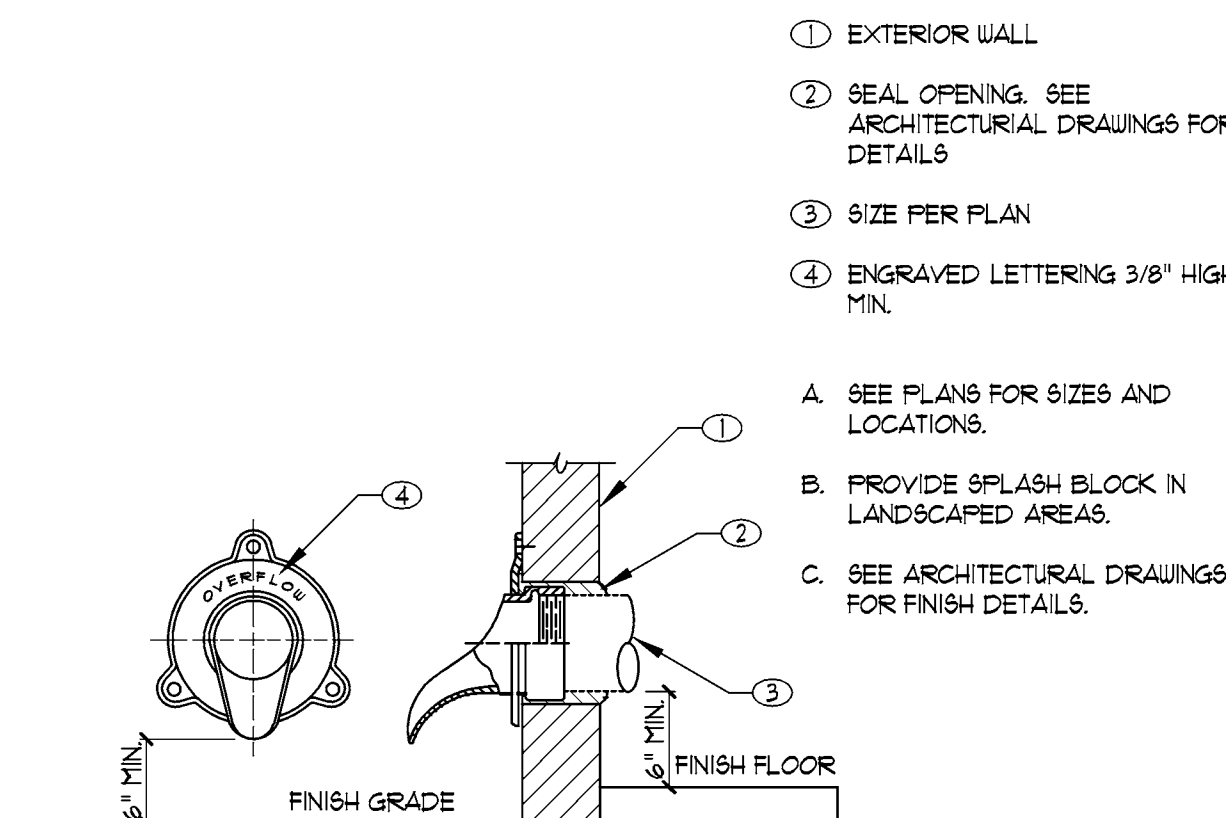
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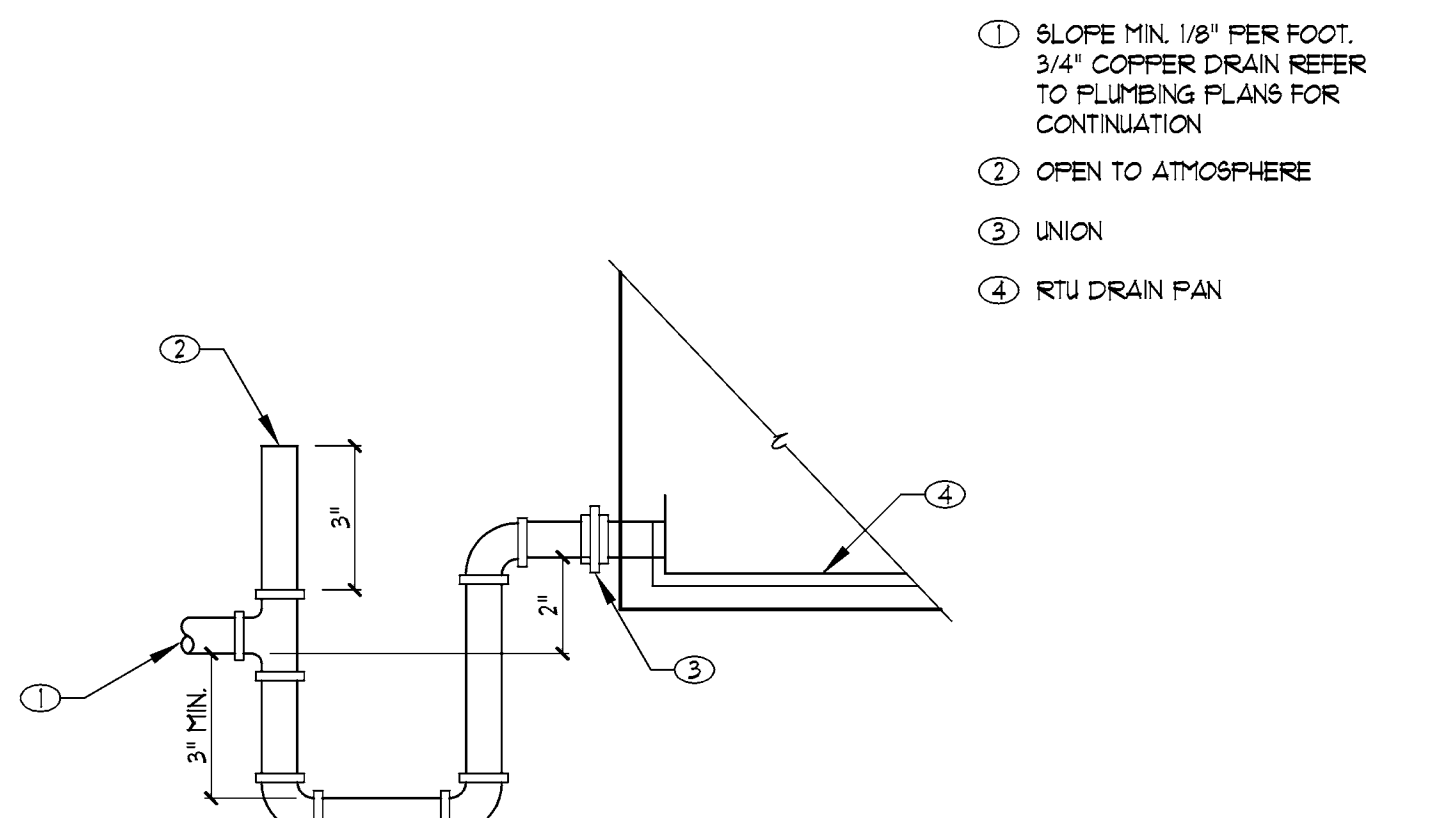
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HB-02 NO SCALE



02 VENT THROUGH ROOF
VR-01 NO SCALE



05 OVERFLOW DRAIN DOWNSPOUT
ND-01A NO SCALE



03 CONDENSATE PAN DRAIN
CD-01 NO SCALE