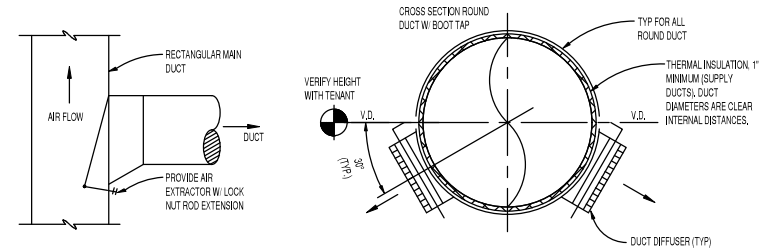


KEY NOTES BY SYMBOL 'O'

- MAINTAIN 10'-0" BETWEEN OUTSIDE AIR INTAKES AND ALL EXHAUST SOURCES (PLUMBING VENTS, EXHAUST FANS, COMBUSTION EXHAUST, ETC.). MECHANICAL CONTRACTOR SHALL PROVIDE OFFSETS AS NEEDED TO ENSURE EXHAUST FANS ARE 10'-0" AWAY FROM NEIGHBORING TENANT'S FRESH AIR INTAKES. PROVIDE OFFSETS AND ADJUST/RELOCATE EQUIPMENT AS NEEDED.
- ROUTE 16" EXHAUST DUCT UP THROUGH ROOF. TERMINATE WITH MANUFACTURER'S ROOF CURB AND FAN PROVIDE WITH BACK DRAFT DAMPER.
- ROOF ACCESS POINT. COORDINATE ROOF ACCESS WITH LANDLORD.
- NOT USED.
- 4" DRYER VENT LINE ROUTED AS SHOWN AND UP THROUGH ROOF. TERMINATE WITH GOOSENECK AND BIRD SCREEN. FURROUT WALL IF NECESSARY TO KEEP VENT WITHIN WALL.
- EX. ROOFTOP UNIT, REFER TO EQUIPMENT SCHEDULE SHEET M1.0. PROVIDE FLEXIBLE CONNECTORS FOR THE SUPPLY AND RETURN AIR DUCT CONNECTIONS. TRANSITION TO DUCT SIZES SHOWN PROVIDE CANT STRIPS, FLASHING, AND WEATHER PROOFING AROUND RTU.
- REROUTE THE CONDENSATE DISPOSAL SYSTEM TO MOP SINK. TERMINATE ABOVE RIM LINE OF SINK.
- PROVIDE 7-DAY PROGRAMMABLE THERMOSTAT, HONEYWELL VISION PRO 8000, AND AUTO CHANGEOVER AND RELATED WIRING TO CONTROL EACH UNIT. MOUNT T-STAT AT 48" AFF, SENSOR AT 96" AFF.
- HVAC CONTRACTOR TO FURNISH AND INSTALL DUCT SMOKE DETECTOR IN SUPPLY AIR DUCT TO MEET LOCAL CODE REQUIREMENTS IF NOT PRESENT (2016 CMC, 608.1). BASE BID SHALL ASSUME DETECTORS ARE INSTALLED IN EXISTING UNITS GREATER THAN OR EQUAL TO 2000 CFM.

PASADENA, CA NOTE:  
PROVIDE SEISMIC STRAPPING PER LOCAL CODE.

PASADENA, CA NOTE:  
REUSE EXISTING HVAC BREAKERS SERVING EXISTING HVAC UNITS IF THEY MATCH NAMEPLATE. REFEED RTUS FROM NEW PANEL.



02 EXPOSED SPIRAL DUCT DIFFUSER TAP DETAIL  
SCALE: NONE

ROOF-TOP UNIT SCHEDULE - 208V

MARK	MANUFACTURER MODEL	NOMINAL TONS	CFM	O/A CFM	E.S.P. (IN. W.C.)	SEER	COOLING CAP. (MBH)		HEATING	ELECTRICAL	UNIT MCA	UNIT MOP	UNIT WEIGHT (LBS)	MFG DATE (EX. UNITS)	NOTES	
							TOTAL	SENSIBLE								
RTU-A (EX)	LENNOX LGCC090S2BSZY	7.5	3000	800	0.75"	10.3	93.0	74.4	80/67	130	208/3/60	44	50	EX.	OCT. 2007	1-4,6,10-12
RTU-B (EX)	LENNOX LGCC090S2BSZY	7.5	3000	650	0.75"	10.3	93.0	74.4	80/67	130	208/3/60	44	50	EX.	OCT. 2007	1-4,6,10-12

NOTES:  
1. LABEL EACH RTU AND EXHAUST FAN WITH "BISHOPS" AND SUITE NUMBER.  
2. COOLING CAPACITY IS BASED ON 80°F EDB AND 67°F EWB CONDITIONS.  
3. PROVIDE PROGRAMMABLE ROOM THERMOSTAT, HONEYWELL TH8000 SERIES.  
4. PROVIDE UNWIRRED CONVENIENCE OUTLET (ELECTRICIAN SHALL FIELD WIRE TO 208V PANEL) AND 14" ROOF CURB.  
5. VERIFY VOLTAGE AVAILABLE ON SITE PRIOR TO ORDERING NEW UNITS. OBTAIN STRUCTURAL APPROVAL PRIOR TO PLACING UNIT.  
6. UNIT PROVIDED WITH DUAL COMPRESSORS/2-STAGE COOLING.  
7. PROVIDE FACTORY ELECTROFIM OR EQUAL ANTI-CORROSION COATING ON OUTDOOR COILS.  
8. WEIGHTS INCLUDE ACCESSORIES.  
9. ORDER WITH ACCESSORIES INCLUDING: CURB, ECONOMIZER, HAIL GUARD, 2-POSITION DAMPER, DUAL ENTHALPY SENSORS, DUCT DETECTORS, ETC.  
10. MCA BASED ON MEDIUM STATIC FAN.  
11. RTUS ARE TO REMAIN FOR REUSE. AS-IS. REFURBISHING OF UNITS SHALL BE AT TENANT'S EXPENSE BY TENANT'S MECHANICAL CONTRACTOR.  
12. BRING EXISTING UNIT TO LIKE NEW OPERATING AND PERFORMANCE CONDITIONS. COMB OUT FINS, CHANGE BELTS, BRING TO FACTORY SPEC REFRIGERANT LEVELS.

MANDATORY TEST AND BALANCE REPORT BY LICENSED 3RD PARTY TO BE PROVIDED TO OWNER AND ARCHITECT UPON COMPLETION OF HVAC WORK.

R-22 NOTE: THIS BUILDING HAS EXISTING R-22 HVAC SYSTEMS. REFRIGERANT FOR THESE UNITS WILL BE PHASED OUT AND NO NEW REFRIGERANT WILL BE MANUFACTURED OR IMPORTED INTO THE U.S. AFTER JAN. 01, 2020. IT IS RECOMMENDED THAT R-22 SYSTEMS BE REPLACED WITH NEW EQUIPMENT DURING THIS REMODEL.

ALL SUPPLY DUCTWORK SHALL BE INTERNALLY INSULATED, DOUBLE-WALL METAL "SPIRAL" DUCT MAINS. SUPPLY BRANCHES SHALL BE RIGID METAL AND INTERNALLY INSULATED. SUPPLY REGISTERS AND TAPS SHALL BE INTERNALLY INSULATED WITH THERMAL BREAKS TO PREVENT "SWEATING". FLEX DUCT AND DUCT BOARD WILL NOT BE PERMITTED, EXCEPT FOR A 5'-0" OR LESS SEGMENT OF FLEX DUCT TO CONNECT TO DIFFUSERS ABOVE A LAY-IN GRID CEILING, WHICH SHALL BE FULLY CONCEALED FROM VIEW.

REFER ALSO TO SHEET MEP1.0 FOR MORE MECHANICAL NOTES

HVAC SUMMARY:  
2,325 SQ. FT.  
15.0 TONS  
155 SF/TON

CONTRACTOR NOTES:

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ARCHITECT, LANDLORD OR TENANT OF ANY DISCREPANCIES ENCOUNTERED ON THE PLANS OR IN EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF WORK.

BIDDERS ARE TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS AND SATISFY THEMSELVES AS TO THE NATURE AND SCOPE OF WORK. THE BASE BID SHALL REFLECT MODIFICATIONS TO SYSTEMS AND DEVICES AS REQUIRED BY STATE AND LOCAL CODES WHETHER INDICATED OR NOT ON CONTRACT DOCUMENTS. THE SUBMISSIONS OF A BID WILL BE EVIDENCE THAT SUCH AN EXAMINATION AND COMPLIANCE WITH GOVERNING CODES / REQUIREMENTS HAS BEEN MADE. LATER CLAIMS FOR LABOR, EQUIPMENT, OR MATERIALS REQUIRED OR FOR DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN, HAD AN EXAMINATION AND CODE REVIEW BEEN MADE, WILL NOT BE ALLOWED.

FIELD VERIFY LOCATION OF PLUMBING VTR. INSTALL AFTER ALL HVAC UNITS ARE IN PLACE TO ENSURE NO VENT IS WITHIN 10'-0" OF ANY FRESH AIR INTAKE AND THAT NO EXTRA / UNNECESSARY ROOF PENETRATIONS ARE MADE.

CONDENSATE LINE SIZES:  
3/4" UP TO 2 TONS CONNECTED.  
1" UP TO 5 TONS CONNECTED.  
1-1/4" UP TO 25 TONS CONNECTED.  
1-1/2" UP TO 50 TONS CONNECTED.  
2" UP TO 170 TONS CONNECTED.

CALIFORNIA NOTE:  
ALL HVAC EQUIPMENT, PIPING, MATERIALS, AND DEVICES USED IN A MECHANICAL SYSTEM SHALL BEAR A PERMANENT AND LEGIBLE FACTORY APPLIED NAMEPLATE VERIFYING THE EQUIPMENT HAS BEEN LISTED BY AN APPROVED AGENCY, PER CMC SEC. 302.1 & 307.0.

HVAC DUCT DROP LOCATIONS, MIXING BOX CONFIGURATIONS (ON SPLIT SYSTEMS), RETURN AIR CONFIGURATIONS, ECONOMIZER CONFIGURATIONS, ETC. WILL VARY DEPENDING ON FIELD CONDITIONS, JOISTS, BEAMS, SPRINKLER PIPING, ETC. IT IS EXPECTED THAT THE MECHANICAL CONTRACTOR WILL MAKE MINOR ADJUSTMENTS TO BEST SUIT FIELD CONDITIONS.

ANY EXISTING HVAC EQUIPMENT THAT IS BEING REUSED SHALL HAVE ITS POWER (SERVICE OUTLET, HVAC UNIT POWER, DUCT DETECTOR, ETC.) MIGRATED TO THE NEW ELECTRICAL PANEL(S). REUSE DISCONNECTS WHERE CODE COMPLIANT. REPLACE WHEN IN POOR SHAPE, UNDERSIZED OR OTHERWISE NECESSARY. CIRCUIT TO OPEN BREAKERS IF CIRCUIT IS NOT CALLED OUT.

PASADENA, CA NOTE:  
PROVIDE CEILING ACCESS PANELS OR USE BOWDEN CABLES TO ALLOW ADJUSTMENT OF DIFFUSERS ABOVE HARD LID CEILING.

PASADENA, CA NOTE:  
ALL DUCTWORK SHALL BE MOUNTED AS HIGH AS POSSIBLE.

PASADENA, CA NOTE:  
EXISTING GAS FEEDS THE TWO RTUS ONLY AND WILL REMAIN THAT WAY. NO MODIFICATIONS WILL BE MADE TO GAS SYSTEMS FOR THIS FINISHOUT.

FINAL PLACEMENT OF THERMOSTAT TO BE SELECTED BY CONSTRUCTION MANAGER OR OWNER'S REPRESENTATIVE AND MAY NEED TO BE MODIFIED DUE TO FIELD CONDITIONS.

EXHAUST FAN SCHEDULE

MARK	MANUFACTURER	MODEL	DRIVE	AIRFLOW (CFM)	EXT. SP (IN. W.C.)	V. PH. HZ	MOTOR SIZE (HP)	SERVICE	APPROXIMATE WEIGHT (LBS)	INSTALL LOCATION	NOTES
EF 1	GREENHECK	G-123-VG	DIRECT	1275	0.50"	115/1/60	1/2	TENANT SPACE	50	ROOF	1,3
EF 2	GREENHECK	SP-B110	DIRECT	75	0.20"	115/1/60	80 WATTS	RESTROOM	11	CEILING	2,3

- CONTROL TO BE INTERLOCKED WITH RTU-A.
- CONTROL TO BE INTERLOCKED WITH LIGHT SWITCH.
- PROVIDE WITH GRAVITY BACK DRAFT DAMPER.

AIR DEVICE SCHEDULE

SYMBOL	TAG	MANUF.	CATALOG #	FIXTURE DESCRIPTION	NECK SIZE	REMARKS
⊗	A	TITUS	TMS	24x24 SUPPLY GRILLE/ 12x12 SUPPLY GRILLE	SEE PLAN	ALUMINUM, BORDER TYPE 1 IN GYP. BD. CLG. PAINTED BLACK TO MATCH CEILING WHERE CEILING IS NOT WHITE, REF ARCH. SHEETS.
⊗	B	TITUS	50F	24x24 RETURN GRILLE/ 12x12 RETURN GRILLE	SEE PLAN	EGGCRATE, BORDER TYPE 1
⊗	C	TITUS	300RL	1/2" SIDEWALL SUPPLY, 1/2" WIDTH, WHITE, PAINTED TO MATCH SPIRAL DUCT.	---	SURFACE MOUNT, EACH SHALL HAVE SADDLE-MOUNT FITTING WITH NECK VOLUME DAMPER.
⊗	D	TITUS	350RL	1/2" SIDEWALL RETURN, WITH LOUVERED FACE	---	SURFACE MOUNT, EACH SHALL HAVE SADDLE-MOUNT FITTING WITH NECK VOLUME DAMPER.
⊗	E	NAILOR	51EC	12x24 RETURN GRILLE	SEE PLAN	EGGCRATE, BORDER TYPE 1

- NOTES:  
1. ALL GRILLES IN GYP BOARD CEILING SHALL BE ORDERED WITH INTEGRAL BALANCING DAMPERS.  
2. PROVIDE RECTANGULAR TO ROUND ADAPTERS WHEREVER NECESSARY.  
3. NOT ALL DEVICES USED ON ALL JOBS.  
4. TRANSITION NECK SIZE ON SUPPLY AND RETURN AS NEEDED TO ENSURE SAME SIZE (WITHIN 2") SUPPLY AND RETURN REGISTERS FOR UNIFORM APPEARANCE.

MECHANICAL SYMBOL LEGEND

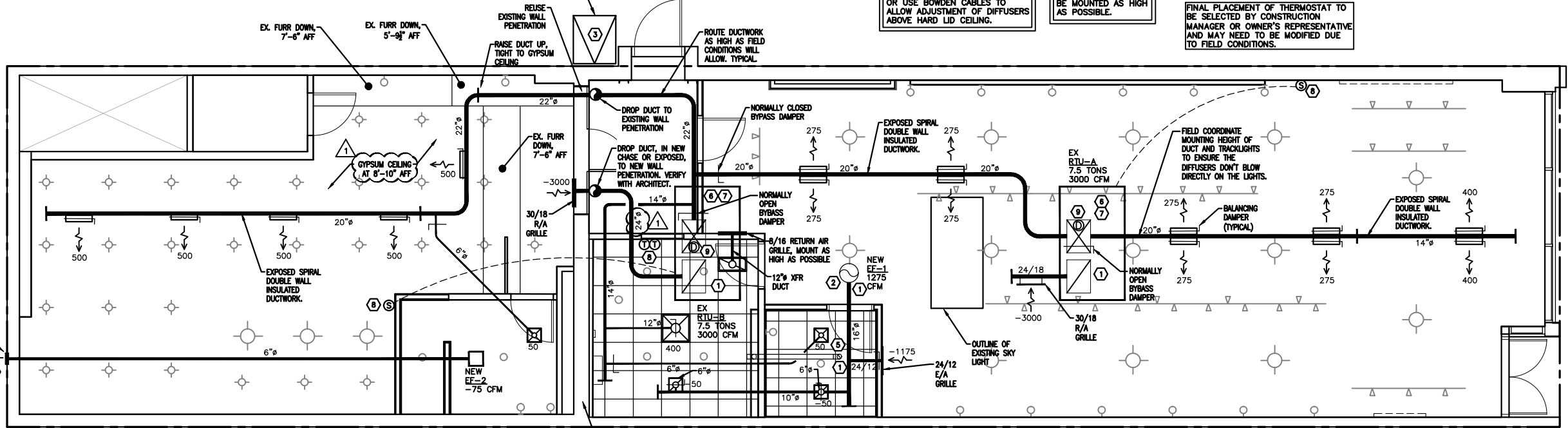
SYMBOL	DESCRIPTION
⊗	THERMOSTAT @ 48" AFF
⊗	DUCT MOUNTED SMOKE DETECTOR
⊗	REMOTE ROOM TEMPERATURE SENSOR AT 96" AFF
⊗	VOLUME DAMPER
⊗	MOTORIZED DAMPER WITH ACTUATOR
⊗	AIR HANDLING UNIT
⊗	EXHAUST FAN
⊗	BAROMETRIC FLAP DAMPER

DRYER VENT CALCULATION

8'-0"	HORIZONTAL LENGTH
20'-0"	VERTICAL LENGTH
0	45 DEGREE ELBOWS
2	90 DEGREE ELBOWS
38'-0"	TOTAL DEVELOPED DUCT LENGTH

SAMPLE DRYER PLACARD

WARNING  
CHECK THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR ANY DOMESTIC DRYER THAT WILL BE INSTALLED AT THIS LOCATION. THE INSTALLATION INSTRUCTION MUST ALLOW THE DRYER TO BE CONNECTED TO AN EXHAUST DUCT (VENT) THAT IS \_\_\_\_\_ FEET.  
\*DRYER DUCT SHALL BE INSULATED.



BISHOPS PROTO NOTE:  
IF DRYER DUCT RUN EXCEEDS 15', DRYER DUCT SHALL BE INSULATED.

BISHOPS PROTO NOTE:  
THIS IS A SHALLOW STRUCTURE BUILDING. HVAC RUNS ARE DIAGRAMMATIC. ADJUST AS NEEDED TO AVOID STRUCTURAL ELEMENTS, SPRINKLER PIPING, ETC. ROUTE RUNOUTS THROUGH WEBBING AS NEEDED. VISIT SITE AND/OR PROVIDE ALLOWANCE IN BID TO ADJUST TO FIELD CONDITIONS.

01 MECHANICAL PLAN  
SCALE: 1/4"=1'-0"



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**BISHOPS**  
 BISHOPS - TENANT FINISHOUT  
 1715 E. COLORADO BLVD  
 PASADENA, CA 91106

DO NOT SCALE DRAWINGS  
CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS-NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO BEGINNING CONSTRUCTION

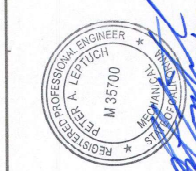
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03.29.18  
RF #1

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ISSUE FOR PERMIT 03/26/18

PROJECT NUMBER  
C170515

SHEET NUMBER

M1.0  
MECHANICAL PLAN  
DATE OF THIS PRINTING - 03/30/18



**BISHOPS**  
BISHOPS - TENANT FINISHER  
1715 E. COLORADO BLVD  
PASADENA, CA 91106

DO NOT SCALE DRAWINGS  
CONTRACTOR TO VERIFY  
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DIMENSIONS-NOTIFY ARCHITECT  
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NO REVISION

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PROJECT NUMBER  
**C170515**

SHEET NUMBER

**M2.0**  
SEISMIC MECH.  
DETAILS

DATE OF THIS PRINTING - 03/22/18

ISSUE FOR PERMIT 03/26/18

**TABLE 6-5: DUCT SUPPORT**  
PART 1 - VERTICAL DUCTS

MAXIMUM SIDE OF RECTANGULAR DUCT	METAL STRAP OR ANGLE BRACKET	MAXIMUM DIAMETER OF ROUND DUCTS	STRAPS
ON ROOF ON EXTERIOR OF BUILDING	C, V <sup>2</sup> AND W	I II III	A AND W B AND W C AND W
ATTICS, GARAGES AND CRAWL SPACES	A AND V <sup>2</sup>	I II III	A A B
IN WALLS, WITHIN FLOOR-CEILING SPACES <sup>1</sup>	A AND V <sup>2</sup>	I II III	A B B
WITH THE CONDITIONED SPACE OR IN BESEMENTS; RETURN DUCTS IN AIR PLENUMS			
CEMENT SLAB OR WITHIN GROUND			
CEMENT SLAB OR WITHIN GROUND			

02 DUCT INSULATION AND SUPPORT  
SCALE: NOT TO SCALE

**TABLE 6-4: DUCT INSULATION SCHEDULE**  
2016 CALIFORNIA MECHANICAL CODE

DUCT LOCATION	INSULATION TYPES MECHANICALLY CODED	HEATING ZONE ?	INSULATION TYPES HEATING ONLY
ON ROOF ON EXTERIOR OF BUILDING	C, V <sup>2</sup> AND W	I II III	A AND W B AND W C AND W
ATTICS, GARAGES AND CRAWL SPACES	A AND V <sup>2</sup>	I II III	A A B
IN WALLS, WITHIN FLOOR-CEILING SPACES <sup>1</sup>	A AND V <sup>2</sup>	I II III	A B B
WITH THE CONDITIONED SPACE OR IN BESEMENTS; RETURN DUCTS IN AIR PLENUMS			
CEMENT SLAB OR WITHIN GROUND			

NOTE: WHERE DUCTS ARE USED FOR BOTH HEATING AND COOLING, THE MINIMUM INSULATION SHALL BE AS REQUIRED FOR THE MOST RESTRICTIVE CONDITION.

1. HEATING DEGREE DAYS:  
ZONE I BELOW 4500 D.D.  
ZONE II 4501 TO 8000 D.D.  
ZONE III OVER 8000 D.D.

2. VAPOR RETARDERS SHALL BE INSTALLED ON SUPPLY DUCTS IN SPACES VENTED TO THE OUTSIDE IN GEOGRAPHIC AREAS WHERE THE SUMMER DEW POINT TEMPERATURE BASED ON THE 2-1/2% COLUMN OF DRY-BULB AND MEAN COINCIDENT WET-BULB TEMPERATURE EXCEEDS 60° DEG. F.

3. INSULATION MAY BE OMITTED ON THAT PORTION OF A DUCT WHICH IS LOCATED WITHIN A WALL OR FLOOR CEILING SPACE WHERE:  
a. BOTH SIDES OF THE SPACE ARE EXPOSED TO CONDITIONED AIR.  
b. THE SPACE IS NOT VENTILATED.  
c. THE SPACE IS NOT USED AS A RETURN PLENUM.  
d. THE SPACE IS NOT EXPOSED TO UNCONDITIONED AIR.  
CEILINGS WHICH FORM PLENUMS NEED NOT BE INSULATED.

4. INSULATION TYPES:  
A. A MATERIAL WITH AN INSTALLED CONDUCTANCE OF 0.48 OR THE EQUIVALENT THERMAL RESISTANCE OF 2:1. EXAMPLE OF MATERIALS CAPABLE OF MEETING THE ABOVE REQUIREMENTS:  
1 INCH 60 LB./CU. FT. MINERAL FIBER, ROCK, SLAG OR GLASS BLANKETS.  
1/2 INCH, 1.5 TO 3 LB./CU. FT. MINERAL FIBER BLANKET DUCT LINER.  
1/2 INCH, 3 TO 10 LB./CU. FT. MINERAL FIBER BOARD.  
B. A MATERIAL WITH AN INSTALLED CONDUCTANCE OF 0.24 OR THE EQUIVALENT THERMAL RESISTANCE OF 4:2. EXAMPLE OF MATERIALS CAPABLE OF MEETING THE ABOVE REQUIREMENTS:  
2 INCH 0.60 LB./CU. FT. MINERAL FIBER BLANKETS.  
1/2 INCH, 1.5 TO 3 LB./CU. FT. MINERAL FIBER BLANKET DUCT LINER.  
1/2 INCH, 3 TO 10 LB./CU. FT. MINERAL FIBER BOARD.  
C. A MATERIAL WITH AN INSTALLED CONDUCTANCE OF 0.16 OR THE EQUIVALENT THERMAL RESISTANCE OF 6:3. EXAMPLE OF MATERIALS CAPABLE OF MEETING THE ABOVE REQUIREMENTS:  
3 INCH 0.60 LB./CU. FT. MINERAL FIBER BLANKETS.  
1/2 INCH, 1.5 TO 3 LB./CU. FT. MINERAL FIBER BLANKET DUCT LINER.  
1/2 INCH, 3 TO 10 LB./CU. FT. MINERAL FIBER BOARD.  
D. VAPOR RETARDERS: MATERIAL WITH A PERM RATING NOT EXCEEDING 0.5 PERM. ALL JOINTS TO BE SEALED.  
E. APPROVED WEATHER PROOF BARRIER.

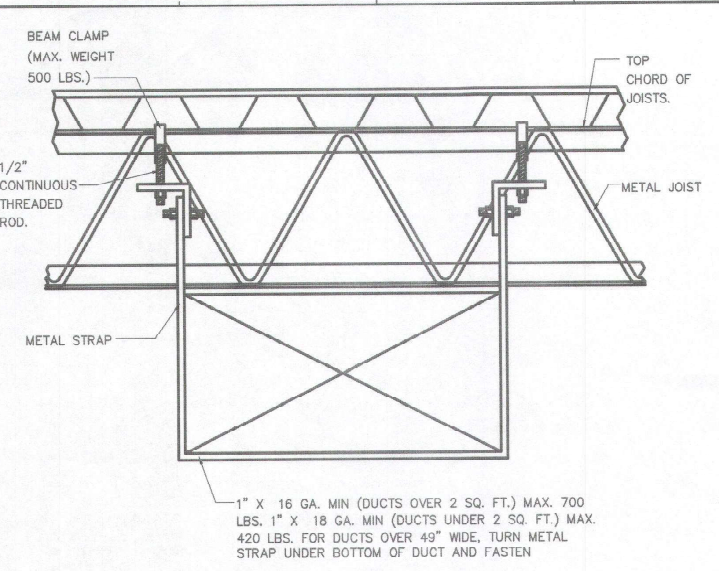
THE EXAMPLE OF MATERIALS LISTED UNDER EACH TYPE IS NOT MEANT TO LIMIT OTHER AVAILABLE THICKNESS AND DENSITY COMBINATIONS WITH THE EQUIVALENT INSTALLED CONDUCTANCE OR RESISTANCE BASED ON THE INSULATION ONLY.

HVAC Load Calculation - Barber Shop 3/7/2018 Bishops - Pasadena, CA 17.151

Cooling Load Analysis:	ASHRAE DESIGN: DB = 98.3
Sensible Heat:	Design Basis: Burbank / Pasadena WB = 73.4
	Design Indoor Temp 68 F
H_sensible, O.A. = 1.08 * cfm * delta T	H_sensible_OA = 47449.8 dT = 30.3
H_sensible, lighting = watts * 3.413	H_sens_ltg = 11902.84
H_sensible, people = 250 * # people	H_sens ppl = 15500
H_sensible, walls = A*u*dT	H_sens wall = 4774.737 (dT = 40F)
H_sensible, floor = A*u*dT	H_sens_floor = 2325 (dT = 1F)
H_sensible, roof = A*u*dT	H_sens_roof = 5812.5 (dT = 50F)
H_sensible, window conductance = A_glass*U*dT	H_sens_glass = 2643.3
H_sensible, window transmittance = A_glass*SHGC*Et	H_sens_solar gain = 0
H_latent, O.A. = 0.68 * q*delta w_grains	H_latent_OA = 33129.6
H_latent, people = 250 * # people	H_latent_ppl = 15500
Lighting Load (watts)	3487.5 (from Comcheck/ I-24 / HaCom)
Occupant Load	62 (Auto Populate - from ASHRAE calculation)
Grains O.A. =	105.8 <----- update per site
Grains I.A. =	77.2 (77.2 is for saturated air at 58F)
Outside Air, Ventilation =	1450 (Auto Populate - from ASHRAE calculation)
Roof / Floor Area =	2325 (Auto Populate - from ASHRAE calculation)
Wall Height - Average	16.2 <----- update per site
Perimeter (unconditioned)	140 <----- update per site
Wall Area =	2268
Window Length =	18 <----- update per site
Window Height =	8.9 <----- update per site
Window Area =	160.2
Shading Factor =	1 (0 = none, 1.0 = fully shaded)
R-value Walls = (R_net) =	19 New Wall
U-value Walls =	0.052632 Average Wall
R-floor = (R_net) =	1
U-floor =	1
R-roof = (R_net) =	20 EX. Roof
U-roof =	0.05 Average Roof
U-glass =	0.55 (use 1.1 for 1-pane glass; use 0.55 for double pane glass, energy star windows can be 0.55 max.)
SHGC =	0.76 (use 0.76 for ordinary windows)
Et - Incident solar radiation	200 (assume peak daily, btu/hr p.s.f. Solar constant is 442 BTU/hr at top of atm, 317 at sfc.)
<b>Total Cooling Load:</b>	<b>139037.8</b>
Space Load - Tonnage Required	11.58618 tons
Safety Factor (10%)	152941.6
Space Load - Recommended Tonnage	12.74513 tons
Square footage per ton - baseline (lower bound)	157.6792
Square footage per ton - baseline (upper bound)	200.6649

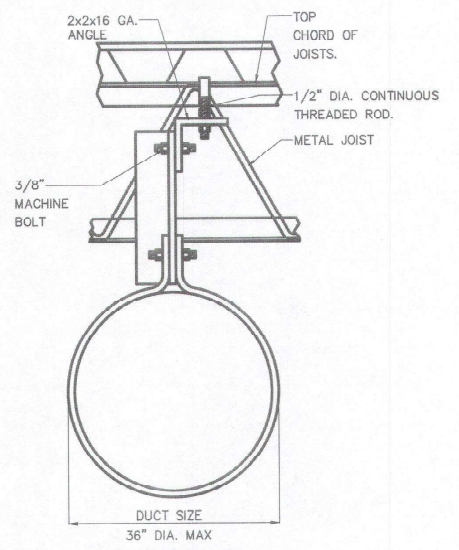
HVAC Load Calculation - Barber Shop 3/7/2018 Bishops - Pasadena, CA

Heating Load Analysis:	ASHRAE DESIGN: DB = 39
Sensible Heat Loss:	Design Temp 70
H_sensible, O.A. = 1.08 * cfm * delta T	H_sensible_OA = -48546 (dT = 57F)
H_sensible, lighting = watts * 3.413	H_sensible_OA = -10044 (dT = 57F)
H_sensible, walls = A*u*dT	H_sens_wall = -3700.42 (dT = 57F)
H_sensible, floor = A*u*dT	H_sens_floor = 6975 (dT = 3F)
H_sensible, roof = A*u*dT	H_sens_roof = -3603.75 (dT = 57F)
H_sensible, window conductance = A_glass*U*dT	H_sens_glass = -2731.41
Outside Air, ventilation =	1450 (from ASHRAE calculation)
Outside Air, intrusion =	300 (from open doors on windy winter days)
Outside Air =	1750
Roof / Floor Area =	2325 <----- update per site
Wall Height - Average	16.2 <----- update per site
Perimeter (unconditioned)	140 <----- update per site
Wall Area =	2268
Window length =	18 <----- update per site
Window height =	8.9 <----- update per site
Window Area =	160.2
Shading Factor =	1 (0 = none, 1.0 = fully shaded)
R-value Walls = (R_net) =	19 New Wall
U-value Walls =	0.052631579 Average Wall
R-floor = (R_net) =	1
U-floor =	1
R-roof = (R_net) =	20 New Roof
U-roof =	0.05 Average Roof
U-glass =	0.55 (use 1.1 for 1-pane glass; use 0.55 for double pane glass, energy star windows can be 0.55 max.)
<b>Total Heating Load:</b>	<b>-61650.6</b>
Safety Factor (25%)	<b>-77063.2 MBH</b>
Space Load - Tonnage Required	<b>22.57932 KW</b>



DUCTWORK SUPPORT DETAIL  
NOT TO SCALE

MAX. SIDE INCHES	RECTANGULAR DUCTS MIN. GALV. SHT. GAUGE	ALUMINUM MIN. B & S GAUGE
THROUGH 12	26 (0.022 IN.)	24 (0.020 IN.)
13 THROUGH 30	24 (0.028 IN.)	22 (0.025 IN.)
31 THROUGH 54	22 (0.034 IN.)	20 (0.032 IN.)
55 THROUGH 84	20 (0.040 IN.)	18 (0.040 IN.)
OVER 84	18 (0.052 IN.)	16 (0.051 IN.)



ROUND DUCT SUPPORT DETAIL  
NOT TO SCALE

DIAMETER INCHES	ROUND DUCTS		FITTINGS STEEL MIN. GALV. SHT. GAUGE
	DUCT STEEL MIN. GALV. SHT. GAUGE	LONGITUDINAL SEAM	
THROUGH 12	26 (0.019 IN.)	26 (0.022 IN.)	26 (0.022 IN.)
13 THROUGH 18	26 (0.022 IN.)	24 (0.028 IN.)	24 (0.028 IN.)
19 THROUGH 28	24 (0.028 IN.)	22 (0.034 IN.)	22 (0.034 IN.)
29 THROUGH 36	22 (0.034 IN.)	20 (0.040 IN.)	20 (0.040 IN.)
37 THROUGH 52	20 (0.040 IN.)	18 (0.052 IN.)	18 (0.052 IN.)

01 DUCTWORK SUPPORT DETAIL  
SCALE: NOT TO SCALE

STATE OF CALIFORNIA  
**MECHANICAL SYSTEMS**  
 CERTIFICATE OF COMPLIANCE  
 NRCC-MCH-01-E (Revised 01/16)  
 California Energy Commission  
 Project Name: Bishops at Pasadena, CA  
 Date Prepared: 3/16/2018  
 (Page 1 of 4)

**A. MECHANICAL COMPLIANCE DOCUMENTS & WORKSHEETS** (check box if worksheet is included)

For detailed instructions on the use of this and all Energy Efficiency Standards compliance forms, refer to the 2016 Nonresidential Manual.  
 Note: The Enforcement Agency may require all forms to be incorporated onto the building plans.

YES	NO	Compl. Doc. Worksheet #	Title
<input type="checkbox"/>	<input type="checkbox"/>	NRCC-MCH-01-E (Part 1 of 3)	Certificate of Compliance, Declaration. Required on plans for all submittals.
<input type="checkbox"/>	<input type="checkbox"/>	NRCC-MCH-01-E (Part 2 of 3)	Certificate of Compliance, Required Acceptance Tests (MCH-02-A to 11-A). Required on plans for all submittals.
<input type="checkbox"/>	<input type="checkbox"/>	NRCC-MCH-01-E (Part 3 of 3)	Certificate of Compliance, Required Acceptance Tests (MCH-12-A to 18-A). Required on plans where applicable.
<input type="checkbox"/>	<input type="checkbox"/>	NRCC-MCH-02-E (Part 1 of 2)	Mechanical Dry Equipment Summary is required for all submittals with Central Air Systems. It is optional on plans.
<input type="checkbox"/>	<input type="checkbox"/>	NRCC-MCH-02-E (Part 2 of 2)	Mechanical Wet Equipment Summary is required for all submittals with chilled water, hot water or condenser water systems. It is optional on plans.
<input type="checkbox"/>	<input type="checkbox"/>	NRCC-MCH-03-E	Mechanical Ventilation and Reheat is required for all submittals with multiple zone heating and cooling systems. It is optional on plans.
<input type="checkbox"/>	<input type="checkbox"/>	NRCC-MCH-07-E (Part 1 of 2)	Power Consumption of Fans. Required on plans where applicable.
<input type="checkbox"/>	<input type="checkbox"/>	NRCC-MCH-07-E (Part 2 of 2)	Power Consumption of Fans, Declaration. Required on plans where applicable.

STATE OF CALIFORNIA  
**MECHANICAL SYSTEMS**  
 CERTIFICATE OF COMPLIANCE  
 NRCC-MCH-01-E (Revised 01/16)  
 California Energy Commission  
 Project Name: Bishops at Pasadena, CA  
 Date Prepared: 3/16/2018  
 (Page 4 of 4)

**DOCUMENTATION AUTHOR'S DECLARATION STATEMENT**

I, certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Peter A. Leptuch  
 Signature Date: 3/16/2018  
 Address: 1236 Golden Eagle Court, Aubrey, TX 76227  
 Phone: (940) 735-5127

**RESPONSIBLE PERSON'S DECLARATION STATEMENT**

I certify the following under penalty of perjury, under the laws of the State of California:

- The information provided on this Certificate of Compliance is true and correct.
- I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
- The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
- The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
- I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Peter A. Leptuch  
 Signature Date: 3/16/2018  
 Address: 1236 Golden Eagle Court, Aubrey, TX 76227  
 Phone: (940) 735-5127

STATE OF CALIFORNIA  
**MECHANICAL SYSTEMS**  
 CERTIFICATE OF COMPLIANCE  
 NRCC-MCH-01-E (Revised 01/16)  
 California Energy Commission  
 Project Name: Bishops at Pasadena, CA  
 Date Prepared: 3/16/2018  
 (Page 2 of 4)

**B. MECHANICAL HVAC ACCEPTANCE FORMS** (check box for required compliance documents)

Test Performed By: \_\_\_\_\_

Designer: \_\_\_\_\_

Installing Contractor: \_\_\_\_\_

Enforcement Agency: \_\_\_\_\_

Test Description	MCH-02-A	MCH-03-A	MCH-04-A	MCH-05-A	MCH-06-A	MCH-07-A	MCH-08-A	MCH-09-A	MCH-10-A	MCH-11-A
Equipment Requiring Testing or Verification										
A O Smith Water 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

STATE OF CALIFORNIA  
**HVAC DRY & WET SYSTEM REQUIREMENTS**  
 CERTIFICATE OF COMPLIANCE  
 NRCC-MCH-02-E (Revised 01/16)  
 California Energy Commission  
 Project Name: Bishops at Pasadena, CA  
 Date Prepared: 3/16/2018  
 (Page 1 of 3)

**A. Equipment Tags and System Description - Dry Systems**

MANDATORY MEASURES	T-24 Sections	Reference to the Requirements in the Contract Documents
Heating Equipment Efficiency <sup>1</sup>	110.1 or 110.2(a)	
Cooling Equipment Efficiency <sup>2</sup>	110.1 or 110.2(a)	
Water on Heat Pump Thermostats	110.2(b), 110.2(c)	
Furnace Standby Loss Control	110.2(d)	
Low Leakage AHU's	110.2(f)	
Ventilation <sup>3</sup>	120.1(b)	
Demand Control Ventilation <sup>4</sup>	120.1(c)(1)	
Occupant Sensor Ventilation Control <sup>5</sup>	120.1(c)(5), 120.2(e)(3)	
Shutoff and Reset Controls <sup>6</sup>	120.2(e)	
Outdoor Air and Exhaust Damper Control	120.2(f)	
Isolation Zones	120.2(g)	
Automatic Demand Shed Controls	120.2(h)	
Economizer FDD	120.2(i)	
Duct Insulation	120.4	
<b>PRESCRIPTIVE MEASURES</b>		
Equipment is sized in conformance with 140.4(a & b)	140.4(a & b)	Y/N Y/N Y/N
Supply Fan Pressure Control	140.4(c)	
Simultaneous Heat/Cool <sup>7</sup>	140.4(d)	
Economizer	140.4(e)	
Heat and Cool Air Supply Reset	140.4(f)	
Electric Resistance Heating <sup>8</sup>	140.4(g)	
Duct Leakage Sealing and Testing <sup>9</sup>	140.4(h)	

**Notes:**

- Provide equipment tags (e.g. AHU 1 to 10) and system description (e.g. Single Duct VAV reheat) as appropriate. Multiple units with common requirements can be grouped together.
- Provide references to plans (i.e. Drawing Sheet Numbers) and/or specifications (including Section name/number and relevant paragraphs) where each requirement is specified. Enter "N/A" if the requirement is not applicable to this system.
- The referenced plans and specifications must include all of the following information: equipment tag, equipment nominal capacity, Title 24 minimum efficiency requirements, and actual rated equipment efficiencies. Where multiple efficiency requirements are applicable (e.g. full- and part-load) include all. Where appliance standards apply (110.1), identify where equipment is required to be listed per Title 20 1601 et seq.
- Identify where the ventilation requirements are documented for each central HVAC system. Include references to both central unit schedules and sequences of operation. If one or more spaces is naturally ventilated identify where this is documented in the plans and specifications. Multiple zone central air systems must also provide a MCH 03 E compliance document.
- If one or more spaces has demand controlled ventilation identify where it is specified including the sensor specifications and the sequence of operation.
- If one or more space has occupant sensor ventilation control identify where it is specified including the sensor specifications and the sequence of operation.
- If the system is DDC identify the sequences for the system start/stop, optimal start, setback (if required) and setup (if required). For all systems identify the specification for the thermostats and time clocks (if applicable).
- Identify where the heating, cooling and deadband airflow are scheduled for this system. Include a reference to the specification of the zone controls. Provide a MCH-03-E compliance document.
- Enter N/A if there is no electric heating. If the system has electric heating indicate which exception to 140.4(g) applies.
- If duct leakage sealing and testing is required, a MCH-04-A compliance document must be submitted.

STATE OF CALIFORNIA  
**MECHANICAL SYSTEMS**  
 CERTIFICATE OF COMPLIANCE  
 NRCC-MCH-01-E (Revised 01/16)  
 California Energy Commission  
 Project Name: Bishops at Pasadena, CA  
 Date Prepared: 3/16/2018  
 (Page 3 of 4)

**C. MECHANICAL HVAC ACCEPTANCE FORMS** (check box for required compliance documents)

Test Performed By: \_\_\_\_\_

Designer: \_\_\_\_\_

Installing Contractor: \_\_\_\_\_

Enforcement Agency: \_\_\_\_\_

Test Description	MCH-12-A	MCH-13-A	MCH-14-A	MCH-15-A	MCH-16-A	MCH-17-A	MCH-18-A
Equipment Requiring Testing or Verification							
A O Smith Water 1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

STATE OF CALIFORNIA  
**HVAC DRY & WET SYSTEM REQUIREMENTS**  
 CERTIFICATE OF COMPLIANCE  
 NRCC-MCH-02-E (Revised 01/16)  
 California Energy Commission  
 Project Name: Bishops at Pasadena, CA  
 Date Prepared: 3/16/2018  
 (Page 2 of 3)

**B. Equipment Tags and System Description - Wet Systems**

MANDATORY MEASURES	T-24 Sections	Reference to the Requirements in the Contract Documents
Heating Hot Water Equipment Efficiency <sup>1</sup>	110.1	
Cooling Chilled and Condenser Water Equipment Efficiency <sup>2</sup>	110.1, 140.4(f)	
Open and Closed Circuit Cooling Towers conductivity or flow-based control	110.2(e) 1	
Open and Closed Circuit Cooling Towers Maximum Achievable Cycles of Concentration (LSI) <sup>3</sup>	110.2(e) 2	
Open and Closed Circuit Cooling Towers Flow Meter with analog output	110.2(c) 3	
Open and Closed Circuit Cooling Towers Overflow Alarm	110.2(e) 4	
Open and Closed Circuit Cooling Towers Efficient Drift Eliminators	110.2(c) 5	
Pipe Insulation	120.3	
<b>PRESCRIPTIVE MEASURES</b>		
Cooling Tower Fan Controls	140.4(h)2, 140.4(h)5	Y Y/N Y/N Y/N
Cooling Tower Flow Controls	140.4(h)3	
Centrifugal Fan Cooling Towers <sup>4</sup>	140.4(h)4	
Air-Cooled Chiller Limitation <sup>5</sup>	140.4(j)	
Variable Flow System Design	140.4(i)	
Chiller and Boiler Isolation	140.4(k)	
CHW and HHW Reset Controls	140.4(k)	
WJHP Isolation Valves	140.4(k)	
VSD on CHW, CW & WJHP Pumps >SHP	140.4(k)	
DP Sensor Location	140.4(k)	

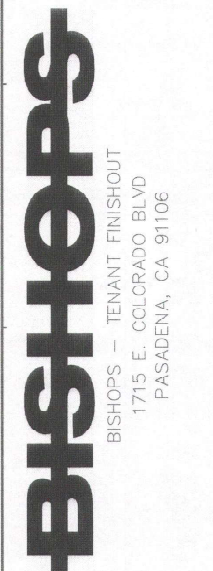
**Notes:**

- Provide equipment tags (e.g. CH 1 to 3) or system description (e.g. CHW loop) as appropriate. Multiple units with common requirements can be grouped together.
- Provide references to plans (i.e. Drawing Sheet Numbers) and/or specifications (including Section name/number and relevant paragraphs) where each requirement is specified. Enter "N/A" if the requirement is not applicable to this system.
- The referenced plans and specifications must include all of the following information: equipment tag, equipment nominal capacity, Title 24 minimum efficiency requirements, and actual rated equipment efficiencies. Where multiple efficiency requirements are applicable (e.g. full- and part-load) include all. For chillers operating at non standard efficiencies provide the K<sub>eff</sub> values. For chillers also note whether the efficiencies are Path A or Path B.
- Identify if cooling towers have propeller fans. If towers use centrifugal fans document which exception is used.
- If air-cooled chillers are used, document which exceptions have been used to comply with 140.4(j) and the total installed design capacity of the air-cooled chillers in the chilled water plant.
- Identify the existence of a completed MCH-06-E when open or closed circuit cooling towers are specified to be installed, otherwise enter "N/A"



Architecture / Development  
 14901 Quorum Drive  
 Suite 300  
 Dallas Texas 75254

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 Fax: (972) 239-5005



DO NOT SCALE DRAWINGS  
 CONTRACTOR TO VERIFY  
 ALL EXISTING CONDITIONS AND  
 DIMENSIONS - NOTIFY ARCHITECT  
 OF ANY DISCREPANCIES PRIOR  
 TO BEGINNING CONSTRUCTION

NO REVISION

ISSUE

Peter A. Leptuch, P.E.  
 CA-355700/CA-E19072  
 1236 Golden Eagle Ct.  
 Aubrey, TX 76227  
 (940) 735-5127



PROJECT NUMBER  
 C170515

SHEET NUMBER

M2.1  
 MECHANICAL  
 TITLE 24  
 DATE OF THIS PRINTING - 03/22/18

ISSUE FOR PERMIT 03/26/18



CERTIFICATE OF COMPLIANCE  
 Water Heating System General Information  
 Project Name: Bishops at Pasadena, CA Date Prepared: 3/16/2018 (Page 1 of 2)

A. GENERAL INFORMATION/SYSTEM INFORMATION	
01 Water Heater System Name:	<u>A O Smith Water Products DEL 40</u>
02 Water Heater System Configuration:	<u>Non-Central</u>
03 Water Heater System Type:	
04 Building Type:	
05 Total Number of Water Heaters in Systems:	<u>1</u>
06 Central DHW Distribution Type:	<u>n/a</u>
07 Dwelling Unit DHW Distribution Type:	<u>All Pipes Ins</u>

B. WATER HEATER INFORMATION	
Each water heater type requires a separate compliance document.	
01 Water Heater Type:	<u>Small Storage Electric</u>
02 Fuel Type:	<u>Electric Res</u>
03 Manufacture Name:	<u>A O Smith Water Products DEL 40</u>
04 Model Number:	
05 Number of Identical Water Heaters:	<u>1</u>
06 Installed Water Heater System Efficiency:	<u>1.00</u>
07 Required Minimum Efficiency:	<u>1.00</u>
08 Standby Loss Percent or Standby Loss Total:	<u>0.000</u>
09 Rated Input:	<u>20,478</u>
10 Pilot Energy:	
11 Water Heater Tank Storage Volume:	<u>40</u>
12 Exterior Insulation on Water Heater:	<u>0</u>
13 Volume of Supplemental Storage:	
14 Internal Insulation on Supplemental Storage:	
15 Exterior Insulation on Supplemental Storage:	

C. PLUMBING COMPLIANCE FORMS & WORKSHEETS  
 Check box if worksheet is included.

*For detailed instructions on the use of this and all Energy Standards compliance documents, refer to the 2016 Nonresidential Manual  
 Note: The Enforcement Agency may require all compliance documents to be incorporated onto the building plans.*

YES	NO	Doc/Worksheet #	Title
<input checked="" type="checkbox"/>	<input type="checkbox"/>	NRCC-PLB-01-E	Certificate of Compliance, Declaration. Required on plans for all submittals.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	NRCI-PLB-01-E	Certificate of Installation. Required on plans for all submittals.
<input type="checkbox"/>	<input type="checkbox"/>	NRCI-PLB-02-E	Certificate of Installation, required on central systems in high-rise residential, hotel/motel application.
<input type="checkbox"/>	<input type="checkbox"/>	NRCI-PLB-03-E	Certificate of Installation, required on single dwelling unit systems in high-rise residential, hotel/motel application.
<input type="checkbox"/>	<input type="checkbox"/>	NRCI-PLB-21-H	Certificate of Installation, required on HERS verified central systems in high-rise residential, hotel/motel application.
<input type="checkbox"/>	<input type="checkbox"/>	NRCI-PLB-22-H	Certificate of Installation, required on HERS verified single dwelling unit systems in high-rise residential, hotel/motel application.
<input type="checkbox"/>	<input type="checkbox"/>	NRCI-STH-01-E	Certificate of Installation, required on any solar water heating.

CERTIFICATE OF COMPLIANCE  
 Construction Documents  
 Project Name: Bishops Date Prepared: (Page 1 of 4)

A. General Information	
Climate Zone:	Building Type:
Reviewer's Name:	Reviewer's Agency:
Note: Design Review for each system/subsystem must be submitted	
Enforcement Agency:	Permit Number:
Enforcement Agency Use: Checked by	Enforcement Agency Use: Date

B. Design Review Checklist					
Code Section	Measure	Design Reviewer		Designer Response	
		Yes, Complies	Does Not Comply	Complies	Will Include in Next Draft
SIMPLE HVAC SYSTEMS					
DESIGN - FAN SYSTEMS					
120.1(e) 3	Measured outdoor air rates of constant volume mechanical ventilation and space-conditioning systems shall be within 10% of required outside air rate.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
140.4(c)1	Fan power index at design conditions meets the following: 0.8 W/ctm supply air for constant volume fan systems with total horsepower over 25 hp.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Best Practices	Fans appear to be correctly sized for application, accounting for a factor of safety, diversity and redundancy issues.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
CONTROLS					
110.2(c)	Controls for unitary single zone, air conditioners, heat pumps and furnaces must have a setback thermostat.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
140.4(m)	Cooling systems identified in Table 140.4-D have fan controls to vary the indoor fan airflow as a function of load: 1. DX and chilled water cooling systems that control capacity based on occupied space temperature have a minimum of 2 stages of control with no more than 66% speed operating at stage 1 and draw no more than 40% of fan power at full fan speed when operating at 66% speed. 2. Systems that control space temperature by modulating airflow to the space have proportional fan control such that at 50% air flow the power draw is no more than 30% of fan power at full fan speed. 3. Systems with air side economizer have a minimum of 2 speeds of fan control during economizer operation.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
NOTES					

CERTIFICATE OF COMPLIANCE  
 Water Heating System General Information  
 Project Name: Bishops at Pasadena, CA Date Prepared: 3/16/2018 (Page 2 of 2)

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT  
 1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Peter A. Leptuch Signature: *Peter A. Leptuch*  
 Company: Peter A. Leptuch, P.E. Signature Date: 3/16/2018  
 Address: 1236 Golden Eagle Court CEA/HERS Certification Identification (if applicable):  
 City/State/Zip: Aubrey, TX 76227 Phone: (940) 735-5127

RESPONSIBLE PERSON'S DECLARATION STATEMENT  
 I certify the following under penalty of perjury, under the laws of the State of California:  
 1. The information provided on this Certificate of Compliance is true and correct.  
 2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).  
 3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.  
 4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.  
 5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Peter A. Leptuch Responsible Designer Signature: *Peter A. Leptuch*  
 Company: Peter A. Leptuch, P.E. Date Signed: 3/16/2018  
 Address: 1236 Golden Eagle Court License: M35700  
 City/State/Zip: Aubrey, TX 76227 Phone: (940) 735-6127

CERTIFICATE OF COMPLIANCE  
 Construction Documents  
 Project Name: Bishops Date Prepared: (Page 2 of 2)

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT  
 1. I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Peter A. Leptuch, P.E. Signature: *Peter A. Leptuch*  
 Company: Peter A. Leptuch, P.E. Signature Date: 03/16/18  
 Address: 1236 Golden Eagle Ct. CEA/HERS Certification Identification (if applicable):  
 City/State/Zip: Aubrey TX 76227 Phone: (940) 735-5127

RESPONSIBLE PERSON'S DECLARATION STATEMENT  
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Responsible Person Name: Peter A. Leptuch, P.E. Responsible Person Signature: *Peter A. Leptuch*  
 Company: Peter A. Leptuch, P.E. Date Signed: 03/16/18  
 Address: 1236 Golden Eagle Ct. License: E19032  
 City/State/Zip: Aubrey TX 76227 Phone: (940) 735-5127



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**BISHOPS**  
 BISHOPS - TENANT FINISHOUT  
 715 E. COLORADO BLVD  
 PASADENA, CA 91106

DO NOT SCALE DRAWINGS  
 CONTRACTOR TO VERIFY  
 ALL EXISTING CONDITIONS AND  
 DIMENSIONS-NOTIFY ARCHITECT  
 OF ANY DISCREPANCIES PRIOR  
 TO BEGINNING CONSTRUCTION

NO REVISION

ISSUE

Peter A. Leptuch, P.E.  
 CA-M35700/CA-E19032  
 1236 Golden Eagle Ct.  
 Aubrey, TX 76227  
 (940) 735-5127



PROJECT NUMBER  
**C170515**

SHEET NUMBER

**M2.3**  
**MECHANICAL**  
**TITLE 24**  
 DATE OF THIS PRINTING 03/22/18

ELECTRICAL SPECIFICATIONS

16010 WORK INCLUDED:

- 1.1 CONTRACTOR SHALL PROVIDE THE FOLLOWING: a. LABOR b. SUPPLIES c. MATERIALS d. SHOP DRAWINGS e. PERMITS AND INSPECTION FEES f. CERTIFICATION OF FINAL INSPECTION AND APPROVAL g. ONE YEAR GUARANTEE...

16100 RACEWAYS

- 1.1 USE AND TYPES a. SERVICE ENTRANCE - RIGID STEEL b. FEEDERS - RIGID STEEL EXCEPT ABOVE 8"-0" AND INDOOR THEN EMT...

16120 WIRES AND CABLES 600 VOLTS

- 1.1 COLOR CODING PHASE A PHASE B PHASE C NEUTRAL GROUND 20BY120W 400Y/277V BLACK BROWN BLUE YELLOW RED ORANGE WHITE GREEN...

16130 BOXES

- 1.1 ATTACHED SECURELY TO BUILDING CONSTRUCTION OR SUPPORT FROM SAME
- 1.2 MASONRY BOXES SHALL BE RACO OR STEEL CITY

16140 WIRING DEVICES

- 1.1 RECEPTACLES a. DUPLEX - 15 AMPS, 125V, AC GROUNDED UNO b. SINGLE - 15 AMPS, 125V, AC GROUNDED UNO...

16170 PANEL BOARDS

- 1.1 PANEL BOARDS SHALL HAVE, BUT NOT BE LIMITED TO THE FOLLOWING: a. THREE PHASE, 4 WIRE, COPPER BUSING, NEMA 1 ENCLOSURE FOR INDOOR, NEMA 3R FOR OUTDOOR...

16190 GROUNDING

- 1.1 FEEDERS AND BRANCH CIRCUITS a. PROVIDE A GREEN INSULATED GROUND CONDUCTOR, SIZED PER THE NEC IN EACH RACEWAY

16200 LIGHTING FIXTURES

- 1.1 COORDINATE FIXTURE TRIMS WITH CEILING IN/ON WHICH IT IS BEING INSULATED.
- 1.2 MATCH VOLTAGE OF FIXTURE TO CIRCUIT TO WHICH FIXTURE IS SHOWN CONNECTED

16210 EXISTING CONDITION

- 1.1 VISIT SITE AND BECOME FAMILIAR WITH EXISTING CONDITIONS IN AND AROUND THE BUILDING

PROTOTYPICAL "NO SURPRISE" MEP BID NOTE: EACH SET OF DRAWINGS IS INDIVIDUALLY ASSEMBLED AND AN ATTEMPT IS MADE TO INCLUDE LEASE SCOPE IN THE DRAWING SET...

16220 TELEPHONE SERVICE

- 1.1 SAFETY SWITCHES SHALL BE HEAVY DUTY TYPE, 600 OR 250 VOLT, WITH NUMBER OF POLES REQUIRED. FLUSH SAFETY SWITCHES SHALL BE QUICK-WAKE, QUICK-BREAK MECHANISM, VISIBLE BLADES WITH REJECTION TYPED FUSE CLIPS AND NEMA CLASS "J,P" FUSES...

PLUMBING SPECIFICATIONS

SECTION 15-A - PLUMBING

15A-01 GENERAL:

- A. ALL PLUMBING WORK SHALL CONFORM TO THE LANDLORD'S CRITERIA, THE STATE, COUNTY, CITY, LOCAL CODES AND ORDINANCES, SAFETY AND HEALTH CODES, NFPA CODES, ENERGY CODES AND ALL OTHER APPLICABLE CODES...

15A-02 MATERIALS

- A. REFER TO PLANS FOR SCHEDULES OF EQUIPMENT AND FIXTURES. AMERICAN STANDARD, KOHLER AND CRANE ARE CONSIDERED ACCEPTABLE AS EQUALS.
- B. SANITARY PIPING: 1. WHERE NOT OTHERWISE SPECIFIED THROUGHOUT THE DRAWING SET, WASTE, DRAIN AND VENT PIPING SHALL BE PER LOCAL CODE AND AUTHORITY HAVING JURISDICTION...

POTABLE WATER PIPING

- 1. WATER PIPING IN CEILING SPACE AND WITHIN WALLS MAY BE TYPE 'L' COPPER OR PEX, INSTALLED PER MANUFACTURER'S INSTRUCTIONS.
- 2. BELOW GRADE: TYPE 'K', ANNEALED TEMPERED COPPER TUBE FOR PIPE SIZES 2 INCHES AND SMALLER. BRAZE ALL JOINTS.

GAS PIPING

- 1. PROVIDE A COMPLETE GAS PIPING SYSTEM IF APPLICABLE. REFER TO PLANS TO DETERMINE IF A GAS SYSTEM IS REQUIRED.
- 2. GAS LINES SHALL BE BLACK STEEL, SCHEDULE 40, ASTM A-120, WITH MALLEABLE THREADED FITTINGS FOR 2" AND SMALLER, AND WITH WELDED JOINTS FOR 2 1/2" AND LARGER.

MECHANICAL SPECIFICATIONS

SECTION 15-C - HEATING, VENTILATION, AIR CONDITIONING

15C-01 GENERAL:

- A. ALL WORK SHALL CONFORM TO THE LANDLORD'S CRITERIA, THE STATE, COUNTY, CITY CODES AND ORDINANCES, SAFETY AND HEALTH CODES NFPA CODES, ENERGY CODES AND ALL OTHER APPLICABLE CODES...

RELATED TO HIS WORK.

- C. ALL MATERIALS SHALL BE NEW AND SHALL FIT THE SPACE AVAILABLE. VERIFY ALL DIMENSIONS AT THE SITE.
- D. ALL VALVES, DAMPERS, ETC., SHALL BE SO LOCATED AND INSTALLED TO PERMIT ACCESS FOR SERVICE WITHOUT DAMAGE TO BUILDING OR FINISHED MATERIALS.

15C-02 MATERIALS:

- A. REFER TO PLANS FOR SCHEDULES OF EQUIPMENT. ALL EQUIPMENT SHALL BE COMPLETE IN EVERY RESPECT WITH ALL DEVICES, APPURTENANCES, AND ACCESSORIES PROVIDED TO MEET THE DESIGN INTENT AND OPERATION OF THE SYSTEMS SHOWN ON THE DRAWINGS...

DUCTWORK INSULATION

- 1. INSTALL INSULATION PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S WRITTEN INSTRUCTIONS AND IN ACCORDANCE WITH RECOGNIZED INDUSTRY PRACTICES.
- 2. DUCT SIZES SHOWN ON DRAWINGS ARE INSIDE CLEAR DIMENSIONS. ALL SUPPLY AND RETURN AIR RECTANGULAR DUCTWORK SHALL BE INTERNALLY INSULATED WITH 1" THICK, 1 1/2" LB. DENSITY LINER...

TESTING, ADJUSTING AND BALANCING:

- 1. TESTING, ADJUSTING AND BALANCING OF ALL WORK SHALL BE MADE BY AN INDEPENDENT CONTRACTOR WHO IS CURRENTLY LICENSED ASSOCIATED AIR BALANCING COUNCIL (AAIB) OR NATIONAL ENVIRONMENTAL BALANCE BUREAU (NEBB) BALANCING CONTRACTOR...

ROOFTOP UNIT SEQUENCE OF OPERATION - CO2 SENSOR & ECONOMIZER

FAN CONTROL: THE SUPPLY FAN IS TO RUN CONTINUOUSLY DURING THE OCCUPIED MODE AND CYCLE ON AND OFF DURING THE UNOCCUPIED MODE BASED ON A CALL FOR HEATING OR COOLING. THE UNOCCUPIED SET POINT FOR COOLING WILL BE 85 FAHRENHEIT AND 60 FAHRENHEIT FOR HEATING.

COOLING CONTROL: UPON A CALL FOR COOLING, THE FIRST STAGE OF COOLING WILL BE ENABLED AND WILL OPERATE UNTIL THE SPACE TEMPERATURE IS SATISFIED. IF THE SPACE TEMPERATURE CONTINUES TO INCREASE THEN THE SECOND STAGE OF COOLING WILL BE ENABLED (IF APPLICABLE).

HEATING CONTROL: UPON A CALL FOR HEATING, THE FIRST STAGE OF HEATING WILL BE ENABLED AND WILL OPERATE UNTIL THE SPACE TEMPERATURE IS SATISFIED. IF THE SPACE TEMPERATURE CONTINUES TO DECREASE THEN THE SECOND STAGE OF HEATING WILL BE ENABLED (IF APPLICABLE).

THE OUTSIDE AIR DAMPER SHALL BE OPEN DURING THE OCCUPIED HEATING AND COOLING MODES FOR CODE REQUIRED MINIMUM OUTSIDE AIR VENTILATION AND SHALL REMAIN CLOSED DURING THE UNOCCUPIED MODE. IN THE OCCUPIED MODE THE CO2 SENSOR SHALL MODULATE THE OUTSIDE AIR DAMPER WHEN THE UNIT OPERATING IN THE MINIMUM OUTSIDE AIR MODE.

FIRE PROTECTION SYSTEM

- 1. SPRINKLER SYSTEM TO BE NFPA 13 AND SPRINKLER MONITORED WITH OCCUPANCY NOTIFICATION COMPLYING WITH H.C. AMENDMENTS - 903.4.
- 2. FIRE SPRINKLER AND FIRE ALARM WORK SHALL BE DONE UNDER A SEPARATE PERMIT (DESIGN/BUILD) BY LICENSED FIRE SPRINKLER AND FIRE ALARM CONTRACTORS.

16270 FIRE ALARM SYSTEM

- 1.1 FURNISH AND INSTALL FIRE ALARM POWER BOOSTER TO EXISTING BUILDING FIRE ALARM PANEL AS INDICATED ON DRAWINGS.
- 1.2 REMOTE ANNUNCIATOR PROVIDE AN ALPHANUMERIC ANNUNCIATOR WITH INTEGRAL ALPHANUMERIC DISPLAY, SYSTEM CONTROL/TEST SWITCHES, KEY OPERATED ENABLED SWITCH AND BACK BOX.

ALL RACEWAYS AND WIRING SHALL BE INSTALLED IN COMPLIANCE WITH NFPA STANDARD 70 (NATIONAL ELECTRIC CODE) NFPA STANDS 71 AND 72 NFPA 101 (LIFE SAFETY CODE) AMERICANS WITH DISABILITIES ACT (ADA) STANDARD BUILDING CODE (SBC) APPLICABLE LOCAL AND NATIONAL CODES AND AUTHORITIES HAVING JURISDICTION

- 1.1 SYSTEM OPERATION ACTUATION OF ANY FIRE ALARM INITIATING DEVICE SHALL IMMEDIATELY CAUSE THE FOLLOWING ACTIONS TO BE INITIATED: a. IDENTIFY THE TYPE OF ALARM, SPECIFIC DEVICE AND LOCATION ON THE BACK LIT LCD DISPLAY AT THE BUILDING FIRE ALARM CONTROL PANEL...

ADDITIONAL FIRE PROTECTION NOTES:

PASADENA, CA NOTE THIS BUILDING IS SPRINKLERED AND HAS A BUILDING FIRE ALARM SYSTEM. FIRE PROTECTION DRAWINGS TO MODIFY EXISTING SYSTEMS WILL BE SUBMITTED SEPARATELY FOR SEPARATE PERMIT BY LICENSED FIRE SPRINKLER/FIRE ALARM CONTRACTOR.

DRAWING INFORMATION IS DISTRIBUTED THROUGHOUT THE DOCUMENT SET. CONTRACTORS SHALL THOROUGHLY REVIEW ALL SHEETS AND SHALL NOTIFY CONSTRUCTION MANAGER FOR DIRECTION IF DISCREPANCIES ARE FOUND.

REQUIRED CONTRACTORS: ROOFER - BLUGH PACIFIC (562) 944-9753 FIRE ALARM - SMART SYSTEMS TECHNOLOGIES (949) 289-8629

GHIA Architect/Engineer/Development 14901 Quorum Drive Suite 300 Dallas Texas 75254 Ph: (972) 239-8884 Fax: (972) 239-5060

BISHOPS BISHOPS - TENANT FINISH-OUT 1715 E. COLORADO BLVD PASADENA, CA 91106

DO NOT SCALE DRAWINGS CONTRACTOR TO VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS-NOTIFY ARCHITECT OF ANY DISCREPANCIES PRIOR TO BEGINNING CONSTRUCTION

NO REVISION Peter A. Lepuch, P.E. REGISTERED PROFESSIONAL ENGINEER E 80072

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PROJECT NUMBER C170515 SHEET NUMBER MEP1.0 SPECIFICATIONS DATE OF THIS PRINTING - 03/26/18

REQUIRED CONTRACTORS: ROOFER - BLUGH PACIFIC (562) 944-9753 FIRE ALARM - SMART SYSTEMS TECHNOLOGIES (949) 289-8629



KEY NOTES BY SYMBOL '⬡'

- 1 MAINTAIN 10'-0" BETWEEN OUTSIDE AIR INTAKES AND ALL EXHAUST SOURCES (PLUMBING VENTS, EXHAUST FANS, COMBUSTION EXHAUST, ETC.). MECHANICAL CONTRACTOR SHALL PROVIDE OFFSETS AS NEEDED TO ENSURE EXHAUST FANS ARE 10'-0" AWAY FROM NEIGHBORING TENANT'S FRESH AIR INTAKES. PROVIDE OFFSETS AND ADJUST/RELOCATE EQUIPMENT AS NEEDED.
- 2 ROUTE 16" EXHAUST DUCT UP THROUGH ROOF. TERMINATE WITH MANUFACTURES ROOF CURB AND FAN PROVIDE WITH BACK DRAFT DAMPER.
- 3 EXISTING GAS, CONDENSATE AND POWER ARE FEED UP THROUGH ROOF VIA CURB WITH CONE TO EXISTING RTU. ROUTING OF THESE LINES IS NOT SHOWN AND WILL NEED TO BE FIELD VERIFIED PRIOR TO MODIFICATIONS.
- 4 NOT USED.
- 5 4" DRYER VENT LINE ROUTED UP THROUGH ROOF. TERMINATE WITH GOOSENECK AND BIRD SCREEN. FURROUT WALL IF NECESSARY TO KEEP VENT WITHIN WALL.
- 6 EX. ROOFTOP UNIT. REFER TO EQUIPMENT SCHEDULE SHEET M1. PROVIDE FLEXIBLE CONNECTORS FOR THE SUPPLY AND RETURN AIR DUCT CONNECTIONS. TRANSITION TO DUCT SIZES SHOWN PROVIDE CANT STRIPS, FLASHING, AND WEATHER PROOFING AROUND RTU.
- 7 REROUTE THE CONDENSATE DISPOSAL SYSTEM TO MOP SINK. TERMINATE ABOVE RIM LINE OF SINK.
- 8 EXISTING RTU LOCATED ABOVE LEASE SPACE SERVING SOME OTHER SPACE.

ASHRAE 62.1 Ventilation Comparison

3/7/2018

Bishops - Pasadena, CA

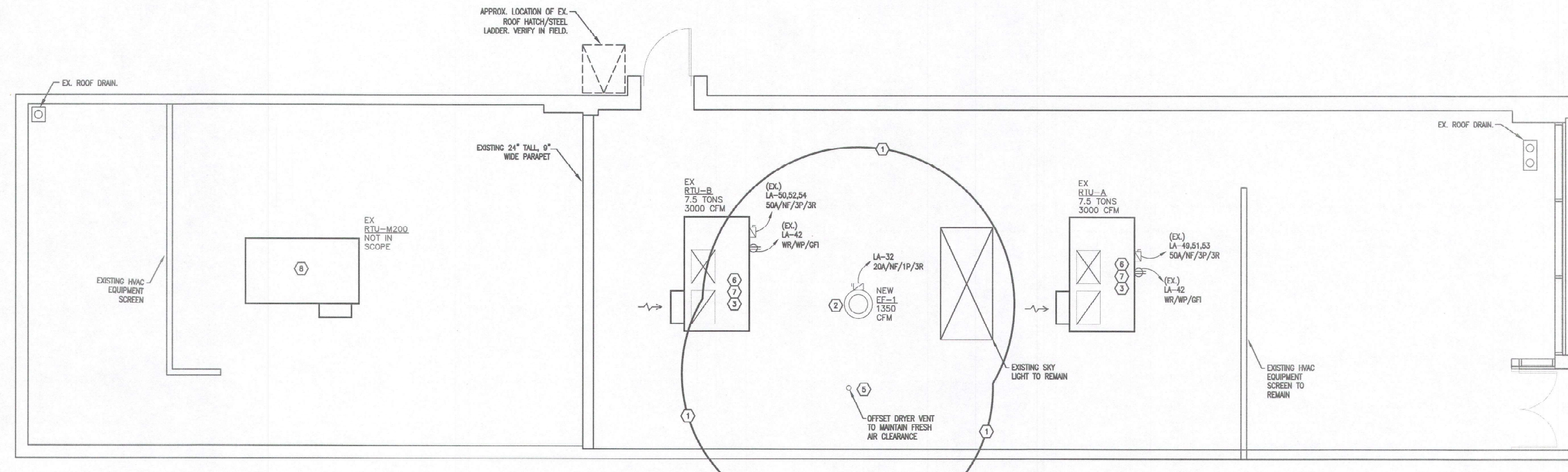
Standard Case: ASHRAE 62.1 - Table 403.3 Verification Rate Procedure													Design Case		
Zone	Occupancy Category	Area (sf)	Table 6-1 People	Table 6-1 Area Occupant Density (#/1000sf)	Expected Population (# persons)	Zone Breathing Zone Air Flow (CFM)	From Table 6-2 Zone Air Distribution Effectiveness (Ez)	Zone Outdoor Air Flow (Vo2)	Zone Primary Air Flow (Vpz)	Factor Zp=	From Table 6-3 Ventilation System Efficiency (Ev)	Outdoor Air Intake (CFM)	Total Outdoor Airflow provided by HVAC equip. (CFM)	Total Airflow which Exceeds Standard	Design % by which Outside Air Design Flow Exceeds Standard
Barber Shop	Barber Shop	1266	7.5	0.06	25	31.65	0.8	391.7	1	391.7	1	391.7	750	3000	91.5%
Back of Hous Laundry Roo		139	5	0.17	10	1.39	0.8	79.5	1	79.5	1	79.5	50	400	69.3%
Restroom	Restroom	147	0	0	0	0.0	0.8	0.0	1	0.0	1	0.0	0	100	
Office Space	Office space	773	5	0.06	10	7.73	0.8	106.3	1	106.3	1	106.3	650	2500	511.5%
<b>Total</b>		<b>2325</b>			<b>40</b>							<b>527.5</b>	<b>1450</b>	<b>6000</b>	

$V_{bz} = R_p \cdot P_z + R_s \cdot A_z$   
 $V_{bz}$  = Total airflow provided by the HVAC equipment (Outdoor + Recirculated).  
 $V_{bz} = V_{bz} / E_z$   
 $Z_p = V_{bz} / V_{pz}$

Barber Shop Required Exhaust = 1162.5 CFM as required by Table 6.4 minimum exhaust rates.  
 Restroom Required Exhaust = 70 CFM as required by Table 6.4 minimum exhaust rates.  
 Total exhaust Required = 1232.5 CFM

Terminology has been adopted from ASHRAE std 62.1-2010, refer to Chapter 6 of that code for additional terminology, equations, etc.

PASADENA, CA NOTE:  
PROVIDE SEISMIC STRAPPING ON EQUIPMENT IF NOT PRESENT.

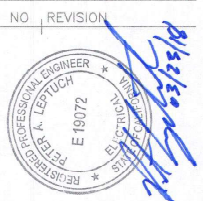


01 ROOF PLAN  
SCALE: 1/4"=1'-0"

**BISHOPS**

BISHOPS - TENANT FINISHOUT  
1715 E. COLORADO BLVD  
PASADENA, CA 91106

DO NOT SCALE DRAWINGS  
CONTRACTOR TO VERIFY  
ALL EXISTING CONDITIONS AND  
DIMENSIONS-NOTIFY ARCHITECT  
OF ANY DISCREPANCIES PRIOR TO  
BEGINNING CONSTRUCTION



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ISSUE FOR PERMIT 03/26/18

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ROOF PLAN

DATE OF THIS PRINTING - 03/22/18

PLUMBING FIXTURE SCHEDULE

MARK	FIXTURE	CW	HW	W	V	ADA	DESCRIPTION
WC	WATER CLOSET	1"	---	4"	2"	YES	FIXTURES: AMERICAN STANDARD #3043.511 MADERA, ELONGATED, 16.5" HIGH, ADA COMPLIANT SLOAN MODEL FLUSHOMETER #111-1.28 (SUPPLY LINES: 1"). 1.1 GPF COLOR: WHITE SEAT: CHAMPION #5325.010 (DISTRIBUTION LINES: 1-1/4") INSTALL FLUSH HANDLE ON WIDE/ACCESSIBLE SIDE OF STALL/ROOM.
LAV	LAVATORY	1/2"	1/2"	2"	1-1/2"	YES	FIXTURE: AMERICAN STANDARD "LUCERNE" WALL-HUNG LAVATORY, WITH VITREOUS CHINA. FAUCET: AMERICAN STANDARD "MONTERREY" MODEL #8114.114 SINGLE CONTROL CENTERSET FAUCET. CAST BRASS BODY, LESS POP-UP DRAIN, ROD AND HOLE. MIXING VALVES, 0.35 GPM, VANDAL-RESISTANT, PRESSURE COMPENSATING MULTI-LAMINAR SPRAY. MIXING VALVES SHALL BE POWERS #LM495; ASSE 1070.
SS	SERVICE SINK	1/2"	1/2"	3"	1-1/2"	YES	FIXTURES: FLOOR MOUNTED MOP SINK 24"x24", MODEL -FIAT MSB2424. FAUCET: MOEN #8232 W/ ADA LEVER HANDLES. SS DOME STRAINER AND LINT BASKET.
SHO	SHOWER	1/2"	1/2"	2"	1-1/2"	YES	SHOWER VALVE: LEONARD 4505 (ADA COMPLIANT SHOWER SYSTEM W/ SHOWER HEAD, DIVERTER VALVE, HAND HELD SHOWER SPRAY, ADJUSTABLE STRAINER W/ FLASHING CLAMP) AND LENOARD 4511 MIXING VALVE (FOR NON ADA SHOWERS). PROVIDE 3" FLOOR DRAIN IN SHOWER STALL, PER "FD" FIXTURE SPEC ABOVE. MIXING VALVE IS INTEGRAL AND FACTORY SET AT 110°F MAXIMUM WATER TEMPERATURE. CUSTOM TILE, REFERENCE ARCHITECT SHEETS.
FD	FLOOR DRAIN	---	---	3"	1-1/2"	---	3" CAST IRON FLOOR DRAIN WITH POLISHED NICKEL BRONZE TOP. ZURN Z415J-P (SQUARE) J.R. SMITH NO 2005Y-A, JOSAM3000-S OR APPROVED EQUAL. ADJUSTABLE STRAINER WITH FLASHING CLAMP DEVICE, PROVIDE TRAP PRIMER CONNECTION PER LL REQUIREMENTS.
TP	TRAP PRIMER	---	---	---	---	---	FIXTURE: PPP PR-500 / SUPPLIES: McGUIRE #2165CC.
LB	WASHING MACHINE BOX	VARIABLES	VARIABLES	2"	1-1/2"	---	FIXTURE: OATEY #38747 WITH INTEGRAL SHOCK ARRESTERS OR EQUAL
SB	SHAMPOO BOWL	1/2"	1/2"	2"	1-1/2"	YES	BY OWNER; INSTALLED BY GC. HAIR TRAP MARBLE #1701 TO BE FURNISHED AND INSTALLED BY GC.
DF	DRINKING FOUNTAIN	1/2"	---	2"	1-1/2"	YES	ELKAY - EZSTLBC BARRIER FREE HI-LOW DRINKING FOUNTAIN. REFER TO ELKAY TEMPLATE FOR WATER ROUGH-IN HEIGHT, APPROX. 19" AFF. PROVIDE APRON LKAPREZL, INSTALL PER ADA.
HS	DROP-IN SINK	1/2"	1/2"	2"	1-1/2"	YES	PROVIDED BY OWNER, INSTALLED BY G.C. HAIR TRAP (MARBLE 1701) AND MIXING VALVE (POWERS #LM495-1; ASSE 1070), TO BE FURNISHED AND INSTALLED BY G.C.
RP	RECIRCULATION PUMP	---	1"	---	---	---	BELL AND GOSSETT SERIES 100, BRONZE BODY W/ JOHNSON CONTROLS AQUASTAT MODEL A19DAC-1C, PLACE ABOVE WATER HEATER OR IN UTILITY ROOM WHERE SPACE ALLOWS. 5 GPM, 5 TOTAL HEAD FT., 1/12 HP. 115V, 1 PHASE, 60 HZ.
WH	WATER HEATER (ELECTRIC)	1"	1"	---	---	---	RHEEM ELDB0 OR EQUAL. 208V, TWO 3.0 KW STAGES, 6.0 KW TOTAL, 80 STORAGE GALLONS. GLASS LINING. 23.75" DIAMETER, 30" DRAIN PAN. 59-1/2" TALL. ADJUST BREAKER WIRE SIZE FOR EXACT HEATING ELEMENT SELECTED. EXPANSION TANK: WATTS NO. DETA-5, 3.5-GALLON TANK VOLUME, 0.76-GALLON ACCEPTANCE VOLUME.

NOTES:  
 1. ALL FIXTURES MAY BE SUBSTITUTED FOR APPROVED EQUALS.  
 2. NOT ALL FIXTURES USED ON ALL JOBS.  
 3. ALL FIXTURES - PROVIDE TRAP PRIMERS WHERE REQUIRED BY LOCAL CODES AND/OR AHJ.

PASADENA, CA NOTE (HOT WATER RECIRC. SYSTEM):  
 PER CALIFORNIA ENERGY EFFICIENCY STANDARD, SECTION 113(c)5, THE PLUMBING CONTRACTOR SHALL PROVIDE AND INSTALL:  
 A) AN AIR RELEASE VALVE REQUIRED ON THE INLET SIDE OF THE RECIRCULATING PUMP, WITHIN 4' OF THE PUMP.  
 B) A CHECK VALVE REQUIRED BETWEEN THE RECIRCULATING PUMP AND THE WATER HEATING EQUIPMENT TO PREVENT THE HOT WATER FROM FLOWING BACKWARDS THROUGH THE RECIRCULATION LOOP.  
 C) A CHECK VALVE REQUIRED ON THE COLD WATER SUPPLY LINE BETWEEN THE HOT WATER SYSTEM AND THE NEXT CLOSEST TEE ON THE COLD WATER SUPPLY LINE. (SEE CPC 608.3 FOR EXPANSION TANK REQUIREMENTS)

THIS IS A CALIFORNIA PROJECT THAT REQUIRES LOW-FLOW FIXTURES AND NO-LEAD FIXTURES, PER STATE CODE. VERIFY WITH MANUFACTURER AT TIME OF ORDER THAT FIXTURES LISTED HERE WILL BE SUITABLE FOR USE IN THE STATE, AND IF NOT, PROVIDE MOST SIMILAR AVAILABLE COMPLIANT SUBSTITUTE.

PLUMBING LEGEND

- HW HOT WATER SUPPLY LINE
- CW COLD WATER SUPPLY LINE
- X SANITARY WASTE LINE
- PIPE DROP
- RISER VENT (DASHED)
- T.P. TRAP PRIMER
- CONTINUATION
- END CAP
- ISOLATION / SHUT-OFF VALVE
- EXTENT OF SAWCUTTING/ TRENCHING
- WATER SUBMETER, BETWEEN VALVE AND 1ST FIXTURE.
- REMOTE READOUT FOR SUBMETER, +54" VERIFY LOCATION WITH OWNER'S REP.
- CONNECTION OF NEW TO EXISTING.
- RPZ REDUCED PRESSURE ZONE BACK FLOW ASSEMBLY.
- CHECK VALVE
- RECIRCULATION PUMP.
- FLOOR CLEAN OUT
- VENT THRU ROOF
- EXISTING PIPING
- VENT

CALIFORNIA NOTE:  
 ALL FIXTURES SHALL BE THE MINIMUM WATER EFFICIENCY RATES OF THE FOLLOWING FIXTURES PER CGSBC TABLE 5.303.2.2  
 A. SHOWERHEADS - 2.0 GPM @ 80 PSI.  
 B. LAVATORIES - 0.5 GPM @ 60 PSI.  
 C. WATER CLOSETS - 1.28 GALLONS/FLUSH.  
 D. URINALS (FLOOR MOUNTED) - 0.5 GALLONS/FLUSH.  
 E. URINALS (WALL MOUNTED) - 0.125 GALLONS/FLUSH.  
 CONFIRM AT TIME OF ORDER AND IF THESE EFFICIENCIES ARE NOT MET, ORDER THE NEAREST EQUAL FIXTURE AVAILABLE FROM THE PLUMBING SUPPLY HOUSE THAT MEETS THE ABOVE FLOW REQUIREMENTS.

PLUMBING PLAN KEY NOTES

1. PROVIDE AND INSTALL TANK TYPE WATER HEATER, PER SCHEDULE AND DETAIL 03 (SHEET P2.0)
2. POINT OF CONNECTION (DIAGRAMMATIC) TO WATER MAIN IN CEILING SPACE, VERIFY POINT OF CONNECTION. FROM POINT OF CONNECTION, ROUTE 1-1/2" C.W. PIPING IN JOIST SPACE.
3. PROVIDE TRAP PRIMERS ON ALL HUB/FLOOR DRAINS, WHERE REQUIRED. VERIFY EXACT LOCATION WITH OWNER'S REPRESENTATIVE.
4. DO NOT ROUTE LINES ABOVE ELECTRICAL GEAR, OR PROVIDE PROTECTION IF LINES ARE EXISTING, VIA WATERPROOF SLEEVE, WHERE IMPRACTICAL. ELECTRICAL CONTRACTOR SHALL PROVIDE NEMA 3R (OUTDOOR RATED) GEAR/EQUIPMENT.
5. PROVIDE WASHER BOX AT 36" AFF FOR HW, CW & SAN CONNECTIONS. WALL SHALL ALLOW FOR 4" DRYER VENT TO BE CONCEALED WITHIN WALL.
6. PROVIDE W.H.A. ON ALL FAST CLOSING VALVES, AND WHERE ELSE INDICATED AND WHERE NECESSARY.
7. B.F.P. SHALL BE ACCESSIBLE FOR INSPECTION AND TESTING. TYPICALLY ABOVE OR NEXT TO WATER HEATER. ROUTE DISCHARGE TO NEAREST APPROVED RECEPTOR, PROVIDE AND INSTALL HUB DRAIN WITH TRAP PRIMER AS NEEDED.
8. FURROUT WALLS AS NECESSARY FOR POWER, PLUMBING, AND DRYER VENT.
9. PROVIDE NEPTUNE E-CODER METER WITH ELECTRONIC OUTREADER (REMOTE READOUT REGISTER). VERIFY WITH OWNER'S REP FINAL PLACEMENT OF REMOTE READ OUT

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ARCHITECT, LANDLORD OR TENANT OF ANY DISCREPANCIES ENCOUNTERED ON THE PLANS OR IN EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF WORK. BIDDERS ARE TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS AND SATISFY THEMSELVES AS TO THE NATURE AND SCOPE OF WORK. THE BASE BID SHALL REFLECT MODIFICATIONS TO SYSTEMS AND DEVICES AS REQUIRED BY STATE AND LOCAL CODES WHETHER INDICATED OR NOT ON CONTRACT DOCUMENTS. THE SUBMISSIONS OF A BID WILL BE EVIDENCE THAT SUCH AN EXAMINATION AND COMPLIANCE WITH GOVERNING CODES / REQUIREMENTS HAS BEEN MADE. LATER CLAIMS FOR LABOR, EQUIPMENT, OR MATERIALS REQUIRED OR FOR DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN, HAD AN EXAMINATION AND CODE REVIEW BEEN MADE, WILL NOT BE ALLOWED.

ALL PLUMBING AND ELECTRICAL SHALL BE CONCEALED WITHIN WALLS OR ABOVE CEILING. SOME LINES MAY BE GRAPHICALLY OFFSET IN THE DRAWING SET TO SHOW DIAGRAMMATIC CONNECTIONS.

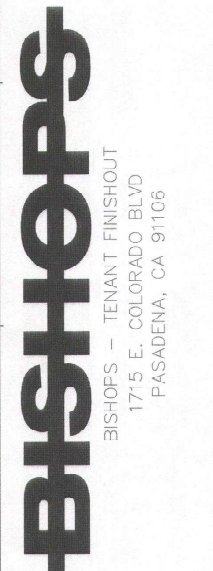
BISHOPS - PROTO NOTE:  
 BASE BID TO ASSUME THAT THE JURISDICTION REQUIRES CONTAINMENT BACK FLOW PREVENTION. P.C. SHALL CONFIRM WITH PLUMBING INSPECTOR IF BUILDING HAS MAIN RPZBFP AND DOES NOT REQUIRE ADDITIONAL BFP IN SPACE, THE PLUMBER MAY OMIT BFP. IF JURISDICTION REQUIRES ISOLATION BFP, THE PLUMBING CONTRACTOR SHALL OMIT THE RPZ BFP NEAR THE MOP SINK AND INSTEAD SHALL PROVIDE A POINT OF USE BFP AT THE WATER BAR, AT THE DRINKING FOUNTAIN, AS APPLICABLE/AS REQUIRED AND ELSEWHERE AS DETERMINED BY THE PLUMBING INSPECTOR.

BISHOPS TYPICAL:  
 MINIMUM WATER SIZE WITH FLUSH VALVE TOILETS SHALL BE 1-1/4". MINIMUM WATER LINE SIZE WITH FLUSH TANK TOILETS MAY BE 3/4" OR 1" DEPENDING ON SITE CONDITIONS.

CONNECT NEW TO EXISTING  
 2" AND 3" SANITARY LINES SHALL HAVE 1-1/2" VENT RISERS, 4" SANITARY LINES SHALL HAVE 2" VENT RISERS. OVERHEAD HORIZONTAL VENTS SHALL BE 2". CONFORM TO THESE SIZES UNLESS OTHERWISE ALLOWED/ REQUIRED BY A.H.J.  
 VERIFY ALL CONDITIONS IN FIELD.



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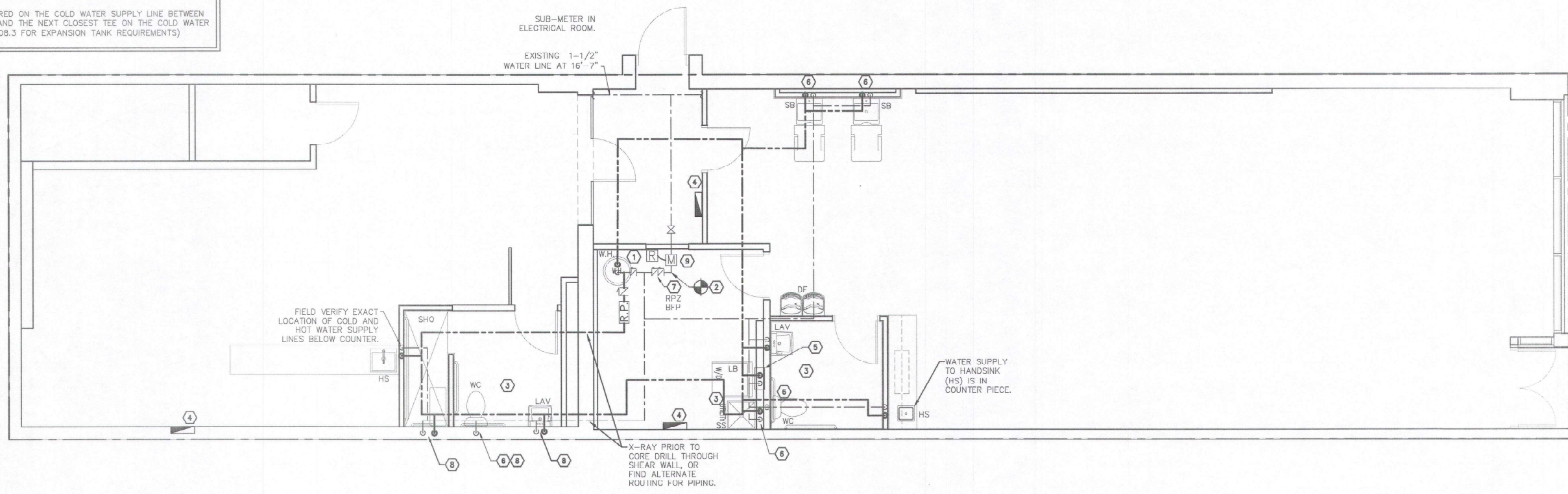
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SHEET NUMBER  
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 PLUMBING SUPPLY PLAN  
 DATE OF THIS PRINTING - 03/27/18



01 PLUMBING SUPPLY PLAN  
 SCALE: 1/4"=1'-0"



**PLUMBING GENERAL NOTES**

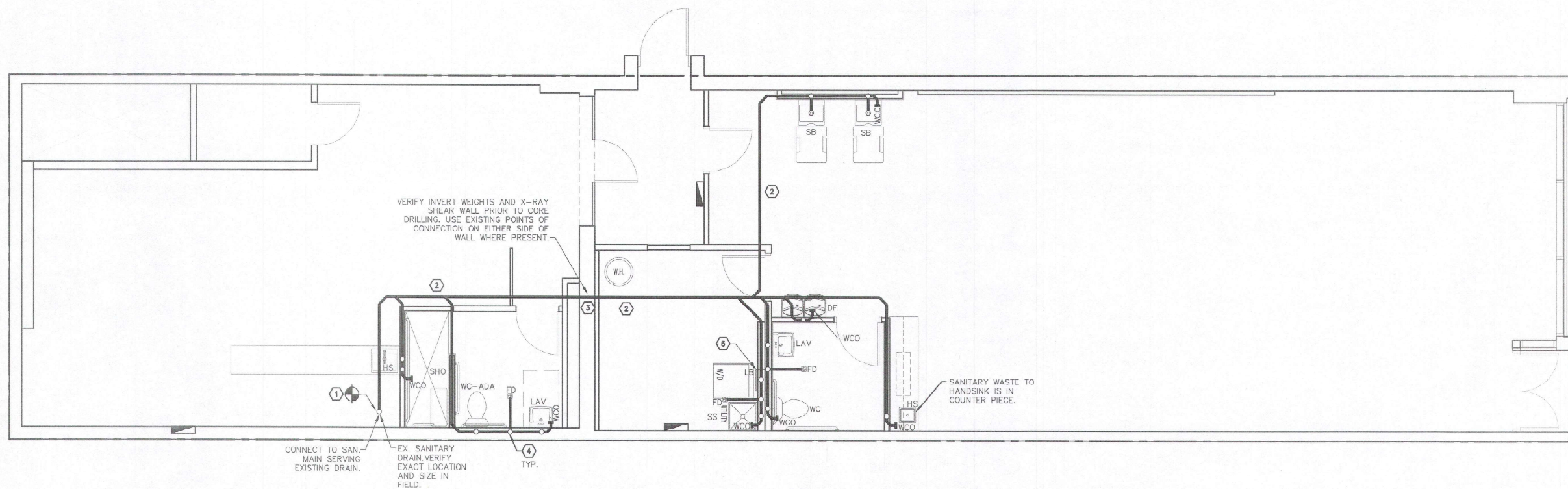
- CONTRACTORS AND SUB CONTRACTORS SHALL CAREFULLY REVIEW THE CONSTRUCTION DOCUMENTS. INFORMATION REGARDING THE COMPLETE WORK IS DISPERSED THROUGHOUT THE DOCUMENT SET AND CANNOT BE ACCURATELY DETERMINED WITHOUT REFERENCING THE COMPLETE DOCUMENT SET.
- COORDINATE WITH THE WORK OF OTHER SECTIONS, EQUIPMENT FURNISHED BY OTHERS, REQUIREMENTS OF THE OWNER AND CONSTRAINTS OF THE EXISTING CONDITIONS OF THE PROJECT SITE.
- ALL ROOFING WORK (CUTS, REPAIRS, SPUD WORK, ETC.) SHALL BE PERFORMED BY THE LANDLORD'S APPROVED ROOFING CONTRACTOR.
- DRAWINGS FOR THE PLUMBING WORK ARE DIAGRAMMATIC SHOWING THE GENERAL LOCATION, EQUIPMENT TYPE AND LAYOUT, THE DRAWINGS SHALL NOT BE SCALED FOR EXACT MEASUREMENT. REFER TO MANUFACTURERS STANDARD INSTALLATION DRAWINGS FOR EQUIPMENT CONNECTIONS AND INSTALLATION REQUIREMENTS. PROVIDE PLUMBING, CONNECTIONS, OFFSETS, ACCESSORIES AND MATERIALS NECESSARY FOR A COMPLETE SYSTEM.
- ALL WORK SHALL COMPLY WITH STATE AND LOCAL CODE REQUIREMENTS AS APPROVED AND AMENDED BY THE AUTHORITY HAVING JURISDICTION INCLUDING APPLICABLE LOCAL, STATE AND NATIONAL CODES THE TIME OF THE PROPOSAL. PURCHASE ALL PERMITS ASSOCIATED WITH THE WORK AND OBTAIN ALL INSPECTIONS REQUIRED BY CODE.
- WASTE PIPING SHALL BE INSET FROM PERIMETER WALLS EXCEPT AT FIXTURE CONNECTIONS TO AVOID STRUCTURAL ELEMENTS AND ALLOW FOR REPAIRS WITHOUT TEARING OUT A DEMISING WALL, ETC.
- TRENCHING OF EXISTING REINFORCED CONCRETE FLOOR SLAB IS TO BE KEPT TO A MINIMUM QUANTITY AND WIDTH. WHERE CODES PERMIT, GROUP UNDER FLOOR UTILITIES IN SINGLE TRENCHES. THE MINIMUM TRENCH WIDTH IS TO BE TWELVE INCHES (12"). DOWEL NEW SLAB INFILLS INTO EXISTING SLAB EDGES. PROVIDE SLAB INFILL STEEL REINFORCING TO MATCH EXISTING. COAT SAWCUT SLAB EDGES WITH HIGH-STRENGTH BONDING AGENT. LAY IN NEW UNDERSLAB VAPOR BARRIER, LAP AND SEAL TO EXISTING VAPOR BARRIER.
- TENANT IS NOT TO SUSPEND ANY ITEMS FROM THE BOTTOM OF THE ROOF DECK. TENANT IS NOT TO SUSPEND ANY ITEMS FROM THE BOTTOM ROOF JOIST OR JOIST GIRDER CHORDS, WITHOUT WRITTEN APPROVAL OF THE BUILDING SHELL STRUCTURAL ENGINEER OF RECORD. TENANT IS TO SUBMIT PROPOSED DETAILS, FOR ITEMS SUSPENDED FROM THE ROOF STRUCTURE, FOR REVIEW BY SHELL STRUCTURAL ENGINEER.
- IN GENERAL, NO DUCTWORK, CONDUITS, PIPES, BANNERS, SIGNAGE, OR CURTAIN/SUSPENDED FURR-DOWNS OR WALL ARE TO BE SUSPENDED FROM THE BOTTOM OF THE ROOF STRUCTURE, WITHOUT APPROVAL. NO TENANT FINISHOUT WORK IS TO BE SUSPENDED FROM ANY WORK BY ANOTHER TRADE, FROM JOIST BRIDGING OR FROM X-BRACING OR FROM THE BOTTOM OF THE ROOF DECK. SUSPENDED TEE GRID CEILINGS AND LIGHT FIXTURES MAY BE SUSPENDED FROM THE BOTTOM ROOF JOIST AND BOTTOM JOIST GIRDER CHORDS IN MAXIMUM WEIGHTS OF SEVENTY-FIVE (75) POUNDS AT BOTTOM CHORD JOIST PANEL POINTS, WITHOUT ADDED STEEL ANGLE REINFORCING UP TO TOP JOIST CHORDS. SUSPENDED CEILINGS AND LIGHT FIXTURES ARE NOT TO BE SUSPENDED FROM THE BOTTOM OF THE ROOF DECK.
- SET MAXIMUM TEMPERATURE AT HAND SINKS AT 110°F.
- PROVIDE HEAT TRACE ON ALL PIPES INSTALLED IN AREAS SUBJECT TO FREEZING. INSTALL PIPING ON CONDITIONED SIDE OF BUILDING INSULATION.
- PROVIDE CUTOFF ABOVE CEILING, IN ADDITION TO AT FIXTURE WHERE REQUIRED BY A.H.J.
- LABEL ALL ABOVE CEILING VALVES AND OR EQUIPMENT ON T-BAR GRID, ON ACCESS PANELS SERVING SUCH EQUIPMENT. USE 1/2" TEXT ON WHITE PEEL AND STICK LABELS.
- WHERE POSSIBLE, GROUP PLUMBING VENT LINES TOGETHER AND USE A SINGLE ROOF PENETRATION.
- NO INFORMATION IS AVAILABLE AT TIME OF DESIGN INDICATING A LIFT SYSTEM WILL BE NEEDED. SHOULD UNEXPECTED CONDITIONS BE FOUND ON SITE, THE C.C. SHALL PREPARE A BID FOR ADDITIONAL WORK FOR THIS SCOPE.
- NO PVC SHALL BE INSTALLED IN PLENUM SPACES. IF SPACE ABOVE CEILING IS USED BY LANDLORD FOR A PLENUM, TAKE WET WALLS TO DECK TO ENCLOSE PVC.
- END OF LINE CLEANOUTS IN OVERHEAD WASTE LINES IN PARKING OR TENANT SPACES BELOW ARE ALLOWED IN LIEU OF FCO OR WALL CO WITHIN THE TENANT'S SPACE, UNLESS PROHIBITED BY LANDLORD OR ABOVE A GYPSUM BOARD CEILING OF A FINISHED TENANT SPACE BELOW.
- WHERE APPLICABLE ALL OVERHEAD PIPING IN PARKING STRUCTURES BELOW SPACE SHALL BE TUCKED UP NEATLY AS HIGH AS POSSIBLE TO AVOID VEHICULAR TRAFFIC DAMAGE.

**PLUMBING PLAN KEY NOTES**

- CONNECTION TO EXISTING SANITARY SEWER MAIN LOCATION SHOWN IS DIAGRAMMATIC, AT APPROXIMATELY THE LOCATION INDICATED. COORDINATE EXACT LOCATION IN FIELD. MINIMIZE NUMBER OF TIE IN POINTS. VERIFY LOCATION, INVERT, AND DIRECTION OF FLOW PRIOR TO CONNECTING.
- SLOPE UNDERSLAB 4" SANITARY LINE AT 1/8" PER FOOT. VERIFY EXACT POINT OF CONNECTION IN FIELD.
- COORDINATE ROUTING OF UNDERSLAB WASTE LINES IN FIELD WITH STRUCTURAL ELEMENTS.
- FURROUT WALLS AS NECESSARY FOR POWER, PLUMBING, AND DRYER VENT.
- PROVIDE WASHER BOX AT 36" AFF FOR HW, CW & SAN CONNECTIONS. WALL SHALL ALLOW FOR 4" DRYER VENT TO BE CONCEALED WITHIN WALL.

Water Service Calculation - Barber Shop				3/15/2018		Bishops - Pasadena, CA	
F.U. = fixture Units				(Chapter 6, Table 610.3)		2016 UPC	
	Quantity	Waste F.U. (per fixture)	Total Waste F.U.	Water Supply F.U. (per fixture)	Total Water Supply F.U.		
Water Closet (Flush Valve)	2	6	12	varies	40		
Lavatory / Handwash Sink	4	2	8	1	4		
Sink (Hair)	2	2	4	2	4		
Mop Sink	1	4	4	3	3		
Floor Drain	3	2	6	0	0		
Clothes Washer	1	10	10	4	4		
Drinking Fountain	1	1	1	0.5	0.5		
<b>Total Fixture Units</b>		<b>Waste: 45</b>		<b>Supply: 55.5</b>			
		<b>USE 4" WASTE LINE</b>		<b>FOR FLUSH TANK - USE 1-1/2" DISTRIBUTION LINE</b>			
				<b>FOR FLUSH VALVE - USE 2" DISTRIBUTION LINE</b>			
<b>Pipe Sizes based on UPC</b>							
Misc:	1-1/4" trap	0					
	1-1/2" trap	0					
	2" trap	0					
	3" trap	0					
	4" trap	0					
<b>Sizing Table:</b>							
Pipe Size	1.25"	1.5"	2"	3"	4"	6"	
<b>Maximum Units (Waste)</b>							
Horizontal	1	2	16	48	256	1380	
Vertical	1	1	8	35	216	720	
<b>Water Sizing:</b>							

Storage Tank Water Heater Sizing Calculator						
Developed by the Plan Review Unit of the Environmental Health Services Section						
Facility Name:		BISHOPS				
Address:		Pasadena, CA				
EQUIPMENT			GPH CALCULATED			
Enter the description, and number and size of compartments for each sink below	Description	Number of compartments	(inches) Length Width Depth		Gallons Per Hour (GPH)	
Largest Sink #1					0	
Sink #2					0	
Sinks are calculated at 75% capacity					Total	0
Enter type of prep sink and number of sink compartments for each sink below	Type of prep sink (vegetable, meat, seafood)	Number of compartments	Gallons Per Hour (GPH)			
Prep sink #1			0			
Prep sinks are calculated at 5 gallons per compartment					Total	0
Enter the quantity of equipment below	Quantity				Gallons Per Hour (GPH)	
Hand sinks	4				20	
Shampoo sinks	2				30	
Mop sink	1				5	
Clothes washer	1				6.8	
Shower	1				15	
Enter a description and estimated gallon per hour (GPH) usage for each sink below	Description	Estimated gallons per hour (GPH) usage				
Other Equipment		0				
Other Equipment		0				
Hand sinks and mop sinks are calculated at 5 GPH each, showers at 15 GPH each.					Total	76.8
Hose reels are calculated at 5 GPH, clothes washers at 6.8 GPH, other equipment at the usage entered						
Enter the make, model and Final Rinse Usage (GPH) for dishmachines	Make	Model	Final Rinse Usage (GPH) Found in "Dishmachine Specs" sheet below or on manufacturer's spec sheet		Gallons Per Hour (GPH)	
Dishmachine #1					0	
Enter the quantity of pre-rinse units	Quantity				Gallons Per Hour (GPH)	
Pre-rinse					0	
Dishmachines are calculated at 70% of the final rinse usage specified by the manufacturer.					Total	0
Pre-rinsers are calculated at 45 GPH						
<b>Recovery Rate Needed (GPH):</b>					<b>77</b>	
<b>Water Heater Input (BTU or kW) Needed:</b>						
<b>Gas Water Heater</b>			<b>Electric Water Heater</b>			
67,000 BTU at 80°F rise			15 kW at 80°F rise			
76,000 BTU at 90°F rise			17 kW at 90°F rise			
84,000 BTU at 100°F rise			19 kW at 100°F rise			



**01 PLUMBING WASTE PLAN**  
SCALE: 1/4"=1'-0"



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**BISHOPS**

BISHOPS - TENANT FINISHOUT  
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DO NOT SCALE DRAWINGS.  
CONTRACTOR TO VERIFY  
ALL EXISTING CONDITIONS AND  
DIMENSIONS-NOTIFY ARCHITECT  
OF ANY DISCREPANCIES PRIOR  
TO BEGINNING CONSTRUCTION

NO REVISION

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PROJECT NUMBER  
**C170515**

SHEET NUMBER

**P2.0**  
**PLUMBING**  
**WASTE PLAN**  
DATE OF THIS PRINTING - 03/22/18

**PLUMBING MATERIALS**

- A. SANITARY PIPING:**  
(WHERE NOT OTHERWISE SPECIFIED THROUGHOUT THE DRAWING SET, WASTE, DRAIN AND VENT PIPING SHALL BE PER LOCAL CODE AND AUTHORITY HAVING JURISDICTION.)
1. UNDERSLAB DRAIN PIPING SHALL BE SCHEDULE 40 PVC.
  2. VENT PIPING SHALL BE SCHEDULE 40 PVC. VENT PIPING ABOVE FLOOR 2" OR SMALLER MAY BE GALVANIZED STEEL.
  3. CONDENSATE PIPING SHALL BE TYPE "L" HARD DRAWN COPPER TUBE WITH 95-5 TIN-ANTIMONY SOLDERED JOINTS AND WROUGHT COPPER FITTINGS WITH DIELECTRIC SEPARATION BETWEEN DISSIMILAR METALS. CONDENSATE PIPING BELOW ROOF DECK MAY BE PVC. PROVIDE SHARKBITE TRANSITION FROM PVC TO COPPER.
  4. INSULATE ALL HORIZONTAL RUNS OF PIPING LOCATED IN CEILING SPACES OF TENANTS IN SPACES BELOW WHEN APPLICABLE. INSULATION TO BE AS SPECIFIED FOR WATER PIPING.
  5. PROVIDE LINE-ITEM BID TO UTILIZE PVC. OBTAIN APPROVAL FROM INSPECTOR PRIOR TO INSTALLATION THAT PVC IS ALLOWED FOR THE SPECIFIC HVAC LAYOUT FOR THIS PROJECT.
- B. POTABLE WATER PIPING**
1. ALL HOT AND COLD WATER SUPPLY PIPING, WHERE ALLOWED BY A.H.J. AND OWNER SHALL BE CPVC OR PEX.
  2. WATER PIPING IN CEILING SPACE AND WITHIN WALLS MAY BE TYPE "L" COPPER OR PEX, INSTALLED PER MANUFACTURER'S INSTRUCTIONS. PROVIDE SHARK-BITE TRANSITIONS, OR APPROVED EQUALS.
  3. BELOW GRADE: TYPE "K", ANNEALED TEMPERED COPPER TUBE FOR PIPE SIZES 2 INCHES AND SMALLER. BRAZE ALL JOINTS.
  4. WHERE APPLICABLE, TRANSITIONS BETWEEN COPPER AND PLASTIC PIPE SHALL BE MADE BY SHARKBITE OR SIMILAR TRANSITIONS, RATED FOR USE WITH SUCH MATERIALS AS ARE BEING USED.
- C. GAS PIPING**
1. GAS LINES SHALL BE BLACK STEEL, SCHEDULE 40, ASTM A-120, WITH MALLEABLE THREADED FITTINGS FOR 2" AND SMALLER, AND WITH WELDED JOINTS FOR 2-1/2" AND LARGER.
  2. GAS PIPING EXPOSED ON ROOF MUST BE PAINTED WITH RUST-INHIBITING PAINT.

\*\*THIS MATERIALS LIST REPRESENTS THE MINIMUM SPECIFICATIONS SET FORTH BY THE MEP ENGINEER. CONTACT LANDLORD'S REPRESENTATIVE PRIOR TO BEGINNING CONSTRUCTION TO VERIFY IF THERE ARE ANY ADDITIONAL OR MORE STRINGENT REQUIREMENTS BEYOND THESE.

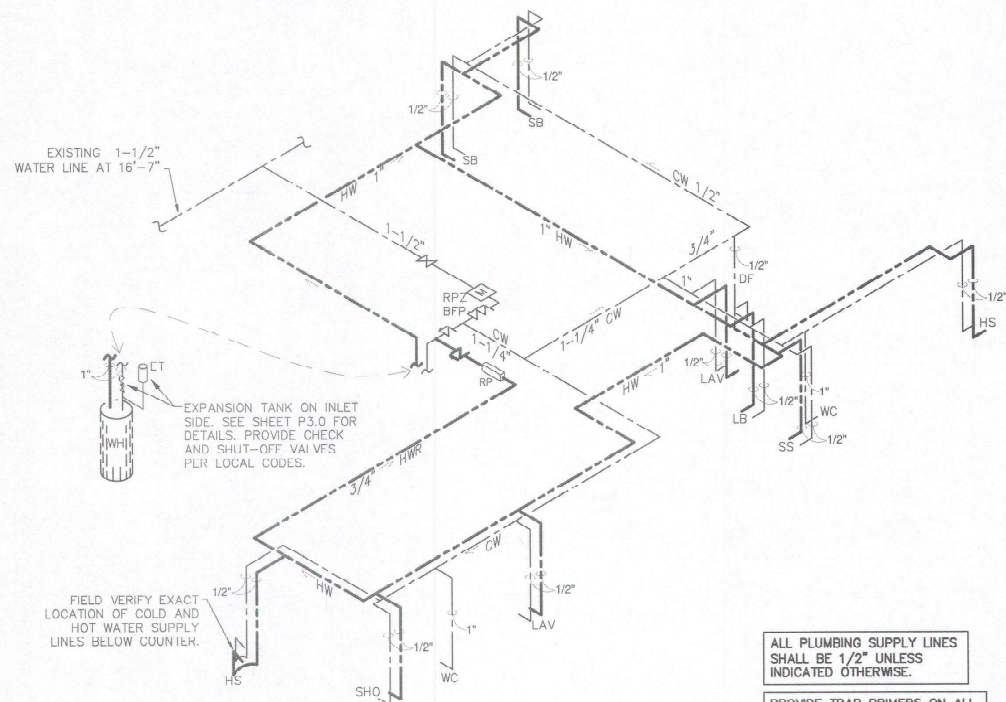
**PLUMBING RISER NOTES (SUPPLY & WASTE)**

1. PLUMBING CONTRACTOR SHALL REFER TO ARCHITECTURAL DRAWINGS, FOR PLACEMENT HOT AND COLD WATER SUPPLY, PRIOR TO INSTALLATION. WATER SUPPLY LOCATIONS ON THIS SHEET ARE DIAGRAMATIC.
2. PLUMBING CONTRACTOR SHALL CONFIRM WASTE LINES FOUND IN FIELD AND SHALL VERIFY THAT TENANT'S SANITARY WASTE LINES ARE CONNECTED TO BUILDING SANITARY WASTE LINE, AND NOT INTO A BUILDING COMMON GREASE WASTE LINE.
3. PROVIDE MINIMUM 6" AIR GAP AT DISCHARGE OF T&P AT WATER HEATER.

FIELD VERIFY LOCATION OF PLUMBING VTR, INSTALL AFTER ALL HVAC UNITS ARE IN PLACE TO ENSURE NO VENT IS WITHIN 10'-0" OF ANY FRESH AIR INTAKE AND THAT NO EXTRA / UNNECESSARY ROOF PENETRATIONS ARE MADE.

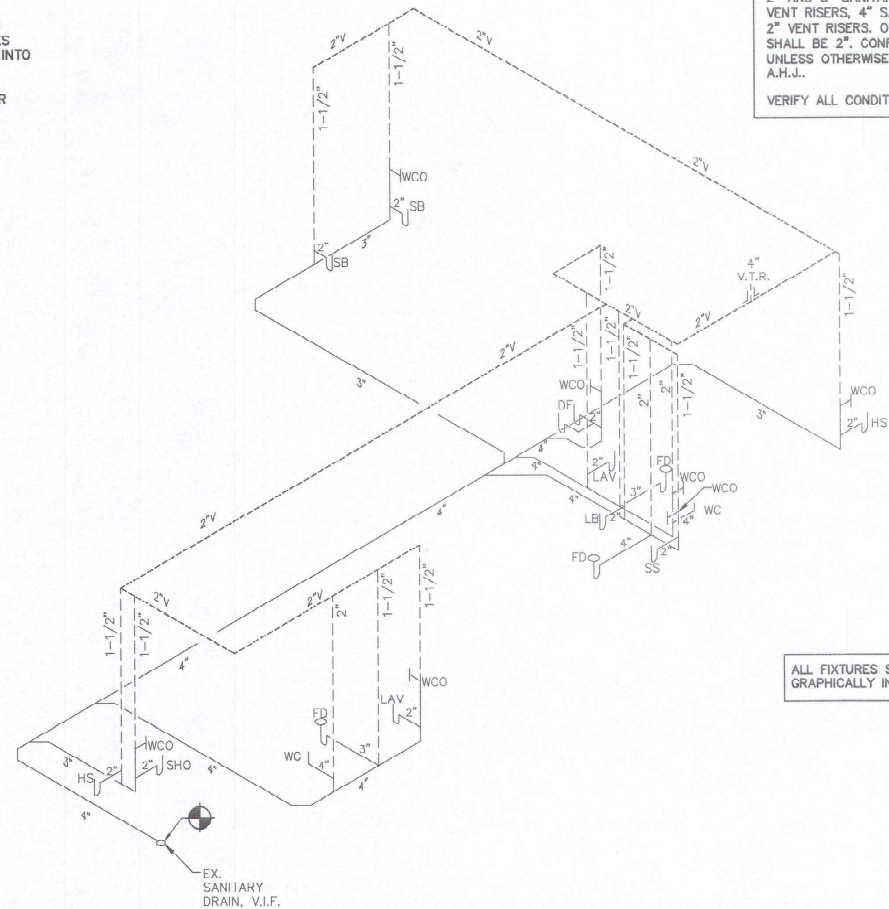
PLUMBING CONTRACTOR SHALL MAKE ADJUSTMENTS WHERE NECESSARY TO KEEP PLUMBING VENTS A MINIMUM OF 10'-0" AWAY FROM ALL FRESH AIR INTAKES. WAIT FOR FINAL HVAC UNIT LOCATIONS PRIOR TO CUTTING ROOF PENETRATIONS.

☉ = CONNECT NEW TO EXISTING  
2" AND 3" SANITARY LINES SHALL HAVE 1-1/2" VENT RISERS, 4" SANITARY LINES SHALL HAVE 2" VENT RISERS. OVERHEAD HORIZONTAL VENTS SHALL BE 2". CONFORM TO THESE SIZES UNLESS OTHERWISE ALLOWED/ REQUIRED BY A.H.J.  
VERIFY ALL CONDITIONS IN FIELD.



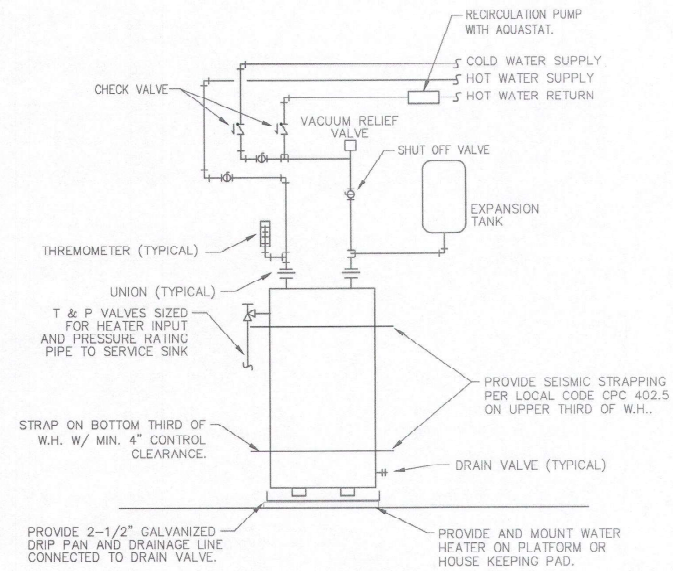
**01 PLUMBING SUPPLY RISER**  
SCALE: NOT TO SCALE

ALL PLUMBING SUPPLY LINES SHALL BE 1/2" UNLESS INDICATED OTHERWISE.  
PROVIDE TRAP PRIMERS ON ALL FIXTURES WHOSE TRAP SEALS ARE SUBJECT TO DRYING OUT.



**02 PLUMBING WASTE RISER**  
SCALE: NOT TO SCALE

ALL FIXTURES SHALL HAVE CLEANOUTS, WHETHER GRAPHICALLY INDICATED ON DRAWINGS OR NOT.



**03 ELECTRIC WATER HEATER DETAIL**  
SCALE: NOT TO SCALE



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PROJECT NUMBER  
C170515

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PLUMBING RISERS  
DATE OF THIS PRINTING - 03/22/18

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ELECTRICAL SYMBOL LEGEND

SYMBOL	DESCRIPTION	HEIGHT (U.N.O.)
\$	SINGLE POLE SINGLE THROW TOGGLE SWITCH (NOTE L-1)	44"
\$3/\$4	THREE-WAY TOGGLE SWITCH/FOUR-WAY TOGGLE SWITCH (NOTE L-1)	44"
\$M	MOTOR RATED SWITCH	
\$D	DIMMER SWITCH (NOTE L-1)	44"
\$TT	2-HOUR IN-LINE TWIST TIMER BYPASS (OVERRIDE) TO CONTROL GENERAL LIGHTING.	44"
Ⓢ/Ⓢ	DUPLEX / QUAD RECEPTACLE OUTLET (NOTE L-1)	24" TO CENTERLINE (U.N.O.)
Ⓢ	OTHER RECEPTACLE, AS NOTED.	
Ⓢ/Ⓢ	DUPLEX RECEPTACLE OUTLET, CEILING MOUNTED/FLOOR MOUNTED	
(#)	THE NUMBER IN PARENTHESIS IS THE COMMENT OUTLET COUNT FOR THE CIRCUIT.	
Ⓢ/Ⓢ	JUNCTION BOX, CEILING / FLOOR MOUNTED	SEE PLAN
Ⓢ/Ⓢ	TELEPHONE OUTLET, WALL MOUNTED / FLOOR MOUNTED	SEE PLAN
Ⓢ/Ⓢ	DATA OUTLET, WALL MOUNTED/FLOOR MOUNTED	SEE PLAN
Ⓢ	CURRENT TRANSFORMER	
Ⓢ	POWER METER AND SOCKET	
—	RACEWAY/CABLE CONCEALED IN WALL AND/OR ABOVE CEILING	
—	GROUNDING CONNECTION (SYSTEM AND/OR EQUIPMENT)	
X-1,3,5	ARROWHEAD INDICATES HOMERUN. X-1,3,5 INDICATES HOMERUN TO PANEL X CIRCUIT NUMBERS 1,3, AND 5.	
Ⓢ	MOTOR	
Ⓢ	PANELBOARD - WALL MOUNTED (RECESSED/SURFACE MOUNTED)	
Ⓢ/Ⓢ/Ⓢ	NONFUSIBLE DISCONNECT SWITCH, RATING/POLES/NEMA ENCLOSURE	
Ⓢ/Ⓢ/Ⓢ/Ⓢ	FUSIBLE DISCONNECT SWITCH, RATING/FUSE RATING/POLES/NEMA ENCLOSURE	
Ⓢ	DUCT SMOKE DETECTOR	
Ⓢ	THERMAL DETECTOR, WALL MOUNTED	SEE PLAN
Ⓢ	THERMOSTAT, WALL MOUNTED	
Ⓢ	CONNECT NEW TO EXISTING	
N.L.C.	NOT IN CONTRACT	
NL	INDICATES 24-HOUR NIGHT LIGHT ON THE UNSWITCHED LEG OF LIGHT CIRCUIT.	
Ⓢ	SECURITY CAMERA	

L-1 MOUNTING HEIGHTS NOTED ARE TO THE CENTER OF DEVICE ABOVE FINISHED FLOOR, UNLESS NOTED OTHERWISE (U.N.O.).  
 L-2 FIRE ALARM VISUAL DEVICES SHALL BE WALL-MOUNTED 80" AFF OR 6" BELOW CEILING, WHICHEVER IS LOWER. AUDIBLE ONLY DEVICES SHALL BE WALL-MOUNTED AT NOT LESS THAN 90" AFF AND NOT LESS THAN 6" BELOW CEILING.

\* NOT ALL SYMBOLS USED ON ALL JOBS \*

KEY NOTES BY SYMBOL 'Ⓢ'

- NEW PANEL 'LA'. PANEL SHALL BE FLUSH-MOUNTED, AND FACE OPEN INTO ROOM. PANEL TO SERVE BISHOPS SPACE. FURROUT WALLS AS NECESSARY.
- EXISTING CONDUIT TO EXISTING ELECTRICAL GUTTER.
- TWO (2) PHONE LINES AND ONE DATA LINE TO THE PHONE BOARDS. VERIFY EXACT PLACEMENT WITH OWNER'S REP, AND FIELD VERIFY POINT OF CONNECTION TO LANDLORD'S DMARK.
- ELECTRIC DRYER. PROVIDE (2) #10, #10G, 3/4"C, 30/2 RECEPTACLE
- 42"x16"x3/4" "AC" GRADE PLYWOOD TELEPHONE BOARD. PROVIDE GROUND PER NEC. RUN 3/4" CONDUIT TO LANDLORD'S TELEPHONE CONNECTION POINT.
- PROVIDE A REMOTE ANNUNCIATOR FOR DUCT SMOKE DETECTORS AT CEILING OF RECEPTION DESK. REMOTE ANNUNCIATOR SHALL BE EQUAL TO SYSTEM SENSOR RA100Z/RA100ZA WITH AUDIBLE AND VISUAL ANNUNCIATOR. LABEL EACH ANNUNCIATOR ACCORDING TO UNIT BEING MONITORED.
- CIRCUIT RESTROOM/UTILITY ROOM EXHAUST FAN(S) TO LOCAL LIGHT SWITCH. PROVIDE 15-MINUTE DELAY TIMEOUT.
- IF EXISTING WATER LINES ARE LOCATED ABOVE ELECTRICAL PANEL LOCATIONS SHOWN HERE, FABRICATE A LEAK SHIELD AROUND PIPES TO DIVERT FLOW AWAY FROM DRIPPING ONTO PANELS. USE A 4" PVC SLEEVE THAT STICKS OUT 8" BEYOND EDGES OF ELECTRICAL GEAR, OR SIMILAR. SLEEVE SHALL BE SEALED LONGITUDINALLY TO PREVENT PRESSURIZED SPRAY FROM REACHING EQUIPMENT BELOW AND OPEN ONLY ON THE TWO ENDS OR INSTALL NEMA 3R GEAR.
- PROVIDE POWER CONNECTION TO SUB-METER/ REMOTE REGISTER. FIELD COORDINATE LOCATION, SEE SHEET P1.0 FOR ADDITIONAL INFO.
- FURROUT WALLS FOR POWER AND PLUMBING (SUPPLY, WASTE, AND VENT) LINES WHERE NECESSARY. ELSEWHERE, PROVIDE SURFACE-MOUNTED GALVANIZED METAL CONDUIT AND MATCHING OUTLET BOXES/ COVER PLATES.
- E.C. TO PROVIDE WHIP AT +24" AFF FOR QUAD OUTLET BOX SET INSIDE RECEPTION DESK.
- PLACE RECIRCULATION PUMP OUTLET/J-BOX ABOVE WATER HEATER IN UTILITY ROOM WHERE SPACE ALLOWS.

- PROVIDE (2) EMPTY CONDUIT WITH PULL STRING AT CASH WRAP FOR SPEAKER WIRE AND CAT 5 TO NEAREST WALL AT HEIGHT DETERMINED IN FIELD. FURROUT WALL AS NECESSARY, PAINT CONDUIT AS REQUIRED.
- TV QUAD RECEPTACLE AND DATA. VERIFY LOCATION AND MOUNTING HEIGHT WITH OWNER'S REPRESENTATIVE.
- LOCATION OF SECURITY CAMERA. POWER SUPPLIED BY CLG. MTD. OUTLET. CATS WIRE BACK TO DVR UNIT AT UTILITY RM. DESK. EXACT LOCATIONS TO BE COORDINATED WITH CONSTRUCTION MANAGER IN FIELD.
- THIS OUTLET SHALL BE CONTROLLED THROUGH L.C.P.
- EXISTING PANEL 'LB' TO REMAIN IN PLACE. PANEL TO SERVE OFFICE SPACE.
- FAN SERVING THIS ROOM SHALL BE ROUTED THROUGH TIME CLOCK OR L.C.P. TO RUN CONTINUOUSLY DURING OCCUPIED HOURS.

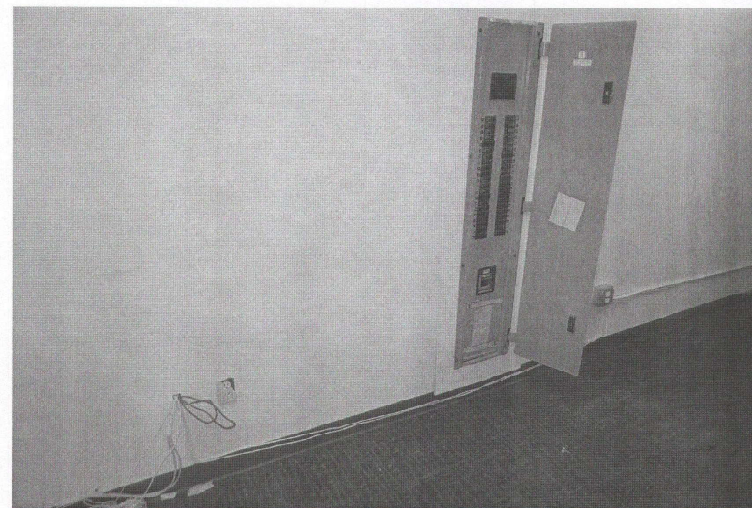
CONTRACTOR NOTES:

IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO NOTIFY THE ARCHITECT, LANDLORD OR TENANT OF ANY DISCREPANCIES ENCOUNTERED ON THE PLANS OR IN EXISTING CONDITIONS PRIOR TO COMMENCEMENT OF WORK.  
 BIDDERS ARE TO VISIT THE SITE AND FAMILIARIZE THEMSELVES WITH EXISTING CONDITIONS AND SATISFY THEMSELVES AS TO THE NATURE AND SCOPE OF WORK. THE BASE BID SHALL REFLECT MODIFICATIONS TO SYSTEMS AND DEVICES AS REQUIRED BY STATE AND LOCAL CODES WHETHER INDICATED OR NOT ON CONTRACT DOCUMENTS. THE SUBMISSIONS OF A BID WILL BE EVIDENCE THAT SUCH AN EXAMINATION AND COMPLIANCE WITH GOVERNING CODES / REQUIREMENTS HAS BEEN MADE. LATER CLAIMS FOR LABOR, EQUIPMENT, OR MATERIALS REQUIRED OR FOR DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORSEEN, HAD AN EXAMINATION AND CODE REVIEW BEEN MADE, WILL NOT BE ALLOWED.

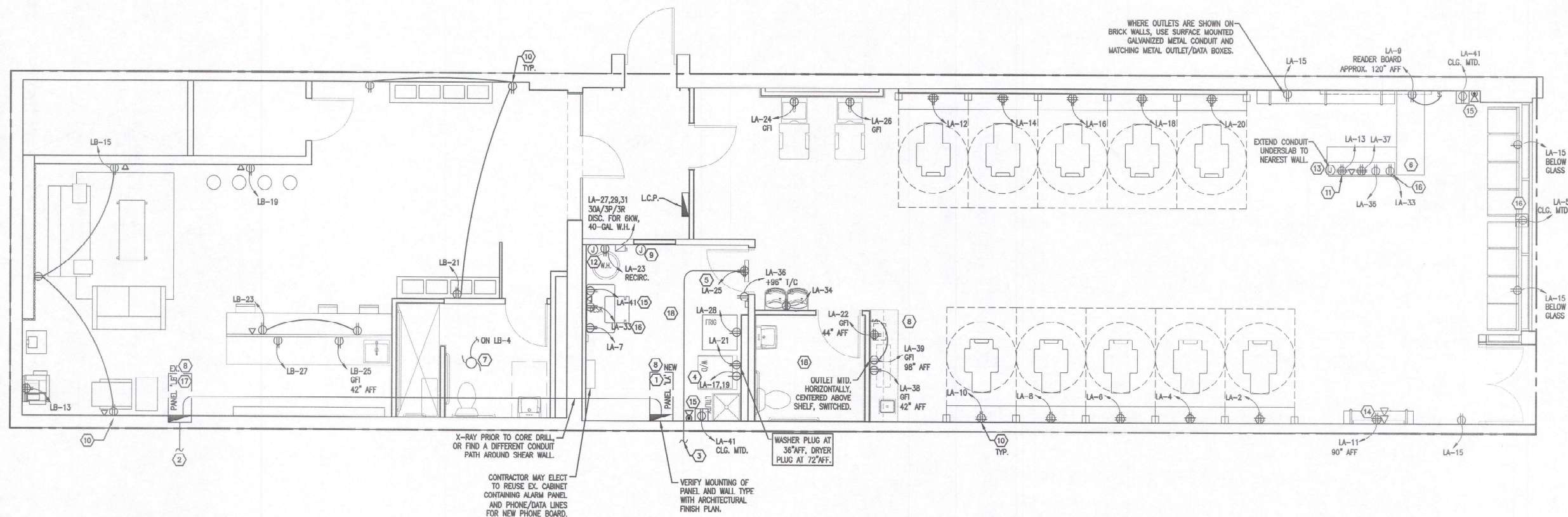
GENERAL NOTES

- GENERAL RECEPTACLES INSTALLED AT +15" TO BOTTOM OF BOX A.F.F.
- VERIFY GFI REQUIREMENTS PRIOR TO BID. ALL RECEPTACLES WITHIN 6'-0" OF A SINK OR WASH BASIN SHALL BE GFI RATED.
- ALL COVER PLATES, OUTLETS AND SWITCHES IN THE PUBLIC AREA SHALL BE FACTORY BLACK. ALL OTHERS TO BE FACTORY BRIGHT WHITE.
- SMOKE DETECTORS, FIRE ALARM SYSTEM, STROBES, HORNS, SPRINKLERS, ETC. SHALL BE DESIGNED AND INSTALLED WHERE REQUIRED BY A LICENSED FIRE SPRINKLER/ FIRE PROTECTION CONTRACTOR (DESIGN-BUILD) UNDER A SEPARATE PERMIT.
- HVAC CONVENIENCE OUTLET(S) AND DISCONNECT(S) SHALL BE PROVIDED AND INSTALLED BY ELECTRICAL CONTRACTOR. SIZE TO MATCH BREAKERS ON PANEL AND/OR NAMEPLATE.
- DISCONNECT SHALL BE RATED FOR VOLTAGE OF ORIGINATING PANEL.

BISHOPS PROTOTYPICAL NOTE:  
 IF DECK IS HIGHER THAN 17'-0", G.C. TO DROP J-BOXES FOR 'L1' FIXTURES TO 16'-0" OR LOWER.



02 PANEL 'LB' EXISTING CONDITION PHOTO  
 SCALE: 1/4"=1'-0"



01 POWER PLAN  
 SCALE: 1/4"=1'-0"

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DO NOT SCALE DRAWINGS  
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ISSUE FOR PERMIT C3/26/18

PROJECT NUMBER  
 C170515

SHEET NUMBER

E1.0  
 POWER PLAN  
 DATE OF THIS PRINTING - 03/22/18

**GENERAL NOTES**

- A. LIGHTING SHALL BE CIRCUITED EXACTLY AS SHOWN ON PLANS.
- B. SEE ARCHITECTURAL REFLECTED CEILING PLAN FOR EXACT LOCATION AND QUANTITY OF LIGHTING FIXTURES.
- C. EMERGENCY AND EXIT LIGHTS SHALL BE INSTALLED AND CIRCUITED PER THE LATEST NATIONAL ELECTRICAL CODE AND ALL LOCAL CODES. ALL EMERGENCY AND EXIT FIXTURES SHALL BE DUAL VOLTAGE (120/277 VOLT INPUT) WITH 90 MINUTE BATTERY BACKUP.
- D. ELECTRICAL SUB-CONTRACTOR IS RESPONSIBLE FOR ALL REFLECTED CEILING PLAN NOTES ON ARCHITECTURAL DRAWINGS.
- E. ALL FLUORESCENT LIGHTING SHALL BE PROVIDED WITH INTEGRAL DISCONNECTING MEANS PER NEC.
- F. EXTERIOR LIGHTS ARE EXISTING BY LANDLORD, TO REMAIN.
- G. THE DIRECTION OF THE BUILDING OFFICIAL/QUANTITY, LOCATION AND TYPE OF EXIT/EGRESS LIGHTS REQUIRED SHALL TAKE PRECEDENCE OVER WHAT IS SHOWN IN THIS DOCUMENT SET.
- H. ALL LIGHTS PROVIDED AND INSTALLED BY G.C., WITH THE EXCEPTION OF B, L1, AND T FIXTURES, WHICH ARE TO BE OWNER PROVIDED AND G.C. INSTALLED.
- I. EMERGENCY/EGRESS AND EXIT LIGHTS SHALL BE ON A NON-SWITCHED LEG OF CIRCUIT.
- J. PROVIDE CURRENT LIMITERS (IN-LINE) FOR TRACK LIGHTING AS NEEDED WHERE REQUIRED BY INSPECTOR TO ACHIEVE ENERGY CODE COMPLIANCE.
- K. TRACK AND SCONCES DO NOT PROVIDE GENERAL LIGHTING AND THEREFOR ARE NOT REQUIRED TO BE CONTROLLED BY DAYLIGHT SENSORS. (T-24/CALIFORNIA)
- L. DAYLIGHTING IS NOT REQUIRED WHEN A ZONE HAS LESS THAN 120 WATTS OF GENERAL LIGHTING, OR LESS THAN 24 SQ. FT. OF GLAZING. (T-24/CALIFORNIA)

**LIGHTING CONTROL PANEL ZONES**

1. TRACK
2. 110V SCONCES
3. LOW VOLTAGE PENDANT/ MS
4. CONTROLLABLE OUTLETS (RECEPTION/DESK)
5. SIGN
6. S/W RECEPTACLE #1
7. OFFICE COMMON AREA LIGHTS
8. EF-1

\*WHEN BUILDING SIGN POWER IS ROUTED THROUGH LANDLORD'S CONTROL SYSTEM, AND SHOW WINDOW RECEPTACLES ARE NOT REQUIRED, AND THE CLIENT DOES NOT WANT ANY SPARE CIRCUITS ON THE CONTROL PANEL, THEN A 4-POLE LCP MAY BE USED (RE4BD-104).

LIGHTING CONTROL PANEL SPECIFICATION:		
MANUF.	MODEL	NOTES
LEVITON	EZ-MAX RO8BD-000	8-SPACE, CONTROLS LOW AND LINE VOLTAGE CIRCUITS. LCP CONTAINS AN INTEGRAL TIME CLOCK

**KEY NOTES BY SYMBOL 'O'**

- ① CIRCUIT RESTROOM/UTILITY ROOM EXHAUST FAN(S) TO LOCAL LIGHT SWITCH. PROVIDE 15-MINUTE DELAY TIMEOUT.
- ② PROVIDE OCCUPANCY SENSOR PER SCHEDULE.
- ③ EXIT LIGHT SHALL BE CIRCUITED TO UNSWITCHED LEG OF LOCAL LIGHT CIRCUIT. PROVIDE CHEVRONS AS NEEDED.
- ④ EMERGENCY EGRESS LIGHT SHALL BE CIRCUITED TO UNSWITCHED LEG OF LOCAL LIGHT CIRCUIT.
- ⑤ GENERAL AREA LIGHT SHALL BE SWITCHED THROUGH LIGHTING CONTROL PANEL.
- ⑥ LIGHTING CONTROL PANEL SHALL BE T-24 COMPLIANT (LEVITON EZ-MAX RO8BD-000 8-SPACE). WHERE EXTERIOR SIGNAGE IS ON LANDLORD'S LIGHTING CONTROL PANEL, INSTALL A 4-POLE LIGHTING CONTROL PANEL (RE4BD-104).
- ⑦ CONTRACTOR SHALL COORDINATE ALL REQUIREMENTS AND QUANTITY FOR ELECTRICAL AND BLOCKING/MOUNTING WITH SIGN PROVIDER AND PROVIDE AS NECESSARY PRIOR TO ROUGH-IN. CONTRACTOR SHALL FIELD VERIFY EXISTING SIGN CIRCUIT COMPLIES WITH ALL LOCAL AND NATIONAL CODES AND IS PROVIDED WITH ALL REQUIRED DISCONNECTING MEANS PER NEC. PROVIDE INTERIOR ACCESS PANELS FOR SIGN CIRCUIT AS NECESSARY.
- ⑧ PROVIDE DAYLIGHT SENSOR PER SCHEDULE.

BISHOPS PROTOTYPICAL NOTE: JURISDICTIONS VARY AS TO WHO CAN MAKE FINAL CONNECTION OF SIGN TO BUILDING POWER. SOME JURISDICTIONS REQUIRE SPECIAL SIGN PERMITS. THE ELECTRICAL CONTRACTOR SHALL PROVIDE AN ACCESSIBLE J-BOX AT BUILDING PERIMETER FOR EACH SIGN LOCATION ON ALL JOBS WITH MEANS OF DISCONNECT AND CONDUCTOR BACK TO THE PANEL, PER NEC. THE SIGN CONTRACTOR SHALL PROVIDE ALL SIGNS WITH A SINGLE WHIP POKING THROUGH THE BACK OF THE SIGN OR SIGN RACEWAY FOR EACH SIGN LOCATION. FINAL CONNECTION (INCLUDING ANY CONDUIT ABOVE METAL AWNING/ STRUCTURE OR OTHER SPECIAL 'GAP' SITE CONDITIONS) SHALL BE BY ELECTRICAL CONTRACTOR UNLESS THE A.H.J. REQUIRES THIS CONNECTION TO BE BY THE SIGN CONTRACTOR.

PASADENA, CA NOTE: PROVIDE A 5A IN-LINE CURRENT LIMITER FOR TRACK VIA L.C.P.

**SENSOR/ACCESSORY SCHEDULE**

DESCRIPTION	SYMBOL	MODEL NUMBER	UNOBSTRUCTED RATED COVERAGE	MOUNTING	WATTAGE/VOLTAGE	TIME DELAY	NOTES
PASSIVE INFRARED SWITCH	SI	WATTSTOPPER DW-100 (OR EQUAL)	300 SF	WALL	800W/120V 1200W/277V	5/15/30 MIN	1
PROVAULT CEILING SENSOR	CS	LEVITON 06C04-IDW	---	CEILING	---	---	1,3
LOW VOLTAGE DIMMER	SD	LEVITON DSE 06-10Z	---	WALL	LOW	---	PENDANT LIGHTS AS NEEDED
LINE VOLTAGE DIMMER	LD	LEVITON DSM 10-1LZ	---	WALL	LINE	---	TRACK LIGHTS AND SCONCES, RESTROOM AS NEEDED

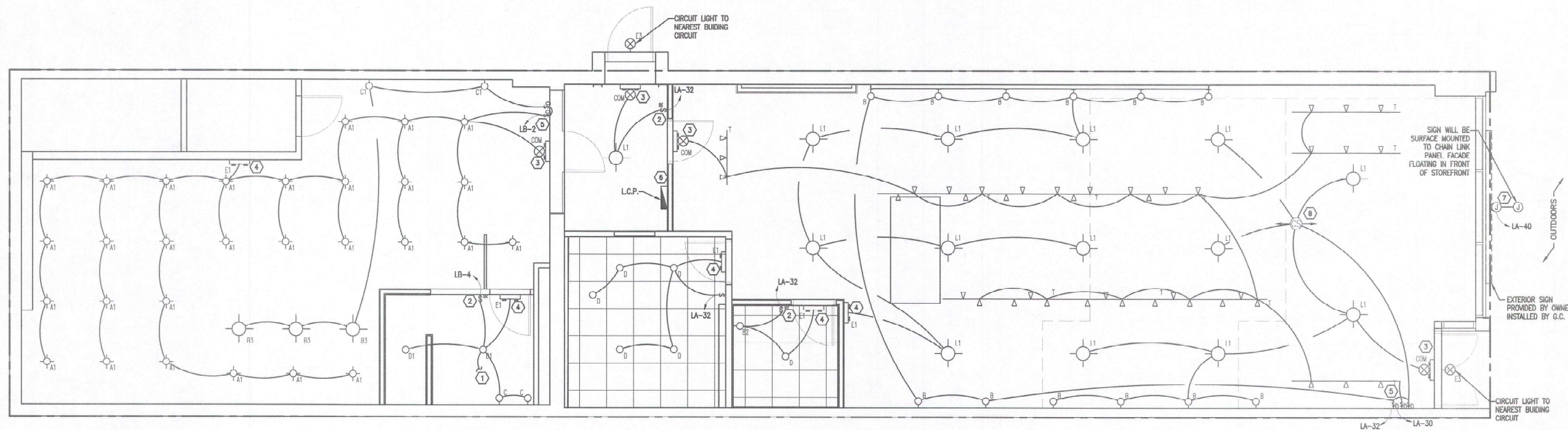
- NOTES:
1. SENSOR REQUIRES POWER PACK (INSTALL IN ACCESSIBLE LOCATION)
  2. SWIVEL MOUNTING BRACKET INCLUDED.
  3. DUAL ZONE DAYLIGHT SENSING TYPE. ALSO SENSES OCCUPANCY/VACANCY

**OFFICE RCP LEGEND**

- AI RECESSED LED CAN LIGHT:  
MANF: JUNO  
MODEL: JCLRRS DOWNLIGHT RETROFIT, 27.5 WATTS  
SIZE: 6" ROUND  
MATERIAL / FINISH/ COLOR: WHITE DIMMABLE OPTION
- BS DECORATIVE PENDANT LIGHT  
MANF: WAYFAR  
MODEL: SOMERSET 1-LIGHT GLOBE PENDANT, 100 WATTS  
SIZE: SHADE 10"W X 10" H, 17" BODY  
MATERIAL / FINISH / COLOR: WHITE SHADE, GLOBE SHADE SHAPE, COLD  
INSTALL @ 75" AFF, MEASURE FROM BOTTOM OF BULB
- CS WALL MOUNT LED LIGHT (DAMP LABEL COMPATIBLE)  
MANF: WATZ BY HUDSON VALLEY  
MODEL: HY28101-PRO. DIMIA WALL SCONCE, 4 WATTS  
SIZE: 7" X 5" X 15" MATERIAL: BRASS  
INSTALL @ 61 1/2" AFF, MEASURE FROM BOTTOM OF BULB
- CI WALL MOUNT LED LIGHT  
MANF: WAYFAR  
MODEL: WNY1217, BETHEL INTERNATIONAL 1-LIGHT LED ARMED SCONCE, 4 WATTS  
SIZE: 10 1/2" X 5.5" X 8" D. MATERIAL: BRASS  
INSTALL @ 65" AFF, MEASURE FROM BOTTOM OF BULB
- DI RECESSED LED CAN LIGHT  
MANF: COTI/AM  
MODEL: EVO 50FD DOWNLIGHT, 45 WATTS  
SIZE: 6" ROUND  
COLOR: WHITE
- COM LED EMERGENCY EGRESS LIGHTING/SIGNAGE COMBO WITH 90 MINUTE BATTERY BACKUP  
MANF: BARRON EXITRONIX - VLED-EL90 SERIES, MODEL #VLED-U-BL-EL90
- E1 LED EMERGENCY EGRESS LIGHTING WITH 90 MINUTE BATTERY BACKUP  
MANF: BARRON EXITRONIX - LED-EL90 SERIES, MODEL #LED-90-BL

**BISHOPS RCP LEGEND**

- A CEILING FLUSH MOUNT LIGHT:  
MANF: WAC LIGHTING  
MODEL #FM-4009-30-CH, 10W LED A120V
- B WALL MOUNT LIGHT:  
MANF: CUSTOM LIGHT FIXTURE, 22W LED 120V DAMP LABEL, MOUNT 8/0 3"-8" AFF (BY CDS FULFILLMENT)
- B2 WALL MOUNT LIGHT:  
MANF: GEORGE KOWACS  
MODEL #P0044-084-L, 20W A120V MOUNT ABOVE MIRROR AT 84" AFF
- D RECESSED CAN LIGHT (DAMP LABEL COMPATIBLE)  
MANF: JUNO, 5" IC 900 LUMEN LED DOWNLIGHT  
MODEL #SP29403G3-27K-N-1
- COM LED EMERGENCY EGRESS LIGHTING/SIGNAGE COMBO WITH 90 MINUTE BATTERY BACKUP  
MANF: BARRON EXITRONIX - VLED-EL90 SERIES, MODEL #VLED-U-BL-EL90
- E1 LED EMERGENCY EGRESS LIGHTING WITH 90 MINUTE BATTERY BACKUP  
MANF: BARRON EXITRONIX - LED-EL90 SERIES, MODEL #LED-90-BL
- E2 LED EMERGENCY EXIT SIGN WITH 90 MINUTE BATTERY BACKUP - ARROW DENOTES DIRECTIONAL SIGNAGE  
MANF: HUBBELL LIGHTING - COMPASS SERIES, MODEL #CES
- E3 LED EMERGENCY EXTERIOR FORESS LIGHTING - CONNECTED TO EXIT SIGN BATTERY BACKUP  
MANF: HUBBELL LIGHTING - COMPASS SERIES, MODEL #CED
- G 2x4 RECESSED LED LUMINAIRE FIXTURE  
MANF: INBY-LIGHTING  
MODEL #S248L-39-30-U-WH-3
- L1 DECORATIVE PENDANT LIGHT  
MANF: CUSTOM, AIRCRAFT CABLE SUSPENDED, 22W LED, 120/277V, DAMP LABEL, MOUNT 8/0 FIXTURE IS AT 9'-0" AFF. (BY CDS FULFILLMENT)
- T TRACK LIGHT SYSTEM  
MANF: JUNO, TRAC-MASTER TRACK, & TRAC-LITES FIXTURES  
MODEL #T 4 60 9 FT TRACKS BL, #SP2475-15-H-F-B  
FIXTURE HEADS, PARO LED BR-10W A120V, BOT OF TRACK AT 108" AFF, 3 HEADS PER STATION AND AS SHOWN (BY CDS FULFILLMENT)

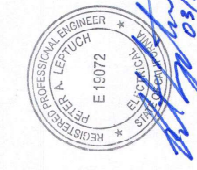


01 LIGHTING PLAN  
SCALE: 1/4"=1'-0"



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**BISHOPS**  
BISHOPS - TENANT FINISH-OUT  
1715 E. COLORADO BLVD  
PASADENA, CA 91106

DO NOT SCALE DRAWINGS  
CONTRACTOR TO VERIFY  
ALL EXISTING CONDITIONS AND  
DIMENSIONS-NOTIFY ARCHITECT  
OF ANY DISCREPANCIES PRIOR  
TO BEGINNING CONSTRUCTION

NO REVISION

ISSUE

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PROJECT NUMBER  
C170515

SHEET NUMBER

E2.0  
LIGHTING  
PLAN  
DATE OF THIS PRINTING - 03/22/18

ISSUE FOR PERMIT 03/26/18

PANELBOARD SCHEDULE - 'LA' (NEW-BISHOPS)																				
CKT #	TRIP #	POLE	DESCRIPTION	LOAD (KVA)					MOUNTING SURFACE	AIC: 22K	TRIP #	CKT #								
				LTG	REC	MTR	AIC	HTG					KIT							
1	201	SPARE								201	2									
3	201	SPARE								201	4									
5	201	SWR/OCEPT.	0.2							201	6									
7	201	DESK RECEPT.	0.2							201	8									
9	201	READER BOARD	0.2							201	10									
11	201	TV RECEPT	0.4							201	12									
13	201	POS	0.4							201	14									
15	201	CONV. REC.	0.7							201	16									
17	30/2	DRYER								201	18									
19	-	-								201	20									
21	201	WASHING MACHINE								201	22									
23	201	RECIRC PUMP								201	24									
25	201	PHONE BOARD	0.4							201	26									
27	30/3	WATER HEATER (ELECTRIC)								201	28									
29	-	-								201	30									
31	-	-								201	32									
33	201	T-24 CONTROLLABLE REC.	0.4							201	34									
35	201	CASH WRAP (DUPEX)	0.2							201	36									
37	201	CASH WRAP (QUAD)	0.4							201	38									
39	201	LIGHT BOX	0.2							201	40									
41	201	SECURITY	0.5							201	42									
43	201	SPACE								201	44									
45	201	SPACE								201	46									
47	201	SPACE								201	48									
49	50/3	RTU-A (EX)								50/3	50									
51	-	-								50/3	52									
53	-	-								50/3	54									
LIGHTING (KVA)				1.2	0.0	4.0	0.0	15.8	0.0	0.0	12.2	1.2	6.9	0.0	15.8	0.0	0.0	0.7	CONNECTED LOAD (KVA):	58.8
RECEPTACLES (KVA)				10.9															DEMAND LOAD (KVA):	56.2
MOTORS (KVA)				0.0																
A/C (KVA)				31.7															CONNECTED LOAD (AMPS):	169.9
HEATING (KVA)				0.0															DEMAND LOAD (AMPS):	156.0
KITCHEN (KVA)				0.0																
MISCELLANEOUS (KVA)				12.9															AMPCAPACITY REQUIRED:	156.8

\*BALANCE ALL PANELS TO WITHIN 10%

\*\*REUSE EXISTING HVAC BREAKERS SERVING EXISTING HVAC UNITS IF THEY MATCH NAMEPLATE. REFEED RTUS FROM NEW PANEL LOCATIONS.

**DEMAND LOAD CALCS**

LIGHTING	1.20	KVA X 100 % =	1.2	KVA
RECEPTACLES TOTAL	10.91	KVA		
1ST	10.00	KVA X 100 % =	10.0	KVA
REMAIN	0.91	KVA X 50 % =	0.5	KVA
MOTORS	0.00	KVA X 100 % =	0.0	KVA
A/C	31.68	KVA X 100 % =	31.7	KVA
HEATING	0.00	KVA X 100 % =	0.0	KVA
LOCKED-OUT LOAD		KVA X 100 % =	0.0	KVA
KITCHEN	0.00	KVA X 65 % =	0.0	KVA
MISCELLANEOUS	12.86	KVA X 100 % =	12.9	KVA
<b>TOTAL</b>				<b>56.2</b> KVA

**01 PANEL SCHEDULES**

SCALE: 1/4"=1'-0"

**ONE-LINE RISER NOTES:**

- PROVIDE LOCK-ON BREAKERS FOR ALL NL/EM AND SECURITY/PHONE CIRCUITS, DUCT DETECTORS, AND TIME CLOCK.
- ALL WIRING, INSULATION, ETC. IN AN ENCLOSED PLENUM SPACE SHALL BE PLENUM RATED.
- USE THWN WIRE INSULATION, 75°C.
- PROVIDE POWER FOR ANCILLARY ITEMS AS NEEDED FOR A COMPLETE INSTALL, SUCH AS DUCT DETECTORS, FLUSH VALVES AND FAUCET SENSORS AS NEEDED.
- WHERE CONTRACTORS ARE ADDING SUB-PANELS TO A PROJECT, THE SUB-PANELS SHALL BE SCOR RATED AT 10 KVAIC AND SAME MANUFACTURER AS THE EXISTING PANEL(S) AND SHALL BE FEED FROM A SERIES RATED BREAKER, OTHERWISE SUB-PANELS SHALL BE FULLY RATED WITH SAME SCOR AS ORIGINATING PANEL.
- ELECTRICAL CONTRACTOR SHALL VERIFY AVAILABLE FAULT WITH UTILITY CO. PRIOR TO ORDERING GEAR AND ENERGIZING SERVICE AND SHALL LABEL GEAR WITH SCOR RATING AND AVAILABLE FAULT AT EACH PIECE OF EQUIPMENT AND DATE CALCULATIONS WERE MADE.
- PROVIDE ARCFLASH HAZARD WARNING LABELS ON ALL GEAR AS REQUIRED BY N.E.C.
- DISCONNECTS SHALL BE RATED AT VOLTAGE OF EQUIPMENT SERVED. CONFIRM VOLTAGE AVAILABLE ON SITE PRIOR TO ORDERING EQUIPMENT.
- PROVIDE SWITCH-RATED BREAKER FOR INTERIOR SIGN AND LIT WALL GRAPHICS SWITCHING (CKT LA-9, LA-29).
- PROVIDE SINGLE-POINT CONNECTION FOR HVAC UNITS WHERE POSSIBLE, OTHERWISE ADD AN 18-SPACE SUB-PANEL FOR EXTRA BREAKER SPACES.

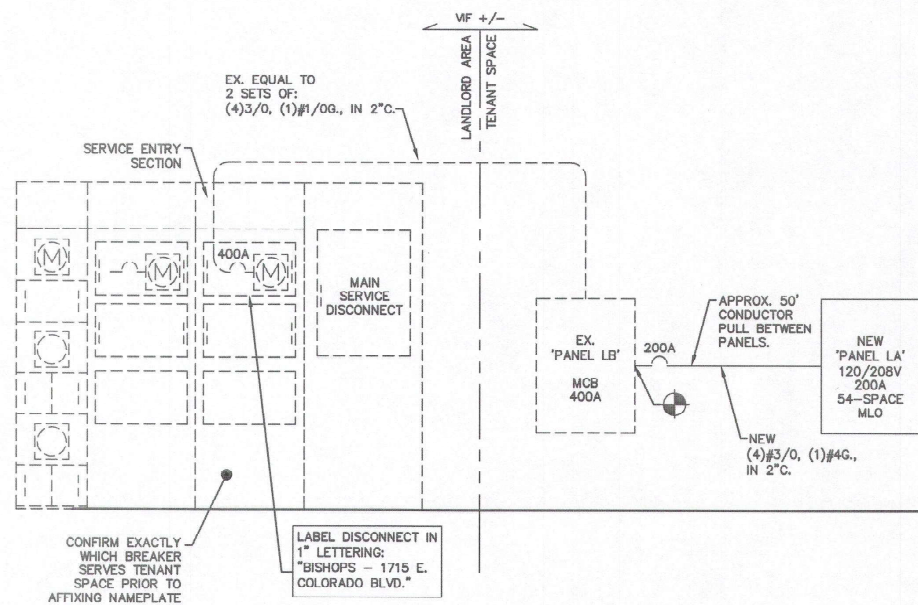
EXISTING ELECTRICAL SERVICE:  
120/208V, 3 PH, 4 WIRE.

BISHOPS PROTOTYPICAL NOTE:  
SEE SHEET MEP.2.0 FOR POWER FOR ROOF-MOUNTED EQUIPMENT.

SIGNAGE SHALL COMPLY WITH PERMITTED SIGN PACKAGE. ADJUST WHAT IS SHOWN HERE (QUANTITY AND LOCATION) TO MATCH SIGNAGE SET, TYPICAL UNDER A SEPARATE PERMIT.

VERIFY WITH UTILITY CO. EXISTING LOAD SERVING NEIGHBORING TENANTS (IF PRESENT) PRIOR TO ENERGIZING SERVICE.

LENGTH	CIRCUIT WIRE SIZE	HOMERUN WIRE SIZE
1FT TO 50FT	NO.12 AWG	NO.12 AWG
50FT TO 75FT	NO.12 AWG	NO.10 AWG
75FT TO 125FT	NO.10 AWG	NO.8 AWG
125FT TO 190FT	NO.10 AWG	NO.6 AWG
190FT TO 300FT	NO.10 AWG	NO.4 AWG



**02 ONE-LINE RISER**

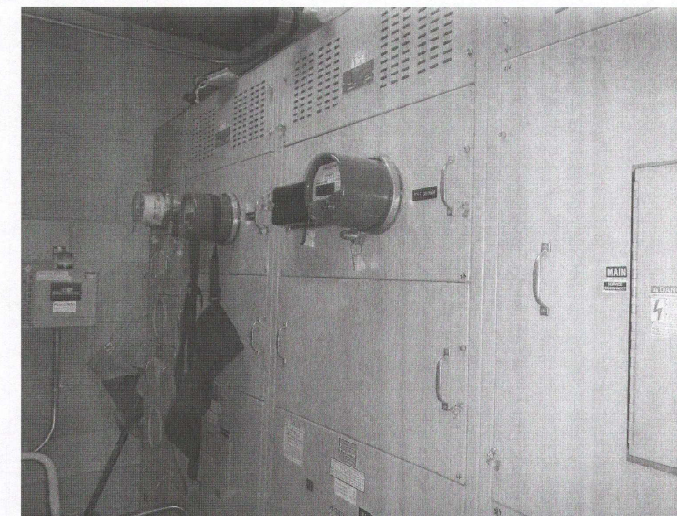
SCALE: 1/4"=1'-0"

PANELBOARD SCHEDULE - 'LB' (EX-OFFICE)																				
CKT #	TRIP #	POLE	DESCRIPTION	LOAD (KVA)					MOUNTING: RECESSED	AIC: EX	TRIP #	CKT #								
				LTG	REC	MTR	AIC	HTG					KIT							
1	201	SPARE								201	2									
3	201	SPARE								201	4									
5	201	SPARE								201	6									
7	201	SPARE								201	8									
9	201	SPARE								201	10									
11	201	SPARE								201	12									
13	201	SPARE								201	14									
15	201	CONVENIENCE OUTLETS	0.4							201	16									
17	201	SPARE								201	18									
19	201	COMP. RECEPT.	0.2							201	20									
21	201	RECEPTS	0.4							201	22									
23	201	BAR RECEPT.	0.4							201	24									
25	201	DISPOSAL RECEPT.	0.5							201	26									
27	201	COUNTERTOP RECEPT.	0.2							201	28									
29	201	SPARE								201	30									
31	201	SPARE								201	32									
33	201	SPARE								201	34									
35	201	SPARE								201	36									
37	201	SPARE								201	38									
39	201	SPARE								201	40									
41	201	SPARE								201	42									
LIGHTING (KVA)				3.3	0.0	2.5	0.0	0.0	0.0	0.0	0.0	3.3	10.9	0.0	31.7	0.0	0.0	12.9	CONNECTED LOAD (KVA):	61.2
RECEPTACLES (KVA)				15.4															DEMAND LOAD (KVA):	59.5
MOTORS (KVA)				0.0																
A/C (KVA)				31.7															CONNECTED LOAD (AMPS):	169.9
HEATING (KVA)				0.0															DEMAND LOAD (AMPS):	166.2
KITCHEN (KVA)				0.0																
MISCELLANEOUS (KVA)				12.9															AMPCAPACITY REQUIRED:	167.5

NOTE: BREAKERS PROTECTING MULTI-WIRE BRANCH CIRCUITS SHALL BE EQUIPPED WITH A PAD-LOCK DEVICE SO THAT CIRCUITS CAN BE DISCONNECTED SIMULTANEOUSLY.

**DEMAND LOAD CALCS**

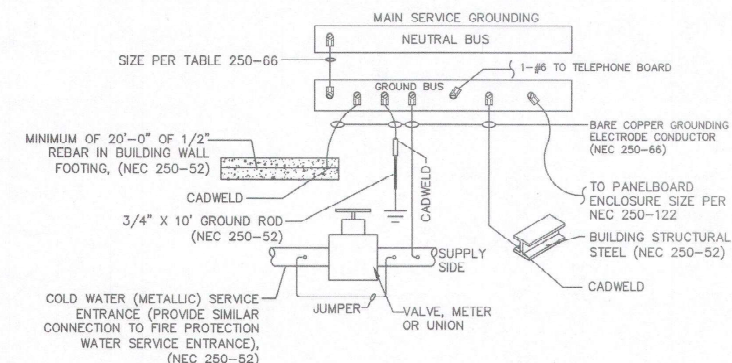
LIGHTING	3.30	KVA X 100 % =	3.3	KVA
RECEPTACLE TOTAL	13.39	KVA		
1ST	10.00	KVA X 100 % =	10.0	KVA
REMAIN	3.39	KVA X 50 % =	1.7	KVA
MOTORS	0.00	KVA X 100 % =	0.0	KVA
A/C	31.68	KVA X 100 % =	31.7	KVA
HEATING	0.00	KVA X 100 % =	0.0	KVA
LOCKED-OUT LOAD		KVA X 100 % =	0.0	KVA
KITCHEN	0.00	KVA X 65 % =	0.0	KVA
MISCELLANEOUS	12.86	KVA X 100 % =	12.9	KVA
<b>TOTAL</b>				<b>58.5</b> KVA



**05 EXISTING CONDITIONS PHOTO**

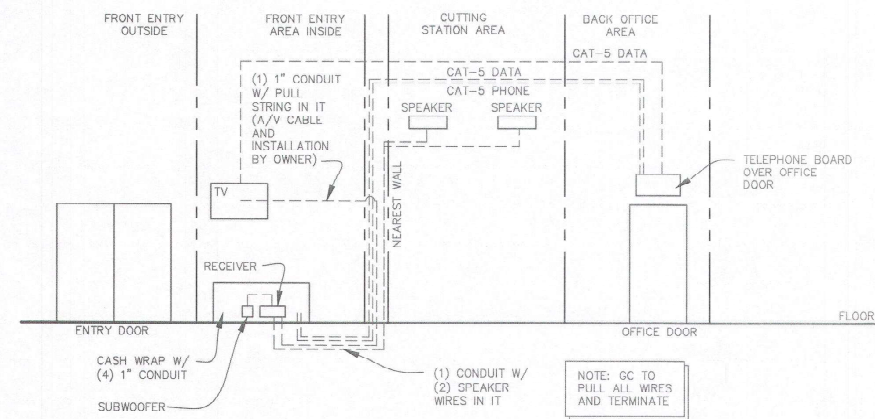
SCALE: NO SCALE

- DETAIL NOTES:
- ALL GROUNDING SHALL BE INSTALLED IN ACCORDANCE WITH ARTICLE 250-50 OF THE NATIONAL ELECTRICAL CODE.
  - ALL GROUNDING CABLES SHALL BE #3/0 UNLESS OTHERWISE SPECIFIED.



**04 GROUNDING ELECTRODE SYSTEM DETAIL**

SCALE: NOT TO SCALE



**03 LOW VOLTAGE ONE-LINE DIAGRAM**

SCALE: NOT TO SCALE



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**BISHOPS**

BISHOPS - TENANT FINISH-OUT  
1715 E. COLORADO BLVD  
PASADENA, CA 91106

DO NOT SCALE DRAWINGS  
CONTRACTOR TO VERIFY  
ALL EXISTING CONDITIONS AND  
DIMENSIONS-NOTIFY ARCHITECT  
OF ANY DISCREPANCIES PRIOR  
TO BEGINNING CONSTRUCTION

NO REVISION

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(940) 735-5127

PROJECT NUMBER  
**C170515**

SHEET NUMBER

**E3.0**  
ELECTRICAL  
PANELS & RISER  
DATE OF THIS PRINTING - 03/22/18

ISSUE FOR PERMIT 03/26/18

STATE OF CALIFORNIA  
**INDOOR LIGHTING**  
 CERTIFICATE OF COMPLIANCE  
 Project Name: Bishops at Pasadena, CA  
 Date Prepared: 3/16/2018  
 NRCC-LTI-01-E (Page 1 of 6)

**A. General Information**  
 Climate Zone: 9  
 Conditioned Floor Area: 2,287  
 Unconditioned Floor Area: 0  
 Building Type:  Nonresidential  High-Rise Residential  Hotel/Motel  
 Schools  Relocatable Public Schools  Conditioned Spaces  Unconditioned Spaces  
 Phase of Construction:  New Construction  Addition  Alteration  
 Method of Compliance:  Complete Building  Area Category  Tailored  
 Project Address: 1715 E. Colorado Blvd.

**B. Lighting Compliance Documents** (select yes for each document included)  
 For detailed instructions on the use of this and all Energy Efficiency Standards compliance documents, refer to the Nonresidential Manual published by the California Energy Commission.

YES	NO	COMP. DOC.	TITLE
<input checked="" type="checkbox"/>	<input type="checkbox"/>	NRCC-LTI-01-E	Certificate of Compliance - All Pages required on plans for all submittals.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	NRCC-LTI-02-E	Lighting Controls, Certificate of Compliance, and PAF Calculation. All Pages required on plans for all submittals.
<input checked="" type="checkbox"/>	<input type="checkbox"/>	NRCC-LTI-03-E	Indoor Lighting Power Allowance
<input checked="" type="checkbox"/>	<input type="checkbox"/>	NRCC-LTI-04-E	Tailored Method Worksheets
<input checked="" type="checkbox"/>	<input type="checkbox"/>	NRCC-LTI-05-E	Line Voltage Track Lighting Worksheets
<input type="checkbox"/>	<input type="checkbox"/>	NRCC-LTI-06-E	Indoor Lighting Existing Conditions

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance April 2016

STATE OF CALIFORNIA  
**INDOOR LIGHTING**  
 CERTIFICATE OF COMPLIANCE  
 Project Name: Bishops at Pasadena, CA  
 Date Prepared: 3/16/2018  
 NRCC-LTI-01-E (Page 2 of 6)

**C. Summary of Allowed Lighting Power**  
 Conditioned and Unconditioned space Lighting must not be combined for compliance.

Item	Indoor Lighting Power for Conditioned Spaces		Indoor Lighting Power for Unconditioned Spaces	
	Watts	Watts	Watts	Watts
01	Installed Lighting NRCC-LTI-01-E, Table H, page 5	2,121	Installed Lighting NRCC-LTI-01-F, Table H, page 5	0
02	Portable Only for Offices NRCC-LTI-01-E, Table G, page 4	+		
03	Minus Lighting Control Credits NRCC-LTI-02-E, page 2	- 8	Minus Lighting Control Credits NRCC-LTI-02-E, page 2	- 0
04	Adjusted Installed Lighting Power (row 1 plus row 2 minus row 3)	= 2,113	Adjusted Installed Lighting Power (row 1 minus row 3)	= 0
Complies ONLY if Installed < Allowed (Box 04 < Box 05)			Complies ONLY if Installed < Allowed (Box 04 < Box 05)	
05	Allowed Lighting Power Conditioned NRCC-LTI-03-E, page 1	2,066	Allowed Lighting Power Unconditioned NRCC-LTI-03-E, page 1	0
Alterations with replacement luminaires that have at least 50/85% lower power compared to the original existing luminaires, may instead use the allowed wattage from NRCC-LTI-06, page 2			Alterations with replacement luminaires that have at least 50/85% lower power compared to the original existing luminaires, may instead use the allowed wattage from NRCC-LTI-06, page 2	

**D. Declaration of Required Certificates of Installation**  
 Declare by selecting yes for all of the Certificates that will be submitted. (Retain copies and verify forms are completed and signed.)

YES	NO	Compliance Document/Title	Field Inspector
<input checked="" type="checkbox"/>	<input type="checkbox"/>	NRCC-LTI-01-E - Must be submitted for all buildings	<input type="checkbox"/> Field Inspector
<input type="checkbox"/>	<input checked="" type="checkbox"/>	NRCC-LTI-02-E - Must be submitted for a lighting control system, or for an Energy Management Control System (EMCS), to be recognized for compliance.	<input type="checkbox"/> Field Inspector
<input type="checkbox"/>	<input checked="" type="checkbox"/>	NRCC-LTI-03-E - Must be submitted for a line-voltage track lighting integral current limiter, or for a supplementary overcurrent protection panel used to energize only line-voltage track lighting, to be recognized for compliance.	<input type="checkbox"/> Field Inspector
<input type="checkbox"/>	<input checked="" type="checkbox"/>	NRCC-LTI-04-E - Must be submitted for two interlocked systems serving an auditorium, a convention center, a conference room, a multipurpose room, or a theater to be recognized for compliance.	<input type="checkbox"/> Field Inspector
<input type="checkbox"/>	<input checked="" type="checkbox"/>	NRCC-LTI-05-E - Must be submitted for a Power Adjustment Factor (PAF) to be recognized for compliance.	<input type="checkbox"/> Field Inspector
<input type="checkbox"/>	<input checked="" type="checkbox"/>	NRCC-LTI-06-E - Must be submitted for additional wattage installed in a video conferencing studio to be recognized for compliance.	<input type="checkbox"/> Field Inspector

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance April 2016

STATE OF CALIFORNIA  
**INDOOR LIGHTING**  
 CERTIFICATE OF COMPLIANCE  
 Project Name: Bishops at Pasadena, CA  
 Date Prepared: 3/16/2018  
 NRCC-LTI-01-E (Page 3 of 6)

**E. Declaration of Required Certificates of Acceptance**  
 Declare by selecting yes for all of the Certificates that will be submitted. (Retain copies and verify forms are completed and signed.)

YES	NO	Compliance Document/Title	Field Inspector
<input type="checkbox"/>	<input checked="" type="checkbox"/>	NRCC-LTI-02-A - Must be submitted for occupancy sensors and automatic time switch controls.	<input type="checkbox"/> Field Inspector
<input type="checkbox"/>	<input checked="" type="checkbox"/>	NRCC-LTI-03-A - Must be submitted for automatic daylight controls.	<input type="checkbox"/> Field Inspector
<input type="checkbox"/>	<input checked="" type="checkbox"/>	NRCC-LTI-04-A - Must be submitted for demand responsive lighting controls.	<input type="checkbox"/> Field Inspector
<input type="checkbox"/>	<input checked="" type="checkbox"/>	NRCC-LTI-05-A - Must be submitted for institutional tuning power adjustment factor (PAF).	<input type="checkbox"/> Field Inspector

A Separate Lighting Schedule Must Be Filled Out for Conditioned and Unconditioned Spaces. Installed Lighting Power listed on this Lighting Schedule is only for:  
 CONDITIONED SPACE  UNCONDITIONED SPACE

**F. Indoor Lighting Schedule and Field Inspection Energy Checklist**  
 The actual indoor lighting power listed on the next 2 pages includes all installed permanent and planned portable lighting systems.  
 When Complete Building Method is used for compliance, list each different type of luminaire on separate lines.  
 When Area Category Method or Tailored Method is used for compliance, list each different type of luminaire by each different function area on separate lines.  
 Also include track lighting in schedule, and submit the track lighting compliance document (NRCC-LTI-05-E) when line voltage track lighting is installed.

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance April 2016

STATE OF CALIFORNIA  
**INDOOR LIGHTING**  
 CERTIFICATE OF COMPLIANCE  
 Project Name: Bishops at Pasadena, CA  
 Date Prepared: 3/16/2018  
 NRCC-LTI-01-E (Page 4 of 6)

**G. Installed Portable Luminaires in Offices - Exception to Section 140.8(a)**  
 This section shall be filled out ONLY for portable luminaires in offices (As defined in §100.1). All other planned portable luminaires shall be documented on next page of this compliance document.  
 This section is used to determine if greater than 0.3 watts of portable lighting is planned for any office.  
 Fill out a separate line for each different office. Small offices that are typical (having the same general and portable lighting) may be grouped together. This allowance shall not be traded between offices having different lighting systems.

Office Portable Luminaire Schedule		Office Installed Portable Luminaire W/ft <sup>2</sup>					Office Location		Field Inspector	
1	2	3	4	5	6	7	8	9	10	11
Complete Luminaire Description (i.e. LED, under cabinet, luminaire mounted direct/indirect)	Watts per Luminaire	Number of Luminaires	Installed portable luminaire watts in this office (602 x 603)	Separate feet of this office	Watts per square foot (604 / 605)	If 606 < 0.3, enter zero; if 606 > 0.3, (606-0.3)	{605 x 607}	Identify Office area in which these portable luminaires are installed	Pass	Fail
									<input type="checkbox"/>	<input type="checkbox"/>
Total installed portable luminaire watts that are greater than 0.3 W/ft <sup>2</sup> per office:								Enter sum total of all pages into NRCC-LTI-01-E, Page 1	<input type="checkbox"/>	<input type="checkbox"/>

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance April 2016

STATE OF CALIFORNIA  
**INDOOR LIGHTING**  
 CERTIFICATE OF COMPLIANCE  
 Project Name: Bishops at Pasadena, CA  
 Date Prepared: 3/16/2018  
 NRCC-LTI-01-E (Page 5 of 6)

A Separate Lighting Schedule Must Be Filled Out for Conditioned and Unconditioned Spaces. Installed Lighting Power listed on this Lighting Schedule is only for:  
 CONDITIONED SPACE  UNCONDITIONED SPACE

**H. Indoor Lighting Schedule and Field Inspection Energy Checklist**

Item	Luminaire Schedule	Installed Watts				Location	Field Inspector	
		03	04	05	06		07	08
01	02	Watts per luminaire	How wattage was determined	Number of Luminaires	Total installed Watts by this area (100% x 05)	Primary function area in which these luminaires are installed	Pass	Fail
B	22W LED	22.0	<input checked="" type="checkbox"/> EEC De-rat from IAS	12	264	Beauty Salon	<input type="checkbox"/>	<input type="checkbox"/>
B2	82 - 20W LED	20.0	<input type="checkbox"/> According to §133.10	1	20	Janitors Closet/Utility	<input type="checkbox"/>	<input type="checkbox"/>
D	D - 13W LED	13.0	<input type="checkbox"/> EEC De-rat from IAS	6	78	Janitors Closet/Utility	<input type="checkbox"/>	<input type="checkbox"/>
L1	L1 - 22W LED	22.0	<input type="checkbox"/> EEC De-rat from IAS	14	308	Beauty Salon	<input type="checkbox"/>	<input type="checkbox"/>
T	Standard Allowance: 734 sqft at 0.750 watt/ft <sup>2</sup>	12.5	<input type="checkbox"/> EEC De-rat from IAS	72	900	Office > 250 sqft	<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/> EEC De-rat from IAS				<input type="checkbox"/>	<input type="checkbox"/>
			<input type="checkbox"/> EEC De-rat from IAS				<input type="checkbox"/>	<input type="checkbox"/>
INSTALLED WATTS PAGE TOTAL: 2,121						Enter sum total of all pages into NRCC-LTI-01-E, Page 2	<input type="checkbox"/>	<input type="checkbox"/>

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance April 2016

STATE OF CALIFORNIA  
**INDOOR LIGHTING**  
 CERTIFICATE OF COMPLIANCE  
 Project Name: Bishops at Pasadena, CA  
 Date Prepared: 3/16/2018  
 NRCC-LTI-01-E (Page 6 of 6)

**DOCUMENTATION AUTHOR'S DECLARATION STATEMENT**  
 I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Peter A. Leptuch  
 Company: Peter A. Leptuch, P.E.  
 Address: 1236 Golden Eagle Court  
 City/State/Zip: Aubrey, TX 76227  
 Phone: (940) 735-5127

**RESPONSIBLE PERSON'S DECLARATION STATEMENT**  
 I certify the following under penalty of perjury, under the laws of the State of California:  
 1. The information provided on this Certificate of Compliance is true and correct.  
 2. I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).  
 3. The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.  
 4. The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.  
 5. I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) issued for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Peter A. Leptuch  
 Company: Peter A. Leptuch, P.E.  
 Address: 1236 Golden Eagle Court  
 City/State/Zip: Aubrey, TX 76227  
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CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance April 2016



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**BISHOPS**  
 BISHOPS - TENANT FINISHOUT  
 1715 E. COLORADO BLVD  
 PASADENA, CA 91106

DO NOT SCALE DRAWINGS  
 CONTRACTOR TO VERIFY  
 ALL EXISTING CONDITIONS AND  
 DIMENSIONS-NOTIFY ARCHITECT  
 OF ANY DISCREPANCIES PRIOR  
 TO BEGINNING CONSTRUCTION

NO REVISION

ISSUE

Peter A. Leptuch, P.E.  
 CA-M 5700/CA-E 19072  
 1236 Golden Eagle Ct.  
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 (940) 735-5127

PROJECT NUMBER  
 C170515

SHEET NUMBER

F4.0  
 ELECTRICAL  
 TITLE 24  
 DATE OF THIS PRINTING - 03/22/18

**A. Mandatory Lighting Control Declaration Statements** (Indicate if the measure applies by checking yes or no below.)

YES	NO	Control Requirements
<input type="checkbox"/>	<input type="checkbox"/>	Lighting shall be controlled by self-contained lighting control devices which are certified to the Energy Commission according to the Title 20 Appliance Efficiency Regulations in accordance with Section 110.9.
<input type="checkbox"/>	<input type="checkbox"/>	Lighting shall be controlled by a lighting control system or energy management control system in accordance with §110.9. An Installation Certificate shall be submitted in accordance with Section 130.4(b).
<input type="checkbox"/>	<input type="checkbox"/>	One or more Track Lighting Integral Current Limiters shall be installed which have been certified to the Energy Commission in accordance with §110.9 and §130.0. Additionally, an Installation Certificate shall be submitted in accordance with Section 130.4(b).
<input type="checkbox"/>	<input type="checkbox"/>	A Track Lighting Supplementary Overcurrent Protection Panel shall be installed in accordance with Section 110.9 and Section 130.0. Additionally, an Installation Certificate shall be submitted in accordance with Section 130.4(b).
<input checked="" type="checkbox"/>	<input type="checkbox"/>	All lighting controls and equipment shall comply with the applicable requirements in §110.9 and shall be installed in accordance with the manufacturer's instructions in accordance with Section 130.1.
<input type="checkbox"/>	<input type="checkbox"/>	All luminaires shall be functionally controlled with manually switched ON and OFF lighting controls in accordance with Section 130.1(a).
<input type="checkbox"/>	<input type="checkbox"/>	General lighting shall be separately controlled from all other lighting systems in an area. Floor and wall display, window display, case display, ornamental, and special effects lighting shall each be separately controlled on circuits that are 20 amps or less. When track lighting is used, general, display, ornamental, and special effects lighting shall each be separately controlled; in accordance with Section 130.1(a)(4).
<input type="checkbox"/>	<input type="checkbox"/>	The general lighting of any area fixed area 100 square feet or larger, with a maximum lighting load that exceeds 0.5 watts per square foot shall meet the multi-level lighting control requirements in accordance with Section 130.1(b).
<input type="checkbox"/>	<input type="checkbox"/>	All installed indoor lighting shall be equipped with controls that meet the applicable Shut-Off control requirements in Section 130.1(c).
<input type="checkbox"/>	<input type="checkbox"/>	Lighting in all Daylit Zones shall be controlled in accordance with the requirements in Section 130.1(e) and daylight zones are shown on the plans.
<input type="checkbox"/>	<input type="checkbox"/>	Lighting power in buildings larger than 10,000 square feet shall be capable of being automatically reduced in response to a Demand Responsive Signal in accordance with Section 130.1(e).
<input type="checkbox"/>	<input type="checkbox"/>	Before an occupancy permit is granted for a newly constructed building or area, or a new lighting system serving a building, area, or site is operated for normal use, indoor lighting controls serving the building, area, or site shall be certified as meeting the acceptance requirements for Code Compliance in accordance with Section 130.4(a). The controls required to meet the Acceptance Requirements include automatic daylight controls, automatic shut-off controls, and demand responsive controls.

A separate document must be filled out for Conditioned and Unconditioned Spaces. This page is used only for the following:  
 CONDITIONED SPACES  UNCONDITIONED SPACES

**B. Mandatory and Prescriptive Indoor Lighting Control Schedule, PAF Calculation, and Field Inspection Checklist**

Location in Building	Type/Description of Lighting Control (i.e.: occupancy sensor, automatic time switch, dimmer, automatic daylight, etc.)	Standards Complying With <sup>1</sup> ( <sup>2</sup> all that apply, or enter "E" if Exempted)										PAF Credit Calculation <sup>3</sup>		Field Inspector		
		01	02	03	04	05	06	07	08	09	10	Watts of Controlled Lighting	PAF Control Credit (K x L)			
Restroom & Utility Room	Occ Sensor - <= 125 sqft	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	20	0.40	8	Pass	Fail
Control Credit PAGE TOTAL (Sum of Column 13):												8				
IF MULTIPLE PAGES ARE USED, ENTER SUM TOTAL OF CONTROL CREDIT for all pages HERE (Sum of all Column 13):												8				
Enter Control Credit total into NRCC-LTI-01-E, Page 1.																

<sup>1</sup> §130.1(a) = Manual area controls; §130.0(b) = Multi Level; §130.1(c) = Auto Shut-Off; §130.1(d) = Mandatory Daylight; §130.1(e) = Demand Responsive; §140.6(d) = Additional lighting controls installed to earn a PAF; §140.6(d) = Prescriptive Secondary Sidelight Daylight Controls.  
<sup>2</sup> Check Table 140.6-A for correct Factor. PAFs shall not be traded between conditioned and unconditioned spaces. As a condition to earn a PAF, an Installation Certificate is also required to be filled out, signed, and submitted.

**DOCUMENTATION AUTHOR'S DECLARATION STATEMENT**

I certify that this Certificate of Compliance documentation is accurate and complete.

Documentation Author Name: Peter A. Leptuch Documentation Author Signature: [Signature]  
 Company: Peter A. Leptuch, P.E. Signature Date: 3/16/2018  
 Address: 1236 Golden Eagle Court CEA Certification Identification (if applicable):  
 City/State/Zip: Aubrey, TX 76227 Phone: (940) 735-5127

**RESPONSIBLE PERSON'S DECLARATION STATEMENT**

I certify the following under penalty of perjury, under the laws of the State of California:

- The information provided on this Certificate of Compliance is true and correct.
- I am eligible under Division 3 of the Business and Professions Code to accept responsibility for the building design or system design identified on this Certificate of Compliance (responsible designer).
- The energy features and performance specifications, materials, components, and manufactured devices for the building design or system design identified on this Certificate of Compliance conform to the requirements of Title 24, Part 1 and Part 6 of the California Code of Regulations.
- The building design features or system design features identified on this Certificate of Compliance are consistent with the information provided on other applicable compliance documents, worksheets, calculations, plans and specifications submitted to the enforcement agency for approval with this building permit application.
- I will ensure that a completed signed copy of this Certificate of Compliance shall be made available with the building permit(s) record for the building, and made available to the enforcement agency for all applicable inspections. I understand that a completed signed copy of this Certificate of Compliance is required to be included with the documentation the builder provides to the building owner at occupancy.

Responsible Designer Name: Peter A. Leptuch Responsible Designer Signature: [Signature]  
 Company: Peter A. Leptuch, P.E. Date Signed: 3/16/2018  
 Address: 1236 Golden Eagle Court License: E19072  
 City/State/Zip: Aubrey, TX 76227 Phone: (940) 735-5127

A separate page must be filled out for Conditioned and Unconditioned Spaces. This page is only for:  
 CONDITIONED spaces  UNCONDITIONED spaces

**A. SUMMARY TOTALS OF LIGHTING POWER ALLOWANCES**

If using Complete Building Method for compliance, use only the total in column (a) as total allowed building watts.  
 If using Area Category Method, Tailored Method, or a combination of Area Category and Tailored Method for compliance, use only the total in column (b) as the total allowed building watts.

	(a)	(b)
01 Complete Building Method Allowed Watts. Documented in section B of NRCC-LTI-03-E (below on this page)		
02 Area Category Method Allowed Watts. Documented in section C-1 of NRCC-LTI-03-E (below on this page)		2,968
03 Tailored Method Allowed Watts. Documented in section A of NRCC-LTI-03-E		0
<b>TOTAL ALLOWED BUILDING WATTS. Enter number into correct cell on NRCC-LTI-01, Page 2, Row 1</b>		2,968

Check here if building contains both conditioned and unconditioned areas.

**B. COMPLETE BUILDING METHOD LIGHTING POWER ALLOWANCE**

01	02	03	04
TYPE OF BUILDING (From §140.6 Table 140.6-B)	WATTS PER Ft <sup>2</sup>	X COMPLETE BLDG. AREA	= ALLOWED WATTS
Total Area:			
Total Watts. Enter Total Watts into section A, row 1 (Above on this page)			

**C-1 AREA CATEGORY METHOD TOTAL LIGHTING POWER ALLOWANCES**

Watts	
Total from section C-2	2,968
Total from section C-3	0
<b>Total Watts. Enter Total Watts into section A, row 2 (Above on this page)</b>	2,968

For Alterations Only - Reduced lighting power option (Total Allowed Watts x 0.85). Enter this value into section A, row 2 if using this option.

A separate page must be filled out for Conditioned and Unconditioned Spaces. This page is only for:  
 CONDITIONED spaces  UNCONDITIONED spaces

**C-2 AREA CATEGORY METHOD GENERAL LIGHTING POWER ALLOWANCE**

Do not include portable lighting for offices. Portable lighting for offices shall be documented only in Section G of NRCC-LTI-01-E.  
 Separately list lighting for each primary function area as defined in §100.1 of the Standards.

01	02	03	04
<b>AREA CATEGORY (From §140.6 Table 140.6-C)</b>			
Luminaire in Building	Primary Function Area per Table 140.6-C	X AREA (Ft <sup>2</sup> )	=
Restrooms / Utility Room	Janitors Closet/Utility	0.80	122
Retail	Beauty Salon	1.70	2,293
Office	Office > 750 sqft	0.75	551
<b>TOTALS</b>			2,287
Enter sum total Area Category allowed watts into section C-1 of NRCC-LTI-03-E (this compliance document)			2,968

A separate page must be filled out for Conditioned and Unconditioned Spaces. This page is only for:  
 CONDITIONED spaces  UNCONDITIONED spaces

**C-3 AREA CATEGORY METHOD ADDITIONAL LIGHTING WATTAGE ALLOWANCE (From Table 140.6-C Footnotes)**

01	02	03	04	05	06	07
Primary Function	Sq Ft or Linear Ft <sup>2</sup>	Additional Watts Allowed	Wattage Allowance (02 x 03)	Description(s) and Quantity of Special Luminaire Types in each Primary Function Area	Total Design Watts <sup>1</sup>	ALLOWED WATTS Smaller of 04 or 06
<b>TOTALS - Enter into TOTAL AREA CATEGORY METHOD ADDITIONAL ALLOWANCES - SECTION C-1</b>						0

<sup>1</sup> Use linear feet only for additional allowance for white board or chalk board. All other additional Area Category allowances shall use watts per square foot.  
<sup>2</sup> Additional watts are available only when allowed according to the footnotes on bottom of Table 140.6-C, which include: Specialized task work, Ornamental lighting, Precision commercial and industrial work; Per linear foot of white board or chalk board; Arced, display and feature lighting; and Videoconferencing studio lighting.  
<sup>3</sup> Luminaire classification and wattage shall be determined in accordance with §130.0(c) of the Standards.



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DO NOT SCALE DRAWINGS  
 CONTRACTOR TO VERIFY  
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 OF ANY DISCREPANCIES PRIOR  
 TO BEGINNING CONSTRUCTION

NO REVISION

ISSUE

Peter A. Leptuch, P.E.  
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 1236 Golden Eagle Ct.  
 Aubrey, TX 76227  
 (940) 735-5127



PROJECT NUMBER  
**C170515**

SHEET NUMBER

**F41**  
**ELECTRICAL**  
 TITLE 24  
 DATE OF THIS PRINTING = 03/22/18

ISSUE FOR PERMIT 03/26/18

STATE OF CALIFORNIA  
INDOOR LIGHTING POWER ALLOWANCE  
CERTIFICATE OF COMPLIANCE

Project Name: Bishops at Pasadena, CA  
Date Issued: 3/16/2018  
Page 4 of 4

Documentation Author: Peter A. Leptuch, P.E.  
Address: 1236 Golden Eagle Court, Aubrey, TX 76227  
Phone: (940) 735-5127

Responsible Designer: Peter A. Leptuch, P.E.  
Address: 1236 Golden Eagle Court, Aubrey, TX 76227  
Phone: (940) 735-5127

STATE OF CALIFORNIA  
LINE-VOLTAGE TRACK LIGHTING WORKSHEET  
CERTIFICATE OF COMPLIANCE

Project Name: Bishops at Pasadena, CA  
Date Issued: 3/16/2018  
Page 1 of 3

Method 1 is the only option available for determining wattage for track or busway rated for more than 20 amperes.

BRANCH CIRCUIT NAME OR ID	VOLT-AMPERE (VA) RATING OF THE BRANCH CIRCUIT

Track or Name #	Linear Feet of Track (W/L)	Watts (W)	Total Rated Wattage of All Luminaires (W)
	48	48	48

Track or Name #	Linear Feet of Track (W/L)	Watts (W)	VA Rating of Integral Current Limiter
	48	48	

Name or ID	Voltage of the Branch Circuit	Sum of the Ampere Rating of all Devices Installed in the Panel	Wattage - Sum of the Ampere Ratings of all of the Devices Times the Branch Circuit Voltage (100 x 100)

STATE OF CALIFORNIA  
LINE-VOLTAGE TRACK LIGHTING WORKSHEET  
CERTIFICATE OF COMPLIANCE

Project Name: Bishops at Pasadena, CA  
Date Issued: 3/16/2018  
Page 2 of 3

Method 2 is the only option available for determining wattage for track or busway rated for more than 20 amperes.

Track or Name #	Linear Feet of Track (W/L)	Watts (W)	Total Rated Wattage of All Luminaires (W)
	48	48	48

Track or Name #	Linear Feet of Track (W/L)	Watts (W)	VA Rating of Integral Current Limiter
	48	48	

STATE OF CALIFORNIA  
SIGN LIGHTING  
CERTIFICATE OF COMPLIANCE

Project Name: Bishops at Pasadena, CA  
Date Issued: 3/16/2018  
Page 1 of 5

1. I certify that this Certificate of Compliance documentation is accurate and complete.

1. Mandatory Sign Lighting Controls

1. There are existing sign lighting controls that comply with the applicable provisions of §110.9 and §130.3

2. There are no existing sign lighting controls and I will be installing sign lighting controls that comply with the applicable provisions of §110.9 and §130.3

3. There are existing sign lighting controls that do not comply with the applicable provisions of §110.9 and §130.3 and I will be installing sign lighting controls that comply with the applicable provisions of §110.9 and §130.3

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance  
April 2016

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance  
January 2016

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance  
August 2016

STATE OF CALIFORNIA  
SIGN LIGHTING  
CERTIFICATE OF COMPLIANCE

Project Name: Bishops at Pasadena, CA  
Date Issued: 3/16/2018  
Page 2 of 5

1b. Mandatory Sign Lighting Controls

Section	Control	Y	N	NA
130.3(a)(1)	Indoor sign lighting is controlled with an automatic time-switch control or astronomical time-switch control.			
130.3(a)(2)	Outdoor sign lighting is controlled with a photocell in addition to an automatic time-switch control, or an astronomical time-switch control.			
130.3(a)(3)	Outdoor signs in tunnels and large covered areas that are intended to be illuminated both day and night.			
130.3(a)(4)	Outdoor signs in tunnels and large covered areas that are intended to be illuminated both day and night.			
130.3(a)(5)	Outdoor signs in tunnels and large covered areas that are intended to be illuminated both day and night.			

STATE OF CALIFORNIA  
SIGN LIGHTING  
CERTIFICATE OF COMPLIANCE

Project Name: Bishops at Pasadena, CA  
Date Issued: 3/16/2018  
Page 3 of 5

2b. Specific Lighting Source Method of Compliance

Symbol or Code	Description	OPTIONAL ENERGY VERIFIED Label (see instructions below)	Specific light source used for compliance	Field Inspector Check that Sign Complies

STATE OF CALIFORNIA  
SIGN LIGHTING  
CERTIFICATE OF COMPLIANCE

Project Name: Bishops at Pasadena, CA  
Date Issued: 3/16/2018  
Page 4 of 5

3b. Specific Lighting Source Method of Compliance

Symbol or Code	Description	OPTIONAL ENERGY VERIFIED Label (see instructions below)	Specific light source used for compliance	Field Inspector Check that Sign Complies

STATE OF CALIFORNIA  
SIGN LIGHTING  
CERTIFICATE OF COMPLIANCE

Project Name: Bishops at Pasadena, CA  
Date Issued: 3/16/2018  
Page 5 of 5

1. I certify that this Certificate of Compliance documentation is accurate and complete.

1. Mandatory Sign Lighting Controls

1. There are existing sign lighting controls that comply with the applicable provisions of §110.9 and §130.3

2. There are no existing sign lighting controls and I will be installing sign lighting controls that comply with the applicable provisions of §110.9 and §130.3

3. There are existing sign lighting controls that do not comply with the applicable provisions of §110.9 and §130.3 and I will be installing sign lighting controls that comply with the applicable provisions of §110.9 and §130.3

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance  
August 2016

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance  
August 2016

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance  
August 2016



DO NOT SCALE DRAWINGS  
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NO REVISION

ISSUE

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PROJECT NUMBER  
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E4.2  
ELECTRICAL  
TITLE 24  
DATE OF THIS PRINTING 03/22/18