

GDI ENGINEERING



Burt ADU

Residencial

Costa Mesa, California

HVAC ABBREVIATIONS		
A	H	R
A AREA	H HEIGHT	(R) RELOCATED
ABV ABOVE	HC HEATING COIL	R RISE
ADJ ADJUSTABLE	HTG HEATING	RA RETURN AIR
AC AIR CONDITIONING	HTR HEATER	RAD RETURN AIR DUCT
ACH AIR CHANGE PER HOUR	HP HORSE POWER	RAF RETURN AIR FAN
AFC ABOVE FINISHED CEILING	HSPF HEATING SEASONAL PERFORMANCE FACTOR	RAG RETURN AIR GRILLE
AFB ABOVE FINISHED FLOOR	HUM HUMIDIFIER	REQD REQUIRED
AFG ABOVE FINISHED GRADE	HZ HERTZ	REV REVISION
AHU AIR HANDLING UNIT		RH RELATIVE HUMIDITY
AMB AMBIENT		RHC REHEAT COIL
ASHRAE AMERICAN SOCIETY OF HEATING AND REFRIGERATION ENGINEERS	I	RLA RUNNING LOAD AMPS
ASME AMERICAN SOCIETY OF MECHANICAL ENGINEERS	ID INSIDE DIAMETER	RM ROOM
ASTM AMERICAN SOCIETY OF TESTING AND MATERIALS	IDU INDOOR UNIT	RPM REVOLUTIONS PER MINUTE
AVG AVERAGE	IE INVERT ELEVATION	RR RETURN REGISTER
	IN INCH	RTU ROOFTOP UNIT
	IN WC INCH, WATER COLUMN	
	INSUL INSULATION	
	INT INTERNAL / INTERIOR	
B	K	S
BDD BACK-DRAFT DAMPER	KEF KITCHEN EXHAUST FAN	SA SUPPLY AIR
BHP BREAK HORSE POWER	KW KILOWATT	SAD SUPPLY AIR DUCT
BTU BRITISH THERMAL UNIT		SEER SEASONAL ENERGY EFFICIENCY RATIO
C	L	T
CDP CONDENSATE DRAIN PIPE	L LENGTH	T THERMOSTAT
CFH CUBIC FEET PER HOUR	LBS POUNDS	T/A TO ABOVE
CFM CUBIC FEET PER MINUTE	LP LOW PRESSURE	T/B TO BELOW
CG CEILING GRILLE	LRA LOCKED ROTOR AMPS	TBD TO BE DETERMINED
CLG CEILING	LV LEVEL	TDH TOTAL DYNAMIC HEAD
COND CONDENSATE	LWB LEAVING WET BULB TEMPERATURE	TEMP TEMPERATURE
CO CLEAN OUT	LWT LEAVING WATER TEMPERATURE	TG TRANSFER GRILLE
CONT CONTINUATION / CONTINUED		TR TOP REGISTER
COP COEFFICIENT OF PERFORMANCE		TRF TRANSFER FAN
CP CONDENSATE PUMP		TG TRANSFER GRILLE
		TRD TRANSFER DUCT
		TYP. TYPICAL
D	M	U
D DEPTH	MAX MAXIMUM	U/F UNDER FLOOR
DB DRY BULB	MB MIXING BOX	U/G UNDER GROUND
DEHUM DEHUMIDIFIER	MBH THOUSAND BTUH	UH UNIT HEATER
DMPR DAMPER	MCA MINIMUM CIRCUIT AMPACITY	U/S UNDER SLAB
DWG DRAWING	MD MOTORIZED DAMPER	UON UNLESS OTHERWISE NOTED
	MECH MECHANICAL	UTR UP THROUGH ROOF
	MIN MINIMUM	
	MOCP MAXIMUM OVERCURRENT PROTECTION	
	MOPD MAXIMUM OVERCURRENT PROTECTION DEVICE	
	MUA MAKE-UP AIR UNIT	
E	N	V
(E) EXISTING	(N) NEW	V VOLT
EA EACH	NC NORMALLY CLOSED	VAV VARIABLE AIR VOLUME
EAD EXHAUST AIR DUCT	NIC NOT IN CONTRACT	VD VOLUME DAMPER
EAT ENTERING AIR TEMPERATURE	NK NECK	VE VELOCITY
EDB ENTERING DRY BULB TEMPERATURE	NO NORMALLY OPEN, NUMBER	VIF VERIFY IN FIELD
EER ENERGY EFFICIENCY RATIO	NTS NOT TO SCALE	VTR VENT THROUGH ROOF
EF EXHAUST FAN		
ELEC ELECTRIC		
ELEV ELEVATION		
EQ EQUAL		
EVC EVAPORATIVE COOLER		
EWB ENTERING WET BULB		
EWT ENTERING WATER TEMPERATURE		
EXH EXHAUST		
F	O	W
*F DEGREES FAHRENHEIT	OA OUTSIDE AIR	W WATT, WIDTH
F FILTER	OAI OUTSIDE AIR INTAKE	W/ WITH
F/A FROM ABOVE	OD OUTSIDE DIAMETER	W/O WITHOUT
FAD FRESH AIR DUCT	ODU OUTDOOR UNIT	WB WETBULB
F/B FROM BELOW	OV OUTLET VELOCITY	WIC WALK-IN COOLER
FCU FAN COIL UNIT		WIF WALK-IN FREEZER
FD FIRE DAMPER		WMS WIRE MESH SCREEN
FPM FEET PER MINUTE		WT WEIGHT
FT FEET / FOOT		
FLA FULL LOAD AMPERES		
FLEX FLEXIBLE		
FV FACE VELOCITY		
COMPLETION REQUIREMENTS	Q	
THE CONTRACTOR SHALL PROVIDE, WITHIN 90 DAYS AFTER THE DATE OF SYSTEM ACCEPTANCE, RECORD DRAWINGS AND AN OPERATING AND MAINTENANCE MANUAL TO THE BUILDING OWNER OR THE DESIGNATED REPRESENTATIVE OF THE OWNER. THE RECORD DRAWING SHALL BE OF THE ACTUAL INSTALLATION AND INCLUDE AS A MINIMUM THE LOCATION AND PERFORMANCE DATA ON EACH PIECE OF EQUIPMENT, GENERAL CONFIGURATION OF DUCT AND PIPE DISTRIBUTION SYSTEM INCLUDING SIZES, AND THE TERMINAL AIR OR WATER DESIGN FLOW RATES. THE OPERATING AND MAINTENANCE MANUALS SHALL BE IN ACCORDANCE WITH INDUSTRY-ACCEPTED STANDARDS AND SHALL INCLUDE, AT A MINIMUM:	QTY QUANTITY	
(A) SUBMITTAL DATA STATING EQUIPMENT SIZE AND SELECTED OPTIONS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE		
(B) OPERATION MANUALS AND MAINTENANCE MANUALS FOR EACH PIECE OF EQUIPMENT REQUIRING MAINTENANCE, EXCEPT EQUIPMENT NOT FURNISHED AS PART OF THE PROJECT. REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY IDENTIFIED		
(C) NAMES AND ADDRESSES OF AT LEAST ONE SERVICE AGENCY		
(D) HVAC CONTROLS SYSTEMS MAINTENANCE AND CALIBRATION INFORMATION, INCLUDING WIRING DIAGRAMS, SCHEMATICS, AND CONTROL SYSTEM SEQUENCE DESCRIPTIONS. DESIRED OR FIELD-DETERMINED SET-POINTS SHALL BE PERMANENTLY RECORDED ON CONTROL DRAWINGS AT CONTROL DEVICES OR, FOR DIGITAL CONTROL SYSTEMS, IN PROGRAMMING COMMENTS		
(E) A COMPLETE NARRATIVE OF HOW EACH SYSTEM EACH SYSTEM IS INTENDED TO OPERATE, INCLUDING SET-POINTS.		

HVAC LEGEND	
	NEW DUCT WORK AND/OR EQUIPMENT
	EXISTING DUCT WORK AND/OR EQUIPMENT
	HIDDEN DUCT WORK AND/OR EQUIPMENT
	DUCT WORK AND/OR EQUIPMENT TO BE DEMOLISHED
	RETURN AIR DUCT UP
	SUPPLY AIR DUCT UP
	EXHAUST AIR DUCT UP
	RETURN AIR DUCT DOWN
	SUPPLY AIR DUCT DOWN
	EXHAUST AIR DUCT DOWN
	ELBOWS WITH TURNING VANES
	TEE DUCT WITH TURNING VANES
	DUCT WITH ACOUSTICAL LINING
	DUCT DROP (IN DIRECTION OF AIRFLOW)
	DUCT RISE (IN DIRECTION OF AIRFLOW)
	TRANSITION SQUARE TO ROUND
	TRANSITION SQUARE TO SQUARE / ROUND TO ROUND
	FLEXIBLE DUCT
	FLEXIBLE CONNECTION
	RADIUS ELBOW
	SUPPLY AIR RECTANGULAR CEILING DIFFUSER
	RETURN AIR CEILING REGISTER/GRILLE
	EXHAUST AIR REGISTER GRILLE
	VERTICAL DUCT DROP
	VERTICAL DUCT RISE
	DETAIL TOP - I.D. NUMBER REF. BOTTOM - SHT. NUMBER
	SECTION TOP - I.D. NUMBER REF. BOTTOM - SHT. NUMBER
	FIRE DAMPER
	COMBINATION OF SMOKE & FIRE DAMPER
	BACK DRAFT DAMPER
	SMOKE DETECTOR
	MANUAL VOLUME DAMPER
	DOOR LOUVER
	UNDERCUT (DOOR)
	CONDENSATE DRAIN
	THERMOSTAT
	DIAMETER/ROUND
	SQUARE FEET
	PROVIDED AND INSTALLED BY DIVISION 15
	PROVIDED & INSTALLED BY DIVISION 15 CONTROL
	PROVIDED AND INSTALLED BY DIVISION 16
	POC POINT OF CONNECTION
	DIFFUSER NECK SIZE CFM

CODE COMPLIANCE
- 2022 CALIFORNIA MECHANICAL CODE (CMC), TITLE 24, PART 4
- 2022 CALIFORNIA PLUMBING CODE (CPC), TITLE 24, PART 5
- 2022 CALIFORNIA ENERGY CODE (CEC), TITLE 24, PART 6
- 2022 CALIFORNIA ELECTRICAL CODE (CEC), TITLE 24, PART 3
- 2022 CALIFORNIA GREEN BUILDING STANDARDS CODE (CGBSC), TITLE 24, PART 11
- 2022 CALIFORNIA REFERENCED STANDARDS, TITLE 24, PART 12

SPECIAL NOTES TO CONTRACTORS	
1.	MECHANICAL CONTRACTOR SHALL EXAMINE ALL OTHER SPECIFICATIONS, DRAWINGS AND ALL FEATURES OF BUILDING CONSTRUCTION WHICH MAY AFFECT HIS WORK AND SHALL BE GOVERNED BY THESE AND OTHER SPECIFICATIONS, INCLUDING THE GENERAL CONDITIONS AND PARTICULAR INSTRUCTIONS TO ALL BIDDER AND SUPPLIERS.
2.	ALL WORK SHALL BE EXECUTED AND INSPECTED IN STRICT ACCORDANCE WITH ALL LOCAL CODES AND/OR STATE CODES, LAWS, ORDINANCES, RULES AND REGULATIONS APPLICABLE TO THIS PARTICULAR CLASS OF WORK, AND EACH CONTRACTOR SHALL INCLUDE IN HIS PRICE ALL APPLICABLE SERVICE CHARGES, FEES, PERMITS, TAXES, AND OTHER SIMILAR COSTS IN CONNECTION THEREWITH.
3.	PRIOR TO FABRICATION OF DUCTWORK, THE MECHANICAL CONTRACTOR SHALL EXAMINE AND VERIFY ALL CONDITIONS ABOVE AND BELOW THE CEILING WHICH MAY INTERFERE WITH THE DUCT SYSTEM AND NOTIFY THE ARCHITECT OF ANY CONFLICT ENCOUNTERED. CONTRACTOR SHALL PROVIDE ALL OFFSETS, ETC. WHICH MAY BE REQUIRED, WITHOUT ADDITIONAL COST TO THE OWNER.
4.	CONTRACTOR WILL BE HELD RESPONSIBLE TO HAVE VISITED AND EXAMINED THE PREMISES PRIOR TO SUBMITTING HIS PROPOSAL IN ORDER TO UNDERSTAND THE EXISTING CONDITIONS RELATED TO HIS WORK.
5.	THE PERSON WITH OVERALL RESPONSIBILITY FOR CONSTRUCTION OR THE PERSON RESPONSIBLE FOR INSTALLATION OF REGULATED FEATURES, MATERIALS, COMPONENTS, OR MANUFACTURED DEVICES SHALL POST, OR MAKE AVAILABLE WITH THE BUILDING PERMIT(S) ISSUED FOR THE BUILDING, THE REQUIRED INSTALLATION CERTIFICATE(S) FOR FEATURES, MATERIALS, COMPONENTS, OR MANUFACTURED DEVICES REGULATED BY THE APPLIANCE EFFICIENCY REGULATIONS OR PART 6. SUCH INSTALLATION CERTIFICATE(S) SHALL BE MADE AVAILABLE TO THE ENFORCEMENT AGENCY FOR ALL APPROPRIATE INSPECTIONS. THESE CERTIFICATES SHALL:
i)	IDENTIFY FEATURES, MATERIALS, COMPONENTS, OR MANUFACTURED DEVICES REQUIRED TO VERIFY COMPLIANCE WITH THE APPLIANCE REGULATIONS AND PART 6.
ii)	INCLUDE A STATEMENT INDICATING THAT THE FEATURES, MATERIALS, COMPONENTS, OR MANUFACTURED DEVICES CONFORM TO THE APPLIANCE EFFICIENCY REGULATIONS AND PART 6 AND THE REQUIREMENTS FOR SUCH FEATURES, MATERIALS, COMPONENTS, OR MANUFACTURED DEVICES GIVEN IN THE PLANS AND SPECIFICATIONS APPROVED BY THE LOCAL ENFORCEMENT AGENCY. iii) STATE THE NUMBER OF THE BUILDING PERMIT UNDER WHICH CONSTRUCTION OR INSTALLATION WAS PERFORMED.
6.	THE BUILDER SHALL PROVIDE THE BUILDING OWNER OR THE PERSON(S) RESPONSIBLE FOR BUILDING MAINTENANCE (IN CASE OF MULTI-TENANT OR CENTRALLY OPERATED BUILDINGS) AT OCCUPANCY THE FOLLOWING:
1)	OPERATING INFORMATION: THE APPROPRIATE CERTIFICATE(S) OF COMPLIANCE AND A LIST OF THE FEATURES, MATERIALS, COMPONENTS, AND MECHANICAL DEVICES INSTALLED IN THE BUILDING AND INSTRUCTIONS ON HOW TO OPERATE THEM EFFICIENTLY.
2)	MAINTENANCE INFORMATION: REQUIRED ROUTINE MAINTENANCE ACTIONS SHALL BE CLEARLY STATED AND INCORPORATED ON A READILY ACCESSIBLE LABEL. THE LABEL MAY BE LIMITED TO IDENTIFYING THE OPERATION AND MAINTENANCE MANUAL.
7.	WORK IN THIS BUILDING SHALL BE DONE WHEN AND AS DIRECTED AND SHALL BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO ITS OCCUPANTS. ALL WORK IS TO BE COMPLETED DURING NORMAL HOURS UNLESS OTHERWISE DIRECTED.
8.	MATERIALS, DOCUMENTATION AND WORKMANSHIP SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS, LOCAL CODES AND AS SPECIFIED.
9.	SUPPORT ALL DUCTWORK AND PIPING FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OF SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL FRAMING.
10.	SEAL OPENINGS AROUND DUCTS AND PIPING THROUGH PARTITIONS, WALLS AND FLOORS WITH MINERAL WOOL, BUTYL RUBBER, NEOPRENE OR EPDM POLYMER WITH POLYISOBUTYLENE PLASTICIZER AND EPDM O-RING FOR ROUND DUCTS. SURFACE-BURNING CHARACTERISTICS FOR SEALANTS AND GASKETS SHALL BE A MAXIMUM FLAME-SPREAD INDEX OF 25 AND A MAXIMUM SMOKE-DEVELOPED INDEX OF 50 WHEN TESTED ACCORDING TO UL 723, CERTIFIED BY NRTL.
11.	FIREPROOFING AND INSULATION DISTURBED BY NEW CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION.
12.	DO NOT INTERRUPT ANY SERVICES OF THE EXISTING BUILDING NOR INTERFERE WITH THE SERVICES IN ANY WAY WITHOUT WRITTEN PERMISSION. INTERRUPTIONS SHALL BE AS BRIEF AS POSSIBLE AND ONLY AT DESIGNATED TIMES. NOISE SHALL BE REDUCED TO A MINIMUM.
13.	REMOVE RUBBISH FROM PREMISES AND SITE AT THE END OF EACH WORK DAY AND AS DIRECTED. STORE MATERIALS IN DESIGNATED SPACES.
14.	COORDINATE NEW WORK WITH OTHER TRADES AND EXISTING FIELD CONDITIONS.
15.	MECHANICAL CONTRACTOR SHALL COORDINATE ALL TIE-INS, PLUS REMOVALS WITH GENERAL CONTRACTOR AND OWNER'S SCHEDULE.
16.	THIS CONTRACTOR SHALL PAY FEES, GIVE NOTICE, FILE NECESSARY DRAWINGS AND OBTAIN PERMITS AND CERTIFICATES OF APPROVAL REQUIRED IN CONNECTION WITH WORK UNDER THIS CONTRACT. THE CONTRACTOR SHALL COMPLY WITH LOCAL & STATE LAWS, ORDINANCES, RULES & REGULATIONS.
17.	NEW WORK AND EQUIPMENT SHALL BE THOROUGHLY CLEANED AND MADE READY FOR USE.
18.	ALL DEMOLITION WORK SHALL STRICTLY COMPLY WITH ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES AND STANDARDS INCLUDING BUT NOT LIMITED TO OSHA, STATE BUILDING CODE, ETC.
19.	THE CONTRACTOR TO PROVIDE CHEMICAL CLEANING FOR THE TENANT CONDENSER WATER PIPING, AND FLUSH OUT ALL DEBRIS PRIOR TO TIE INTO THE BASE BUILDING CONDENSER WATER SYSTEM. THIS WORK MUST BE DONE UNDER THE SUPERVISION OF THE BUILDING MANAGEMENT.
20.	CONTRACTOR SHALL MOUNT AND CONNECT EACH ITEM OF EQUIPMENT IN STRICT ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION, STATE MECHANICAL CODE CHAPTER 6 AND STATE BUILDING CODE SECTION 1632A.
21.	INSULATE AND SEAL ALL DUCTWORK PER CHAPTER 10 OF THE STATE MECHANICAL CODE (T-24, PART 4).
22.	CONTRACTOR SHALL VERIFY ALL CLEARANCES AND AVAILABLE SPACE FOR HVAC UNITS AND DUCTWORK PRIOR TO ORDERING AND/OR FABRICATING MATERIAL.
23.	EXACT LOCATIONS OF ALL CEILING DIFFUSERS, REGISTERS, AND GRILLES SHALL BE COORDINATED WITH ALL OTHER TRADES. DRAWINGS SHALL BE USED ONLY FOR GENERAL DUCT ROUTING AND AIR DISTRIBUTION. DOORS SHALL BE PROVIDED ON ALL FIRE DAMPERS, AUTOMATIC DAMPERS, MANUAL DAMPERS, BYPASS ACCESS DAMPERS AND UNITS FILTER SECTION. COORDINATE WITH UNITS RECOMMENDED CLEARANCE PRIOR TO INSTALLATION.
24.	ALL SHEET METAL DUCT CONSTRUCTION SHALL BE IN STRICT ACCORDANCE WITH "SMACNA" LOW PRESSURE DUCT CONSTRUCTION STANDARD. ALL BRACING OF DUCTS AND PIPING SHALL BE INSTALLED IN ACCORDANCE WITH SMACNA GUIDELINES.
25.	PROVIDE BACK DRAFT DAMPER AND MOTORIZED DAMPER IN ALL OUTSIDE AIR DUCTS, WHETHER INDICATED OR NOT.
26.	CONTRACTOR SHALL PROVIDE ALL RETURN AIR WALL OPENINGS REQUIRED FOR A COMPLETE SYSTEM..
27.	PRIOR TO INSTALLATION OF EQUIPMENT, VERIFY MANUFACTURER RECOMMENDED AND CODE REQUIRED CLEARANCE.
28.	COORDINATE ALL AIR DEVICES LOCATION WITH FINAL ARCHITECTURAL REFLECTED CEILING PLAN.
29.	UNLESS NOTED OTHERWISE, ALL LINE VOLTAGE WIRING, CONDUIT, FINAL CONNECTIONS, DISCONNECTS, STARTERS, AND OVER CURRENT PROTECTION DEVICES SHALL BE FURNISHED AND INSTALLED BY THE ELECTRICAL CONTRACTOR AS INDICATED ON THESE MECHANICAL DRAWINGS AND/OR ELECTRICAL DRAWINGS AND/OR ELECTRICAL SECTION OF THE SPECIFICATIONS.
30.	INSTALL ALL LOW VOLTAGE HVAC CONTROL WIRE AND DEVICES PER PLAN. ALL WIRE SHALL BE IN CONDUIT PROVIDED AND INSTALLED BY THE ELECTRICAL CONTRACTOR UNLESS NOTED OTHERWISE.
31.	PROVIDE OWNER WITH THREE COPIES OF A CERTIFIED AIR BALANCE REPORT PREPARED IN BY A THIRD PARTY CERTIFIED BY THE AABC OR NEBB. TEST, ADJUST AND BALANCE THE HVAC SYSTEM IN ACCORDANCE WITH AABC OR NEBB PROCEDURES. PROVIDE START-UP/TEST REPORTS FOR ALL AIR HANDLING EQUIPMENT, FANS, AND REFRIGERATION EQUIPMENT. TEST AND VERIFY PROPER OPERATION OF ALL MAKE-UP AIR/EXHAUST AIR INTERLOCK SYSTEMS AND THEIR SEQUENCES OF OPERATION. BALANCE ALL AIR FLOWS WITHIN 5% OF DESIGN VALUES. PERMANENTLY MARK BALANCE POSITION OF ALL REGULATING DEVICES.
32.	PROVIDE OWNER WITH THREE SETS OF AS-BUILT PLANS AND OPERATIONS AND MAINTENANCE MANUALS. CLEARLY IDENTIFY ALL EQUIPMENT WITH PERMANENT PLASTIC OR METAL LABELS/TAGS (PEN MARKING NOT ACCEPTABLE).
33.	PROVIDE ONE YEAR WARRANTY ON ALL LABOR, PARTS AND MATERIALS.
34.	ANY CHANGE OR DEVIATION FROM THESE PLANS OR SPECIFICATIONS SHALL REQUIRE THE WRITTEN APPROVAL OF THE ENGINEER PRIOR TO COMMENCEMENT OF SUCH WORK.
35.	HVAC CONTROL SYSTEM SHALL BE TESTED TO ENSURE THAT CONTROL ELEMENTS ARE CALIBRATED, ADJUSTED, AND IN PROPER WORKING CONDITION, AND THAT THE SYSTEM MEETS THE DESIGN REQUIREMENTS.
36.	CONTRACT DIRECTLY A THIRD PARTY TO PROVIDE TEST AND BALANCE OF THE HVAC SYSTEM. THE GENERAL CONTRACTOR IS RESPONSIBLE FOR SCHEDULING. TEST AND ADJUST ALL MECHANICAL SYSTEM AND EQUIPMENT TO ASSURE PROPER BALANCE AND OPERATION. PERFORM TESTS IN ACCORDANCE WITH NEBB PROCEDURAL STANDARDS-1999 OR AABC 2002, AND ASHRAE STANDARD 111. ELIMINATE NOISE AND VIBRATION, AND ASSURE PROPER FUNCTION OF CONTROLS. SUBMIT COMPLETED TEST AND BALANCE REPORT TO OWNER'S REPRESENTATIVE. BALANCING CONTRACTOR SHALL BE INDEPENDENT AND CERTIFIED WITH NEBB OR AABC. BALANCE ALL SYSTEMS WITHIN 5% OF AIR FLOW INDICATED ON DRAWINGS, AND REPORT ALL DISCREPANCIES TO THE HVAC CONTRACTOR FOR CORRECTION. MARK FINAL BALANCE POSITIONS ON DAMPERS WITH PERMANENT MARKER.

HVAC BUILDING DEPARTMENT NOTES	SCOPE OF WORK
A. A SPECIAL INSPECTION AND TEST WILL BE CONDUCTED UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER OR ARCHITECT OR OTHER PERSON HAVING NOT LESS THAN (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF VENTILATING SYSTEMS. THE TEST WILL SHOW COMPLIANCE WITH THE BUILDING ADMINISTRATIVE CODE AND REFERENCE STANDARDS	- PROVIDING MECHANICAL SERVICES FOR A NEW DETACHED ADU.
B. THE LICENSED PROFESSIONAL ENGINEER OR ARCHITECT OR OTHER PERSON NOT HAVING LESS THAN (5) YEARS EXPERIENCE SUPERVISING THE INSTALLATION OF VENTILATING SYSTEMS AND CONDUCTING SUCH TESTS WILL FILE A CERTIFICATE AND REPORT OF TEST THAT THE SYSTEM COMPLIES WITH THE APPLICABLE LAWS.	
C. A STATEMENT WILL BE FILED BY THE OWNER (OR TENANT) IN POSSESSION THAT THE VENTILATING SYSTEM WILL BE KEPT IN CONTINUOUS OPERATION DURING NORMAL OCCUPANCY OF THE PREMISES.	
D. ALL FIRE DAMPERS ARE TO BE OF TYPE APPROVED BY THE BOARD OF FIRE UNDERWRITERS. WHERE ENTERING OR LEAVING SHAFTS, FIRE DAMPERS ARE TO BE EQUIVALENT TO WALL RATING.	
E. THE LATEST RULES OF BUILDING CODES ARE TO BE COMPLIED WITH.	
F. SMOKE AND FIRE DETECTION SYSTEMS TO BE INSTALLED IN ACCORDANCE WITH THE BUILDING ADMINISTRATIVE CODE & REFERENCE STANDARDS.	

MECHANICAL SHEET INDEX	
SHEET #	DESCRIPTION
M 1.01	MECHANICAL COVER SHEET
M 1.02	MECHANICAL REQUIREMENTS & CODE ANALYSIS
M 1.03	MECHANICAL GENERAL DETAILS
M 2.01	FIRST FLOOR - MECHANICAL LAYOUT



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REVISIONS

No.	Description	Date

BURT ADU

3163 MADEIRA DR., COSTA MESA, CA 92626

MECHANICAL NOTES & LEGEND

Drawn By: M.J Scale: N.T.S

Date: 05.24.2024 PROJ. NO.:

M 1.01

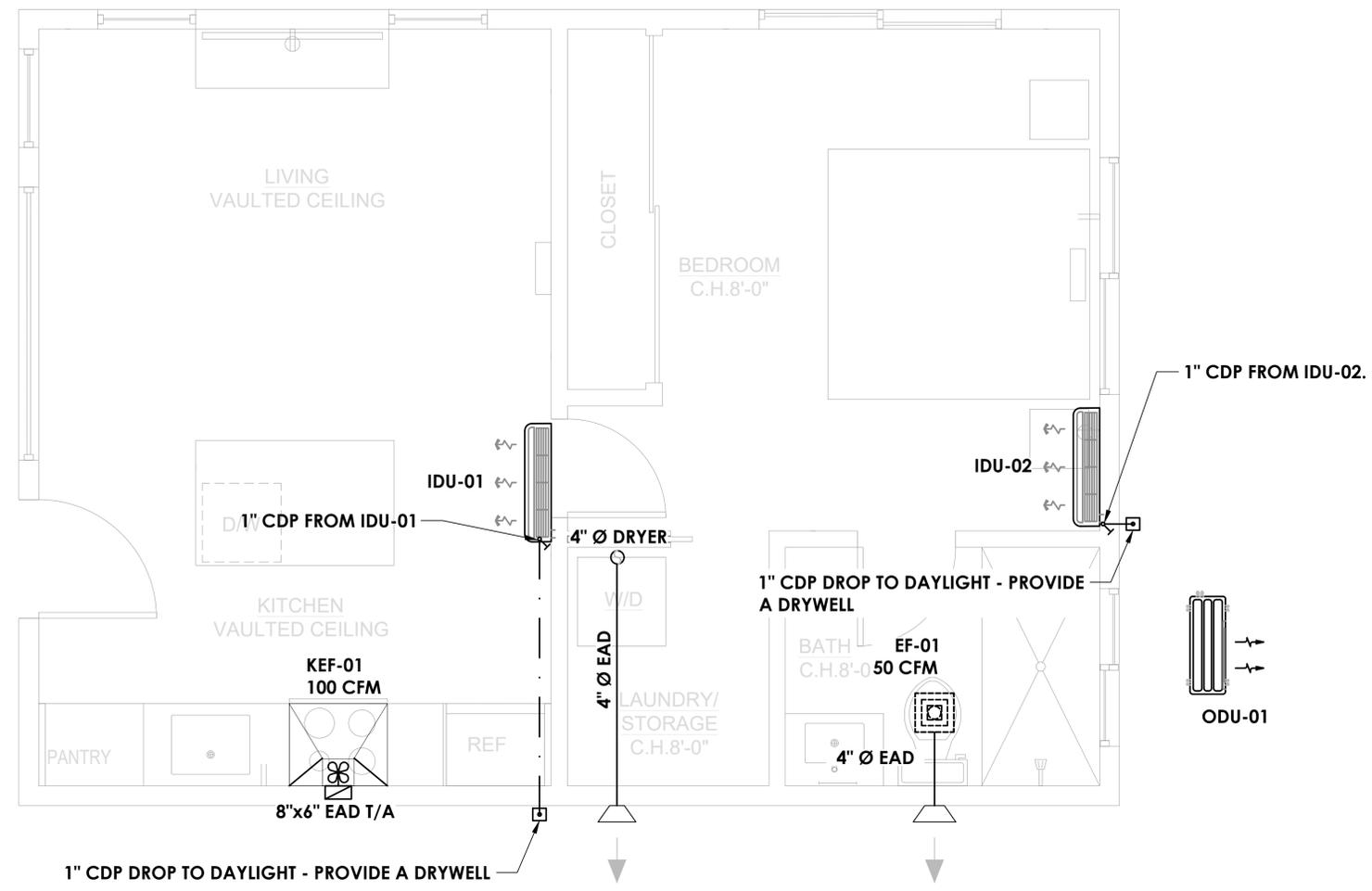
SHEET NO.



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ALL EXHAUSTS EQUIPPED
WITH BACK DRAFT LOUVER



REVISIONS

No.	Description	Date

BURT ADU
3163 MADEIRA DR., COSTA MESA, CA 92626

MECHANICAL
LAYOUT

Drawn By: M.J Scale: 1/2" = 1'-0"
Date: 05.24.2024 PROJ. NO.:

M 2.01

SHEET NO.

MECHANICAL EQUIPMENT SCHEDULES & VENTILATION REQUIREMENTS

SCHEDULE No. 1
INDOOR UNIT SCHEDULE (OR APPROVED EQUAL)

TAG	IDU-01	IDU-02
SERVING	LIVING ROOM	BEDROOM
MANUFACTURER	DAIKINGS	DAIKING
INDOOR MODEL	CTX12AXVJU	CTX09AXVJU
COOLING CAPACITY (BTU/H)	12,000	9,000
HEATING CAPACITY (BTU/H)	13,000	10,000
ELECTRICAL INPUT (V/PH/Hz)	208-230/1/60	208-230/1/60

SCHEDULE No. 2
HEAT PUMP OUTDOOR UNIT SCHEDULE (OR APPROVED EQUAL)

	ODU-01
SERVING	IDU-01
MANUFACTURER	DAIKING
OUTDOOR MODEL	2MX18AXVJU
COOLING CAPACITY (BTU/H)	27
SEER	17
EER	10
HSPF	9
COP	3.5
ELECTRICAL DATA (V/PH/Hz)	208-230/1/60
MCA (A)	10
MOCP (A)	15

SCHEDULE No. 3
EXHAUST FANS SCHEDULE (OR APPROVED EQUAL)

TAG	EF-01 & 02
MANUFACTURER	WHISPERGREEN
MODEL	FV-0511VK2
LOCATON	BATHROOMS
STATIC PRESSURE (INCH W.C.)	0.1
AIR VOLUME (CFM)	50
ELECTRICAL (V/ PH/ HZ)	120 / 1 / 60
MAX CURRENT (AMPS)	0.2
POWER CONSUMPTION (W)	3.1
MOTOR SPEED (RPM)	722
NOISE (SONES)	< 0.3
FAN TYPE	CEILING MOUNT

AS PER CMC 2022, EQUATION 405.2: VENTILATION AIR RATE:
Required O/A = 0.03 x A + 7.5 (Nb. of Bedrooms + 1)

- A = 531.0 FT²
- NB. OF BEDROOMS = 1
- REQUIRED O/A = 25 CFM

VENTILATION REQUIREMENTS TO BE MET BY RUNNING EF-02 CONTINUOUSLY WHEN THE FLOOR IS OCCUPIED.



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3163 MADEIRA DR., COSTA MESA, CA 92626

MECHANICAL SCHEDULES

Drawn By: M.J Scale: N.T.S
Date: 05.24.2024 PROJ.NO.:

M 3.01

ELECTRICAL GENERAL NOTES

- DO NOT SCALE DRAWINGS. VERIFY DIMENSIONS IN FIELD PRIOR TO COMMENCEMENT OF WORK.
- WHEREVER THE WORD "PROVIDE" IS USED, IT SHALL MEAN TO "PROVIDE AND INSTALL".
- FINAL CONNECTIONS TO EQUIPMENT SHALL BE PER MANUFACTURER'S APPROVED WIRING DIAGRAMS AND INSTRUCTIONS. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE MATERIALS AND EQUIPMENT COMPATIBLE WITH EQUIPMENT ACTUALLY SUPPLIED.
- IT IS THE INTENT OF THESE DRAWINGS AND SPECIFICATIONS TO ESTABLISH A STANDARD OF QUALITY. THE ENGINEER RESERVES THE RIGHT TO APPROVE METHODS AND MATERIALS NOT REFLECTED HEREIN.
- CONTRACTOR SHALL REVIEW ARCHITECTURAL, STRUCTURAL, MECHANICAL, AND OTHER RELATED DRAWINGS PRIOR TO BID.
- CONTRACTOR SHALL VISIT SITE PRIOR TO BID AND VERIFY THAT CONDITIONS ARE AS INDICATED IN THE CONTRACT DOCUMENTS. CONTRACTOR SHALL INCLUDE IN HIS BID, ANY COSTS REQUIRED TO MAKE HIS WORK MEET THE CONTRACT SCOPE UTILIZING EXISTING CONDITIONS.
- WORK SHALL BE PERFORMED IN A WORKMANLIKE MANNER TO THE SATISFACTION OF THE ARCHITECT.
- WORK, MATERIALS AND EQUIPMENT SHALL CONFORM TO THE LATEST EDITIONS OF LOCAL, STATE AND NATIONAL CODES AND ORDINANCES.
- PROVIDE PERMITS AND INSPECTIONS REQUIRED.
- GUARANTEE THE INSTALLATION AGAINST DEFECTS IN MATERIALS AND WORKMANSHIP WHICH MAY OCCUR UNDER NORMAL USAGE FOR A PERIOD OF ONE YEAR AFTER OWNER'S ACCEPTANCE. DEFECTS SHALL BE PROMPTLY REMEDIED WITHOUT COST TO THE OWNER.
- PROVIDE RECORD DRAWINGS TO ENGINEER. DRAWINGS SHALL INCLUDE ALL ADDENDUM ITEMS, CHANGE ORDERS, ALTERATIONS, REROUTINGS, ETC.
- VERIFY SPECIFIC LOCATION OF EQUIPMENT TO BE FURNISHED BY OTHERS PRIOR TO ROUGH-IN.
- ELECTRICAL SYSTEMS SHALL BE TESTED FOR PROPER OPERATION. IF TESTS SHOW THAT WORK IS DEFECTIVE, CONTRACTOR SHALL MAKE CORRECTIONS NECESSARY AT NO COST TO OWNER.
- RECESSED LIGHT FIXTURES INSTALLED IN GYP. BOARD OR PLASTER CEILINGS SHALL HAVE PLASTER FRAMES INSTALLED PRIOR TO CEILING MATERIAL.
- RECESSED FIXTURES INSTALLED INDOORS SHALL BE THERMALLY PROTECTED.
- SEE DIVISION 15 DRAWINGS FOR LOCATION OF MECHANICAL EQUIPMENT. PROVIDE SERVICE TO AND CONNECT EQUIPMENT AS REQUIRED.
- PROVIDE EQUIPMENT GROUNDING CONDUCTOR IN ALL CONDUITS.
- ALL ELECTRICAL SYSTEMS COMPONENTS SHALL BE LISTED OR LABELED BY U.L. OR OTHER RECOGNIZED TESTING FACILITY.
- WIRE TERMINATION PROVISIONS FOR PANELBOARDS, CIRCUIT BREAKERS, SAFETY SWITCHES, AND ALL OTHER ELECTRICAL APPARATUS SHALL BE LISTED AS SUITABLE FOR 75 DEGREE C.
- THE FOLLOWING CONDUCTOR SIZES SHALL BE UTILIZED FOR 20 AMP CIRCUITS PERTAINING TO DISTANCES (IN FEET) INDICATED:

120VOLT, 1PH	CONDUCTOR	240 VOLT, 1PH
0-44'	#12AWG	0-129'
45-106'	#10AWG	130-212'
107-160'	#8AWG	213-321'

NOTE: BASED ON 75°C COPPER CONDUCTORS INSTALLED IN EMT WITH 16AMP LOAD @ 85% P.F.
- CONTRACTOR SHALL REVIEW ARCHITECTURAL, STRUCTURAL AND MECHANICAL DRAWINGS AND SHALL PROVIDE LIGHTS, SWITCHES, RECEPTACLES, EQUIPMENT CONNECTIONS, ETC., AND ASSOCIATED CIRCUITING IN NEW AND REMODELED AREAS, EVEN IF SUCH AREAS ARE NOT SHOWN ON ELECTRICAL DRAWINGS. LAYOUTS, FIXTURE TYPES, QUANTITIES AND SPACING SHALL BE IN ACCORDANCE WITH SIMILAR AREAS ON THIS PROJECT. CONTRACTOR SHALL INCLUDE COSTS FOR THE ABOVE IN HIS BID. IN ADDITION, CONTRACTOR SHALL PROVIDE LAYOUT DRAWINGS FOR WORK IN SUCH AREAS AND SUBMIT FOR APPROVAL PRIOR TO ROUGH-IN.
- ELECTRICAL SPECIFICATIONS**
WIRE SHALL BE COPPER, 75 DEGREES C RATED FOR GENERAL USE. FOR WIRING WITHIN 3 INCHES OF FLUORESCENT BALLASTS WIRE SHALL BE COPPER, MINIMUM 90 DEGREES C RATED. SIZES INDICATED ARE FOR HIGHER AMBIENT INSTALLATIONS. 600 VOLT COMPACT.
- CONTRACTOR SHALL BE RESPONSIBLE FOR REPLACING EQUIPMENT WHICH IS DAMAGED DUE TO INCORRECT FIELD WIRING PROVIDED UNDER THIS SECTION OR FACTORY WIRING IN EQUIPMENT PROVIDED UNDER THIS SECTION.
- CONTRACTOR'S FAILURE TO ORDER OR RELEASE ORDER FOR MATERIALS AND/OR EQUIPMENT WILL NOT BE ACCEPTED AS A REASON TO SUBSTITUTE ALTERNATE MATERIALS, EQUIPMENT OR INSTALLATION METHODS.
- ELECTRICAL SYSTEMS SHALL BE COMPLETE, OPERABLE AND READY FOR CONTINUOUS OPERATION AT COMPLETION OF PROJECT.
- RECEPTACLES WHICH ARE SHOWN WALL MOUNTED ON THE ELECTRICAL DRAWINGS ON WALLS WHICH, ON THE ARCHITECTURAL DRAWINGS AND ELEVATIONS ARE SHOWN AS GLASS OR PARTITIONS, SHALL BE FLUSH FLOOR DUPLEX RECEPTACLES MOUNTED ADJACENT TO BAS OR WALLS.
- RECEPTACLES AT COUNTER SHALL BE MOUNTED WITH THEIR LONG AXIS HORIZONTAL AT +46" UNLESS NOTED.
- FLUSH FLOOR RECEPTACLE OUTLETS SHALL BE WIREMOLD 862 SERIES. PROVIDE CARPET OR TILE FLANGE TO MATCH FLOOR FINISH.
- THE COLOR OF THE DEVICES AND COVER PLATES SHALL BE AS DIRECTED BY ARCHITECT. IN DAMP OR WET LOCATIONS COVER PLATES SHALL BE STAINLESS STEEL. IN DRY LOCATIONS COVER PLATES SHALL BE SMOOTH HIGH ABUSE NYLON OR EQUIVALENT. PROVIDE COVER PLATES FOR SWITCHES, RECEPTACLES, TELEPHONE, TELEVISION, COMPUTER AND J-BOX OUTLETS AS REQUIRED.
- ROMEX CABLE WITH A GROUNDING CONDUCTOR MAY BE USED WHERE PERMITTED BY BOTH THE N.E.C. AND LOCAL ORDINANCES.
- DISCONNECT SWITCHES SHALL BE GENERAL DUTY TYPE. FUSIBLE SWITCHES SHALL ACCEPT CLASS 'R' FUSES ONLY AND REJECT ALL OTHERS.
- FINAL CONNECTIONS TO VIBRATING EQUIPMENT SHALL BE WITH FLEX (LIQUIDTIGHT FOR EXTERIOR APPLICATIONS) AND APPROVED FITTINGS. DO NOT SECURE CONDUITS, DISCONNECTS OR DEVICES TO DUCTWORK OR MECHANICAL EQUIPMENT.
- THE ENGINEER OF RECORD HAS PERFORMED SHORT CIRCUIT CALCULATIONS AND THE AIC RATINGS INDICATED FOR EACH DEVICE IS ADEQUATE TO PROTECT THE EQUIPMENT AND THE ELECTRICAL SYSTEM.
- THE ENGINEER OF RECORD HAS PERFORMED VOLTAGE DROP CALCULATIONS AND ALL BRANCH CIRCUITS AND FEEDERS COMPLY WITH NEC 210-19(A) FPN NO.4.
- THE CONTRACTOR SHALL PROVIDE 120V CONNECTION TO NEAREST MAINTENANCE RECEPTACLE WHERE REQUIRED FOR CONDENSATE PUMPS ASSOCIATED WITH FAN COIL UNITS. COORDINATE WITH MECHANICAL CONTRACTOR.
- THE CONTRACTOR SHALL COORDINATE THE SPECIFIC LOCATION, MOUNTING HEIGHT, ROTATION, TYPE, COLOR, ETC. OF ALL DEVICES PRIOR TO INSTALLATION.
- CONNECTIONS TO HYDROMASSAGE BATHTUBS, JACUZZI TUBS OR SIMILAR EQUIPMENT SHALL BE MADE IN ACCORDANCE WITH ARTICLE 680.70 OF THE NEC. PROVIDE BONDING AS REQUIRED BY ARTICLE 680.74 OF THE NEC.
- ALL INDOOR FLUORESCENT FIXTURES THAT UTILIZE DOUBLE-ENDED LAMPS AND CONTAIN BALLAST(S) THAT CAN BE SERVICED IN PLACE OR BALLASTED LUMINARIES THAT ARE SUPPLIED FROM MULTIWIRE BRANCH CIRCUITS AND CONTAIN BALLAST(S) THAT CAN BE SERVICED IN PLACE SHALL COMPLY WITH 410.73 (G) OF THE NEC.
- CEILING MOUNTED SMOKE AND CARBON MONOXIDE DETECTORS PER NFPA 72, SECTION R314 MUST COMPLY WITH U.L. 2075 AND SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS SPECIFICATIONS.
- ALL SMOKE DETECTORS AND COMBINATION SMOKE/CARBON MONOXIDE DETECTORS SHALL BE HARDWIRED ON SAME CIRCUIT AND HAVE A BATTERY BACKUP SYSTEM.
- WHEN MORE THAN EITHER ONE (1) SMOKE ALARM OR MORE THAN ONE (1) CARBON MONOXIDE ALARM IS REQUIRED TO BE INSTALLED WITHIN AN INDIVIDUAL DWELLING UNIT, ALL ALARM DEVICES SHALL BE INTERCONNECTED IN SUCH A MANNER THAT THE ACTUATION OF ONE ALARM WILL ACTIVATE ALL OF THE ALARMS IN THE INDIVIDUAL UNIT. SMOKE AND CARBON MONOXIDE ALARMS SHALL BE INSTALLED IN THE FOLLOWING LOCATIONS, (IRC SECTION R3143 AS AMENDED):
 - SMOKE ALARMS IN EACH SLEEPING ROOM.
 - SMOKE ALARMS OUTSIDE OF EACH SEPARATE SLEEPING AREA IN THE IMMEDIATE VICINITY OF THE BEDROOMS.
 - SMOKE ALARMS ON EACH ADDITIONAL STORY OF THE DWELLING INCLUDING BASEMENTS BUT NOT INCLUDING CRAWL SPACE AND UNINHABITABLE ATTICS, IN DWELLINGS OR DWELLING UNITS WITH SPLIT LEVELS AND WITHOUT AN INTERVENING DOOR BETWEEN THE ADJACENT LEVELS. A SMOKE ALARM INSTALLED ON THE UPPER LEVEL SHALL SURFACE FOR THE ADJACENT LOWER LEVEL PROVIDED THAT THE LOWER LEVEL IS LESS THAN ONE FULL STORY BELOW THE UPPER LEVEL.
 - CARBON MONOXIDE ALARMS OUTSIDE OF SLEEPING AREAS IN THE IMMEDIATE VICINITY OF THE BEDROOMS IN DWELLING UNITS WITHIN WHICH FUEL-FIRED APPLIANCES ARE INSTALLED AND IN DWELLING UNITS THAT HAVE ATTACHED GARAGES.
 - CARBON MONOXIDE ALARMS WITHIN EACH BEDROOM WHICH CONTAINS A FUEL-FIRED APPLIANCE.
- ALL BRANCH CIRCUITS THAT SUPPLY 125-VOLT, SINGLE PHASE, 15 AND 20 AMP BRANCH CIRCUITS SUPPLYING OUTLETS INSTALLED IN DWELLING UNIT FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DEN, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, OR SIMILAR ROOMS OR AREAS SHALL BE PROTECTED BY A LISTED ARC-FAULT CIRCUIT INTERRUPTER, COMBINATION-TYPE, INSTALLED TO PROVIDE PROTECTION OF THE BRANCH CIRCUIT, NEC ARTICLE 210.12 (A).
- ALL ATTIC ACCESSES SHALL BE PROVIDED WITH A SWITCHED LIGHT AND 120 VOLT GFI OUTLET AT OR NEAR THE FORCED AIR UNIT. LOCATE LIGHT SWITCH AT THE ATTIC ACCESS OPENING.

ELECTRICAL GENERAL NOTES

- ALL 120 VOLT, SINGLE PHASE 15 AND 20 AMPERE BRANCH CIRCUIT SUPPLYING OUTLETS INSTALLED IN DWELLING UNIT FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, LIBRARIES, DEN, BEDROOMS, SUNROOMS, RECREATION ROOMS, CLOSETS, HALLWAYS, OR SIMILAR AREAS SHALL BE PROTECTED BY A LISTED ARC-FAULT CIRCUIT INTERRUPTER, COMBINATION TYPE INSTALLED TO PROVIDE PROTECTION OF THE BRANCH CIRCUIT, (NEC ARTICLE 210.12(A))
- IN EVERY KITCHEN, FAMILY ROOM, DINING ROOM, LIVING ROOM, PARLOR, LIBRARY, DEN, SUNROOM, BEDROOM, RECREATION ROOM OR SIMILAR ROOM OR AREA OF DWELLING UNITS RECEPTACLE OUTLETS SHALL BE INSTALLED IN ACCORDANCE WITH THE GENERAL PROVISIONS SPECIFIED IN THE FOLLOWING ARTICLES.
 - NEC ARTICLE 210.52(A) (1) SPACING. RECEPTACLES SHALL BE INSTALLED THAT NO POINT ALONG THE FLOOR LINE OF THE WALL IS MORE THAN 6- FEET FROM A RECEPTACLE.
 - NEC article 210.52(a) (2) AS AMENDED WALL SPACE. ANY WALL 24-INCHES OR MORE IN LENGTH SHALL BE PROVIDED WITH A RECEPTACLE OUTLET. WALL SPACE SHALL INCLUDE AROUND CORNERS, THE FIRST SLIDING PANEL OF A SLIDING DOOR, FIXED ROOM DIVIDERS SUCH AS A FREESTANDING BAR TYPE COUNTER. WALL SPACE NED NOT INCLUDE THE SPACE BEHIND OPERABLE DOORS, AND NEED NOT INCLUDE ENTRIES, HALLWAYS ETC. LESS THAN 5- FEET WIDE LOCATED IN BEDROOMS.
 - NEC ARTICLE 210.52(A) (3) AS AMENDED FLOOR RECEPTACLES.
- IN EVERY KITCHEN, FAMILY ROOM, DINING ROOM, LIVING ROOM, PARLOR, LIBRARY, DEN, SUNROOM, BEDROOM, RECREATION ROOM OR SIMILAR ROOM OR AREA OF DWELLING UNITS, ALL 125 VOLT 15 AND 20 AMP RECEPTACLES SHALL BE LISTED TAMPER-RESISTANT RECEPTACLES NEC 406.12)
- ALL WORK AND EQUIPMENT UNDER THIS DIVISION SHALL BE IN STRICT COMPLIANCE WITH THE CODES, STANDARDS AND PRACTICES LISTED HEREIN, AND THEIR RESPECTIVE DATES ARE FURNISHED AS THE MINIMUM LATEST REQUIREMENTS.
 - LIFE SAFETY CODE
 - NATIONAL FIRE PROTECTION ASSOCIATION
 - NATIONAL ELECTRICAL CODE
 - AMERICAN NATIONAL STANDARDS INSTITUTE
 - INSTITUTE OF ELECTRICAL AND ELECTRONIC ASSOCIATION
 - NATIONAL ELECTRICAL MANUFACTURER'S ASSOCIATION (NEMA)
 - REQUIREMENTS OF LOCAL POWER COMPANY
 - BUILDING CODE
- THE ELECTRICAL INSTALLATION SHALL MEET THE APPROVAL OF THE LOCAL GOVERNING AUTHORITIES AND THE OWNER'S REPRESENTATIVE PRIOR TO ACCEPTANCE.
- REFER TO THE ARCHITECTURAL, MECHANICAL, PLUMBING, FIRE PROTECTION, CIVIL, INTERIOR DESIGN, FOR RELATED INFORMATION AND ADDITIONAL INSTALLATION REQUIREMENTS TO BE CONSIDERED AS PART OF THE ELECTRICAL CONTRACT DOCUMENTS.
- IT IS NOT THE INTENT OF THESE PLANS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION THE CONTRACTOR IS EXPECTED TO FURNISH ALL ITEMS FOR A COMPLETE ELECTRICAL SYSTEM. PROVIDE EVERYTHING NECESSARY FOR EQUIPMENT TO BE PLACED IN PROPER WORKING ORDER. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL MINOR ITEMS WHICH ARE OBVIOUSLY NECESSARY TO COMPLETE THE INSTALLATION.
- LIGHT SWITCHES SHALL BE MOUNTED 48 INCHES ABOVE FINISHED FLOOR TO CENTER LINE OF THE DEVICE. UNLESS NOTED OTHERWISE, GANG SWITCHES AND DIMMER WITH A COMMON PLATE WHERE TWO (2) OR MORE ARE INDICATED ADJACENT TO EACH OTHER.
- RECEPTACLES SHALL BE LOCATED 18" ABOVE FINISHED FLOOR TO CENTER LINE OF DEVICE. UNLESS NOTED OTHERWISE, ABOVE-COUNTER RECEPTACLES SHALL BE MOUNTED 6" ABOVE BACK SPLASH TO CENTERLINE OF DEVICE UNLESS NOTED OTHERWISE.
- USE GALVANIZED RIGID STEEL CONDUIT WHERE EPOSED TO EXTERIOR CONDITIONS OR WHERE EXPOSED IN ANY LOCATIONS WHERE SUBJECT TO MECHANICAL DAMAGE. EMT SHALL BE PROVIDED WITH SET SCREW STEEL FITTINGS FOR INSTALLATION IN ALL CONCEALED WALLS AND CEILINGS IN DRY AREAS. ALL CONDUIT FOR LIGHTING PROTECTION SHALL BE PVC, SCHEDULE 40, UNLESS OTHERWISE NOTED. PVC MAY BE USED WHERE BURIED UNDER GRADE AND ENCASED IN CONCRETE SLAB OR WALLS. ALUMINUM CONDUIT IS NOT ALLOWED. EMT CAN BE USED IN DRY AREAS WHEN INSTALLED 10 FEET ABOVE FINISHED FLOOR LEVEL.
- ALL CONDUITS IN PUBLIC SHALL BE CONCEALED UNLESS NOTED OTHERWISE.
- ALL ELECTRICAL WORKS SHALL BE DONE IN ACCORDANCE WITH APPROVED DRAWINGS AND ANY ALTERNATIONS MUST FIRST BE APPROVED BY THE ELECTRICAL INSPECTOR.
- ALL ELECTRICAL WORKS TO BE DONE IN ACCORDANCE WITH NATIONAL ELECTRIC CODE AND THE LOCAL ELECTRICITY REGULATIONS.
- TV, TELEPHONE, AND A/C THERMOSTAT LOCATIONS ON DRAWINGS ARE TENTATIVE TO BE CONFIRMED BY THE OWNER PRIOR OF INSTALLATIONS OF CONDUITS.
- SERVICE SHALL COMPLY WITH NEC 230.
- ALL BATHROOM FIXTURES SHALL COMPLY WITH NEC 410.10 (D).
- EXTERIOR FLEXIBLE CONDUITS SHALL BE CARFLEX ONLY.
- VERIFY PHONE COMPANY BOX PRIOR TO INSTALLATION.
- HEIGHTS FOR WALL MOUNTED FIXTURE LIGHTS

EXTERIOR TYPE: 90"	INTERIOR TYPE: 6'8"
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- INSULATION IN ATTIC TO BE A MINIMUM 3" FROM RECESS CAN LIGHTS FIXTURE WHEN APPLICABLE
- GALV. RIGID CONDUITS AND GROUNDING BY CUC POLE TO COMPLY WITH NEC SECTION 250-80
- BATHROOM, GARAGE, OUTDOOR, KITCHEN AND ACCESSORY BUILDING REQUIRES GFCI AS PER NEC 210.8
- ELECTRICIAN TO PROVIDE 1 SWITCH-LIGHT-RECEPTACLE IN ATTIC SPACE AND SHALL COMPLY WITH NEC 210.63. SHALL COMPLY WITH BUILDING ELECTRICAL CODE AND LOCAL LAWS.
- PROVIDE 4-WIRE BRANCH CIRCUITS FOR ALL DRYERS, RANGE, AND COOKTOP.
- CLOSET LIGHT SHALL COMPLY WITH NEC 410.16
- SMOKE DETECTOR SHALL BE CONNECTED TO A GENERAL LIGHTING CIRCUIT
- KITCHENS, FAMILY ROOMS, DINING ROOMS, LIVING ROOMS, PARLORS, DEN, BEDROOMS, SUNROOMS, RECREATION ROOM CLOSETS, HALLYS, LAUNDRY AREAS, OR SIMILAR ROOMS OR AREA SHALL BE PROTECTED BY AFCI (ARCH-FAULT CIRCUIT BREAKER AS PER NEC 210.12
- TAMPER-RESISTANT RECEPTACLES SHALL BE INSTALLED AS SPECIFIED IN 406.12(A) THROUGH (C)
- ALL WIRES/CONDUITS SHALL BE COPPER
- ALL BATHROOM RECEPTACLES AND LIGHTING FIXTURES SHALL BE GFCI PROTECTED.
- ALL ELECTRIC PANELS TO BE WITHIN THE WALL

SCOPE OF WORK

- ACCESSORY DWELLING UNIT IN THE REAR YARD OF AN EXISTING SINGLE FAMILY HOME,
- UPGRADE EXITING 100AMP ELECTRICAL PANEL TO 200 AMP

ELECTRICAL SHEET INDEX

SHEET #	DESCRIPTION
E 1.00	ELECTRICAL SPECIFICATIONS & GENERAL NOTES
E 2.01	FLOOR PLAN LIGHTING LAYOUT
E 3.01	FLOOR PLAN AND ROOF PLAN POWER LAYOUT
E 4.00	ONE LINE DIAGRAM
E 4.01	PANEL BOARDS SCHEDULES AND LOAD CALCULATIONS

NOTE-GEN-CENLEFT									
TAG	SYMBOL	DESCRIPTION	TYPE	W	V	MOUNT.	MANUF.	MODEL	QUANTITY
L1	⊙	4" RECESSED CAN LIGHT	LED	16 W	120V	REC.	TBD	TBD	14
L2	⊙	WALL MOUNTED EXTERIOR LIGHT	LED	10 W	120V	MOUNTED	TBD	TBD	1
L3	⊙	BAR LIGHT	LED	12 W	120V	MOUNTED	TBD	TBD	1

CODES ANALYSIS

- THIS PROJECT SHALL COMPLY WITH THE FOLLOWING:**
- 2022 CALIFORNIA BUILDING CODE (CBC)
 - 2022 CALIFORNIA RESIDENTIAL CODE (CRC)
 - 2022 CALIFORNIA MECHANICAL CODE (CMC)
 - 2022 CALIFORNIA ELECTRICAL CODE (CEC)
 - 2022 CALIFORNIA PLUMBING CODE
 - 2022 CALIFORNIA GREEN BUILDING STANDARDS (CGBS)
 - 2022 CALIFORNIA ENERGY EFFICIENT STANDARDS (CEES)



GDI ENGINEERING
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 Houston, TX 77068
 Office: 346-509-5860
 www.gdiengdesign.com

REVISIONS

No.	Description	Date

BURT ADU

**3163 MADEIRA DRIVE
 COSTA MESA 92626**

ELECTRICAL SPECIFICATION AND GENERAL NOTES

Drawn By: W.N Scale: 1/4" = 1'-0"

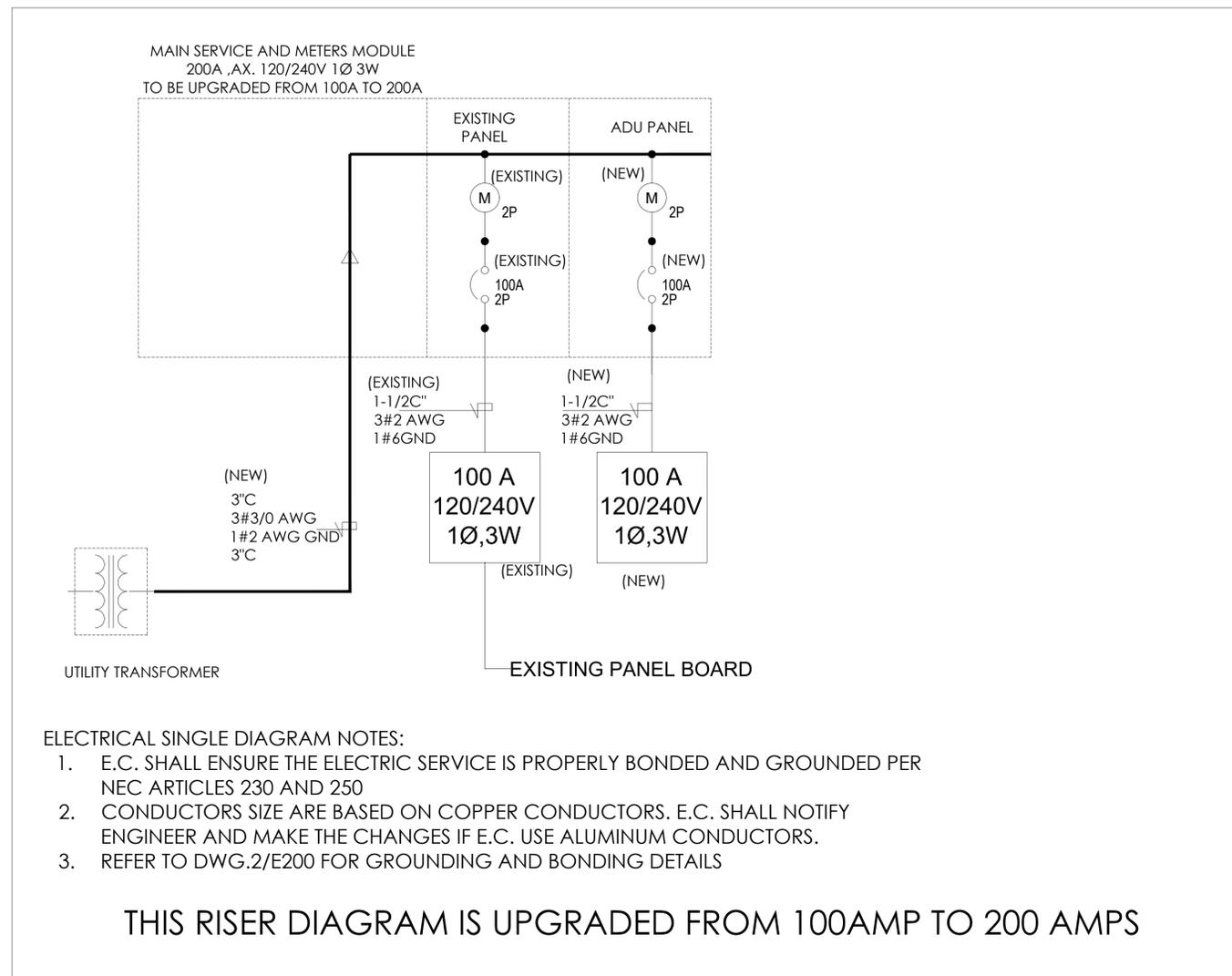
Date: 05.21.2024 PROJ. NO.:

E1.00

SHEET NO.

GENERAL NOTES:

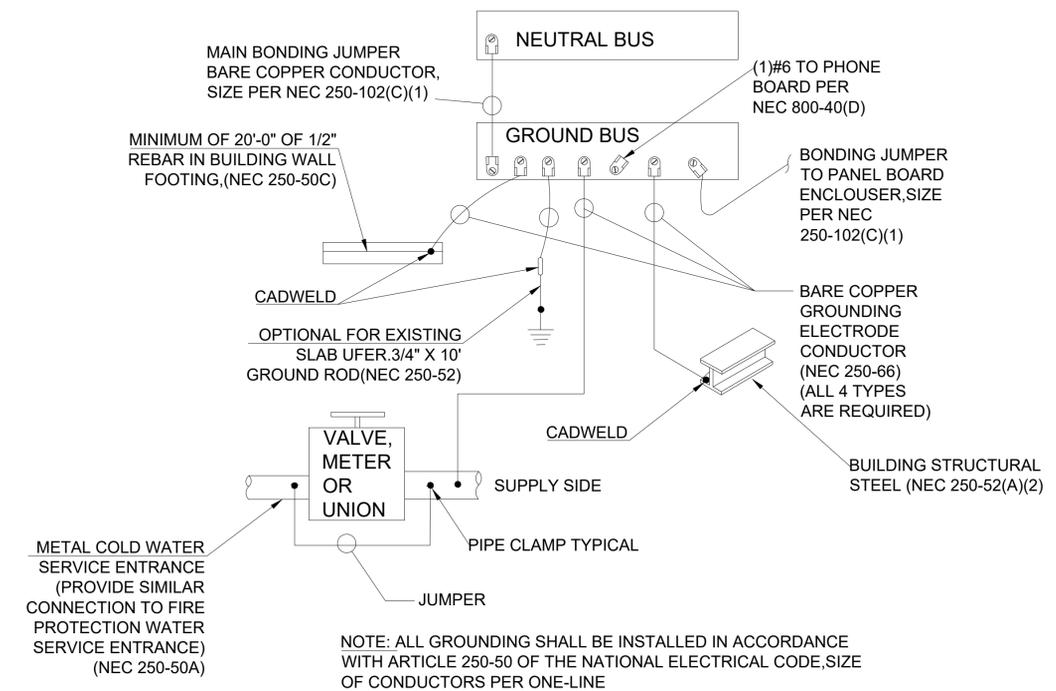
- CONTRACTOR SHALL RELABEL ALL EXISTING ELECTRICAL EQUIPMENT IMPACTED AS PART OF THIS PROJECT. REPLACE ALL DAMAGED OR MISSING LABELS. PROVIDE UPDATED CIRCUIT DIRECTORIES.
- AIC RATING OF ALL NEW EQUIPMENT SHALL MEET OR EXCEED THE AIC RATING OF EXISTING.
- CONTRACTOR SHALL FIELD VERIFY EXISTING EQUIPMENT TO DETERMINE SPARE CAPACITY INCLUDING ELECTRICAL METER READINGS PER NEC ART 220.87. ALL FINDINGS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.
- CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS PRIOR TO THE START OF WORK AND BRING ANY DISCREPANCIES THAT WILL IMPACT THE WORK TO THE ARCHITECT'S ATTENTION.



ELECTRICAL SINGLE DIAGRAM NOTES:

- E.C. SHALL ENSURE THE ELECTRIC SERVICE IS PROPERLY BONDED AND GROUNDED PER NEC ARTICLES 230 AND 250
- CONDUCTORS SIZE ARE BASED ON COPPER CONDUCTORS. E.C. SHALL NOTIFY ENGINEER AND MAKE THE CHANGES IF E.C. USE ALUMINUM CONDUCTORS.
- REFER TO DWG.2/E200 FOR GROUNDING AND BONDING DETAILS

THIS RISER DIAGRAM IS UPGRADED FROM 100AMP TO 200 AMPS



GROUNDING DETAIL

REVISIONS

No.	Description	Date

BURT ADU
3163 MADEIRA DRIVE
COSTA MESA 92626

ONE LINE DIAGRAM

Drawn By: W.N Scale: NTS

Date: 05.21.2024 PROJ.NO.:

E4.00

SHEET NO.

LOAD CALCULATIONS FOR ADU				
Step	Directions			
LIGHTING & GENERAL USE RECEPTACLES: 220.82(B)(1)				
1	Square footage	517 x	3 =	1,551 va
SMALL APPLIANCES & LAUNDRY CIRCUITS: 220.82(B)(2)				
2	Number of circuits	2 x	1500 =	3,000 va
APPLIANCES & MOTOR LOADS: 220.82(B)(3) & (4)				
3	Microwave	0 va		
	Refrigerators	750 va		
	Dishwasher	1,200 va		
	Coffee Machine	0 va		
	Washer	1,500 va		
	Dryer	5,000 va		
	Oven	0 va		
	Cooktop	8,000 va		
	Garbage Disposal	900 va		
	Gas Water Heater	350 va		
	Tesla Charger	0 va		
TOTAL	22,251 va			
TOTAL STEPS 1-3: 220.82(B)				
4	1. Total of Loads	22,251 -	10,000 va =	12,251
	2. Line 1	12,251 x	40% =	4,900
	3. Line 2	4,900 +	10,000 va =	14,900
HEATING & AIR CONDITIONING LOADS: 220.82(C)				
5	A. Air-Conditioning Equipment	1870 va		
	B. Gas Furnace	N/A va		
	C. Suppl. Heating for HP	N/A va		
	D. Electrical Space Heating	N/A va		
	E. Electric Thermal Storage	N/A va		
CALCULATE TOTAL SERVICE OR FEEDER LOAD: 220.82(A)				
6	Total of Line 3 from Step 4	14,900 va		
	Enter only the largers load from Step 5	+ 1,870 va		
	Total Calculated Service or Feeder Load	= 16,770 va		
CALCULATED SERVICE OR FEEDER SIZE				
7	Total Calculated Load	16,770 va /	240 volts =	70 amps
	This calculation resulted in a calculated load of 70 amps, the main feeder 100 amps will be able to serve the single family house.			

Location: KITCHEN					CONNECTED LOAD		DEMAND TOTAL
* LOAD SUMMARY	CL	DF	A	B			
L Lighting	0.35	1.25	0.35		0.44		
R Convenience Recept	3.24		1.26	1.98	3.24		
H Heating (Space)	0.35	1.25	0.35		0.44		
C Cooling		1.00					
A HVAC	1.87	1.00	0.94	0.94	1.87		
P Process		1.00					
O Other Continuous		1.25					
K Kitchen	20.35	13.00	9.65	10.70	13.23		
N Noncontinuous		1.00					
		1.00					
Total	26.16		12.55	13.62	19.22		

Total Demand Load (KVA)	18.06
Total Demand Current (A)	75.24
Min. Feeder Ampacity (A)	79.00

DEMAND LOAD TO BE CALCULATED AS BELOW:
FIRST 10kVA OF GENERAL LOAD AND FIXED APPLIANCES AT 100% THE REMAINDER AT 40% + AIR CONDITIONING AT 125%

DESCRIPTION	* WIRE	GRD	CB	KVA	A	B	KVA	CB	WIRE	GRD	DESCRIPTION	*
1 LIGHTING KITCHEN, LIVING AND OUTDOOR	L 2X 14 AWG	-#14G	15A-1P	0.17	0.35		0.18	15A-1P	2x 14 AWG	-#14G	LIGHTING BEDROOM, LAUNDRY AND BATHROOM	L 2
3 RECEPTACLES OUTDOOR	R 2x 12 AWG	-#12G	20A-1P	0.36		1.08	0.72	20A-1P	2x 12 AWG	-#12G	RECEPTACLES KITCHEN	R 4
5 GARABGE DISPOSABLE	K 2x 12 AWG	-#12G	20A-1P	0.90	1.65		0.75	20A-1P	2x 12 AWG	-#12G	FRIDGE	K 6
7 WASHER	K 2x 12 AWG	-#12G	20A-1P	1.50		5.50	4.00	50A-2P	2x 6 AWG	-#6G	ELECTRIC COOKER	K 8
9 ELECTRIC DRYER	K 3x 10 AWG	-#10G	30A-2P	2.50	6.50	1.50	4.00					K 10
11	K 2x 12 AWG	-#12G	20A-1P	2.50		3.70	1.20	20A-1P	2x 12 AWG	-#12G	DISHWASHER	K 12
13 RECEPTACLE BATHROOM	R 3x 12 AWG	-#12G	20A-2P	0.18	1.26		1.08	20A-1P	2x 12 AWG	-#12G	RECEPTACELS BEDROOM	R 14
15 RECEPTACLES LIVING ROOM	R 2x 12 AWG	-#12G	20A-1P	0.90		2.40	1.50	20A-1P	2x 12 AWG	-#12G	SMALL APPLIANCE	K 16
17 SMALL APPLIANCE	K 2x 12 AWG	-#12G	20A-1P	1.50	1.85		0.35	20A-1P	2x 12 AWG	-#12G	GAS WATER HEATER	H 18
19 AC UNIT	A 3x 12 AWG	-#12G	20A-2P	0.94		0.94					SPACE	20
	A			0.94	0.94						SPACE	22
23 SPACE											SPACE	24
(KVA)												
Total Connected Load					12.55	13.62						

ADU PANEL	
PANELBOARD DESIGNATION	
SYSTEM VOLTAGE	240/120V, 1Φ, 3W
BUS SIZE	100A-2P C/B Bus Plug
SYSTEM TYPE	NORMAL
FEEDER PROT	100A-2P C/B Bus Plug
CONDUCTOR SIZE	3/0 AWG - #2G CU
CONDUCTOR/PHASE	1
MAINS	100A MCB
SCCR	FULLY RATED
MCB RATING	80%
GROUND FAULT	NO
FEEDER LENGTH (FT)	100
FEEDER V. DROP (%)	0.641
FAULT CURRENT	
KAIC RATING	22
ENCLOSURE	TYPE 1



REVISIONS		
No.	Description	Date

BURT ADU
3163 MADEIRA DRIVE
COSTA MESA 92626

PANEL BOARDS
SCHEDULES AND
LOAD
CALCULATIONS

Drawn By: W.N | Scale: NTS
Date: 05.21.2024 | PROJ. NO.:

E4.01

SHEET NO.

