A NEW TENANT FINISH FOR



Salon Ami SUMMIT FAIR SPACE NI09 LEE'S SUMMIT, MO.

CRA

CRAIG A LUEBBERT, ARCHITECT, LLC

ARCHITECT

ARCHITECTURE DESIGN

230 SW MAIN STREET #203 LEE'S SUMMIT, MO. 64063 PHONE: (816) 875-2809 FAX: (816) 272-5510

MEP ENGINEER



ENGINEERS, INC

5720 Reeder St. Shawnee, KS. (913) 262-1772

GENERAL NOTES

- I. ALL CONSTRUCTION WORK SHALL BE IN ACCORDANCE WITH THE INCLUDED DRAWINGS.
- 2. ALL CONSTRUCTION WORK SHALL COMPLY WITH GOVERNING BUILDING CODES IN EFFECT AT THE TIME CONSTRUCTION PERMITS ARE ISSUED FOR THIS PROJECT.
- 3. SUB-CONTRACTORS SHALL FIELD VERIFY ALL DIMENSIONS SHOWN, AND SHALL REPORT ANY DISCREPENCY TO THE ENGINEER PRIOR TO COMMENCING WITH ANY RELATED CONSTRUCTION WORK. SUB-CONTRACTORS SHALL FURTHER REPORT TO THE ENGINEER ALL DISCREPENCIES BETWEEN ACTUAL AND SHOWN CONDITIONS, PRIOR TO BEGINNING WORK RELATED THERETO.
- 4. DIMENSIONS ARE TO FACE OF FINISH WALL UNLESS NOTED OTHERWISE.
- 5. THE SUB-CONTRACTORS SHALL VERIFY LOCATION OF EXISTING UTILITIES, AND SHALL BE RESPONSIBLE FOR PROTECTING THESE UTILITIES DURING THE EXECUTION OF HIS WORK AND RELOCATION.
- 6. SUB-CONTRACTOR TO LAY OUT BUILDING PRIOR TO ANY CONSTRUCTION. NOTIFY ENGINEER OF ANY DISCREPANCY IMMEDIATELY.
- 7. SUB-CONTRACTOR TO ASSURE PROPER DRAINAGE AWAY FROM BUILDING.
- 8. THE SUB-CONTRACTORS SHALL BE SOLELY RESPONSIBLE FOR THE DESIGN, ADEQUACY, AND SAFETY OF ERECTION BRACING, SHORING AND TEMPORARY SUPPORTS, ETC. THE SUB-CONTRACTORS ARE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE PRIOR TO THE APPLICATION OF ALL SHEAR WALLS, ROOF SHEATHING, STRUCTURAL ELEMENTS AND FINISH MATERIALS.
- 9. THE SUB-CONTRACTORS ARE RESPONSIBLE FOR CHECKING ALL CONTRACT DOCUMENTS, FIELD CONDITIONS AND DIMENSION FOR THEIR ACCURACY AND CONFIRMING THAT WORK IS BUILDABLE AS SHOWN BEFORE PROCEEDING WITH CONSTRUCTION. IF THERE ARE ANY QUESTIONS REGARDING THESE OR OTHER COORDINATION QUESTIONS, THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING CLARIFICATION FROM THE ENGINEER BEFORE PROCEEDING WITH THE WORK IN QUESTION OR ANY RELATED WORK.
- IO. THE SUB-CONTRACTORS SHALL TAKE ABSOLUTE CARE TO PROTECT NEWLY INSTALLED MATERIALS, MILLWORK, BUILT-INS AND FINISHES.
- II. THE SUB-CONTRACTORS SHALL BE RESPONSIBLE FOR ALL DAMAGE TO EXISTING STRUCTURES, UTILITIES, WALKS, STREETS, PAVED AREAS, CURBS, TREES AND OTHER LANDSCAPING CAUSED THROUGH HIS OPERATIONS UNDER THIS CONTRACT.
- 12. THE SUB-CONTRACTORS SHALL PERFORM HIGH QUALITY PROFESSIONAL WORK. JOIN MATERIALS TO UNIFORM, ACCURATE FITS SO THEY MEET WITH NEAT, STRAIGHT LINES, FREE OF SMEARS OR OVERLAPS. INSTALL EXPOSED MATERIALS APPROPRIATELY LEVEL, PLUMB AND AT ACCURATE RIGHT ANGLES, OR FLUSH WITH ADJOINING MATERIALS. WORK OF EACH TRADE SHALL MEET ALL NATIONAL STANDARDS PUBLISHED BY THAT TRADE, EXCEPT IN THE CASE WHERE THE CONTRACT DOCUMENTS ARE MORE STRINGENT.

ABBREVIATIONS

A/C	AIR CONDITIONING	EA	EACH	JB	JUNCTION BOX	RM	ROOM
AB	ANCHOR BOLT	EJ	EXPANSION JOINT	JST	JOIST	RO	ROUGH OPENING
AC	ACCOUSTICAL	ELEC	ELECTRIC/ELECTRICAL	T ,	JOINT	ROW	RIGHT OF WAY
]]	JOINT		
ACT	ACCOUSTICAL TILE	EL	ELEVATION	l .		RTU	ROOF TOP UNIT
AFF	ABOVE FINISHED	EMERG	EMERGENCY	L	LENGTH	RV	ROOF VENT
	FLOOR	ENCL	ENCLOSURE	LAV	LAVAT <i>O</i> RY		
AGG	AGGREGATE	ENT	ENTRANCE	l LT	LI <i>G</i> HT	SCHED	SCHEDULE
ALT	ALTERNATE	EP	ELECTRICAL PANEL	LVL	LEVEL	SECT	SECTION
ALUM	ALUMINUM	EQ.	EQUAL			SF	SQUARE FEET
ANOD	ANODIZED	EQUIP	EQUIPMENT	MAS	MASONRY	SHT	SHEET
							SIMILAR
APPROX	APPROXIMATELY	EW	EACH WAY	MAX	MAXIMUM	SIM	
ARCH	ARCHITECTURAL	EXH	EXHAUST	MECH	MECHANICAL	SPEC	SPECIFICATION
ASPH	ASPHALT	EXP	EXPANSION	MEMB	MEMBRANE	SPK	SPEAKER
AVG	AVERAGE	EXT	EXTERIOR	MTL	METAL	SQ	SQUARE
				MFG	MANUFACTURER	SST	STAINLESS STEEL
BD	BOARD	FD	FLOOR DRAIN	MIN	MINIMUM	STD	STANDARD
B.F.F.	BELOW FINISHED	FDN	FOUNDATION	MISC	MISCELLANIOUS	STL	STEEL
D., ., .	FLOOR	FFE	FINISHED FLOOR	MO	MASONRY OPENING	STRUC	STRUCTURAL
DIT.				140	MASONRI OPENING		
BIT	BITUMINIOUS		ELEVATION	1,11,0	110-111-01-01-01-0-	SUP	SUPPLY
BKR	BREAKER	FLR	FLOOR	NIC	NOT IN CONTRACT	SUSP	SUSPEND
BLDG	BUILDING	FLASH	FLASHING	NOM	NOMINAL		
BM	BEAM	FLOUR	FLOURESCENT	NTS	NOT TO SCALE		THERMOSTAT
BRG	BEARING	FOS	FACE OF STUD			TEMP	TEMPORARY
BTU	BRITISH THERMAL UNIT	FRM	FRAME	0A	OVERALL	THK	THICK
	21411011 1112141 11 2 01111	FRP	FIBERGLASS	l oc	ON CENTER	THRES	THRESHOLD
CCT	CIRCUIT	' ' '	REINFORCED PLASTIC	0D	OUTSIDE DIAMETER	TYP	TYPICAL
	CEMENT					115	TIFICAL
CEM		FT	FOOT	OFF	OFFICE		
CFM	CUBIC FEET/MINUTE	FT6	FOOTING	OH	OVERHEAD	UC	UNDERCUT
LO	CONTROL JOINT	FUR	FURRING	OPNG	OPENING	UL	UNDERWRITER
CLG	CEILING						LABORATORIES
CLR	CLEAR	GA	GAUGE	P	POLE	UNO	UNLESS NOTED
CMU	CONCRETE MASONRY	GAL	GALLON	PL	PLATE		OTHERWISE
0	UNIT	GALV	GALVANIZED	PLG	PLUMBING	UR	URINAL
CNDT	CONDUIT	GEN	GENERAL	PLYND	PLYWOOD	UTIL	UTILITIES
						UIIL	UTILITIES
CO	CLEAN OUT	GND	GROUND	PNL	PANEL		
		GRD	GRADE	PR	PAIR		VOLT
COL	COLUMN	GYP	GYPSUM	PREFAB	PREFABRICATED	V₿	VAPOR BARRIER
CONC	CONCRETE			PSF	POUNDS/SQUARE FOOT	VERT	VERTICLE
COND	CONDENSATE	HB	HOSE BIBB	PSI	POUNDS/SQUARE INCH	VEST	VESTIBULE
CONN	CONNECTION	HDR	HEADER	PT	PAINT	VOL	VOLUME
CONST	CONSTRUCTION	HDWR	HARDWARE	PVC	POLYVINYL CHLORIDE	VTR	VENT THROUGH ROOF
CONT	CONTINUOS	HGT	HEIGHT	' ' '	1 021 11112 011201122	• • • •	. 2
CT	CERAMIC TILE	HORZ	HORIZONTAL	ат	QT QUARRY TILE		
				العا	GI WARRITLE	اما ا	IAIITLL
CM	COLD WATER	HP	HORSE POWER	l	DADUC	W	MITH
		HR	HOUR	R	RADIUS	MC	WATER CLOSET
DBL	DOUBLE	HTG	HEATING	RSR	RISER	WD	WOOD
DEPT	DEPARTMENT	HTR	HEATER	R/A	RETURN AIR	MDM	MINDOW
DIA	DIAMETER	HM	HOT WATER	RCPT	RECEPTACLE	MH	WATER HEATER
DIM	DIMENSION			RD	ROOF DRAIN	MP	WATER PROOFING
DISC	DISCONNECT	ID	INSIDE DIAMETER	REC	RECESSED	WSCT	WAINSCOT
DN	DOWN	İN	INCHES	REF	REFERENCE	MT	WEIGHT
					REGISTER	MMF	
DR	DOOR	INSUL	INSULATION	REG		וייאיי	WELDED WIRE FABRIC
DS	DOWNSPOUT	INT	INTERIOR	REINF	REINFORCING		
DTL	DETAIL			REQD	REQUIRED	YD	YARD
DWG	DRAWING			RFG	ROOFING		
DWL	DOWEL						
				I			

DRAWING SCHEDULE

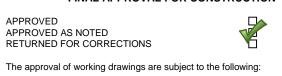
COVER

- CR-1 CODE REVIEW DRAWING
- A100 FLOOR PLAN/SCHEDULES/STOREFRONT DTL.
- A101 REFLECTED CEILING PLAN/CASEWORK/ DETAILS

MECHANICAL / ELECTRICAL / PLUMBING

- M1 MECHANICAL PLAN / NOTES / SCHEDULES
- **ME1 SPECIFICATIONS**
- E1 ELECTRICAL LIGHTING PLAN / SCHEDULES
- E2 ELECTRICAL POWER PLAN / PANEL BOARDS / ELECTRICAL RISER / NOTES
- P1 PLUMBING PLAN / RISER DIAGRAMS / NOTES / SCHEDULSES / DETAILS





A. All previous review comments
B. Field approval by Owner's Representative
C. Torms and Conditions of the Lease Agreement
APPROVED
By Eric Hessler at 10:27 am, Feb 06, 2013

The sole purpose of the drawing review by the Landlord's Architect was an evaluation of their consistency with the aesthetic components of both the established criteria booklet and Landlord's design requirements. By reviewing these drawings and providing comments, neither the Landlord nor its agents assume responsibility for code compliance, compliance with all aspects of the criteria booklet and Landlord's design requirements, dimensional accuracy, engineering adequacy, or completeness of these drawings for construction purposes. Tenant remains solely responsible for compliance with all aspects of the criteria booklet, Landlord's design requirements, codes,

• Tenant shall be responsible for meeting all applicable codes and obtaining all jurisdictional

approvals.

• Tenant shall be responsible for all blocking required for wall mounted equipment, furniture

• Coordinate
barricade signage/
graphics with on-site
management prior to
installation.

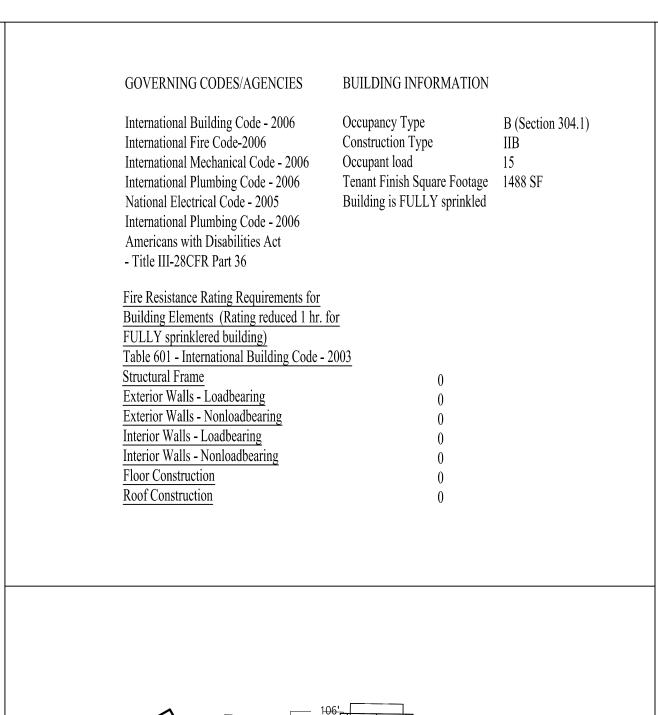
and/or displays.

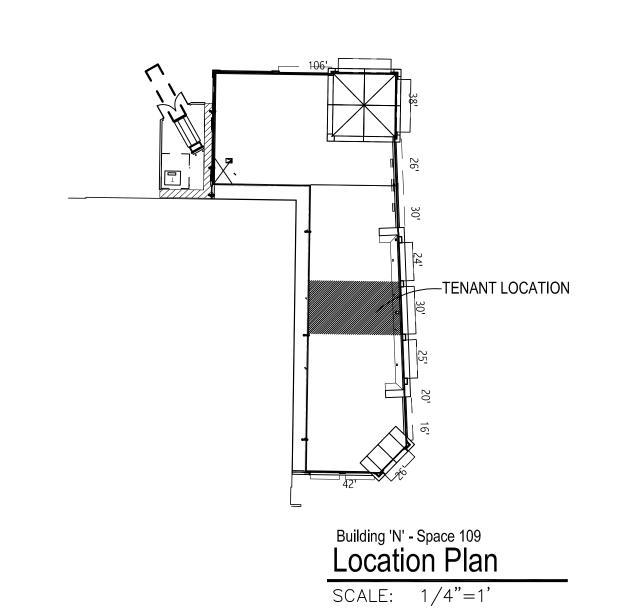
• Tenant shall field
verify lease space for
existing conditions and
that space conforms to
approved lease outline
diagram as approved
with Lease Agreement.

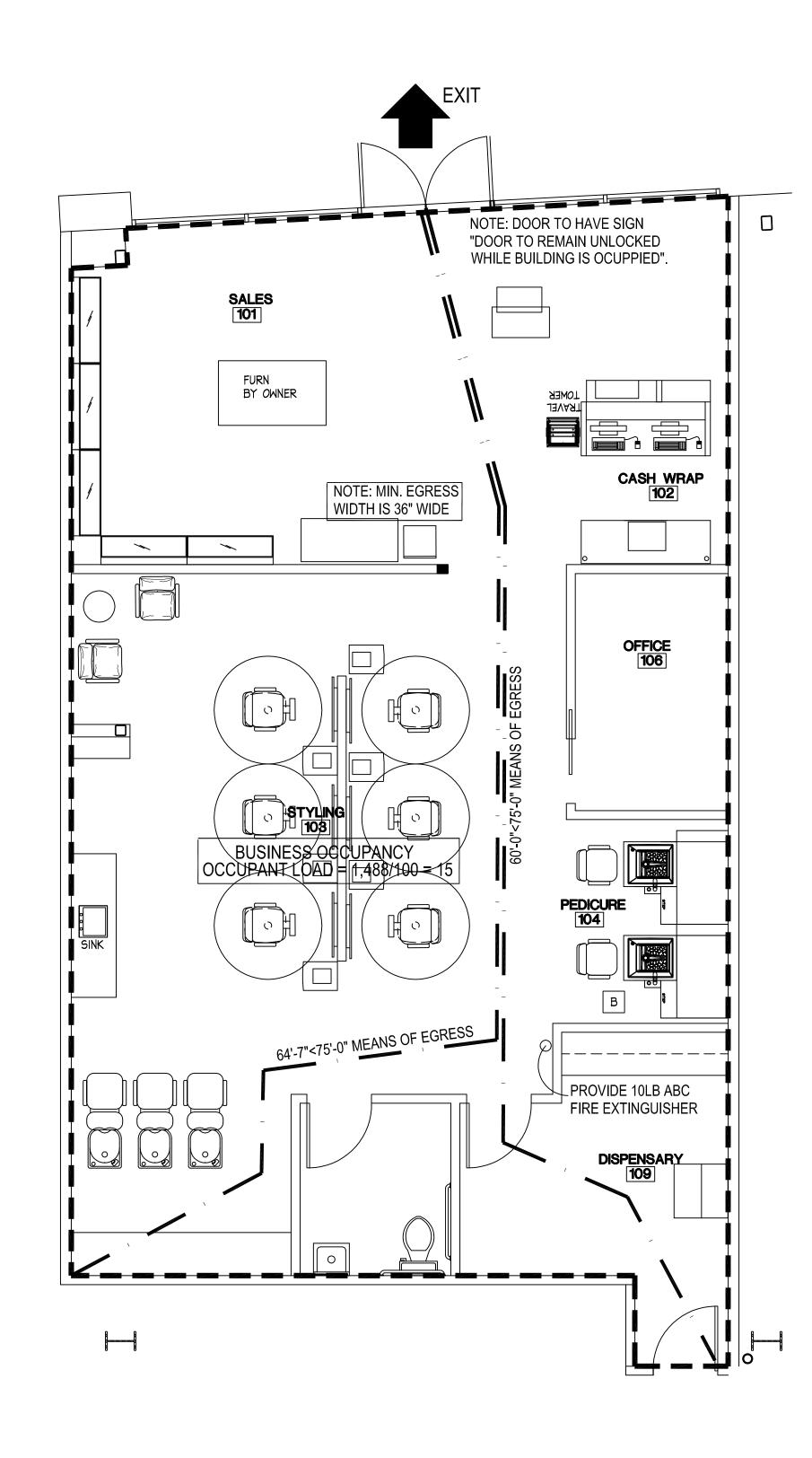
• All fluorescent
lighting outside of
Design Control Area
shall be deep cell
parabolic.
Fluorescent fixtures
are not permitted in
Design Control Area.

• Submit sign shop drawings including required blade sign for review and approval.

No removal of
existing Shell
building elements on
exterior or structure
that would jeopardize
the integrity of the
building will be
permitted. If item is
in question, G.C. is
responsible for
contacting Mall
Management prior to
removal.







DATE : 1/22/13 REVISIONS COPY RIGHT 2013

CRAIG

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2 3 0 S W M A I N S

LEE'S SUMMIT, I

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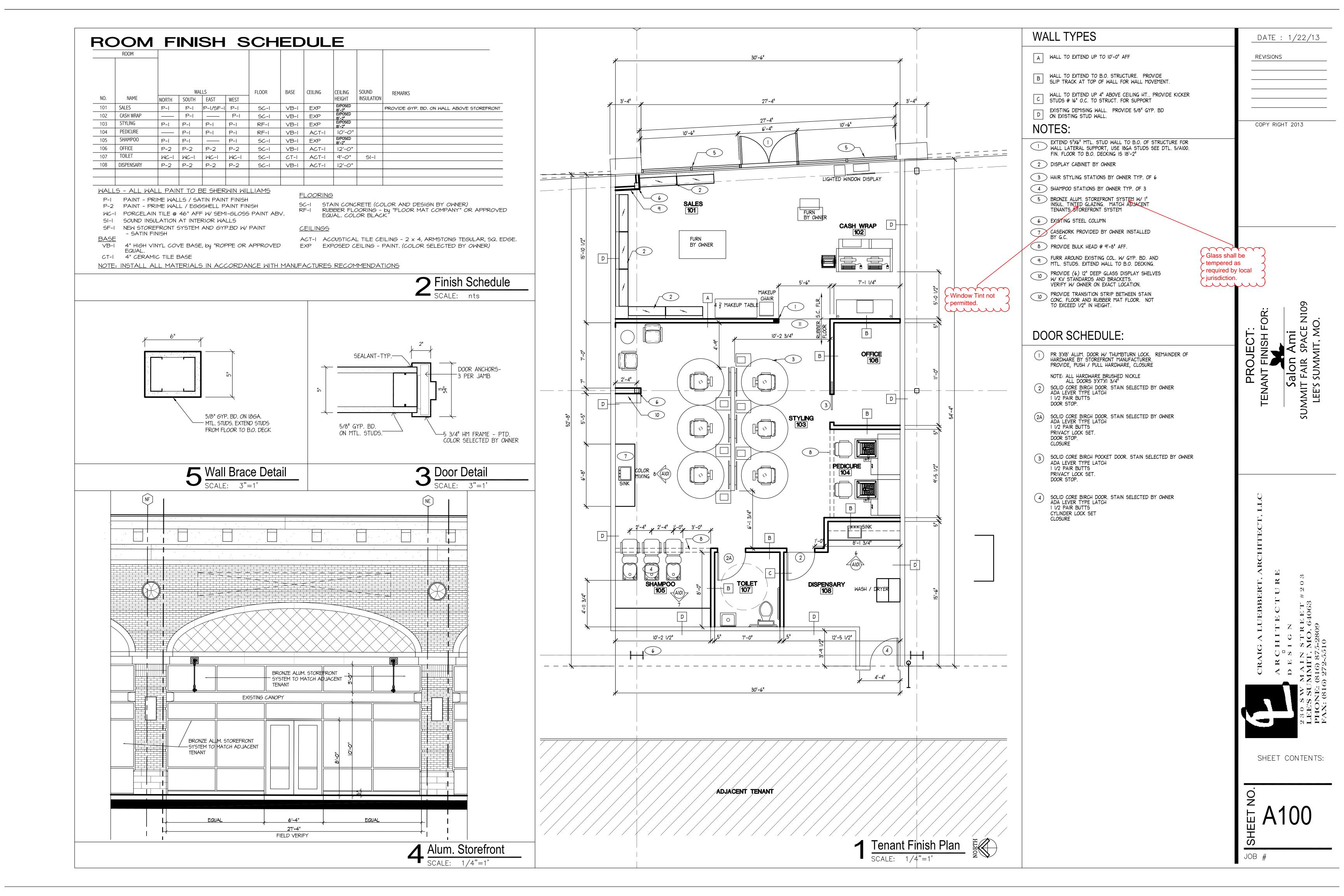
SHEET CONTENTS:

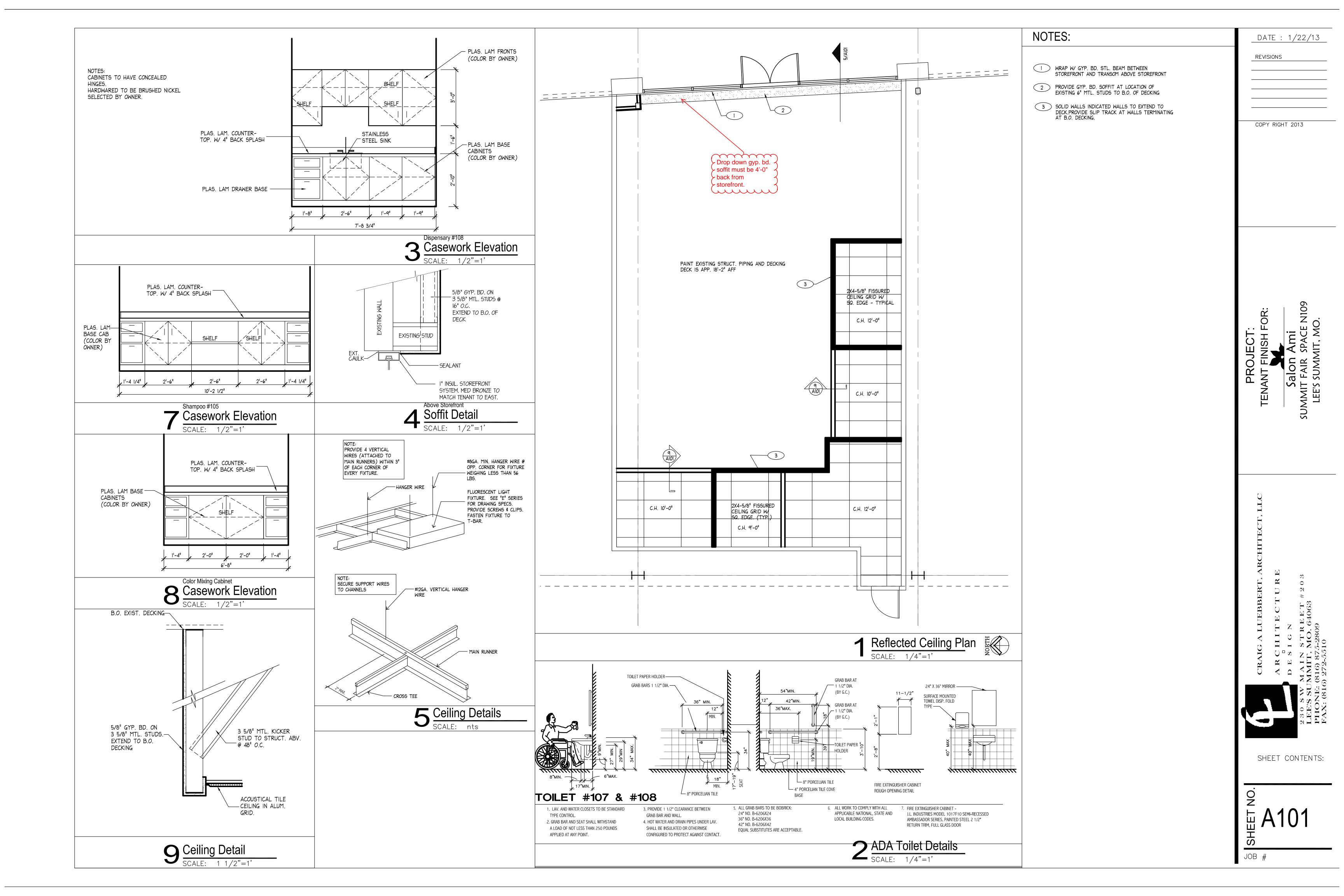
SHEET NO.

Code Plan

SCALE: 1/4"=1'

NORTH





MECHANICAL SYMBOLS

NEW SUPPLY DIFFUSER

NEW RETURN AIR GRILLE

EXHAUST FAN

THERMOSTAT, MOUNTED AT 48" AFF

DUCT-MOUNTED SMOKE DETECTOR

NEW DUCTWORK

2"xI4" SIZE OF RECTANGULAR DUCT

6"Φ SIZE OF ROUND DUCT

FLEXIBLE DUCTWORK

FLEXIBLE CONNECTION TO FAN

—3 FLOOR PLAN NOTE DESIGNATION

S.A. SUPPLY AIR

R.A. RETURN AIR

XH. EXHAUST AIR

TRANSITION IN DUCT SIZE

ELBOW WITH TURNING VANES

MANUAL VOLUME DAMPER

MANUAL VOLUME DAMPER

MECHANICAL GENERAL NOTES:

- I. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS
 AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN
 THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
- 2. THIS CONTRACTOR SHALL PERFORM ALL WORK INDICATED AND/OR AS REQUIRED FOR THE PROPER INSTALLATION AND OPERATION OF THE MECHANICAL SYSTEMS.
- 3. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF DIFFUSERS.
- 4. INSTALL ALL DUCT, PIPE, ETC. AS HIGH AS POSSIBLE.
- 5. DUCT SIZES SHOWN ARE ACTUAL SHEET METAL SIZES AND INCLUDE AN ALLOWANCE FOR DUCT LINER WHERE APPLICABLE.
- 6. PROVIDE FLEXIBLE CONNECTION BETWEEN DUCTWORK AND ROOFTOP UNITS, EXHAUST FANS, AND OTHER MOTORIZED EQUIPMENT.
- 7. NO DUCT SHALL BE ROUTED OVER THE TOP OF ELECTRICAL PANELS.
- 8. ALL MATERIALS EXPOSED WITHIN PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTM E 84.

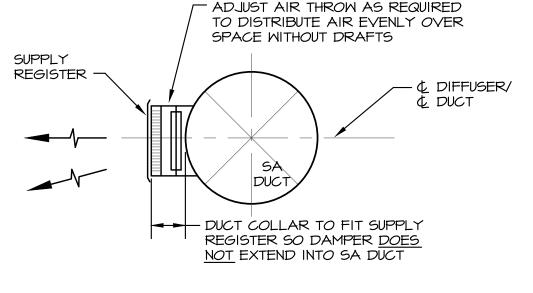
• All roof penetrations shall be performed by a Landlord approved contractor to maintain warranties.

• Tenants shall locate any roof top vents a min. 10' away from any adjacent rooftop units

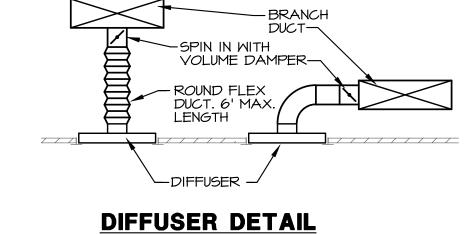
• Route condensate line(s) to nearest roof drain.

MECHANICAL PLAN NOTES:

- (I) INSTALL ROOFTOP UNIT ON 'MECHANICAL ZONE' AS REQUIRED BY LANDLORD. COORDINATE EXACT LOCATION OF UNIT WITH LANDLORD PRIOR TO INSTALLATION.
- (2) HIGH/LOW RETURN AIR GRILLES OFFICE SIDE GRILLE LOCATED AT 12" AFF. CENTRAL AREA SIDE LOCATED AT 8' AFF. INSTALL TG-I ON BOTH SIDES OF WALL
- (3) INSTALL TRANSFER AIR GRILLE, TG-I, ABOVE DOOR ON BOTH SIDES OF WALL.
- (4) CONNECT 4" PLEX DUCT TO DRYER AS REQUIRED. ROUTE 4" DRYER EXHAUST DUCT UP THROUGH ROOF. PROVIDE WEATHERHEAD AS REQUIRED.
- (5) SUPPORT FAN FROM STRUCTURE AS REQUIRED.
- 6 CUT EXISTING ROOF AND FLASH INTO ROOF AS REQUIRED. ALL ROOFING WORK SHALL BE PERFORMED BY LANDLORD'S ROOFING CONTRACTOR (AT THIS CONTRACTOR'S EXPENSE) TO MAINTAIN EXISTING ROOF WARRANTY. VERIFY APPROVED ROOFING CONTRACTOR WITH LANDLORD PRIOR TO PERFORMING WORK.
- 7 ROUTE 6"\$\phi\$ EXHAUST DUCT UP THRU ROOF TO WEATHERHEAD AS REQUIRED. VERIFY 10'-0" CLEARANCE FROM ALL OUTDOOR AIR INTAKES. SEAL PENETRATION WEATHERTIGHT.
- 8) 30"x12" RETURN AIR DUCT TURNED UP TO 14" BELOW STRUCTURE.
-) LOCATION OF DUCT-MOUNTED SMOKE DETECTOR.
- MAINTAIN 10'-0" CLEARANCE FROM ALL OUTDOOR AIR INTAKES.



SUPPLY REGISTER DETAIL



	ROOFTOP UNIT SCHEDULE																	
			NOM.	EVAP.	EXT. STATIC P.		COOLING	5		HEATING (GAS) ELECTRICAL			MUMINIM	TOTAL	SEED			
MARK	MFGR	MODEL NO.	TONS	CFM	1	TOTAL BTUH	SENS. BTUH	AMB.	EVAP. EAT DB/WB	BTUH INPUT	BTUH OUTPUT	VOLT/Φ/HZ	BLOWER MOTOR	OUTDOOR AIR (CFM)	WEIGHT (LBS)	SEER /EER	FREON	REMARKS
RTU-I	LENNOX	KGA09254B	7.5	3,000	0.6	84,100	62,200	105	80/67	240,000	192,000	480/3/60	2	500	1,525	- /11.0	R-410a	-

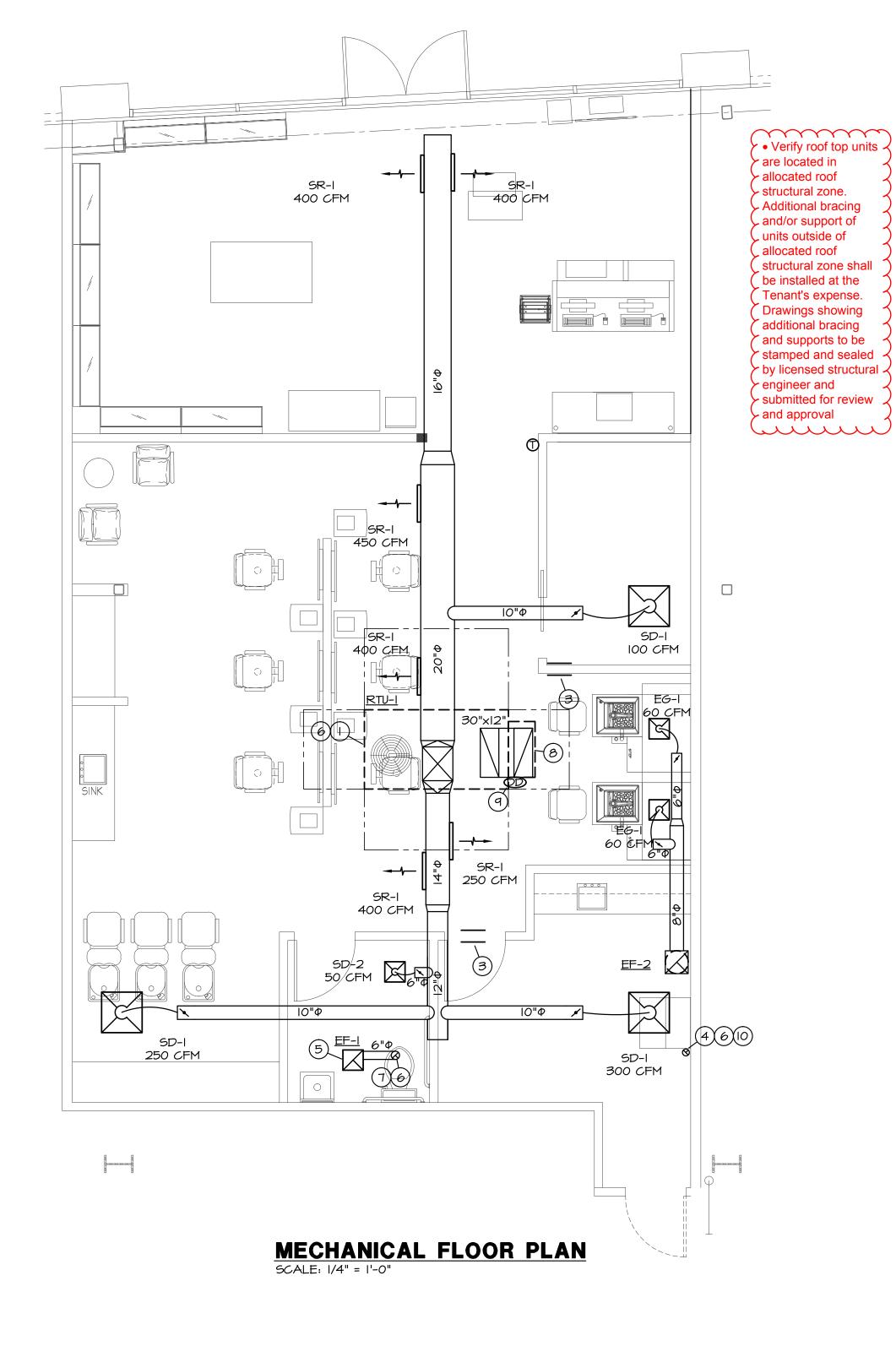
- NOTES: I. PROVIDE OUTDOOR AIR ECONOMIZER, TIME DELAY ON COMPRESSOR RE-START, CRANKCASE HEATER, BAROMETRIC RELIEF DAMPER, AND COMPRESSOR LOCK-OUT WITH AMBIENT BELOW 55 °F, AND FUSED DISCONNECT FOR EACH UNIT. OUTDOOR AIR DAMPER TO FULLY CLOSE W/ FAN SHUTDOWN FOR ALL UNITS.
 - 2. EXTERNAL STATIC PRESSURE LISTED REPRESENTS STATIC PRESSURE REQUIRED FOR DUCTWORK AND DIFFUSERS OUTSIDE THE HVAC UNIT COMPLETELY INDEPENDENT OF ANY PRESSURE DROP THROUGH THE HVAC EQUIPMENT INCLUDING BUT NOT LIMITED TO FILTERS, COILS AND ECONOMIZERS. THE FAN AND MOTOR SHALL BE SIZED APPROPRIATELY TO MEET THIS DEFINITION OF EXTERNAL STATIC PRESSURE.
 - 3. PROVIDE 7-DAY PROGRAMMABLE HEAT/COOL/AUTO CHANGEOVER THERMOSTATS FOR EACH UNIT.
 - 4. PROVIDE 18" HIGH (AT LOWEST POINT) PRE-FABRICATED INSULATED ROOF CURB WITH SLOPE TO MATCH SLOPE OF ROOF FOR EACH UNIT.

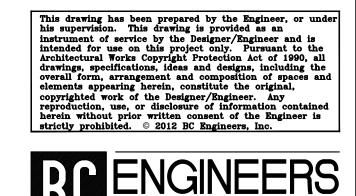
	EXHAUST FAN SCHEDULE														
MARK			CFM	EXTERNAL STATIC P. IN. MG.		ELECTRICAL									
	MFGR	MODEL			RPM [VOLT/Φ/HZ	PWR	FAN TYPE	REMARKS						
EF-I	COOK	GC-124	75	0.25	900	120/1/60	58 W	CEILING EXH.	-						
EF-2	COOK	70CI5DM	120	0.25	1670	120/1/60	1/20HP	ROOF EXH.	-						

- NOTES: I. PROVIDE CEILING GRILLE, INTEGRAL BACK DRAFT DAMPER, VARI-SPEED CONTROLLER (NEAR FAN AND ABOVE CEILING), NON-FUSED DISCONNECT, AND WEATHER HEAD FOR EF-I.
 - 2. FANS SHALL NOT EXCEED SCHEDULED RPM.
 - 3. PROVIDE INSULATED 18" HIGH (AT LOWEST POINT) PREFABRICATED ROOF CURB, BACKDRAFT DAMPER, BIRD SCREEN, UNIT MOUNTED VARIABLE SPEED CONTROLLER, AND NON-FUSED DISCONNECT FOR EF-2.

	Ol	JTDOOR	AIR CAL	CULATIO	NS	
UNIT	CLA55	SQ. FT.	PEOPLE/ SQ. FT.	CFM/ SQ. FT.	CFM/ PERSON	CFM
	OFFICE	123	7/1000		20	17
RTU-I	TREATMENT	205	20/1000		15	62
10-1	RETAIL	500		0.3		150
	BEAUTY	428	25/1000		25	268
					TOTAL	496

	DIFFUSER SCHEDULE													
MARK	MFE	R	MODEL	NECK SIZE	FACE SIZE	FINISH		REMARKS						
SD-I	TITL	15	PAS/3	ΙΟ"Φ	24"×24"	MHI	ΤE	ı						
SD-2			PAS/3	6"Ф	l2"xl2"			W/ TRM & O.B.D.						
SR-I			300RS	18"x6"	-			W O.B.D.						
EG-I			PAR/3	6"Ф	l2"xl2"			1						
TG-I	†		350RL	10"x6"	-	₩		1						





5720 Reeder Shawnee, Ks. 66203 (913)262-1772

SHEET

SHEET CONTENTS:

MECHANICAL PLANS

DATE: 1/22/13

REVISIONS

JOB #

B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATES OF COMPLIANCE OR APPROVAL AS REQUIRED BY THE AUTHORITIES.

C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH ALL APPLICABLE LAWS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.

D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK.

E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, PIPE, DUCT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED BEFORE FINAL

F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY WILL BE

G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECTS FOR A PERIOD OF ONE YEAR FROM FINAL ACCEPTANCE.

2. OPERATION AND MAINTENANCE MANUALS:

A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT.

B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION

C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE BOUND IN A 3-RING BINDER AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER,

3. MANUFACTURERS:

A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN, UNLESS NOTED OTHERWISE.

4. MOTORS:

A. PROVIDE THERMAL OVERLOAD PROTECTION FOR EACH MOTOR PROVIDED BY THIS WORK. 5. TESTING, BALANCING, AND CLEANING:

ALL PIPING SHALL BE TESTED FOR LEAKS BEFORE BEING CONCEALED IN WALL CONSTRUCTION OR COVERED WITH INSULATION.

B. SEWER AND VENT PIPING SHALL BE HYDROSTATICALLY TESTED WITH NO LESS THAN 10 FEET OF HEAD FOR A PERIOD OF NOT LESS THAN 15 MINUTES, PER THE LOCAL PLUMBING CODE, WITH NO LEAKS.

C. FIRE PROTECTION PIPING SHALL BE TESTED IN ACCORDANCE WITH THE REQUIREMENTS OF NFPA.

D. DOMESTIC WATER PIPING SHALL BE HYDROSTATICALLY TESTED AT A PRESSURE OF NOT LESS THAN I-I/2 TIMES THE OPERATING PRESSURE, BUT NOT LESS THAN 50 PSI, FOR A PERIOD OF NOT LESS THAN 2

E. NATURAL GAS PIPING SHALL BE PNEUMATICALLY TESTED AT A PRESSURE OF NOT LESS THAN I-I/2 TIMES THE OPERATING PRESSURE, BUT NOT LESS THAN 50 PSI, FOR A PERIOD OF NOT LESS THAN 2

F. DUCTWORK AND PIPING SHALL BE BALANCED BY QUALIFIED BALANCING PERSONNEL WHO HAVE PREVIOUS EXPERIENCE WITH BALANCING PROCEDURES.

G. BEFORE DOMESTIC WATER PIPING IS PLACED IN SERVICE, ALL DOMESTIC WATER DISTRIBUTION SYSTEMS, INCLUDING THOSE FOR COLD WATER AND HOT WATER SYSTEMS, SHALL BE FLUSHED, STERILIZED AND CHLORINATED IN ACCORDANCE WITH HEALTH DEPARTMENT REGULATIONS. THE SYSTEMS SHALL BE THOROUGHLY FLUSHED OF ALL DIRT AND FOREIGN MATTER, THEN FILLED WITH WATER TREATED WITH 50 PPM OF CHLORINE. DURING THE FILLING PROCESS, VALVES AND FAUCETS SHALL BE OPENED SEVERAL TIMES TO ASSURE TREATMENT OF THE ENTIRE SYSTEM. THE TREATED WATER SHALL BE LEFT N THE SYSTEM FOR 24 HOURS AFTER WHICH TIME THE SYSTEM SHALL BE FLUSHED; IF THE RESIDUAL CHLORINE IS NOT LESS THAN 10 PPM, THE FLUSHING SHALL BE REPEATED. AFTER STERILIZATION, SAMPLES OF WATER IN THE SYSTEM SHALL BE APPROVED BY THE BOARD OF HEALTH.

A. DOMESTIC COLD AND HOT WATER (ABOVEGROUND). I) TYPE L HARD DRAWN COPPER TUBING, ASTM B-88. 2) WROUGHT BRONZE SOLDERED FITTINGS.

a) GATE VALVE: CRANE # 428 OR EQUAL o) GLOBE VALVE: CRANE #7 OR EQUAL C) BALL VALVE: CRANE #932 OR EQUAL

B. DOMESTIC COLD, AND HOT WATER (UNDERGROUND).

I) TYPE K HARD OR SOFT DRAWN COPPER TUBING, ASTM B-88. WROUGHT BRONZE FLARED FITTINGS.

C. SANITARY SEWER, AND VENTS (UNDERGROUND, INTERIOR TO BUILDING). I) POLYVINYLCHLORIDE (PVC) DMV PIPE, SCHEDULE 40, SOLVENT JOINT (WHERE APPROVED BY LOCAL

) SERVICE WEIGHT, BELL-AND-SPIGOT, COATED CAST IRON, ASTM A-74.) DWV, WROUGHT COPPER, ANSI B-16.29. "NO-HUB" CAST IRON, NEOPRENE GASKETS, STAINLESS STEEL CLAMPS.

D. SANITARY SEWER, AND VENTS (ABOVEGROUND).

SERVICE WEIGHT, BELL-AND-SPIGOT, COATED CAST IRON, ASTM A-74.) DWV, WROUGHT COPPER, ANSI B-16.29.

3) GALVANIZED STEEL PIPE, WITH MALLEABLE IRON, THREADED FITTINGS, DRAINAGE PATTERN FOR

4) "NO-HUB" CAST IRON, NEOPRENE GASKETS, STAINLESS STEEL CLAMPS 5) POLYVINYLCHLORIDE (PVC) DWV PIPE, SCHEDULE 40, SOLVENT JOINT (WHERE APPROVED BY LOCAL CODES AND NOT IN AIR PLENUM).

E. CONDENSATE DRAINS & INDIRECT WASTE (ABOVEGROUND).

) DWV, WROUGHT COPPER, ANSI B-16.29. 2) POLYVINYLCHLORIDE (PVC) DWV PIPE, SCHEDULE 40, SOLVENT JOINT.

I) BLACK STEEL PIPE, SCHEDULE 40, ASTM A-120. a) PIPE 2" AND SMALLER; 150 LB. MALLEABLE IRON, THREADED FITTINGS.

b) PIPE 2-1/2" AND LARGER, WELDED. c) PLUG VALVE: ROCKWELL NORDSTROM FIGURE NO. 142 OR 143. G. ALL PIPE HANGERS AND SUPPORTS SHALL BE STANDARD PRODUCTS OF GRINNELL, FEE AND MASON, OR

ELCEN. HANGER SPACING SHALL BE IN ACCORDANCE WITH MSS-SP-69.

I) PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK. ALL SLEEVES SHALL BE OF SUFFICIENT SIZE TO PERMIT PIPE MOVEMENT DUE TO EXPANSION AND CONTRACTION AND TO ACCOMMODATE PIPE INSULATION.

2) INTERIOR PARTITIONS: 16 GAGE GALVANIZED STEEL, PACK BETWEEN PIPE AND SLEEVE WITH FIRE SAFING AND CAULK AT EACH END WITH FIRE RESISTANT SEALANT

3) ROOF: PROSET OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WATERPROOF SEAL. COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANT

4) PLUMBING VENTS: FLASH ROOF VENT INTO ROOFING SYSTEM AS REQUIRED BY THE ROOFING

CONTRACTOR TO MAINTAIN EXISTING ROOF WARRANTY. ALL PLUMBING VENT TERMINALS SHAL TERMINATE A MINIMUM OF 12" ABOVE ROOF OR EQUAL TO HEIGHT OF PARAPET, WHICHEVER IS GREATER.

I. PROVIDE CHROME PLATED ESCUTCHEONS ON ALL PIPE ENTERING FINISHED AREAS.

6. INSULATION AND DUCT LINING

ALL INSULATIONS AND ACCESSORIES SHALL HAVE A FIRE HAZARD CLASSIFICATION WITH A FLAME SPREAD RATING OF NOT OVER 25, A FUEL CONTRIBUTION RATING OF NOT OVER 50, AND A SMOKE DEVELOPED RATING OF NOT OVER 50, IN ACCORDANCE WITH NFPA.

B. PIPE INSULATION

I) THE PIPING INSULATION USED SHALL HAVE A THERMAL CONDUCTIVITY OF 0.27 Btv PER in/hr*sqft*F° OR LESS. 2) FIBERGLASS INSULATION WITH FACTORY APPLIED VAPOR BARRIER, ASJ JACKET, FACTORY APPLIED PRESSURE SEALING LONGITUDE LAP JOINT, NO STAPLES, ZESTON PREMOLDED PVC FIT

COVERS. INSTALLATION SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS. 3) FLEXIBLE CLOSED CELL ELASTOMERIC THERMAL INSULATION, UNSLIT OR PRESLIT WITH PRESSURE SENSITIVE ADHESIVE SYSTEM FOR CLOSURE AND VAPOR SEALING, EQUAL TO ARMSTRONG AP

4) FOR NON CIRCULATING SYSTEMS, THE FIRST 8 FEET OF INLET AND OUTLET PIPING BETWEEN THE TANK AND THE HEAT TRAP (INCLUDING THE HEAT TRAP) MUST BE INSULATED.

5) INSULATION SCHEDULE

b) DOMESTIC HOT WATER c) CONDENSATE DRAINS INSIDE BUILDING 1/2"

C. PIPE INSULATION - BELOW GRADE:

a) DOMESTIC COLD WATER

I) THE PIPING INSULATION USED SHALL HAVE A THERMAL CONDUCTIVITY OF 0.27 Btv PER in/hr*sqft*F° OR LESS. 2) FLEXIBLE CLOSED CELL ELASTOMERIC THERMAL INSULATION, UNSLIT OR PRESLIT WITH PRESSUR SENSITIVE ADHESIVE SYSTEM FOR CLOSURE AND VAPOR SEALING, EQUAL TO KFLEX INSUL-TUBE

OR EQUAL RATED FOR UNDERGROUND INSTALLATION ABOVE THE WATER TABLE. COVER PIPING WITH A CLEAN FILL SUCH AS SAND (3"-5" LAYER) TO PROTECT INSULATION FROM COMPACTION. 5) INSULATION SCHEDULE

a) DOMESTIC HOT WATER b) DOMESTIC COLD WATER

MECHANICAL SPECIFICATIONS (CONTINUED)

D. EQUIPMENT INSULATION:

RECOMMENDATIONS.

I) FLEXIBLE FIBERGLASS: GLASS FIBER INSULATION, ASTM C 553, TYPE I, CLASS B-4, SEMI-RIGID BOARD, WITH FACTORY LAMINATED KRAFT ALUMINUM FOIL (ALL SERVICE JACKET), VAPOR BARRIER, OWENS/CORNING PIPE AND TANK INSULATION.

E. DUCTWORK: ACOUSTICAL INSULATION. I) DUCT LINING: 2 LB/CF, THICKNESS AS SCHEDULED, AIR STREAM SIDE COATED, INSTALL PER

SMACNA STANDARDS. a) DUCT LINING SCHEDULE

(I) RECTANGULAR SUPPLY DUCT 1/2" : THROUGHOUT THE FIRST 10 FEET OF DUCT. (2) RETURN AIR DUCT 1/2" : THROUGHOUT THE FIRST 10 FEET OF DUCT.

FACING, THICKNESS AS SCHEDULED, INSTALLATION IN ACCORDANCE WITH MANUFACTURERS

F. DUCTWORK: THERMAL INSULATION I) DUCT COVERING: 3/4 LB/CF, FIBERGLASS BLANKET WITH FACTORY APPLIED VAPOR BARRIER AND

a) DUCT COVERING SCHEDULE: MINIMUM R-5 (I) ROUND SUPPLY DUCT (WHERE CONCEALED) 2"

7. PLUMBING:

A. PROVIDE AN APPROVED WATER HAMMER ARRESTOR FOR EACH PLUMBING FIXTURE SUPPLY AS REQUIRED BY FIXTURE MANUFACTURER.

B. ALL EXPOSED PIPE SHALL BE CHROME PLATED BRASS PIPE, NO FERROUS PIPE.

C. PROVIDE CLEANOUTS AT EACH CHANGE OF DIRECTION AND AT 100 FOOT INTERVALS IN STRAIGHT RUNS.

VINYL TILE FLOOR: JR SMITH #4140, OR EQUAL QUARRY TILE FLOOR: JR SMITH #4200, OR EQUAL

CARPETED FLOOR: JR SMITH #4020-Y, OR EQUAL 1) UNFINISHED FLOOR: JR SMITH #4020, OR EQUAL. 5) WALL: JR SMITH #4472, OR EQUAL, 24" ABOVE THE FLOOR.

D. PROVIDE ACCESS PANELS FOR ALL CONCEALED VALVES AND TRAPS.

F. PROVIDE DIFFECTRIC UNIONS WITH APPROPRIATE FND CONNECTIONS TO MATCH THE PIPE SYSTEM IN WHICH INSTALLED (SCREWED, SOLDERED, OR FLANGED). PROVIDE DIELECTRIC UNIONS ON ALL PIPING

CONNECTIONS TO HOT WATER HEATERS AND EXPANSION TANKS. G. ALL SEMER PIPING LOCATED INSIDE THE BUILDING SHALL BE INSTALLED WITH THE FOLLOWING SLOPES. I) INSTALL 2-1/2" AND SMALLER PIPE AT 1/4" PER FOOT FALL

2) INSTALL 3" AND LARGER PIPE AT 1/8" PER FOOT FALL.

A. ALL DUCTWORK, UNLESS OTHERWISE INDICATED, SHALL BE FABRICATED FROM GALVANIZED SHEET STEEL COMPLYING WITH ASTM A 527, LOCKFORMING QUALITY, WITH G 90 ZINC COATING IN ACCORDANCE WITH ASTM A 525; AND MILL PHOSPHATIZED FOR EXPOSED LOCATIONS.

B. WHERE DUCTWORK IS INDICATED TO BE EXPOSED TO VIEW IN OCCUPIED SPACES, PROVIDE MATERIALS WHICH ARE FREE FROM VISUAL IMPERFECTIONS INCLUDING PITTING, SEAM MARKS, ROLLER MARKS. STAINS AND DISCOLORATIONS, AND OTHER IMPERFECTIONS, INCLUDING THOSE WHICH WOULD IMPAIR

C. DUCTMORK, METAL GAUGES, REINFORCING, ETC. SHALL BE CONSTRUCTED IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS," LATEST EDITION FOR A 2 INCH WATER GAUGE STATIC PRESSURE.

I) RECTANGULAR DUCT

a) ELBOWS, UNLESS INDICATED OTHERWISE SHALL BE CONSTRUCTED WITH CENTERLINE RADIUS OF NOT LESS THAN 1.5 DUCT WIDTH OR SQUARE ELBOW WITH DOUBLE WALL STREAMLINE VANES. b) RETURN AIR ACOUSTICAL ELBOWS AND SOUND BOOTS SHALL BE A SQUARE ELBOW WITH NO TURNING VANES.

c) SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE MINIMUM I TO 3. 2) ROUND AND OVAL SPIRAL SEAM DUCT:

a) PROVIDE RADIUS TYPE FITTINGS FABRICATED OF MULTIPLE SECTIONS WITH MAXIMUM 15 DEGREE CHANGE OF DIRECTION PER SECTION. UNLESS SPECIFICALLY DETAILED OTHERWISE USE 45 DEGREE LATERALS FOR BRANCH TAKEOFF CONNECTIONS. WHERE 90 DEGREE BRANCHES ARE INDICATED PROVIDE CONICAL TYPE TEES.

c) AS AN OPTION, PROVIDE FACTORY-FABRICATED DUCT AND FITTINGS, IN LIEU OF SHOP-(I) ELBOWS: ONE PIECE CONSTRUCTION FOR 90 DEGREES AND 45 DEGREE ELBOW I4" AND

SMALLER. PROVIDE MULTIPLE GORE CONSTRUCTION FOR LARGER DIAMETERS WITH STANDING SEAM CIRCUMFERENTIAL JOINT. (2) DIVIDED FLOW FITTINGS: 90 DEGREE TEES, CONSTRUCTED WITH SADDLE TAP SPOT

b) SLOPES FOR TRANSITIONS OR OTHER CHANGES IN DIMENSIONS SHALL BE MINIMUM I TO 3.

d) ROUND LONGITUDINAL SEAM DUCT. USE FOR RIGID METAL DUCT ON LEAVING SIDE OF DUCT IN CONCEALED LOCATIONS FOR EXTENSION TO FLEX FOR DIFFUSERS, UNLESS OTHERWISE

D. SEAL ALL CONCEALED DUCTWORK JOINTS WITH NON-HARDENING, NON-MIGRATING MASTIC SEALANT, AS RECOMMENDED FOR SEALING SEAMS AND JOINTS IN DUCTWORK. OIL BASE CAULKING AND GLAZING COMPOUNDS SHALL NOT BE ACCEPTABLE.

E. DUCT SIZES SHOWN ON THE DRAWINGS ARE SHEETMETAL SIZES, ALLOWANCE FOR DUCT LINER HAS BEEN F. INSTALLATION OF METAL DUCTWORK;

I) GENERAL: ASSEMBLE AND INSTALL DUCTWORK IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES WHICH WILL ACHIEVE AIR-TIGHT SYSTEMS (MAXIMUM 5% LEAKAGE), WITH NO OBJECTIONABLE NOISE, AND CAPABLE OF PERFORMING INDICATED SERVICE. INSTALL EACH RUN WITH MINIMUM NUMBER OF JOINTS. ALIGN DUCTWORK ACCURATELY WITH INTERNAL SURFACES SMOOTH. SUPPORT DUCTS RIGIDLY WITH SUITABLE STRAPS, BRACES, HANGERS AND ANCHORS IN ACCORDANCE WITH SMACNA "HVAC DUCT CONSTRUCTION STANDARDS" LATEST EDITION. DUCT HANGERS SHALL BE OF THE TYPE WHICH WILL HOLD DUCTS TRUE-TO-SHAPE AND TO PREVENT BUCKLING. SUPPORT VERTICAL DUCTS AT EVERY FLOOR.

2) AUXILIARY STEEL: PROVIDE AUXILIARY STEEL AS REQUIRED TO ADEQUATELY SUPPORT DUCTWORK.

3) ROUTING: LOCATE DUCTWORK RUNS, EXCEPT AS OTHERWISE INDICATED, VERTICALLY AND HORIZONTALLY AND AVOID DIAGONAL RUNS WHEREVER POSSIBLE. LOCATE RUNS AS INDICATED BY DIAGRAMS, DETAILS AND NOTATIONS OR, IF NOT OTHERWISE INDICATED, RUN DUCTWORK IN SHORTEST ROUTE WHICH DOES NOT OBSTRUCT USABLE SPACE OR BLOCK ACCESS FOR SERVICING BUILDING AND ITS EQUIPMENT. HOLD DUCTS CLOSE TO WALLS, OVERHEAD CONSTRUCTION, COLUMNS, AND OTHER STRUCTURAL AND PERMANENT ENCLOSURE ELEMENTS OF BUILDING. WHEREVER POSSIBLE IN FINISHED AND OCCUPIED SPACES, CONCEAL DUCTWORK FROM VIEW, BY LOCATING IN MECHANICAL SHAFTS, HOLLOW WALL CONSTRUCTION OR ABOVE SUSPENDED CEILINGS. DO NOT ENCASE HORIZONTAL RUNS IN SOLID PARTITIONS, EXCEPT AS SPECIFICALLY SHOWN. COORDINATE LAYOUT WITH SUSPENDED CEILING AND LIGHTING LAYOUTS AND SIMILAR FINISHED WORK.

4) DO NOT ROUTE DUCTWORK THROUGH ELECTRICAL EQUIPMENT SPACES AND ENCLOSURES, UNLESS INDICATED OTHERWISE. 5) PENETRATIONS:

a) WHERE DUCTS PASS THROUGH INTERIOR PARTITIONS OR EXTERIOR WALLS, AND ARE EXPOSED TO VIEW, CONCEAL SPACE BETWEEN OPENING AND DUCT OR DUCT INSULATION WITH SHEET METAL FLANGES OF SAME GAGE AS DUCT. OVERLAP OPENING ON 4 SIDES BY AT LEAST I-

b) WHERE DUCTS PASS THROUGH FIRE-RATED FLOORS, WALLS, OR PARTITIONS, PROVIDE FIRESTOPPING BETWEEN DUCT AND WALL.

6) COORDINATION: COORDINATE DUCT INSTALLATIONS WITH INSTALLATION OF ACCESSORIES DAMPERS, COIL FRAMES, EQUIPMENT, CONTROLS, AND OTHER ASSOCIATED WORK OF THE DUCTWORK

7) INSTALLATION: INSTALL METAL DUCTWORK IN ACCORDANCE WITH SMACNA "HYAC DUCT CONSTRUCTION STANDARDS", LATEST EDITION.

G. EQUIPMENT CONNECTIONS: I) CONNECT METAL DUCTWORK TO EQUIPMENT AS INDICATED, PROVIDE FLEXIBLE CONNECTION FOR EACH DUCTWORK CONNECTION TO EQUIPMENT MOUNTED ON VIBRATION ISOLATORS, AND/OR EQUIPMENT CONTAINING ROTATING MACHINERY. PROVIDE ACCESS DOORS AS REQUIRED.

A. ATCO #086, OR EQUAL

9. FLEXIBLE DUCT:

B. FACTORY APPLIED INSULATION AND VAPOR BARRIER, I-I/2" THICK.

C. MAXIMUM LENGTH OF 6'-0".

IO. EXHAUST FANS:

A. CENTRIFUGAL CEILING EXHAUSTERS SHALL BE ELECTRICALLY POWERED CENTRIFUGAL TYPE FAN SUITABLE FOR MOUNTING IN THE CEILING WITH A PERFORATED OFF-WHITE METAL GRILLE WITH A THUMBSCREW ATTACHMENT FOR EASY ACCESS TO FAN HOUSING. UNIT SHALL CONSIST OF A GALVANIZED STEEL HOUSING LINED WITH ACOUSTICAL INSULATION AND SHALL INCLUDE AN INTEGRAL BACKDRAFT DAMPER ON FAN DISCHARGE. MOTOR SHALL BE A PERMANENT SPLIT-CAPACITOR TYPE MOTOR, PERMANENTLY LUBRICATED, WITH THERMAL OVERLOAD PROTECTION. PROVIDE DISCONNECT SWITCH OR OTHER MEANS OF DISCONNECT AT MOTOR IN FAN HOUSING.

MECHANICAL SPECIFICATIONS (CONTINUED)

II. ROOFTOP UNITS:

A. UNIT SHALL BE FACTORY-ASSEMBLED AND TESTED, DESIGNED FOR ROOF INSTALLATION, AND SHALL CONSIST OF COMPRESSOR(S), CONDENSERS, EVAPORATOR COILS, CONDENSER AND EVAPORATOR FANS, CONDENSER FANS TO BE SEQUENCED. REFRIGERATION CONTROLS, GAS FIRED HEAT EXCHANGER, FILTERS, AND DAMPERS. CAPACITIES AND ELECTRICAL CHARACTERISTICS SHALL BE AS SCHEDULED ON THE DRAWINGS.

B. COMPRESSOR(S): UNIT SHALL INCLUDE VIBRATION ISOLATORS AND CRANKCASE HEATER. REFRIGERANT CIRCUIT SHALL INCLUDE A FILTER DRYER, SIGHT GLASS, COMPRESSOR SERVICE VALVES, AND LIQUID

C. SAFETY CONTROLS SHALL INCLUDE:

a) LOW PRESSURE CUTOUT, MANUAL RESET. b) HIGH PRESSURE CUTOUT, MANUAL RESET. c) COMPRESSOR MOTOR OVERLOAD PROTECTION, MANUAL RESET d) ANTI-RECYCLING TIMING DEVICE. e) ADJUSTABLE LOW-AMBIENT LOCKOUT.

DIRECTED BY LOCAL AUTHORITY HAVING JURISDICTION.

D. REFRIGERANT COIL: ALUMINUM FINS BONDED TO SEAMLESS COPPER TUBE BY MEANS OF MECHANICAL EXPANSION. AN EQUALIZING TYPE VERTICAL DISTRIBUTOR SHALL ENSURE EACH COIL CIRCUIT RECEIVES THE SAME AMOUNT OF REFRIGERANT.

E. ECONOMIZER SHALL CONSIST OF RETURN AIR DAMPER, OUTDOOR AIR DAMPER, AND BAROMETRIC RELIEF DAMPER. PROVIDE POWERED EXHAUST FAN WITH MANUFACTURER'S STANDARD CONTROLS FOR UNITS

PRESSURE TO INDIVIDUAL ROOFTOP UNITS. G. ROOFTOP UNITS SHALL BE WIRED TO SHUTDOWN ON A SIGNAL FROM THE SMOKE DETECTORS AND SHALL AUTOMATICALLY RESET WHEN THE SMOKE DETECTORS ARE RESET.

F. GAS HEAT: INDIRECT FIRED, GAS HEAT EXCHANGER, AUTOMATIC SPARK IGNITION, MANUFACTURER'S

STANDARD GAS TRAIN WITH REGULATOR (IF REQUIRED), AGA APPROVED. VERIFY GAS SERVICE

A. UNITS MOUNTED IN THE DUCTWORK SHALL BE A DUCT MOUNTED UL LISTED PHOTO-ELECTRIC SELF-CONTAINED SMOKE DETECTOR WITH HOUSING, UNITS SHALL BE EQUAL TO SIMPLEX #4098-9687. THE SAMPLING TUBE SHALL BE #2098-9804, LENGTH AS REQUIRED FOR DUCT.

B. DUCT DETECTOR REMOTE TEST STATION SHALL BE SIMPLEX #4098-9842 WITH REMOTE ALARM INDICATOR, POWER-ON INDICATOR, TONE-ALERT, TONE-ALERT SILENCE SWITCH, AND TEST/RESET SWITCH. I) DEVICES SHALL BE MOUNTED IN APPROVED LOCATION AS INDICATED ON THE FLOOR PLANS OR AS

C. PROVIDE AND INSTALL A PHOTO-ELECTRIC SMOKE DETECTOR IN THE RETURN AIR DUCT FOR EACH HVAC UNIT AS INDICATED ON THE FLOOR PLANS. DETECTORS ARE TO BE PROVIDED WITH A SUB-BASE CONTAINING AUXILIARY RELAY CONTACTS. RELAY CONTACTS SHALL BE WIRED INTO UNIT CONTROL WIRING, SO AS TO SHUT UNIT DOWN IN THE CASE OF SMOKE DETECTION. PROVIDE ALL CONTROL WIRING. ELECTRICAL CONTRACTOR SHALL PROVIDE 120 VOLT POWER TO EACH DETECTOR

D. SMOKE DETECTORS SHALL BE INTERLOCKED. IN ALARM CONDITION OF A SINGLE DETECTOR ALL UNITS SHALL SHUT DOWN.

A. ELECTRICAL WIRING AND WIRING CONNECTIONS REQUIRED FOR THE INSTALLATION OF THE TEMPERATURE CONTROL SYSTEM, SHALL BE PROVIDED BY THIS CONTRACTOR, UNLESS SPECIFICALLY SHOWN ON THE ELECTRICAL DRAWINGS OR SPECIFICATIONS.

B. INSTALL CONTROL WIRING, WITHOUT SPLICES BETWEEN TERMINAL POINTS, COLOR CODED. INSTALL IN

NEAT MORKMANLIKE MANNER, SECURELY FASTENED. INSTALL IN ACCORDANCE WITH NATIONAL ELECTRICAL CODE AND THE ELECTRICAL SPECIFICATIONS. I) INSTALL CIRCUITS OVER 25 VOLT WITH COLOR CODED NUMBER 12 WIRE

2) INSTALL CIRCUITS UNDER 25 VOLT WITH COLOR CODED NUMBER 18 WIRE WITH 0.031 INCH HIGH TEMPERATURE 105 DEGREES F PLASTIC INSULATION ON EACH CONDUCTOR AND PLASTIC SHEATH OVER

3) INSTALL ELECTRONIC CIRCUITS WITH COLOR CODED NUMBER 22 WIRE WITH 0.023 INCH POLYETHYLENE INSULATION ON EACH CONDUCTOR WITH PLASTIC JACKETED COPPER SHIELD OVER

4) INSTALL LOW VOLTAGE CIRCUITS, LOCATED IN CONCRETE SLABS AND MASONRY WALLS, OR EXPOSED IN OCCUPIED AREAS, IN ELECTRIC CONDUIT. 5) ALL WIRING IN AREAS USED AS AIR PLENUMS SHALL BE IN ELECTRIC CONDUIT EXCEPT THAT LOW VOLTAGE WIRING MAY BE TEFLON COATED, ALUMINUM SHEATHED CABLE OR OTHER WIRE

6) ALL WIRING IN AREAS NOT USED FOR AIR MOVEMENT SHALL BE IN ELECTRIC METALLIC TUBING EXCEPT LOW VOLTAGE WIRING MAY BE IN APPROVED SIGNAL CABLE WHERE ACCEPTED BY LOCAL

SPECIFICALLY APPROVED FOR INSTALLATION IN AIR PLENUMS, WHERE ACCEPTABLE BY LOCAL

ELECTRICAL SPECIFICATIONS

I. GENERAL PROVISIONS:

13. CONTROL WIRING

A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, NECESSARY FOR THE COMPLETE INSTALLATION OF THE ELECTRICAL SYSTEMS OUTLINED.

B. OBTAIN ALL PERMITS, FEES, LICENSES, INSPECTIONS, AND CERTIFICATES OF COMPLIANCE OR APPROVAL AS REQUIRED BY THE AUTHORITIES.

C. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE LATEST APPROVED EDITION OF THE NATIONAL ELECTRIC CODE (NEC), AND ALL APPLICABLE LANS, CODES AND REGULATIONS OF THE GOVERNMENTAL BODIES HAVING JURISDICTION OVER THE SITE.

D. ALL TESTING REQUIRED BY AUTHORITIES SHALL BE CONSIDERED PART OF THIS WORK. E. DURING CONSTRUCTION, ALL FIXTURES, EQUIPMENT, CONDUIT, ETC. SHALL BE COVERED, PLUGGED, OR CAPPED AS REQUIRED TO KEEP CLEAN AND UNDAMAGED. ALL DAMAGED ITEMS SHALL BE RESTORED TO

F. PROVIDE ALL NECESSARY CUTTING AND PATCHING OF WALLS, FLOORS, CEILINGS, AND ROOFS AS NECESSARY. PATCH AROUND ALL OPENINGS SHALL MATCH ADJACENT AREA. COORDINATE ALL ROOFING WORK WITH OWNER OR RESPONSIBLE PARTY, SO THAT THE EXISTING ROOFING WARRANTY

ORIGINAL CONDITION OR REPLACED. ALL PROTECTIVE COVERING SHALL BE REMOVED BEFORE FINAL

G. CONTRACTOR SHALL GUARANTEE ALL WORK AND MATERIALS AGAINST DEFECTS FOR A PERIOD OF

ONE YEAR FROM FINAL ACCEPTANCE.

2. OPERATION AND MAINTENANCE MANUALS: A. DURING THE COURSE OF CONSTRUCTION, COLLECT AND COMPILE OPERATING INSTRUCTIONS, WIRING DIAGRAMS, CATALOG CUTS, LUBRICATION AND PREVENTIVE MAINTENANCE INSTRUCTIONS, PARTS LISTS, ETC. FOR ALL EQUIPMENT FURNISHED UNDER THIS CONTRACT

B. ALL LITERATURE AND INSTRUCTIONS SHIPPED WITH THE EQUIPMENT SHALL BE SAVED FOR INCLUSION IN THE OPERATION AND MAINTENANCE MANUALS.

C. ALL LITERATURE LISTED ABOVE AND ALL PAPERS LISTING WARRANTIES, ETC. SHALL BE BOUND IN A 3-RING BINDER AND LABELED WITH THE PROJECT NAME, ADDRESS, ARCHITECT, ENGINEER,

A. MANUFACTURERS, MODEL NUMBERS, ETC. INDICATED OR SCHEDULED ON THE DRAWINGS SHALL BE

INTERPRETED AS HAVING ESTABLISHED A STANDARD OF QUALITY AND SHALL NOT BE CONSTRUED AS LIMITING COMPETITION. ARTICLES, FIXTURES, ETC. OF EQUAL QUALITY BY MANUFACTURERS SHALL BE ACCEPTABLE, SUBJECT TO STRUCTURAL AND ELECTRICAL CONSTRAINTS OF THE PROJECT DESIGN,

3. MANUFACTURERS:

UNLESS NOTED OTHERWISE. 4. TESTING, AND BALANCING:

A. ALL CIRCUITS SHALL BE TESTED FOR CONTINUITY, SHORTS, AND GROUNDS BEFORE CONNECTING TO THE PROPER PHASE AS DESIGNED TO BALANCE THE LOADING BETWEEN PHASES. B. POWER AND LIGHTING PANELS SHALL BE PROPERLY PHASED TO DISTRIBUTE THE LOAD AND SHALL BE

C. ALL MOTORS AND SIMILAR EQUIPMENT SHALL BE CHECKED FOR PROPER PHASE ROTATION AND OPERATION.

A. CONDUIT INSIDE THE BUILDING SHALL BE METALLIC TUBING (EMT), BEARING THE UL LABEL, WITH COMPRESSION TYPE FITTINGS OR SCREW SET FITTINGS

B. CONDUIT EXPOSED TO THE WEATHER, INSTALLED UNDERGROUND, IN CONCRETE, OR USED FOR SERVICE

ENTRANCE SHALL BE STANDARD RIGID CONDUIT (GALVANIZED) WITH THREADED FITTINGS. C. UNDERGROUND CONDUIT MAY BE POLYVINYL CHLORIDE WITH A DEFLECTION TEMPERATURE, UNDER LOAD AT 264 PSI, OF 78 DEGREES C, AND A TENSILE STRENGTH OF 5,200 PSI. JOINTS SHALL BE FLUSH SOLVENT WELDED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS. CONDUIT SHALL BE EQUAL TO CARLON POWER AND COMMUNICATIONS DUCT TYPE DB (DIRECT BURIAL), CONDUIT AND FITTINGS SHALL BE PRODUCED BY THE SAME MANUFACTURER.

D. FLEXIBLE METAL CONDUIT SHALL ONLY BE USED FOR CONNECTIONS TO MOTORS, TRANSFORMERS, AND LIGHT FIXTURES. MAXIMUM LENGTH SHALL BE 6'-0".

CONNECTED AND ADJUSTED TO OPERATE AS SPECIFIED.

LOCATIONS), STRANDED, UNLESS OTHERWISE INDICATED.

A. MIRES SHALL BE CONTINUOUS MITHOUT SPLICES OR TAPS IN CONDUIT RUNS. ALL SPLICES SHALL BE MADE IN JUNCTION, PULL, OR OUTLET BOXES. ALL WIRE SHALL BE INSTALLED IN CONDUIT, WIREWAYS, OR OTHER PROTECTIVE COVER SANCTIONED BY CODES.

B. CONDUCTORS FOR LIGHTING AND POWER SHALL BE COPPER, MINIMUM NO. 12 A.M.G., 600 VOLT. C. NO. 10 GAUGE AND SMALLER CONDUCTORS SHALL BE TYPE THWN (WET LOCATIONS) OR THHN (DRY LOCATIONS), SOLID CONDUCTOR, UNLESS OTHERWISE INDICATED.

D. NO. 8 GAUGE AND LARGER CONDUCTORS SHALL BE TYPE THAN (WET LOCATIONS) OR THHN (DRY

E. SERVICE ENTRANCE AND PANEL FEEDER CONDUCTORS, NO. 3 GAUGE AND LARGER SHALL BE TYPE XHHM-2 (WET LOCATIONS) OR THHN (DRY LOCATIONS), STRANDED COPPER, UNLESS OTHERWISE INDICATED.

ELECTRICAL SPECIFICATIONS (CONTINUED)

7. MC CABLE

A. MC CABLE SHALL CONSIST OF INTERLOCK ARMORED CABLE MADE OF THREE OR FOUR TYPE THIN SOLID (#8) ANG AND LARGER MAY BE STRANDED) COPPER CONDUCTORS INSULATED WITH HEAT AND MOISTURE RESISTANT POLYVINYL CHLORIDE (PVC), WITH NYLON OR EQUIVALENT UL LISTED JACKET, PER UL STANDARD 83. THE THREE CONDUCTORS SHALL BE TWISTED TOGETHER WITH THE COPPER GROUNDING CONDUCTOR, SUITABLE FILLERS, AND WRAPPED IN BINDER TAPE. THE ASSEMBLY SHALL BE ARMORED WITH SPIRALLY WRAPPED INTERLOCKED ARMOR OR ALUMINUM OR GALVANIZED STEEL.

B. CABLES SHALL BE TESTED IN ACCORDANCE WITH UL STANDARD 1569 FOR TYPE MC CABLE AND RATED AT 600 VOLTS, 90 DEG. C FOR DRY LOCATIONS AND 75 DEG. C FOR WET LOCATIONS.

SINGLE POLE: HUBBELL #CSI22I-X, OR EQUAL 2) THREE WAY: HUBBELL #CSI223-X, OR EQUAL B. RECEPTACLES SHALL BE SPECIFICATION GRADE, DUPLEX, GROUNDING, THREE-WIRE TYPE, RATED

A. WALL SWITCHES SHALL BE SPECIFICATION GRADE, QUIET TYPE, FLUSH TOGGLE SWITCH, RATED

FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES. HUBBELL #CR5352-X, OR EQUAL. C. GROUND FAULT INTERRUPTER RECEPTACLES (GFI) SHALL BE HUBBELL #GF20-XL. DEVICE COVER PLATES SHALL BE AS HEREINBEFORE SPECIFIED.

D. RECEPTACLES OUTSIDE BUILDING AND WHERE NOTED AS WEATHERPROOF, SHALL BE LISTED 'WEATHER-RESISTANT' HUBBEL #GFTR20-X OR EQUAL AND SHALL BE INSTALLED IN A WEATHERPROOF ENCLOSURE WHICH SHALL BE INTERMATIC #WPIOIOMC OR #WPIOIOHMC DIECAST METAL WEATHERPROOF RECEPTACLE COVER. COVER SHALL BE WEATHER PROOF RATED WHILE IN USE.

E. VERIFY DEVICES AND DEVICE COVERPLATES COLOR WITH TENANT.

FOR 20 AMPS, WITH THERMOPLASTIC COVER PLATES.

9. BOXES

A. HOT DIPPED GALVANIZED STEEL BOXES. PROVIDE TYPE TO SUIT CONDITIONS FOR INSTALLATION.

INDICATED. TRANSFORMERS SHALL BE EQUAL TO GENERAL ELECTRIC TYPE QL.

B. ALL BOXES SHALL BE FLUSH MOUNTED, UNLESS INDICATED OTHERWISE. 10. DRY TYPE TRANSFORMERS:

A. DRY TYPE TRANSFORMERS SHALL BE ENCLOSED IN DRIPPROOF METALLIC ENCLOSURES DESIGNED TO PROVIDE FOR AIR COOLING AND PREVENT ACCIDENTAL CONTACT WITH LIVE CONDUCTORS, MATERIALS AND FINAL PERFORMANCE SHALL COMPLY WITH APPLICABLE IEEE, ANSI AND NEMA STANDARDS. TRANSFORMERS SHALL BE FULLY RATED TWO WINDING UNITS CAPABLE OF CARRYING THE LOADS

B. TRANSFORMERS SHALL BE CAPABLE OF OPERATING AT 100% NAMEPLATE KVA RATING CONTINUOUSLY WHILE IN A 40°C. AMBIENT WITHOUT EXCEEDING THE RATED AVERAGE WINDING TEMPERATURE RISE OF THE ANSI INSULATION USED. INSULATION SHALL BE CLASS L85C FOR TRANSFORMERS 5 KVA TO 25 KVA AND CLASS 220C FOR TRANSFORMERS 30 KVA TO 500 KVA. TRANSFORMERS SHALL BE UL APPROVED. TRANSFORMERS SHALL HAVE OVER-LOAD CAPACITY TO COMPLY WITH ANSI C57.960L WITH NORMAL LIFE MAINTAINED. SOUND RATINGS SHALL NOT EXCEED MAXIMUM VALUES FOR KVA RATINGS AS MEASURED PER

TRANSFORMERS 30 KVA AND LARGER SHALL BE EQUIPPED WITH TWO 2-1/2% FULL CAPACITY TAPS ABOVE AND FOUR 2-1/2% TAPS BELOW NORMAL RATED VOLTAGE. IN ADDITION, TRANSFORMERS OF THESE RATINGS SHALL BE PROVIDED WITH CLAMP-TYPE SOLDERLESS CONNECTORS SUITABLE FOR USE WITH COPPER OR ALUMINUM CABLES. THE CONNECTORS SHALL BE MOUNTED ON A TERMINAL BOARD WITH HIGH-VOLTAGE AND LOW-VOLTAGE TERMINALS HELD IN A FIXED POSITION AND CLEARLY MARKED. TRANSFORMER LUGS SHALL BE RATED AT 75°C. TRANSFORMERS 30 KVA AND LARGER SHALL BE PROVIDED WITH NEOPRENE RUBBER ISOLATION PADS MOUNTED BETWEEN THE CORE AND COIL ASSEMBLY AND ENCLOSURE TO ISOLATE SOUND

D. ALL TRANSFORMERS SHALL BE ENERGY EFFICIENT "TPI" COMPLIANT.

II. PANELBOARDS:

FURNISH AND INSTALL CIRCUIT BREAKER PANELBOARDS AS SHOWN ON THE DRAWINGS. PANELBOARDS SHALL BE LISTED BY UL AND SO LABELED, AND SHALL BE FULLY RATED FOR THE VOLTAGE AND CURRENT CAPACITY INDICATED ON THE PANEL SCHEDULE. PANELBOARDS SHALL BE EQUAL TO GENERAL ELECTRIC TYPE AQ OR AE WITH BOLT IN TYPE BREAKERS. PANELBOARD LUGS SHALL BE RATED AT 15°C.

I) CIRCUIT BREAKER INTERRUPTING CAPACITIES SHALL MEET OR EXCEED THE AVAILABLE RMS SYMMETRICAL FAULT CURRENTS INDICATED AND AS REQUIRED TO MEET OR EXCEED THE AVAILABLE FAULT CURRENT FROM LOCAL UTILITY.

B. CIRCUIT BREAKERS SHALL MEET APPLICABLE PORTIONS OF UL STANDARD 469 AND NEMA AB-L. CIRCUIT BREAKERS SHALL BE BOLT-ON, GROUP MOUNTED, AMBIENT MAGNETIC, WITH COMMON TRIP, UL RATED TO CARRY 80% OF NAMEPLATE RATING CONTINUOUSLY IN FREE AIR AT 40° C. CIRCUIT BREAKERS SHALL BE TRIP INDICATING AND FULLY INTERCHANGEABLE WITHOUT DISTURBING AD IACENT UNITS. WIRE TERMINALS SHALL BE RATED 75 DEGREES C. THE OPERATING MECHANISM SHALL BE TRIP-FREE SO THAT CONTACTS CANNOT BE HELD CLOSED AGAINST ANY ABNORMAL OVERCURRENT OR SHORT CIRCUIT

PANELBOARD BOXES SHALL BE GALVANIZED SHEET STEEL WITH AMPLE WIRING GUTTER SPACE IN ACCORDANCE WITH NEC. FRONTS SHALL BE OF SHEET STEEL PAINTED LIGHT GREY OVER A SUITABLE RUST INHIBITOR PRIMER. PANELBOARDS SHALL BE EQUIPPED WITH ONE PIECE DOOR, CYLINDER TUMBLER TYPE LOCK, DIRECTORY CARD-HOLDER AND QUARTER-TURN ADJUSTABLE TRIM CLAMPS. D. PANELBOARD INTERIORS SHALL CONSIST OF REINFORCED GALVANIZED SHEET STEEL FRAMES WITH COPPER

BUS BARS AND CIRCUIT BREAKERS, PROPERLY SUPPORTED TO PREVENT VIBRATIONS AND BREAKAGE I

HANDLING. BUS BARS SHALL BE SEQUENCE PHASED. PANELBOARD SHALL HAVE A FULL SIZED SOLID COPPER NEUTRAL AND GROUND BUS. E. BUS BAR BRACING SHALL BE UL LISTED AS INDICATED ON DRAWINGS. ADDITIONAL

a) BREAKERS SHALL MEET APPLICABLE NEMA AND/OR UL SPECIFICATIONS.

NUMBER LABELS AS HEREINBEFORE SPECIFIED.

BRACING SHALL BE PROVIDED AS REQUIRED TO MEET OR EXCEED INDICATED AVAILABLE FAULT F. DIRECTORY CARDS SHALL BE COMPLETELY FILLED IN BY TYPEWRITER, LISTING CIRCUIT NUMBERS AND LOAD SERVED, INCLUDING EXISTING CIRCUITS. CIRCUIT BREAKERS SHALL BE IDENTIFIED BY CIRCUIT

A. DISCONNECTS SHALL BE EXTERNALLY OPERATED, QUICK-MAKE, QUICK-BREAK, SAFETY, WITH PROVISIONS FOR PAD LOCKING. FUSED AND NON-FUSED DISCONNECT SWITCHES SHALL BE PROVIDED AS INDICATED. B. INDOOR SMITCHES SHALL BE NEMA I AND OUTDOOR SMITCHES SHALL BE NEMA 3R, UNLESS INDICATED

A. FUSES PROTECTING CIRCUIT BREAKER PANELS SHALL BE CURRENT LIMITING U.L. CLASS RK-I FUSES WITH 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE SILVER FOR

RATINGS ABOVE 60 AMPERES. B. ALL OTHER FUSES SHALL BE U.L. CLASS RK-5, DUAL-ELEMENT WITH A MINIMUM TIME-DELAY OF 10 SECONDS AT 500% RATING. FUSES SHALL HAVE CURRENT-LIMITING SHORT-CIRCUIT LINKS AND 200,000 AMPERES RMS SYM INTERRUPTING CAPACITY. FUSING ELEMENTS SHALL BE COPPER.

A. WHERE LIGHT FIXTURES ARE MOUNTED IN A LAY-IN CEILING, PROVIDE A MINIMUM OF 2 SUPPORT WIRES ATTACHED DIRECTLY BETWEEN EACH LIGHT FIXTURE AND THE BUILDING STRUCTURE. SUPPORT WIRES SHALL BE A MINIMUM OF 12 GAUGE GALVANIZED STEEL WIRE, SOFT ANNEALED.

B. FIXTURES ARE REQUIRED AT ALL LIGHTING OUTLETS SHOWN ON THE DRAWINGS. APPROVED LIGHTING

FIXTURE WIRE IS REQUIRED IN ALL FIXTURES AND FIXTURE RACEWAYS. WEATHERPROOF WIRING IS

REQUIRED FOR EXTERIOR FIXTURES. ALL PARTS OF FIXTURES AND WIRING SHALL BE IN ACCORDANCE C. ALL FIXTURES SHALL CARRY UL AND ETL LABELS. ALL FLUORESCENT FIXTURE BALLASTS SHALL BE HIGH FREQUENCY ELECTRONIC BALLASTS WITH A "TOTAL HARMONIC DISTORTION" OF LESS THAN 20%, REGARDLESS OF THE NUMBER OF LAMPS CONNECTED TO EACH BALLAST AND SHALL HAVE CBM LABFI ALL FLUORESCENT FIXTURES INSTALLED SHALL INCORPORATE BALLAST PROTECTION. ALL FLUORESCENT BALLASTS SHALL HAVE AN AUDIBLE NOISE RATING OF "CLASS A" OR BETTER. ALL FLUORESCENT

D. ALL FLUORESCENT LAMPS SHALL BE 3500 K COLOR TEMPERATURE WITH A MINIMUM COLOR RENDERING INDEX (CRI) OF 82 OR AS INDICATED ON LIGHT FIXTURE SCHEDULE (OR AS INDICATED ON SCHEDULE).

BALLASTS SHALL HAVE A STANDARD BALLAST FACTOR UNLESS SPECIFIED OTHERWISE

A. PROVIDE, SET, AND PROPERLY LOCATE PIPE SLEEVES AS REQUIRED FOR THIS WORK.

B. INTERIOR PARTITIONS: 16 GAGE GALVANIZED STEEL, PACK BETWEEN CONDUIT AND SLEEVE WITH FIRE C. ROOF: PROSET OR EQUAL, MANUFACTURED PVC SCHEDULE 40 PIPE SLEEVE WITH WEATHERPROOF SEAL. COORDINATE WITH ROOFING CONTRACTOR AND FLASH AS REQUIRED TO MAINTAIN ROOF WARRANTY.

A. GROUND ALL ELECTRICAL APPARATUS IN ACCORDANCE WITH THE NATIONAL ELECTRIC CODE (NEC) 250, AND ANY LOCAL REQUIREMENTS. INSURE CONTINUOUS BOND WHERE FLEXIBLE CONDUIT IS USED. PROVIDE BONDING JUMPER INSIDE ALL FLEXIBLE CONDUIT

B. BOND METAL PIPING SYSTEMS IN COMPLIANCE WITH NEC 250.4(A)(4). This drawing has been prepared by the Engineer, or under his supervision. This drawing is provided as an instrument of service by the Designer/Engineer and is intended for use on this project only. Pursuant to the Architectural Works Copyright Protection Act of 1990, all drawings, specifications, ideas and designs, including the overall form, arrangement and composition of spaces and elements appearing herein, constitute the original, copyrighted work of the Designer/Engineer. Any reproduction, use, or disclosure of information contained herein without prior written consent of the Engineer is strictly prohibited. © 2012 BC Engineers, Inc.



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SHEET CONTENTS: MEP SPECIFICATIONS

	ELECTRICAL SYMBOLS LIST
CIRCUITING	S & NOTES
+48"	SPECIAL MOUNTING HEIGHT FOR ASSOCIATED DEVICE (CENTERLINE OF DEVICE)
GFI	GROUND FAULT CIRCUIT INTERRUPTER DEVICE
MP	WEATHERPROOF ENCLOSURE ON DEVICE
X	ELECTRICAL FLOOR PLAN NOTE WITH DESIGNATION
LP	CONDUIT CONCEALED WHERE POSSIBLE OR AS NOTED, ARROWS INDICATE HOME RUN TO PANEL. CIRCUIT NUMBERS INDICATED
+	#12 WIRE IN CONDUIT, UNLESS NOTED OTHERWISE ON DRAWINGS OR SPECIFICATION
~	GROUNDING CONDUCTOR, #12 WIRE UNLESS NOTED OTHERWISE ON DRAWINGS OR SPECIFICATION
<u>LIGHTING</u>	
4	EMERGENCY TWIN HEAD LIGHT FIXTURE
181	EXIT LIGHT WITH DIRECTIONAL ARROWS INDICATED
A •	FLUORESCENT FIXTURE WITH TYPE DESIGNATION
A NL	NIGHT LIGHT, CONNECT TO UNSWITCHED CIRCUIT
ΑX	CEILING OR RECESSED FIXTURE WITH TYPE DESIGNATION
^ О -1	WALL MOUNTED FIXTURE WITH TYPE DESIGNATION
POWER DE	<u>EVICES</u>
ф	DUPLEX RECEPTACLE, BOTTOM OF BOX AT 16" AFF, UNLESS NOTED OTHERWISE
	PANEL BOARD, TOP OF BOX 6'-O" AFF
Q	JUNCTION BOX
ㅁ	NON-FUSED DISCONNECT SWITCH
ď	FUSED DISCONNECT SWITCH
⊙	MOTOR WITH DESIGNATION
CONTROLS	2
5	SINGLE POLE WALL SWITCH, TOP OF BOX AT 48" AFF
5₃	THREE-WAY WALL SWITCH, TOP OF BOX AT 48" AFF
Sm	MANUAL MOTOR STARTER WITH OVERLOADS
S _P (x)	DIMMER SWITCH, (MULTIPLY X BY 100 TO DETERMINE THE SIZE OF DIMMER). DO NOT GANG DIMMERS. DIMMERS TO BE LUTRON "NOVA" SERIES, TOP OF BOX AT 48" AFF
	RM - FIRE ALARM SYSTEM IS EXISTING. RPOVIDE ADDITIONAL E DEVICES AND CONNECT TO EXISTING SYSTEM COMPLETE
HA	FIRE ALARM HORN/STROBE COMBINATION SIGNAL, CENTERLINE AT 6'-8" AFF
FV	FIRE ALARM VISUAL STROBE, CENTERLINE AT 6'-8" AFF
MF	TENANT ZONE WATER FLOW SWITCH (VERIFY EXISTING, PROVIDE IF NECESSARY)
হা	TAMPER SWITCH (VERIFY EXISTING, PROVIDE IF NECESSARY)
0	DUCT MOUNT SMOKE DETECTOR
COMMUNIC	ATIONS
▼	DATA/TELEPHONE OUTLET WITH 3/4" CONDUIT STUBBED UP TO ABOVE ACCESSIBLE CEILING, BOTTOM OF BOX AT 16", UNLESS

GENERAL NOTES:

I. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.

NOTED OTHERWISE. PROVIDE WITH PULL STRING

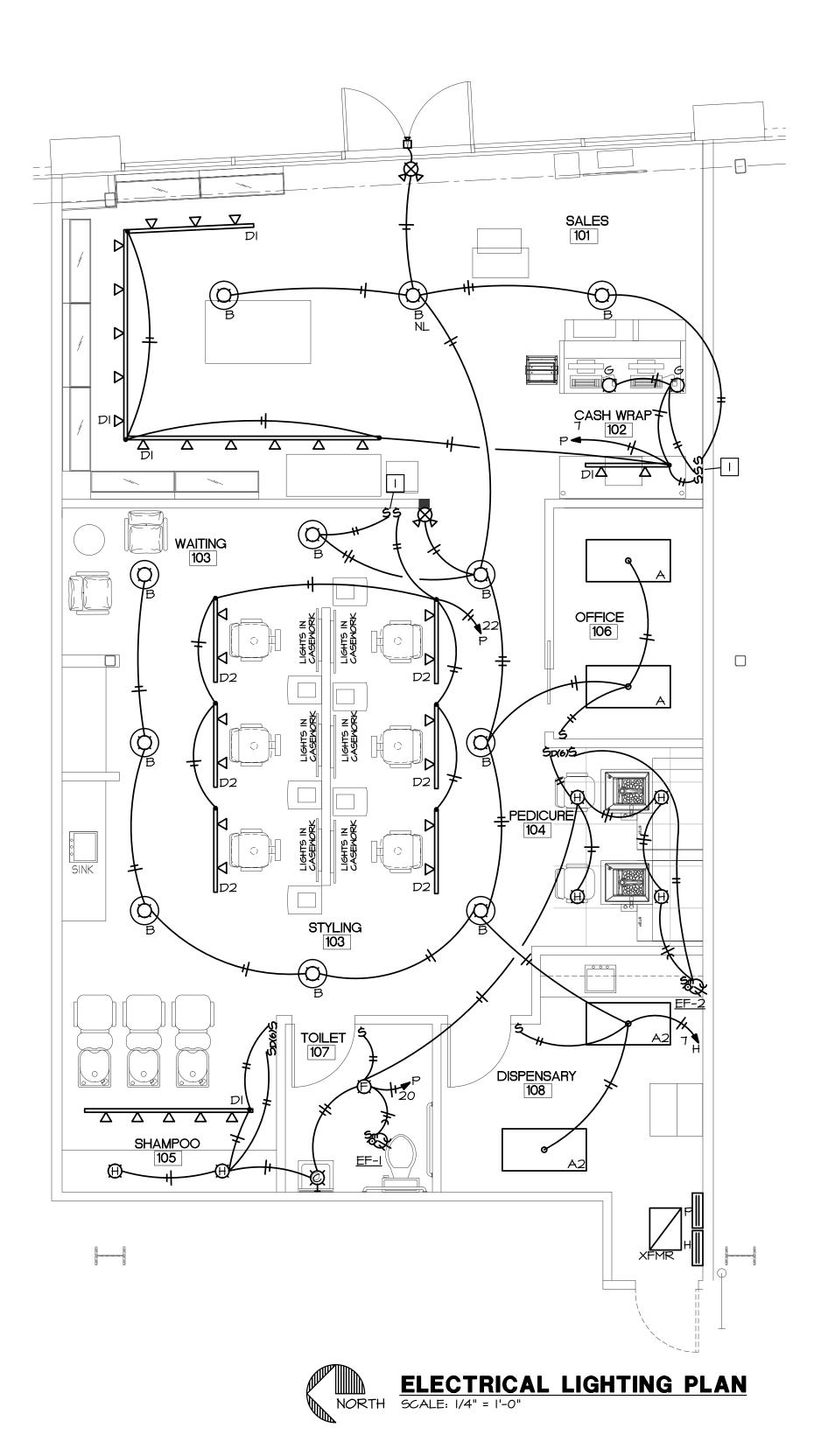
ABOVE ACCESSIBLE CEILING, BOTTOM OF BOX AT 16", UNLESS

- 2. IT IS THE ELECTRICAL CONTRACTORS RESPONSIBILITY TO PROPERLY BALANCE ALL BRANCH CIRCUITS BETWEEN THE PHASES OF THE SYSTEM REGARDLESS OF CIRCUITING INDICATED.
- 3. DISCONNECTS FOR ROOFTOP UNITS TO BE PROVIDED BY MECHANICAL CONTRACTOR, INSTALLED BY ELECTRICAL CONTRACTOR. ALL OTHER DISCONNECTS SHALL BE FURNISHED AND INSTALLED BY ELECTRICAL CONTRACTOR.
- 4. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION OF LIGHT FIXTURES AND DEVICES.
- 5. REFER TO ELECTRICAL SPECIFICATIONS ELSEWHERE IN THESE DRAWINGS FOR FURTHER INFORMATION AND REQUIREMENTS. GENERAL CONDITIONS AND SUMMARY OF WORK ALSO DIRECTLY APPLY TO THIS WORK.
- 6. REFER TO ARCHITECTURAL & STRUCTURAL DRAWINGS FOR REQUIREMENTS FOR SUPPORTING TRANSFORMERS, EQUIPMENT, ETC. FROM THE STRUCTURE. PROVIDE ADDITIONAL STEEL AS REQUIRED TO PROPERLY SUPPORT SYSTEMS FROM THE STRUCTURE.
- 7. AT REAR OF TENANT SPACE IS EXISTING I" TELEPHONE SERVICE CONDUIT, I" CABLE TV CONDUIT, I" FIRE ALARM CONDUIT, 2" ELECTRICAL SERVICE CONDUIT, AND WATER FLOW AND TAMPER SWITCH FOR TENANT FIRE SPRINKLER SYSTEM. FIELD VERIFY ALL EXISTING CONDITIONS AND REWORK IF NECESSARY. EXTEND POWER, TELEPHONE, FIRE ALARM AS REQUIRED.
- 8. WHERE CONDUIT IS SHOWN UNDERFLOOR, SAWCUT EXISTING FLOOR SLAB AS REQUIRED FOR INSTALLATION OF UNDERFLOOR CONDUIT. PATCH FLOOR TO MATCH EXISTING SURFACE AS REQUIRED.

MARK NO.	MANUFACTURER & CATALOG NUMBER	VOLTS WATTS	LAMPS	DESCRIPTION	EQUIVALENT MANUFACTURE	
Α	LITHONIA 2GT8-232-AI2-MVOLT -GEBIOIS	277 59	2-32W F32T8	2'x4' GRID TROFFER WITH ACRYILC PRISMATIC LENS AND ELECTRONIC BALAST FOR TWO LAMPS, MOUNT TO BOTTOM OF STRUCTURE	OR EQUAL	
A2	LITHONIA 2GT8-332-AI2-MVOLT -GEBIOIS	277 85	3-32W F32T8	2'x4' GRID TROFFER WITH ACRYILC PRISMATIC LENS AND ELECTRONIC BALAST FOR THREE LAMPS, MOUNT TO BOTTOM OF STRUCTURE	OR EQUAL	
В	EXCELINE DBE-16-4-42-HF-WHT- 6	CTED JRE 120 VERIFY VANITY LIGHT MOUNTED ABOVE MIRROR JRE 120 MSI IPAR30S30 H2ID IPAR-30 300K 20 MED BASE 120 MSI IPAR30S30 SAME AS DI EXCEPT SUSPEND AT 10' AFF IPAR30S30 IPAR30S30 SAME AS DI EXCEPT SUSPEND AT 10' AFF				
С	OWNER SELECTED VANITY FIXTURE		VERIFY	VANITY LIGHT MOUNTED ABOVE MIRROR	OR EQUAL	
DI	HALO LI807-PAL, L653-SL	120	iPAR30530 H2ID IPAR-30 300K 20	INDICATED ON PLANS WITH STUDIO DESGIN POLISHED ALUMINUM FIXTURES WITH IPAR LED,	OR EQUAL	
D2	HALO LI807-PAL, L653-SL			SAME AS DI EXCEPT SUSPEND AT 10' AFF	OR EQUAL	
F	LITHONIA LP6FN-26DTT-609AZ- MVOLT	120 27	I-26W DTT CFL	6"Φ RECESSED CAN WITH CLEAR SEMI-SPECULAR REFLECTOR AND ELECTRONIC BALLAST	OR EQUAL	
G	OWNER SELECTED PENDANT	120 50	VERIFY	PENDANT FIXTURE MOUNTED OVER SALES WRAP, VERIFY MOUNTING HEIGHT	OR EQUAL	
Н	LITHONIA L7X-705AZ	120 100	INCL	6"Φ RECESSED CAN WITH CLEAR SEMI-SPECULAR REFLECTOR FOR 100W INCANDESCENT LAMP.	OR EQUAL	
¢	LITHONIA ELM2	277 1.2	INCL	EMERGENCY LIGHT WITH TWIN ADJUSTABLE HEADS AND SEALED LEAD CALCIUM BATTERY, MOUNT AT 7'-6"±, TO CLEAR OBSTACLES.	OR EQUAL	
\$	LITHONIA LHQM-S-W-3-R	277 5.4	INCL	COMBINATION EMERGENCY/EXIT LIGHT WITH LED LAMPS, RED LETTERS ON WHITE BACKGROUND, TWIN 6W EMERGENCY LIGHT HEADS, UNIVERSAL MOUNT, BATTERY BACKUP	OR EQUAL	
&	LITHONIA LHQM-S-W-3-R-HO W/ ELA-NX-WH-2006	277 5.4	INCL	COMBINATION EMERGENCY/EXIT LIGHT WITH LED LAMPS, RED LETTERS ON WHITE BACKGROUND, TWIN 6W EMERGENCY LIGHT HEADS, UNIVERSAL MOUNT, HIGH CAPACITY BATTERY BACKUP, REMOTE EXTERIOR MOUNT HEAD	OR EQUAL	

LIGHTING PLAN NOTES:

PROVIDE VOLTAGE BARRIER BETWEEN 120 VOLT AND 277 VOLT SWITCH.





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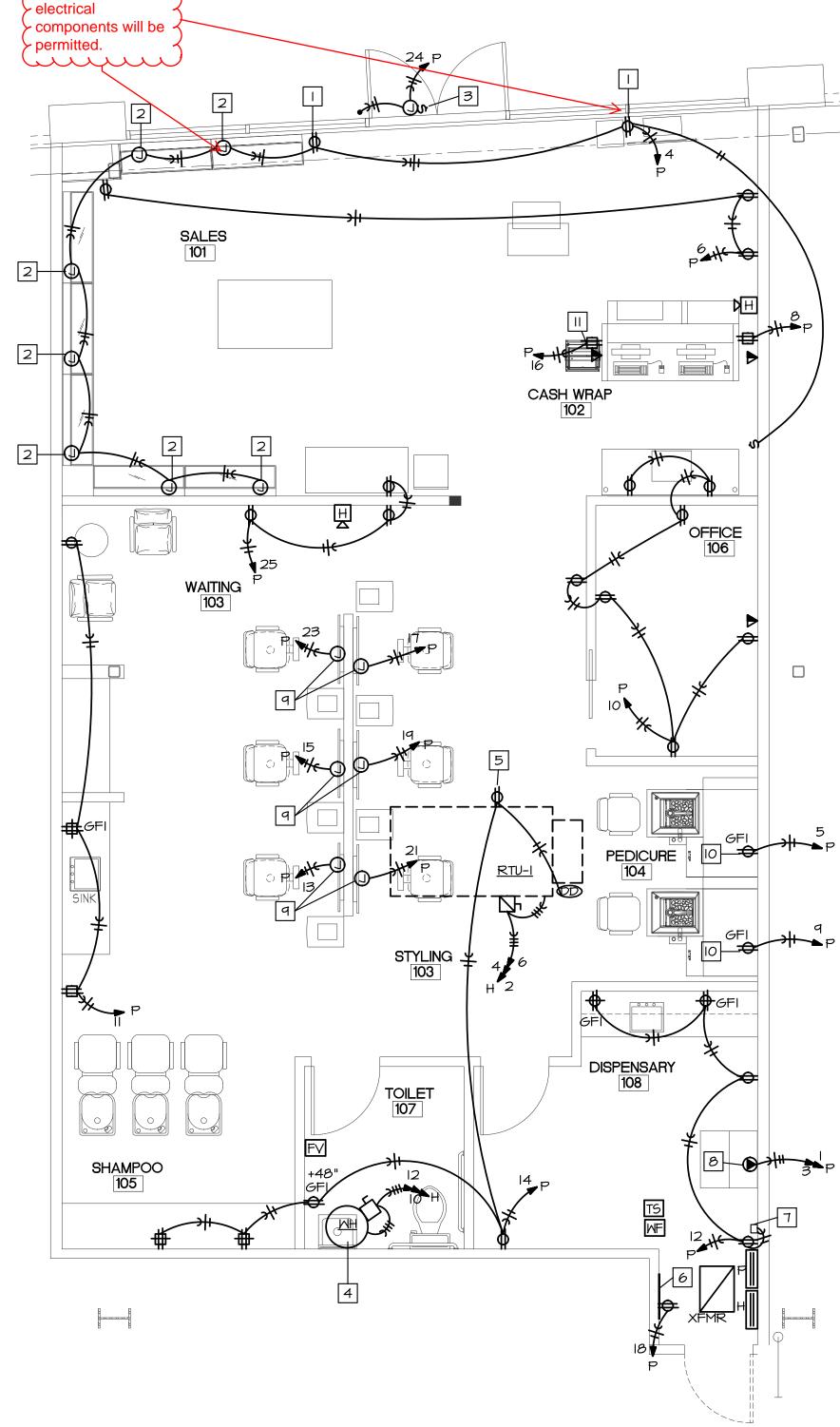
JOB # 5720 Reeder Shawnee, Ks. 66203 (913)262-1772

	PANEL: H	V	OLTS/F	PHASE	/WIRE:	277/48	30V/3 _{\$}	/4W	LOC	CATION	DISF	PENSA	RY	MOUNTING: SURFACE	
BUS: 125A			MAII	N: 100	A MLO		IC: 14,000 RMS SYM. A			YM. AM	1PS FEED			ER: SEE RISER DIAGRAM	
CKT NO	DESCRIPTION	BRKR AMPS		WIRE SIZE	фА	фВ	фС	фА	фВ	фС	WIRE SIZE	BRKR POLE	BRKR AMPS	DESCRIPTION	CKT NO
					8420			5041							2
3	30 KVA XFMR / PANEL P	45	3	8		8180			5041		10	3	25	ROOFTOP UNIT RTU-I	4
5							6140			5041					6
7	LIGHTS	20	1	12	2 34			3000							8
9	SPARE	20	ı						3000		12	3	20	WATER HEATER	10
Ш	SPARE	20	ı							3000					12
13	BUSSED SPACE													BUSSED SPACE	14
15	BUSSED SPACE													BUSSED SPACE	16
17	BUSSED SPACE													BUSSED SPACE	18
19	BUSSED SPACE													BUSSED SPACE	20
21	BUSSED SPACE													BUSSED SPACE	22
23	BUSSED SPACE													BUSSED SPACE	24
NOTE	NOTES:				10554	8180	6140	8041	8041	8041					
						18595 16221			14181 To			OTAL \	/A	48,997	
					AMPS @			480 3¢		58.93					

	PANEL: P	V	OLTS/F	PHASE	/WIRE:	120/20	08V/3¢	/4W	LOC	CATION	: DISF	ENSA	RY	MOUNTING: SURFACE		
	BUS: 125A		MAII	N: 100	A MCB		IC:	10,000	RMS SYM. AMPS				FEED	ER: SEE RISER DIAGRAM		
CKT NO	DESCRIPTION		BRKR POLE	WIRE SIZE	фА	фВ	фС	фА	фВ	ф С	WIRE SIZE	BRKR POLE	BRKR AMPS	DESCRIPTION	CKT NO	
ı	CLOTHES WASHER/DRYER	30	2	10	2400							ı	20	SPARE	2	
n	CLOTHES MASHER/DRIER	30	2	10		2400			1200		12	ı	20	DISPLAY LIGHTS/OUTLETS	4	
5	PEDICURE UNIT	20	ı	12			200			540	12	ı	20	SALES OUTLETS	6	
7	SALES TRACK LIGHT	20	ı	12	360			360			12	ı	20	CASH WRAP FOURPLEX	8	
9	PEDICURE UNIT	20	I	12		200			1260		12	- 1	20	OFFICE OUTLETS	10	
Ш	OUTLETS	20	ı	12			900			720	12	ı	20	DISPENSARY OUTLETS	12	
13	STYLE OUTLET	20	ı	12	1200			1260			12	ı	20	SHAMPOO/RR/DIS OUTLET	14	
15	STYLE OUTLET	20	I	12		1200			360		12	ı	20	CASH WRAP FOURPLEX	16	
17	STYLE OUTLET	20	I	12			1200			180	12	ı	20	TELEPHONE BOARD	18	
19	STYLE OUTLET	20	I	12	1200			1100			12	ı	20	PED/SHAMP/RR LIGHTS	20	
21	STYLE OUTLET	20	I	12		1200			360		12	ı	20	STYLING TRACK LIGHTS	22	
23	STYLE OUTLET	20	ı	12			1200			1200	12	ı	20	SIGNAGE	24	
25	CONVENIENCE RECEPTS	20	I	12	540							ı	20	SPARE	26	
27	BUSSED SPACE											ı	20	SPARE	28	
29	BUSSED SPACE											ı	20	SPARE	30	
NOTE	<u> </u>		5700	5000	3500	2720	3180	2640		•						
			84	20	818	30	61-	40	ТС	OTAL \	/A	22,740				
											AMPS • 208			63.12		

POWER PLAN NOTES:

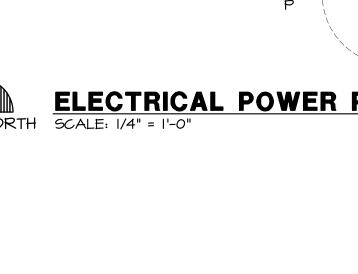
- DUPLEX RECEPTACLE MOUNTED ABOVE WINDOW FOR DISPLAY SIGNAGE PER NEC. DUPLEX RECEPTACLE SHALL BE WIRED SO ONE RECEPTACLE IS SWITCHED AND ONE RECEPTACLE IS UNSWITCHED.
- J-BOX FOR CONNECTION TO SALES CASEWORK WITH INSTALLED LIGHT FIXTURES. VERIFY ROUGH-IN LOCATION AND ELECTRICAL REQUIREMENTS PRIOR TO WORK. PROVIDE WHIP AND CONNECT TO CASEWORK. CIRCUIT TO BE SWITCHED AS INDICATED ON PLAN.
- 3 J-BOX WITH TOGGLE DISCONNECT PER NEC FOR FOR TENANT SIGNAGE. VERIFY ROUGH-IN LOCATION. ROUTE CIRCUIT TO PANEL INDICATED VIA TIMECLOCK LOCATED ADJACENT TO PANEL. CONNECT TO SIGN
- 4 PROVIDE DISCONNECT AND CONNECT TO WATER HEATER LOCATED ABOVE CEILING AS REQUIRED.
- MP GFI RECEPTACLE MOUNTED ON ROOFTOP UNIT ON ROOF FOR EQUIPMENT SERVICE PER NEC.
- 6 2'x4' PLYWOOD TELEPHONE BACKBOARD WITH SIEMENS #ECGB-5 GROUND BAR AND #6 CU BOND TO BUILDING ELECTRODE SYSTEM. PROVIDE I" CONDUIT TO EXISTING TELEPHONE SERVICE STUB INTO TENANT SPACE. VERIFY EXACT LOCATION.
- 1 INTERMATIC #ETITOC ELECTRONIC 7 DAY TIME SWITCH FOR CONTROL OF EXTERIOR BUILDING SIGNAGE. SEE NOTE 3.
- 8 PROVIDE CORD AND PLUG AND OUTLET FOR CLOTHES WASHER/DRYER.
- J-BOX ROUGH-IN AT +30" AFF FOR STYLING STATION. PROVIDE WHIP AND CONNECT TO FOURPLEX RECEPTACLE FURNISHED WITH STYLING STATION. REFER TO MANUFACTURER INSTRUCTIONS FOR ROUGH-IN LOCATION AND REQUIREMENTS.
- O GFI DUPLEX RECEPTACLE FOR PEDICURE UNIT. VERIFY EXACT ROUGH-IN LOCATION WITH MANUFACTURER INSTRUCTIONS.
- DEVICES LOCATED IN END OF CASEWORK. VERIFY EXACT LOCATION. ROUTE ALL CONDUIT & WIRE CONCEALED.

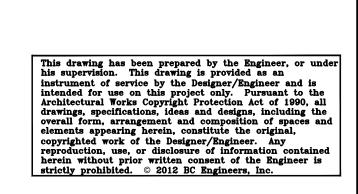


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➤ No exposed wiring,









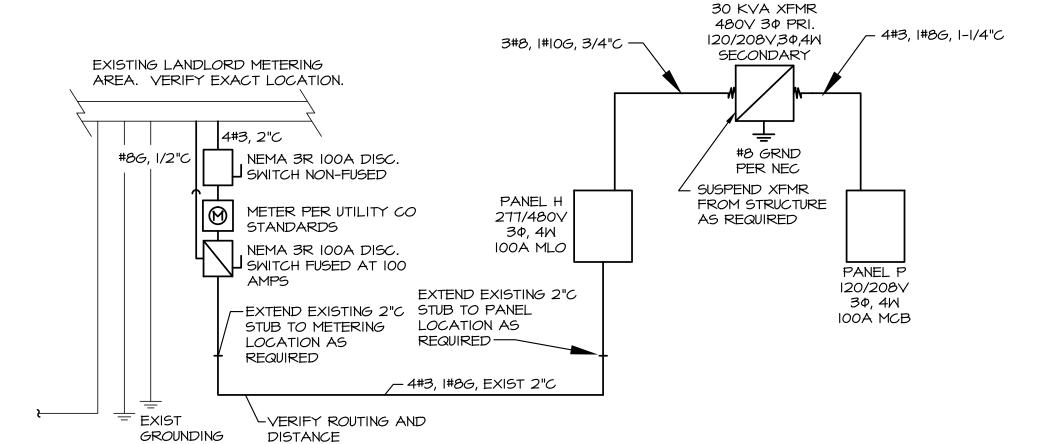
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ELECTRICAL RISER DIAGRAM

RETAIL FIRE PROTECTION NOTES:

- THE EXISTING SPACE IS PROTECTED WITH AN EXISTING WET PIPE SPRINKLER SYSTEM, RELOCATE AND PROVIDE ADDITIONAL SPRINKLER HEADS AND PIPING AS REQUIRED FOR THE NEW CONSTRUCTION. SPRINKLER HEADS IN FINISHED CEILINGS SHALL BE SEMI-RECESSED CHROME PLATED PENDENT TYPE. SPRINKLER HEADS IN ROOMS WITHOUT CEILINGS SHALL BE UPRIGHT BRASS TYPE HEADS.
- SPRINKLER WORK SHALL BE PERFORMED BY A SPRINKLER CONTRACTOR
- PRE-APPROVED BY THE LANDLORD. REFER TO THE ARCHITECTURAL DRAWINGS FOR NEW WALL CONSTRUCTION.
- 4. SPRINKLER PIPING SHALL MATCH EXISTING. SPRINKLER SYSTEM (SHOP DRAWINGS) SHALL BE APPROVED BY THE LOCAL FIRE
- AUTHORITY AND LANDLORD'S INSURANCE CARRIER PRIOR TO START OF WORK. TENANT DEMISING WALLS ARE BEING MODIFIED. REZONE SPRINKLER SYSTEM AS NECESSARY SO TENANT(S) SHALL HAVE SINGLE ZONE FOR TENANT SPACE(S).

DOMESTIC HOT WATER PIPING BELOW FLOOR

PIPING TURNING DOWN

TEE TOP CONNECTION

PIPING TURNING UP

FLOOR DRAIN

FLOOR CLEAN OUT

MALL CLEAN OUT

BALANCING VALVE

SOLENOID VALVE

CHECK VALVE

DIAGRAM

PRESSURE REGULATOR

CONNECT TO EXISTING

MATCH MARKS ON PLUMBING RISER

VALVE

--+IN+---

-|-

FDØ

FCO 🖸

MCO -

 $--\emptyset$

PLUMBING SYMBOLS IF REQ'D. TO GET CONFIGURATION OF DIRT LEG SHOWN -SOIL AND WASTE PIPING BELOW FLOOR/GRADE SOIL AND WASTE PIPING ABOVE FLOOR/GRADE HAIR WASTE TO HAIR TRAP ---SANITARY VENT PIPING ABOVE FLOOR SANITARY VENT PIPING BELOW FLOOR - GAS SHUT-OFF VALVE DOMESTIC COLD WATER PIPING - DIRT LEG _____ (SAME SIZE AS GAS DOMESTIC HOT WATER PIPING PIPE - 6" LENGTH) ____ DOMESTIC COLD WATER PIPING BELOW FLOOR ---CM---

GAS CONNECTION DETAIL

PLUMBING FIXTURE BRANCH PIPING SCHEDULE

NOTE: INDIVIDUAL VENTS FOR FIXTURES ON PLANS AND RISER

IS IN EXCESS OF THE MAXIMUM DISTANCE INDICATED BY THE CODE.

-GAS FIRED

EQUIPMENT -

FIXTURE

WATER CLOSET (TANK TYPE)

LAVATORY

FLOOR DRAIN

WASHER BOX

PEDICURE UNIT

PROVIDE RISE IN PIPE

SINK

WASTE VENT CH HH

4" 2" 1/2" - -

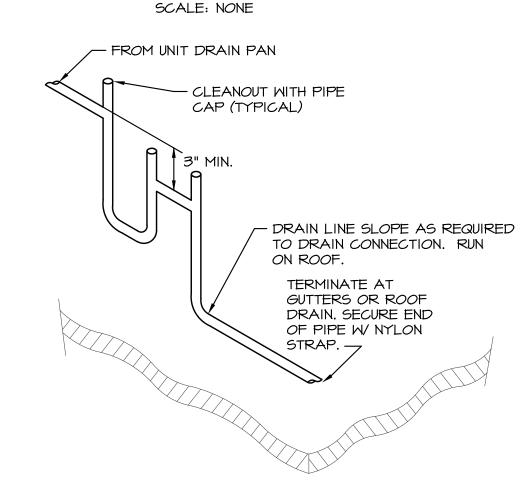
I-I/4" | I-I/4" | I/2" | I/2"

I-I/2" | I-I/2" | I/2" | I/2"

2" | 1/2"

1/2"

2" 2"



CONDENSATE DRAIN DETAIL

ROOF

CEILING

FLOOR.

PLUMBING FIXTURE SCHEDULE:

- HMC HANDICAP WATER CLOSET: TOTO, #CST744SL, "DRAKE CLOSE COUPLED TOILET", I.6 GALLON FLUSH, I6-I/2" HIGH ELONGATED BOWL, FLOOR MOUNTED, FLOOR OUTLET, TANK TYPE, VITREOUS CHINA, SIPHON-JET ACTION, #SC514 OPEN FRONT SEAT WITH CHECK HINGE AND LESS COVER, CHROME PLATED ANGLE STOP AND RISER. HANDLE ON WIDE SIDE OF FIXTURE.
- HANDICAP LAVATORY, WALL HUNG: TOTO #LT307, 20"x 18", VITREOUS CHINA, FRONT OVERFLOW, DELTA #501 FAUCET WITH SINGLE METAL LEVER FAUCET, OFFSET GRID ELBOW DRAIN AND I-I/4" TAILPIECE, CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT (MOUNTED PARALLEL WITH WALL), CHROME PLATED LOOSE KEY ANGLE STOPS AND RISERS, FLOOR MOUNTED CONCEALED ARM LAVATORY SUPPORT, INSULATE EXPOSED DRAIN, WATER SUPPLIES, AND VALVES WITH PROWRAP SEAMLESS MOLDED CLOSED CELL VINYL INSULATION.
- SINK: ELKAY, #LRAD-2222, 19"x16"x 6-1/2" DEEP BOWL, 21-3/8"x 21-3/8" CUT-OUT, ADA COMPLIANT, SINGLE COMPARTMENT, SELF- RIMMING STAINLESS STEEL SINK WITH SATIN FINISH AND SOUND DAMPENING UNDERCOATING, #LK-4102 FAUCET, SWING SPOUT, AERATOR, SINGLE LEVER HANDLE, CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT, CHROME PLATED ANGLE STOPS AND RISERS, IN-SINK-ERATOR #BADGER 5 DISPOSAL, I/2 HP, I20 VOLT.
- SINK: ELKAY, #LRAD-2219, 18"x14"x 6-1/2" DEEP BOWL, 21-3/8"x 18-7/8" CUT-OUT ADA COMPLIANT, SINGLE COMPARTMENT, SELF- RIMMING STAINLESS STEEL SINK WITH SATIN FINISH AND SOUND DAMPENING UNDERCOATING, #LK-4102 FAUCET, SWING SPOUT, AERATOR, SINGLE LEVER HANDLE, CHROME PLATED CAST BRASS P-TRAP WITH CLEANOUT, CHROME PLATED ANGLE STOPS AND RISERS.
- WASHER BOX: GUY GRAY #B-150, WASHER BOX WITH 1-1/2" DRAIN OUTLET AND TAILPIECE, AND I/2" HOSE BIBBS.
- FLOOR DRAIN: JR SMITH, #2005-A, CAST IRON FLOOR DRAIN WITH ADJUSTABLE TOP AND 6" NIKALOY STRAINER.
- SHAMPOO BASIN: OWNER FURNISHED SINK AND FAUCET. PROVIDE PVC P-TRAP, CHROME PLATED ANGLE STOPS AND RISERS, AND INSTALL FIXTURE AND ACCESSORIES.
- HAIR TRAP: WADE, #5740, CAST IRON HAIR TRAP RECESSED FLUSH IN FLOOR WITH REMOVABLE STRAINER, AND ASSOCIATED PIPING PER CODE REQUIREMENTS.
- HOT WATER HEATER: AO SMITH #DEL-30, 30 GALLON STORAGE, 480 VOLT, 3 PHASE, (2) 4500-WATT ELEMENTS SIMULTANEOUS (9KW TOTAL), ASME TEMPERATURE AND PRESSURE RELIEF VALVE.
- HOT WATER EXPANSION TANK: AMTROL, #ST-8, 3.2 GALLON EXPANSION TANK WITH DIAPHRAGM.
- PEDICURE UNIT: OWNER FURNISHED; PROVIDE CHROME PLATED ANGLE STOPS AND RISERS ON BACK WALL, PUMPED DRAIN TO TRAP AT WALL, AND INSTALL FIXTURE AND ACCESSORIES AS REQUIRED. VERIFY EXACT DIMENSIONS FOR ROUGH IN WITH OWNER.

PLUMBING GENERAL NOTES:

- I. INSTALL ALL PIPE, ETC. AS HIGH AS POSSIBLE.
- 2. COORDINATE ALL WORK WITH OTHER TRADES AND EXISTING CONDITIONS AS REQUIRED TO PROPERLY INSTALL ALL SYSTEMS AS INTENDED, WITHIN THE CONFINES OF THE SPACES AVAILABLE, AND WITHOUT INTERFERENCES.
- REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATIONS AND MOUNTING HEIGHTS OF FIXTURES.
- 4. REFER TO ARCHITECTURAL & STRUCTURAL DRAWINGS FOR REQUIREMENTS FOR SUPPORTING PIPING EQUIPMENT, ETC. FROM THE STRUCTURE. PROVIDE ADDITIONAL STEEL AS REQUIRED TO PROPERLY SUPPORT SYSTEMS FROM THE STRUCTURE.
- 5. SAWCUT EXISTING FLOOR AS REQUIRED FOR INSTALLATION OF UNDERFLOOR PIPING. PATCH FLOOR TO
- PROVIDE I" SCHEDULE 40 PVC CONDENSATE DRAIN PIPE FOR EACH ROOFTOP UNIT LAID DIRECTLY ON ROOF
- TO NEAREST ROOF DRAIN. PROVIDE WATER TRAP AND CLEAN OUTS AS DETAILED. SECURE PVC PIPE TO DRAIN WITH NYLON STRAP.

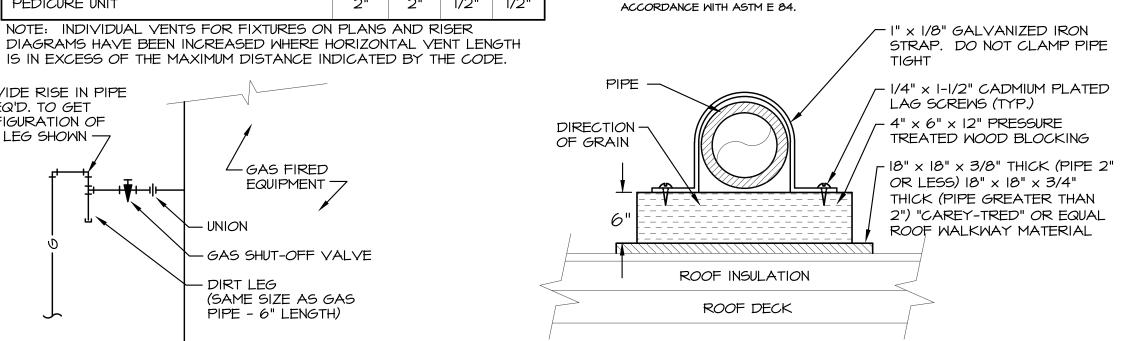
EXISTING (

MASTE & VENT

PLUMBING RISER DIAGRAMS

FPWH 4

- 7. NO PIPING SHALL BE ROUTED OVER THE TOP OF ELECTRICAL PANELS.
- 6. ALL MATERIALS EXPOSED WITHIN PLENUMS SHALL BE NONCOMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN



ROOF PIPE SUPPORT DETAIL

SCALE: NONE

PLUMBING PLAN NOTES:

- CONNECT WASTE TO EXISTING SANITARY SEWER AS REQUIRED. VERIFY EXACT LOCATION, DEPTH AND DIRECTION OF FLOW PRIOR TO INSTALLATION OF ANY PIPING.
- CONNECT 34" CW TO EXISTING 34" DOMESTIC CW WITH SHUT OFF VALVE AS REQUIRED. VERIFY EXACT LOCATION PRIOR TO INSTALLATION OF ANY PIPING.
- CONNECT 34" CW AND 34" HW TO WATER HEATER LOCATED ABOVE CEILING SECURED TO WALLS AS REQUIRED AND AS PER RISER DIAGRAM.
- INSTALL HAIR TRAP (HT) IN AN ACCESSIBLE LOCATION AS REQUIRED BY MANUFACTURER AND TO ALLOW FOR PROPER MAINTENANCE.
- LOCATION OF 3" VTR. VERIFY IO' CLEARANCE FROM ALL OUTDOOR AIR INTAKES. SEAL PENETRATION WEATHERTIGHT. CUT EXISTING ROOF AND FLASH INTO ROOF AS REQUIRED. ALL ROOFING WORK SHALL BE PERFORMED BY LANDLORD'S ROOFING CONTRACTOR (AT THIS CONTRACTOR'S EXPENSE) TO MAINTAIN EXISTING ROOF WARRANTY. VERIFY APPROVED ROOFING CONTRACTOR WITH LANDLORD PRIOR TO PERFORMING WORK.
- EXISTING WALL HYDRANT TO REMAIN.

PEDICURE UNITS AS REQUIRED.

HOT & COLD WATER

CEILING

FLOOR

ASME RELIEF VALVE DISCHARGE PIPE (FULL

SIZE) DOWN WALL &

TERMINATE FLUSH WITH

WALL, AIMED AT FLOOR

DRAIN PAN WITH 3/4" PIPE

DOWN WALL & TERMINATE

FLUSH WITH WALL, AIMED

AT FLOOR DRAIN ---

<u> MH</u>

- ROUTE 1/2" CM AND 1/2" HM DOWN TO BELOW FLOOR AND EXTEND TO SHAMPOO BASINS AS REQUIRED.
- CONNECT 1-1/2" GAS TO EQUIPMENT AS REQUIRED AND AS DETAILED.
- $\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath}\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath}\ensuremath{\mbox{\ensuremath{\mbox{\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ensuremath}\ens$
- ROUTE I" CONDENSATE FROM ROOFTOP UNIT TO NEAREST ROOF DRAIN OR GUTTER AS REQUIRED AND AS PER DETAIL.
- EXTEND AND CONNECT I-1/2" GAS PIPING TO GAS METER BANK AS REQUIRED. VERIFY EXACT LOCATION OF METER BANK PRIOR TO INSTALLATION OF ANY PIPING. GAS METER BANK IS APPROXIMATELY 175' FROM THIS LOCATION. COORDINATE WITH GAS COMPANY FOR GAS METER FOR 240 CFH @ 7" W.C.
- ROUTE $\frac{1}{2}$ " CM AND $\frac{1}{2}$ " HM DOWN TO BELOW FLOOR AND EXTEND TO PEDICURE
- UNITS AS REQUIRED. 2" CM AND 2" HW UP FROM BELOW FLOOR AND EXTEND AND CONNECT TO

(240 CFH) EXISTING CW EXISTING CW EXISTING WAST EXISTING WASTE - Tenant is > responsible for > verifying all existing **PLUMBING FLOOR PLAN** utility locations. · G.C. Responsible SCALE: 1/4" = 1'-0" for checking with Mall management ≻ prior to construction.

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INCORPORATED

SHEET CONTENTS:

PLUMBING PLANS

DATE: 1/22/13

REVISIONS