ABBREVIATIONS

SYMBOLS & MATERIAL LEGEND

5734080LS	WAY & ANDORTHUM AD AGLE TYTERLEME (ANASEL EGREE, MEMATEL SECOND HOT, FYCH SMERR REPENDENTLAR ATE DUND OR DIAMETER
ABBREVIA ASF ADI ADI ADI ACC ALT ALUM AB AROB AROB AROB AROB AROB AROB AROB A	ABOVE FRITERED FLOOR ACCESS PADEL ADJACEST ADJACEST ADJISTABLE AGGRUGATS ALTERVATE ALICEVATE ALICEVATE ARCHOR BOLT ASTOLIED APPROVIDATE ARCHORTOT FLAN ASCHOLT ASTOLIED ASTOLIED ASTOLIED ASTOLIED ASTOLIED ASTOLIED ASTALT ARCHORTOT FLAN ASCHOLT
DSMF BM BM BM BT BT BVL BT BT BT BT BC BD BS BC BC BC BLC BLC BLC BLC BLC	UASEMENT BEAM BEARING DEARING PLATE, BASE PLATE BEVELED ARTI, ACKONS DEACK, BEOTEING BOARD DOTH & DES BOTTOM BOTTOM OF BOTTOM OF BOTTOM OF BOTTOM OF WALL UUR JOING BAILT UP ROOFING
CAB CPT C3M C3 C5 C5 C5 C5 C5 C5 C7 C7 C7 C7 C7 C7 C7 C7 C7 C7 C7 C7 C7	CABUNET CARPET (ED) CASTERION CAST RON CAULE CAULE CAULE CAULE CAULE CAULE CAULE CAULE CAULE CAULE CAULE CAULE CAULE CAULER
C.F CUR COL COL CONC CONU CONST	CERAMIC TILE CLEAR (ADACE) CLEAR (ADACE) CLEAR OUT CONCRETE (CAST-OLFLACE) CONCRETE (CAST-OLFLACE) CONCRETE (CAST-OLFLACE) CONTRACTION CONTRUCTION FORM CONTRUCTION FORM CONTRUCTION FORM CONTRUCTION FORM CONTRUCTION FORM CONTRUCTION FORM CONTRUCTION FOR CONTRUCTION CONTRUCTION CONTRUCTION CONTRUCTION CONTRUCTION CONTRUCTION CONTRUCTION CONTRUCTION CONTRUCTION CONTRUCTION CONTRUCTION CONTRUCTION CONTRUCTION CONTERFEASHING
D DEG DEF DTL DIA DIA DIA DR DR DR DR DR DR DR DR DR DR DR DR DR	DEEP, DEPTH DECARE DUTAISSOD DETAIL DIAGOMAL DIAMETER DIFAISER DIMENSION DOU'S DOU'S DOU'S DOU'S DOU'S DOU'S DOU'S DOU'S DOU'S
EW E Elec RL FLBV FLBV ENC LQ FQUIT EXH EXH EXH EXH EXH EXH	EACHIWAY EAST ELECTRICAL RUEVATION ELEVATON EMERGENCY ENCLOSE (URE) EQUENTENT EXHAUST
FO FOC FOS FOL FOL FO FE FP FP FP FP FD FD FD FD FD FD FD FD FD FD FD FD FD	PLOOR DRACM RACH OF CONCRETE PACE OF STUDS FASTEN FASTENER PIBERGLASS FUNSH (ED) PIRE EXTINGUISHER CABLINET PIRE EXTINGUISHER CABLINET PIRE HOSE STATION FIRE PROOFING STOPPLACE PIRE RESULTANT FLASH RESULTANT FLASH RESULTANT FLOOR (PAG) FLOOR (PAG) FLOOR (PAG) FLOOR (PAG) FLOOR (PAG) FOUTDATION FUNDATION FUNDATION FUNDATION FUNDATION FUNDATION FUNDATION
GA GALV GLBLK GYP GYP	GAGE GAUGE GALVANZED GLASS BLOCK GRADE GRADENG GYPSUM GYPSUM WALL BOARD
HDW Jedwd HDR HDR HDG HD HD HD HD HD HD HD HD HW HWR JAR HYD	HARDWARE NARDWARE NEADER JEADER JEATING JEATING JEATING HAVY DUTY HEGIT JEGH HIGH OORE HOLOW METAL JICKLOW METAL
n DCS LD NSRA SYT DV	JN(H Include (DMING) Inside Ecometer Inside Atte (D) (ION) Internor Invitet
ग -ठी	jo nt Joist
КЛ Ко	KITCHER REFORM OUT
L84. LAC L38 LAM	LABR. LADDUR LADBOLT LAMINATE

-		· · · ·		SECTION
LEFT HAND LENOTH LICAT LICAT WEIGHT LICEAR LINTEL LOW/88 LOW/88	SECTION KO BUILDING SECTION SYMBOL CUT SMEET NO	AAAAA	CONCRETE	
MAN-BOLB MANUPACTURER (FR) MANSONRY MASONRY OPENEXIS MATERIAL (S) MAXIMUM MECHANIC (AL) MRUEM	SECTION NO WALL SECTION SYMBOL CUT SHEET NO		CONCRETE MASONRY	
MEMBRANE METAL METAL MINISCIAL MINISCIAL MINISCELLANÉOUS MOLDAIG SCOIRLOING MOLDAIG SCOIRLOING	OETAIL ND DETAIL CUT SHEET NO		STONE	
NUVALLE MUVALLE MULLEON NATURAL NORTH CONTRACT NOT IN CONTRACT	DETAIL CUT		FRAME WALL	
OFFICE CHILDENTER (S) CHENING CHILDENTER (S) CHENING CHILDENTER	EXTÉRIÓR ÉLEVATIÓN	1 (A3.1)	τιμε	
OVERALL OVERNANG NUNDS PER CUBIC FOOT POUNDS PER LUXEAL ROOT POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH	ROOM NUMBER	ENTRY 100	GLAZING	
PAINT (ED) PAINT (ED) PAINT (ED) PAINT (ED) PAINT (ED) PAINT (ED) PERMETER PERMETER PERMETER	DOOR MARK	1	STEEL	
PLASTER PLASTIC LANDATE PLATE PLATE GLASS PLANDING PLANDING PLANDING	REFERENCE GRID LINE	3	ALUMINUM OR SHEET METAL	
NOLY CHEORER NOLY CARONER QUARRY THE RADIUS RECEPTACES	SPOT ELEVATION		BATT INSULATION	
REDWOOD REFERENCE REFNANCE REGISTER REGISTER REGISTER REGISTER REGURED CONCRETE PIPE REGURED RESELENT	DRAWING REVISION	$(\mathbf{x})_{\mathbb{A}}$	GYP. WALL BOARDI STUCCOJ PLASTER	
RETERNATR REVERSION (S) REVISED RIGHT OF WAY RISEXKM, ROOM ROOP DRAIN ROOP DRAIN ROUGH OPENING	INTERIOR ELEVATION		PLYWOOD	
SECTION SMEAT SOCILAR SOLIAR	WINDOW MARK	•		
SPECIFICATION (S) SQUARE SQUARE SQUARE YARD STAINLESS STEEL STATUJARD STAIL STORAGE ST				5025 E Carefre
TOP OF BEAM TOP OF CONCRETE TOP OF STALL TOP OF STEEL TOP OF WALL TREAD TYPICAL UNIESS NOTED OTHERWISE				ELACT MAR
VAPOR BARRIER VENTER VERTICLE VERTICAL GRACH VERTICAL GRACH VESTIBULE VENTERLE		2-{		/
VERYL COMPOSITION TRUE WALL TO WALL WATER CLOSET WATER PLOSET	\sim	$\sim\sim$		$\sim \sim$
WATER REFELLENT WEATHER STREFENO WELGED WIRE FARRIC WEST,WICH, WIDTY	Ş	E	EXISTING SITE AND	BUILDING
MODOW MODOW MODOW MEDIOW MEDIOW	Ş	S C N L	Bite: Gross Area Net Area .ot Coverage	5
	>	۲ م	otal Parking	
	ξ	E F S C	Existing Building Area First Floor Area Second Floor Area Pro Sovered Entries	oposed
	Ş	T	otal Area under Roof	
	Ş	N S A F	NOTE: SITE WORK INCLUDI AND GRADING HAVE PREVIOUS PERMITS	NG PARKIN BEEN COI
			EPERREP SUPATION F REQUIRED TO BE SK WORK STUALL COM IPPROVED BY THE CI HE DESIGN SHULL CO F THE FOLLOWING REC, IMC, AND/GR	FOR ELEV VENIMENTO MENCE UNIT TY OF FILOS OMPLY WITH CODES: AS 1 FC.
				\bigcirc





IT LOCATION, ACCESSIBLE TOILET STALLS SHALL BE ON AN CONSISTENT OF 4.17.2

HROUGH 4376. XCEPTION, TOILET STALLS USED PRIMARILY BY CHILDREN AGES 12 NO YOUNGER SHALL BE PERMITTED TO COMPLY WITH 4.17.7. LIT 2 HATER CLOSETS, WATER CLOSETS IN ACCESSIBLE STALLS SHALL WALY WITH 4.16.

1173 SIZE AND ARRANGEMENTL THE SIZE AND ARRANGEMENT OF THE MANDARD TOILET STALL SHALL COMPLY WITH PIS. 30(A), STANDARD TALL STANDARD TOILET STALLS WITH A MINIMUM DEPTH OF 56 IN

1420 MM (SEE MG. SO(A)) SHALL HAVE WALL-MOUNTED WATER LOSETS. IF THE DEPTH OF A STANDARD TOILET STALL IS INCREASED IT LEAST 3 IN (15 MM), THEN A FLOOR-MOUNTED WATER CLOSET MAY JE USED. ARRANGEMENTS SHOWN FOR STANDARD TOILET STALLS MAY HE REVERSED TO ALLOH EITHER A LEFT- OR RIGHT-HAND APPROACH. ODITIONAL STALLS SHALL BE PROVIDED IN CONFORMANCE HITH 1.22.4. APPENDIX NOTE

EXCEPTION IN INSTANCES OF ALTERATION WORK PHERE PROVISION OF N STANDARD STALL (FIG. BO(A)) IS TECHNIGALLY INFEASIBLE OR HERE PLUMBING CODE REQUIREMENTS PREVENT COMBINING EXISTING STALLS TO PROVIDE SPACE, EITHER ALTERNATE STALL (FIG. 30(B)) 1AY BE PROVIDED IN LIEU OF THE STANDARD STALL.

LIT & TOE CLEARANCES, IN STANDARD STALLS, THE FRONT PARTITION NO AT LEAST ONE SIDE PARTITION SHALL PROVIDE A TOE LEARANCE OF AT LEAST 9 IN (230 MM) ABOVE THE FLOOR. IF THE LEPTH OF THE STALL IS GREATER THAN 60 IN (1525 MM), THEN THE TOP LEARANCE IS NOT REQUIRED.

17.5" DOORS, TOILET STALL DOORS, INCLUDING DOOR HARDWARE, HALL COMPLY WITH 413. IP TOILET STALL APPROACH IS FROM THE atch side op the stall door, clearance between the oco HOE OF THE STALL AND ANY OBSTRUCTION MAY BE REDUCED TO A ANIMAM OF 42 IN (1065 MM) (FIG. 30). APPENDIX NOTE 1.17.6 GRAB BARS GRAB BARS COMPLYING WITH THE LENGTH AND POSITIONING SHOWN IN FIG. BO(A), (B), (C), AND (D) SHALL BE ROMDED, GRAB BARS MAY BE MOUNTED WITH ANY DESIRED METHOD AS LONG AS THEY HAVE A GRIPPING SURFACE AT THE LOCATIONS SHOWN AND DO NOT OBSTRUCT THE REQUIRED CLEAR FLOOR AREA. SRAB BARS SHALL COMPLY WITH 4.26.

<u>IB RAMPS</u>

1814 GENERALL ANY PART OF AN ACCESSIBLE ROUTE WITH A LOPE GREATER THAN 1.20 SHALL BE CONSIDERED A RAMP AND SHALL COMPLY WITH 4.8. APPENDIX NOTE

10.2" SLOPE AND RISEL THE LEAST POSSIBLE SLOPE SHALL BE SED FOR ANY RAMP. THE MAXIMUM SLOPE OF A RAMP IN NEW CONSTRUCTION SHALL BE 1.12. THE MAXIMUM RISE FOR ANY RUN SHALL BE SO IN (760 YM) (SEE FIG. 16), CORB RAMPS AND RAMPS TO BE CONSTRUCTED ON EXISTING SITES OR IN EXISTING BUILDINGS OR PACILITIES MAY HAVE SLOPES AND RISES AS ALLOWED IN 4.16(3)(A) IP SPACE LIMITATIONS PROHIBIT THE USE OF A 1/12 SLOPE OR LESS. APPENDIX NOTE

4.8.3 CLEAR WIDTH. THE MINIMUM CLEAR HIDTH OF A RAMP SHALL 3E 36 IN (415 MNU.

10.4" LANDINGS, RAMPS SHALL HAVE LEVEL LANDINGS AT BOTTOM VAVE THE FOLLOWING FEATURES.

U THE LANDING SHALL BE AT LEAST AS WIDE AS THE RAMP RUN Leading to it. (2) THE LANDING LENGTH SHALL, BE A MINIMUM OF 60 IN (1525 1945

CLEAR. (3) IF RAMPS CHANGE DIRECTION AT LANDINGS, THE MINIMUM

ANDING SIZE SHALL BE 60 IN BY 60 IN (1925 MM BY 1525 MM). (4) IF A DOORWAY IS LOCATED AT A LANDING, THEN THE AREA IN FRONT OP THE DOORWAY SHALL COMPLY WITH 413.6. APPENDIX

4.9.4" HANDRAILS. STAIRWAYS SHALL HAVE HANDRAILS AT BOTH SIDES OF ALL STAIRS, HANDRAILS SHALL COMPLY WITH 4.26 AND SHALL HAVE THE FOLLOWING FEATURES.

(1) HANDRAILS SHALL BE CONTINUOUS ALONG BOTH SIDES OF STAIRS, THE INSIDE HANDRAIL ON SWITCHBACK OR DOGLEG STAIRS SHALL ALWAYS BE CONTINUOUS (SEE FIG. 19(A) AND (B)). (2) IF HANDRAILS ARE NOT CONTINUOUS, THEY SHALL EXTEND AT LEAST 12 IN (305 MY) BEYOND THE TOP RISER AND AT LEAST 12 IN (305 MAY PLUS THE WIDTH OF ONE TREAD BEYOND THE BOTTOM RISER. AT THE TOP, THE EXTENSION SHALL BE PARALLEL WITH THE FLOOR OR GROUND SURFACE. AT THE BOTTOM, THE HANDRAIL SHALL CONTINUE TO SLOPE FOR A DISTANCE OF THE WIDTH OF ONE TREAD PROM THE BOTTOM RISER, THE REMAINDER OF THE EXTENSION SHALL BE HORIZONTAL (SEE FIG. 19(C) AND (D)). HANDRAIL EXTENSIONS GHALL COMPLY WITH 4.4.

(3) THE CLEAR SPACE BETWEEN HANDRAILS AND WALL SHALL BE 1-1/2 IN (58 MM).

(4) GRIPPING SURFACES SHALL BE UNINTERRUPTED BY NEWEL POSTS OTHER CONSTRUCTION ELEMENTS, OR OBSTRUCTIONS. (5) TOP OF HANDRAIL GRIPPING SURFACE SHALL BE MOUNTED BETWEEN B4 IN AND BO IN (665 MM AND 465 MM) ABOVE STAIR

(6) ENDS OF HANDRAILS SHALL BE EITHER ROUNDED OR RETURNED SMOOTHLY TO FLOOR, WALL OR POST, (7) HANDRAILS SHALL NOT ROTATE WITHIN THEIR PITTINGS. APPENDIX NOTE



415 ORINKING FOUNTAINS AND MATER COOLERS 415.1 MINIMUM NUMBERL DRINKING FOUNTAINS OR WATER COOLERS REQUIRED TO BE ACCESSIBLE BY 4.1 SHALL COMPLY WITH 4.13. 4.15.2 SPOLT HEIGHT, SPOLTS SHALL BE NO HIGHER THAN 36 IN (415 MM, MEASURED FROM THE FLOOR OR GROUND SURFACES TO THE

SPOUT OUTLET (SEE FIG. 27(A)). APPENDIX NOTE 4153 SPOUT LOCATION THE SPOUTS OF DRINKING FOUNTAINS AND HATER COOLERS SHALL BE AT THE FRONT OF THE UNIT AND SHALL DIRECT THE WATER FLOW IN A TRAJECTORY THAT IS PARALLEL OR NEARLY PARALLEL TO THE FRONT OF THE UNIT. THE SPOUT SHALL PROVIDE A FLOW OF WATER AT LEAST 4 IN 100 MM HIGH 50 AS TO ALLOW THE INSERTION OF A CUP OR GLASS UNDER THE FLOW OF WATER, ON AN ACCESSIBLE DRINKING POINTAIN WITH A ROUND OR OVAL BOWL, THE SPOUT MUST BE POSITIONED SO THE FLOW OF WATER IS WITHIN 3 IN (15 MM) OF THE FRONT EDGE OF THE FOUNTAIN AND A CONTROLS CONTROLS SHALL COMPLY WITH 4 214. UNIT CONTROLS SHALL BE PRONT MOUNTED OR SIDE MOUNTED NEAR THE FRONT EDGE:

4155 CLEARANCES

(1) WALL- AND POST-MOUNTED CANTILEVERED UNITS SHALL HAVE A GLEAR KNEE SPACE BETWEEN THE BOTTOM OF THE APRON AND THE FLOOR OR GROUND AT LEAST 27 IN (685 MM) HIGH, 30 IN (760 MM) WIDE, AND IT IN TO IR IN (430 MM TO 485 MM) DEEP (SEE PIG. 27(A) AND (B)), SUCH UNITS SHALL ALSO HAVE A MINIMUM CLEAR PLOOP. SPACE BO IN BY 48 IN (160 MM BY 1220 MM) TO ALLOW A PERSON IN A WHEELCHAIR TO APPROACH THE UNIT FACING FORWARD. EXCEPTION:

(2) FREE-STANDING OR BUILT-IN UNITS NOT HAVING A CLEAR SPACE UNDER THEM SHALL HAVE A CLEAR FLOOR SPACE AT LEAST 30 IN BY 49 IN (160 MH BY 1220 MM) THAT ALLONG A PERSON IN A MEELCHAIR TO MAKE A PARALLEL APPROACH TO THE UNIT (SEE FIG. 2T(C) AND (D)), THIS CLEAR FLOOR SPACE SHALL COMPLY WITH 424.



CLEAR FLOOR SPACE

418 URINALS 4181 GENERALL ACCESSIBLE URINALS SHALL COMPLY WITH 4.18. 4.10.2 HEIGHT WRINALS SHALL BE STALL TYPE OR WALL HUNS WITH AN ELONGATED RIM AT A MAXIMUM OF 17 IN (430 MM) ABOVE THE FINISH

FLOOR, 4123 CLEAR FLOOR SPACE, A CLEAR FLOOR SPACE 30 IN BY 40 IN (760 MM BY 1220 MM) SHALL BE PROVIDED IN FRONT OF URINALS TO ALLOW FORWARD APPROACH. THIS CLEAR SPACE SHALL ADJOIN OR OVERLAP AN ACCESSIBLE ROUTE AND SHALL COMPLY WITH 4.2.4. URINAL SHIELDS THAT DO NOT EXTEND BEYOND THE FRONT EDGE OF THE URINAL RIM MAY BE PROVIDED WITH 24 IN (135 MM) CLEARANCE BETWEEN THEM.

418.4 FLUSH CONTROLS, FLUSH CONTROLS SHALL BE HAND OPERATED OR AUTOMATIC, AND SHALL COMPLY WITH 4.27.4, AND SHALL BE MOUNTED NO MORE THAN 44 IN (1120 MM) ABOVE THE FINISH FLOOR



LIA LAVATORIES AND MIRRORS LIGI GENERAL, THE REQUIREMENTS OF 419 SHALL APPLY TO AVATORY FIXTURES, VANITIES, AND BUILT IN LAVATORIES. 4.19.2 HEIGHT AND CLEARANCES, LAVATORIES SHALL BE MOUNTED MITH THE RIM OR COUNTER BURFACE NO HIGHER THAN 34 IN (065 MM) ABOVE THE FINISH FLOOR. PROVIDE A CLEARANCE OF AT LEAST 29 IN (135 MAU ABOVE THE FINISH FLOOR TO THE BOTTOM OF THE APRON. KNEE AND TOE CLEARANCE SHALL COMPLY WITH PIG. 31. 4.19.3 CLEAR FLOOR SPACEL & CLEAR FLOOR SPACE 30 IN BY 48 IN (160 MM BY 1220 MM) COMPLYING WITH 424 SHALL BE PROVIDED IN FRONT OF A LAVATORY TO ALLOW FORWARD APPROACH. SUCH CLEAR PLOOR SPACE SHALL ADJOIN OR OVERLAP AN ACCESSIBLE ROUTE AND SHALL EXTEND A MAXIMUM OF 19 IN (485 MM) UNDERNEATH THE

LAVATORY (SEE FIG. 32). 4.19.4 EXPOSED FIPES AND SURFACES. HOT WATER AND DRAIN PIPES UNDER LAVATORIES SHALL BE INSULATED OR OTHERWISE CONFIGURED TO PROTECT AGAINST CONTACT. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES.

AIGS PAILOFTS, FAILOFTS SHALL COMPLY WITH 4.21.4. EVER OPERATED, PUSH-TYPE, AND ELECTRONICALLY CONTROLLED MECHANISMS ARE EXAMPLES OF ACCEPTABLE DESIGNS. IF SELF-CLOSING VALVES ARE USED THE FAUCET CHALL REMAIN OPEN FOR AT LEAST ID SECONDS.

4.19.6" MIRRORS , MIRRORS SHALL BE MOUNTED WITH THE BOTTOM EDGE OF THE REFLECTING SURFACE NO HIGHER THAN 40 IN (1015 MPU) ABOVE THE FINISH FLOOR (SEE FIG. SU. APPENDIX NOTE

ADA REQUIREMENTS

All contractore shall bred and perform all work in complete conformance with their respective portions of the Code. For example, all electrical work shall conform to the 2006 IBC W 7. See Architect arounge for exponsion 2005 Nac.

4. Organiza shall not be scaladi. Dimensional data shall be octained through written plantation anti. Contractor shall verily all austing conditions, elevations and dramains prior to beginning work. Report all discrepancies to the Architect

before proceeding or beginning any work. 3. All work shall be performed to the highest standards required by each trade. The end result and intent of these documents is to wild a fully functional, mater-tight, and mother-light project. Methods and materials required to achieve such a result shall be included in this project. All monifochingd and/or Nome Brand' Rome shall be handled and installed in strict accordance with the

monufocturer's written epecifications and/or recommendation such manufacturer's specifications are hereby made a part of hese docutority. . Molerial experientions are provided to establish a cartain

eval of quality. Substitutions for such specified products shall be allowed only upon opproval of the Architect. & Provide adequate conceased blocking and anchoring for ceiling and wall mounted aquipment, hardware & accessaries. 9. Seatant shall be used at all openings in exterior walts, lowers, doors, both sides of all exterior frames, mechanical penetrolions and as otherwise shown on these

chanings. 10. Provide boundous cooling where dissimilar metals meet. Unless otherwise noted, electrical, conduits, plumbing lines, etc., shall be run concealed and framing shall be of adequate size to accomplish this result without changes in the wall plane. II. Provide and retail any required bracing, shoring, gying an support as decimed necessary for any Lemparary or permanent construction, such shoring, etc. shall be

comincted to come those toods solely. 12. Contractor shall take all necessary proceedings

measures to protect the pittic and adjacent properties in demand throughout construction It All work shall be executed in a neat and horizonility

momer, acceptable to the owner. 14. From work not specifically called as its required to complete the project is shall be provided and be of the best materials and working when the provided and be of the best

15. All existing utilities to be abandoned shall be propert asconnected, plugged or copped as required by code or

sound construction proclice. 16. Contractor shall verify all footings, subterranean tanks. voids, etc., of any are removed from tito with holes proper backfilled and compacted to fully support the load intended and certify compaction with a qualified soils engineer. IT. The storing of work by a subcontractor shall be

considered prima-facile evidence that he has respected and accepted all conditions involved in his work and finds them 18. If remodeling, remove existing structure as required to

accomption the work as shown in these place. Coordinate at activation with owner or all adjacent properties. In Contractor and all sub-Contractors are to familiarize

themselves with all existing conditions, etc. Coordinate all work and access to this project with respect to the simultaneous operation of adjacent properties. 20. The cost of additional design work due to errors or

omissions in construction by the contractor obsil be paid by the contractor. 21, All sub-contractors sholl be responsible to leave the job

are as clean as they found it. They shall clea of property all tunch trash dally. 27. Contractor shall establish and coordinate all opening

inserts and equipment locations for mechanical plumbing, and enectrical syst 23. Contiliover, basement, and other earth retaining walls are 29. Contributer, according, and other carts receasing while are shown in their completed, find positions. Provide all measures necessary to protect the mails during backfilling and other operations. Such measures shall include, but not be limited to, broking and sharing of the Holls for loads improved airing

600000000 24. Options are for the Contractor's convenience. He shall be responsible for all changes necessary if he chooses on aption all shall coordinate all dotalls

25. Any engineering design provided by others and scontiled for review shall beer the seal and signature of an Engineer

opproved evaluation reports or be approved and listed by her national recognized tasking agencies.

TERMITE CONTROL,

i. Tensols control tensilicide that be applied befor all aldo on grade combristion and at exterior edge of stars wath. 2. The tensilicide, its application, and application, shall be be opproved by the State of Arizona Structural Post Control

), the contractor shall provide a 5 year guarantee certificate For the Gily and the owner.

. Concrete quality Contains to ACI 301. 2. Concrete. Regular weight (144 pc)) with Type II cenerk per Astri cito, aggregate per Astri (C33, and potable water. A maximum of 156 by weight of the total comentains materials may be replaced by Ny ask providing the Ny ash conforms to Astri C610, Type T.

3, Minnam 28 day compressive strength a. Poundations: 2000 psi b. Skibs on grade: 3000 psi

c, Mollo	3000 pa	
d, Not toocified above:	3000 psi	
4. Hoveman stance 5*		
المامري منغا المبلية معتمرة بالدواج	ad co alta y	1

5, No water shall be added on site which will harable simp awan doova Noximum temperature to mixers 40 degrade P.

Placement per AGI 614. 6. Norimum tree drop of any concrete 6' O'.

4. Ho admistures without oppraval, Admistures containing chloridas shall not be used. Concrete shall not be in contact with carefully.

10, cost claips on grade with construction and control joint: shown on drawing or at a maximum of 12' intervala. it. Building and Tioor blacks shall coccive a steel branch Inish. Sidewolks and pade shall receive a broom finish, whichs

noted otherway, and minimum slope for drainage. 12, Curing shall immediately follow the Filish operation. Keep concrete continuously most for at least T days vering a polyelhylene film securely held in place or an alternate method approved by the Architect.

13. Do not place pipes, ducto, ragiets or choses in structural concrete hithout approval of the Architect.

14. Tests to be performed by the General Contractor: 3 cylinders for each poir, for each 150 al. yards or each 5000 to feet of surface area, whichever is local 1-7 day left, 3-20 ión kaola, 1 hold.

13. Grant under column base plates, atc., high strength, nominant, normatallic grant aguivatant to Maskartion ha. 719. applied per analizativer's recompendations. 6. Slope patto or stoop slobs min, 1/4" per fost.

4450571 All concrete macory units shall conform to specifications ASTM C 90, Grode N, Type I, 171 = 1350 psl. Aggregate shall Eastern to ASTN C-331. Mesony walks shall be regular running band. Corners shall have overlapping alternating units. spars with a minimum wath at 12", whose blocking is pravided 2. Martar shall contain to ASTM C 270 and shall be Type 5 at all panel edges. or M. Fiz + 1800 phi.

3. Grave with pea gravel shall develop 2000 pel compreseive strength at 28 days, and shall conform to ASTM C400 with alumo ol D*.

4. Gravit all bond beans, liviels and reinforced cells. Gravit unrelatorced cells as noted on drawings. Masonry below grade shall have all calls gravied solid. Held grave W balow top of vertically grouted cell to fam a "grout key" with the lift above, Red grout innectately after placing and again five printes later. Maximum vertical lifts & a. Provide cleaneute for all lits exceeding 4" O".

5. Reinforce and grait around all embodded items per structural drawings. All embedded structural tens shall be positively secured in proper position before graving. 8: All eacher bolts shall be embedded in a reinforced gravied

7. See Architect gravings for expansion and control joints Locate at 30° o.c. maximum, but not less than 2° 0° from a

opartia plate or land of an opening. B, in all write provide votical rentarcing in conter of gran. at conter of wall, continues for full height of wall at all cornero, intersections, wall ends, jombs, each side of exponsion

or control joints and as noted on arcuings. 4. Vertical reinforcement interrupted by packets or otherwise shall be made continuous in adjocent calls and lapped 40 bar constant doove and balan.

10. The vertical reinforcing at each and and at 6' 0" maximum vertical spacing using single whe and loop type lies as monufactured by A.A. the Products Company or opproved

II. Provide 2 45 bors in B' minimum apep continuous grouted bond became of all floor and root lines, at mid height of all woll's exceeding 12" of in height, and 1 =5 bor at top of all

12. Bars in band beams shall be continuous through control jents. Sleave or wrop band beam reinforcing & each side of carbrol joints to break band with grout. Do not extend control joht material through bond beans. Do not tplice bond beam remorcing within 6"of al expansion or control jointe. 13. Provide 2 =5 in ad additional band beam above each masonry opening lorger than 2'-0" unde and at all undaw sills. Extend 2'-0" minimum past sage of opening each side. 14. Bond beans interripled by pockets or otherwise shall be mode continuous above or below and lopped 40 bor

diamaters on each side. the Provide continuous whe with grout barriers below bord

le. Use horizontal joint reinforcing, bus 79 ga, who, bute ar ladder design conforming to ASTM A-82 such as Dur-O-Hall', at 16° a.c. between bond beams, Harizontal joint reinforcing

shall be terminated at all central joints. 17. Lintels: As noted on drawings, Submit chop arowings of steel. Intele to Architect for review by Engineer prior to fabrication. Use open ended blocks for all masorry intele.

13. Hist mosorry walts thoroughly for 3 consocutive days innediately after prection. 19. Brick vender to have 9/0" minimum backing for eq.) with

whether o I the par 2 severe feet. LASTH A615, Grade 60 for 4 bors and larger. 2. ASTM ABIS, Grade 40 for 43 bars and smaller.

3. ASTM AGID, Grade 40. or ASTM ATCH for Helded remorcing bors. 4, Helded plain size fabric, ASTM A185.

5. Rehilorcing bore to be determed, except #2 bars and Halded plan sine tools. p. Concrete coverage for renforcing bare (to face of bar

including steel. U.O.N. a. Unformed concrete in contact with earth, 3" b. Pormed concrete in contact with earth, 2" T. Lop epiloze in concrete: 32 bor diametere. Stagger all

eptice locations I top length minimum. S. Lop eptices in masonry: 40 bor dispetere.

9. Sike reinforcing only at opproved locations. 10. Reinforcing specings given are mainten on conter and all reinforcing is continuous inless otherwise noted. It. Frauldo bent corner relatorcing to match and lop with horizontal relatorcing at corners and interescitions of walls, beans and loatings per ACI Datalling Manual (ACI 815). 12. Donal all vertical santarcing to taindations, U.O.N. 19. Securely He all restforcing and enbedded items in pa

before placing concrete or grout. 14. Submit placing drawings per ACI Detailing Norval (ACI 515) to Architect for review by Engineer prior to Fabrication. include elevations showing reinforcing steel of all concrete

and masonal valle and footings. 5. Place reinforcing per ACI 318 and CRSI Standards. to be apported by concrete block, approved non melalic

choirs, or onother method opproved by the Engineer. METALS.

. All structural stopi shall be detailed, fabricated and practed in accordance with the latest AISC manual of Steel Construction and Avis codes. Connections not specifically detailed on the drawings shall comply with AISC standards. 2. Rolled shapes and plates. Asthe A36, Fy - 36 key except

28. Coll Bub Stoke prior to all cligging and receil every neck.
29. Coll Bub Stoke prior to all cligging and receil every neck.
29. Coll Bub Stoke prior to all cligging and receil every neck.
21. Address Marking: A house number shall be displayed in a products Marking: A house number shall be displayed in a products listed by ICSOMER numbers shall be instructions.
20. All products listed by ICSOMER numbers shall be instructions.
22. Rolled shapes and plates: ABTM ASO, Fig * 35 ksi minkam.
23. Address Marking: A house number shall be displayed in a products listed by ICSOMER numbers shall be instructions.
24. All products listed by ICSOMER numbers shall be instructions.
25. Plass: ASTM ASO, Grade B. Fy * 35 ksi, except where high strength bolic are specifically noted on drawings.
24. All products listed by ICSOMER numbers shall be instructions.
25. All products listed by ICSOMER numbers shall be instructions.
26. Plass: ASTM ASO, Grade B. Fy * 35 ksi, except where high strength bolic are specifically noted on drawings.
27. Address listed by ICSOMER numbers shall be instructions.
28. All bolts and anchors bolts shall be instructions.
29. All bolts and anchor bolts shall be instructions.
20. All products listed by ICSOMER numbers shall be instructions.
21. Product stations for products stated shall also have ICSO
22. All bolts and anchor bolts shall be instructions.
23. All bolts and anchor bolts shall be instructions.
24. All bolts and anchor bolts shall be instructions.
25. All bolts and anchor bolts shall be instructions.
26. Males, MG* karger than balt size, except BA* larger lines and bolt also have ICSO

archor boll else, U.O.H.

1. Having embeddient of bolts in mesonry, grout or concrete 3" with a head at the embedded end or 3" with a 3" hook at the embeddad and. 9. Expansion bolts, ICBO approved artilled anchors (Red Head

till, Kusk Bolt or opproved equal with a 300 degree expansive steet weaging action. 9. Herding shall conform to American Helding Society

"Standard Godo for Arc and Gos Helding in Building Construction". All work shall be done by certified welders, holding valid certifications and having current experience in the type of melang required for this project. All visiding shall be done with electrodes containing to ASTM A 233 series E 70, ion hydrogen 10. Copes, blocks and citer All re entrant corners shall be

phopod notch free, to a radius of al least 1/2". II. Mocollaneous Notals Shall conform to ASTM A 36. 12. Finish of all exterior exposed notal shall be galvarized.

ROUSH FRAMING. t. All Structural Wood shall be as follows: 2 X 4 through 2 X 14 Joiste, Douglas Fir Larch No.2. 4X and 6X pearse, Dauglas Fir Larch No.1.

Ledgers, plates, blocking and other sam kinder, Douglas Pi-Larch No.2.

Exterior Bearing Watte Douglas Pir Lanch Stud Interior Bearing and Non Bearing Walle stem Fir Stud Columns and Posts, Unexposed, Douglas Fir Lorch No. Sposed, Dougkos Pir Larch No.1, and selected for freedom n blamer - t 2. Stud laminated Members (SLU LANS) shall be

manufactured from under which meets the structural and tominating standards of the AITC. Members shall be combination symbol 24F V4 for simple spans and combina autori 24" Yo for conliever spane. All shall be with waterprace give. Each member shall be received from the monutacturer with an AttC stamp in place or a Certilicate at Comptionce shall be provided by the supplier. Provide standard camber. If not specified on plane. 3. Roof Sheathing shall be UZ block GDX ply-bood with

exterior gue. Ponel Index 32/16, Exposure I, whose roled otherwise on the plans

4. Floor Sheathing shall be 3/4" link GDX planad langue an groove, with exterior glue, Panel Index = 45/24 . Exposure intone notod otherweb , Hall sheathing shall be 3/8" beek plywood with exterior

give, intere reted ethernise. b, install sheathing with face grains across supports and joints staggered and nation as noted in Nailing Schedula. 7. OSB, strictural partial board, pipeard, and waterboard shall conform to NER-100 and may be substituted for pipeord cheating where equal.

ROUSH ERAMINE

D. Provood parel adges shall be backed with 2 inch noninal framing (placking), where indicated an drawings. 4. Each physical piece to be continuous over a minimum of two

10. Provide one physic between bearings at unblocked eager for soons over 24". It, Paywood nating at root sholl be ad common at b' a.c. at all

panel adges, and be common at 12" a.c. at intermediate uncorte.UNC. 12. Phy-ood nothing at floor shall be 10d common at 6" a.c. at

all panel edges, and 10d common at 10" o.c. at intermediate succorts. UHO. 15. All pro engineered Trusses and Joists shall be designed and detailed to fit the clinerators and support the received

uniform loads, plus any concentrated loads louch as mechanical united aboves on the pices. Manufacturer shall submit shop drawings and structural calculations (sealed by an engineer registered in the Stole of Arizonal for review prior to an collor.

14. Trysoci shall be imitalise per manifacturer's

5. Nalling shall be in accordance with the international Britch racomPC Code. 2006 eatler, Toble 2304.9.1. 15. Pre drift oil heles for noils larger than 200.

17. Field drill boilt holes for proper metching and bearings. 18. Provide sit meshers at balts in mood without steel side 19, All holes grilled in members for balling shall be maximum

106 010 01200 20. See crawings for leager bolt sizes and spacings. Locate one bolt 12" maximum and 4" minimum from each and of each ledger piece. Provide big boits minimum of each ledger piece. 21. All wood stud bearing or shear walls adjoining concrete wolls shall receive 5/8" elemeter anchor bolts at 40" 44

through double study into the concrete. 22. Wes "Empson Etrong Tie" Connectors or EQUAL at all

structural framing connections where indicated by Drawings as required by Code or Good Practice. 3. All strictural katter, and shealting, and shall bear on approved grading stomp. 24. Do not notch or chill joists, beans or load bearing stud

shoul approval of the Architect. 25. Openings for root penetrolians shall be located between opts of other sinctical memoers, UNO. 20. Exterior and interior wall sale plates to be real-ord or

wasswa weated 21. Sole place alchorage 48' O.C. (nin), 7' (nin) ambedment and 12" first) from plate ands. 1/2" round anchor bolts with 2

round wanters (min) or opproved anchorage. 25. Frontab 2nd blocking behind all taxel bars, tallet paper voidante, and hand not practical locations. 29. Brace walls at ende and 25 O.C. langth or equivalent with

opproved diagonal brasing per table 30. Valley bot Rollars - 2 + 8 # 24" O.C. for spans up to 12, 2 x 10 up to 17 or 2 x 6 0 24" O.C. with stiff-legs down to

russes below + 40" O.C. W2 × 8 Ruige Board. 4. Overhands to be measured harizontally. 32. Pollo posts must be allovated a lotal of 6' above finished

vade and I' above thished patio slob or use treated wood. 50. These designs staticing "green know" shall have mats! plate connectors conforming with 165 Section 2303.4 34. These hangers supported by "green timber" shall have fastoner's load modifications conforming with 186 Section 2303.4

23034 35. All columns, garage door fronts, and chimney's, shall be shear paneled with minimum 3/8" plywood or 058.

I. The One Coat Spaces System to a species motione of gloss floere and portland coment plaster, that is reinforced with a Hire idenic and opplied over exponded polyslyrene tita

100m 1000 °C. 2. The Stucce System shall be Western One Koal' or opproved equal and installed as per manufacturers specifications and recommendations and ICBO #3894.

The space mature shell be applied to a minimum thickness of 3/8" of all locations. 4. The Finish Texture shall be estacted by Gunar or as noted

on the plans. 3. A moleture barrier of 15* building felt, 2 layers of grade D' Krait naterproof building poper, or opproved equal shall be opplied over all exterior naite under the 5P3 form board. 6. Poon elucco sheating in altic areas must be separated from the interior attic area by an approved board per IBC. beat di windows, endering Slucco contractors onall proves finished noterials, racting, and exposed concrete surfaces prior to and during their applications from stucco.

PIRE BLOGRING At concepted spaces of stud waks and partitions, including lurred spaces, at the colling and floor levels, and at max. Ko Foat intervals both variation and horizontal. 2. At all interconnections between concepted vertical and

horizontal opacce such as solfits, dropped collings, cave cellings and tops of framed columns. 3. In concealed epoces between star stringers, at the top and bottom of the run and between study along and in the with

the run of stairs. If the walls under the slave are universed.

and emiliar openings which allord as passage for fire of

celling and Hoor levels, use non-computible materials.

factory built chimicys.

unacina d

approved nonviola moterial.

1/2" Hickness, topered edge.

3. Noliboord Accessorics

Fronting, minimum I".

atchaget requirements shall govern.

4. In openings around vente, pipes, dicts, chimneys, fireplaces,

5. At openings between attic spaces and chinney choses for

b. Walls having panallel or staggered studs for sound control, shall have fire blacks of minoral fiber or glaze fiber or other

7. The reading of all the blocking, and analt slope, shall be

2. Superm Hollboord, ASTM C 56, or 15 55 L 80, Type III, Regular Hallboord, ASTM C 56, or 15 55 L 80, Type III,

Grade R. Class L U2" thickness tappred edge. Fire Rated Hallboard. ASTM C 36, Type X; or FS 95 L 50

type III; Grado X, Class I, 5/8" thickness, tapered edge.

Comer Bood Reinforcement: 3/4" rainded conter boad

Noter Resistant Wallcoard: ASTM C 630, Grade (Rogular)

Age Registercoments Altal 12 or 1. 50 or Alta U 12 or U 50

Apply wattooard with long dimension at right angles to froming

heads with USS enectrock WIR sealant. Troot all cut adges

cut adges, utility holes, and joints, including those at angle

4. Provide perimeter rallet where non lood bearing walkboard

partitions about structural decks or tailings or vertical structural elements. Allow not loss than 1/4, nor more than

1/2" below bottom edge of celling track flanges and to first

stud adjacent to vertical tracks. Do not altach walkpoord

10. Where wateboards partitions intersect makon's wate, provide control joints no less than 1/4° act more than 3/8°

Holesoard with square nase metal cosing bead and could space between, casing bead and matoring with continuous

wide between welloors and masonry. Pirish exposed edge of

openings. Nothoord to extend to within 1/4" of the Hoor,

metal corner bood reinforcement as specified.

interactions, prior to installation

droctly to bracks.

esciont bead.

II. Reinforce wail and celling angles and helds vertical corner angles with tape folded to conform to the adjulning surface and to form a straight, true angle. Apply a this uniform layer of compound, approximately 8' was, under and over the lape in the angle joint to be reinforced. Center tope over an jointe to be reinforced and soot the the compound teaving sufficient compound under the tape to provide proper bond. Apply a skin coat of compand innediately after enboding take. Gisan except occapions from the walkboard our lace.

After drying cover embedding compounds with an additional coat of comparid. 12. Alton joints to dry thoroughly (minimum of 24 hours) between each opplication of compound. 13. All joints shall have tope or bedded, Idled and Frished

using spacified compound. 14. Cover, fill coat with companial egread evenly over and slightly beyond the topered edge of the board. feathered at the edges, with a smooth slight crown over the joint. All display at fastener needs shall receive 3 coats of compand

in succession do used in jointe. 15. Conceal floriges of all notal corner and edge reinforcing by at bast 2 coars of compound. Finan completes, the compound shall extend approximately 5° to 10° on esher side

or the exposed metal noting. 16. Sand all costs as necessary after each application of compound has arled. The final cost and expregnant songing shall leave all wallboard and treated areas wiformly smoot and ready to necelvo decoration, to the extent that after pointing of validoord there shall be no distinguishable Herence is oppearance between toped and intopped

T. Apply half texture to all exposed halfs to receive half covering upon completion of finishing specified above. Scieces shall be free of ask ant and all before opplication Not material in a clean panase ration with mater in the ratio of 5 gallons per 45 pourd bag for a period of 10 minutes. After mixing, and additional water to gloke desired consistency. Use as heavy a mature as practical and avoid over thinning the naterial. Apply-material using spray equipment capable developing sufficient pressure to produce a line cond texture finish, or as approved by Architect. B. All Merior corner back shall be 3/4" radius.

s, shower wolls shall be finished with moleture resistant. sheetrock and cultured marble or caramic life to a minimum height of 70° obove droin.

All giption board on the exterior, entry and potto calling shall be 1/2" vaterproof gyosun boord. 21. All garage walls, cellings and in useable storage space under stairs shall be 3/8" base 'X" gyosum boord.

- FRIMAL AND MOISTURE PROTECTION. Building insulation materials shall be as manufactured by Quent Coming. Johns Monullo, or opproved equal. 2. Contractor shall see plans for location, size and type of Insulation required for this project. The following are minimum standards at all exterior conditions where not attention noted an place. Ceiling thinking R 30 Hounglass batts. Exterior wolls Minimum R 19, 5 1/2" thick, fourglass batts or t 3 Balls at 3 1/2" Hick walls.

Sound walls, Sound attenuation blanket shall be Floorgiass Sound Barrier Blankets, 31/2" Inickness, .75 PCF density as naturatived by Quent Coming Ploerglase, Talada, Ohio. Moterial to have fire hatard classification. mane Spreod

Fuel Contraction

enoke Doveloped . General Requirements. Do not install plankets will such a time as the construction has progressed to the power that conditions will not domage or not the motorial. . Puly hould all small aroas between closely spaced

6. Do all and matching nearly with and string sought or minicipad.

T. Sectories shall be DAP Flexiscal coulding compound by DAP. ins, or opproved equal. Color of sealant shall match adjacent material color.

8. Floshing and Sheet Matalies and letalled and detalled at Decarating Contractors of America. per SHACKA standards. Malerials Gavanized Iran ASTM 8. Hot spate in plaster or concrete A-525, 26 dauge Minamm. Lop joint mostic shall be used on after the first coat, must be touched up before

10. All roots shall slope a minimum of 3/8" per tool, unless

nordee noted. FINISH GARPENIRY.

select in accordance with 1937A. Photoget for choiving shall be 147 DEPA. A D 3/4" Unickness. E. Salvanized metal shall be belivant decined, and select in accordance with INPA.

il shewas to have hardwood adges. 3. Furnish and insidit coblicity in accordance with Architectural Hand Horkers Institute Quality Standards. 4. Pield maaura and varity all purrounding conductions prior

constructing colonals. , face vangers thall be slandard litteraess hardsoard or

hardhiood . Hollow core and solid core doors shall meet shandande

ha Ani 3. Solid core liven Particle board core. gived to adges and roll, variated edge 1 3/4", top and bottom rolls 2-1/2".

THE BRAS I 3/4 . ENTERIOR QUOLIDE Hollow core lively blandard hollow core, vertical adges top and bottom ralls 2 1/4", Takkasse 1 5/4", 5. All handstone shall be extended by owner. Lackaste and

possage sets theil be manufactured by Kukkset of an selected by owner. Hardware: All exits to be operable from the holde without the use of a key or special knowledge. , security doors are all exterior doors loading into building

including eliding grass doors, garage doors, and extraining doors. Exterior doors shall comply with 2000 IBC 5003.81.4 7, Decapaile shall project one uch when extended in the tocked position.

SYPERT WALLBOARD: I. ASTM G BAO and G 754, and GA 216, motor as any portions are applicable, are hereby node a part of this specification as though repeated herein. In case of conflicts, the more B. Ocadootte shall be made at case hardened steel. pandered etablere elset for proce, pronze or zinc oligy. a No carble kayed locks shall be allowed.

17. Cylinder guard shall be constructed of solid motal, not hallow shall. ii. All exterior leads doors shall be solid core 1 3/4 week .

minimum of 4-5/84 obis ridih. 2. The mactive leaf of a pair of doors shall be caupped with adge mounted thish bolts top and bottom, with 1/2" minimum

aago incented then bolts top and bolton, with 1/2" inhimm projection to hold from this position of the door. 13. The inactive leaf of a par of doors shall be couloped with 11 a deadpoil, and the teck shall be key operated from exterior. 9. Locks shall anguge or disengage from the interior side of the door by a dance not requiring a key or special induction of effort

Screws. Self drilling self topping bugic head, for use with power driven tool. Type 5 for application to light gauge metal knowledge or effort. 14, All exterior abor hinges shall be mounted with the hinge of the interior of the building or have non removable hinge

15. The strike plate or holding device for protecting or furring members with all cloutting ends and adges occurring over stud floriges. Cut wellboards neatly to fill around all deodocits is nood construction and shall be secured to the land with minimum of 4 scrans (40-5") with min. 3/4" who shid.

6. Inherovar vallooard terminotes against disamiliar moterials or where edges of vallooard are exposed install metal edge removement as specified. At all callede corners, totali bibDONSL
 I. Relevance Consumer Product Sofety Commission
 B. Pant contractors shall protect all massive.
 B. Pant contractors of protect all massive.
 B. 7. At metal study, opply scallboard using screws spaced a maximum of 12^{-} a.c. in the field of the board and 12^{-} a.c. along

the abiliting and joints; $\partial^* oc. at rated walls.$ $<math display="inline">\partial_*$ where with wallboard to used, cost all adges and fastance base point. pollish all edges. 5. Pravide Ruly tempered glaps in windows within 10° of Hoar. within 24° orc from a seer, in all doors, and where required and tostener hoods with USG sheetrack WR sectant. Treat a AN AN IN

i in all sleeping areas, provide an operable hindon or door with an area of 5.7 sq. ft. (minimum) opening directly to the autoide with a minimum net clear opening of 20° side and 24° high. Maximum silt holdst of 44". 3. Skylights, if applicable, shall have 1080 #4063 or approved

aqual (Solar industrias Skylight)

. Scool the contractor shall propare ourfaces. furnish all point, material, labor and equipment required for the pointing of all parfaces as required by the drawings and specified herein. except for work specifically excluded.

A, Exceptions, which are not included in bus section shop priving factory furnished advipment, acoustic callings, and drammin plate, nicket, stainless close, or anadized obminum lactory opplied finishes. B. The parting contractor is responsible for

inspecting the work of others prior to the application at any paint or thishing motorial, if any surface to be finished cannot be put in proper condition for thisking by customory cleaning. contractor shall immediately natify the general contractor or the owner in writing, and shall not proceed with the work will condition have been corrected and are acceptable. 2. Color schedule shall be filmished by owner before the panting contractor shall begin nork.

3. Froduct Hondence A. Deprer meterial in manufacturer's original sealed containers with labels and other markings intact. Store paint material and caulomery in

assignated area. Area shall be kept clean, neal, and locked. B. Take overy procession at the end of each day to remove ally rage and contribute materials from the premises, or store them is matal

Containers with Ught covers. 4. Protochon The contractor shall protect the own Hork, and also adjacent Hork and materials Hith

suitable coverings. 5. Cleaning, lipon completion of the work, the painting contractor shall clean up the area of the activity and remove all avana materials from the

6. Norkronshi A. All sorts shall be done by experienced, skilled crationan surface proparation shall be in accordance with standards of the Painting and

8. Hot spots in plaster or concrete that show apolying the escand cost, March Inperfections in 9. Roof vents shall be located at all roof penatrokions as par dyuall and wood surfaces shall be repaired and tanded theolin.

G, Use material only in accordance with the manufacturer's directions.

D, Surfaces shall be tree of all, greate, loose Wood Irim and denominant weiter shall be Daugkas Fir. 545, point, or other foreign matter. Harred phop-primed

before priving. P. Plaster surfaces shall be proven dry by using a standard moisture motor. Moleture not to

G. All Finishes shall be applied evening and be free from rune, sogs, skips, crash, or other

H. Painting shall not be done during extremely hot usather or when the temperature to below 50

0001000 I. Protect work, adjacent work, and materials at all times by weable coverings. Upon completion of work ramove oil pant and varnish spots from

floor , glass, and other surfaces. 7. All literior and exterior past shall be monutochared by Sherwin Valitions Point. Company or approved equal

S. Interior surfaces shall be panted in the failaning manners

A Drugoli in kitchon J toilet areas - and cost scolor, one cost semi- glass latex enamel. B. Druholi in other oreas - one coat sector, one Coal visit labox. C. Nood trim, dears, and cosings - isso coats

D. Perrove metal - one cool primer, and cool

comi-gissis enomel. E. Galvanizad metal - Galvagrep

Cost primer, one cost sent-gloss a F, Grikes, registers apposed met match color of adjacent enfocus H comi-giore enome .

6. Prime coat all thish surfaces 6 panted which was be concepted by xconsories, elc.

lionana manoare

ini lolaw. E stucco - one cost sealer, one cost exterior flot lotex.

D. Exposed grilles, clactric panels, pipe, etc. -point to match color of adjacent surface with two

ISSUED FOR: COORDINATION

REVISION:

PROJECT NO: DRAWN BY:

CHECKED BY: AR ISSUE DATE: 3/17/19 COPYRIGHT(CARA 2016

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FO BOX 2302 Carefree, AZ 85377

37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325

WEB SITE www.augustreno.com EMAIL ADDRESS augir@augustreno.com

SPECIFICATIONS

SHEET NO:



A01

treatment, and nomel. al + paint to with two coots	<u> </u>
cobhata,	
ed in the ,	$\overline{\boldsymbol{\nabla}}$

9. Enterior surfaces shall be pointe A HODE - one cool eacler, one cool exterior

coate comi-gloss anomat.

pre-treated with viryl wash or etched with acid

сжаса 15%;



restroom, women's r	estroom, book	store, family
restroom, elevator sp	bace, elevator	equipment room.
Room	sf	# of occupants
Nursery	638	18
Day Care Office	406	4
Classroom 1	555	28
Classroom 2	1102	55
Classroom 3	841	42
Classroom 4	708	35
Kit c hen	447	2
Workroom	90	1
Elect. Closet	40	0
Exg. Family R.R.	48	0
Exg. Elevator	42	0
Exg. Elev. Equip.	58	0
Exg. Men's R.R.	265	0
Exg. Women's R.R.	345	0
Exg. Book Store	590	20
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Total	6,475	205

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Proposed New First Floor Occupancy Schedule

Note: Raw space currently exists, plus men's

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Room	sf	# of occupants	
Conference, #207	292	20	
Bath Room, #215	69		\sim
Classroom 5, #216	426	2	Tota
Classroom 6, #217	696		SFirst
Closet, #223	53	0	Seco
W/C, #222	64	0	}
W/C, #221	64	0	> Tota
Classroom 7, #218	1088	5 4	7
Classroom 8, #219	870	44	Stair
Closet, #226	53	0	
W/C, #225	64	0	
W/C, # 224	64	0	
Classroom 9, #220	708	36	\sim
Reception/Offices	792	7)	
Elevator	42	0 /2	
Closet, #227	15	0	BOOK
Closet, #228	15	0	STAGE
Elect. Closet, #231	40	0	
Workroom, #232	189	2	
Women's R.R.	345	0	TOTAL
Men's R.R.	265	0)
LIGRAPY # 14403	724	7)	
Total E	883	172	
			1710 3
		$\left\langle \frac{2}{2}\right\rangle$	

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Proposed New Second Floor Occupancy Schedule



(480) 488-9858 FAX (480) 636-1325 WEB SITE www.augustreno.com EMAILADDRESS augia@augustreno.com _____ ____

OCCUPANCY CALCULATION

A03

SHEET NO:







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REVISION: A 3 (17 (19 A A PROJECT NO: 1405 DRAWN BY: SD CHECKED BY: AR ISSUE DATE: 3/17/19 COPYRIGHT©ARA 2016 HORNIX YZ HORNIX YZ HORNIX HORNIX YZ HORNIX
FREE CHURCH AREFREE HIGHWAY, PHOENIX AZ
CARE 5025 E. C





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	ISSUED FOR: COORDINATION
	REVISION: A A 10-23-19 A PROJECT NO: 1405 DRAWN BY: 5D CHECKED BY: AR ISSUE DATE: 3/17/19 COPYRIGHT©ARA 2016
SOUTH STAIR FRAMING PLAN WY - 110	CAREFREE CHURCH 5025 E. CAREFREE HIGHWAY, PHOENIX AZ
	AUGUST RENO ARCHITECIS, LLC
SOUTH STAIR FRAMING PLAN 1/4" - 1-0	PO BOX 2302 Carefree, AZ 85377 37417 Tam Darlington Drive Carefree, AZ 85377 (480) 488-9839 FAX (480) 636-2325 WEB 6JTF. WYW.Augustreoo.com EMAIL ADDRESS sugle@augustreno.com

NOTES

HANGERS,

EQUIVALENT ATTACHMENTS,

PUNNERS AND FURRING

EIXTURES:

OF THE FIXTURE.

HANGER MIRE ------

MAIN RUNNER ----

MAIN RUNDER & 4-0' O.C. ---

Attach Wire Thru-Support Holes or To 16 ga. Steel Clip Attached to Fixture With (1) VIO SM.S.

ATTACH FIXTURE TO GEILING TO " GEILING GRID WITH SEISHIC

WINDOW SCHEDULE					
ID	SIZE		UEAD	MATERIAL	ΝΟΤΕς
ID.	WIDTH	HEIGHT	HEAD		NOTES
A	5,	6'- 8"	80.00	Aluminum	
8	2'	6'-8"	\$0.00 ⁻	Aluminum	
c	2'	6`~8`	60.00°	Aluminum	
D	2'	6'-8"	60.00"	Atuminum	
E	2'	6-8"	\$0.00 ⁺	Aluminum	

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DOOR AND WINDOW NOTES

LE INTERIOR DOORS TO BE "LEGACY" SOLID CORE WITH "TIMELY" FRAMES. ALL DOORS TO HAVE LEVER TYPE HARDWARE BY SCHLAGE. ALL WINDOWS SHALL BE QUAL PANE, INSULATED LOW 'E' GLASS IN ANODIZED IETAL FRAMES - TYPICAL AT ALL EXTERIOR WINDOWS.

ALL GLAZING IN DOORS AND WITHIN 24" OF A DOOR JAMB SHALL BE EMPERED GLASS

ALL PANIC HARDWARE BY VON DUPRIN.

ALL DOORS SHALL HAVE A SMOOTH, UNINTERSUPTED SURFACE ON THE LOWER 12". ALL EXIT DOORS SHALL BE OPERABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT. ALL LOCKS AND LATCHES SHALL RELEASE IN ONE OPERATION FROM THE EGRESS SIDE. /2" MAX THRESHOLD HT

O DOOR GLOSERS, EXCEPT DOORS W/ PANIC HARDWARE AND P&P AS NOTED. EVATOR EQUIPMENT DOOR TO BE I HOUR DOOR AND FRAME HARDWARE KL AFETY GLASS SIDELIGHTS FULL TEMPERED GLASS WITH WEATHER STRIPPING

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HARC	7W,A	RE TYPES
PANIC HARDWARE	L.	LATCH (NO LOCK)
KEYED LOCK	PIP	PUSH PLATE & PULL HANDLE W/ SELF
PRIVACY LATCH		CLOSER (QUIET) (NO PANIC HARDWARE)

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GENERAL:

- 1. The strucutral systems and members depicted herein have been designed primarily to safeguard against major structural damage and loss of life, not to limit damage or maintain function (BC Section 101.3)
- 2. The contract structural drawings and specifications represent the finished structure. They do not indicate the method or sequence of construction. The contractor shall be responsible for and provide all measures necessary to protect the structure during construction. These measures shall include, but not be limited to: bracing, shoring of loads due to construction equipment, etc. the contractor shall be responsible for the design and implementation of all scaffolding, bracing and shoring. Observation visits to the site by the structural engineer shall not include inspection of the above items. The structural engineer will not be responsible for the contractor's means, methods, techniques, sequences or procedures of construction, nor will the structural engineer be responsible for construction
- site safety, or the safety precautions and the programs incident thereto. 3. Contractor shall verify all dimensions and coordinate site conditions with the drawings prior to construction. Any discrepancies and omissions shall be
- resolved with the architect. Do not use scaled dimensions. 4. Construction materials shall be spread out if placed on framed floors or roofs so as not to exceed the design live load per square foot.
- 5. Where any discrepancies occur between plans, details, general structural notes and specifications, the greater requirements shall govern. Where no specific detail is shown, construction shall conform to similar work on the project. For bidding purposes, where any member or structural element is shown but not called out on the plans or details, the largest similar member or element used in the project shall be utilized.
- 6. Refer to architectural, mechanical, plumbing, electrical and civil drawings for location and details of block outs, inserts and openings, curbs, equipment bases and pads, site work items, etc. and dimensions not shown on the structural drawings.
- 7. Approved equal options are for the contractor's convenience. If an option is chosen, the contractor shall be responsible for all changes necessary and coordination of all details.
- 8. All details shown shall be incorporated into the project at all appropriate locations, whether specifically indicated or not. Typical details may or may not be cut on the drawings, but shall apply unless noted otherwise. 9. Where reference is made to various test standards for materials, such
- standards shall be the latest edition and/or addendum. 10. Any engineering design provided by others and submitted for review shall
- bear the seal of a civil or structural engineer registered in the state the project is located in.

FOUNDATIONS:

- 1. Foundation design based on minimum International Building Code soil bearing value as permitted by the building official in the absence of a soils report. Design soil bearing pressure = 1500 psf. The structural engineer is not responsible for any geotechnical aspects of this project.
- 2. It is strongly recommended that the contractor/owner retain a registered soils engineer to conduct a soils investigation and submit a report containing recommendations on all foundation design and construction
- procedures. Filled excavations or buried structures such as cess-pools, cisterns,
- existing foundations, etc. encountered during site clearing or excavation shall be brought to the attention of the structural engineer immediately. 4. Slope all exterior finished grades away from the building to ensure that no ponding of water occurs around the building.
- 5. The following minimum earthwork requirements shall be met:
- A. Strip and remove existing vegetation, debris, construction, fill, and other deleterious materials from the building areas. All exposed surfaces shall be free from mounds and depressions which could prevent uniform compaction.
- B. Footings shall bear 1'-6" minimum below lowest adjacent grade into undisturbed native soils. Finished grade is defined as top of slab for interior footings and lowest adjacent grade within 5'-0" for perimeter footings. If soils are disturbed, the subgrade shall be scarified, moisture conditioned and compacted to 95% compaction (ASTM D698) for a minimum depth of 12 inches.
- C. Scarify, moisten, or dry as required, and compact all subgrade soils to a minimum depth of 12 inches below slabs on grade. The subgrade preparation is to be accomplished in a manner which will result in uniform water contents and densities after compaction.
- D. Fill materials shall conform to the following: Gradation (ASTM C136): <u>% Finer By Weight</u> 100% 50% - 100% No. 4 sieve 60% (Max) No. 200 sieve Maximum expansion potential (%) 1.50^{*}
- Maximum soluble sulfates 0.10 * Measured upon saturation of a sample compacted to 95% of ASTM

D698. Maximum dry density at about 3% below optimum water content under a 100 psf surcharge pressure.

Base course below concrete floor slabs shall have 100% passing the 1 1/2" sieve, 45% to 90% passing the no. 4 sieve and not more than 12% passing the no. 200 sieve.

to the following:MaterialMinimum % Compaction (ASTM D698)Below footings95%Below slabs on grade95%Base course95%Miscellaneous backfill90%	E.	. On site subgrade soils, subbase fill and imported fill shall be compacted					
MaterialMinimum % Compaction (ASTM D698)Below footings95%Below slabs on grade95%Base course95%Miscellaneous backfill90%		to the following:					
Below footings95%Below slabs on grade95%Base course95%Miscellaneous backfill90%		Material	Minimum % Compaction (ASTM D698)				
Below slabs on grade95%Base course95%Miscellaneous backfill90%		Below footings	95%				
Base course95%Miscellaneous backfill90%		Below slabs on grade	95%				
Miscellaneous backfill 90%		Base course	95%				
		Miscellaneous backfill	90%				

BASIS FOR DESIGN:

- 1. All construction shall conform to the 2006 edition of the International
- Building Code with city/county amendments. 2. Occupancy Category I
- 3. Vertical Loads:
- For loads see Floor Load Plan S2.3
- Seismic Design Parameters:
- Analysis procedure used: Simplified Method Seismic Use Group = I
- Seismic Importance Factor $I_e = 1.00$
- Site Class = D Design Response Spectrum at site. $S_{\text{DS}} = 0.242$, $S_{\text{D1}} = 0.0728$ Seismic Design Category = B
- Basic Seismic Force Resisting System:
- Horizontal Shear Transfer Elements: Plywood - Flexible Diaphragm(s)
- Vertical Shear Transfer Elements:
- Wood and Gypsum walls Wind Design Parameters:
- Ult. Wind Speed = 115 MPH(3 Second wind gust)ASD Wind Speed = 90 MPH(3 - Second wind gust) Wind Exposure = C

PREFABRICATED WOOD TRUSS:

- 1. The truss manufacturer shall be responsible for the complete design, fabrication and erection procedures for all trusses, blocking, incidental framing, framing for openings not shown on drawings, temporary and permanent bracing and bridging, connections, holdown anchors and all other items required for a complete and safe installation of the truss system. Truss configurations are shown on drawings.
- 2. Prefabricated wood trusses shall be designed and fabricated in accordance with BC section 2303.4 and designed to support their own weight plus superimposed dead, live and lateral loads shown on the drawings. Contractor shall submit design calculations and shop drawings sealed by a civil or structural engineer registered in the state the project is located for review prior to manufacture. Calculations and shop drawings shall include but not be limited to design loads, allowable stresses, stress diagrams, truss to truss connections, special bearing or connection details and erection drawings
- All top and bottom chord material shall be finger jointed at splices between panel points and tension tested to minimum of 1.2 times the allowable tension parallel to the grain (per National Design Specifications). Live load deflections shall be limited to span/360 at simple span members and 2 x span/360 at cantilever members.
- 4. Bracing and bridging sizes and spacing by truss manufacturer in accordance with the latest recommendations of the Truss Plate Institute (TPI). Minimum requirements are shown on the drawings. Install and lap bracing and bridging per latest TPI recommendations. Special bracing may be equired for multiple or cantilever trusses and wind uplift conditions.
- 5. Additional trusses shall be supplied as required to support mechanical equipment. 6. All connectors specified by the manufacturer shall have current ICC ES
- approval and shall be designed and sized for twice the calculated load. No off-sets for connections will be permitted.
- 7. All truss to truss connections are the design responsibility of the truss manufacturer. Calculations and details for connections sealed by a civil or structural engineer registered in the state of Arizona shall be submitted for review prior to construction.
- The engineer who designed the prefabricated wood trusses shall certify in writing, prior to erection, that he has personally inspected the trusses and that they were built in accordance with his calculations.

2 x 8
2 x 10
2 x 12
2 x 14
Beams, Ledg
3 x 8
3 x 10
3 x 12
4 x 8
4 x 10
4 x 12
6 x 8
6 x 10
6 x 12
6 x 14
Stud Wall St
2 x 4

$\frac{\text{Posts:}}{4 \text{ x } 4....}$ 4 x 6..... 6 x 6.....

2 x 6.....

2 x 8.....

3.	All plywood shall conform to product standard 1 or APA PRP-108 and h an exterior or exposure 1 durability classification, and shall bear the sta of an ICBO approved testing agency. Lay up floor and roof with long dimension perpendicular to supports and stagger joints. On roofs whe plywood is laid up with the long dimension parallel to supports, use a minimum of 5-ply plywood. At roofs, use plyclips at midspan of unsupported edges. At walls, provide 2 x wood blocking at all unsupp edges. All nailing shall be with common nails. All plywood shall be of the following minimum thickness, span/index ratio, and shall be nailed as follows:

Use Floor

plans. Plate anchor bolts shall be 1/2" diameter placed not to exceed 32" o.c. unless noted otherwise. Anchor bolts shall be placed at all jambs, corners, intersections and wall ends. All bottom plates shall have a minimum of 2 anchor bolts. All bottom plates or sills on concrete slabs on grade, and on concrete or masonry foundations, shall be pressure treated wood stamped by an approved agency.

Use Joists and To 2 x 4..... 2 x 6..... 2 x 8

(APPLIES UNLESS NOTED OTHERWISE)

ROUGH CARPENTRY AND PLYWOOD:

1. Wood framing shall conform to 2006 BC. 2. Framing lumber shall comply with the 2006 edition of the national design specification. All sawn lumber shall be stamped with the grade mark of a lumber grading agency certified by the American Lumber Standards Committee. Maximum moisture content shall not exceed 19%. All sawn lumber shall be Douglas Fir-Larch with the following minimum properties:

	0				,	I I	
	<u>Grade</u>	<u>Fb</u> (psi)	Fv (psi)	E	<u>Fc</u>	<u>Fc</u>	
p Pl	ates:	ч, т,	ч г /				
	No.2	900	180	1,600,000	1350	625	
	No.2	900	180	1,600,000	1350	625	
	No.2	900	180	1,600,000	1350	625	
	No.2	900	180	1,600,000	1350	625	
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	No.2	900	180	1,600,000	1350	625	
ers	and Top Plat	tes:					
	No.2	900	180	1,600,000	1350	625	
	No.2	900	180	1,600,000	1350	625	
	No.2	900	180	1,600,000	1350	625	
	No.2	900	180	1,600,000	1350	625	
	No.2	900	180	1,600,000	1350	625	
	No.2	900	180	1,600,000	1350	625	
	No.1	1200	170	1,600,000	1000	625	
	No.1	1200	170	1,600,000	1000	625	
	No.1	1200	170	1,600,000	1000	625	
	No.1	1200	170	1,600,000	1000	625	
ds,	Plates and B	locking:					
	STUD	700	180	1,400,000	850		625
	No.2	900	180	1,600,000	1350	625	
	No.2	900	180	1,600,000	1350	625	
	No.2	900	180	1,600,000	1350	625	
	No.2	900	180	1,600,000	1350	625	
	No.1	1200	170	1,600,000	1000	625	

vood shall conform to product standard 1 or APA PRP-108 and have erior or exposure 1 durability classification, and shall bear the stamp CBO approved testing agency. Lay up floor and roof with long ision perpendicular to supports and stagger joints. On roofs where ood is laid up with the long dimension parallel to supports, use a num of 5-ply plywood. At roofs, use plyclips at midspan of ported edges. At walls, provide 2 x wood blocking at all unsupported All nailing shall be with common nails. All plywood shall be of the

<u>Thickness</u>	Span/Index Ratio	Edge Nailing	Field Nailing
*1 1/8"	48/24	10d at 6" o.c.	10d at 10" o.c.

*All floor sheathing to be nailed and glued.

4. Other APA rated structural panels (i.e. waferboard and oriented strand board) conforming to NER-108 and product standard 2, and with the same exposure durability classification, nominal thickness and span/index ratio may be substituted for plywood only if approved in writing by the architect during the bidding process. 5. All nailing shall be with common nails. Double up floor joists under partitions.

Double up joists below mechanical equipment. Provide 2 x solid blocking at midspan and at supports of all joists. Double up studs at jambs and under beams in bearing walls typical U.N.O. on plans. Provide 2 x blocking at mid-height of bearing stud walls or at spacing not to exceed 5'-0" o.c. All nailing not noted shall be according to table 2304.9.1 of the international building code.

6. Do not notch, drill or splice joists, beams or load bearing or structural studs without prior approval of structural engineer.

7. Joist hangers and other miscellaneous framing anchors shall be a manufactured by the Simpson Strong-Tie Company or equal by other manufacturer with current ICC-ES Report. Multiple, skewed and/or sloped hangers shall be supplied by the contractor where necessary. All nail holes in joist hangers and miscellaneous framing anchors shall be filled with nails of the largest size shown in the manufacturer's latest catalog. 8. Do not suspend gypboard or plaster ceilings, equipment, light fixtures and

conduit, piping, ducts, etc., from 2 x subpurlins. Suspension of acoustical tile ceilings only is permitted. 9. Wood stud bearing walls shall be 2 x 6 at 16" o.c. unless noted otherwise on

SHOP DRAWINGS:

- 1. Shop drawings shall be submitted for all structural items in addition to any items required by the architectural specifications. Construction documents shall not be reproduced for use as shop drawings.
- The general contractor shall review and stamp all shop drawings and product data for conformance with the construction documents prior to submittal. Any shop drawings or product date not reviewed and stamped by the general contractor will be returned without review. The contractor shall cloud or flag all items not in accordance with the contract documents. Verify all dimensions with architect.
- 3. Any changes, substitutions, or deviations from the original contract drawings shall be clouded by the manufacturer or fabricator. Any changes, substitutions or deviations which are not clouded or flagged by submitting parties, shall not be considered allowed after the engineer's review, unless noted accordingly by the structural engineer.
- 4. The structural engineer reserves the right to allow or not allow any changes to the original contract drawings at any time before or after shop drawing 5. The shop drawings do not replace the original contract drawings. Items
- omitted or shown incorrectly and which are not noted as allowed by the structural engineer or architect are not to be considered changes to the oringinal contract drawings. It is the contractor's responsibility to ensure that items omitted or shown incorrectly are constructed in accordance with the original contract drawings.
- 6. All engineering designs and layouts performed by others shall be sealed by a civil or structural engineer registered in the state in which the project is located
- 7. Reviewing is intended only as an aid to the contractor in obtaining correct shop drawings. Responsibility for correctness and completeness shall rest with the contractor. 8. Shop drawings will be returned for resubmittal if major errors are found
- during review. 9. No more than two sets of blueline prints and one set of reproducibles will be reviewed for any individual submittal.
- 10. Allow a minimum of five working days for review of shop drawings by the structural engineer.

SPECIAL INSPECTIONS:

- 1. Special inspections shall be performed by a qualified inspector approved by the architect and the building official.
- 2. Special inspections for reinforcing steel, structural masonry and anchor bolts shall be performed by a qualified inspector under the direct supervision of a state registered structural engineer who is familiar with the structural design of this project. The special inspection certificate shall be sealed by the supervising structural engineer. The contractor shall be responsible for providing a minimum of 24 hours notice to the special inspector and the testing laboratory prior to beginning any work for which special inspection or testing is required.
- 3. In accordance with chapter 17 of BC, some inspections may be made on a periodic basis and satisfy the requirements of continuoius inspection. 4. Special inspection is required during the following operations per IBC chapter 17
- A. Anchor bolts, expansion bolts and epoxy bolts per IBC tables 1705.3 and ACI 318-11 section 1.3 and Appendix D.
- Duties and responsibilities of the special inspector: A. The special inspector shall observe the work assigned for conformance with
- the approved design drawings and specifications. B. The special inspector shall furnish inspection reports to the building official and to the engineer or architect of record. all discrepancies shall be brought to the immediate attention of the contractor for correction, then, if uncorrected, to the engineer or architect of record and the building official.
- C. Upon completion of the assigned work, the special inspector shall complete and sign a final report certifying that to the best of the inspector's knowledge, the work is in conformance with the approved plans and specifications, and the applicable workmanship provisions of the code.

DEFERRED SUBMITTALS:

- 1. The following items shall be issued as deferred submittals per 2006 IBC section 107.3.4.1: A. Prefabricated wood trusses.
- 2. Documents for deferred submittal items shall be submitted to the registered design professional in responsible charge who shall review them and forward them to the building official with a notation indicating that the deferred submittal documents have been reviewed and been found to be in general conformance to the design of the building. The deferred submittal items shall not be installed until the design and submittal documents have been approved by the building official.

ISSUED FOR: PRELININARY

INTERPRETATION OF DRAWINGS

TYPICAL NOTES

For applicable codes and standards, material strengths and construction requirements, see general structural notes and specifications. Verify all dimensions with architectural drawings prior to start of construction - resolve any discrepancy with architect. Do not scale drawings 3. For clarity, all exterior slabs and sidewalks may not be shown, for exact dimensions ocations, joints and score lines, see architectural drawings 4. For clarity, all roof, floor and wall openings may not be shown on structural drawings. For exact size, number and location of openings, see architectural, mechanical, electrical and plumbing drawings. For framing at openings, see typical structural details. verify all sizes, weights and locations of mechanical and electrical equipment, ducts, etc. with mechanical and electrical engineers through architect. Details marked "typical" may or may not be cut on plans, but shall apply unless noted therwise.

	PLAN LI	EGEND
SYMBOL	DESCRIPTION	LOCATION
(101)	detail cut shown on plan	See S4 series sheets for foundation details See S5 series sheets for framing details
T1	typical detail	See S1 series sheets for typical details
	plan note	See plan notes on each plan sheet
$[\Xi]$	opening in floor or roof	See Typical note 4 above
•	8" cmu wall u.n.o.	
⊧ +	2 x 6 wood (6" steel) stud wall u.n.o.	See Foundation/Framing plans
*******	2 x 6 wood (6" steel) stud shear wall u.n.o.	
1B	shear wall holdown	See Foundation plans and Shear Wall schedule
A	mechanical unit	see framing plans and mechanical equipment schedule
BOF	Bottom of Footing Referenced to elevation 0'-0"	
BOD	Bottom of Deck Referenced to elevation 0'-0"	
BOS	Bottom of Sheathing Referenced to elevation 0'-0"	See Foundation/Framing plans
TOS	Top of Steel Referenced to elevation 0'-0"	
TOW	Top of Wall Referenced to elevation 0'-0"	
F1	Footing designation	
C1	Column designation	
SW1	Shear Wwall designation	
T1	Truss designation	See Foundation/Framing plans and applicable schedules
J1	Joist designation	
B1	Beam designation	
L1	Ledger designation	

	ABBREVIATIONS					
& @ AAC A.B. ACI	AND AT AUTOCLAVED AERATED CONCRETE ANCHOR BOLT(S) AMERICAN CONCRETE INSTITUTE ADDITIONAL	IBC ICBO INSTALL INT IRC	INTERNATIONAL BUILDING CODE INTERNATIONAL COUNCIL OF BUILDING OFFICIALS INSTALLATION INTERIOR INTERNOR INTERNATIONAL RESIDENTIAL CODE			
ADJ ADJ AFSS	ADJUSTABLE ADJUSTABLE ARCHITECTURALLY EXPOSED STRUCTURAL STEFT	K	KI₽(S)			
AFF AISC AITC ALUM APPROX	ABOVE FINISHED FLOOR AMERICAN INSTITUTE OF STEEL CONSTRUCTION AMERICAN INSTITUTE OF TIMBER CONSTRUCTION ALUMINUM APPROXIMATE(IX)	LBS (LLV) (LSV) LT1	POUNDS LONG LEG VERTICAL LONG SIDE VERTICAL LINTEL DESIGNATION			
APA ASTM AWS	AMERICAN PLYWOOD ASSOCIATION AMERICAN SOCIETY FOR TESTING AND MATERIALS AMERICAN WELDING SOCIETY	MAX MCJ MFGR MIN	MAXIMUM MASONRY CONTROL JOINT MANUFACTURER MINIMUM MEGERIA NEGUS			
BK BOF BOD BOS BRDG	BLOCA BEAM BOTTOM OF FOOTING BOTTOM OF DECK BOTTOM OF SHEATHING BRIDGING	N.I.C. N.T.S. #	NOT IN CONTRACT NOT TO SCALE NUMBER			
BTM	BOTTOM	OPP O.C.	OPPOSITE ON CENTER			
CABO CEM CJ CLR & CMU COL CONC CONT CRSI CTL	COUNCIL OF AMERICAN BUILDING OFFICIALS CEMENT CONSTRUCTION JOINT CLEAR CENTERLINE CONCRETE MASONRY UNIT COLUMN CONCRETE CONTINUOUS CONCRETE REINFORCING STEEL INSTITUTE CONTROL JOINT	PCI PERP PRE-ENC PREFAB PCF PLF PSF PSI PTI	PRESTRESSED CONCRETE INSTITUTE PERFENDICULAR PRE-ENGINEERED PREFABRICATED POUNDS PER CUBIC FOOT POUNDS PER SULARE FOOT POUNDS PER SQUARE FOOT POUNDS PER SQUARE INCH POST-TENSIONING INSTITUTE			
d D.F. DIAG	PENNY (naik) DOUGLAS FIR-LARCH DIAGONAL	REINF REQD RS	REINFORCING REQUIRED ROUGH SAWN			
Ø EA EQ EXIST	DIAMETER EACH EQUAL EXISTING	SCHED SECT SIM (SLV) (SSV) STD	SCHEDULE SECTION SIMILAR SHORT LEG VERTICAL SHORT SIDE VERTICAL STANDARD			
FDN FFE FTG	FOUNDATION FOUNDATION FINISHED FLOOR ELEVATION FOOTING	T & G T _f Tw	TONGUE AND GROOVE FLANGE THICKNESS WER THICKNESS			
GA GLB G.S.N. GYP	GAUGE GLUED-LAMINATED BEAM GENERAL STRUCTURAL NOTES GYPSUM	TS TYP TOS TOW	TUBE SECTION TYPICAL TOP OF STEEL TOP OF WALL			
HORIZ	HORIZONTAL	UBC U.N.O.	UNIFORM BUILDING CODE UNLESS NOTED OTHERWISE			
		W.W.F.	WELDED WIRE FABRIC			

PO BOX 2302
Carefree, AZ 853//
37417 Tom Darlington Drive
Carefree, AZ 85377
(480) 488-9858
FAX (480) 636-1325
WEB SITE
www.augustreno.com
EMAIL ADDRESS
augie@augustreno.com
GENERAL
STRUCTURAL NOTES
SUFET NO.
SHEET NO:

BOLI DIAMEI	TER	VERT BOLT EMBEDMENT LENGTH	HORIZ BOLT EMBEDMENT LENGTH
1/2"		7"	5"
5/8"		7"	5"
3/4"		8"	6"
7/8"		8"	6"
1"		9"	7"

PROVIDE ANCHORS, ANCHOR BOLTS AND EXPANSION BOLTS PER THIS SCHEDULE IN CONCRETE OR MASONRY UNLESS NOTED OTHERWISE ON PLANS OR DETAILS. EXPANSION BOLTS SHALL NOT BE USED IN BRICK MASONRY.

DETAIL KEY NOTES

1 2 x stud continuous to top

openings 6'-0" or wider)

staggered stud to stud

greater than 4'-0''. 3 - 2x

openings larger than 6'-0"

spacers between members

studs under header at

8 Provide 1/2" plywood

5 2 - 2 x studs at openings

2 16d nails at 12" o.c. - stagger

plate (2 - 2 x studs at

at built up headers

3 2 - 16d nails - typical

4 16d nails at 12" o.c.

6 Simpson A35

7 Header

EXPANSION BOLT

TYPICAL ANCHOR, ANCHOR BOLT, EXPANSION BOLT AND EPOXY BOLT SCHEDULE

1/4" _____EMBEDMENT EPOXY BOLT

PROVIDE EPOXY BOLTS PER THIS SCHEDULE UNLESS NOTED OTHERWISE ON PLANS OR DETAILS.

·**↓●↓** |●|

EXPANSION BOLTS USED IN CMU SHALL BE A "DYNABOLT" BY ITW RAMSET/REDHEAD OR OTHERS WITH A CURRENT ICC ES APPROVAL IN MASONRY. EXPANSION BOLTS SHALL BE CENTERED IN GROUTED CELLS. EXPANSION BOLTS AND EPOXY BOLTS SHALL BE USED ONLY WHERE SPECIFICALLY SHOWN ON THE DRAWINGS OR WHEN APPLICATION IS APPROVED IN WRITING BY THE STRUCTURAL ENGINEER.

EPOXY BOLTS IN MASONRY OR CONCRETE SHALL BE A THREADED ROD WITH THE SIMPSON SET-XP EPOXY (ICC ER - 2508) INSTALL EPOXY PER MANUFACTURERS RECOMENDATIONS. SPECIAL INSPECTION REQUIRED FOR ALL EPOXY BOLT INSTALLATION.

OPENING WIDTH	LINTEL AT BEARING WALL OR SHEAR WALL	LINTEL AT OTHER WALLS
0'-0" TO 4'-0"	See Plans	3 - 2 X 4
4'-1" TO 6'-0"	See Plans	3 - 2 X 6
6'-1" TO 8'-0"	See Plans	3 - 2 X 8

Note:

Lintel schedule applies unless otherwise noted on framing plans - see typical wood stud wall framing detail.

T7

WOOD STUD WALL LINTEL SCHEDULE TYPICAL DETAIL

TYPICAL PLYWOOD SHEAR WALL PANEL T4 TYPICAL DETAIL

Note: This detail shall apply to all exterior stud walls and interior bearing and shear walls

- 2 Double jamb studs at openings greater than 4'-0"
- wide
- 3 2 x blocking at mid-height
- or 5'-0" maximum o.c. 4 2 x pressure treated wood plate with 1/2" Ø anchorbolts at 32" o.c. maximum u.n.o. -
- provide minimum of 2 anchor bolts each plate 5 Double top plate splice with 17 - 16d nails each side of splice - stagger splices 8'-0"
- minimum 6 2 - 2 x wood plate with 16d
- nails at 12" o.c. 7 16d nails at 12" o.c.
- staggered stud to stud typical
- 8 Double trimmer studs at openings greater than 4'-0" wide
- 9 Lintel see plans 10 Simpson A34 - typical
- 11 2 X wood plate
- 12 Anchor bolts typical 13 Trimmer stud below each end
- of plate
- 14 2 16d nails stud to plate -
- typical

DETAIL KEY NOTES

2 Simpson STC truss clip

5 Simpson STC truss clip

6 Joist or bottom cord of truss

2 - 16d nails each end

3 2x wood plate

8 2x wood plate

9 Wood stud wall

4 Wood stud wall

TYPICAL CONNECTION OF

NON-BEARING PARTITONS TO FLOOR OR ROOF FRAMING						
TYPICAL DETAIL						

60201

PROJECT No:

DRAWN BY:

CHECKED BY

SHEET INDEX

S1.1 - General Structural Notes

S1.2 - Typical (T00's) Details S2.1 - Foundation Plan S2.2 - Floor Framing Plan

S2.3 - Floor Loading Plan

UCTU

BABBITT NELSON

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1140 E. GREENWAY ST, SUITE 2

MESA. AZ 85203

P: 480-610-1341, F: 480-962-9034, C: 480-497-0003

ISSUED FOR:

PO BOX 2302 Carefree, AZ 85377 37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325 WEB SITE www.augustreno.com

EMAIL ADDRESS augie@augustreno.com

FYPICAL DETAILS

SHEET NO:

COLUMN (C) SCHEDULE					
MARK	SIZE	BASE CONNECTION	REMARKS		
C1	6 x 6 DF #1	Post to be placed on wood plate with Simpson A35 at each side (2 total)			
C2 (3) 2 x 6 built-up post Post to be placed on wood plate with Simpson A35 at each side (2 total)					

MARK SHEAT SW1 Gypb Notes: Notes:

 For location of shear walls, see plans.
 See typical wood stud shear wall detail
 Nail gypsum board at all studs, top and bottom plates and blocking.
 Drywall nails of same size and spacing may be used in lieu of cooler nails. All plywood panel edges shall be blocked with 2 x framing.
 Gypsum board sheathing is unblocked u.n.o.
 Provide 2 - 2 x studs or post at end of all shear walls.

FOUNDATION PLAN NOTES

1 Existing 6" concrete slab over 4" A.B.C.

 $\left< \frac{2}{2} \right>$ Existing concrete footing - See details for footing sizes.

 $\langle 3 \rangle$ Existing multi-purpose building.

COLUMN (C) COUEDUIE

SHEAR WALL (SW) SCHEDULE

THING ERIAL	EDGE NAILING	FIELD NAILING	BOTTOM PLATE ANCHOR BOLTS	REMARKS
2" ooard	5d cooler nails at 6" o.c.	5d cooler nails at 6" o.c.	Hilti 0.145 Ø x 2 1/2" shot pins at 32" o.c.	Typical at all interi bearing walls

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37417 Tom Darlington Drive Carefree, AZ 85377
(480) 488-9858
FAX (480) 636-1325
WEB SITE www.augustreno.com
EMAIL ADDRESS augie@augustreno.com
FOUNDATION PLAN
CHEET NO.
SHEET NU:
S2. 1

FRAMING PLAN NOTES

1 1/8" T&G plywood floor sheathing - Typical at floors. For layup and attachment - See General Structural Notes.

 $\langle 2 \rangle$ Prefabricated wood floor trusses at 16" o.c.

3 Existing multi-purpose building.

	BEAM (B) SCHEDULE				
ARK	BEAM SIZE	CAMBER AT MIDSPAN	END CONNECTION	REMARKS	
B1	5 1/8" x 15"	STD	See Details		
B2	5 1/8" x 10 1/2"	STD	See Details		
B3	5 1/8" x 13 1/2"	STD	See Details		
B4	4 x 10		See Details		

	LINTEL (LT) SCHEDULE				
ARK	TYPE	REMARKS			
T1	Wood	6 x 12 D#1	See typical detail T3		
LT2	Wood	6 x 8 DF #1	See typical detail T3		

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FLOOR LOAD PLAN SCALE: 3/16" = 1'-0"

Н

FLOOR LOAD SCHEDULE

40lb Live load / 20lb Dead Load / 20lb Partition Load / 1,000lb concentration load.

50lb Live load / 20lb Dead Load / 10lb Partition Load / 2,000lb concentration load.

80lb Live load / 20lb Dead Load / 1,000lb concentration load.

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FLOOR LOAD PLAN
SHEET NO:
S2.3

NEW ROOF TOP UNIT FRAMING PLAN NOTES

1 Existing 8" Z-Purlins

 $\left< \frac{2}{2} \right>$ Existing steel frame beam

3 C4 x 7.25 to span over (3) Z-Purlins - Typical at all units under 300lbs - See Details 220.

A Mechanical unit - Typical. Weights and location of mechanical units shown are approximate. For exact weights, locations, duct openings, additional units, etc. - See mechanical and architectural drawings. All units greater than 300lb to be supported by new SB1 steel beam per plans, units under 300lb are to be supported by (3) existing Z-Purlins per detail 220 - See detail 221 for new opening at existing deck.

5 Existing mechanical unit.

	STEEL BEAM (SB) SCHEDULE				
K	BEAM SIZE	CAMBER AT MIDSPAN	END CONNECTION	REMARKS	
	W8 x 10		See Details	New Mechanical un beam	

MECHANICAL EQUIPMENT WEIGHTS SCHEDULE

VERIFY ALL SIZES, WEIGHTS AND LOCATIONS OF MECHANICAL EQUIPMENT WITH MECHANICAL ENGINEER AND ARCHITECT				
ARK	EQUIPMENT WEIGHT	REMARKS		
A	250lb Max	See detail 220 and 221		
B	300lb Max	See detail 220 and 221		
C]	600lb Max	See detail 217, 218, 219 and 221		
\mathbf{D}	850lb Max	See detail 217, 218, 219 and 221		
E	1000lb Max	See detail 217, 218, 219 and 221		
F	1300lb Max	See detail 217, 218, 219 and 221		

Note: Notify Babbitt Nelson if existing conditions differ from what is shown.

PO BOX 2302

Carefree, AZ 85377

37417 Tom Darlington Drive Carefree, AZ 85377

(480) 488-9858

DETAIL KEY NOTES

- 1. 1/2" gypsum board wall sheathing
- 2. 2 x 6 wood studs at 16"o.c. 3. Existing 1/2" expansion joint
- 4. Existing 6" concrete slab on minimum 4" ABC 5. Existing #4 continuous horizontal reinforcing at 2'
- O.C. 6. Existing #4 vertical
- reinforcing at 2' o.c.
- 7. Existing (2) #5 continuous horizontal reinforcing 8. Existing 1/2" Ø anchorbolt with $2^{"}$ steel washer at 48" o.c. (minimum 7"
- embedment and 12" from wall ends 9. 2x continuous pressure
- treated sill plate 10. Existing 4" concrete slab on minimum 4" ABC

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104

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DETAIL KEY NOTES 1. 1/2" Gypsum board wall

- sheathing 2. 2 x 4 wood stud wall at 16"
- 0.C. 3. Hilti 0.145 x 2 1/2" shot pins with 1" Min. embedment into
- concrete slab at 32" o.c. 4. 2 x 4 pressure treated wood plate
- 5. Existing concrete slab

WOOD STUD STAIR WALL AT EXISTING SLAB

PREFABRICATED FLOOR TRUSS AT EXISTING STEEL STUD WALL

(208)

(209)

BEAM AT ACCORDION PARTION

S3.1 - Foundation (100's) Details S4.1 - Framing (200's) Details S4.1 These drawings are copy written by Babbitt Nelson Engineering, 11C. © any reproduction or reus in whole or in part (including individual details) without written permission is strictly forbidden.

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S4.2

\frown		
\sum_{2}	MECHA	NICAL SYMBOLS
SYMBOL	ABBR,	DESCRIPTION
لمر 12/8 کم	22	RECTANGULAR DUCTWORK (FIRST FIGURE - SIDE SHOWN, 2ND FIGURE - SIDE NOT SHOWN,
δ 10″ø δ	22	ROUND DUCTWORK
<u>کر</u>	DN	DROP W/RESPECT TO AIR FLOW
محمر المحمر ا	UP	RISE W/RESPECT TO AIR FLOW
\square	SA	SUPPLY AIR
	RA	RETURN AIR
	EA	EXHAUST AIR
کم کم _	VD	VOLUME DAMPER (MANUAL LOCKING OR MOTOR OPERATED AS INDICATED).
	<u>, , , , , , , , , , , , , , , , , , , </u>	EXPANDED NECK DUCT TAKE DFF >'A' DIMENSION = 'B' DIMENSION × 1.5>
	Ĵ <u></u> Ĺ <u></u>	SPIN-IN DR PRESSURE FIT DUCT TAKE DFF W/ VDLUME DAMPER
		CURVED RADIUS ELBOW (MIN, CENTERLINE RADIUS TURNING VANES).
O S		THERMOSTAT / TEMPERATURE SENSOR
(3) M-1		DETAIL NO. 3 ON SHT. M-1
\sim		FLEXIBLE DUCTWORK
r ⁴		FLEXIBLE CONNECTION
کر کر	SR	SUPPLY AIR REGISTER
	CD	CEILING DIFFUSER
	RG	RETURN GRILLE
	RR	RETURN REGISTER, WITH OBD
	EG	EXHAUST GRILLE
		1-HR WALL
		-
		-

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CAREFF 5025 E. CAR PHO

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PO BOX 2302 Carefree, AZ 85377

37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325

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- 7 REMOVE EXISTING EXHAUST DUCT UP. REFER TO SHEET MD1.4
- 8 EXISTING 10"Ø SUPPLY DIFFUSER TO REMAIN

EXISTING SHELL

2NDTE:

- UNITS DESIGNATED WITH LETTERS INSTEAD OF NUMERALS ARE EXISTING ON THE ROOF ABOVE THIS PROJECT AND ARE BEING RE-USED: EXISTING HEAT PUMPS <u>HP-A</u> & <u>HP-B</u> EXISTING EXHAUST FANS <u>EF-A</u> & <u>EF-B</u> WE HAVE USED LETTERS TO DIFFERENTIATE THESE UNITS FROM THOSE USING NUMERALS ON THIS PROFECT VIAION ARE TO BE NEV JUNTS THIS PROJECT WHICH ARE TO BE NEW UNITS. THESE UNITS ARE STILL SERVING THE AREAS THEY SERVED IN THE DRIGINAL PROJECT HOWEVER THEIR DUCTWORK HAS BEEN
- RE-ROUTED TO ACCOMMODATE THE INSTALLATION 7 AND BUILD-OUT OF THE NEW SECOND FLOOR.

ISSUED FOR:

BUILDING

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SHELL OPEN TO BELOW

2 REMOVE THE EXHAUST DUCT BELOW THE ROOF TO THE EXHAUST GRILLE SERVING THE TOILET ROOM ON THE FIRST FLOOR, LEAVE THE EXHAUST DUCT BELOW THE ROOF SUITABLE FOR CONNECTION TO THE NEW EXHAUST DUCT. SERVES EXISTING EXHAUST FAN EF-A

BIDDING

REVISION:

 \square 12-15-2019 ENGINEER CORR CITY REVIEW COMMENTS $\overline{\underline{\Lambda}} \begin{array}{c} 06-10-2019 \\ \text{CITY REVIEW COMMENTS} \end{array}$

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SHELL OPEN TO BELOW

0 \mathbb{K} (2)ex <u>ef-b</u>

EX <u>HP-B</u> \square \square

2NDTE: UNITS DESIGNATED WITH LETTERS INSTEAD OF NUMERALS ARE EXISTING ON THE ROOF ABOVE THIS PROJECT AND ARE BEING RE-USED: EXISTING HEAT PUMPS <u>HP-A</u> & <u>HP-B</u> EXISTING EXHAUST FANS <u>EF-A</u> & <u>EF-B</u> WE HAVE USED LETTERS TO DIFFERENTIATE THESE UNITS FROM THOSE USING NUMERALS ON THIS PROJECT WHICH ARE TO BE NEW UNITS. THESE UNITS ARE STILL SERVING THE AREAS THEY SERVED IN THE ORIGINAL PROJECT THEY SERVED IN THE DRIGINAL PROJECT HOWEVER THEIR DUCTWORK HAS BEEN RE-ROUTED TO ACCOMMODATE THE INSTALLATION AND BUILD-OUT OF THE NEW SECOND FLOOR.

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HURC HIGHWA

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ISSUE DATE:

12/15/2019

- 1 REMOVE SUPPLY AND RETURN DUCTS BELOW THE ROOF DOWN TO THE 1ST FLOOR, LEAVE DUCTS BELOW THE ROOF SUITABLE FOR CONNECTION TO NEW DUCTS. SERVES EXISTING <u>HP-B</u>
- 2 REMOVE THE EXHAUST DUCT BELOW THE ROOF TO THE EXHAUST GRILLE SERVING THE TOILET ROOM ON THE FIRST FLOOR. LEAVE THE EXHAUST DUCT BELOW THE ROOF SUITABLE FOR CONNECTION TO THE NEW EXHAUST DUCT. SERVES EXISTING EXHAUST FAN EF-B

PO BOX 2302 Carefree, AZ 85377

37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325

> WEB SITE www.augustreno.com EMAIL ADDRESS augie@augustreno.com

<u>keyed notes</u>

1 EXISTING EXHAUST FAN ON ROOF 2 EXISTING ROOFTOP PACKAGE HEAT PUMP TO REMAIN

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<u>keyed notes</u>

1 EXISTING EXHAUST FAN ON ROOF TO REMAIN 2 EXISTING ROOFTOP PACKAGE HEAT PUMP TO REMAIN

Saguaro Engineers, Inc Consulting Engineers 12020 N. 35TH AVENUE, SUITE 111A Phoenix, AZ PH: (602) 870-2018Proj. No: 17128.00 BHEET NO: ROOF PLAN HVAC DEMO - SOUTH NDD16 NDD16

Construction Drawings:

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SUITABLE FOR USE ON THE METAL ROOF, COORDINATE WITH ROOF MANUFACTURE, STRUCTURAL ENGINEER AND ARCHITECT, SUBMIT FOR REVIEW PRIOR TO

<u>SSHP-1</u>

<u>TLT-01</u>

18″Ø

(19)

DURODYNE, DUROLON RATED TO 250°F CONTINUOUS TEMPERATURE, UL CERTIFIED NFPA 701, 28 DZ COMPOSITE WEIGHT, WOVEN FIBERGLASS WITH

Construction Drawings:

IRST FLOOR HVAC

SHEET NO:

RATES, MAKE-UP AIR PROVISIONS, CAPTURE AND

VENTILATION OPERATION.

CONTAINMENT PERFORMANCE AND PROPER HOOD AND

THE APPLICATION OF THE FIRE RATED INSULATION.

2. THE GREASE DUCT SHALL BE PRESSURE TESTED PRIDR

TO CONCEALING WITHIN THE STRUCTURE AND PRIOR TO

FIRST FLOOR PLAN - SC N SCALE: 1/8"=1'-0"

	KE	EYED NOTES
	$\left(\begin{array}{c} 1 \end{array} \right)$	6×6 <u>CD−1</u> , 6″ø, 100 CFM
	$\left< \frac{2}{3} \right>$	NOT USED
ATCHLINE — EET M1.1 —	$\begin{pmatrix} 3 \\ 4 \end{pmatrix}$	NDT USED
	5	NDT USED
	$\overline{6}$	NDT USED
>	$\overline{7}$	NDT USED
		12X12 <u>CD-1</u> , 10"Ø, 400 CFM
	$\begin{pmatrix} 9 \\ 10 \end{pmatrix}$	$12X12 \underline{CD-1}$, $10^{*} \emptyset$, $380 \underline{CFM}$
	$\begin{pmatrix} 1 \\ 1 \end{pmatrix}$	6X6 <u>CD-1</u> , 6"ø, 35 CFM
	$\overline{12}$	9X9 <u>CD-1</u> , 8″ø, 145 CFM
	$\left< \frac{13}{2} \right>$	15X15 <u>CD-1</u> , 12″Ø, 580 CFM
	$\langle 14 \rangle$	6X6 <u>CD-1</u> , 6"Ø, 30 CFM
	$\begin{pmatrix} 15 \\ 16 \end{pmatrix}$	6X6 CD-1, 6″ø, 15 CFM
	$\langle 17 \rangle$	22X22 <u>RG-1</u> , TRANSFER GRILLE TO KITCHEN
	$\overline{18}$	18∕18 DUTSIDE AIR INTAKE LDU∨ER RUSKIN EME520DD WITH INSECT SCREEN PAINT TD MATCH WALL
	(19)	6X6 CD-1, 6″Ø, 20 CFM
	$\langle 20 \rangle$	CONNECT 16"Ø TO MAKE-UP AIR DIFFUSER (TYP)
	$\begin{pmatrix} 21 \\ \hline 22 \end{pmatrix}$	15X15 CU-1, 12"Ø, 585 CFM ADAPT ALLIMINUM EXHALIST TO DISHWASHER
	(23)	3/4" CONDENSATE DRAIN DOWN IN WALL. TURN
		DUT AND DOWN ABOVE LANDSCAPE AT 6" ABOVE FINISHED GRADE
-0	$\begin{pmatrix} 24 \\ 25 \end{pmatrix}$	THROUGH FLOOR INTO EXTERIOR WALL ABOVE
24	26	ADAPT SUPPLY DUCT TO THE INDOOR UNIT. INDOOR UNIT TO BE SET ON AN ELEVATED
	27	10/10 DISHWASHER EXHAUST UP THROUGH FLOOR ABOVE INTO CHASE
<u>SHP-4</u>	28	24/18 MAKE-UP AIR UNIT SUPPLY DOWN TO FIRST FLOOR CEILING. COORDINATE WITH ARCHITECT AND FLOOR TRUSS MANUFACTURE
18	(29)	WRAPPED 10/40 GREASE EXHAUST DUCT UP
	(30)	12/10 DSA INTAKE DOWN TO PLENUM WITHIN
~24		SUPPORT PLATFORM BELOW UNIT. FURNISH MANUAL DAMPER FOR BALANCING AIR FLOW AND MOTORIZED DAMPER TO OPEN WHEN UNIT IS ENABLED AND CLOSE WHEN UNIT IS DISABLED
<u>HP-5</u>	$\langle 31 \rangle$	12/18 RETURN DOWN TO PLENUM BELOW UNIT PLATFORM WITH DAMPER ON VERTICAL DROP
	$\langle 32 \rangle$	REFRIGERANT LINES AND CONTROL CONDUIT UP
	33	3/4" CONDENSATE DRAIN TO FLOOR SINK, TURN
	$\overline{\langle 34 \rangle}$	12x22 RG-1 WITH 8"Ø BRANCH
	$\overline{35}$	22×22 <u>RG-1</u> WITH 18/12 BRANCH
	$\overline{36}$	22×22 <u>RG-1</u> WITH 12″Ø BRANCH
	$\langle 37 \rangle$	ADAPT EXHAUST FLANGE FROM GREASE HOOD TO GREASE EXHAUST DUCT ABOVE
	38	22X22 <u>RG-1</u> WITH 18″Ø BRANCH
	39	18/14 RETURN DUCT DOWN TO PLENUM BELOW UNIT PLATFORM WITH MANUAL BALANCE DAMPER ON THE VERTICAL
	$\langle 40 \rangle$	CONDENSATE PUMP DISCHARGE UP TO 3/4" LINE ABOVE CEILING
	4 1	10"Ø DOWN TO MIXED AIR PLENUM BELOW UNIT
	$\left< \frac{42}{2} \right>$	22X22 <u>RG-1</u> WITH 10″Ø BRANCH
	(43)	12×12 EXHAUST LOUVER RUSKIN EME520DD WITH INSECT SCREEN
	$\begin{pmatrix} 44 \\ 45 \end{pmatrix}$	NUT USED 3/4"Ø CONDENSATE ABOVE CEILING
	$\begin{pmatrix} 43 \\ 46 \end{pmatrix}$	NDT USED
	$\langle 47 \rangle$	NEW 12/8 EXHAUST UP THROUGH SECOND FLOOR
	$\langle 48 \rangle$	14/12 SUPPLY DOWN FROM SECOND FLOOR
	(49) (50)	NOT USED
	(51)	ADAPT NEW 6"Ø SUPPLY DUCT TO EXISTING
		CEILING DIFFUSER AND BALANCE TO 45 CFM
	(52) (53)	ADAPT NEW 8/12 EXHAUST DUCT TO EXISTING
		NEW 6x6 EG-1, 50 CFM. 6"Ø BRANCH
	(55)	ADAPT 8"Ø TO EXISTING SUPPLY DIFFUSER.
DUTH	56	NEW 9x9 <u>CD-1</u> , 200 CFM, 8"Ø BRANCH

WEB SITE www.augustreno.com EMAIL ADDRESS

37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325

PO BOX 2302 Carefree, AZ 85377

AUGUST RENO

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CAREF 5025 E. CAF

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PROJECT NO: 16135.00 **DRAWN BY:** SVF CHECKED BY: SVF **ISSUE DATE:** 12/15/2019 COPYRIGHT CSEI 2019

BIDDING

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BUILDING IS TO BE FURNISHED WITH AREA SMOKE DETECTOR SYSTEM UNITS ARE TO BE CONNECTED TO THAT SYSTEM FOR SHUT-DOWN

Special Inspection Certificate Mechanical/Plumbing

200 West Washington Street, 2nd Floor, Phoenix, AZ 85003 Phone: (602) 262-7811 (Voice) or (602) 534-5500(TTY) Fax: (602) 534-3274 (General Requirements and Instructions on the backside of form) Form effective January 1, 2014 POST AT JOB SITE WITH PERMIT

1	Project Address: 5205 E. Carefree Highway	Permit No.
		Plan Log No.
	Mailing Address: 5205 E. Carefree Highway, Cave Creek 85331	Phone No: (480) 488-5565
đ	Mailing Address: 12020 N. 35th Ave, 111A, Phx, AZ 85029	Phone No: (602) 870-2018
	Email Address: stan.fox@saguaroengineers.com	Fax No: N/A

I hereby affirm that I am familiar with the design of this project and have been designated by the Owner/owner(s) Agent as the registered design professional in responsible charge for implementing the Mechanical and/or Plumbing Special Inspections Program required by the city of Phoenix Building Construction Code Sections 110.3.9, 1704, 1705.19, and 1705.20. I have determined that the types of work checked below require Mechanical and/or Plumbing Special Inspection and that the individual(s) or firm(s) named below are qualified to perform the special inspections. I understand and agree to inform the project owner, the contractor(s), and the special inspector(s) about all of the Mechanical and/or Plumbing Special Inspection Program requirements and limitations, including that the Special Inspector(s) must be independent third-party individual(s) or firm(s) and shall not be the installing contractor(s).

QUIRING SPECIAL BING INSPECTION ht if Necessary)	QUALIFIED SPECIAL INSPECTOR INDIVIDUAL(S) OR FIRM(S) (Attach Supplement if Necessary)
r Operation	
uct Enclosure	
m Systems	
were reviewed and foun	d to be in conformance with the approved

Page 1 of 2 For more information or for a copy of this publication in an alternate format, contact Planning & Development at

(DATE)

TRT/DOC/00276 Rev. 12/13

	<u>KEYED NOTES</u>
	<pre>6x6 CD−1, 6″Ø, 50 CFM</pre>
(2)	9X9 CD-1, 8″Ø, 70 CFM
	NUT USED
4	9X9 CD-1, 8″Ø, 140 CFM
	12X12 CD-1, 12*Ø, 500 CFM
	∑ 15X15 CD−1, 10″∅, 335 CFM
)12X12 CD-1, 10″Ø, 375 CFM
<u>(8</u>)12X12 CD-1, 10″Ø, 400 CFM
<u>(9</u>	12X12 CD-1, 10″Ø, 410 CFM
	6X6 CD-1, 6″Ø, 25 CFM
	∑6X6 CD−1, 6″Ø, 45 CFM
	9X9 CD-1, 8″Ø, 155 CFM
(13	> 3/4" CONDENSATE DRAIN DOWN IN WALL TO PLUMBING FIXTURE TAILPIECE. COORDINATE WITH PLUMBING CONTRACTOR
<u>_14</u>	> 3/4" CONDENSATE DRAIN DOWN FROM HVAC UNIT ON ROOF
(15	22X22 RG-1 WITH SHEET METAL PLENUM ABOVE. HEIGHT AS REQUIRED TO CONNECT BRANCH DUCT, MINIMUM 8". WHERE TWO GRILLES ARE ILLUSTRATED TOGETHER COMBINE INTO A SINGLE, COMMON PLENUM ABOVE BOTH GRILLES
(16	ADAPT SUPPLY AND RETURN DUCTS TO THE HVAC EQUIPMENT DROPS THROUGH THE ROOF.
(17	10"Ø EXHAUST DUCT UP TO WEATHER HOOD ON ROOF CURB
(18	6″Ø EXHAUST DUCT UP TO WEATHER HOOD ON ROOF CURB
(19	REFRIGERANT LINES AND CONTROL CONDUIT UP IN WALL TO ABOVE CEILING
20	REFRIGERANT LINES AND CONTROL CONDUIT UP THROUGH ROOF TO OUTDOOR HEAT PUMP

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PO BOX 2302 Carefree, AZ 85377

37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325

WEB SITE www.augustreno.com EMAIL ADDRESS augie@augustreno.com

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

37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325

WEB SITE www.augustreno.com EMAIL ADDRESS augie@augustreno.com

Construction Drawings:

12020 N. 35TH AVENUE, SUITE 111A Phoenix, AZ 85029 PH: (602) 870-2018Proj. No: 17128.00

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KEYED NOTES SUPPORT OUTDOOR UNIT ABOVE ROOF IN A MANNER ACCEPTABLE TO THE ARCHITECT. EACH UNIT SHALL BE FURNISHED WITH VIBRATION ISOLATORS AND A BASE AS REQUIRED TO REDUCE VIBRATION AND SOUND TRANSMISSION INTO THE BUILDING AND SPACES BELOW 2 REFRIGERANT LINES AND CONTROL CONDUIT UP THROUGH ROOF, FURNISH PATE PIPE PENETRATION SEALS AND FLASH TO METAL ROOF MAKING WATER TIGHT IN A MANNER ACCEPTABLE TO THE ARCHITECT (3) CONDENSATE LINE DOWN THROUGH ROOF. FURNISH PATE PIPE PENETRATION SEALS AND FLASH TO METAL ROOF MAKING WATER TIGHT IN A MANNER ACCEPTABLE TO THE ARCHITECT 4 NEW ROOFTOP PACKAGE UNIT ON CURB SUITABLE FOR USE ON THE METAL ROOF. COORDINATE WITH ROOF MANUFACTURE, STRUCTURAL ENGINEER AND ARCHITECT. SUBMIT FOR REVIEW PRIOR TO PROCUREMENT AND INSTALLATION 5 EXHAUST DUCT UP THROUGH METAL ROOF TO WEATHER HOOD ON ROOF. MAKE WEATHER TIGHT AS REQUIRED BY THE ARCHITECT 6 NEW EXHAUST FAN ON ROOF. (7) EXISTING EXHAUST FAN ON ROOF (8) EXISTING ROOFTOP PACKAGE HEAT PUMP $\langle 9 \rangle$ New Rooftop Package Make-up air unit on CURB SUITABLE FOR USE ON THE METAL ROOF. COORDINATE WITH ROOF MANUFACTURE STRUCTURAL ENGINEER AND ARCHITECT. SUBMIT FOR REVIEW PRIOR TO PROCUREMENT AND INSTALLATION NDTES

1. THE BUILDING IS TO BE SERVED BY AN AREA SMOKE DETECTOR SYSTEM. ALTHOUGH DUCT SMOKE DETECTORS ARE NOT REQUIRED CONNECTION TO THE FIRE ALARM SYSTEM FOR SHUT-DOWN IS REQUIRED. THE FIRE ALARM SPECIFICATION IS A PERFORMANCE SPECIFICATION, COORDINATE WITH THE FIRE ALARM COMPANY AS REQUIRED TO CONNECT NEW UNITS TO THE FIRE ALARM SYSTEM. THIS INCLUDES ALL OF THE NEW UNITS AND THE TWO UNITS THAT ARE EXISTING ON THE ROOF OF THIS WING. WHERE SINGLE UNITS LESS THAN 2000CFM SERVE A SPACE NOT SERVED BY ANY OTHER UNITS THEN THE INTERLOCK WITH THE FIRE ALARM SYSTEM WILL NOT BE REQUIRED. WHERE MULTIPLE UNITS SERVING COMMON AREAS ARE NOT SEPARATED BY AN APPROVED FIRE BARRIER AND TOTAL MORE THAN 2000 CFM THE UNITS SHALL BE CONNECTED TO THE FIRE ALARM SYSTEM SHUT DOWN.

2. CONTRACTOR SHALL SUBMIT AN APPROVED COPY OF THE FINAL AIR BALANCE REPORT TO THE CITY OF PHOENIX MECHANICAL INSPECTOR PRIOR TO ISSUANCE OF A CERTIFICATE of OCCUPANCY.

3. SUPPORT NEW DUCTS ABOVE CEILING FROM ROOF STRUCTURE FURNISH INTERMEDIATE SUPPORTS AS REQUIRED.

4. BALANCE DUTSIDE AIR TO EACH AIR HANDLER TO THE AIRFLOW INDICATED IN OUTSIDE AIR CALCULATION SCHEDULE.

5. AIR CONDITIONER FANS AND EXHAUST FANS ARE TO BE SET TO OPERATE CONTINUOUSLY DURING OCCUPIED PERIODS.

6. THE INSTALLING CONTRACTOR SHALL CALL FOR INSPECTION OF ALL MECHANICAL SYSTEMS PRIOR TO BACKFILL AND CONCEALMENT.

7. THE INSTALLING CONTRACTOR SHALL SUBMIT TO THE ARCHITECT OR ENGINEER MATERIAL AND INSTALLATION DETAILS OF THE WALK-IN COOLER FOR REVIEW AND APPROVAL PRIOR TO PURCHASE OF THE UNIT SELECTED BY THE OWNER, APPROVED SUBMITTALS SHALL BE AVAILABLE TO THE CITY BUILDING INSPECTOR ON THE JOB SITE.

8. NEW SUPPLY AND RETURN DUCTS ABOVE THE ROOF ARE TO BE SUPPORTED FROM THE ROOF WITH A SUPPORT SYSTEM AS DIRECTED BY THE ARCHITECT ANCHORED TO THE ROOF DECK AND MADE WATER PROOF TO THE SATISFACTION OF THE CITY INSPECTOR AND ARCHITECT. SUBMIT DETAIL FOR REVIEW.

9. DUCTS DUTSIDE THE BUILDING INSULATION ENVELOPE ARE TO BE GALVANIZED SHEET METAL, CROWNED TO SHED WATER, LINED WITH 2" THICK, MINIMUM R-8 INSULATION LINER AND SPRAY FDAMED AND THEN PAINTED WITH MINIMUM 2" THICK ROOFING INSULATION ON TOP, BOTTOM AND SIDES OF DUCT.

10. DUCT PENETRATIONS THROUGH THE ROOF ARE TO BE MADE THROUGH 13" HIGH ROOF CURBS ATTACHED TO THE ROOF DECK. DUCTS SHALL BE FLASHED TO SHED WATER AWAY FROM THE CURB PENETRATION, ROOF CURBS SHALL BE PACKED WITH ROCK WOOL INSULATION OR ROOFING FOAM AFTER THE DUCT DROPS ARE INSTALLED.

11. THE FINAL LOCATIONS OF ALL ROOF PENETRATIONS SHALL BE FIELD VERIFIED PRIOR TO THE FABRICATION OF DUCTS TO COORDINATE WITH ROOF STRUCTURE, PIPES, CONDUIT, WIRING AND DTHER NEW AND EXISTING STRUCTURE AND UTILITIES.

 $\overline{2}$

12 DUCT SIZES ARE INSIDE CLEAR OF THE INSULATION LINER. 13. COORDINATE SPACE NEEDS FOR DUCTS THROUGH FLOOR AND ROOF TRUSSES AND JOISTS IN SUBMITTAL STAGE OF THE STRUCTURE, COORDINATE THE NEED FOR SOFFITS AS REQUIRED

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REVISION:

12-15-2019 ENGINEER CORR 66-10-2019 CITY REVIEW COMMENT

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37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325

WEB SITE www.augustreno.com EMAIL ADDRESS augie@augustreno.com

												R	OOFTOF	> PACk	KAGE H	HEAT PU	IMP SCHEDU	LE			
	NOM.					INDOOR		ELECTR	RIC HEATER	HEAT F	PUMP HEATING COOLING CAPACITY				ELECTRICAL DATA				DIMENSI	ONS	
MARK	TONS	EFF.	MANUF.	MODEL	CFM	Y FAN ESP"WG	SPEEDS	STAGE K	W FLA	МВН	ENT AIR °Fdb	ENT AIR °Fdb °Fwb	MBTUH TOTAL/SENS	COMPRESSOR # RLA LRA	OUTDOOR FAN FLA	INDOOR FAN MCA	MOCP VOLTS/PH	OPER. WEIGHT LENG	H WIDTH	HEIGHT	REMARKS
HP-1	3	15.6 SEEF	R CARRIER	50HCQA04	1200	0.5	1		· _	34.38	63.1	84.3 65.9	35.72/31.49	1 10.4 73	1 @ 1.0ea	5.2 20	25 208/3/60	790 74.4	46.8"	41.4"	1-stage cooling, 1 speed indoor fan (1) (2) (3)
HP-2	2	14.5 SEEF	R CARRIER	50VT-C24	807	0.4	1		· _	14.95	61.1	86.0 64.0	21.79/21.79	1 13.5 58.3	1 @ 0.6ea	3.8 21.3	30 208/1/60	511 48.2	' 32.6"	47.8"	1-STAGE COOLING, 1 SPEED INDOOR FAN $(1)(2)(3)$
HP-3	4	15.6 SEEF	R CARRIER	50HCQA05	1600	0.5	1		· _	31.98	63.1	84.3 65.9	46.39/46.39	1 13.1 83	1 @ 1.4ea	5.2 23	30 208/3/60	790 74.4	46.8"	41.4"	1-STAGE COOLING, 1 SPEED INDOOR FAN $(1)(2)(3)$
HP-4	6	12.0 EER	R CARRIER	50HCQA07	2100	0.5	1			46.25	63.9	81.7 65.6	58.74/51.89	1 19.6 136	2 @ 1.5ea	7.5 35	50 208/3/60	995 88.1	59.5"	41.33"	1-STAGE COOLING, 1 SPEED INDOOR FAN $(1)(2)(3)$
HP-5	5	15 SEER	CARRIER	50HCQA06	2000	0.5	1			44.40	61.0	86.7 65.0	60.08/60.08	1 15.9 110	1 @ 1.4ea	8.4 30	45 208/3/60	820 74.4	46.8"	41.4"	1-STAGE COOLING, 1 SPEED INDOOR FAN (1) (2) (3)
HP-6	4	15.6 SEEF	R CARRIER	50HCQA05	1600	0.5	1		· _	31.98	63.1	84.3 65.9	46.14/46.14	1 13.1 83	1 @ 1.4ea	5.2 23	30 208/3/60	790 74.4	46.8"	41.4"	1-STAGE COOLING, 1 SPEED INDOOR FAN (1) (2) (3)
HP-7	5	15 SEER	CARRIER	50HCQA06	2000	0.5	1		· _	44.40	61.0	84.3 65.9	55.03/54.46	1 15.9 110	1 @ 1.4ea	8.4 30	45 208/3/60	820 74-3/	8" 44"	41-3/8"	1-stage cooling, 1 speed indoor fan (1) (2) (3) \sim
HP-8	2	14.5 SEE	R CARRIER	50VT-C24	807	0.4	1		· _	15.07	61.1	78.8 60.0	17.87/16.86	1 13.5 58.3	1 @ 0.6ea	3.8 21.3	30 208/1/60	511 48.2	32.6"	47.8"	LOCATE STAT IN OFFICE PROVIDE REMOTE SENSOR (1) (2) (3)
	AIRFLOW AND STATIC IS SHOWN AT 1100 FT ABOVE SEA LEVEL. PROVIDE LOW AMBIENT OPERATION KIT. PROVIDE CRANKCASE (2) CAPACITIES ARE AT 115.0° SUMMER AMBIENT AND 47.0° WINTER AMBIENT.																				

HEATER WITH SOLID STATE CONTROLS.

	SPLIT SYSTEM HEAT PUMP SCHEDULE																						
	NOM	ARI . SEER			INDOOR U	NIT – R-				UNIT						OUTDO	OR UNIT ELECTRIC	AL DATA			HEATING CAP	CO	DOLING CAPACITY
MA	RK TONS	S OR EER	MANUF.	MODEL	CFM ESP"WG	HP FL	A STAG	E KW	FLA	MCA FAN+HEAT	MOCP	VOLTS/PH	MANUF.	MODEL	RLA	COMPR.	FAN FLA	MCA	VOLTS/PH	WEIGHT	МВН	ENT Fdb	T AIR MBTUH REMARKS Fwb TOTAL/SENS
SSHE	P-1 4	15.5	CARRIER	FV4CNB006	1600 0.5	3/4 6	5.8 KFCEH0501N05 1	5	18.1	31.2	35	208/230-1	CARRIER	25HBC548	21.8	117	1.2	28.5	208-230/1	260	33.49	87.2	65.2 44.94/44.94 (1) (2) (3) (4)
SSHF	2 3	16.0	CARRIER	FV4CNB005	1200 0.5	1/2 4		5	18.1	31.2	35	208/230-1	CARRIER	25HBC537	16.8	75	0.6	21.6	208-230/1	215	25.12	87.5	65.2 35.27/35.27 (1) (2) (3) (4)
SSHF	-3 1.5	15.0	CARRIER	FV4CNF002	600 0.5	1/2 4		5	18.1	31.2	35	208/230-1	CARRIER	25HBC518	9.0	48.0	0.50	11.8	208-230/1	169	12.46	80.5	66.10 15.27/13.19 (1) (2) (3) (4)
SSHF	9-4 5	14.5	CARRIER	FV4CNB006	1600 0.5	3/4 6	5.8 KFCEH0501N05 1	5	18.1	31.2	35	208/230-1	CARRIER	25HBC560	26.4	134	1.2	34.2	208-230/1	294	41.62	87.8	65.3 56.91/56.91 (1) (2) (3) (4) (5)
SSHF	9-5 4	15.5	CARRIER	FV4CNB006	1600 0.5	3/4 6	5.8 KFCEH0501N05 1	5	18.1	31.2	35	208/230-1	CARRIER	25HBC548	21.8	117	1.2	28.5	208-230/1	260	33.49	87.2	65.2 44.94/44.94 (12345)
∽ SSHF	°-6 3	16.0	CARRIER	FV4CNB005	1200 0.5	1/2 4		5	18.1	31.2	35	208/230-1	CARRIER	25HBC537	16.8	75	0.6	21.6	208-230/1	215	25.12	87.5	65.2 35.27/35.27 (1) (2) (3) (4)
1 SSHF	9-7 3	16.0	CARRIER	FV4CNB005	1200 0.5	1/2 4	3 KFCEH0501N05 1	5	18.1	31.2	35	208/230-1	CARRIER	25HBC537	16.8	75	0.6	21.6	208-230/1	215	25.12	87.5	65.2 35.27/35.27 (1) (2) (3) (4)

PROVIDE SOLENOIDS AND REFRIGERANT ACCUMULATOR KIT AS REQUIRED TO ACCOMODATE LENGTH OF REFRIGERANT LINES. FURNISH AUXILIARY RELAY OUTSIDE AIR DAMPER CONTROLS WITH MAXIMUM SETTING IN ADDITION TO FULLY CLOSED 1 PROVIDE CRANKCASE HEATER WITH SOLID STATE CONTROLS. PROVIDE HP-6&HP-7 WITH DEMAND CONTROL VENTILATION AND ENTHALPY ECONOMIZER CONTROLS AND MOTORIZED CONTROL DAMPERS IN FIELD PER PLAN

2 AIRFLOW AND STATIC IS SHOWN AT 1,100 FT ABOVE SEA LEVEL.

(3) CAPACITIES ARE AT 115.0°F SUMMER AMBIENT AND 32.0°F WINTER AMBIENT.

(4) FURNISH 7-DAY PROGRAMMABLE, (HP6&HP-7, 2-STAGE) (HP-4, 1 STAGE) DIGITAL THERMOSTAT WITH REMOTE SENSOR, SETBACK PROGRAMMING. STAGE OPERATION OF THE UNITS FOR HEATING AND COOLING IN THE SPACE. FOR HP-4 AND HP-5 THERMOSTATS ARE TO BE SET TO THE SAME HEATING AND COOLING SETPOINTS SO THAT THE UNITS DO NOT FIGHT EACH OTHER. 5 FURNISH A CONDENSATE SUMP AND PUMP SYSTEM LITTLE GIANT MODEL: VCL24ULS UL LISTED WITH THERMAL OVERLOAD AND SAFETY SWITCH. INTERLOCK TO STOP INDOOR UNIT IF PUMP FAILS TO REMOVE CONDENSATE 120V, 2.5 AMPS

		GRILLE	IS / REGIST	ERS / DIFFU	SERS SCHEDULE	EXHAUST FAN AND SUPPLEMENTAL HEAT SCHEDULE								
MARK	MANUF.	DESCRIPTION MODEL	FRAME BLC	DW O.B.D. FINISH MAX	MATERIAL	MARK	MANUF.	MODEL	CFM	ESP (IN. WC)	TTS HP	VOLTS/PH	DPER WEIGHT	SDNES REMARKS
CD-1	TITUS	CEILING DIFFUSER TDC	MATCH CEILING PER F	PLAN YES WHITE 30	STEEL	EF-1	GREENHECK	SP-A80-VG	50	0.25		120/1	12	1.4 1 2 3 UL LISTED, SPEED CONTROLLER ATTACHED TO MOTOR. FURNISH WEATHER
						EF-2	GREENHECK	SP-A390-VG	350	0.25	.35 –	120/1	24	4.5 1 2 3 UL LISTED, SPEED CONTROLLER ATTACHED TO MOTOR, FURNISH WEATHER HOOD ON 14" ROOF CURB
SR-1	TITUS	REGISTER 300RL	MATCH WALL OR CEILING ADJUS	TABLE YES WHITE 30	STEEL	EF-3	GREENHECK	AP-A390-VG	300	0.25	.35 -	120/1	24	4.5 (1) (2) UL LISTED, SPEED CONTROLLER ATTACHED TO MOTOR. FURNISH WEATHER HOOD ON 14" ROOF CURB
RG-1/EG-1	TITUS	RETURN GRILLE 350RL	SURFACE/LAY-IN	A NO WHITE 30	STEEL		,							Δ
						EF-5	ACCUREX	XRUB-180HP-15	3010	1	- 1.5	208-3-60	165	17 (1) (2) UL LISTED, ROOF MOUNTED. FURNISH ROOF CURB PER DETAILS AND ARCHITECT'S REQUIREMENTS - GREASE EXHAUST-
SUPPORT ALL	L EILING MOUT	⊥ I NTED DE∨ICES FROM THE ROOF	STRUCTURE ON TWO OPPOSI	ITE SIDES DF DE∨ICE		EF-6	ACCUREX	XRED-085-VG	488	0.284	- 1/1	120/1	40	8.1 (1) (2) UL LISTED, ROOF MOUNTED. FURNISH ROOF CURB PER DETAILS AND ARCHITECT'S REQUIREMENTS -DISHWASHER HOOD-
						(1) P	ROVIDE WITH 1	BARDMETRIC DAM	1PER W	ITH MAXIMU		PRESSURE	DF 0.054	" WATER COLUMN AND DISCHARGE BIRD SCREEN
						(2) S	FLECTIONS ARE	AT 1.200 FT F	I FVAT	ION ABO∨E	SFA LEV	-1		

			\			
MARK						INDOOR
	NOM. TONS	EFF.	MANUF.	E∨APORATOR MODEL	SUPPLY CFM	SPEED
AC-1	1.5	20.0 SEER	CARRIER	40MAQB18B3	680	3

(1) PROVIDE CRANKCASE HEATER WITH SOLID STATE CONTROLS, LOW AMBIENT KIT, WINTER START CONTROL, ISOLATION RELAY, LIQUID LINE SOLENDID VALVE, WIND BAFFLES, HARD WIRED WALL MOUNTED CONTROLLER UNIT SHALL BE CAPABLE OF OPERATION TO -4°F

3 FURNISH 7-DAY PROGRAMMABLE DIGITAL THERMOSTAT WITH SETBACK PROGRAMMING. 2" THICK MERV 8 FILTERS IN UNIT, AND ECONOMIZER WITH ALUMINUM CLEANABLE FILTER, MOTORIZED INTAKE AND BAROMETRIC RELIEF HOOD, FILTERS AND DAMPERS

3 FAN TO OPERATE WITH WHEN AIR CONDITIONER SER∨ING THE ROOM IS OPERAT

												\sim	~		\wedge	Jun Jun Jun
⚠ DUCTLES	SS SPLIT	SYS	stem a	IR CONDI	$\top ($	DNER	SCH	EDU	LE							
UNIT						ТА		1			S		С	JOLING	CAPACITY	
VOLTS/PH	WEIGHT (INCL. CDIL)	MANUF.	MODEL	COMPR. RLA	MCA	VOLTS/PH	- WEIGHT	LENGTH	WIDTH	HEIGHT	CURB HEIGHT	OVERALL HEIGHT	ENT °Fdb	AIR °Fwb	BTUH TOTAL SENSIBLE	REMARKS
POWERED FROM OUTDOOR UNIT	25	CARRIER	38MAQB18R3	12.3	18	208-230/1	118	33.69"	13.69"	27.68"	N/A	27.68"	70.9	62.6	15021 13,238	1234
						-1										

(2) AIRFLOW AND STATIC IS SHOWN AT 1200 FT ABOVE SEA LEVEL.

3 CAPACITIES ARE AT 110°F SUMMER

4 FURNISH A/C-1 WITH ACCESSORY CONDENSATE PUMP SYSTEM CARRIER MODEL 53DS-900-118. UNIT IS POWERED FROM INDOOR UNIT. WIRE TO SHUT DOWN UNIT IF HIGH WATER ALARM IS ACTIVATED. MOUNT ON WALL ADJACENT TO UNIT.

Т	I	Ν	G	

AUGUST RENO

PO BOX 2302 Carefree, AZ 85377

37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325

WEB SITE

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IECC 2 CLIMAT	2012 CHAPTER 4 TE ZONE 2B	FORMATION	ENERGY	COMPLI	ANCE	
ENERG	Y LOAD CALCULA	TIONS HAVE BEEN PREPARE	D USING THE CARRIER HAP	SOFTWARE BASED	ON ASHRAE FUNDAMENTA	ALS
HP-1	COOLING LOAD HEATING LOAD	ESTIMATED ZONE LOAD 34,300 BTUH TOTAL 30,500 BTUH SENSIBLE 11,300 BTUH @ 32°F	EQUIPMENT CAPACITY 35,720 BTUH TOTAL 31,490 BTUH SENSIBLE 31,980 BTUH @ 32°F	<65,000 BTUH	13 SEER REQUIRED	15.60 SEER PROVIDED
HP-2	COOLING LOAD HEATING LOAD	ESTIMATED ZONE LOAD 16,800 BTUH TOTAL 16,800 BTUH SENSIBLE 8,300 BTUH	EQUIPMENT CAPACITY 21,790 BTUH TOTAL 21,790 BTUH SENSIBLE 14,950 BTUH @ 32°F	<65,000 BTUH	13 SEER REQUIRED	14.5 SEER PROVIDED
HP-3	COOLING LOAD HEATING LOAD	ESTIMATED ZONE LOAD 43,800 BTUH TOTAL 43,800 BTUH SENSIBLE 22,100 BTUH @ 32°F	EQUIPMENT CAPACITY 46,390 BTUH TOTAL 46,390 BTUH SENSIBLE 31,980 BTUH @ 32°F	<65,000 BTUH	13 SEER REQUIRED	15.6 SEER PROVIDED
HP-4	COOLING LOAD	ESTIMATED ZONE LOAD 59,100 BTUH TOTAL 52,500 BTUH SENSIBLE 13,000 BTUH	EQUIPMENT CAPACITY 58,740 BTUH TOTAL 51,890 BTUH SENSIBLE 46,250 BTUH @ 32°F	<65,000 BTUH	11.2 EER REQUIRED	12.0 EER PROVIDED
HP-5	COOLING LOAD HEATING LOAD	ESTIMATED ZONE LOAD 50,800 BTUH TOTAL 50,800 BTUH SENSIBLE 25,700 BTUH @ 32°F	EQUIPMENT CAPACITY 60,080 BTUH TOTAL 60,080 BTUH SENSIBLE 40,380 BTUH @ 32°F	<65,000 BTUH	13 SEER REQUIRED	15.0 SEER PROVIDED
HP-6	COOLING LOAD HEATING LOAD	ESTIMATED ZONE LOAD 45,200 BTUH TOTAL 45,200 BTUH SENSIBLE 22,000 BTUH	EQUIPMENT CAPACITY 46,140 BTUH TOTAL 46,140 BTUH SENSIBLE 31,950 BTUH @ 32°F	<65,000 BTUH	13 SEER REQUIRED	15.8 SEER PROVIDED
$\begin{bmatrix} HP - 7 \\ U \\$	COOLING LOAD	ESTIMATED ZONE LOAD 48,500 BTUH TOTAL 19,000 BTUH SENSIBLE 19,800 BTUH @ 32°F	EQUIPMENT CAPACITY 52,030 BTUH TOTAL 51,430 BTUH SENSIBLE 39,440 BTUH @ 32°F	<65,000 BTUH	13 SEER REQUIRED	15.0 SEER PROVIDED
HP-8	COOLING LOAD	ESTIMATED ZONE LOAD 12,300 BTUH TOTAL 12,300 BTUH SENSIBLE 1,900 BTUH	EQUIPMENT CAPACITY 17,870 BTUH TOTAL 16,860 BTUH SENSIBLE 15,070 BTUH @ 32°F	<65,000 BTUH	13 SEER REQUIRED	14.5 SEER PROVIDED
SSHP-	1 COOLING LOAD HEATING LOAD	ESTIMATED ZONE LOAD 40,100 BTUH TOTAL 40,100 BTUH SENSIBLE 21,900 BTUH @ 32°F	EQUIPMENT CAPACITY 44,940 BTUH TOTAL 44,940 BTUH SENSIBLE 33,490 BTUH @ 32°F	<65,000 BTUH	13 SEER REQUIRED	15.5 SEER PROVIDED
SSHP-	2 COOLING LOAD HEATING LOAD	ESTIMATED ZONE LOAD 34,400 BTUH TOTAL 34,400 BTUH SENSIBLE 17,300 BTUH	EQUIPMENT CAPACITY 35,270 BTUH TOTAL 35,270 BTUH SENSIBLE 25,120 BTUH @ 32°F	<65,000 BTUH	13 SEER REQUIRED	16.0 SEER PROVIDED
SSHP-	3 COOLING LOAD HEATING LOAD	ESTIMATED ZONE LOAD 15,200 BTUH TOTAL 12,400 BTUH SENSIBLE 2,400 BTUH @ 32°F	EQUIPMENT CAPACITY 15,270 BTUH TOTAL 13,190 BTUH SENSIBLE 12,460 BTUH @ 32°F	<65,000 BTUH	13 SEER REQUIRED	15.0 SEER PROVIDED
SSHP-	4 COOLING LOAD HEATING LOAD	ESTIMATED ZONE LOAD 48,600 BTUH TOTAL 48,600 BTUH SENSIBLE 25,000 BTUH	EQUIPMENT CAPACITY 56,910 BTUH TOTAL 56,910 BTUH SENSIBLE 41,620 BTUH @ 32*F	<65,000 BTUH	13 SEER REQUIRED	14.5 SEER PROVIDED
SSHP-	5 COOLING LOAD HEATING LOAD	ESTIMATED ZONE LOAD 41,800 BTUH TOTAL 41,800 BTUH SENSIBLE 22,000 BTUH @ 32°F	EQUIPMENT CAPACITY 44,940 BTUH TOTAL 44,940 BTUH SENSIBLE 33,490 BTUH @ 32°F	<65,000 BTUH	13 SEER REQUIRED	15.5 SEER PROVIDED
SSHP-	6 COOLING LOAD HEATING LOAD	ESTIMATED ZONE LOAD 34,100 BTUH TOTAL 34,100 BTUH SENSIBLE 18,000 BTUH	EQUIPMENT CAPACITY 36,330 BTUH TOTAL 36,330 BTUH SENSIBLE 25,120 BTUH @ 32°F	<65,000 BTUH	13 SEER REQUIRED	16.0 SEER PROVIDED
SSHP-	7 COOLING LOAD HEATING LOAD	ESTIMATED ZONE LOAD 35,900 BTUH TOTAL 35,900 BTUH SENSIBLE 8,900 BTUH @ 32°F	EQUIPMENT CAPACITY 36,330 BTUH TOTAL 36,330 BTUH SENSIBLE 25,120 BTUH @ 32°F	3, <65,000 BTUH	13 SEER REQUIRED	15.5 SEER PROVIDED
C403.2.4.3	3 UNIT FURNISH	FD WITH A SOLID STATE, 7-	-DAY PROGRAMMABLE, SETB.	ACK THERMOSTAT		
C403.2.4.4	4 MOTORIZED O	JTSIDE AIR WITH MOTORIZED	AND OR BAROMETRIC EXHA	UST FURNISHED (B	UILDING LESS THAN 3 S	TORIES)
C403.2.7.1	I.1 CONTRACTOR PER 2012 IMC	TO SEAL ALL LONGITUDINAL C AS PER SPECIFICATIONS	AND TRANSVERSE SEAMS IN	N DUCTWORK AND	INSULATE SUPPLY AND F	RETURN DUCTWORK.
	TE ZONE 2B		HVAC SYS	STEM CO	SOFTWARE BASED ON A	
THE C THE M	ALCULATIONS AND ANUFACTURE MAD	SELECTIONS COMPLY WITH E EQUIPMENT SELECTIONS (THE SMALLEST UNIT SELECT BASED ON CALCULATED OUT	ED TO MEET THE ()OOR DRY-BULB, II	CALCULATED COOLING LO. NDOOR DRY-BULB, AND	ADS INDOOR WET-BULB CONDITIONS.
SPLI AC-1	I SYSTEM DU	CTLESS. ALL ROOMS CALCULATED S ZONE LOAD E	HAVE THE SAME COC SELECTED EQUIPMENT CAPACITY	DLING LOAD		
	HEATING LOAD	13,400 BTUH TOTAL 12,500 BTUH SENSIBLE N/A	15,021 BTUH @ 110°F TOTAL 15,021 BTUH @ 110°F SENSIB N/A	LE]		
C403.2 C403.3 C403.5	2.2 VENTILATION (3.2 EQUIPMENT EF 5 ECONOMIZERS:	MANDATORY): UNOCCUPIED FICIENCY: TABLE 403.3 UNITS EXCEE	ROOMS DO NOT REQUIRE VI 3.2(1) 13.0 SEER REQUIRED 2 ED THE EFFICIENCY BY MORE	ENTILATION 20 PROVIDED, THAN 10% SO ECC	DNOMIZERS ARE NOT REG	QUIRED
	~ /					

				П	UTSIDE AIR					FX	TAUST			
	AREA	DCCUPANT DENSITY #/1000_SQFT	DCCUPANT	CFM /		PEDPLE BASED DSA	BREATHING ZONE BASED OSA	SUBTOTAL OSA		FIXTURE		MINIMUM SUBTDTAL EXHAUST		
ĒA	SQ.FT.	#71000 Sⅈ 1i	QTY	PERSON	CFM/SQFT	CFM	CFM	CFM	CFM/SQFT	COUNT	CFM/FIXTURE	CFM		
<u>-1</u>	70									1	50	50		
FICE 01	153	5	0.8	5	0.06	4	9	13			50	50		
NFERENCE 01	547	50	27	5	0.06	135	33	168						
ILET 11	265							101				350	70 CFM FROM UNIT, 280 CFM FROM F	
-2		- 1	1			· · · · ·		181	E _Z =0,8; LURREL		226 UFM BALA	NCE HP-I IU		
ASSROOM 05	330	25	8.2	10	0.12	82	40	122					AGES 5-8	
-3								122	L _Z =0.8; CURREC	IFD =	153 CEM BALAI	NCE HP-2 IU	155 CFM <u>1</u>	
ASSROOM 06	824	25	20.6	10	0.12	206	99	305					AGES 5-8	
JSET 04	47	-	-	-	0.06	1.6	8.3	5.4		1	50	50	}	
	61							310	F-=0.8: CORREC	 TFD = 3		 NCE_HP-3_TD	390 CEM	
	204	50	147	5	0.04	725	17.6	01			1			
RRIDDR MAIN CORE	920		-	-	0.06	/3,5	55	55						
ECTRICAL ROOM 02 (CLI	DSET> 30	_	_	-	0.06	_	1.8	2						
FICE 01	153	5	0,8	5	0.06	4	9	13						
FICE 02	77	5	0.4	5	0.12	2	4.6	7						
FICE 03	68	5	0,3	5	0.06	1.5	4	5						
 FICE 05	93	5	0.5	5	0.06	2.5	5.6	8						
CEPTION 2ND FLOOR	332	30	10	5	0.06	50	19.9	70						
JSET 06	14	-	-	-	0.06	-	0.8	1						
JSET 07	217		- 1	- 5	0.06	- 5	0,8	1						
KKRUUM UZ (UFFICE)			1				15	276	L	<u> </u> TED = 3	_ 345 CFM BALAN	L NCE HP-4 TO		
-5			1			T		1	-		1			
ILET 06	61	25	27	10	0.12	270	129.7	400		1	50	50		
	1001		L /	10				400	 E7=0.8; CORREC	<u> </u> TED =	_ 500 CFM BALA	 NCE HP-5 TO	1 500 CFM 1	
	47				0.07		29	28						
ILET 09	61		_	_	0.06		2,0	2.0		1	50	50		
ILET 08	61									1	50	50	~~~ _Y	
ASSROOM 8	846	35	29.6	10	0.12	296	101.5	397.5					AGES 9+	
-7								400	E _z =0.8; CORREC	TED = 3	500 CFM BALAN	NCE HP-6 TO	500 CFM	
ASSROOM 9	697	35	24.3	10	0.12	243	83.6	326.6					AGES 9+	
RRIDOR 2ND FLOOR COR	E 920	-	-	-	0.06	-	55.2	55.2						~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
ILET 12 (MEN'S)	205							202					115 CFM FROM UNIT, 185 CFM FROM F	لم <u>UYER</u>
-8	1					1 1		382	E _Z =U,8; LURREL	IED = 4				
VATOR CAR	24								1			24		
HP-1										BAI	LANCE AND HP	-8 IU 24 CF	M2	
LET 01	61	05		- 10	0.10		07.7	000		1	50	50		
ASSRUUM UI	814	25	20	10	0,12	203	97.7	300		 דרה – 17		 F TO 375 CF	AGES 5-8	
1 P-2		1		1										
SERY DIR, DFFICE	<u> </u>	5	0.4	5 10	0.06	167	4.9	7						
RSERY FRONT OFFICE	345	5	1.7	5	0.06	8.6	20.7	29.3					AGES U-4	
								323	E _z =0.8; CORREC ⁻	TED = 4	I 104 CFM BALAN	I ICE SSHP-2 1	TO 405 CFM	
<u>IP-3</u>	- 701	1			0.04	1	475	475						
(LET 05	47		_	-	0,06	_	47.5	47,5		1	50	50		
RKROOM 01 (OFFICE)	124	5	0.8	5	0.06	3	7	10						
ECTRICAL 01 (CLOSET)	30	_	-	-	0.06	-	1.8	1.8						
	1001			10	n 10	070	120 7	59.3	E _z =0.8; CORREC ⁻	TED =	74 CFM BALA	NCE SSHP-3	TO 75 CFM ~~~~	—
<u>ארחר אר</u> שאר 101	47	<u>ح</u> ی –	<u>ح</u> ر –	- U	0.06	<u> </u>	2.8	2.8					AULS J-8	—
LET 02	61									1	50	50		
	·					·		402.8	E _z =0.8; CORREC ⁻	TED =	503 CFM BALAN	NCE SSHP-4	TE 503 CFM	
	846	35	29,6	10	0.12	296	101.5	397				LEI, 415 UFM 	AGES 9+	
JSET 02	47		_	_	0.06	_	2.8	2.8						
.LET 03	61									1	50	50	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	
LET 04	61							400						
-1P-6								400	E _Z =0,8; LURREL	IED =	100 CFM BALA	NUE SSHP-5 JILET, 415 CF	$\frac{10}{10} \frac{515}{10} \frac{11}{10}$	
ASSROOM 4	684	35	23.9	10	0.12	239	82	321					AGES 9+	
	IH 260	_	_	-	0,06	_	12'9	15,6						
HP−7								337	EZ-U,O; CURREC			ICE SSII O I		
CHEN	366								0.7	-	-	256		
										В	ALANCE SSHP-	7 TO 260 CF	M	
⊧LUW SUMMARY T/DE∨ICE □SA	EXHAUST													
-1 230 CFM	400 CFM :	170 CFM TRANSF	ER AIR IN TI	J MAKE UP	EXHAUST DI	EFICIT OPER	ATION NOTES:							
-2 195 CFM		FROM HP-2				1 []	ITSIDE AIR DAM	IPERS ARE T		ה אחדהב	, 17FD AND CLD	SED WHEN UN	NITS ARE ARE NOT IN OPERATION	
-3 490 CFM	50 CFM					1. UC 2. UI	NIT'S FANS ARE	TO RUN CE	INTINUEUSLY DU	JRING DC	CUPIED PERID	DS TO FURNIS	SH THE REQUIRED DUTSIDE AIR.	
-5 635 CF,	50 CFM													
-7 480 CFM	300 CFM													
o 50 CFM IP-1 480 CFM	SU CEM 50 CEM													
IP-2 405 CFM IP-3 75 CFM	50 CFM													
IP-4 640 CFM IP-5 500 CFM	50 CFM 4 100 CFM	415 IRANSFER T 415 TRANSFER T	U THE KITCH	EN FOR HO IEN FOR H	MAKE-UP מום DDD MAKE-UF									
IP-6 425 CFM IP-7 260 CFM	260 CFM H	KITCHEN HOOD E	XHAUST WILL	. BE MADE	UP BY A		ULATIONS BASE	ID ON 2012 I	IMC					Saguara Fr
		MAKE-UP AIR UN SSHP-4 AND SSH	IIT MAU-1, AN HP-5,	ID TRANSFI	ER AIR FROM		- ISH AIR BALAN	CE REPORT	TO THE MECHAN	NICAL IN				Consulting
					\sim		PANCY	אטואד געיר	U NECEIFI UF	INE UEM	VIII ICHIE UP			12020 N. 35TH AVE Phoenix, AZ PH: (602) 870-2018P

37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325

WEB SITE www.augustreno.com EMAIL ADDRESS augie@augustreno.com

CONTROL INFORMATION								
MARK	ELECTRICAL CON	ITROL PACKAGE	USER INTERFACE					
MARN	MODEL	LOCATION	TYPE	LOCATION				
CONTROLS	XFCC	SHIP LOOSE	SWITCHES	SHIP LOOSE				

	_
URE (NEMA-1) - DIMENSIONS 12 X 20 X 6	
ACCUREX	
engineered restaurant systems	
ocation: Ship Loose SHUNT TRIP BREAKER IN BUILDING PANEL (PROVIDED BY OTHERS)	
1	
WIRE TO ALL HOOD LIGHTS TO OPERATE WITH LIGHT	
CIRCUIT 1 (1400W MAX)	
MARK: EF-5	
1.011	
MARK: MUA-1	
1.5 HP	
MARK: SSHP-4 CONTACT TO ACTIVATE 'G' CIRCUIT TO ENABLE	
SUPPLY FAN AND OPEN OUTSIDE AIR DAMPER	
MARK: SSHP-5 CONTACT TO ACTIVATE 'G' CIRCUIT TO ENABLE SUBBLY EAN AND OPEN	
OUTSIDE AIR DAMPER MARK: SSHP-7	
CONTACT TO ACTIVATE 'G' CIRCUIT TO ENABLE SUPPLY FAN AND OPEN	
SPARE, DRY CONTACTS ON/OFF WITH FIRE	
SDADE DDY CONTACTS	
ON/OFF WITH FIRE	
* DRY CONTACTS ARE RATED UP TO 250VAC	
AND 8 AMPS	
ON 24VAC MUA UNIT	
WHEN THE WIRING IS CONNECTED	
FACTORY WIRING	
s): Power wiring is the responsibility of the electrician. Control wiring he responsibility of controls contractor. If there is no controls	
htractor, both power and control wiring is the responsibility of the ctrician. All ground wiring not shown on above diagram for clarity.	
erations Manual that was shipped with panel, or contact CUREX's Kitchen Ventilation team at 1-800-371-6858	

Construction Drawings:

Saguaro Engineers, Inc Consulting Engineers

12020 N. 35TH AVENUE, SUITE 111A Phoenix, AZ 85029 PH: (602) 870-2018Proj. No: 17128.0

Те	emper	ed Ma	ake	e-Up	Air l	EQUIF Jnit			5Cr	IEDUL					Маг	·k· I	MI I Δ_1
Qty	Асси	ırex Mode	.		olume	Extern	nal SP	,	Tota	I SP	FR	PM	Oper	ating	Power		Weight
1	XMS	X-109-H1	2	2,40	08 CFM	0.37	in. wg		0.55 i	n. wg	11	44	1.03		ιp		1,301 lb
				<u> </u> N	lotor In	formation											
	Size	V/C/	'P	Er	nclosure	Motor	Motor RPM Windings			ngs	MCA			MOP			
1	1 1/2 hp 208/60/				ODP	DP Shaft Grounding		172	1725 1				27.2			40)
						·		Cooli	ng						•		
	Cooling Type Coil Mo			Coil Moo	del	Rows Deep	Fins In	Per ch	Face Velocity	E	Fotal nergy	Sensible Energy	Le: Dry	aving / Bulb	Lea	ving Wet Bulb	
	Package	ed DX		DX38	S01S10)-30x30	0x30 1		10 385 ft/m		n 44.	.4 MBH 44.4 MBI		93	3.3 F	7	'1.5 F
C	Coil SP	Refrige	rant	Suction Temp		Liquid Temp	Supe	Super Heat		Code 18/19		8/19	9 Si		ion Conr y / Size	n Lia G	quid Conn (ty / Size
	NA	R-41	Da	47.	0 F	110 F	8	8 F		0					NA		NA
				Outlet	Sound	Power By C)ctave	Band									
62	2.5	125		250	500) 100	0	200	C	4000		8000			aBA		Sones
ç	97	94.5		83	74.8	3 72.	9	70.2	2	69		64.2	82.6		71.6		20.6
●Lw ●dB ●No	 LwA - A weighted sound power level based on ANSI S1.4 dBA - A weighted sound pressure level base on 11.f dB attenuation per octabe band at 5.0 ft. Noise Criteria (NC) based on an average attenuation of 11.5 dB per octabe band at 5.0 ft. 																

ELEVATION VIEW

NOTE: Roof Opening Requirements:

Minimum Roof Opening: The minimum roof opening size is the illustrated duct diameter plus 0.25 in. on all sides. For example: If the duct size is 14 x 14 in. square, the minimum roof opening size is 14.5 x 14.5 in. square.

Maximum Roof Opening: There must be a minimum perimeter of 1.75 in. between the roof opening and the roof curb. For example: If the roof curb is 75 x 30 in. square, the maximum roof opening is 71.5 x 26.5 in. inches square.

NOTE: The weatherhood and filter sections of the make-up air unit are not supported by the curb. This is by design, in order to help alleviate water infiltration issues.

1											
	FA	N INFORMATION	MOTOR INFORMATION								
MODEL	VOLUME (CFM)	TOTAL EXTERNAL SP (IN WG)	FAN RPM	OPERATING POWER (HP)	WEIGHT (LB.)	SIZE (HP)	V/C/P	ENCLOSURE	MOTOR RPM	WINDINGS	NEC FLA
RUB-180HP-15	3,010	1	1,328	1.03	169	1.5	208/60/3	OP	1725	1	6.6

*NEC FLA - Based on tables 150 or 148 of National Electrical Code 2002. Actual motor FLA may vary, for sizing thermal overload, consult factory.

FA	N INFORMATION				MOTOR INFORMATION						
VOLUME (CFM)	TOTAL EXTERNAL SP (IN WG)	FAN RPM	OPERATING POWER (HP)	WEIGHT (LB.)	SIZE (HP)	V/C/P	ENCLOSURE	MOTOR RPM	WINDINGS	NEC FLA*	
488	0.284	1,650	0.06	40	0.1	115/60/1	OP	1725	1	NA	
 •											

ISSUED FOR:

Saguaro Engineers, Inc Consulting Engineers 12020 N. 35TH AVENUE, SUITE 1114 Phoenix, AZ 85029 PH: (602) 870-2018Proj. No: 17128.0

	MODEL	LOCATION	FLOW I HOODS	POINTS PCU	SUPPLY LINE	DETECTION
FIRE SUPPRESSION	AMEREX KP	REMOTE MOUNTED	11 UTILIZED		CONTINUOUS	FUSIBLE LINK
	WEIGHEIMONE					
E SYSTEM OPTIONS AND ACCE						
HROME SLEEVES FOR FACTOR	PRE-PIPED HOOD(S) RY PROVIDED APPLIA	NCES DROPS - INCLUDED	COORDINATED IN	STALL)		
ETAL BLOW-OFF CAPS - INCLU						
GAS VALVE - INCLUDED - MECHA	ANICAL SHUTOFF VA NCLUDED - 3.75 GAL.	LVE, 2.00" (AMEREX) - PART# AME - [(1) 3.75 TANK(S)]	REXMECTION	FVALVE200		
REMOTE PULL STATION - STAND	OARD - INSTALLATION	AT SINGLE POINT OF EGRESS				
CONDENSATE						
DRAIN 1/2 in. NPT						
	1					
MARK: KH-2 - SEC PLAN VIEW	TION 1					
MARK: KH-2 - SEC PLAN VIEW	TION 1					
MARK: KH-2 - SEC PLAN VIEW	TION 1					
MARK: KH-2 - SEC PLAN VIEW	TION 1		НО		TION	
MARK: KH-2 - SEC PLAN VIEW	TION 1		НО	<u>OD INFORMAT</u>	- <u>ION</u>	MC
MARK: KH-2 - SEC PLAN VIEW	TION 1		HO HC N	OD INFORMAT OD O.	- <u>ION</u> MARK	MC
MARK: KH-2 - SEC PLAN VIEW	TION 1		HO HC N	<u>OD INFORMAT</u> OD O.	TION MARK KH-2	MC
MARK: KH-2 - SEC PLAN VIEW	TION 1			OD INFORMAT OD O. 1 DD INFORMAT	TION MARK KH-2	MC XD1
MARK: KH-2 - SEC PLAN VIEW	TION 1			OD INFORMAT OD O. 1 <u>OD INFORMAT</u>	TION MARK KH-2 TION MARK	MC XD1
MARK: KH-2 - SEC PLAN VIEW	TION 1			OD INFORMAT OD O. 1 <u>DD INFORMAT</u>	TION MARK KH-2 TION MARK	MC XD1
MARK: KH-2 - SEC PLAN VIEW	TION 1			OD INFORMAT OD O. 1 D INFORMAT	TION MARK KH-2 TION MARK KH-2	MC XD1
MARK: KH-2 - SEC PLAN VIEW	TION 1			DD INFORMAT OD O. 1 DD INFORMAT	TION MARK KH-2 TION MARK KH-2	
MARK: KH-2 - SEC PLAN VIEW	TION 1			OD INFORMAT OD O. 1 <u>OD INFORMAT</u> <u>OD INFORMAT</u> 1 <u>OD OPTIONS</u> ACTORY MOU	TION MARK KH-2 TION MARK KH-2 JNTED EXHAUST 84.00 IN HIGH 39.0	
MARK: KH-2 - SEC PLAN VIEW	TION 1			DD INFORMAT OD O. 1 DD INFORMAT DD INFORMAT DD OPTIONS ACTORY MOU ACKSPLASH 8	TION MARK KH-2 TION MARK KH-2 JNTED EXHAUST 84.00 IN HIGH 39.0	MC XD1
MARK: KH-2 - SEC PLAN VIEW	TION 1			OD INFORMAT OD O. 1 <u>OD INFORMAT</u> 1 <u>OD OPTIONS</u> ACTORY MOU ACKSPLASH 8	TION MARK KH-2 TION MARK KH-2 JNTED EXHAUST 84.00 IN HIGH 39.0	MC XD1 COLLAR(S) D0 IN LONG
MARK: KH-2 - SEC PLAN VIEW	TION 1			DD INFORMAT OD 0. 1 DD INFORMAT 1 DD OPTIONS ACTORY MOU ACKSPLASH 8	TION MARK KH-2 TION MARK KH-2 JNTED EXHAUST 84.00 IN HIGH 39.0	MC XD1
MARK: KH-2 - SEC PLAN VIEW	TION 1	Substantial Science of		OD INFORMAT OD O. 1 D INFORMAT 1 DD INFORMAT ACTORY MOU SACKSPLASH 8	TION MARK KH-2 TION MARK KH-2 JNTED EXHAUST 84.00 IN HIGH 39.0	MC XD1
MARK: KH-2 - SEC PLAN VIEW	TION 1	S3.50" L X 34.30" W X 81" H Fuel Type: 0 Distwaster		D INFORMAT OD O. 1 D INFORMAT 1 D OPTIONS ACTORY MOU ACTORY MOU	TION MARK KH-2 TION MARK KH-2 JNTED EXHAUST 84.00 IN HIGH 39.0	MC XD1
MARK: KH-2 - SEC PLAN VIEW		MADK: KH 2		DD INFORMAT OD 0. 1 DD INFORMAT 1 DD INFORMAT ACTORY MOL ACKSPLASH 8	TION MARK KH-2 TION MARK KH-2 JNTED EXHAUST 84.00 IN HIGH 39.0	MC XD1

CTION	MARK(S) PROTECTED BY FIRE SYSTEM
E LINK	KH-1 SECTION 1

COMPLIANCE WITH UL 300 REQUIREMENTS. REQUIRED FOR ALL FIRE PROTECTION SYSTEMS. UNLESS A WALL IS LOCATED ON THE RIGHT END. -AMEREX MRM/PRM TO BE LOCATED WITHIN 60" OF HOOD.

PERFORMED BY A LICENSED ELECTRICIAN.

GREATER THAN 20 FT (6.1M.)

DETAIL.

MODEL	LENGTH	WIDTH	HEIGHT	CONSTR.	DUTY	TOTAL		C	OLLAR(S)		MUA	AC	WEIGHT					
			HEIGHT				MUDTH												
				RATING			LENGTH	DIA.	CFM	S.P.	CFM	CFM	LBS.						
	20.00	20	20	20	20	30	20	120 55 100%	0	100	11	12		488	0.034			00	
VD1-28-2	39.00	39	30	430 33 100%	0	400								90	SINGLE				

LIGHTING DETAILS			BAFFLE FILTRATION DETAILS				UTILITY CABINET(S)					
								FIRE SYSTEM		CONTROLS		
	QII					Н	LUCATION	TYPE	SIZE	MODEL	INTERFACE	
						[

RIGHT FULL END SKIRT - 45 IN HIGH 45.50 IN TOP WIDTH 39.5 IN BOTTOM WIDTH

GREASE GRABBER FILTER RACK(HOOD IS UPGRADABLE FOR HIGHER GREASE APPLICATIONS)

BACKSPLASH 80.00 IN HIGH 180.00 IN LONG

PERFORMANCE ENHANCING LIP (PEL) TECHNOLOGY STANDING SEAM CONSTRUCTION FOR SUPERIOR STRENGTH

MECHANICAL RELEASE MODULE AMEREX

ELEVATION VIEW

SECTION VIEW

				SU	PPLY		TO	TAL	~	
			М	JA	A	NC	WEI	GHT	S LC	
FM	S	.P.	CFM		C	CFM		SS.		
505	0.5	503	24	08			54	75	c	
505	0.503		2408				54	1.5	, ,	SINGLE
UTILITY CABINET(S)										
RE S	YSTI	EM				С	ONT	ROLS	3	
YPE			SIZE MODE			EL		INTE	RF	ACE
COLLARS										
DUNTING QTY			W	L	DIA.	CF	CFM S.			VEL.

Saguaro Engineers, Inc Consulting Engineers 12020 N. 35TH AVENUE, SUITE 111A Phoenix, AZ 85029 PH: (602) 870-2018Proj. No: 17128.0

PROVISIONS OF THIS SECTION APPLY TO ALL WORK ON THE 5. FURNISH ALL APPLIANCES, EQUIPMENT AND LABOR FOR THE MECHANICAL AND PLUMBING DRAWINGS. IN ADDITION, WORK ON THESE TESTS AND MEET ALL EXPENSES OF THE TESTS. DRAWINGS IS GOVERNED BY THE SPECIFICATIONS WHICH MAY BE SHOWN ON THE ARCHITECTURAL DRAWINGS.

EXAMINATION OF PREMISES: VISIT THE SITE, VERIFY ALL MEASUREMENTS AND JOB CONDITIONS, AND PAY ALL COSTS NECESSARY COMPLETE TEST TO DEMONSTRATE THAT THE AIR QUANTITIES ARE TO PERFORM THE WORK.

REGULATIONS: ALL WORK SHALL COMPLY WITH ALL APPLICABLE CODES, RULES AND REGULATIONS. ALL MATERIALS AND WORK MUST COMPLY WITH LOCAL CONSTRUCTION, MECHANICAL, PLUMBING, ELECTRICAL AND FIRE CODES. AS A MINIMUM, COMPLY WITH THE FOLLOWING: 2012 INTERNATIONAL MECHANICAL CODE, 2012 IMC, 2012 INTERNATIONAL ENERGY CONSERVATION CODE, 2012 IECC AND ALL CITY OF PHOENIX ADOPTED CODES AND AMENDMENTS. OBTAIN AND PAY END OF SECTION FOR ALL REQUIRED PERMITS AND LICENSES.

INSPECTIONS; PRIOR TO FINAL APPROVAL, FURNISH THE OWNER WITH SECTION 23 05 03 CERTIFICATES OF INSPECTIONS AND APPROVALS BY THE LOCAL AUTHORITIES.

IF A CONFLICT EXISTS BETWEEN THE DRAWINGS AND SPECIFICATIONS, PART 2 - GENERAL PROMPTLY NOTIFY THE ARCHITECT.

THE QUALITY SPECIFIED. THE WORKMANSHIP SHALL BE OF A QUALITY OBSERVED IF FLOWING AND WON'T CAUSE DAMAGE COMPLETE WITH THAT IS ACCEPTABLE TO THE ARCHITECT AND IS EQUAL TO THE STANDARDS OF THE TRADES.

IDENTIFICATION: MARK ALL VALVES, PIPES AND EQUIPMENT. MARKING SHALL CONFORM TO THE 2012 IMC, 2012 IPC, ANSI AND DSHA REQUIREMENTS.

MECHANICAL WIRING: PROVIDE ALL THERMOSTAT CONTROL WIRING, ALL INTERLOCK WIRING, AND EQUIPMENT CONTROL WIRING FOR THE MECHANICAL AND PLUMBING EQUIPMENT THAT IS TO BE PROVIDED UNLESS SPECIFICALLY SHOWN ON ELECTRICAL DRAWINGS. ALL WIRING SHALL TUBING. INSTALLATION SHALL COMPLY WITH THE ELECTRICAL 3. UNIONS: 150 PSI, BRONZE. USE DIELECTRIC UNIONS WHERE SPECIFICATIONS.

EQUIPMENT DESIGN AND INSTALLATION:

OF SAME TYPE OR CLASSIFICATION BY THE SAME MANUFACTURER.

DESIGN: ALL EQUIPMENT SHALL BE DESIGNED AND LISTED IN ACCORDANCE WITH ASME, AGA, UL AND OTHER APPLICABLE TECHNICAL HANGERS AS DESCRIBED IN PIPING SPECIALTIES SECTION. STANDARDS AS FOLLOWS:

ELECTRIC APPLIANCES - UL LABELED FIRE PROTECTION EQUIPMENT - UL APPROVED AND LABELED FANS - AMCA RATED AND STAMPED, U.L.LISTED COOLING EQUIPMENT - ARI CERTIFIED FIRE DAMPERS, SMOKE DAMPERS, COMBINATION FIRE AND SMOKE DAMPERS - UL LISTED

VERIFICATION OF DIMENSIONS: SCALED AND FIGURED DIMENSIONS ARE APPROXIMATE ONLY. CHECK AND VERIFY DIMENSIONS AT SITE, AND BE SECTION 23 07 00 RESPONSIBLE FOR PROPERLY FITTING EQUIPMENT AND MATERIALS TOGETHER AND TO THE STRUCTURE IN SPACES PROVIDED, DUCTWORK SIZES MAY BE VARIED USING A TRANE DUCTULATOR BASED ON AN EQUAL FRICTION LOSS TO THAT LISTED OF CORRESPONDING SIZE ON THE PLAN. ROUND DUCTWORK MAY BE SUBSTITUTED PROVIDE THE FRICTION LOSS IS EQUAL OR LESS THAN THAT OF EQUIVALENT RECTANGULAR DUCTWORK SHOWN ON PLANS. DRAWINGS ARE ESSENTIALLY DIAGRAMMATIC AND MANY OFFSETS, BENDS, SPECIAL FITTINGS AND EXACT LOCATIONS ARE NOT INDICATED.

ACCESSIBILITY: INSTALL VALVES, DAMPERS, TRAPS, CLEANDUTS, CONTROL DEVICES OR OTHER SPECIALTIES REQUIRING READING, ADJUSTMENT, INSPECTION, REPAIRS, REMOVAL OR REPLACEMENT CONVENIENTLY AND ACCESSIBLY THROUGHOUT THE FINISHED BUILDING. WHERE ANY OF THESE DEVICES ARE SHOWN ON THE CONTRACT DRAWINGS TO BE INSTALLED ABOVE ANY INACCESSIBLE CEILING, THE MECHANICAL CONTRACTOR SHALL FURNISH ACCESS DOORS OR PANELS 2. NOT USED AS REQUIRED.

ROOF FLASHINGS: FLASH AND COUNTERFLASH ALL PIPING, CONDUITS AND DUCTWORK PENETRATING ROOFING MEMBRANE WITH FLASHING PER A. SCOPE: INSULATE ALL SUPPLY AND RETURN AIR DUCTS OUTSIDE ROOFING MANUFACTURER'S RECOMMENDATIONS.

SECTION 23 05 02

HVAC TESTING

PART I - GENERAL

I. SCOPE:

A. THIS SECTION DESCRIBES THE LABOR, MATERIALS AND SERVICES 1. AMERICAN SOCIETY FOR TESTING OF MATERIALS (ASTM): REQUIRED FOR THE TESTING OF ALL SYSTEMS, II. TEST PROCEDURES:

A, MAKE TESTS BEFORE THE ROUGH WORK IS COVERED. THE SYSTEM MAY BE TESTED IN PARTS IF APPROVED.

B. WHEN THE TESTS SHOW THE WORK IN ANY WAY DEFECTIVE. REMOVE DEFECTIVE MATERIAL OR EQUIPMENT FROM THE PREMISES AND RETEST,

C. MAKE PIPING TESTS ON ALL PIPING AS REQUIRED BY CODE OR PROVIDE A 150 PSI HYDROSTATIC PRESSURE TEST FOR FOUR HOURS, 3. NATIONAL FIRE PROTECTION ASSOCIATION (NFPA): UNLESS OTHERWISE NOTED.

D. COIL CONDENSATE DRAIN AND OVERFLOW PIPING: FILL TO HIGHEST POINT OF SYSTEM FOR (4) HOURS. III. TESTING DUT:

A. CHECK DUT AND TEST DPERATE ALL EQUIPMENT INSTALLED UNDER 1. ACCEPTABLE PRODUCT: DWENS CORNING[™] QUIETR ROTARY DUCT HEATING, VENTILATING AND AIR CONDITIONING SECTIONS OF THESE LINER. SPECIFICATIONS, INCLUDING A CHECK OF ALL WORK PERFORMED UNDER THE ELECTRICAL AND MECHANICAL DIVISIONS IN CONJUNCTION WITH THE EQUIPMENT INSTALLED UNDER ALL SECTIONS OF THIS DIVISION.

CHECK ELECTRICAL WORK TO SEE THAT THE POWER IS PROPERLY SUPPLIED TO ALL ELECTRICAL MOTORS AND THAT ALL ELECTRIC CONTROLS ARE PROPERLY HOOKED UP IN THE CONTROL CIRCUITS. FURNISH A LIST OF THE VOLTAGE AND CURRENT READINGS TAKEN UNDER LOAD OF ALL MOTORS (EXCEPT FAN COIL UNITS).

2. CHECK ALL WORK AND SEE THAT ALL CONTROLS ARE IN GOOD WORKING ORDER AND PROPERLY ADJUSTED. AFTER THE EQUIPMENT HAS BEEN PROPERLY ADJUSTED, START UP AND RUN ALL EQUIPMENT ENDUGH TO DETERMINE THAT THE CONTROLS AND EQUIPMENT ARE ALL OPERATING PROPERLY AND THAT THE INSTALLATION IS COMPLETE. BALANCING SHALL BE ACCOMPLISHED AS DESCRIBED UNDER AIR SYSTEM BALANCING, SECTION 23 05 94.

3. FILL WATER PIPE LINES, FLUSH AND DRAIN, AND THEN REFILL WITH CLEAR WATER, REPEAT THIS PROCEDURE THREE TIMES, UNDER THE DBSERVATION OF THE ARCHITECT. 4. WHEN THE TEST OR OBSERVATIONS SHOW THAT THE WORK IS IN

ANY WAY DEFECTIVE OR AT A VARIANCE WITH THE SPECIFICATION REQUIREMENTS, IMMEDIATELY MAKE ALL CHANGES NECESSARY TO CORRECT THE WORK AND REMEDY THE DEFECTS TO THE SATISFACTION A. COMPLETELY COVER DUCT DESIGNATED TO RECEIVE DUCT DF THE ARCHITECT. REMD∨E ANY DEFECTI∨E MATERIAL DR EQUIPMENT FROM THE PREMISES. IN THE EVENT THE CONTRACTOR DDES NOT REMEDY ALL DEFECTS AND MAKE ALL CHANGES DEMANDED BY THE ARCHITECT WITHIN A REASONABLE TIME, THE RIGHT IS

RESERVED TO HAVE THE DEFECTS REMEDIED OR CHANGES MADE AND B. COMPLYING WITH REQUIREMENTS OF ASTM C916, ADHERE DUCT

TO CHARGE THE COST OF THE WORK AGAINST THE ACCOUNT OF THE LINER TO THE SHEET METAL WITH 90% COVERAGE OF ADHESIVE. CONTRACTOR.

IV. FINAL TESTS:

BALANCED FOR EVEN TEMPERATURES THROUGHOUT, THAT ALL DESIGNATED BY THE DWNER, TO INSTRUCT THE DWNER'S REPRESENTATIVE IN THE OPERATION AND MAINTENANCE OF THE EQUIPMENT.

CONDENSATE DRAIN PIPING

SCOPE: FURNISH AND INSTALL ALL OVERFLOW DRAIN PIPING UNLESS OTHERWISE SPECIFIED, ALL MATERIALS MUST BE NEW AND OF FROM OVERFLOW DRAIN PANS TO A LOCATION WHERE THEY CAN BE ALL CONNECTIONS, INCLUDED IN THIS SECTION IS ALL OTHER INCIDENTAL DRAIN PIPING AS DESIGNATED. WHERE NEW HEAT PUMPS ARE PROVIDED MAKE CONDENSATE CONNECTIONS.

PART 2 - PRODUCTS

1. PIPING: SCHEDULE TYPE M COPPER, OR AS SPECIFIED OR SHOWN ELSEWHERE,

2, FITTINGS: SAME AS PIPING, CONNECTING DISSIMILAR METALS.

PART 3 - EXECUTION

I. PIPE INSTALLATION: UNIFORMITY: UNLESS OTHERWISE SPECIFIED, PROVIDE ALL EQUIPMENT 1, FURNISH AND INSTALL ALL PIPING AS CLOSE AS POSSIBLE TO LAYOUT INDICATED COMPLETE WITH ALL CONNECTIONS TO DRAIN PANS A. DO NOT CLOSE UP, FURR IN, OR COVER PIPING BEFORE IT HAS AIR SYSTEM BALANCING AND EXTENSION TO FLOOR SINKS OR AS OTHERWISE INDICATED. BEEN TESTED AND INSPECTED AS SPECIFIED. PROVIDE ALL UNIONS AND PLUGGED TEES AS INDICATED AND ALL COVER OR PLUG OPENINGS IN PIPES, DRAINS, FITTINGS AND PART I - GENERAL EQUIPMENT DURING CONSTRUCTION TO KEEP SYSTEM FREE OF FOREIGN 2. PITCH IN DIRECTION OF FLOW AT 1% SLOPE MINIMUM. I. AIR SYSTEMS & AIR DISTRIBUTION TES MATTER.

3. TESTING: TEST BY FILLING TO THE HIGHEST POINT OF EACH SYSTEM AND HOLD FOR FOUR HOURS. REPAIR ALL LEAKS, REPLACE ALL DEFECTIVE PIPING, AND RETEST AS REQUIRED. SEE HVAC TESTING SECTION OF THE SPECIFICATIONS.

END OF SECTION

HVAC INSULATION

THIS SECTION DOES NOT APPLY TO THE EXHAUST DUCTS

GENERAL: FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR THE INSTALLATION OF ALL INSULATION AS G. DO NOT USE STREET ELBOWS, BUSHINGS AND LONGSCREW HEREIN DESCRIBED AND AS INDICATED ON THE DRAWINGS. THE NIPPLES. INSULATION SHALL BE APPLIED BY INSULATION CONTRACTOR IN STRICT ACCORDANCE WITH THE BEST PRACTICES OF THE TRADE, ALL H. DO NOT LOCATE PIPING IN ELECTRICAL EQUIPMENT ROOMS UNLESS AND TESTING UNTIL SYSTEM HAS BEEN COM INSULATION MATERIAL, COVERINGS, ADHESIVES, VAPOR BARRIERS, AND IT SERVES THAT ROOM. DO NOT LOCATE IT DIRECTLY ABOVE TAPES SHALL HAVE A FLAME SPREAD CLASSIFICATION NOT TO EXCEED ELECTRICAL EQUIPMENT IN ANY ROOM. WHERE PIPING IS LOCATED IN CONDITIONING SYSTEMS AND EQUIPMENT IN 25 AND A SMOKE DEVELOPMENT NOT TO EXCEED 50 IN ACCORDANCE AN ELECTRICAL EQUIPMENT ROOM WHICH IT SERVES, PROVIDE A 20 WITH NFPA 90A, ALL RECTANGULAR DUCTWORK SHALL BE INTERNALLY GAUGE GALVANIZED SHEET METAL DRIP PAN WITH DRAIN LINE TO INSULATED, ALL ROUND DUCTWORK SHALL BE EXTERNALLY INSULATED. FLOOR DRAIN

THERMAL DUCT INSULATION DUCTS:

THE CONDITIONED SPACE WITHIN THE BUILDING OR OUTSIDE THE A. UNIFORMLY GRADE ALL HORIZONTAL PIPING TO PROVIDE FOR BUILDING ENVELOPE AS SPECIFIED HEREAFTER, ALL SUPPLY AND SERVICE DRAINAGE AND AIR ESCAPEMENT. PITCH PIPES A MINIMUM DF CONTRACT TO PROCEED WITH THE AIR CONI RETURN AIR DUCTS WITHIN THE CONDITIONED SPACE THAT ARE NOT 1 INCH PER 40 FEET, IN DIRECTION OF FLOW, UNLESS OTHERWISE INSULATED AS REQUIRED FOR THERMAL INSULATION ARE TO BE LINED INDICATED OR SPECIFIED. WITH FIBERGLASS ACOUSTICAL INSULATION.

B. MATERIAL:

A. UNIONS REQUIRED: ON INLET OR OUTLET OF ALL VALVES AND MATERIALS SHALL MEET THE REQUIREMENTS OF ONE OR MORE OF THE EQUIPMENT WITH CONNECTIONS 2" AND SMALLER AND ELSEWHERE AS FOLLOWING SPECIFICATIONS AS APPLICABLE TO THE SPECIFIC INDICATED ON THE CONTRACT DOCUMENTS. PRODUCT OR END USE:

A. ASTM C1071, STANDARD SPECIFICATION FOR THERMAL AND ACOUSTICAL INSULATION (GLASS FIBER, DUCT LINING MATERIAL)

B. ASTM C916, STANDARD SPECIFICATION FOR ADHESIVES FOR DUCT THERMAL INSULATION.

2. UNDERWRITERS LABORATORIES (UL)

A. UL 723, TEST FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS. A. NFPA 90A, STANDARD FOR THE INSTALLATION OF

DUCT INSULATION, ROTARY TYPE: FOR SERVICE AT INTERNAL AIR VELOCITIES NOT TO EXCEED 6,000 FPM (30.5 M/S), PROVIDE THE FOLLOWING:

MINIMUM R-6: INSIDE THE BUILDING INSULATION ENVELOPE IN C. PIPES PASSING THROUGH WALLS LABELED ON THE ARCHITECTURAL REGISTER TO WITHIN 5% OF DESIGN REQUI UNCONDITIONED SPACES. OWENS CORNING TYPE R-6.3: 1-1/2 IN THICK. DRAWINGS AS FIRE-RATED SHALL BE SLEEVED AND SEALED WITH FIREPROOF CAULKING. REFER TO THE CONTRACT DRAWINGS FOR ADDITIONAL INFORMATION AND DETAILS.

MINIMUM R-8: DUTSIDE THE BUILDING INSULATION ENVELOPE. OWNES CORNING TYPE R-8: 2 IN THICK.

ACOUSTICAL: OWENS CORNING DUCT LINER BOARD: FOR SERVICE AT MOVEMENT OF THE PIPES. INTERNAL AIR VELOCITIES NOT TO EXCEED 6,000 FPM, PROVIDE THE FOLLOWING: 1. ACCEPTABLE PRODUCT: OWENS CORNING[™] QUIETR. DUCT E. PROVIDE CHROME-PLATED OR STAINLESS STEEL ESCUTCHEONS AT RESULTANT CFM AFTER ADJUSTMENTS. LINER BOARD, ALL PIPE PENETRATIONS THROUGH WALLS, CEILINGS OR FLOORS OF A. 3.0 PCF DENSITY: 1 IN THICK. ALL FINISHED AREAS.

ALL LINER BOARD: FABRICATE DUCT INSULATION AND LINER BOARD PRODUCTS WITH A BLACK PIGMENTED COATING ON THE AIRSTREAM SIDE, TO RESIST DAMAGE DURING INSTALLATION AND IN SERVICE. FACTORY COAT EDGES WITH THE SAME COATING, TO COMPLY WITH SMACNA HVAC DCS.

APPLICATION: INSULATION SHALL BE APPLIED OVER SURFACES WHICH THREAD PRIOR TO JOINTING. AFTER JOINTING, LEAVE NOT MORE CONDITIONING CONTRACTOR SHALL MAKE AN HAVE BEEN WIPED CLEAN AND DRY THAN 3 FULL THREADS EXPOSED. PULLEYS, BELTS AND DAMPERS OR THE ADD REQUIRED FOR CORRECTED BALANCE AS REC LINER, NEATLY BUTT TRANSVERSE JOINTS WITHOUT B. SOLDER JOINTS: CUT SQUARE AND REMOVE BURRS. THOROUGHLY INTERRUPTIONS OR GAPS, INSTALL THE BLACK PIGMENTED SURFACE OF THE DUCT LINER FACING THE AIRSTREAM.

C. ASTM C1338, TEST METHOD FOR DETERMINING FUNGI RESISTANCE OF INSULATION MATERIALS AND FACINGS. D. ASTM E84, STANDARD TEST METHOD FOR SURFACE BURNING CHARACTERISTICS OF BUILDING MATERIALS.

AIR-CONDITIONING AND VENTILATING SYSTEMS.

C. IN ADDITION TO THE ADHESIVE, SECURE DUCT LINER WITH MECHANICAL FASTENERS, PROVIDE AND INSTALL WELD-SECURED WHICH EXCESS SOLDER. REMOVE THE INTERNAL SHALL COMPRESS THE DUCT LINER SUFFICIENTLY TO HOLD IT FIRMLY VALVES PRIOR TO SOLDERING. CAREFULL IN PLACE, IMPACT DRIVEN AND ADHESIVE BONDED PINS ARE NOT PERMITTED

D. SPACE MECHANICAL FASTENERS IN ACCORDANCE WITH SMACNA HVAC VI. PIPE HANGERS: DCS, MAXIMUM SPACING FOR MECHANICAL FASTENERS SHALL BE AS FOLLOWS:

1.	VELOCITY = 0 TO 2,500 FEET PER MINUTE:
	A. FROM TRANSVERSE END OF LINER: 3 IN
	B. ACROSS WIDTH OF DUCT: 12 IN O.C.
	C, FROM CORNERS OF DUCT: 4 IN
	D, ALONG LENGTH OF DUCT: 18 IN D.C.
2.	VELOCITY = 2,501 TO 5,000 FEET PER MINUTE
	A FROM TRANSVERSE END OF LINER: 3 IN

B. ACROSS WIDTH OF DUCT: 6 IN D.C. C. FROM CORNERS OF DUCT: 4 IN D. ALONG LENGTH OF DUCT: 16 IN O.C. END OF SECTION

SECTION 23 05 92

GENERAL HVAC PIPING REQUIREMENTS

PART II- GENERAL

WORK SPECIFIED HEREIN:

A. THIS SECTION DESCRIBES THE WORKMANSHIP, LABOR, SERVICES AND MISCELLANEOUS EQUIPMENT AND MATERIALS REQUIRED FOR THE INSTALLATION OF ALL PIPING IN DIVISION 15.

PART II- PRODUCTS (NOT USED)

- PART III- EXECUTION

CONCEAL ALL PIPING UNLESS OTHERWISE INDICATED OR SPECIFIED.

INSTALL PIPING TO MAINTAIN HEADROOM, KEEP ACCESS OPENINGS WORK IF HE HAS PRIOR APPROVAL BY THE CLEAR AND DFFSET PIPING AS REQUIRED TO MAINTAIN CLEARANCES. COORDINATE INSTALLATION OF PIPING WITH ALL OTHER TRADES AT THE PROJECT SITE,

E. INSTALL PIPING AT RIGHT ANGLES DR PARALLEL TO ADJACENT WALLS.

F. DO NOT SPRING, BEND OR FORCE PIPE INTO PLACE. USE FITTINGS FOR ALL OFFSETS AND CHANGES OF ALIGNMENT IN PIPING.

WHERE CHANGE IN PIPE SIZE DCCURS, USE APPROPRIATE REDUCING FITTINGS, NO BUSHINGS.

PITCH DF PIPES: II.

III. UNIONS, FLANGES AND DIELECTRIC COUPLINGS:

B. FLANGES REQUIRED: ON INLET OR OUTLET OF ALL EQUIPMENT HAVING CONNECTIONS 2-1/2" AND LARGER. ON INLET OR OUTLET OF D. TESTING PROCEDURE: THE AIR BALANC ALL VALVES AND FITTINGS HAVING FLANGED ENDS OR REQUIRING COMPANION FLANGES. DO NOT USE SLIP-ON FLANGES ON SHORT RADIUS ELLS, TEES, REDUCERS AND FITTINGS THAT DD NDT HAVE SUFFICIENT STRAIGHT LENGTH TO PERMIT PROPER ALIGNMENT AND CONSTRUCTION OF A FLANGE JOINT.

C. DIELECTRIC COUPLINGS: PROVIDE DIELECTRIC COUPLINGS AT ALL 3. MAKE PITOT TUBE TRAVERSE OF MAIN PDINTS WHERE COPPER OR BRASS PIPE OR EQUIPMENT IS JOINED TO DESIGN CFM AT FANS WHEN DEEMED NECES FERROUS PIPE AND EQUIPMENT. THIS REQUIREMENT DOES NOT APPLY 4. TEST AND RECORD SYSTEM STATIC PRE TO BRASS VALVES IN STEEL LINES OR JOINTS BETWEEN COPPER AND DISCHARGE. CAST IRON DRAINAGE LINES.

IV. PIPE SLEEVES AND ESCUTCHEONS:

A. SLEEVE ALL PIPES PASSING THROUGH MASONRY OR CONCRETE FLOORS AND WALLS.

B. PROVIDE PIPING PASSING THROUGH MASONRY, CONCRETE, TILE AND GYPSUM WALL CONSTRUCTION WITH NOT LIGHTER THAN 22 GAUGE 11. ADJUST ALL MAIN SUPPLY AND RETURN GALVANIZED STEEL SLEEVES WITH LOCK SEAM, EXCEPT AS DTHERWISE INDICATED.

WHERE PIPE MOTION DUE TO EXPANSION AND CONTRACTION WILL OCCUR, MAKE SLEEVE OF SUFFICIENT DIAMETER TO PERMIT FREE

V, PIPE JOINTS:

A. SCREWED JOINTS: CUT ACCURATELY TO MEASUREMENTS ESTABLISHED AT THE BUILDING. REAM PIPE AND REMOVE ALL BURRS. 19. CHECK AND RECORD THE AMPERAGE OF CUT THREADS PER ANSI B2.1 WITH CLEAN SHARP DIE TO FULL THICKNESS OF DIE, APPLY PIPE DOPE OR TEFLON TAPE TO MALE

CLEAN DUTSIDE OF MALE END AND INSIDE BRIGHT FINISH. COAT PIPE AND FITTING APPLIED WITH BRUSH. SOLDER JOINT AS MANUFACTURER'S DIRECTIONS FOR SOLDERIN EQUIPMENT.

A. GENERAL: SECURE ALL PIPING IN PL HANGERS, SUPPORTS AND ANCHORS DESIGNE OF THE PIPE, FLUID AND INSULATION. ARE PREVENT TRANSMISSION OF VIBRATION FRO BUILDING STRUCTURE, WITH HANGERS AND ALLOW FOR EXPANSION AND CONTRACTION.

B. PIPE SUPPORT: SUPPORT PIPING AT E AT ENDS OF BRANCHES, AT BASE AND TOP DROPS, AND WHEREVER NECESSARY TO PRE VIBRATION.

C. INSULATION GUARDS: SIZE HANGERS | FIT DUTSIDE THE COVERING, PROTECT INS AT HANGER LOCATIONS WITH SHEET METAL INSULATION UNDER SADDLE.

D. RISER PIPING: SUPPORT AT TOP AND FOR HORIZONTAL PIPING.

VII EXPANSION AND CONTRACTION:

A. INSTALL ALL PIPE WORK AND CONDUI ITS CONTRACTION AND EXPANSION WILL NO PIPES, CONDUIT, THE CONNECTED EQUIPMEN INSTALL OFFSETS, SWING JOINTS, EXPANS AND ANCHORS AS REQUIRED TO PREVENT E PIPE WORK, INSTALL ALL SUPPORTS TO I CONTRACT AND EXPAND FREELY WITHOUT P STRAIN IN THE RESPECTIVE SYSTEMS.

END OF SECTION

SECTION 23 05 93

A. GENERAL: THE CONTRACTOR SHALL IN SERVICES OF AN AABC CERTIFIED INDEPEN TESTING AGENCY. A NEBB CERTIFIED CONT THE TESTING AGENCY SHALL BE DNE WHICH BALANCING AND TESTING DF HEATING, VEN CONDITIONING SYSTEMS, TO BALANCE, ADJUS EQUIPMENT AND AIR DISTRIBUTING DR EXHA HEREIN SPECIFIED, ALL WORK SHALL BE SUPERVISION OF A QUALIFIED HEATING ANI TECHNICIAN EMPLOYED BY THE AGENCY.

B, MATERIALS: ALL INSTRUMENTS USED ACCURATELY CALIBRATED AND MAINTAINED IF REQUESTED, CONDUCT THE TESTS IN TH ARCHITECT AND/OR THE MECHANICAL ENGIN PROJECT AND/OR HIS REPRESENTATIVE. I WORKING ORDER, PUT ALL HEATING, VENT CONTINUE THE OPERATION OF SAME DURING TESTING AND BALANCING, SUBMIT WITHIN THE CONTRACT, 7 COPIES OF SUBMITTAL BALANCING OF THE AIR CONDITIONING, HEA SYSTEMS, THE AIR BALANCE AGENCY SHAL HAVING SUCCESSFULLY COMPLETED AT LEA SIMILAR SIZE AND SCOPE AND SHALL BE A ASSOCIATED AIR BALANCE COUNCIL OR NEB BALANCE CONTRACT TO THE ARCHITECT FO DAYS AFTER THE AIR CONDITIONING CONTRA ALLOW THE AIR BALANCE AGENCY TO SCHE COOPERATION WITH OTHER TRADES INVOLVI COMPLETION DATE.

C. AIR BALANCING: UPON COMPLETION OF SYSTEM, THE AIR BALANCE AGENCY SHALL TEST, COMPILE THE TEST DATA, AND SUBMI COMPLETE TEST DATA TO THE CONTRACTOR □WNER, ARCHITECT AND ENGINEER FOR REV

THE FOLLOWING TESTS, AND BALANCE SYST THE FOLLOWING REQUIREMENTS:

TEST AND ADJUST BLOWER RPM TO DE WITHIN 10% DF DESIGN. TEST AND RECORD MOTOR FULL LOAD

TEST AND ADJUST SYSTEM FOR DESIG TEST AND ADJUST SYSTEM FOR DESIGN 7. TEST AND RECORD ENTERING AIR TEMP AND COOLING).

TEST AND RECORD ENTERING AIR TEMP TEST AND RECORD LEA∨ING AIR TEMPE COOLING). 10. TEST AND RECORD LEAVING AIR TEMP

DESIGN CFM. 12. ADJUST ALL ZONES TO PROPER DESIG

13. TEST AND ADJUST EACH CEILING DIFF 14. EACH GRILLE, DIFFUSER AND REGISTE TO LOCATION AND AREA ON A SET OF PLA 15. IDENTIFY AND LIST SIZE, TYPE AND M GRILLES, REGISTERS AND ALL TESTED EQU MANUFACTURER'S RATINGS ON ALL EQUIPME

CALCULATIONS. 16. READING AND TESTS OF DIFFUSERS, G SHALL INCLUDE REQUIRED VELOCITY, REQU 17, IN COOPERATION WITH THE CONTROL

REPRESENTATIVE, SETTING ADJUSTMENTS E OPERATED DAMPERS TO OPERATE AS SPECIF NDTED, 18. ADJUST ALL DIFFUSERS, GRILLES, AND DRAFTS IN ALL AREAS.

HEATER. 20. AS PART OF THE WORK OF THIS CONTI

OF FEMALE FITTING TO A WITH SOLDER FLUX, SPECIFIED AND REMO∨E PARTS OF SOLDERED Y FOLLOW EQUIPMENT NG ON OR ADJACENT TO HIS	AGENCY, AT NO ADDITIONAL COST TO DWNER. THE CONTRACTOR SHALL FURNISH THE NECESSARY LABOR TO ASSIST THE TESTING AGENCY TO COMPLETE ITS WORK. 21. TEST AND BALANCE AGENCY SHALL INCLUDE AN EXTENDED WARRANTY (IN ADDITION TO THE DNE YEAR GUARANTEE PERIOD) OF 90 DAYS AFTER COMPLETION OR RESETTING OF ANY DUTLET, SUPPLY AIR FAN OR EXHAUST FANS AS LISTED IN TEST REPORT. THE AGENCY SHALL PROVIDE TECHNICIANS TO ASSIST THE ENGINEER IN MAKING	ISSUED FOR: BUILDING PERMIT BIDDING
ACE USING APPROVED ED TO SUPPORT THE WEIGHT RANGE HANGERS TO OM THE PIPING TO THE SUPPORTS DESIGNED TO	PART II - EXECUTION II. PERFORM ALL OF THE AIR WATER SYSTEM BALANCING SPECIFIED IN THIS SECTION AS PART OF THE CONTRACT TO BE PAID FOR BY THE MECHANICAL CONTRACTOR. END OF SECTION	REVISION:
EACH CHANGE DF DIRECTION, DF RISER PIPES AND EVENT SAGS, BENDING DR	SECTION 23 07 93	06-10-2019 CITY REVIEW COMMENT PROJECT NO: 16135.0
ON INSULATED PIPING TO SULATION FROM CRUSHING PIPE SADDLES, USE RIGID	PART I - GENERAL	DRAWN BY: SVF CHECKED BY: SVF
BOTTOMS AS SPECIFIED	A. PROVIDE AND INSTALL PIPING SPECIALTIES AS SPECIFIED HEREIN AND AS SHOWN ON THE DRAWINGS PART II PRODUCTS	ISSUE DATE: 12/15/2019 COPYRIGHT©SEI 201
T IN SUCH A MANNER THAT IT DD ANY DAMAGE TD THE IT DR THE BUILDING. IDN JDINTS, PIPE CLAMPS EXCESSIVE STRAINS IN THE PERMIT THE SYSTEMS TD PUTTING ANY STRESS DR	 I. PIPE HANGERS: A. PIPING 2-1/2" AND SMALLER: USE ADJUSTABLE, SPLIT RING MALLEABLE IRON TYPE (GRINNELL FIG. 104 OR APPROVED) OR ADJUSTABLE STEEL CLEVIS TYPE (GRINNELL FIG. 260 OR APPROVED) WITH THREADED SOLID STEEL HANGER RODS. B. PIPING 3" AND LARGER: USE ADJUSTABLE STEEL CLEVIS TYPE HANGERS (GRINNELL FIG. 260 OR APPROVED) WITH THREADED SOLID STEEL HANGER RODS. C. GROUPED PIPING: TRAPEZE TYPE HANGERS WITH ROLLERS MAY 	A Control Engine 24486 STANLEY V. FOX 12/15/19 24486 STANLEY V. FOX 12/15/19
	BE USED WHERE 2 DR MORE PIPES RUN PARALLEL TO EACH OTHER. SUBMIT SHOP DRAWINGS OF ALL TRAPEZE HANGERS FOR APPROVAL BEFORE PROGRESSING WITH ANY WORK. D. SIZE ALL HANGERS ON INSULATED PIPING TO FIT OUTSIDE COVERING.	
ST & BALANCE: NCLUDE IN HIS BID THE NDENT AIR BALANCE AND TRACTOR MAY PERFORM THIS ARCHITECT AND DWNER.	E. HANGER ROD SIZES: PIPE SIZE 2" AND SMALLER 2 1/2" AND 2"	H 'AY,
H SPECIALIZES IN THE ITILATING AND AIR JST AND TEST AIR-MOVING AUSTING SYSTEMS AS DONE UNDER DIRECT D VENTILATING CERTIFIED	F. HANGER ROD SPACING (HORIZONTAL PIPING): MAX. HANGER SPACING PIPE (FT. D.C.)	I CIRC
BY THIS AGENCY SHALL BE IN GOOD WORKING ORDER. IE PRESENCE OF THE IEER RESPONSIBLE FOR THE IO NOT BEGIN AIR BALANCE MPLETED AND IS IN FULL ILATING AND AIR TO FULL OPERATION AND	COPPER TUBING 1-1/4" AND SMALLER COPPER TUBING 1-1/2" AND LARGER SPECIAL PIPING MATERIALS PART III – EXECUTION I. INSTALLATION OF HANGERS AND SUPPORTS:	EE CH FREE H
A CERTIFIED MEMBER DF	 A. REFER TO STRUCTURAL DRAWINGS AND DETAILS FOR ACCEPTABLE METHODS AND LOCATIONS OF ATTACHMENT TO STRUCTURAL MEMBERS. B. PROVIDE HANGERS AT ALL OFFSETS, TEES, WITHIN 12" OF ALL HORIZONTAL ELBOWS, AND ELSEWHERE AS HEREIN DESCRIBED. C. SUPPORT ALL PIPING FROM WALLS, STRUCTURAL MEMBERS, OR 	LEFR CARE PHO
BB. SUBMIT THE TEST AND R APPROVAL WITHIN 90 ACTOR HAS RECEIVED HIS DITIONING INSTALLATION TO DULE THIS WORK IN ED AND COMPLY WITH THE	FROM THE CEILING AS SPECIFIED OR AS DETAILED. D. SUPPORT VERTICAL PIPING AS SPECIFIED OR AS DETAILED. E. WHERE STRUCTURAL OR PIPING CONDITIONS OR CLEARANCE REQUIRES OTHER THAN THE SPECIFIED MEANS OF SUPPORTING THE PIPES, USE MEANS AS DIRECTED BY THE ARCHITECT.	CAR 5025 E.
F THE AIR CONDITIONING PERFORM THE FOLLOWING IT FIVE (5) COPIES OF THE R FOR FORWARDING TO THE	F. WRAP PIPING WHEREVER LINES RUN THROUGH JOISTS, STUDS AND FRAMING 12″ IN LENGTH WITH FELT ON PAPER BACKING TO PREVENT THE PIPE FROM RUBBING. USE OF POLYKIN TAPE IS NOT APPROVED AS A SUBSTITUTE	
CE AGENCY SHALL PERFORM TEM IN ACCORDANCE WITH	G. SLEE∨E AND SEAL AIR AND WATERTIGHT ALL PIPING PASSING THRDUGH EXTERIDR WALLS, THRDUGH PLENUM DR FIRE WALLS ABD∨E CEILINGS, AND ELSEWHERE AS DESIGNATED. ALL SEALERS SHALL BE WATERPRDDF AND FIREPRDDF.	
ESIGN REQUIREMENTS TO	END DF SECTION	
AMPERES. SUPPLY DUCTS AND OBTAIN SSARY BY ENGINEER. ESSURE, SUCTION AND	SECTION 23 30 00 SHEET METAL DUCTWORK	
N CFM DUTSIDE AIR. N CFM RECIRCULATED AIR. PERATURES (DB HEATING	PART 1 – GENERAL 1. SCOPE: FURNISH ALL LABOR, MATERIALS, EQUIPMENT AND SERVICES NECESSARY FOR THE INSTALLATION OF ALL LOW PRESSURE SUFET METAL PLOT SYSTEMS AS USED IN DESCRIPTED AND AS	AUGUST REN
ERATURES (WB COOLING). ERATURES (DB HEATING AND ERATURES (WB COOLING). N AIR DUCTS TO PROPER	INDICATED ON THE DRAWINGS. EACH SYSTEM SHEREIN DESCRIBED AND AS INDICATED ON THE DRAWINGS. EACH SYSTEM SHALL BE COMPLETE WITH ALL ACCESSORIES, ETC., AS DESCRIBED HEREIN AND IN OTHER SECTIONS OF THESE SPECIFICATIONS. FABRICATE ALL DUCTWORK IN ACCORDANCE WITH ASHRAE AND SMACNA STANDARDS.	
N CFM SUPPLY AND RETURN. USER, GRILLE AND REMENTS. R SHALL BE IDENTIFIED AS	2. GALVANIZED SHEET METAL: FOR ALL DUCTWORK EXCEPT AS	PO BOX 2302
NS INCLUDED WITH REPORT. AANUFACTURE OF DIFFUSERS, IIPMENT. USE INT TO MAKE REQUIRED	1. GALVANIZED DUCTWORK: GALVANIZED, PRIME-GRADE, LOCK-FORMING, QUALITY STEEL (LFQ) HAVING GALVANIZED COATING DF 1-1/4 DUNCES TOTAL FOR BOTH SIDES OF 1 SQUARE FOOT OF A	Carefree, AZ 85377 37417 Tom Darlington Driv
RILLES AND REGISTERS HRED CFM, AND TEST MANUFACTURER'S	2. SEAMS: PITTSBURGH LOCK GROOVE, HAMMERED FLAT. SEAL ALL LONGITUDINAL AND TRANSVERSE JOINTS OF SUPPLY, RETURN AND EXHAUST DUCTS DP 1030 WATER BASED, UL LISTED DUCT SEALANT.	(480) 488-9858 FAX (480) 636-1325
JF AUTOMATICALLY FIED, INDICATED AND/OR D REGISTERS TO MINIMIZE	3. TURNING VANES: A. SHEET METAL VANES: FACTORY FABRICATED, SINGLE	WEB SITE www.augustreno.com EMAIL ADDRESS augie@augustreno.com
EACH ELECTRIC STRIP RACT, THE AIR NY CHANGES IN THE	FABRICATED DUCT TURNS MUST BE SUBMITTED FOR APPROVAL PRIOR TO PROCESSING ANY WORK ON PROJECT. 4. MANUAL DAMPERS: MINIMUM OF 16 GAUGE GALVANIZED STEEL.	Construction Drawings:
DITION OF DAMPERS COMMENDED BY AIR BALANCE	MAXIMUM OF 8" BLADE, OPPOSED BLADE TYPE, WITH MANUAL QUADRANT.	SHEET NO: SPECIFICATIONS
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 \sim SECTION 23 71 05 vii. FIELD INSTALLING ENTHALPY SENSOR REQUIRED. SECTION 23 30 00 AIR LEAKAGE AROUND THE EDGES. 4. CO2 SENSOR: 1-5 TON DUCTED SPLIT SYSTEM HEAT PUMP INDOOR AIR HANDLER D. EXTRACTORS: PROVIDE EXTRACTORS BEHIND ALL GRILLES AND SENSOR SHALL PROVIDE THE ABILITY TO SIGNAL THE ECONOMIZER WHERE SPECIFIEI SHEET METAL DUCTWORK (CONTINUED) REGISTERS WITH RIGHT ANGLE TAKEDFFS. PROVIDE PLASTER FRAMES IN THE EQUIPMENT SCHEDULE TO OPEN WHEN THE SPACE CO2 LEVEL EXCEEDS THE 5. FLEXIBLE DUCT: FLEXIBLE, PRE-INSULATED, VINYL COATED PREDETERMINED SET POINT. SENSOR SHALL HAVE THE CAPABILITY OF BEING FOR DUTLETS IN PLASTER OR GYPSUM BOARD. PART 1 -- GENERAL INSIDE AND DUT R-6 FIBERGLASS WITH CORROSION-RESISTANT, STEEL CONNECTED TO COMFORT SYSTEM RELAY PACK OR TO ECONOMIZER USING SPIRAL REINFORCING, DESIGNED FOR LOW VELOCITY APPLICATION. FINISH: ALL UNITS MUST BE FACTORY FINISHED. PROVIDE FIELD-SUPPLIED AND FIELD-INSTALLED HONEYWELL DC ADAPTER NO. Q769C1004. 1.1 SYSTEM DESCRIPTION FINISH AND COLOR AS INDICATED ON THE DRAWINGS OR AS ALL DUCT, INSULATION AND ADHESIVES SHALL BE FIRE AND SMOKE 5. CONDENSATE DRAIN TRAP: A.INDOOR, PACKAGED AIR-HANDLING UNIT FOR USE IN COMMERCIAL HEAT PUMP SPLIT RESISTANT IN CONFORMANCE WITH NFPA 90A AND UL 181 FOR CLASS 1 OTHERWISE DIRECTED BY ARCHITECT. TRAP SHALL HAVE TRANSPARENT, SERVICEABLE DESIGN FOR EASY CLEANING. KIT SYSTEMS, UNIT SHALL HAVE A MULTI-POSITION DESIGN AND SHALL BE CAPABLE DUCT. DUCT TAKE-DFFS SHALL BE LOW-LOSS, BELLMOUTH TYPE WITH SHALL ALSO INCLUDE OVERFLOW SHUTOFF SWITCH AND WIRING HARNESS FOR OF HORIZONTAL OR VERTICAL INSTALLATION ON A FLOOR OR IN A CEILING, WITH SINGLE BLADE VOLUME DAMPER AND LOCKING QUADRANT, FLEXIBLE F. ALL GRILLES, REGISTERS OR DIFFUSERS IN SHOWER AREAS OR WITHOUT DUCTWORK UNIT SHALL FUNCTION AS THE INDOOR COMPONENT OF AN CONNECTION TO ALARM IF DESIRED. DUCTS SHALL BE ATTACHED TO DUCT TAKE-OFFS AND DIFFUSERS SHALL BE ALL ALUMINUM CONSTRUCTION. AIR-TO-AIR ELECTRIC HEAT PUMP SYSTEM. WITH STAINLESS STEEL OR NYLON DRAW-BANDS. THE MAXIMUM LENGTH B.UNIT MUST BE DESIGNED WITH A R-410A REFRIGERANT CIRCUIT WITH A MATCHING OF FLEX DUCT SHALL BE 5' CONCEALED DAMPER OPERATORS: PROVIDE A YOUNG REGULATOR AIR-COOLED CONDENSING UNIT, FOR MATCHED SYSTEMS APPROVED BY THE REMOTE CABLE OPERATORS OR EQUAL OPERATOR FOR ALL DAMPERS 6. MANUAL QUADRANTS: ON ALL LOW PRESSURE DAMPERS VENTLOCK LOCATED IN INACCESSIBLE LOCATIONS OR BEYOND 2' ABOVE MANUFACTURER. SECTION 23 81 05 ACCESSIBLE CEILING DR 2' FROM ACCESS DOORS. #644 IN INSULATED DUCTS AND #641 IN UNINSULATED DUCTS, DR 1.2 QUALITY ASSURANCE APPROVED EQUAL. 1-5 TON DUCTED SPLIT SYSTEM HEAT PUMP OUTDOOR UNIT A.ALL COILS SHALL BE DESIGNED AND TESTED IN ACCORDANCE WITH ASHRAE 15 3. BARDMETRIC DAMPERS SAFETY CODE FOR MECHANICAL REFRIGERATION, LATEST EDITION. 7. ACCESS DOORS: SYSTEM DESCRIPTION B.UNIT SHALL BE CONSTRUCTED IN ACCORDANCE WITH ETL STANDARDS AND SHALL A. SCOPE: FURNISH AND INSTALL BARDMETRIC DAMPERS WHERE CARRY THE ETL LABEL. A. UNINSULATED DUCTS: CONSTRUCT ACCESS DOORS OF GALVANIZED INDICATED ON THE DRAWINGS. C.UNIT INSULATION AND ADHESIVE SHALL COMPLY WITH NFPA-90A REQUIREMENTS DUTDOOR-MOUNTED, AIR-COOLED, SPLIT-SYSTEM HEAT PUMP UNIT SUITABLE FOR SHEET METAL GAUGES HEAVIER THAN DUCT WITH ROLLED EDGES, HINGES, AND VENTFABRICS, INC. "VENTLOCK" #260 LATCH. MAKE FOR FLAME SPREAD AND SMOKE GENERATION, INSULATION SHALL CONTAIN AN GROUND OR ROOFTOP INSTALLATION, UNIT SHALL CONSIST OF A HERMETIC COMPRESSOR, B. CONSTRUCTION: DAMPERS SHALL BE OF ALUMINUM CONSTRUCTION AN AIR-COOLED COIL, PROPELLER-TYPE CONDENSER FAN, AND A CONTROL BOX. UNIT AIRTIGHT WITH FELT STRIPS OR NEOPRENE GASKETING AND PROVIDE SET IN A STEEL CHANNEL FRAME EQUAL TO AIR FACTORS STYLE EPA-REGISTERED IMMOBILIZED ANTIMICROBIAL AGENT TO EFFECTIVELY RESIST WILL DISCHARGE SUPPLY AIR UPWARD AS SHOWN ON CONTRACT DRAWINGS, UNIT WILL THE GROWTH OF BACTERIA AND FUNGI AS PROVEN BY TESTS IN ACCORDANCE 1" X 1" X 1/8" GALVANIZED IRON FRAME FOR INSTALLATION IN ABD-C WITH DAMPERS TO SWING DUT. WITH ASTM STANDARDS G21 AND 22. BE USED IN A REFRIGERATION CIRCUIT TO MATCH UP TO A PACKAGED FAN COIL OR DUCTWORK. COIL UNIT. C, DAMPERS: DAMPERS MUST HAVE FELT EDGES AND CHANNEL D.UNIT SHALL BE MANUFACTURED IN A FACILITY REGISTERED TO THE ISO 9001 FRAME AND BE PAINTED WITH A MINIMUM OF TWO COATS OF FLAT B. INSULATED DUCTS: DOUBLE THICKNESS GALVANIZED SHEET MANUFACTURING QUALITY STANDARD. METAL DF SAME GAUGE AS DUCT (MINIMUM 20 GAUGE) WITH MINIMUM BLACK ENAMEL QUALITY ASSURANCE E.DIRECT-EXPANSION COILS SHALL BE LEAK TESTED AT 150 PSIG AND PRESSURE OF 1" THICK, 2-POUND DENSITY FIBERGLASS OR APPROVED EQUAL TESTED AT 650 PSIG AND QUALIFIED TO UL BURST TEST AT 1980 PSIG. INSULATION IN BETWEEN SHEET METAL, ROLLED EDGES, HINGES AND END OF SECTION UNIT WILL BE RATED IN ACCORDANCE WITH THE LATEST EDITION OF AHRI 1.3 DELIVERY AND STORAGE VENTFABRICS, INC. "VENTLOCK" #260 LATCH. MAKE AIRTIGHT WITH STANDARD 240. UNITS SHALL BE STORED AND HANDLED PER MANUFACTURER'S RECOMMENDATIONS. FELT STRIPS OR NEOPRENE GASKETING, AND PROVIDE 1" X 1" X 1/8" GALVANIZED ANGLE IRON FRAME FOR INSTALLATION IN DUCTWORK. PART 2 -- PRODUCTS UNIT WILL BE CERTIFIED FOR CAPACITY AND EFFICIENCY, AND LISTED IN THE SECTION 23 05 04 ACCESS PANELS AND ACCESS OPENINGS IN DUCTWORK: LATEST AHRI DIRECTORY. 2.1 EQUIPMENT GALVANIZED, SHEET STEEL, 2 GAUGES HEAVIER THAN THE DUCT WITH REFRIGERANT PIPING INDOOR MOUNTED, DRAW-THRU, PACKAGED AIR-HANDLING UNIT THAT CAN BE USED WITH ROLLED EDGES, FELT STRIPS OR NEOPRENE GASKETING AND ATTACHED UNIT CONSTRUCTION WILL COMPLY WITH LATEST EDITION OF ANSI/ASHRAE AND OR WITHOUT DUCTWORK IN A SUSPENDED HORIZONTAL CONFIGURATION OR TO DUCT WITH SHEET METAL SCREWS A MAXIMUM OF 6" ON CENTER, PART 1 - GENERAL WITH NEC. FREE-STANDING VERTICAL CONFIGURATION. UNIT SHALL BE THE INDOOR COMPONENT OF A HEAT PUMP SYSTEM. UNIT SHALL CONSIST OF FORWARD-CURVED BELT-DRIVEN 9. DUCT SUPPORTS: FURNISH AND INSTALL REFRIGERANT PIPING BETWEEN INDOOR UNIT AND OUTDOOR UNIT WILL BE CONSTRUCTED IN ACCORDANCE WITH UL STANDARDS AND WILL CARRY CENTRIFUGAL FAN(S), MOTOR AND DRIVE ASSEMBLY, PREWIRED FAN MOTOR CONTACTOR UNIT, MAKE FINAL CONNECTIONS TO ALL EQUIPMENT. THE UL LABEL OF APPROVAL. FACTORY-INSTALLED REFRIGERANT METERING DEVICES, BYPASS CHECK VALVES, A. DUCTS 47" AND SMALLER: 14 GAUGE STEEL HANGER STRAPS 1" COOLING COIL, 2-IN. DISPOSABLE AIR FILTERS, AND CONDENSATE DRAIN PANS FOR WIDE RIVETED TO SEAMS OF DUCTS, MAXIMUM OF 6'-O" ON CENTER. 2. PROVIDE FLEXIBLE REFRIGERANT CONNECTIONS AT ALL EQUIPMENT. VERTICAL OR HORIZONTAL CONFIGURATIONS. UNIT CABINET WILL BE CAPABLE OF WITHSTANDING FEDERAL TEST METHOD ALTERNATE SUPPORT FOR HORIZONTAL DUCTS MUST BE BY (2) 1/4" STANDARD ND. 141 (METHOD 6061) 500--HR SALTSPRAY TEST. BOLTS OR 2 OR MORE #14 SHEET METAL SCREWS. 3. PIPING SHALL BE FIELD FABRICATED FROM HARD DRAWN COPPER PIPING WITH WROUGHT COPPER FITTINGS AND BRAZED JOINTS AS SPECIFIED HEREIN. CONTRACTOR A. BASE UNIT: DUCTS OVER 48" IN WIDTH: SUPPORT FROM TRAPEZE HANGER MAY USE FACTORY PRE-CHARGED, PRE-INSULATED COPPER REFRIGERANT LINES WITH AIR-COOLED CONDENSER COILS SHALL BE PRESSURE TESTED AND THE OUTDOOR 1. CABINET SHALL BE CONSTRUCTED OF MILL-GALVANIZED STEEL CONSISTING OF VERTICAL STEEL RODS AND ANGLE IRON FRAMES. QUICK-CONNECT COUPLINGS IN LIEU OF FIELD FABRICATED PIPING. UNIT LEAK TESTED. 2. CABINET PANELS SHALL BE FULLY INSULATED WITH 1/2-IN. FIRE-RETARDANT MATERIAL, INSULATION SHALL CONTAIN AN EPA-REGISTERED IMMOBILIZED 11. DUCT CONSTRUCTION: ALL DUCT CONSTRUCTION MUST CONFORM PART 2 - PRODUCTS ANTIMICROBIAL AGENT TO EFFECTIVELY RESIST THE GROWTH OF BACTERIA AND UNIT CONSTRUCTED IN ISO9001 APPROVED FACILITY. TO LOCAL CODE OR TO THE SMACNA DUCT CONSTRUCTION STANDARDS FUNGI AS PROVEN BY TESTS IN ACCORDANCE WITH ASTM STANDARDS G21 AND 22. FIELD FABRICATED PIPING ABOVE GRADE: ACR TYPE L HARD DRAWN COPPER MANUAL, WHICHEVER IS MORE STRINGENT 3. UNIT SHALL CONTAIN CORROSION-FREE CONDENSATE DRAIN PANS FOR BOTH DELIVERY, STORAGE, AND HANDLING: TUBING WITH BRAZED JOINTS. VERTICAL AND HORIZONTAL APPLICATIONS. DRAIN PANS SHALL HAVE PART 3 - EXECUTION CONNECTIONS ON RIGHT AND LEFT SIDES OF UNIT TO FACILITATE FIELD UNIT SHALL BE SHIPPED AS SINGLE PACKAGE ONLY AND IS STORED AND HANDLED PER FIELD FABRICATED PIPING BELOW GRADE: ACR TYPE K HARD DRAWN COPPER CONNECTION. DRAIN PANS SHALL HAVE THE ABILITY TO BE SLOPED TOWARD THE UNIT MANUFACTURER'S RECOMMENDATIONS. FABRICATION: FABRICATE ALL DUCTWORK AND INSTALL USING TUBING WITH BRAZED JOINTS. RIGHT OR LEFT SIDE OF THE UNIT TO PREVENT STANDING WATER FROM SKILLED MECHANICS IN STRICT CONFORMANCE WITH ASHRAE AND THE ACCUMULATING IN PANS. SMACNA MANUAL. PROVIDE SUPPLEMENTAL STIFFENING AS REQUIRED 3. PRE-CHARGED PIPING (ABOVE GRADE ONLY): ACR TYPE L ANNEALED COPPER TUBE 4. UNIT SHALL HAVE FACTORY-SUPPLIED 2-IN. THROWAWAY-TYPE FILTERS TO PREVENT DRUMMING AND PROVIDE A STRUCTURALLY SOUND WITH QUICK-CONNECT FITTINGS TO MATCH CONNECTIONS TO EQUIPMENT. WARRANTY INSTALLED UPSTREAM FROM THE COOLING COIL, FILTER ACCESS SHALL BE FROM ASSEMBLY, FURNISH STANDARD EQUIPMENT WARRANTY EITHER THE RIGHT DR LEFT SIDE DF THE UNIT. 4. FIELD FABRICATED FITTINGS: WROUGHT COPPER WITH BRAZED JOINTS. CONSTRUCTION: CONSTRUCT ALL FITTINGS, ELBOWS, AND B, CDILS: PRODUCTS TRANSITIONS TO PROVIDE A MINIMUM OF NOISE AND RESISTANCE. 5. SOLDER: SILVER SOLDER HAVING A MINIMUM MELTING POINT OF 10500F. 1.COILS SHALL CONSIST OF 3 OR 4 ROWS OF COPPER TUBES WITH SINE-WAVE WHERE SPACE PERMITS, USE ELBOWS WITH A MINIMUM RADIUS OF ALUMINUM FINS BONDED TO THE TUBES BY MECHANICAL EXPANSION, COIL TUBING SHALL BE INTERNALLY RIFLED TO MAXIMIZE HEAT TRANSFER, REFRIGERANT LINE EQUIPMENT 1-1/2 TIMES THE WIDTH (OR DEPTH), WHERE SPACE CONDITIONS 6. EXPANSION VALVES: TO BE FURNISHED BY EQUIPMENT MANUFACTURER. CONNECTIONS SHALL BE MADE ON THE SAME SIDE OF THE COIL NECESSITATE ABRUPT CHANGES IN DIRECTION (OR AS OTHERWISE INDICATED), USE SQUARE ELBOWS WITH DOUBLE RADIUS TURNING SOLENDID VALVES: SPORLAN SOLENDID VALVES WITH ODF SOLDER CONNECTIONS, 2. COILS SHALL FEATURE FACTORY-INSTALLED THERMOSTATIC EXPANSION FACTORY ASSEMBLED, SINGLE PIECE, AIR-COOLED HEAT PUMP UNIT. CONTAINED WITHIN VANES, TRANSITIONS INCREASING IN THE DIRECTION OF AIRFLOW TYPE AND SIZE TO MATCH THE SERVICE INTENDED. VALVES (TXVS) FOR REFRIGERANT CONTROL. THE TXVS SHALL BE CAPABLE OF THE UNIT ENCLOSURE IS ALL FACTORY WIRING, PIPING, CONTROLS, COMPRESSOR, SHALL NOT CHANGE GREATER THAN 1" IN 7" AND TRANSITIONS EXTERNAL ADJUSTMENT. REFRIGERANT CHARGE R--410A, AND SPECIAL FEATURES REQUIRED PRIDR TO FIELD DECREASING IN THE DIRECTION OF AIRFLOW SHALL NOT CHANGE 8. FILTER DRYERS: SPORLAN "CATCH-ALL" FILTER DRYER WITH ODF SOLDER 3. COILS SHALL HAVE A FACTORY-INSTALLED BYPASS LINE AND CHECK VALVE START-UP. GREATER THAN 1" IN 5". CONNECTIONS AND REPLACEABLE CORE. ASSEMBLY AROUND THE TXVS TO ALLOW LIQUID FLOW FROM THE COIL TO THE DUTDOOR UNIT DURING HEATING MODE. UNIT CABINET A. DUCTMATE AND WARD DUCT CONNECTORS ARE ALLOWED WHEN PART 3 - EXECUTION C. DPERATING CHARACTERISTICS: UNIT CABINET SHALL BE CONSTRUCTED OF GALVANIZED STEEL, BONDERIZED, AND FABRICATED AND INSTALLED IN STRICT COMPLIANCE WITH 1. WHEN COMBINED WITH THE MATCHING CONDENSING UNIT THE SYSTEM SHALL BE COATED WITH A POWDER COAT PAINT. MANUFACTURER'S INSTRUCTIONS. FIELD FABRICATED REFRIGERANT LINES SHALL BE INSTALLED BY WORKMEN CAPABLE OF STARTING AND RUNNING UP TO 125_F (52_C) AND DOWN TO 35_F SKILLED IN THE INSTALLATION AND TESTING OF REFRIGERANT PIPING AND REFRIGERANT (2_C) AMBIENT DUTDOOR TEMPERATURE TURNING VANES: PROVIDE SINGLE THICKNESS TURNING VANES IN EQUIPMENT. FANS 2. UNIT SHALL OPERATE AT +/- 10% FROM RATED VOLTAGE ALL 900 SQUARE ELBOWS AND ELSEWHERE AS INDICATED. ALL WORK SHALL CONFORM TO STANDARD ENGINEERING PRACTICE AS RECOGNIZED D. MOTOR: CONDENSER FAN WILL BE DIRECT-DRIVE PROPELLER TYPE, DISCHARGING AIR UPWARD. 4. SEALING: SEAL ALL JOINTS IN CONCEALED OR INSULATED BY ARI AND THE AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR 1.FAN MOTOR OF THE SIZE AND ELECTRICAL CHARACTERISTICS SPECIFIED ON THE SHEET METAL DUCTWORK WITH DP 1030 MASTIC CONDITIONING ENGINEERS, AND ALL PIPING, INSTALLATION AND TESTING SHALL CONFORM EQUIPMENT SCHEDULE SHALL BE FACTORY-SUP- PLIED AND FACTORY-INSTALLED. CONDENSER FAN MOTORS WILL BE TOTALLY ENCLOSED, 1-PHASE TYPE WITH CLASS B TO THE APPLICABLE REQUIREMENTS OF ANSI 89.2. 2. INDOOR-FAN MOTOR SHALL HAVE PERMANENTLY LUBRICATED, SEALED BEARINGS INSULATION AND PERMANENTLY LUBRICATED BEARINGS. SHAFTS WILL BE CORROSION 5. DUCT SIZES: INDICATED SIZES ARE TO THE INSIDE OF AND INHERENT AUTOMATIC-RESET THERMAL OVERLOAD PROTECTION (MOTORS RESISTANT. FAN BLADES WILL BE STATICALLY AND DYNAMICALLY BALANCED. CONDENSER ACOUSTICAL LININGS. INCREASE THE SIZE OF ALL SHEET METAL 3. ALL REFRIGERANT LINES SHALL BE PROPERLY PITCHED AND SHALL HA∨E DIL SMALLER THAN 5 HP) OR MANUAL RESET CALIBRATED CIRCUIT BREAKERS (MOTORS FAN DPENINGS WILL BE EQUIPPED WITH STEEL WIRE SAFETY GUARDS. DUCTS AS REQUIRED TO ACCOMMODATE THERMAL INSULATION AND TRAPS PROPERLY SIZED, LOCATED AND INSTALLED, COMPLETE WITH PROPERLY SIZED EQUAL OR LARGER THAN 5 HP). INDOOR MOTORS ARE DESIGNED SPECIFICALLY FOR DOUBLE SUCTION RISERS, TO ENSURE THAT OIL IN ANY PART OF THE SYSTEM WILL BE ACOUSTICAL LINING. CARRIER AND DO NOT HAVE CONVENTIONAL HORSEPOWER (HP) RATINGS LISTED ABLE TO RETURN TO THE COMPRESSOR UNDER MINIMUM SYSTEM OPERATING CONDITIONS. COMPRESSOR ON THE MOTOR NAMEPLATE, MOTORS ARE DESIGNED AND QUALIFIED IN 6. DUCT OPENINGS: CONSTRUCT DUCT OPENINGS AT GRILLES OR THE "AIR-OVER" LOCATION DOWNSTREAM OF THE COOLING COIL AND CARRY A REGISTERS SO THAT THE PLASTER WILL NOT CRACK WHEN THE 4. EACH REFRIGERANT CIRCUIT SHALL HAVE A MINIMUM OF ONE LIQUID LINE DRYER MAXIMUM CONTINUOUS BHP RATING THAT IS THE MAXIMUM APPLICATION BHP COMPRESSOR SHALL BE HERMETICALLY SEALED. COMPRESSOR SHALL BE MOUNTED ON REGISTERS ARE ATTACHED. AND ONE SET OF CHARGING VALVES. RUBBER VIBRATION ISOLATORS. RATING FOR THE MOTORS; NO "SAFETY FACTORS" ABOVE THAT RATING MAY BE APPLIED. 7. PAINTING: PAINT THE INSIDE OF ALL SUPPLY, RETURN AND 5. INSTALL PRE-CHARGED PIPING WITH SHORT RADIUS BENDS AS REQUIRED FOR A 3. ALL INDOOR FAN MOTORS 5 HP AND LARGER SHALL MEET THE MINIMUM CONDENSER COIL EXHAUST DUCTS AND DAMPERS DNE COAT OF DEAD BLACK PAINT NEAT AND WORKMANLIKE INSTALLATION. WHEN MAKING BENDS, STRIP INSULATION FROM EFFICIENCY REQUIREMENTS AS ESTABLISHED BY THE ENERGY POLICY ACT OF WHENEVER VISIBLE THROUGH THE OPENINGS, WHERE THE DUCT AREA OF BEND AND USE ONLY A LEVER TYPE HAND BENDER WHICH IS OF THE PROPER 1992 (EPACT), EFFECTIVE DCTDBER 24, 1997. CONDENSER COIL SHALL BE AIR COOLED. THE COIL SHALL BE CONSTRUCTED OF INSULATION IS VISIBLE THROUGH THE GRILLES, REGISTERS, OR SIZE FOR THE TUBING BEING BENT. REPLACE ALL PIPING WHICH COLLAPSES OR 4. HIGH EFFICIENT MOTORS LISTED SHALL MEET SECTION 313 OF THE ENERGY ALUMINUM FINS MECHANICALLY BONDED TO COPPER TUBES WHICH ARE THEN CLEANED, DIFFUSERS, THE INSULATION MUST HAVE A BLACK FINISH. BUCKLES DURING INSTALLATION, REPLACE INSULATION AND SECURE TO PIPING AFTER INDEPENDENCE AND SECURITY ACT DF 2007 (EISA 2007). DEHYDRATED, AND SEALED. PIPING IS IN PLACE. 8. MANUAL DAMPERS: PROVIDE MANUAL DAMPERS IN EACH SUPPLY E.SPECIAL FEATURES DUCT TO DUTLET/INLET AND ELSEWHERE AS INDICATED, PROVIDE 6. ALL JOINTS ON FIELD FABRICATED PIPING SHALL BE BRAZED USING 10500F 1.ALTERNATE MOTOR AND DRI∨E: REFRIGERATION COMPONENTS LOCKING QUADRANTS WITH MEMORY STOP. SILVER SOLDER OR "SIL-FOS." CIRCULATE DRY NITROGEN THROUGH ALL TUBES AND AN ALTERNATE MOTOR AND MEDIUM OR HIGH-STATIC DRIVE SHALL BE AVAILABLE TO MEET THE AIRFLOW AND EXTERNAL STATIC PRESSURE REQUIREMENTS SPECIFIED REFRIGERATION CIRCUIT COMPONENTS WILL INCLUDE LIQUID LINE SHUTOFF VALVE WITH FITTINGS BEING SOLDERED TO ELIMINATE FORMATION OF COPPER DXIDE DURING BRAZING 9. MEASUREMENTS: BEFORE FABRICATION, CHECK ALL DUCTWORK OPERATION. VALVES AND ACCESSORIES SHALL BE PROTECTED AGAINST EXCESSIVE ON THE EQUIPMENT SCHEDULE SWEAT CONNECTIONS, VAPOR LINE SHUTOFF VALVE WITH SWEAT CONNECTIONS, SYSTEM WITH THE BUILDING CONSTRUCTION FOR DIMENSIONS, LOCATIONS, TEMPERATURE DURING BRAZING. 2. EXTERNAL PAINT CABINET: CHARGE OF R-410A REFRIGERANT, POE COMPRESSOR DIL, ACCUMULATOR AND REVERSING CLEARANCES, ETC. MAKE UP DUCT WITH ANY NECESSARY VARIATIONS WHERE CONDITIONS REQUIRE, UNITS SHALL BE PAINTED WITH AN AMERICAN VALVE. TO CONFORM TO THE DETAILS OF THE CONSTRUCTION OF THE 7. ALL FIELD FABRICATED PIPE SHALL BE CUT SMOOTH AND SQUARE WITH AN STERLING GRAY FINISH. BUILDING, TO SUIT THE SPACE AVAILABLE, AND TO FIT THE APPROVED TYPE OF PIPE CUTTER. PIPE SHALL BE REAMED, CUTTINGS CAREFULLY 3. ECONOMIZERS AND OUTSIDE AIR INTAKE/RELIEF DAMPERS: **DPERATING CHARACTERISTICS** EQUIPMENT FURNISHED, THE ENTIRE DUCT SYSTEM MUST BE REMOVED AND PIPING THOROUGHLY CLEANED OF ALL DIRT AND DIL BEFORE BRAZING. Q.ACCESSORY ULTRA LOW LEAK FIELD INSTALLED LODSE DAMPERS, EXTRUDED SUBSTANTIALLY CONSTRUCTED, RIGIDLY ERECTED AND FREE OF ANY ALUMINUM WITH AIRFOIL BLADES DUCT VIBRATION OR NOISES, 8. ALL REFRIGERANT LINES INSTALLED BELOW CONCRETE SHALL BE INSTALLED IN A THE CAPACITY OF THE UNITS SHALL MEET OR EXCEED THE REQUIREMENTS ENUMERATED SCHEDULE 40 PVC PIPE SLEEVE TO PROTECT PIPE AND INSULATION. ECONOMIZER CONTROL FOR VENTILATION OR "FREE" COOLING SHALL BE FACTORY IN THE EQUIPMENT SCHEDULE 10. FLASHING: FLASH ALL DUCTS PASSING THROUGH THE ROOF, PROVIDED FOR FIELD INSTALLATION ON DUCTS EXTERNAL TO THE OF AIR FLOOR OR THROUGH EXTERIOR WALLS. 9. ALL PIPING SHALL BE THOROUGHLY TESTED FOR LEAKS AND PROVED TIGHT HANDLER. ELECTRICAL REQUIREMENTS BEFORE CHARGING, EVACUATE SYSTEM TO NOT LESS THAN 500 MICRONS WITH OIL (1.) INTEGRATED, MOTOR DRIVEN OPPOSING MODULATING BLADE DESIGN TYPE 11. TESTING AND BALANCING: SEE TESTING AND AIR AND WATER SUBMERGED VACUUM PUMP AND SPECIAL VACUUM HOSES. HOLD FOR TWO HOURS. CAPABLE OF SIMULTANEOUS ECONOMIZER AND COMPRESSOR OPERATION. UNIT POWER SHALL BE AS ILLUSTRATE IN THE EQUIPMENT SCHEUDLE. UNIT ELECTRICAL SYSTEMS BALANCING. CHARGE SHALL BE CALCULATED AND A VOLUME CHARGING CYLINDER OR ELECTRONIC (2.) DAMPER BLADES SHALL BE GALVANIZED STEEL WITH COMPOSITE GEARS. POWER SHALL BE SINGLE POINT CONNECTION, CONTROL CIRCUIT WILL BE 24V SCALE SHALL BE UTILIZED. AFFIX A TAG TO EACH SYSTEM SHOWING TYPE OF PLASTIC OR COMPOSITE BLADES ON INTAKE OR RETURN SHALL NOT BE FURNISHED WITH THE UNIT. TRANSFORMER SHALL HAVE AN INTEGRAL OVERCURRENT 12. AIR LEAKAGE: THE DUCTWORK SHALL BE SEALED AND TESTED. REFRIGERANT AND TOTAL POUNDS IN THE SYSTEM, SUBMIT CUT SHEET AND PICTURE OF ACCEPTABLE. PROTECTION DEVICE. MAXIMUM ALLOWABLE LEAKAGE SHALL BE 5% OF SCHEDULED AIRFLOW EQUIPMENT TO BE USED TO MEASURE THE VACUUM, GAUGE SETS ARE NOT APPROVED. (3.) SHALL INCLUDE ALL HARDWARE, ACTUATOR AND CONTROLS TO PROVIDE IN DUCT. FREE COOLING WITH OUTDOOR AIR WHEN TEMPERATURE AND/OR HUMIDITY ARE 10. CLEANING: CLEAN ALL FITTINGS BEFORE INSTALLATION. SPECIAL FEATURES BELOW SETPOINTS. END OF SECTION (4.) SHALL BE EQUIPPED WITH ELECTRIC MOTOR DRIVEN DAMPERS FOR BOTH 11. INSULATION: FURNISH UNITS WITH CRANKCASE HEATERS, INSULATION BLANKET ON THE COMPRESSOR, THE DUTDOOR VENTILATION AIR AND THE RETURN AIR FOR POSITIVE AIR STREAM HARD START COMPRESSOR KIT, CYCLE PROTECTOR, FREEZE STAT, LOW AMBIENT KIT, CONTROL SECTION 23 33 00 A. INSULATE ALL REFRIGERANT SUCTION PIPING WITH 3/4" THICK FLEXIBLE FDAMED FIRE ALARM SHUT DOWN CONTACT. PLASTIC CLOSED CELL PIPE INSULATION, INSULATION SHALL HAVE A "K" FACTOR OF (5.) ULTRA LOW LEAK DESIGN TO MEET ASHRAE90.1 REQUIREMENTS FOR 4 CFM AIR HANDLING SPECIALTIES NOT MORE THAN .26 AT 700F AND A WATER VAPOR TRANSMISSION RATE OF 0.1 PER SQ. FT. ON THE OUTSIDE AIR DAMPERS AND 10 CFM PER SQ. FT. ON THE PERM-INCH OR LESS IN CONFORMANCE WITH ASTM C-177 AND ASTM C-355 WATER RETURN DAMPERS. METHOD, WHERE POSSIBLE, INSTALL SUCTION AND LIQUID LINES TOGETHER WITHIN (6.) ECONOMIZER CONTROLLER SHALL BE THE HONEYWELL W7220 THAT COMMON INSULATION JACKET. WHEN INSULATION IS EXPOSED TO SUNLIGHT, WRAP WITH 1. GRILLES, REGISTERS, DIFFUSERS PROVIDES: U.V. RESISTANT METAL COVER WITH OVERLAP. i.2-LINE LCD INTERFACE SCREEN FOR SETUP, CONFIGURATION AND A. SCOPE: GRILLES, REGISTERS, AND DIFFUSERS SHALL BE TROUBLESHODTING FURNISHED AND INSTALLED WHERE SHOWN. THEY SHALL BE OF THE B. INSTALL INSULATION BY SLITTING TUBULAR SECTIONS AND APPLYING OVER PIPING. II. ON-BOARD FAULT DETECTION AND DIAGNOSTICS (FDD) THAT SENSES AND ALERTS SIZE AND MODEL INDICATED. FABRICATE COVERS FOR FITTING FROM INSULATION IN CONFORMANCE WITH WHEN THE ECONOMIZER IS NOT OPERATING PROPERLY. MANUFACTURER'S RECOMMENDATIONS. SEAL JOINTS, BUTT ENDS AND MITERS WITH FIRE iii.SENSOR FAILURE LOSS OF COMMUNICATION IDENTIFICATION B. DAMPERS AND GASKETING: PROVIDE ALL DIFFUSERS AND ALL RETARDANT, WATERPROOF ADHESIVE EQUAL TO ARMSTRONG 520. (TAPE JOINTS WILL iv. AUTOMATIC SENSOR DETECTION

SUPPLY, EXHAUST AND RETURN REGISTERS WITH DAMPERS PAINTED FLAT BLACK AND NEOPRENE GASKETING.

INSTALLATION: ALL GRILLES, REGISTERS AND DIFFUSERS SHALL ULTRAVIOLET RESISTING PAINT. BE SET FLUSH AND TRUE TO THE WALL OR CEILINGS TO PREVENT

NOT BE ACCEPTED.)

C. PAINT ALL INSULATION AND/OR TAPE EXPOSED TO THE EXTERIOR WITH END DF SECTION

VI. UTILIZING DIGITAL SENSORS: DRY BULB AND ENTHALPY. ACCESSORY COMES

V.CAPABILITIES FOR USE WITH MULTIPLE-SPEED INDOOR FAN SYSTEMS STANDARD WITH DRY BULB SENSING.

Saguaro Engineers, Inc Consulting Engineers 12020 N. 35TH AVENUE, SUITE 111A

REVISION: A 12-15-2019 ENGINEER CORI 2 CITY REVIEW COMMEN A 06-10-2019 **<u>1</u>** CITY REVIEW COMMENT **PROJECT NO:** 16135.00 DRAWN BY: CHECKED BY: **ISSUE DATE:** 12/15/2019 COPYRIGHT CSEI 2019

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PO BOX 2302 Carefree, AZ 85377

37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325

WEB SITE www.augustreno.com EMAIL ADDRESS augie@augustreno.com

Construction Drawings:

PH: (602) 870-2018Proj. No: 17128.00

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1-5 TON DUCTLESS SPLIT SYSTEM AIR CONDITIONER INDOOR UNI PART 1 - GENERAL

1.01 SYSTEM DESCRIPTION

INDOOR, WALL-MOUNTED, DIRECT-EXPANSION FAN COILS ARE MAT PUMP DUTDOOR UNIT.

1.02 AGENCY LISTINGS UNIT SHALL BE RATED PER AHRI STANDARDS 210/240 AND LIST DIRECTORY AS A MATCHED SYSTEM, UNIT SHALL BE UL LISTED

1.03 DELIVERY, STORAGE, AND HANDLING UNITS SHALL BE STORED AND HANDLED PER THE UNIT MANUFAC RECOMMENDATIONS.

1.04 WARRANTY FURNISH STANDARD FACTORY WARRANTY

PART 2 - PRODUCTS

2.01 EQUIPMENT

A. GENERAL: INDOOR, DIRECT-EXPANSION, WALL-MOUNTED FAN UNIT SHALL BE COMPLETE WITH A COOLING/HEATING COIL, FAN PIPING CONNECTORS, ELECTRICAL CONTROLS, MICROPROCESSOR C SYSTEM, AND INTEGRAL TEMPERATURE SENSING. UNIT SHALL BE WITH AN INTEGRAL WALL MOUNTING BRACKET AND MOUNTING HAP

3. UNIT CABINET:

CABINET DISCHARGE AND INLET GRILLES SHALL BE ATTRACTIVE HIGH-IMPACT POLYSTYRENE, CABINET SHALL BE FULLY INSULATE IMPROVED THERMAL AND ACOUSTIC PERFORMANCE.

FANS: FAN SHALL BE THE TANGENTIAL DIRECT-DRIVE BLOWER TY THE TOP OF THE UNIT AND DISCHARGE AT THE BOTTOM AN AU VERTICAL AIR SWEEP SHALL BE PROVIDED AS STANDARD EQUIF 2. THE AIR SWEEP OPERATION SHALL BE USER SELECTABLE. MAY BE ADJUSTED (USING THE REMOTE CONTROL), THE HORIZON BE SET MANUALLY.

THE COIL SHALL BE A COPPER TUBE WITH ALUMINUM FINS AND TUBE SHEETS. THE FINS SHALL BE BONDED TO THE TUBES BY M AND BLUE HYDROPHILIC PRE-COATED. A DRIP PAN UNDER THE CO DRAIN CONNECTION FOR THE HOSE ATTACHMENT TO REMOVE CON CONDENSATE PAN SHALL HAVE AN INTERNAL TRAP.

MOTORS MOTORS SHALL BE OPEN DRIP-PROOF, WITH A PERMANENTLY LUBP BALL BEARING. THE FAN MOTORS SHALL BE 4-SPEED.

CONTROLS: CONTROLS SHALL CONSIST OF A MICROPROCESSOR-BASED CONTRO SHALL CONTROL SPACE TEMPERATURE, DETERMINE OPTIMUM FAN DIAGNOSTICS. THE TEMPERATURE CONTROL RANGE SHALL BE FRO INCREMENTS OF 1F, AND HAVE 46F HEATING MODE (HEATING SE WIRELESS REMOTE CONTROLLER SHALL HAVE THE ABILITY TO A TEMPERATURE SENSING LOCATION FOR ROOM COMFORT.

THE UNIT SHALL HAVE THE FOLLOWING FUNCTIONS AS A MINIMU AN AUTOMATIC RESTART AFTER A POWER FAILURE AT THE OPERATING CONDITIONS AS AT THE FAILURE.

. A TIMER FUNCTION TO PROVIDE A MINIMUM 24-HOUR TIMER CYCLE FOR SYSTEM AUTO START/STOP. 3. TEMPERATURE-SENSING CONTROLS SHALL SENSE RETURN AIR TEMPERATURE.

4. INDOOR COIL FREEZE PROTECTION. WIRELESS INFRARED REMOTE CONTROL TO ENTER SET POIN

OPERATING CONDITIONS 6. AUTOMATIC AIR SWEEP CONTROL TO PROVIDE ON OR OFF AC OF AIR SWEEP LOUVERS.

DEHUMIDIFICATION MODE SHALL PROVIDE INCREASED LATENT REMOVAL CAPABILITY BY MODULATING THE SYSTEM OPERATION A THE SET POINT TEMPERATURE.

8. FAN-ONLY OPERATION TO PROVIDE ROOM AIR CIRCULATION COOLING IS REQUIRED. 9. DIAGNOSTICS SHALL PROVIDE CONTINUOUS CHECKS OF UNIT

OPERATION AND WARN OF POSSIBLE MALFUNCTIONS, ERROR MESSAGES APPEAR ON THE UNIT. 10. FAN SPEED CONTROL IS USER-SELECTABLE: TURBO, HIGH, ME

LOW, OR MICROPROCESSOR CONTROLLED AUTOMATIC OPERATION DURING ALL OPERATING MODES.

11. AUTOMATIC HEATING-TO-COOLING CHANGEOVER IN THE HEAT mode. CONTROL SHALL INCLUDE DEADBAND TO PREVENT RAPID MDDE CYCLING BETWEEN HEATING AND COOLING.

12. INDOOR COIL HIGH TEMPERATURE PROTECTION SHALL BE PRO DETECT EXCESSIVE INDOOR DISCHARGE TEMPERATURE WHEN THE IS IN THE HEAT PUMP MODE.

G. FILTERS: UNIT SHALL HAVE FILTER TRACK WITH FACTORY-SUPPLIED CLEA

H. ELECTRICAL REQUIREMENTS: INDOOR FAN MOTOR TO OPERATE ON 115∨ ON MODEL SIZES 09-12 208-230V ON MODEL SIZES 09-36, AS SPECIFIED. POWER IS SUF

BY THE DUTDOOR UNIT. OPERATING CHARACTERISTICS

THE 40MA SYSTEM SHALL HAVE A MINIMUM SEER (SEASONAL ENE EFFICIENCY RATID) AND HSPF AT AHRI CONDITIONS, AS LISTED SPECIFICATIONS TABLE.

J. REFRIGERANT LINES: ALL UNITS SHOULD HAVE REFRIGERANT LINES THAT CAN BE OR CONNECT FROM THE LEFT, RIGHT OR BACK OF UNIT. BOTH REFRI

NEED TO BE INSULATED. K. SPECIAL FEATURES (FIELD INSTALLED):

23-81-06

1-5 TON DUCTLESS SPLIT SYSTEM AIR CONDITIONER OUTDOOR UNIT

PART 1 - GENERAL

1.01 SYSTEM DESCRIPTION

A. DUTDOOR AIR-COOLED SPLIT SYSTEM COMPRESSOR SECTIONS SUITABLE FOR ON-THE-ROOFTOP, WALL HUNG OR BALCONY MOUNTING.UNITS SHALL CONSIST OF A ROTARY COMPRESSOR, AN AIR-COOLED COIL, PROPELLER-TYPE DRAW-THROUGH OUTDOOR FAN, REVERSING VALVE(HP), ACCUMULATOR (HP UNITS), METERING DEVICE(S), AND A CONTROL BOX, UNITS SHALL DISCHARGE AIR HORIZONTALLY AS SHOWN ON THE CONTRACT DRAWINGS, UNITS SHALL FUNCTION AS THE OUTDOOR COMPONENT OF AN AIR-TO-AIR HEAT PUMP SYSTEM.

B. UNITS SHALL BE USED IN A REFRIGERATION CIRCUIT MATCHED TO DUCTLESS HEAT PUMP FAN COIL UNITS.

1.02 AGENCY LISTINGS

A. UNIT CONSTRUCTION SHALL COMPLY WITH ANSI/ASHRAE 15, LATEST REVISION, AND WITH THE NEC.

B. UNITS SHALL BE EVALUATED IN ACCORDANCE WITH UL STANDARD 1995. C. UNITS SHALL BE LISTED IN THE CEC DIRECTORY

	D. UNIT CABINET SHALL BE CAPABLE DF WITHSTANDING 500 HDUR SALT SPRAY TEST PER FEDERAL TEST STANDARD ND. 141 (METHDD 6061).
T	E. AIR-COOLED CONDENSER COILS SHALL BE LEAK TESTED AT 550 PSIG.
	1.03 DELIVERY, STORAGE, AND HANDLING
CHED WITH THE HEAT	UNITS SHALL BE SHIPPED IN ONE PIECE AND SHALL BE STORED AND HANDLED PER UNIT MANUFACTURER'S RECOMMENDATIONS.
ED IN THE AHRI	1.04 WARRANTY: FURNISH STANDARD MANUFACTURER'S WARRANTY
	PART 2 - PRODUCTS
TURER'S	2.01 EQUIPMENT
	A, GENERAL;
	UNIT ENCLOSURE SHALL BE ALL FACTORY WIRING, PIPING, CONTROLS, AND THE COMPRESSOR.
	B, UNIT CABINET:
COIL , FAN MOTOR,	1. UNIT CABINET SHALL BE CONSTRUCTED OF GALVANIZED STEEL, BONDERIZED AND COATED WITH A BAKEDENAMEL FINISH ON THE INSIDE AND OUTSIDE.
UNTRUL FURNISHED RDWARE.	2. UNIT ACCESS PANELS SHALL BE REMUVABLE WITH MINIMAL SCREWS AND SHALL PROVIDE FULL ACCESS TO THE COMPRESSOR, FAN, AND CONTROL COMPONENTS.
LY STYLED, TD FOR	3. DUTIDUR COMPARIMENT SHALL BE ISOLATED AND HAVE AN ACOUSTIC LINING TO ASSURE QUIET OPERATION.
	1 THITTOTR FANS SHALL BE DIRECT DRIVE PROPELLER TYPE, AND SHALL DISCHARGE
PE WITH AIR INTAKE AT	AIR HORIZONTALLY, FANS SHALL DRAW AIR THROUGH THE OUTDOOR COIL.
TOMATIC, MOTOR-DRIVEN MENT. THE VERTICAL SWEEP	2. DUTDOOR FAN MOTORS SHALL BE TOTALLY ENCLOSED, SINGLE PHASE MOTORS WITH CLASS E INSULATION AND PERMANENTLY LUBRICATED BALL BEARINGS, MOTOR SHALL BE PROTECTED BY INTERNAL THERMAL OVERLOAD PROTECTION.
TAL AIR DIRECTION MAY	3. SHAFT SHALL HAVE INHERENT CORROSION RESISTANCE.
GALVANIZED STEEL	4. FAN BLADES SHALL BE N⊡NMETALLIC AND SHALL BE STATICALLY AND DYNAMICALLY BALANCED.
IL SHALL HAVE A IDENSATE, THE	5. DUTDOOR FAN OPENINGS SHALL BE EQUIPPED WITH A PVC METAL/MESH COATED PROTECTION GRILLE OVER THE FAN.
	D. COMPRESSOR:
BRICATED	1. COMPRESSOR SHALL BE THE FULLY HERMETIC ROTARY TYPE.
	2. COMPRESSOR SHALL BE EQUIPPED WITH AN OIL SYSTEM, OPERATING OIL CHARGE, AND A MOTOR.
JL SYSTEM WHICH SPEED, AND RUN SELF IM 62 F TO 86 ⁰ F IN	3. MOTOR SHALL BE NEMA RATED CLASS E, SUITABLE FOR OPERATION IN A REFRIGERANT ATMOSPHERE.
ITBACK), THE ICT AS THE	4. COMPRESSOR ASSEMBLY SHALL BE INSTALLED ON RUBBER ∨IBRATION ISOLATORS.
IM:	E. DUTDOOR COIL:
SAME	COIL SHALL BE CONSTRUCTED OF ALUMINUM BLUE HYDROPHILIC PRE-COATED FINS MECHANICALLY BONDED TO SEAMLESS COPPER TUBES, WHICH ARE CLEANED, DEHYDRATED, AND SEALED.
२	F. REFRIGERATION COMPONENTS:
TS AND	REFRIGERANT CIRCUIT COMPONENTS SHALL INCLUDE A BRASS EXTERNAL LIQUID LINE SERVICE VALVE WITH SERVICE GAGE PORT CONNECTIONS, A SUCTION LINE SERVICE VALVE WITH A SERVICE GAGE CONNECTION PORT, SERVICE GAGE PORT CONNECTIONS
T	UN CUMPRESSUR SUCTION AND DISCHARGE LINES WITH SCHRADER TYPE FITTINGS WITH BRASS CAPS, ACCUMULATOR, REVERSING VALVE.
and When NΠ	G. CONTROLS AND SAFETIES:
	DPERATING CONTROLS AND SAFETIES SHALL BE FACTORY SELECTED, ASSEMBLED,AND TESTED. THE MINIMUM CONTROL FUNCTIONS SHALL INCLUDE THE FOLLOWING:
EDIUM.	1. CONTROLS:
	A. A TIME DELAY CONTROL SEQUENCE IS PRO∨IDED STANDARD THROUGH THE FAN COIL BOARD
D PUMP	B. AUTOMATIC OUTDOOR FAN MOTOR PROTECTION.
UVIDED TO	2. SAFETIES:
	A. SYSTEM DIAGNOSTICS
ANABLE FILTERS.	B. COMPRESSOR MOTOR CURRENT AND TEMPERATURE O∨ERLOAD PROTECTION C. OUTDOOR FAN FAILURE PROTECTION.H. ELECTRICAL REQUIREMENTS:
2 AND DN PPLIED	1. UNIT SHALL OPERATE ON SINGLE-PHASE, 60 HZ POWER AS SPECIFIED IN THE EQUIPMENT SCHEDULE.
	2. UNIT ELECTRICAL POWER SHALL BE A SINGLE POINT CONNECTION.
	3. UNIT CONTROL VOLTAGE TO THE INDOOR FAN COIL SHALL BE 0-15V DC.
UN IHE	4. ALL POWER AND CONTROL WIRING MUST BE INSTALLED PER NEC AND ALL LOCAL ELECTRICAL CODES.
IENTED TO IGERANT LINES	5. UNIT SHALL HAVE HIGH AND LOW VOLTAGE TERMINAL BLOCK CONNECTIONS.

UNIFORMLY TOWARD HOOD.

STAINLESS STEEL: EXPOSED DUCTWORK SERVING KITCHEN HODDS, DISHWASHER HODD AND ELSEWHERE AS NOTED. MAKE-UP AIR DUCTS CONNECTING TO OR WITHIN 18-INCHES OF A TYPE I HOOD SHALL BE CONSTRUCTED IN

ACCORDANCE WITH SECTION 15842

PRODUCTS:

WITH A MINIMUM OF TWO COATS OF HEAT RESISTANT, HIGH TEMPERATURE PAINT. SUBMIT DATA FOR REVIEW.

WELD ALL LONGITUDINAL AND TRANSVERS SEAMS, MATERIAL SHALL BE LOW CARBON TYPE 316 STAINLESS STEEL 18 GAUGE DR HEA∨IER.

DUCTS TO HOOD JOINTS SHALL BE MADE WITH CONTINUOUS INTERNAL OR EXTERNAL LIQUID TIGHT WELDS. JDINTS SHALL BE SMOOTH, ACCESSIBLE FOR INSPECTION, AND WITHOUT GREASE TRAPS. EXCEPTIONS TO CONTINUOUS WELDING ARE AS FOLLOWS:

ACCORDANCE WITH ALL OF THE FOLLOWING:

IDPENING.

1.2 THE DUCT SHALL HAVE A 1-INCH-DEEP FLANGE MADE BY A 1-INCH BY 1-INCH ANGLE IRON WELDED TO THE FULL PERIMETER OF THE DUCT NOT LESS THAN 1-INCH ABOVE THE BOTTOM END OF THE DUCT.

FLANGE AND THE TOP OF THE HOOD.

1.4 THE DUCT-TO-HOOD JOINT SHALL BE SECURED BY STUD BOLTS NOT LESS THAN 0.25-INCH IN DIAMETER WELDED TO THE HOOD WITHA SPACING NOT GREATER THAN 4-INCHES ON CENTER FOR THE FULL PERIMETER OF THE OPENING. ALL BOLTS AND NUTS ARE TO BE SECURED WITH LOCKWASHERS.

2. LISTED AND LABELED DUCT-TO-HOOD COLLAR CONNECTIONS INSTALLED IN ACCORDANCE WITH THE TERMS OF THE LISTING AND IN ACCORDANCE WITH THE MANUFACTURE'S INSTALLATION INSTRUCTIONS AND CODE. THE MANUFACTURE'S INSTALLATION INSTRUCTIONS SHALL BE AVAILABLE AT THE JOBSITE AND SHALL BE INCLUDED IN THE OPERATIONS AND MAINTENANCE MANUAL TO BE DELIVERED TO THE OWNER AT THE COMPLETION OF THE PROJECT.

DUCT TO EXHAUST FAN CONNECTIONS SHALL BE FLANGED AND GASKETED AT THE BASE OF THE FAN FOR VERTICAL DISCHARGE FANS.

VIBRATION ISOLATION CONNECTORS FOR CONNECTING A DUCT TO A TYPE I GREASE EXHAUST FAN SHALL CONSIST OF NONCOMBUSTIBLE PACKING IN A METAL SLEEVE JOINT OF APPROVED DESIGN OR SHALL BE A COATED FABRIC FLEXIBLE DUCT CONNECTOR LISTED AND LABELED FOR THE APPLICATION. VIBRATION ISOLATION SHALL BE INSTALLED AT EACH EXHAUST FAN AND SHALL BE INSTALLED ONLY AT THE CONNECTION OF A DUCT TO A FAN INLET.

GREASE DUCT SUPPORTS AND BRACING SHALL BE NONCOMBUSTIBLE MATERIALS, IDENTICLE TO THOSE USED TO CONSTRUCT THE DUCT THEY ARE SUPPORTING. FASTNERS SHALL NOT PENETRATE THE WALLS OF THE DUCT THEY ARE SUPPORTING OR BRACING.

PRIOR TO PROGRESSING ANY WORK ON PROJECT.

2

MANUAL DAMPERS: MINIMUM OF 16 GAUGE BLACK STEEL OR STAINLESS STEEL TO MATCH THE DUCT MATERIAL IT IS INSTALLED IN, MAXIMUM OF 8" BLADE, OPPOSED BLADE TYPE, WITH MANUAL LOCKING QUADRANT

ACCESS DOORS SHALL BE FABRICATED ON THE SAME MATERIAL AS THE DUCT WHITHIN WHICH IT IS INTALLED DOORS SHALL BE TWO GAUGES HEAVER THAN THE DUCT THICKNESS. DOOR SHALL BE FULLY REMOVEABLE , BRACED AND GASKETED WITH A GASKET MATERIAL RATED AT NOT LESS THAN 1,500°F WITH ANGLE IRON FRAME WELDED TO THE EXTERIOR OF THE DUCT, WELD SHALL BE GROUND SMOOTH SO THAT GREASE CANNOT COLLECT AT THE JUNCTURE OF THE FRAME, ACCESS DOOR AND DUCT.

GREASE DUCT SHALL BE ENCLOSED BY FIELD APPLIED GREASE DUCT ENCLOSURE THAT IS A LISTED AND LABELED MATERIAL, SYSTEM, PRODUCT, OR METHOD OF CONSTRUCTION SPECIFICALLY EVALUATED FOR SUCH PURPOSE IN ACCORDANCE WITH ASTM E 2336.

THE TOP SURFACE OF THE HOOD AND THE SURFACE OF THE DUCT SHALL BE CONTINUOUSLY COVERED ON ALL SIDES FROM THE POINT AT WHICH THE DUCT ORIGINATES TO THE OUTLET TERMINAL. DUCT PENETRATIONS SHALL BE PROTECTED WITH A THROUGH-PENETRATION FIRE-STOP SYSTEM CLASSIFIED IN ACCORDANCE WITH ASTM E 814 AND HAVING AN 'F' DR 'T' RATING EQUAL TO THE FIRE RESISTANCE RATING DF THE ASSEMBLY BEING PENETRATED. THE SYSTEM SHALL BE INSTALLED IN ACCORDANCE WITH THE LISTING AND THE MANUFACTURER'S INSTALLATION INSTRUCTIONS, EXPOSED DUCT WRAP SHALL BE PROTECTED FROM PHYSICAL DAMAGE.

INSLUTAION SHALL BE AS MANUFACTURED BY THERMAL CERAMICS FIREMASTER "FASTWRAP XL" OR APPROVED EQUAL. THERMAL CERAMICS FIREMASTER FASTWRAP XL IS A FLEXIBLE HIGH TEMPERATURE INSULATION RATED TO 2192°F (1200°C) THAT IS FULLY ENCAPSULATED IN FSP FACING. THE DUCT ENCLOSURE SYSTEM SHALL BE LISTED BY UL AND /OR ULC PER ASTM E 2336, CAN/ULC S144 AND ISO 6944 FOR 2-HOUR RATING AND ZERO CLEARANCE TO COMBUSTIBLES, AND TESTED PER ASTM E84 FOR A FLAME/ SMOKE RATING LESS THAN 25/50. INSULATION SHALL HAVE A NOMINAL THICKNESS OF 1-1/2 INCHES (38 MM) AND DENSITY OF 6 LBS/FT3 (96 KG/M3). INSULATION SHALL HAVE A R-VALUE DF 7.3 AT 75°F. INSTALLATION SHALL BE IN STRICT ACCORDANCE TO MANUFACTURERS PUBLISHED INSTALLATION INSTRUCTIONS, UL LISTINGS, AND SHOP DRAWINGS. 2 LAYER, 1-1/2" THICK, 2 HOUR GREASE DUCT RATING, WITH 3" PERIMETER AND LONGITUDINAL OVERLAP, FOIL ENCAPSULATED, 6 PCF DENSITY. FURNISH WITH STEEL BANDING AND CLIPS.

PROVIDE DUCT WRAP SUBMITTAL TO THE ARCHITECT OR ENGINEER AND THE CITY OF PHOENIX BUILDING INSPECTOR FOR REVIEW AND APPROVAL PRIOR TO PURCHASE AND INSTALLATION.

SECTION 15843 KITCHEN HOOD EXHAUST DUCTWORK

BLACK STEEL: CONCEALED TYPE I KITCHEN GREASE HODD EXHAUST DUCT. WELD DUCTS WATERTIGHT AND GRADE

BLACK STEEL: PROVIDE DUCTWORK IN ACCORDANCE WITH CODE AND NFPA 96 FOR ALL CONCEALED GREASE DUCT, 16 GAUGE, WELDED BLACK STEEL FOR ALL CONCEALED KITCHEN HOOD DUCTWORK. PROVIDE CLEANDUTS AND ENCASEMENT OF DUCT AS REQUIRED. GRADE DUCTWORK UNIFORMLY TOWARD HOOD OR PROVIDE GREASE TRAPS. PAINT ALL JOINTS AFTER WELDING

STAINLESS STEEL: EXPOSED KITCHEN HOOD DUCTWORK AND ALL DISHWASHER HOOD DUCTWORK, HELIARC

JDINTS, SEAMS, PENETRATIONS OF DUCTS SERVING TYPE I GREASE HOODS SHALL BE MADE WITH A CONTINUOUS LIQUID TIGHT WELD MADE ON THE EXTERNAL SURFACE OF THE DUCT SYSTEM, JOINTS SHALL BE BUTT JDINTS OR OVERLAPPING BELL JDINTS, OVERLAPPING JDINTS SHALL BE CONSTRUCTED AND INSTALLED TO PREVENT LEDGES AND OBSTRUCTIONS FROM CATCHING GREASE OR INTERFERING WITH GRAVITY DRAINAGE TO THE INTENDED COLLECTION POINT.

1. A VERITCAL DUCT-TO-HOOD COLLAR CONNECTIONS MADE IN THE TOP PLANE OF THE HOOD IN

1.1 THE HOOD DUCT OPENING SHALL HA∨E A 1-INCH-DEEP, FULL PERIMETER, WELDED FLANGE TURNED DOWN INTO THE HOOD INTERIOR AT AN ANGLE OF 90 DEGREES FROM THE PLANE OF THE

1.3 A GASKET RATED FOR USE AT NOT LESS THAN 1,500°F IS INSTALLED BETWEEN THE DUCT

TURNING VANES: FACTORY FABRICATED, SINGLE THICKNESS, STAINLESS STEEL WITH 1" TRAILING EDGE. SHOP FABRICATED DUCT TURNS SHALL BE SUBMITTED FOR APPROVAL

COORDINATE TESTING AND SUBMISSION OF THE SPECIAL INSPECTION REQUIRED BY THIS SCOPE OF WORK.

REVISION: 12-15-2019 ENGINEER CORR 2 CITY REVIEW COMMENT ▲ 06-10-2019 **PROJECT NO:** 16135.00 **DRAWN BY:** SVF CHECKED BY: SVF **ISSUE DATE:** 12/15/2019 COPYRIGHT CSEI 2019 24486 STANLEY V. FOX 12/15/

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ISSUED FOR:

BUILDING

PERMIT

BIDDING

37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325

WEB SITE www.augustreno.com EMAIL ADDRESS augie@augustreno.com

PO BOX 2302 Carefree, AZ 85377 37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325 WEB SITE www.augustreno.com EMAIL ADDRESS augie@augustreno.com

Construction Drawings: FIRST FLOOR PLAN DEMO – NORTH

SHEET NO:

REFER TO WASTE AND VENT SCHEMATIC ON SHEET P2.2 AND WATER SCHEMATIC ON SHEET P2.3 FOR WATER, WASTE & VENT IN THIS LOCATÍON

2ND FLOOR DEMO PLAN - NORTH Scale: 1/8"=1'-0"

KEYED & GENERAL NOTES **ISSUED FOR:** BUILDING PERMIT 1 EXISTING 4" VENT UP THROUGH ROOF FROM 1ST FLOOR. REMOVE AND REPLACE ALONG WITH ANY OTHER VENTS ABOVE 1ST FLOOR CEILING THAT SERVE 1ST FLOOR FIXTURES. A SECOND FLOOR IS BEING INSTALLED IN THIS AREA OF THE BUILDING SO ACCOMMODATE IT BIDDING 2 EXISTING 4" WASTE STUBBED UP ABOVE THE CEILING IN THIS APPROXIMATE LOCATION FROM 1ST FLOOR, REMOVE AND REPLACE ALONG WITH ANY OTHER WASTE LINES NOT ILLUSTRATED ABOVE 1ST FLOOR CEILING THAT WERE TO **REVISION:** Δ SERVE 2ND FLOOR FIXTURES. A SECOND FLOOR IS BEING INSTALLED IN THIS AREA OF THE BUILDING SO ACCOMMODATE IT Δ 12-15-2019 ENGINEER CORR CITY REVIEW COMMENTS 66-10-2019 CITY REVIEW COMMENTS **PROJECT NO:** 16135.00 SVF **DRAWN BY:** CHECKED BY: SVF **ISSUE DATE:** 12/15/2019 COPYRIGHT CSEI 2019 24486 TANLEY I • H HURC HIGHWA ____<u>MATCHLINE</u> SEE SHEET PD1.4 ● ____ CAREFREE CH 5025 E. CAREFREE F PHOENIX, A

PO BOX 2302 Carefree, AZ 85377

37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325

> WEB SITE www.augustreno.com EMAIL ADDRESS augie@augustreno.com

Construction Drawings: 2ND FLOOR PLAN DEMO – NORTH

SHEET NO:

PD1.3

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<u>2ND FLOOR DEMO PLAN – SOUTH</u>

KEYED & GENERAL NOTES

- 1 EXISTING 4" VENT UP THROUGH ROOF FROM 1ST FLOOR WILL NEED TO BE REMOVED AND REPLACED ALONG WITH THE VENTS ABOVE 1ST FLOOR CEILING THAT SERVE 1ST FLOOR FIXTURES THAT WE COULD NOT SEE, FIELD VERIFY EXTENT AND REMOVE/RELOCATE AS REQUIRED, VENT THROUGH ROOF TO BE RE-USED IN ITS EXISTING LOCATION IF POSSIBLE, REFER TO NEW SECOND FLOOR PLAN
- 2 2" WATER LINE UP TO BELOW ROOF STRUCTURE TO BE REMOVED, FIELD VERIFY SIZE AND LOCATION
- 3 REMOVE EXISTING 2" WATER LINE DROP TO 1ST FLOOR
- EXISTING 2" VENT UP FROM 1ST FLOOR TOILET ROOM TO BE REMOVED TO BELOW ROOF. VENT THROUGH ROOF TO BE RE-USED IN ITS EXISTING LOCATION. REFER TO NEW SECOND FLOOR PLAN
- 5 EXISTING 4" WASTE STUBBED ABOVE FLOOR. RELOCATE AS REQUIRED TO PERMIT THE INSTALLATION OF THE 2ND FLOOR STRUCTURE

ISSUED FOR:

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PO BOX 2302 Carefree, AZ 85377

37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325

WEB SITE www.augustreno.com EMAIL ADDRESS augie@augustreno.com

Construction Drawings: 2ND FLOOR PLAN DEMO – SOUTH

PD1.4

SHEET NO:

GENERAL NOTES AND GREASE INTERCEPTOR CALCULATION

1. HOT WATER LINES ARE TO BE INSULATED WITH MINIMUM 1" THICK INSULATION HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 BTU PER INCH/Hr FT.SQ. X *F. (TYPICAL).

2. NEW WATER SUPPLY AND RETURN LINES ABOVE FLOOR ARE TO BE TYPE L COPPER WITH WROUGHT SOLDER FITTINGS.

3. NEW WATER LINES BELOW FLOOR ARE TO BE TYPE K ANNEALED TUBING WITH NO JOINTS PERMITTED BELOW THE FLOOR.

4. NEW ANGLE STOPS ARE TO BE INSTALLED WITH CHROME PLATED BRASS ESCUTCHEONS AT EACH PLUMBING FIXTURE CONNECTION. VALVES SHALL BE 1/4 TURN CHROME PLATED BRONZE

5. NEW WATER LINES BELOW FLOOR TO BE RUN WITHIN 3" MINIMUM CONDUIT FOR SERVICE AND REMOVAL. HOT WATER SUPPLY AND RETURN ARE TO BE RUN IN ONE CONDUIT AND COLD WATER LINES ARE TO BE RUN SEPARATELY IN ANOTHER (TYPICAL) HOT WATER LINES ARE TO BE INSULATED WITH MINIMUM 1" THICK INSULATION HAVING A CONDUCTIVITY NOT EXCEEDING 0.27 BTU PER INCH/Hr FT.SQ, X *F. (TYPICAL)

6. NEW WASTE AND VENT LINES ARE TO BE SCHEDULE 40 ABS DWV OR PVC PLASTIC

7. NEW FLOOR SINKS ARE TO BE WATTS FS-790 12 IN. SQUARE X 8" DEEP TYPE 304 STAINLESS STEEL SANITARY FLOOR SINK WITH FLANGE, LOOSE SET 1/2" CAST STAINLESS STEEL GRATE, STAINLESS STEEL BASKET STRAINER AND NO-HUB DUTLET WITH TRAP PRIMER CONNECTION. MODEL FS-780, 6" DEEP MAY BE USED IF THE WASTE LINE IS NOT DEEP ENDUGH, FURNISH AN ALTERNATE PRICE TO THE OWNER FOR WATTS FS-740 SANITARY FLOOR SINK, ENAMELED STEEL FLOOR SINK WITH BASKET STRAINER AND 1/2 GRATE FOR CONSIDERATION

8. FLOOR CLEANOUTS ARE TO BE WATTS CO-1200-S ADJUSTABLE WITH SQUARE STAINLESS STEEL COVER AND GASKETED BRASS CLEANDUT PLUG

9, WALL CLEANDUTS ARE TO BE PLASTIC BODY WITH PLASTIC PLUG AND STAINLESS STEEL COVER,

10. REMOVE WATER, WASTE AND VENT LINES THAT ARE INSTALLED SERVING EXISTING PLUMBING FIXTURES OR STUBBED UP FOR FUTURE CONNECTION AS REQUIRED TO FACILITATE THE INSTALLATION OF THE NEW SECOND FLOOR. REINSTALL AND MAKE EXISTING PLUMBING FIXTURES TO REMAIN ACTIVE.

11. SLOPE WASTE LINE AT 1/4" PER FOOT IN DIRECTION OF FLOW FURNISH TRAP PRIMERS ON ALL FLOOR DRAINS AND FLOOR SINKS

12. ALL VALVES ARE TO BE FULL PORT 2-PIECE, BRONZE BODY BALL VALVES WITH STAINLESS STEEL BALL AND BLOW-OUT PROOF STEM, GALVANIZED STEEL HANDLE

13. SAWCUT AND REMOVE CONCRETE FLOOR AND WALK AS REQUIRED TO INSTALL NEW WASTE LINES FLOOR TO BE RESTORED TO ORIGINAL CONDITION AND FINISH

14. VARIOUS ITEMS OF EQUIPMENT WILL BE FURNISHED BY THE OWNER. THE EQUIPMENT WILL BE INSTALLED BY THE CONTRACTOR, COORDINATE THE SCOPE OF WORK THAT WILL BE REQUIRED BY THIS TRADE PRIOR TO BID AND INCLUDE IN THE BID THOSE ITEMS INCLUDING MATERIAL, LABOR, START-UP, CERTIFICATION, ETC AS REQUIRED TO PLACE THE EQUIPMENT IN PROPER OPERATION FOR A COMPLETE SYSTEM.

15. SHUT DOWN OF WATER SERVICE SHALL BE COORDINATED WITH OWNER AND SHALL SHALL BE SCHEDULED AT A TIME TO HAVE THE LEAST NEGATIVE IMPACT ON OPERATION AS IS PRACTICAL.

16. WATER LINE AND FILTERED WATER LINE TO ICE MACHINE IS TO BE INSULATED WITH VAPOR BARRIER SEALED TO LINE AT INSULATION ENDS WITH VAPOR BARRIER MASTIC

17. FOOD PREP SINK SHALL BE INDIRECT WASTE.

18. SINKS USED FOR WASHING POTS, PANS, ETC. SHALL BE DIRECT WASTE.

19. SINKS USED FOR WASHING GREASE LADEN POTS, PANS, ETC. SHALL BE DIRECT WASTE TO THE GREASE WASTE LINE. IF SINK BOWL IS DEDICATED TO SANITIZING IT SHALL BE INDIRECT WASTE.

20, HAND AND DUMP SINKS SHALL BE DIRECT WASTE

21. ALL BOWLS OF MULTI-COMPARTMENT SINKS SHALL BE USED FOR THE SAME PURPOSE IE: A MULTI COMPARTMENT SINK SHALL NOT BE USED FOR FOOD PREP AND WASHING PURPOSES.

22. THE DIRECT VENT/SEALED COMBUSTION DUTSIDE AIR AND VENT LINES SHALL BE FURNISH AND INSTALLED IN ACCORDANCE WITH THE WATER HEATER AND VENT MANUFACTURE'S U.L. LISTING, MANUFACTURE'S INSTALLATION INSTRUCTIONS AND CURRENT CDDE.

GREASE INTER	RCEPT	ΓDR		SUBTOTAL
	QTY		DFU/FIXTURE	DFU
DISHWASHER	1	Х	4	4
3-COMP SINK	1	Х	3	3 NO DISPOSER, NO PRE-RINSE
1-COMP PREP	1	Х	3	3
SERVICE SK	1	Х	3	3
FLOOR SINK	6	Х	2	12
			TOTAL	25 DFU

25 DFU X 3 GPM/DFU X 12 MINUTES = 900 GALLENS FURNISH AND INSTALL OLD CASTLE PRECAST MODEL 2010-SA, 1000 GALLON GREASE INTERCEPTOR COMPLETE WITH TOP AND (3) 24" COVERS AND FRAMES WITH GRADE RINGS AS REQUIRED, COVERS SHALL BE GAS-TIGHT

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SITE KEYED NOTES

1 REPLACE 2" TEE DOWNSTREAM OF THE EXISTING BACKFLOW PREVENTERS WITH NEW 3" PER THE WATER SCHEMATIC, SHEET P2.3 AND CONNECT NEW 2-1/2" CW TO THE NEW 3" ON THE DISCHARGE SIDE OF BOTH BACKFLOW PREVENTORS, EXTEND UNDERGROUND TO SOUTHEAST CORNER OF BUILDING E

INSTALL NEW WATER LINE.

PAINT PARKING STALLS IN DRIGINAL LOCATIONS.

ARDUND TREE ROOTS. BACKFILL TRENCH AND RESTORE LANDSCAPE AND DRIP IRRIGATION SYSTEM TO ORIGINAL CONDITION.

PO BOX 2302 Carefree, AZ 85377

37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325

WEB SITE www.augustreno.com EMAIL ADDRESS augie@augustreno.com

Construction Drawings: PARTIAL FLOOR PLAN

SHEET NO:

P1.1

SEE SHEET P1.2	 KEYED & GE 1 ELEVATOR SUMP PUMP INSTALL A 1/2HP, 120V PIT FLOOR FURNISH CH CORD ZOELLER #N137 (HEAD, 26' SHUT-OFF HI SWITCH MOUNT ON VAL FLOOR, FURNISH WITH O POWER CONNECTOR, 20 REQUIRED, ITHIS IS SUI DID NOT HAVE ACCESS DESIGN TO PROVE IT E COST AS AN ALLOWANC 2 RUN 1-1/2" ELEVATOR SUMP CEILING 3 1-1/2" ELEVATOR SUMP CEILING 4 DIRECT VENT LINES UF WALL ON 2ND FLOOR, O CONTRACTOR 5 GAS DOWN TO GAS SOL AT KITCHEN EQUIPMENT 6 CONNECT NEW VENT TO CEILING 7 EXISTING HOT AND COL FLOOR TOILET ROOM AN REMAIN IN SERVICE, FI ELEVATION OF THE REQUIRED, (TYPICAL AT ROOMS 8 EXTEND VENT TUP THR SECOND FLOOR 9 HW DOWN TO DW 10 3/4" GAS DOWN TO SINKS 11 HW DOWN TO SINKS 12 CW DOWN TO SINKS 13 CONNECT EXISTING 4" Y 	ENERAL NOTES AND CONTROL NOTES: FURNISH AND OLT/10 SUMP PUMP ON ELEVATOR ECK AND GATE VALVE AND POWER GRAINGER 4NV97) BGPM AT 25' FAD ZOELLER OIL SMART PUMP L AT +72' ABOVE ELEVATOR PIT DIL SMART SENSOR, PIGGYBACK AMP RELAY CORD LENGTH AS POSED TO BE EXISTING BUT WE TO THE ELEVATOR AREA DURING EXISTS, PLEASE PROVIDE THIS E IN THE PLUMBING BID.] UGH WALL AT +6'AFG AND TURN 'E PUMP DISCHARGE LINE ABOVE C THROUGH FLOOR ABOVE INTO CORDINATE WITH FRAMING ENOID VALVE AND SUPPLY HEADER LINE I EXISTING AND EXTEND ABOVE D WATER LINES FEEDING FIRST ID DRINKING FOUNTAIN ARE TO ELD VERIFY AND ADJUST S REQUIRED TO ACCOMMODATE THE SECOND FLOOR INTO WALL ON ' AFF, TURN OUT THROUGH WALL FOR FUTURE APPLIANCE VENT ON 1ST FLOOR AND EXTEND LOR	ISSUED FOR: BUILDING PERMIT BIDDING REVISION: ▲ ▲ ▲ 12-15-2019 ENGINEER CORR & CITY REVIEW COMMENTS 06-10-2019 CITY REVIEW COMMENTS 06-10-2019 CITY REVIEW COMMENTS 06-10-2019 CITY REVIEW COMMENTS 16135.00 RAWN BY: SVF CHECKED BY: SVF ISSUE DATE: 12/15/2019 COPYRIGHT CSEI 2019
EXISTING 4" W BELL	IW PLAYGROUND		CAREFREE CHURCH 5025 E. CAREFREE HIGHWAY, PHOENIX, AZ
 INSTALL NEW BALL BUILDIN +14" ABOVE C +18" ABOVE C REFE CONT NEW FINA COMF	2-1/2" WITH FULL PORT G ISOLATION VALVE AT GRADE AND NEW <u>HB</u> AT GRADE R TO PARTIAL SITE PLAN FOR INUATION OF NEW 2-1/2" WATE GAS METER. COORDINATE L LOCATION WITH GAS PANY	TR LINE	AUGUST RENO
			PO BOX 2302 Carefree, AZ 85377 37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325 WEB SITE www.augustreno.com EMAIL ADDRESS augie@augustreno.com DARTIAL ADDRESS PARTIAL FLOOR PLAN — SOUTH
 		Saguaro Engineers, In Consulting Engineers 12020 N. 35TH AVENUE, SUITE 111A Phoenix, AZ 85029 PH: (602) 870-2018 Proj. No: 17128.0	P1.3

P1.4

PROJECT NO: 16135.00 DRAWN BY: SVF CHECKED BY: SVF ISSUE DATE: 12/15/2019

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37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325

WEB SITE www.augustreno.com EMAIL ADDRESS augie@augustreno.com

Construction Drawings: 2ND FLOOR PLAN -SOUTH

P1.5

SHEET NO:

DISHWASHER DOES NOT HAVE PRE-RINSE SINK OR DISPOSER PER ARCHITECT

DESCRIPTION	QTY		FU E	ACH	SUBTOT	AL FU	
	SUBTOTAL	TOTAL	WATER	WASTE	WATER	WASTE	
IDDULARS (THERE ARE 4 DN SITE)							
XISTING WATER CLOSET	4	4	5	4	20	16	
XISTING LAVATORY	4	4	2	1	8	4	
LASSROOM A BUILDING	1		BUILD	ING TOTAL	: 28	20	
XISTING WATER CLOSET	5	5	5	4	25	20	
XISTING URINAL	3	3	5	2	15	6	
XISTING LAVATORY	5	5	2	1	10	5	
DSE BIBB	2	2	3	N/A	6	N/A	
XISTING DRINKING FOUNTAIN	2	2	0.25	0.5	0.5	1	
			BUILD	L ING TOTAL	56.5	32	
XISTING WATER CLOSET	2	2	5	4	10	8	
XISTING LAVATORY	2	2	2	1	4	2	
	2	2	0.25	0.5	.5	1	
	2	2		N/A	.0	N/A	
			BUILD	ING TOTAL	: 20.5	11	
AINTENANCE D BUILDING	1	1	5	4	5	4	
	1	1	2 	4	2	4 1	
VISTING LAVATURT	1	1	2	1	2	1	
AISTING HAND WASH SINK (LAV)		1	Ζ		2		
DSE BIBB	2	2	3	N/A	6	N/A	
XISTING EVAP COOLER (3/8" LINE)	1	1	1 ית וזווס.		1	N/A	
ULTIPURPOSE E BUILDING	11						
EW WATER CLOSET	11 19	30	5	4	150	120	
XISTING URINAL EW URINAL	3 3	6	5	2 4	2 30	12	
XISTING LAVATORY EW LAVATORY	10 9	19	2	1	38	19	
XISTING SERVICE SINK (2")	1	1	3	2	3	2	
XISTING DRINKING FOUNTAIN	4	8	0.25	0.5	2	4	
XISTING HOSE BIBB	4	4	3	N/A	12	N/A	
EW CLASSROOM SINK	18	18	2	1	36	18	
EW KITCHEN HAND WASH SINK (LAV)	1	1	2	1	2	1	
EW 3-COMP KITCHEN SINK	1	1	4	2	4	2	
EW PREP SINK	1	1	4	INDIRECT	4	INDIRE	
EW SHOWER (PRIVATE OFFICE)	1	1	1.4	2	1.4	2	
		1	.3		.3		
EW JISHWHSHLK		1	1		2 1	INDIRF	
E IOL HONDEED		1	0.25		0.25		
EW 2" FLAAR SINK	ь К	-	0.20	2	0.20	12	
XISTING 2" FLOOR DRAIN	2	0				12	
EW 2" FLOOR DRAIN	2	4		0		<u> </u>	
KE PUBLIC USAGE; 2012 IPC E FLUSH TANK			$^{\wedge}$	TOTAL	286.65	192	

CONNECTION SCHEDULE

D /	HW - 120°	HW - 140	GAS	MAX FLOW	REMARKS
4	_	_	_	1.6 GPF	ADA COMPLIANT
4″	3/4″	_	_	0.5 GPM	ADA COMPLIANT, ANTI SCALD MIXING VALVE
,	1″		_	_	WITH VACUUM BREAKER
A		-	_	1 GPF	
4″	3/4″	-	_	-	ADA COMPLIANT
4″		3/4″	_	_	
2″	_	_	_	-	FURNISH STAINLESS STEEL REDUCED PRESSURE BACKFLOW PREVENTER
2″	_	-	_	-	EXTRA DEEP WITH 1/2 SOLID COVER AND TRAP PRIMER
2″	_	_	_	_	NICKLE BRONZE SQUARE TOP STRAINER ALIGN WITH TILE FLOOR, TRAP PRIMER
,		۱ <i>″</i>	_	3 GPM	SANITIZE COMPARTMENT INDIRECT TO FS
	Z	2 1"			FURNISH STAINLESS STEEL REDUCED PRESSURE BACKFLOW PREVENTER
1″					FURNISH STAINLESS STEEL REDUCED PRESSURE BACKFLOW PREVENTER

	PUMP SCHEDULE									
MARK	MANUF.	MODEL	GPM	TDH	۴F	WATTS	VOLTS/PH	RPM	DPERATING WEIGHT	REMARKS
P-1	BELL & GOSSETT XYLEM	E3-4∨/BTPRZ	2.5	5	110	10	120/1	1750	2 lbs.	
P-2	ZDELLER XYLEM	N-137	8	20	80	1/2HP	120/1	1750	5 lbs.	GRAINGER 4N∨97, WITH DIL SENSDR SHUT-DFF

P-1 PUMP SHALL BE ALL LEAD FREE BRASS CONSTRUCTION, PROGRAMMABLE TIMER AND BUILT-IN THERMOSTAT CHECK AND BALL VALVES. THE BUILT-IN TEMPERATURE SENSOR WILL TURN THE CIRCULATOR OFF WHEN IT REACHES 110'F AND SHALL TURN THE CIRCULATOR ON WHEN IT REACHES 100'F. THE PROGRAMMABLE TIMER OCCUPIED SETPOINTS SHALL MATCH THE WATER HEATER OCCUPANCY SCHEDULE HOWEVER THE ON SETPOINT SHALL BE DELAYED 2 HOURS BEHIND THE WATER HEATER'S TURN ON TIME TO ALLOW THE WATER HEATER TO COME UP TO OPERATING TEMPERATURE. THE TIMER SHALL HAVE A BUILT-IN SWITCH SELECTOR FOR ON-OFF-TIMER OPERATION. IN THE EVENT THAT THE TIMER IS NOT CAPABLE OF BEING PROGRAMMED TO MATCH THE WATER HEATER, IT SHALL BE SET TO "ON" AND POWER FURNISHED FROM THE TIMER SERVING THE WATER HEATER.

		THERMAL EXPANSION TANK SCHEDULE												
		MARK	MA	NUF.	MODEL	TYPE	NET. □PER V□LUME LISTING WEIGHT REMARKS			REMARKS				
		XT-1	XT-1 AMTROL THERM-X-TRO ST-5-C			BLADDER	5 GALLONS	ASME	21	21 (1) 10Ø × 11"HIGH				
	FLOOR MOUNTED. PROVIDE WITH FDA BLADDER AND STAINLESS STEEL CONNECTION													
	DIRECT VENT GAS WATER HEATER SCHEDULE													
		MARK	MANUF.	MODEL	STORAGI CAP.(GAL	E OUTP _) TEMP.	UT F GAS	INPUT	ELECTRICA		GPH DELIVERY 60°F RISE	REMARKS		
		WH-1	STATE	SUF60-120N	E(A) 60	14(120,000	р втин	120-1ø-60Hz (receptacle))-1ø-60Hz ceptacle) 230 U.L. LISTED, 10		10 YEAR W	ARRANTY	
								~~						
		FURNISH V DIRECT VE	MTH FAC NT, CLOS	TORY T&P RE SED COMBUST	LIEF VALVE, A ON, FURNISH F	DJUSTABLE 1 PIPE COVER	HERMOSTAT S AT BOTTOM O	ET AT 130° F UNIT, FAC	F MIN -140°F CTORY ROOF \	MAX, 9 /ENT INL	5 EFFICIENCY ET AND TERMINAT	ION KIT ON C	CURB.	
			T,	ANK -	TYPE \	NATEF	r hea	TER	SCHE	DUL	E (ELE	CTRIC)	
MARK	MANUF.	SERIES	S	MODEL	STORAGE CAP.(GAL)	OUTPUT TEMP. F°	WATTS INF	YUT	RECOVERY /TEMP. RI	(GPH) SE	ELECTRICAL V/PH/HZ	DIMENS DIAMETER	IDNS HEIGHT	REMARKS
H-2	A.D.SMITH	CONSERVATI PROLINE	IDNIST XE	PXNT-55	55	110	2 @ 600 SIMULTA)0 NDN- ANEDUS	25/90°	 -	208-1-60	24″	56.5″	123

1 HEAT TRAPS, R12.5 2" THICK FDAM INSULATION, PROVIDE THE PERFORMANCE ENERGY FACTOR DR GREATER PER TABLE C404.2 DF THE 2012 IECC, (0.92 FOR A 50 GALLON WATER HEATER). 2 PROVIDE AN EXPANSION TANK FOR EACH HOT WATER SYSTEM A.D. SMITH MODEL ETC-10X DIAPHRAGM TYPE, 150 PSIG RATING PROVIDE OWNER WITH 3 YEAR MANUFACTURE'S WARRANTY. 3 PROVIDE GALVANIZED STEEL DRIP PAN WITH DRAIN TO OUTDOORS. UNIT SHALL HAVE BRASS DRAIN, BRASS T&P RELIEF VALVE ANDDE ROD, AND THERMOSTATIC CONTROLS, FACTORY HEAT TRAP NIPPLES.

TAP TO METER AND METER TO FURTHEST FIXTURE 1020 FT. 204 FT. TOTAL DEVELOPED LENGTH 1224 FT. FIXTURE UNITS = 407.65GPM DOMESTIC= 106 VERTICAL HEAD =10 $(10 \text{ FT STATIC LOSS}) \times 0.43 = 4.3$ DEVICE PSI LOSS TAP AT WATER MAIN 2 LOSS THROUGH METERS 6.0 2 X EXISTING 1-1/2" METERS 53 GPM EACH LOSS THROUGH BACKFLOW 10 STATIC HEAD 4.3 <u>FIXTURE</u> <u>8</u> PSI SUM OF PRESSURE LOSSES 30.3 55 PSI STREET PRESSURE <u>30.3</u> PSI 24.7 PSI PRESSURE LOSSES DIFFERENCE 24.7 PSI / 1224FT. X 100 = 2.0 MAXIMUM PSI DROP ALLOWABLE PER 100 FT. PIPE LENGTH 2012 IPC FIGURE E103.3(3)USED SIZE MAX FU 1/2"ø 14 3/4"ø 1.5 1"ø 3.9

WH-2

1-1/4"ø 5.8 1-1/2"ø 29.2 120 2"ø 2—1/2"ø 290 3"ø 641 THIS BUILDING IS SERVED BY TWO EXISTING 1-1/2" WATER METERS AND 2" LINE. THE 2" LINE IS NOT ADEQUATE FOR THE NEW AND EXISTING BUILDING WATER DEMAND IN BUILDING E NEW BUILDING E WATER FIXTURE UNITS 286.65 FU ✓ EXISTING 2" WATER LINE CAPACITY <u>120.0 FU</u> REMAINING WATER LINE LOAD \setminus A NEW 2-1/2" WATER LINE SHALL BE EXTENDED FROM THE WATER METERS TO THE BUILDING AND WILL BE USED TO HANDLE THE FULL WATER LOAD OF THE BUILDING. THE EXISTING WATER LINE SHALL BE CAPPED AND ABANDONED AT THE BUILDING.

▲ ▲ 12-15-2019 ENGIN & CITY REVIEW 06-10-2019 CITY REVIEW	EER CORR COMMEN COMMENT
PROJECT NO:	16135.00
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SSUE DATE: 2/15/2019 COPYRIGHT C	SEI 2019
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ISSUED FOR:

BUILDING

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BIDDING

REVISION:

SITE WATER CALCULATION

PL	UMBIN	IG SYMBOL LIST
SYMBOL	ABBREV.	DESCRIPTION
	W	WASTE PIPING
	V	VENT PIPING
	CW	COLD WATER PIPING
	нм	HOT WATER PIPING
	HWR	HOT WATER RETURN PIPING
—F	F	FIRE SPRINKLER PIPE
·//////		EXISTING TO BE REMOVED
	GPM	GALLONS PER MINUTE
	GPF	GALLONS PER FLUSH
\boxtimes	FS	FLOOR SINK
Ø	FCO	FLOOR CLEANOUT
Ø	SCO	SURFACE CLEANOUT
ت U	wco	WALL CLEANOUT
<u>SA</u>	SA	SHOCK ABSORBER
<u>—ф</u> —	BV	BALL VALVE
	GV	GATE VALVE
	CV	CHECK VALVE
		UNION OR DIELECTRIC UNION
<u> </u>	PG	PRESSURE GAUGE
•	P.O.C.	POINT OF CONNECTION
\otimes	F.S.R.	FIRE SPRINKLER RISER
	V.B.	VACUUM BREAKER
	A.F.F.	ABOVE FINISH FLOOR
	A.F.G.	ABOVE FINISH GRADE
	НВ	HOSE BIBB
	WH	WALL HYDRANT

PO BOX 2302 Carefree, AZ 85377

37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325

> WEB SITE www.augustreno.com EMAIL ADDRESS augie@augustreno.com

Construction Drawings: PLUMBING SCHEDULES

P2.1

SHEET NO:

THIS VENT LATERAL APPEARS TO BE VERY HIGH AND ABOVE THE EXISTING CEILING IN

THE LINE AND INSTALL NEW VENT LINE

2 CONNECT NEW 4" SECOND FLOOR WASTE LINE

WITHIN WALL AS INDICATED

THE WAY OF THE NEW SECOND FLOOR. REMO∨E

Saguaro Engineers, Inc Consulting Engineers 12020 N. 35TH AVENUE, SUITE 111A Phoenix, AZ 85029 PH: (602) 870-2018 Proj. No: 17128.00

SHEET NO:

P2.2

REVISION:

ISSUED FOR: BUILDING

BIDDING

PERMIT

SECTION 15400 SUMMARY OF WORK FOR PLUMBING SCOPE:

THE WORK UNDER THESE SECTIONS INCLUDE FURNISHING AND INSTALLING PLUMBING SYSTEMS AS SHOWN ON THE DRAWINGS. ALL WORK TO COMPLY WITH THE 2012 INTERNATIONAL PLUMBING CODE, 2012 IPC, AND ALL CITY OF PHOENIX ADOPTED CODES AND AMENDMENTS.

INSTALLING CONTRACTOR(S) SHALL CALL THE CITY BUILDING INSPECTOR FOR INSPECTION AND WITNESS TESTING PRIOR TO CONCEALING WATER, SEWER, NATURAL GAS PIPING.

PIPE PENETRATIONS THROUGH RATED WALLS AND FLOORS SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASES. ALL MATERIALS TO BE APPROVED OR LISTED. SUBMIT FIRE STOPPING MATERIALS FOR REVIEW AND APPROVAL TO THE ARCHITECT OR ENGINEER AND CITY BUILDING INSPECTOR AND MAINTAIN ON SITE DURING THE COURSE OF CONSTRUCTION

GAS PIPING SHALL NOT PENETRATE BUILDING FOUNDATION WALLS AT ANY POINT BELOW GRADE. GAS PIPING SHALL ENTER AND EXIT A BUILDING AT A POINT ABOVE GRADE AND THE ANNULAR SPACE BETWEEN THE PIPE AND THE WALL SHALL BE SEALED.

PROVIDE THIRD PARTY TESTING AND CERTIFICATION OF ALL NATURAL GAS PIPE AND FITTINGS PRIOR TO COVER OR CONCEALING, IFGC. SUBMIT THE CERTIFICATION TO THE ARCHITECT OR ENGINEER AND THE CITY BUILDING INSPECTOR PRIOR TO CONCEALING PIPING.

SECTION 15401

DOMESTIC WATER SYSTEM INSTALL ALL PIPING ABOVE FLOOR UNLESS NOTED OTHERWISE ON THE DRAWINGS, USE WROUGHT COPPER SOLDER TYPE FITTINGS AT ALL COPPER PIPE CONNECTIONS, TUBE DRAWING IS NOT APPROVED. PIPING:

TYPE "L" HARD DRAWN COPPER, CONFORMING TO ASTM B88, FOR ALL WATER PIPE NOT SET IN OR UNDER CONCRETE OR IN THE GROUND.

TYPE "K" HARD DRAWN COPPER, CONFORMING TO ASTM B88, FOR WATER PIPE SET IN THE GROUND BUT NOT UNDER CONCRETE FLOOR SLABS.

TYPE "K" SOFT DRAWN COPPER, CONFORMING TO ASTM B88, FOR ALL WATER PIPE SET BELOW CONCRETE FLOOR SLAB, INSTALL NO JOINTS BELOW FLOOR SLAB.

FITTINGS: PROVIDE WROUGHT COPPER SOLDER TYPE FITTINGS CONFORMING TO ANSI B16.22 (1963) FOR ALL CONNECTIONS TO COPPER PIPING.

BALL VALVES:

APOLLO FOR VALVES UP TO 2" IN DIAMETER SOLDER END JOINTS WITH EXTENDED SOLDER CUPS SHALL BE 600 PSI CWP, CAST BRASS BODY, REPLACEABLE REINFORCED TEFLON SEATS, FULL PORT, BLOWOUT-PROOF STEMS, AND CHROME-PLATED BRASS BALL.

SOLDER

LINES 1/2" THROUGH 2": USE LEAD FREE SOLDER WITH SUITABLE FLUX. CONFORM TO COPPER DEVELOPMENT INSTITUTE RECOMMENDATIONS AND CODE REQUIREMENTS. BRAZE LINES 2-1/2" AND LARGER.

EXTEND WATER PIPING TO ALL FIXTURES, OUTLETS AND EQUIPMENT. PROVIDE SHUTOFF VALVES OR FIXTURE STOPS AS REQUIRED FOR PROPER SERVICE. PITCH WATER PIPING TO DRAIN AND INSTALL ALL NECESSARY DRAIN VALVES. BURY ALL COPPER UNDERGROUND WATER PIPING A MINIMUM OF 24" BELOW FINISH GRADE. COORDINATE OVERHEAD PIPING WITH MECHANICAL DUCTWORK AND ELECTRICAL CONDUITS.

STERILIZATION

STERILIZE THE ENTIRE WATER DISTRIBUTION SYSTEM THOROUGHLY WITH A SOLUTION CONTAINING NOT LESS THAN 50 PARTS PER MILLION OF AVAILABLE CHLORINE, FOR THE CHLORINATING MATERIAL USE SODIUM HYPOCHLORITE SOLUTION, CONFORMING TO FEDERAL SPECIFICATION 0-8-441, GRADE D, AND INTRODUCE INTO THE SYSTEM IN A MANNER APPROVED BY THE ARCHITECT. ALLOW THE STERILIZING SOLUTION TO REMAIN IN THE SYSTEM FOR A PERIOD OF 8 HOURS, DURING WHICH TIME ALL VALVES AND FAUCETS SHALL BE OPENED AND CLOSED SEVERAL TIMES. AFTER STERILIZATION, FLUSH THE SOLUTION FROM THE SYSTEM WITH CLEAN WATER UNTIL THE RESIDUAL CHLORINE CONTENT IS NOT GREATER THAN 0.2 PARTS PER MILLION, UNLESS OTHERWISE DIRECTED. *** NOTE: CONTRACTOR SHALL PROVIDE OWNER WITH CERTIFICATION OF TEST RESULTS. ***

TEST

FILL SYSTEM WITH WATER AND PRESSURIZE TO 125 PSI AND HOLD FOR FOUR (4) HOURS WITH NO PRESSURE DROP. TEST AND DBTAIN APPROVAL ON ALL UNDERGROUND PIPING BEFORE COVERING WORK.BEFORE COVERING WORK.

PROVIDE NECESSARY ALLOWANCE IN PIPING SYSTEMS TO HANDLE EXPANSION AND CONTRACTION. INSTALL AMPLE SWINGS OR OFFSETS IN BRANCH CONNECTIONS TO AVOID UNDUE STRAINS ON FITTINGS OR SHORT PIPE SUPPLIES. WHERE SHOWN ON THE DRAWINGS OR REQUIRED BY LOCAL PLUMBING CODE, INSTALL AUTOMATIC TRAP PRIMERS ON COLD WATER SUPPLY AT NEAREST FIXTURE AND RUN DRAIN TO TRAP SEAL BEING PROTECTED. PROVIDE WALL ACCESS PANELS WHEN PRIMERS ARE INSTALLED IN WALLS.

TRACER WIRE:

THE RULE WILL BE APPLIED AS FOLLOWS: PLASTIC UNDERGROUND SEWER PIPING SHALL HAVE A CONTINUOUS 18 GAUGE [OR LARGER] COPPER TRACER WIRE INSTALLED WITH AND ATTACHED TO THE PLASTIC SEWER PIPING MATERIAL AT 8'-0"D.C. THIS WIRE SHALL EXTEND FROM THE SEWER PIPE CONNECTION AT THE PROPERTY OR RIGHT-OF-WAY LINE TO THE CONNECTION AT THE BUILDING DRAIN. THIS TRACER WIRE SHALL TERMINATE (IN A VISIBLE LOCATION) 12" ABOVE GROUND AT THE SEWER/BUILDING DRAIN CONNECTION.

PLASTIC UNDERGROUND WATER PIPING SHALL HAVE A CONTINUOUS 18 GAUGE [OR LARGER] COPPER TRACER WIRE INSTALLED WITH AND ATTACHED TO THE PLASTIC WATER PIPING MATERIAL AT 8'-0"D.C. THIS WIRE SHALL EXTEND FROM THE SERVICE CONNECTION AT THE METER BOX TO THE RISER THAT SUPPLIES THE BUILDING SERVED. THIS TRACER WIRE SHALL TERMINATE (IN A VISIBLE LOCATION) 12"ABOVE GROUND AT THE WATER SERVICE RISER, LANDSCAPE IRRIGATION WATER SYSTEMS ARE NOT REGULATED BY THE PHOENIX PLUMBING CODE DOWNSTREAM OF THE BACKFLOW PREVENTION DEVICE.

SECTION 15405 SANITARY WASTE AND VENT SYSTEM

SCOPE: ALL WASTE AND VENT PIPE SHALL BE OF MATERIALS COMPLYING WITH THE IPC. CAST IRON, COPPER, SCHEDULE 40 ABS DWV, SCHEDULE 40 PVC DWV.

ND-HUB COUPLINGS FOR PIPE ABOVE GRADE: DOUBLE BAND, STAINLESS STEEL SHIELD-CLAMP ASSEMBLY WITH NEOPRENE GASKET CONFORMING TO CISPI 301-67T.

INSTALLATION: PITCH WASTE AND DRAIN LINE 3" AND SMALLER AT A UNIFORM SLOPE OF 1/4" PER FOOT MINIMUM. PITCH WASTE AND DRAIN LINES 4" AND LARGER AT A UNIFORM SLOPE OF 1/8" PER FOOT MINIMUM, 1/4" PER FOOT WHEREVER POSSIBLE, UNLESS NOTED OTHERWISE ON THE DRAWINGS.

INSTALL WALL CLEANDUTS ON ALL SINKS AND URINALS AND ELSEWHERE AS INDICATED ON THE PLANS. CLEANDUTS TO BE THE SAME SIZE AS WASTE LINES ON WHICH THEY ARE INSTALLED. MAKE ALL CLEANOUTS ACCESSIBLE BY EITHER BEING ACCESSIBLE WITHIN 6" OF CEILING ACCESS PANEL, EXTENDED TO FLOOR OR GRADE, OR LOCATED IN WALL WITH REMOVABLE PLATE. WHERE SURFACING MATERIALS SUCH AS RESILIENT FLOOR COVERING OR CERAMIC TILE IS USED, INSTALL THE CLEANDUT WITH TOP SO THAT FINISHED SURFACE IS SMOOTH AND FLUSH. WHERE INSTALLED IN WATERPROOF SLABS, PROVIDE CLEANOUTS WITH A NON-PUNCTURING FLASHING CLAMP DEVICE AND ANCHORING FLANGE

TEST: FILL SYSTEM TO HIGHEST POINT OF SYSTEM. ALLOW SYSTEM TO STAND FOR FOUR (4) HOURS. IF WATER LEVEL DROPS, CHECK FOR LEAKS, REPAIR AS DIRECTED, AND RETEST UNTIL SYSTEM IS APPROVED. TEST AND OBTAIN APPROVAL ON ALL UNDERGROUND PIPING BEFORE COVERING WORK.

SECTION 15420 PLUMBING EQUIPMENT

SCOPE: ALL ELECTRICAL EQUIPMENT AND CONTROLS SHALL BE UL LISTED. PROVIDE ASME APPROVED TEMPERATURE AND PRESSURE RELIEF VALVES ON ALL DOMESTIC HEATING EQUIPMENT DOMESTIC WATER HEATERS

PROVIDE WATER HEATER OF SIZE, CAPACITY AND MAKE AS SPECIFIED. HEATERS SHALL BE FULLY WARRANTED FOR A MINIMUM OF 3 FULL YEARS AFTER FINAL ACCEPTANCE OF THE BUILDING. FURNISH HEATERS WITH THE FOLLOWING ACCESSORIES:

AUTOMATIC THERMOSTAT ACTUATED CONTROLS WITH 100% SHUTOFF. ADJUSTABLE TEMPERATURE SETTING CONTROLS. BRASS NIPPLES FOR PIPE CONNECTIONS.

INSULATION SHALL AND EFFICIENCY SHALL MEET CODE REQUIREMENTS.

SECTION 15421 PLUMBING SPECIALTIES

PROVIDE ALL CLEANDUTS WITH THREADED BRONZE PLUGS, INTERIOR FINISHED WALLS: J. R. SMITH 4472 WALL ACCESS COVER WITH BRONZE THREADED PLUG.

ALL WORK SHALL BE DONE IN ACCORDANCE WITH THESE PLANS, SPECIFICATIONS, AND LATEST INDUSTRY ACCEPTED PRACTICES.

PLUMBING CONTRACTOR SHALL FURNISH ALL EQUIPMENT, MATERIAL, LABOR, ETC., WHETHER SHOWN ON THESE PLANS OR NOT, NECESSARY TO PROVIDE A COMPLETE, WORKABLE, CODE-APPROVED PLUMBING SYSTEM.

ALL LAVATORIES AND SINKS SHALL COME COMPLETE WITH NECESSARY TRIM, 'P' TRAPS, TAIL-PIECE CONNECTIONS, SHUTDFF VALVES, AND REQUIRED CARRIERS. PROVIDE CARRIERS FOR ALL WALL HUNG LAVATORIES, URINALS, AND ALL OTHER PLUMBING EQUIPMENT WHICH REQUIRES THEM.

ALL HOT WATER SUPPLY AND RETURN LINES SHALL BE INSULATED WITH 1" OF INSULATION HAVING A OF INSULATION SHALL NOT EXCEED 0.27 BTU PER INCH/HR SQ FT	CONDUCTIVITY
PLUMBING CONTRACTOR TO COORDINATE ALL LINES AND VENTS WITH RELIEF VENTS AND MECHANICAL EDVENTS THRU ROOF SHALL BE MINIMUM 10'-0" FROM ALL FRESH AIR INTAKES AND EVAP COOLERS	QUIPMENT. ALL
WHERE WATER AND SEWER PIPES ARE RUN IN THE SAME TRENCH:	
A. THE BOTTOM OF THE WATER PIPE AT ALL POINTS SHALL BE AT LEAST TWELVE ABOVE THE TOP OF THE SEWER.	INCHES (12")
B. THE WATER PIPE SHALL BE PLACED ON A SOLID SHELF EXCAVATED AT ONE SIDE OF TRENCH.	THE COMMON

PIPE SLEEVES AND SUPPORT:

UN-INSULATED LINES, STEEL AND COPPER: FURNISH TRISOLATORS OR COOPER B-LINE VIBRA-CUSHION #B1999 OR ENGINEER APPROVED EQUAL AT ALL PIPE SUPPORTS, HORIZONTAL AND VERTICAL, HANGER OR CLAMP STYLE, AND WHERE PIPES PASS THROUGH WALL STUDS, WRAPPING WITH POLYKIN TAPE IS NOT AN APPROVED SUBSTITUTE.

PIPES PASSING THROUGH WALLS SHALL HAVE A 22 GAUGE GALVANIZED STEEL SLEEVE THROUGH THE WALL ASSEMBLY. THE SLEEVE SHALL HAVE FLANGES ON EACH END SECURELY ATTACHED TO BOTH SIDES OF THE WALL AND SEALED WATER AND VERMIN TIGHT. THE ANNULAR SPACE BETWEEN THE PIPE AND SLEEVE SHALL BE UNIFORM AND WITHOUT CONTACT BETWEEN THE TWO.

TRAPEZE PIPE HANGERS FOR PARALLEL SUSPENDED PIPES: USE COOPER B-LINE CHANNELS SUPPORTED FROM THREADED REDS WITH TRISELATERS OR B2000 SERIES 2-PIECE CLAMPS AND B1999 ISELATION WRAP, SUBMIT SHEP DRAWINGS OF ALL TRAPEZE HANGER COMPONENTS FOR APPROVAL BEFORE PROGRESSING ANY WORK.

PIPING SUPPORTED FROM WALLS SURFACE MOUNTED: COOPER CHANNEL SUPPORT SECURED TO WALL WITH FERROUS ANCHORS AND TRISOLATORS OR B2000 SERIES 2-PIECE CLAMPS AND B1999 ISOLATION WRAP.

SINGLE PIPE VERTICAL HANGER: COOPER B3690 J-HANGER SUSPENDED FROM THE STRUCTURE ABOVE WITH GALVANIZED STEEL THREADED RDD AND TRISOLATORS OR B2000 SERIES 2-PIECE CLAMPS AND B1999 ISOLATION WRAP.

SIZE ALL HANGERS ON INSULATED LINES TO FIT AROUND OUTSIDE DIAMETER OF VIBRATION ISOLATION OR INSULATION SPECIFIED.

CLEANDUTS:

INTERIOR FINISHED FLOORS OR SIDEWALKS:

CONCRETE AND TILE FLOORS: J. R. SMITH 4032 WITH SCORIATED NICKEL-BRONZE TOP. 2. TERRAZZO FLOORS: J. R. SMITH 4192 WITH SATIN NIKALOY TOP.

3. INTERIOR UNFINISHED FLOORS: J. R. SMITH 4292 CAST-IRON CLEANOUT WITH SLOTTED HEAD BRONZE PLUG. INTERIOR FINISHED WALLS: J. R. SMITH 4472 WALL ACCESS COVER WITH BRONZE THREADED PLUG.

EXPOSED VERTICAL CLEANOUTS: J. R. SMITH 4572 CLEANOUT TEE.

DUTSIDE YARD CLEANDUTS: J. R. SMITH 4240 WITH 12" X 12" POURED CONCRETE PAD AT GRADE.

PROVIDED ALL CLEANDUTS WITH THREADED BRONZE PLUGS

GENERAL PLUMBING:

EXTEND WATER PIPING TO ALL KITCHEN, BAR AND TOILET FIXTURES, DUTLETS AND EQUIPMENT. PROVIDE SHUTOFF VALVES OR FIXTURE STOPS AS REQUIRED FOR PROPER SERVICE.

PITCH WATER PIPING TO DRAIN AND INSTALL ALL NECESSARY DRAIN VALVES.

PROVIDE CAPPED OR PLUGGED AND VALVED OUTLETS WHERE INDICATED FOR FUTURE EQUIPMENT CONNECTIONS.

HOLD LINES WHICH ARE SPECIFIED TO BE INSULATED A SUFFICIENT DISTANCE FROM OTHER WORK TO PERMIT INSTALLATION OF INSULATION

HOSE BIBBS: WOODFORD MODEL #B74, 3/4" CLOSE COUPLED WITH LODSE KEY, VACUUM BREAKER, IN CAST BRASS ENCLOSURE, EXPOSED PARTS ARE TO BE ROUGH BRASS.

SHOCK ABSORBERS: J. R. SMITH 5000 SERIES, DRAWINGS. PROVIDE DIELECTRIC BUSHINGS AT CONNECTION TO PIPING SYSTEM, PROVIDE STAINLESS STEEL ACCESS DOOR AS REQUIRED FOR REMOVAL. PROVIDE AT DISHWASHER AND CLOTHES WASHER MACHINE.

TRAP PRIMERS: PRECISION PLUMBING PRODUCTS PR-500 PRIME RITE, INTEGRAL VACUUM BREAKER WITH AIR GAP FITTING. PROVIDE STAINLESS STEEL ACCESS DOOR FOR TRAP PRIMERS IN WALLS. <u>FS</u> FLOOR SINK

KITCHEN WATTS DRAINAGE PRODUCTS FS-790-1-FC-175 STAINLESS STEEL FLOOR SINK WITH BOTTOM DOME STRAINER. TRAP PRIMER CONNECTION, FURNISH 3/4 SOLID CAST STAINLESS STEEL GRATE.

NON-KITCHEN ENAMELED STEEL FLOOR SINK WITH BOTTOM DOME STRAINER, TRAP PRIMER CONNECTION. FURNISH 3/4 OR 1/2 ENAMELED STEEL GRATE.

W-1 TANK TYPE WATER CLOSET: (ADA)

FIXTURE: AMERICAN STANDARD CADET PRO RIGHT HEIGHT, ADA COMPLIANT AND ANSI A117.1 REQUIREMENTS. ELONGATED BOWL, MODEL: 215AA.105 OR 215AA.104 WITH TRIP LEVER ON CORRECT SIDE PER ADA REQUIREMENTS, CADET® FLUSHING SYSTEM, VITREDUS CHINA, 1.28 GPF, CHROME FINISH METAL TRIP LEVER AND METAL SHANK FILL VALVE, EVERCLEAN SURFACE, 3" FLUSH VALVE, FULLY GLAZED 2-1/2" TRAPWAY, 16-1/2" RIM HEIGHT, 12" RDUGH-IN, 9"×8" WATER SURFACE AREA, 1000MOP SCORE, 5 YEAR WARRANTY, ASME A112.19.2-2008/CSA B45.1-08 FOR VITREOUS CHINA TOILETS, US EPA WATER SENSE SPECIFICATION FOR HET'S

SUPPLIES: AQUA FLOW E-Z TURN BALL VALVE STOP # V-101-A, WITH FLEXIBLE TUBE RISER. SEAT: BEMIS OPEN FRONT WITHOUT LID

L-1 & S-1 LAVATORY: (ADA)

L-1 LAVATORY: (ADA)

FIXTURE: AMERICAN STANDARD LUCERNE SINK MODEL 0491.019 ADA COMPLIANT. FAUCET HOLES ON 4" CENTERS, WALL HUNG, VITREDUS CHINA, FRONT OVERFLOW, D-SHAPED BOWL, SELF-DRAINING FAUCET LEDGE, FURNISH WATTS CONCEALED ARM CARRIER.

SUPPLY FAUCET: SYMMONS SCOT S-60-G-H ADA METERING/TEMPERATURE SELECTION FAUCET WITH BLADE TYPE TEMPERATURE ADJUSTING HANDLE. SOLID BRASS 4" CENTERSET SLOW-CLOSING LAVATORY FAUCET TO METER AND MIX HOT AND COLD WATER SUPPLY. TEMPERATURE LIMIT STOP TO ADJUST DUTLET TEMPERATURE. TIME LIMIT STOP TO ADJUST FLOW TIME. SPRAY DUTLET WITH 0.5 GPM FLOW RATE ADJUSTABLE FOR 0.25 GALLONS PER CYCLE. VANDAL RESISTANT. GRID STRAINER DRAIN, POLISHED CHROME PLATED, SLOW CLOSING REPLACEABLE BRASS CARTRIDGE, CONCEALED TIME ADJUSTMENT.

DRAIN: WATTS 629-203C CAST BRASS DRAIN WITH INTEGRAL PERFORATED GRID AND 1-1/4" X 6" TAILPIECE. SUPPLIES: AQUA FLOW E-Z TURN BALL VALVE STOP # V-101-A, WITH FLEXIBLE TUBE RISER. FURNISH INSULATION KIT FOR WATER SUPPLY AND MATCHING INSULATION KIT FOR OFFSET TAILPIECE AND DRAIN.

MCGUIRE CAST BRASS, 1-1/2" ADJUSTABLE P-TRAP WITH CLEANDUT PLUG, ESCUTCHEDN, CHRDME FINISH. TRAP: FURNISH "WATTS" MODEL MMV-UT-M1, BRONZE BODY THERMOSTATIC MIXING VALVE WITH STRAINER WASHERS, INTEGRAL UNION AND CHECK VALVES AND ADJUSTING CAP WITH LOCKING FEATURES. VALVE SHALL BE ASSE 1070 LISTED

L-2 PUBLIC TOILET ROOMS (ADA)

FIXTURE: KOHLER ELLINGTON MODEL K-2906-4 ENAMELED CAST IRON, WHITE, OVAL BASIN, FRONT OVERFLOW, SELF RIMMING, 19.25"×16.25", ASME A112.19, ADA, CC/ANSI A117.1

SUPPLY FAUCET: SYMMONS SCOT S-60-G-H ADA METERING/TEMPERATURE SELECTION FAUCET WITH BLADE TYPE HANDLE. SOLID BRASS 4" CENTERSET SLOW-CLOSING LAVATORY FAUCET TO METER AND MIX HOT AND COLD WATER SUPPLY, TEMPERATURE LIMIT STOP TO ADJUST OUTLET TEMPERATURE, TIME LIMIT STOP TO ADJUST FLOW TIME, SPRAY DUTLET WITH 0.5 GPM FLOW RATE ADJUSTABLE FOR 0.25 GALLONS PER CYCLE, VANDAL RESISTANT, GRID STRAINER DRAIN, POLISHED CHROME PLATED, SLOW CLOSING REPLACEABLE BRASS CARTRIDGE, CONCEALED TIME ADJUSTMENT.

DRAIN: WATTS 629-203C CAST BRASS DRAIN WITH INTEGRAL PERFORATED GRID AND 1-1/4" X 6" TAILPIECE. SUPPLIES: AQUA FLOW E-Z TURN BALL VALVE STOP # V-101-A, WITH FLEXIBLE TUBE RISER. FURNISH INSULATION KIT FOR WATER SUPPLY AND MATCHING INSULATION KIT FOR OFFSET TAILPIECE AND DRAIN. TRAP: MCGUIRE CAST BRASS, 1-1/2" ADJUSTABLE P-TRAP WITH CLEANDUT PLUG, ESCUTCHEDN, CHRDME FINISH.

FURNISH "WATTS" MODEL MMV-UT-M1, BRONZE BODY THERMOSTATIC MIXING VALVE WITH STRAINER WASHERS, INTEGRAL UNION AND CHECK VALVES AND ADJUSTING CAP WITH LOCKING FEATURES. VALVE SHALL BE ASSE 1070 LISTED

<u>DF-1</u> DRINKING FOUNTAIN (ADA):

FURNISH AND INSTALL A NEW REFRIGERATED HI/LOW, VANDAL RESISTANT DRINKING FOUNTAIN WITH FACTORY FILTER. ELKAY LVRCHDTL8 BARRIER-FREE "HI-LO" DRINKING FOUNTAIN, STAINLESS STEEL PUSH-BUTTON VALVE ASSEMBLY, FRONT ACCESS STREAM ADJUSTMENT AND CARTRIDGE AND STRAINER ACCESS. WALL MOUNTED, POLISHED STAINLESS STEEL FINISH, AND MATCHING BACK PANEL, VANDAL RESISTANT COMPONENTS, 14 GAUGE STAINLESS STEEL BOWL ASSEMBLY MOUNTED ON A 14 GAUGE STEEL WALL BRACKET 100% LEAD-FREE WATERWAYS POLISHED CHROME-PLATED BRASS VANDAL-RESISTANT BUBBLER HEADS WITH INTEGRAL LAMINAR ANTI-SQUIRT FLOW ELIMINATE WATER SPLASH BEAUTIFUL HIGH-POLISHED FINISH. 115∨, 4.0 FLA, 370 WATTS

SUPPLIES: AQUAFLO E-Z TURN BALL VALVE STOP # V-101-A, SUPPLY TUBES TO BE NOSE FORMED TYPE, CORRUGATED AND FLEXIBLE SUPPLY TUBES ARE NOT ACCEPTABLE.

FIXTURE: JUST MODEL: SL-ADA-17519-A-GR, SINGLE BOWL, DROP-IN SINK, ADA COMPLIANT, 18 GAUGE STAINLESS STEEL WITH FAUCET LEDGE, POLISHED TO A HAND-BLENDED FINISH, WITH HIGHLIGHTED BOWL RIM. FULLY COATED UNDERSIDE GRIP-RIM PLUS SELF-RIMMING 300 SERIES STAINLESS STEEL MOUNTING CHANNELS, CONFORMS TO ASME/ANSI A112.19.3M, DRAIN PUNCHED J-35 DRAIN CENTER REAR OF BOWL. OUTSIDE: 17.5" FRONT TO BACK X 19" LEFT TO RIGHT, BOWL INSIDE: 11.5 X 16 X 6.5" DEEP. PUNCH FAUCET LEDGE TO MATCH FAUCET FURNISHED.

BASKET STRAINER.

TRAP: CLEANDUT PLUG,

SUPPLIES: AQUA FLOW E-Z TURN BALL VALVE STOP # V-101-A, WITH FLEXIBLE TUBE RISER. FURNISH "WATTS" MODEL MMV-UT-M1, BRONZE BODY THERMOSTATIC MIXING VALVE WITH STRAINER WASHERS, INTEGRAL UNION AND CHECK VALVES AND ADJUSTING CAP WITH LOCKING FEATURES. VALVE SHALL BE ASSE 1070 LISTED

S-3 HAND SINK: FIXTURE: ADVANCE TABCO MODEL 7-PS-87, BOWL SIZE: 10" X 14", WALL MODEL, 14" WIDE X 10" FRONT-TO-BACK X 5" DEEP BOWL, 20 GAUGE 304 SERIES STAINLESS STEEL, 7-3/4" HIGH SIDE SPLASHES, SPLASH MOUNTED FAUCET WITH WRIST BLADES, LEVER DRAIN WITH DVERFLOW, P-TRAP, SDAP & TOWEL DISPENSER, WALL BRACKET, NSF & CSA LISTED

SUPPLIES: AQUA FLOW E-Z TURN BALL VALVE STOP # V-101-A, WITH FLEXIBLE TUBE RISER. FURNISH INSULATION KIT FOR WATER SUPPLY AND MATCHING INSULATION KIT FOR OFFSET TAILPIECE AND DRAIN.

FURNISH "WATTS" MODEL MMV-UT-M1, BRONZE BODY THERMOSTATIC MIXING VALVE WITH STRAINER WASHERS, INTEGRAL UNION AND CHECK VALVES AND ADJUSTING CAP WITH LOCKING FEATURES. VALVE SHALL BE ASSE 1070 LISTED

<u>SH-1</u> (ADA)

FIXTURE: AQUA BATH C6536BF-FUS-3/4 65" X 37" X 84" D.D. (60" X 36" X 78" I.D.) A.D.A. COMPLIANT SHOWER MODULE VACUUM FORMED FROM CONTINUOUS CAST ACRYLIC SHEET INTO A ONE PIECE SEAMLESS UNIT. THE UNIT SHALL BE REINFORCED WITH A FIBERGLASS STRAND/POLYESTER RESIN MIX. UNIT SHALL HAVE A BACKSIDE FLAME SPREAD OF LESS THAN 30 (CLASS B). UNIT SHALL BE FURNISHED WITH AN ANTI-SKID FLOOR TREATMENT TO MEET PERFORMANCE REQUIREMENTS OF ASTM F-4621 AND SHALL ALSO CONFORM WITH ANSI A-117.1 AND ANSI Z-124.2. UNIT SHALL INCLUDE THE FOLLOWING FACTORY INSTALLED ITEMS: GRAB BARS, 24" GLIDE RAIL, "L" SHAPED FOLD-UP TRANSFER PHENOLIC SEAT AND CURTAIN RDD. FACTORY SUPPLIED (FIELD INSTALLED) EQUIPMENT SHALL INCLUDE: SHOWER CURTAIN AND SHOWER DRAIN.

SHOWER CONTROL VALVE: POWERS E710-0-0-0-L-0-W THERMOSTATIC & PRESSURE BALANCING SHOWER VALVE WITH INTEGRAL CHECKSTOPS, HIGH LIMIT STOP, C.P. METAL TRIM, 24" SLIDE BAR, 60" METAL HOSE, LOW FLOW (1.5 GPM) HAND SHOWER AND INLINE VACUUM BREAKER, ASSE 1016 AND IAPMO CUPC LISTING. (FIVE YEAR WARRANTY ON INTERNAL TEMPERING MECHANISM).

TRENCH DRAIN: BLÜCHER <u>BWC-136</u> AISI TYPE 304 STAINLESS STEEL 3-1/4" WIDE X 36" LONG "WATERLINE" SHOWER CHANNEL WITH MEMBRANE CLAMP, ADA COMPLIANT VIENNA GRATING (STANDARD), AND NO HUB BOTTOM OUTLET.

UR URINAL: (ADA)

FIXTURE: SLOAN: WEUS-1000.1301-0.125 ES-S, WALL HUNG, ADA COMPLIANT VITREOUS CHINA, WASHDOWN ACTION, 2" GLAZED TRAPWAY AND DUTLET, WITH INTEGRAL FLUSHING RIM, 3/4" TOP SPUD, 0.125 GPF CONSUMPTION.

FLUSH VALVE: SLOAN OPTIMA ES-S, 0.125 GPF, INTEGRAL BACKFLOW AND STOP, OPTIMA EL-1500 SELF ADAPTIVE INFRARED SENSOR WITH INDICATOR LIGHT AND OVERRIDE BUTTON, SELF CLEANING ORIFICE, 2 CHROME PLATED WALL COVER PLATES WITH VANDAL RESISTANT SCREWS. CONFORM TO ASSE 1037, ANSI/ASME A112.19.T INSTALLATION CONFORM TO ADA, COORDINATE WIRING WITH ELECTRICAL CONTRACTOR AND INCLUDE COST IN BID AS REQUIRED.

TRAP: MCGUIRE 8912, 1-1/2" ADJUSTABLE CAST BODY P-TRAP WITH CLEANOUT PLUG, ESCUTCHEON, CHROME FINISH.

S-2 CLASSROOM SINK (ADA)

STRAINER AND TAILPIECE: JUST MODEL: JB-99, TYPE 304 STAINLESS STEEL DRAIN WITH REMOVABLE HEAVY GAUGE

JUST MODEL: JT-150, 1.5" O.D. SEMI-CAST, CHROME PLATED BRASS P-TRAP WITH 17GA. WALL BEND AND

FAUCET: CHICAGD FAUCET MDDEL: 1100-GN8AFC-E29-317AB, DECK MDUNTED FAUCET WITH 4" WRIST BLADE HANDLES, GN8AFC FLOW CONTROL RIGID/SWING GODSENECK SPOUT WITH E29 2.2 GPM (8.3 L/MIN) NON-AERATING LAMINAR OUTLET

S-4 AND S-5 ARE TO BE FURNISHED BY OTHERS AND INSTALLED BY THE CONTRACTOR.

BUILDING PERMIT

BIDDING

PO BOX 2302 Carefree, AZ 85377

37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325

WEB SITE www.augustreno.com EMAIL ADDRESS augie@augustreno.com

Construction Drawings: PARTIAL FLOOR PLAN

FUEL GAS SYSTEM (NATURAL GAS) GENERAL

WORK INCLUDED HEREIN: INSTALL ALL NATURAL GAS PIPING UNDERGROUND AND WITHIN THE BUILDING AS INDICATED ON THE PLANS, FURNISH AND INSTALL PLASTIC MARKING TAPE BURIED ONE FOOT BELOW GRADE OVER ALL GAS LINES, TAPE SHALL BE YELLOW WITH BLACK LETTERS: "CAUTION - GAS LINE BURIED BELOW"

REGULATIONS: ALL MATERIALS, EQUIPMENT AND INSTALLATION MUST COMPLY WITH THE LATEST PUBLICATION OF ALL APPLICABLE CODES, RULES AND REGULATIONS, LOCAL GAS UTILITY COMPANY, ALL OF WHICH MUST BE CONSIDERED A PART OF THESE SPECIFICATIONS, INCLUDING THE REQUIREMENTS OF THE CITY. PRODUCTS

ABOVE GROUND PIPE:

STEEL PIPE: SCHEDULE 40 BLACK STEEL CONFORMING TO ASTM A53, GRADE A OR B, SEAMLESS WELDED PIPE. EXTERIOR PIPE ABOVE GRADE SHALL BE GALVANIZED. FITTINGS:

STEEL PIPE 1-1/2" AND SMALLER: EXTRA-HEAVY BLACK MALLEABLE IRON CONFORMING TO USAS B16.3, 150 PSI SWP. STEEL PIPE 2" AND LARGER: BLACK STEEL SEAMLESS WELDING FITTINGS CONFORMING TO USAS B16.9 AND ANSI

B16.25, 150 PSI SWP.

ASTM A47, 250 PSI SWP. VALVES:

EXECUTION

INSTALLATION:

INSTALL ALL PIPING IN THE BUILDING ABOVEGROUND OR IN ACCESSIBLE TRENCHES WHERE INDICATED ON THE DRAWINGS. INSTALL NO GAS PIPING IN OR UNDER CONCRETE FLOORS OR IN MASONRY WALLS. WHERE GAS LINES ARE INDICATED TO BE SLEEVED BELOW WALKS AND RISE ON INSIDE OF BUILDING, INSTALL IN ACCORDANCE WITH STANDARD CITY GAS SLEEVE DETAILS.

EXTEND GAS LINES FROM METER TO ALL EQUIPMENT AND CONNECTIONS REQUIRING GAS. INSTALL GAS PIPE WITH SUITABLE DIRT LEGS AT EQUIPMENT CONNECTIONS, INSTALL ACCESSIBLE VALVE AND UNION AT EACH EQUIPMENT CONNECTION, INSTALL VALVE AND UNION WITH CAPPED GAS AT ALL EQUIPMENT STUB-OUTS, COORDINATE LOCATION OF VALVED DUTLETS FOR MECHANICAL EQUIPMENT WITH MECHANICAL CONTRACTOR, INSTALL CHROME-PLATED ESCUTCHEON PLATES AT ALL WALL PENETRATIONS EXPOSED TO VIEW. PLUG EACH GAS DUTLET, INCLUDING VALVES, WITH THREADED PLUG OR CAP IMMEDIATELY AFTER INSTALLATION AND RETAIN UNTIL INSTALLATION IS COMPLETE.

EXTERIOR EXPOSED PIPE SHALL BE FIELD WRAPPED OR PAINTED IN ACCORDANCE WITH 2012 IFGC REQUIREMENTS AND ANY DTHER APPLICABLE STANDARDS.

PRESSURE TEST:

COMPLY WITH 2012 IFGC REQUIREMENTS. UPON COMPLETION OF THE INSTALLATION AND ASSURING THAT THE SYSTEM WILL PASS THE PRESSURE TEST AND MEET ALL THE REQUIREMENTS OF 2012 IFGC, CONTACT THE CITY FOR FINAL INSPECTION AND PRESSURE TEST BEFORE CONCEALING

GENERAL NOTES:

CONTRACTORS SHALL BECOME FAMILIAR WITH THE OWNER'S REQUIREMENTS PRIOR TO BIDDING AND SHALL BE RESPONSIBLE FOR COMPLIANCE WITH THESE REQUIREMENTS.

CONTRACTOR SHALL VISIT THE JOB SITE PRIOR TO BIDDING AND SHALL BECOME FAMILIAR WITH THE EXISTING CONDITIONS AND SHALL NOTIFY ARCHITECT OF ANY DISCREPANCIES BETWEEN THESE PLANS AND EXISTING CONDITIONS.

FIELD VERIFY ALL DIMENSIONS PRIOR TO CONSTRUCTION. NOTIFY ARCHITECT OR ENGINEER OF ANY DISCREPANCIES. ITEMS NOT INDICATED IN THESE DOCUMENTS THAT CAN BE LEGITIMATELY AND REASONABLE INFERRED TO COMPLETE THE WORK AT HAND SHALL BE FURNISHED BY THE CONTRACTOR AS THOUGH IT WERE DETAILED HEREIN.

THIS DOCUMENT SET SHALL BE ISSUED TO ALL PARTIES IN ITS ENTIRETY PER THE SHEET INDEX. THE ACTING GENERAL CONTRACTOR SHALL ENSURE THAT ALL SUBCONTRACTORS HAVE REVIEWED THE ENTIRE DOCUMENT SET FOR THEIR RESPONSIBILITIES AND THAT NO PARTIAL SETS HAVE BEEN ISSUED. ANY DISCREPANCIES THAT ARISE SHALL BE THE FULL RESPONSIBILITY OF THE GENERAL CONTRACTOR TO REMEDY IN RELATION TO SCHEDULE AND COST IMPACTS.

THE CONTRACTOR ACKNOWLEDGES AND UNDERSTANDS THAT THE CONTRACT DOCUMENTS MAY REPRESENT IMPERFECT DATA AND MAY CONTAIN ERRORS, OMISSIONS, CONFLICTS, INCONSISTENCIES, CODE VIOLATIONS AND IMPROPER USE OF MATERIALS. SUCH DEFICIENCIES WILL BE CORRECTED WHEN IDENTIFIED. THE CONTRACTOR AGREES TO CAREFULLY STUDY AND COMPARE THE INDIVIDUAL CONTRACT DOCUMENTS AND REPORT AT ONCE IN WRITING TO THE OWNER ANY DEFICIENCIES THE CONTRACTOR MAY DISCOVER. THE CONTRACTOR FURTHER AGREES TO REQUIRE EACH SUBCONTRACTOR TO LIKEWISE STUDY THE DOCUMENTS AND REPORT AT ONCE ANY DEFICIENCIES DISCOVERED.

THE CONTRACTOR SHALL RESOLVE ALL REPORTED DEFICIENCIES WITH THE OWNER AND ARCHITECT OF RECORD PRIOR TO AWARDING ANY SUBCONTRACTS OF STARTING ANY WORK WITH THE CONTRACTOR'S OWN EMPLOYEES. ANY WORK PERFORMED PRIOR TO RECEIPT OF INSTRUCTION FROM THE OWNER WILL BE DONE AT THE CONTRACTORS RISK.

CONDUIT, OUTLETS, PIPES, SUPPORTS, SWITCHES, SENSORS, ETC. TO BE INSTALLED LEVEL WITH EACH OTHER AND PLUMB

ALL WORK SHALL BE INSPECTED AND APPROVED BY CITY OF PHOENIX INSPECTORS AND ARCHITECT AS THE WORK PROGRESSES. COORDINATE THE REVIEWS THAT WILL BE REQUIRED PRIOR TO THE PREPARATION OF THE PROJECT SCHEDULE AND ACCOUNT FOR THE REVIEW IN THE SCHEDULE.

ALL EXPOSED STEEL SHALL BE PRIMED AND PAINTED WITH TWO COATS OF PRIMER AND PAINT TO THE SATISFACTION OF THE OWNER AND THE ARCHITECT. PAINT AND COLORS ARE TO BE AS REQUIRED BY THE OWNER'S REPRESENTATIVE.

ALL GAS VALVES, FLANGES AND FITTINGS SHALL BE MARKED FOR IDENTIFICATION.

STEEL UNIONS: BLACK MALLEABLE IRON, SCREWED CONNECTIONS, GROUND IRON-TO-BRONZE SEAT, CONFORMING TO

PIPING 1-1/2" AND SMALLER: BALL VALVES LISTED FOR GAS SERVICE WITH UL OR AGA RATING.

SUPERVISE THE PROPER INSTALLATION OF GAS METER AND PRESSURE REGULATOR BY THE UTILITY CONTRACTOR.

ABOVEGROUND PIPE SHALL BE ELECTRICALLY BONDED AND GROUNDED AS REQUIRED BY NFPA

COORDINATE PIPING WITH MECHANICAL DUCTWORK, CONDUITS, ETC.

ALL SYSTEM REGULATORS SHALL BE FLOW AND LOCKUP TESTED BEFORE LIGHT-UP PER CFR 192.197.

PO BOX 2302 Carefree, AZ 85377

37417 Tom Darlington Drive Carefree, AZ 85377 (480) 488-9858 FAX (480) 636-1325

> WEB SITE www.augustreno.com EMAIL ADDRESS augie@augustreno.com

Construction Drawings: PARTIAL FLOOR PLAN

SHEET NO: PLUMBING SPECS **P3.2**

Consulting Engineers 12020 N. 35TH AVENUE, SUITE 111A Phoenix, AZ 85029 PH: (602) 870-2018 Proj. No: 17128.00

MARK		VOLT. / Ø	FLA	BRANCH PANEL	CIRCUIT	WIRE / CONDUIT SIZE	TERMINATION TYPE	
B	_ COMMERCIAL FREEZER _	120/1ø	11.8	B1	26	(2) #12 CU. (1) #12 CU. GND. 3/4"C.	RECEPTACLE	
$\langle \mathbf{C} \rangle$	– CHILLER WITH DRAWERS –	120/1ø	7.5	B1	36	(2) #12 CU. (1) #12 CU. GND. 3/4"C.	RECEPTACLE	
	GAS STOVE	120/1ø	200W	B1	28	(2) #12 CU. (1) #12 CU. GND. 3/4"C.	RECEPTACLE	GENER
$\langle \mathbf{E} \rangle$	– ICE MAKER –	208/1ø	19.8	В	8–10	(2) #10 CU. (1) #10 CU. GND. 3/4"C.	RECEPTACLE	ALL WORK IS CODES AND A
$\langle \mathbf{F} \rangle$	– BEER REFRIGERATOR –	120/1ø	.917	B1	30	(2) #12 CU. (1) #12 CU. GND. 3/4"C.	RECEPTACLE	CONTRACTOR EQUIPMENT, TI ELECTRICAL C
$\langle \mathbf{G} \rangle$	– WALK IN REFRIGERATOR	208/1ø	17.4	В	12-14	(2) #10 CU. (1) #10 CU. GND. 3/4"C.	RECEPTACLE	AND CONDUIT CONTRACTOR EQUIPMENT, T
$\langle \mathbf{I} \rangle$	PRESCISION STAND UP FREEZER	208/1ø	2.4	В	16–18	(2) #12 CU. (1) #12 CU. GND. 3/4"C.	RECEPTACLE	ELECTRICAL C STUBS INTO T
K	– WARMER OVEN	208/3ø	21.9	В	20-22-24	(3) #10 CU. (1) #10 CU. GND. 3/4"C.	RECEPTACLE	ALL WIRING S WIRING FOR O PVC CONDUIT,
$\langle L \rangle$	– PITCO FRIALATOR	120/1ø	12	B1	32	(2) #12 CU. (1) #12 CU. GND. 3/4"C.	RECEPTACLE	CONTRACTOR EQUIPMENT PF AND TRANSFO
$\langle \mathbf{M} \rangle$	– – BAKERS PRIDE OVEN	208/3ø	31.8	B	26-28-30	(3) #6 CU. (1) #8 CU. GND. 1"C.	RECEPTACLE	ALL GENERAL
<u> </u>	– – BAKERS PRIDE OVEN	208/3ø	31.8	В	32-34-36	(3) #6 CU. (1) #8 CU. GND. 1"C.	RECEPTACLE	CONTRACTOR ELECTRICAL C
$\overline{\langle N \rangle}$	_ DISHWASHER	120/1ø	9.4	B1	34	(2) #12 CU. (1) #12 CU. GND. 3/4"C.	RECEPTACLE	PER NEC ART
	C' C' C' C' C' C' C' C' C' C'			CONFERENCE 24 C C C C C C C C C C C C C C C C C C	C' C CFC			"N" INDICATES NEW DEVICE TO EXISTING BUILDING/TENANT STA (TYPICAL U.N.O.) "E" INDICATES EXISTING DEVICE BRANCH CIRCUITING TO REMAIN. (TYPICAL U.N.O.) "R" INDICATES EXISTING DEVICE RELOCATED AS SHOWN. PROVI ADDITIONAL CONDUIT & CONDUC AS REQUIRED. (TYPICAL U.N.O. "XR" INDICATES EXISTING DEVICE ABANDONED. RETURN TO OWNER/TENANT STOCKPILE U.N. (TYPICAL) ONTRACTOR SHALL MAKE THE CESSARY MODIFICATIONS AND OVIDE AND INSTALL ADDITIONAL VICES FOR THE EXISTING FIRE ARM SYSTEM WHICH COMPLIES Y 03 (OR MOST RECENTLY ADOPT TERNATIONAL BUILDING CODE (IB DI AMERICANS WITH DISABILITIES TI (ADA) REQUIREMENTS. PROV DI SUBMIT PLANS AND ECIFICATIONS TO THE GOVERNIN VID SUBMIT PLANS AND ECIFICATIONS TO THE GOVERNIN DISTIONERS WITH 2,000 CFM AN EXPERIMENTIAL ARE STEME TCCHEEN NOTE: 120V. RECEPTACLES IN KITCHEN DISTIONERS WITH 2,000 CFM AN EXPERIMENTIAL ARE SYSTEM TCCHEEN NOTE: 120V. RECEPTACLES IN KITCHEN L BE GFCI.
	GFCI 2200 NEW NEW NEW NEW NEW NEW NEW NEW NEW NEW		=	ф	'C' GFCI			
	P	OWER PLAN	N FLO	$\mathbf{OR}\ 2$			ł	

KITCHEN EQUIPMENT REQUIRMENTS

KITCHEN EQUIPMENT REQUIRMENTS

- UNIT NAME PLATE OR MANUFÁCTURERS DATA.
- ▲ COORDINATE EXACT LOCATIONS OF ALL; EQUIPMENT PRIOR TO ROUGH-IN

GENERAL NOTES:

CODES AND ALL APPLICABLE LOCAL CODES, ORDINANCES AND MAG AMENDMENTS TO N.E.C.

EQUIPMENT, TRENCH LOCATIONS, TRANSFORMER LOCATIONS, METER LOCATIONS, ETC. EQUIPMENT, TRENCHES, ETC.

STUBS INTO TRENCH AS REQUIRED BY THE TELEPHONE COMPANY AND TO THEIR SPECIFICATIONS.

PVC CONDUIT, CONTRACTOR IS TO PROVIDE A COPPER" BOND WIRE SIZED PER N.E.C. 250-122.

AND TRANSFORMERS AS REQUIRED, AND FINAL CONNECTIONS TO EQUIPMENT PER OWNER. ALL MECHANICAL EQUIPMENT PRIOR TO BID.

ALL GENERAL USE RECEPTACLES MOUNTED WITHIN 6' OF A BASIN OR SINK SHALL BE G.F.C.I. CONTRACTOR IS TO PROVIDE BOND WIRE IN ALL RACEWAYS, SIZED PER N.E.C. ART. #250. PER NEC ART. 300-11.

ICATES EXISTING DEVICE AND CIRCUITING TO REMAIN. . U.N.O.)

ICATES EXISTING DEVICE TO BE TED AS SHOWN. PROVIDE NAL CONDUIT & CONDUCTORS JIRED. (TYPICAL U.N.O.)

DICATES EXISTING DEVICE TO BE NED. RETURN TO TENANT STOCKPILE U.N.O.

RACTOR NOTE:-

TOR SHALL MAKE THE RY MODIFICATIONS AND AND INSTALL ADDITIONAL FOR THE EXISTING FIRE STEM WHICH COMPLIES WITH MOST RECENTLY ADOPTED) NAL BUILDING CODE (IBC), ICANS WITH DISABILITIÈS REQUIREMENTS. PROVIDE IT PLANS AND TIONS TO THE GOVERNING FOR APPROVAL. FORWARD OF APPROVED DRAWINGS TO /ENG. PROVIDE UNIT I FOR ALL AIR ERS WITH 2,000 CFM AND OM FIRE ALARM SYSTEM.

SCALE: 1/8"=1'-0"

NORTH

SCALE: 1/8=1'-0"

4 ring 8 ine ٦ **a**b (

/3	$\frown \frown$		
$\left\langle \right\rangle$	LIGHT	FIXTURE	SCHED

LIG⊦	IT FIXTURE SCI	HEDULE					
MARK	DESCRIPTION	MFR.	CATALOG #	VOLT.	#	LAMPS TYPE	REMARKS
Α	2x2 TROFFER -	COLUMBIA	LCAT22-35-MLG-EDU	120	-	29W LED -	
A1	2x2 TROFFER EMERGENCY BATTERY	COLUMBIA	LCAT22-35-MLG-EDU ELL14	120	_	29W LED -	
A2	2x2 TROFFER FIRE BLANKET OPTION	COLUMBIA	LCAT22-35-MLG-EDU	120	_	29W LED —	
АЗ	2x2 TROFFER FIRE BLANKET W EM BATTERY	COLUMBIA	LCAT22-35-MLG-EDU ELL14	120	_	29W LED -	
В	1X4 WRAP AROUND —	COLUMBIA	LAW4-35ML-EDU	120	_	28W LED -	
B1	1X4 WRAP AROUND EMERGENCY BATTERY	COLUMBIA	LAW4-35ML-EDU-ELL14	120	_	28W LED -	
С	DOWN LIGHT _ _	PRESCOLITE	LC6MLDM1-30L35K8	120	_	32.5W LED -	
D	8' LINEAR _ _	FINE LITE	HP-4 ID-12-S-S-935 TG-F-120-FA-SC-C1	120	_	73.3W LED –	
F	DIRECTIONAL WALL WASH _	PRESCOLITE	LC6MLDM1WWCP-30L35K8 WHWWB24	120	-	32.5W LED -	

MARK	DESCRIPTION	MFR.	CATALOG #	VOLT.	#	LAMPS TYPE	REMARKS
G	CONTEMPORARY LED WALL MOUNT -	COLOMBIA	CWM352-MLSM-DIS-EDU	120	_	37W LED -	
~	EMERGENCY LIGHT UNIT WITH BATTERY BACK-UP	DUAL-LITE	LZ -	120/277	-	LED's W/FIXTURE	
۲	EXIT SIGN WITH BATTERY BACK-UP	DUAL-LITE	SE -		_	LED's W/FIXTURE	
D EM1	EXTERIOR EMERGENCY LIGHT W/ BACKUP BATTERY	DUAL-LITE	PGZ		-	LED's W/FIXTURE	

	ELEC	TRI	CAL	REQ	UIREMENTS FOR MEC	HANICAL EQUIPMEN₹
EQUIP. NO.	VOLT./ PHASE	FLA	HP	HEATING (KW)	WIRE / CONDUIT SIZE	REMARKS
HP-1	208/3	16.6	_	_	(3) #10 CU. (1) #10 CU. GND. 3/4"C.	
HP-2	208/1	17.9	_	_	(2) #8 CU. (1) #10 CU. GND. 3/4"C.	
HP-3	208/3	19.7	-	-	(3) #8 CU. (1) #10 CU. GND. 3/4"C.	
HP-4	208/3	30.1	-	-	(3) #6 CU. (1) #8 CU. GND. 3/4"C.	
HP-5	208/3	25.7	-	-	(3) #6 CU. (1) #8 CU. GND. 3/4"C.	
HP-6	208/3	19.7	_	-	(3) #8 CU. (1) #10 CU. GND. 3/4"C.	
HP-7	208/3	25.7	-	-	(3) #6 CU. (1) #8 CU. GND. 3/4"C.	
HP-8	208/1	17.9	-	-	(2) #8 CU. (1) #10 CU. GND. 3/4"C.	
SSHP-1	208/1	23	-	-	(2) #8 CU. (1) #10 CU. GND. 3/4"C.	OUTDOOR UNIT
SSHP-2	208/1	17.4	_	-	(2) #8 CU. (1) #10 CU. GND. 3/4"C.	OUTDOOR UNIT
SSHP-3	208/1	9.5	-	-	(2) #10 CU. (1) #10 CU. GND. 3/4"C.	OUTDOOR UNIT
SSHP-4	208/1	27.6	-	-	(2) #6 CU. (1) #10 CU. GND. 3/4"C.	OUTDOOR UNIT
SSHP-5	208/1	23	-	-	(2) #8 CU. (1) #10 CU. GND. 3/4"C.	OUTDOOR UNIT
SSHP-6	208/1	17.4	_	_	(2) #8 CU. (1) #10 CU. GND. 3/4"C.	OUTDOOR UNIT
SSHP-7	208/1	17.4	_	-	(2) #8 CU. (1) #10 CU. GND. 3/4"C.	OUTDOOR UNIT
EF-1	120/1	_	1/20	-	(2) #12 CU. (1) #12 CU. GND. 1/2"C.	
EF-2	120/1	_	1/20	-	(2) #12 CU. (1) #12 CU. GND. 1/2"C.	
EF-3	120/1	_	1/20	-	(2) #12 CU. (1) #12 CU. GND. 1/2"C.	
EF-5	208/3	_	1.5	-	(3) #8 CU. (1) #10 CU. GND. 3/4"C.	
EF-6	120/1	_	1/10	-	(2) #12 CU. (1) #12 CU. GND. 1/2"C.	
SSHP-1	208/1	24.9	3/4	5	(2) #8 CU. (1) #10 CU. GND. 3/4"C.	INDOOR UNIT/HEAT
SSHP-2	208/1	22.4	1/2	5	(2) #8 CU. (1) #10 CU. GND. 3/4"C.	INDOOR UNIT/HEAT
SSHP-3	208/1	22.4	1/2	5	(2) #8 CU. (1) #10 CU. GND. 3/4"C.	INDOOR UNIT/HEAT
SSHP-4	208/1	24.9	3/4	5	(2) #8 CU. (1) #10 CU. GND. 3/4"C.	INDOOR UNIT/HEAT
SSHP-5	208/1	24.9	3/4	5	(2) #8 CU. (1) #10 CU. GND. 3/4"C.	INDOOR UNIT/HEAT
SSHP-6	208/1	22.4	1/2	5	(2) #8 CU. (1) #10 CU. GND. 3/4"C.	INDOOR UNIT/HEAT
SSHP-7	208/1	22.4	1/2	5	(2) #8 CU. (1) #10 CU. GND. 3/4"C.	INDOOR UNIT/HEAT

* VERIFY ELECTRICAL CHARACTERISTICS (ie: KW, FLA, VOLTAGE, etc.) OF ACTUAL SUPPLIED EQUIPMENT PRIOR TO ORDERING ANY ELECTRICAL DEVICES, etc. SIZE FUSES AND DISCONNECT SWITCHES PER SUPPLIED MECHANICAL EQUIPMENT MANUFACTURER'S SPECIFICATIONS.

ELECTRICAL SYMBOLS (NOTE: ALL SYMBOLS MAY NOT APPLY TO THIS PROJECT) CEILING MOUNTED LIGHT FIXTURE Ю WALL MOUNTED LIGHT FIXTURE FLUORESCENT FIXTURE H⊗ ⊗ EXIT SIGN – SEE LIGHT FIXTURE SCHEDULE JUNCTION BOX IN ACCESSIBLE LOCATION ABOVE REMOVABLE CEILING W/ ae FLEXIBLE CONDUIT CONNECTION TO LIGHT FIXTURE FLEXIBLE CONDUIT CONNECTION TO EQUIPMENT Ľ SURFACE-MOUNT EMERGENCY LIGHTING BATTERY PACK-SINGLE OR DOUBLE HEAD- SEE LIGHT FIXTURE SCHEDULE RECESSED EMERGENCY LIGHTING BATTERY PACK-SINGLE OR DOUBLE HEAD- SEE LIGHT FIXTURE SCHEDULE JUNCTION BOX IN ACCESSIBLE LOCATION DUPLEX CONVENIENCE RECEPTACLE AT +15" A.F.F. TO BOTTOM OR AS NOTED Œ FOUR-PLEX CONVENIENCE RECEPTACLE AT +15" A.F.F. TO BOTTOM OR AS NOTED ⊕ ← IG ISOLATED GROUND RECEPTACLE AT + 15" A.F.F. TO BOTTOM OR AS NOTED 🖶 👄 RECEPTACLE (TYPE AS SHOWN) AT + 42" A.F.F. SPECIAL USE RECEPTACLE. VERIFY NEMA NUMBER AND MOUNTING HEIGHT WITH EQUIPMENT SS₃S₄ TOGGLE SWITCH - SINGLE POLE, 3-WAY, 4-WAY AT +42" OR AS NOTED ON PLANS. SINGLE-POLE, ILLUMINATED HANDEL OR PILOT LIGHT TOGGLE SWITCH AT SP +42" OR AS NOTED ON PLANS MOTOR RATED SWITCH WITH THERMAL PROTECTION SM TOGGLE SWITCH - SINGLE POLE OCCUPANCY SENSING SWITCH, WITH MANUAL AND Soc AUTOMATIC CONTROL, DUAL TECHNOLOGY PIR AND ULTRASONIC, LUTRON OR EQUAL. PHOTOCELL - TORK #2100 - MOUNT ON ROOF AND AIM NORTH TS TIMESWITCH: TORK 'W' SERIES OR EQUAL CIRCUIT IN CONDUIT, CONCEALED. HASH MARKS INDICATE QUANTITY OF CONDUCTORS NO HASH MARKS INDICATE TWO CONDUCTORS, PLUS GROUND(S). (NOTE: WIRE AND OR CONDUIT SIZE SHOWN AT HOMERUN IS THE MINIMUM SIZE FOR THE ENTIRE CIRCUIT: #12 A.W.G. CU, 1/2"C. MINIMUM). LONG STROKE(S) INDICATE NEUTRAL CONDUCTOR(S), SHORT + STROKES INDICATE PHASE OR SWITCHED CONDUCTORS AND LONG STROKES WITH DOT INDICATE GREEN INSULATED GROUNDING CONDUCTOR(S) TYPICAL. EACH ISOLATED GROUND CIRCUIT SHALL HAVE A SEPARATE NEUTRAL AND GROUND WIRE. BOND WIRES ARE NOT SHOWN ON DRAWINGS. BOND WIRES SHALL BE INSULATED CU. SIZED IN ACCORDANCE WITH N.E.C. #250. ---- CIRCUIT IN CONDUIT CONCEALED IN FLOOR CIRCUIT IN CONDUIT CONCEALED IN WALLS OR ABOVE CEILING HOMERUN TO PANELBOARD OR AS NOTED PANELBOARD, MOUNT TOP OF PANEL AT + 6'-8". STUB (2) 3/4" E.C. INTO ACCESSIBLE CEILING SPACE ON FLUSH MOUNTED PANELS. 0 MOTOR: SIZE AND RATING AS SHOWN. EF INDICATES 55-WATT, 120V. EXHAUST FAN A.C. MAGNETIC STARTER BY ELECTRICAL CONTRACTOR. HORSEPOWER, VOLTAGE AND PHASE RATED, NUMBER OF POLES REQUIRED. FURNISH WITH \mathbf{M} (1) N.O. AUXILLIARY CONTACT (120 V. CONTROL) SINGLE SPEED NÓN-REVERSING UNLESS OTHERWISE SHOWN ON PLAN DISCONNECT SWITCH - HORSEPOWER RATED, FUSED, NEMA 3R WHERE OUTSIDE. N.F. INDICATES NON-FUSED. (FUSE PER EQUIPMENT MANUFACTURERS' SPECIFICATIONS.) ⊿---STRIP HEATER AND CONTROL \boxtimes MOTOR CONTROLLER - FURNISHED WITH EQUIPMENT TELEPHONE OUTLET AT +15" TO BOTTOM OR AS NOTED WITH 3/4"C. UP INTO ACCESSIBLE CEILING SPACE UNLESS SHOWN OTHERWISE PAY PHONE OUTLET AT + 42" A.F.F. OR AS NOTED WITH 3/4"C. TO T.M.B. DATA OUTLET AT + 15" A.F.F. TO BOTTOM OR AS NOTED. STUB 3/4"C. \ltimes INTO ACCESSIBLE CEILING SPACE DATA/TELEPHONE OUTLET AT + 15" A.F.F. TO BOTTOM OR AS NOTED. STUB 3/4"C. INTO ACCESSIBLE CEILING SPACE FLUSH FLOOR FOURPLEX OUTLET AND DATA/TELPHONE OUTLET COMBO WITH BRASS DEVICE PLATE FLUSH FLOOR DATA RECEPTACLE WITH BRASS COVER PLATE AND 3/4"C. \bigcirc STUBBED TO ABOVE ACCESSIBLE CEILING LOCATION FLUSH FLOOR TELEPHONE RECEPTACLE WITH BRASS COVER PLATE AND 3/4"C. STUBBED TO ABOVE ACCESSIBLE CEILING LOCATION FLUSH FLOOR DUPLEX OUTLET WITH BRASS DEVICE PLATE FLUSH FLOOR FOURPLEX OUTLET WITH BRASS DEVICE PLATE ISOLATED GROUND RECEPTACLE "HUBBELL" # IG5263 20A, 125V, ⊙_{IG} FLUSH FLOOR WITH BRASS DEVICE PLATE TELEVISION OUTLET AT + 15" TO BOTTOM OR AS NOTED. STUB 3/4"C ΗTV INTO ACCESSIBLE CEILING SPACE DIMMER SWITCH AT + 42" A.F.F. 0-10V DIMMER SWITCH. PROVIDE 0-10V CONTROL WIRING TO FIXTURES. F A.D.A.-APPROVED FIRE ALARM STROBE A.D.A.-APPROVED FIRE ALARM HORN/STROBE ADA APPROVED FIRE ALARM MINI STROBE. F A.D.A.-APPROVED FIRE ALARM PULL STATION A.D.A.-APPROVED SMOKE DETECTOR MOUNTED IN CEILING OR AS INDICATED SD) 00 OCCUPANCY SENSOR (DUAL TECHNOLOGY) 1000 WATT CEILING MOUNTED AS MANUFACTURED BY WATT STOPPER (NO SUBSTITUTIONS)

 (\mathbb{D})

DIMMER SWITCH W/OC SENSOR AT + 42" A.F.F. 0-10V DIMMER SWITCH/OCCUPANCY SENSOR WITH MANUAL AND AUTOMATIC CONTROL, 0-10V CONTROL WIRING TO FIXTURES.

WEATHER PROOF WP

ELECTRIC DRINKING FOUNTAIN

SERVICE ENTRANCE SECTION

TELEPHONE MOUNTING BOARD: 4' X 8' X 3/4" PLYWOOD WITH #6 CU. BOND WIRE TO GROUNDING ELECTRODE SYSTEM

TELEPHONE TERMINAL CABINET: 36" W. X 36" H X 6" D 16 GA. WEATHERPROOF T.T.C. HINGED LOCKABLE COVER, 5/8" PLYWOOD BACKBOARD. PROVIDE A #6 CU BOND TO GROUNDING ELECTRODE SYSTEM

S.E.S.

EDF

T.M.B.

- DAYLIGHT SENSOR
- DUAL TECHNOLOGY PIR AND ULTRASONIC, LUTRON OR EQUAL. PROVIDE

EXISTING ONE-LINE DIAGRAM

NOTES: 1. ALL EQUIPMENT & INSTALLATIONS ARE EXISTING UNLESS NOTED AS 'NEW'. 2. ELECTRICAL CONTRACTOR SHALL FIELD-VERIFY ALL EXISTING CONDITIONS PRIOR TO ANY WORK. 3. ALL CONDUCTOR SIZES BASED ON TYPE 'XHHW' & 'THHN/THWN' COPPER.

N.T.S.

% Z	V	f	m	SOURCE	MOTOR	TOTAL
				lsc (amps)	CONTRIB.	lsc (amps)
	208			56194	0	56,194
	208	0.9121	0.5230	29,388	0	29,388
	208	0.0734	0.9316	27,379	0	27,379
	208	2.3856	0.2954	16,598	0	16,598
	208	1.2629	0.4419	24,832	0	24,832

NEW PANEL

'AC3'

208V 3?

PANEL C 200 AMP 120)/2	08\	/., 3ø,	4W	MAIN 2	25	M.L	.0.
LOCATION SEE PLAN	1		YPE SE	E C.B.	NOTE	BR	EAK	ER
USE/AREA SERVED		No	A	B	С	No		USI
FLR2 EM/EXT/LTG-CORR	20	.3	1440	1194	1	2	20/1	RE(
FLR2 EM/EXI/LIG-OFFICE	20/	5		1080	1569	4	20 20	
FLR2 EM/EXT/LTG-CLSRM	20	7	1467		1600	6	20	
SPACE		9	360	-]	8	20	RE(
SPACE		11		1060	-	12	20	RE(
SPACE		13	_ 1320		1000	14	20	RE(
SPACE		15		_ 1360		16	20	RE(
SPACE		17				18	20	FLF
SPACE		21	360		1	20	20	RE(
SPACE		23		900		22	- 1 20	
SPACE		25	_		1260	24	20	
SPARE		27	540	-]	26	20	RE(
EF-6	20/1	29		1000	500 540	30	20	RE(
EF-5	20	31	500 540			32	20 1	RE
1.5 HP	/	33		500 540		34	20/1	RE
	3	35	0614		500 540	36	20	RE(
MAU		.30	<u>2011</u> 540	2611	1	38	20/1	RE(
1.5 HP	/	41		360	2611	40	1 20	RE(
	/ 3		10-51		-	42	1	<u>ארט </u>
IUIAL (CONNECTED)			10762	11205	12220			
			_	_	_			
TOTAL (CODE)			10762	11205	12220	12	220	VA
\sim								
SERIES RATED PANEL								
PANEL B 400 AMP 120	0/2	08V	/., 3ø,	4W	MAIN 40	20/	΄3 N	/CB
LOCATION SEE PLAN		T	YPE SE	E C.B.	NOTE	BR	EAK	ER
USE/AREA SERVED	СВ	No	A	LOAD B	C	No	СВ	USI
ТМВ	20	1	200 20002			2	200/	PAI
REC – FAM RR/ELV	20	3		540 21048		4	/	
REC - CLASS #4	20/1	2 7	540		20082	6	30	10-
$\frac{ REC - CLASS \#4}{ REC - REC + REC \#4}$	20/	9	2376	720]	8		ICE
REC - CLASS #3,#4	20	11		2376	720	10	/ 3 30/	۱۸/ ۸
$\frac{1}{100} = \frac{1}{100} $	20	13	720		2088	12	/_	vvA
REC - RR CLASS #2.#1	201	15	2088	900]	14	ر <u>م</u> 15/	FRF
REC – CLASS #1.DAYCARE	201	17		2088	720	10	/ 7	
REC – CLASS #1	20	19	720 2628		0	_20	30	WA
REC – DAYCARE/NURSERY	20/1	21		720 2628		22		
REC – NURSERY	20^{-1}	23	700		900 2628	24	3	
REC - 9' OUTDOOR	20/1	25 27	360 3816	1080	1	26	50	OVI
REC - OUISIDE	20	29		3816	540	28	/	
REC - WORKRUUM	20	31	540		3816	30	/ 3 50 /	
$\frac{1}{100} = \frac{1}{100} $	20	33	3816	1080]	32	/	
CONDENSATE PUMPS	20	35		3816	120	34	/ _	
I JUNDERUNIE I UMI J	201	37	200		<u> </u>	56 79	<u>y 3</u>	SP
FACP	r '	39	_	-]	40		SP
FACP SPACE		41				42		SP
FACP SPACE SPACE					70070			
FACP SPACE SPACE TOTAL (CONNECTED)			38006	40812	38238			
FACP SPACE SPACE TOTAL (CONNECTED) 25 % CONTINUOUS			38006 _	40812 _	-			
FACP SPACE SPACE TOTAL (CONNECTED) 25 % CONTINUOUS			38006	40812 - -	-		<u> </u>	
FACP SPACE SPACE TOTAL (CONNECTED) 25 % CONTINUOUS TOTAL (CODE)			38006 38006	40812 - - 40812	- - 38238	40	812	VA
FACP SPACE SPACE TOTAL (CONNECTED) 25 % CONTINUOUS TOTAL (CODE) - C.B. NOTE:-			38006 - 38006	40812 - - 40812		40	812	Z VA
FACP SPACE SPACE TOTAL (CONNECTED) 25 % CONTINUOUS TOTAL (CODE) - C.B. NOTE:			38006 - - 38006	40812 - 40812	- 38238	40	812	. VA
FACP SPACE SPACE TOTAL (CONNECTED) 25 % CONTINUOUS TOTAL (CODE) CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (BE A		38006 – 38006 UG–ON TION WI	40812 - 40812 TYPE, TH THE	38238	40	812	. VA
FACP SPACE SPACE TOTAL (CONNECTED) 25 % CONTINUOUS TOTAL (CODE) CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (FUSES AT S.E.S.	BE A		38006 - 38006 UG-ON TION WI	40812 - 40812 TYPE, TH THE	38238	40	812	
FACP SPACE SPACE TOTAL (CONNECTED) 25 % CONTINUOUS TOTAL (CODE) - C.B. NOTE: CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (FUSES AT S.E.S.	BE A	A PL BINA	38006 38006 UG-ON TION WI	40812 - 40812 TYPE, TH THE	38238	40	812	
FACP SPACE TOTAL (CONNECTED) 25 % CONTINUOUS TOTAL (CODE) - C.B. NOTE: CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (FUSES AT S.E.S.	BE A	A PL BINA	38006 - 38006 UG-ON TION WI	40812 - 40812 TYPE, TH THE	38238	40	812	: VA
FACP SPACE SPACE TOTAL (CONNECTED) 25 % CONTINUOUS TOTAL (CODE) CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (FUSES AT S.E.S.	BE A COME	A PL BINA	38006 - 38006 UG-ON TION WI	40812 - 40812 TYPE, TH THE		40 40	812 N_AI	VA NSUL
FACP SPACE SPACE TOTAL (CONNECTED) 25 % CONTINUOUS TOTAL (CODE) CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (FUSES AT S.E.S. - 20-AMP, 125V. SP SWITCH MOUNTED (FACE OF HOOD	BE A COME	A PL BINA	38006 - 38006 UG-ON TION WI	40812 - 40812 TYPE, TH THE		40 40	812 N AI	NSUL
FACP SPACE SPACE TOTAL (CONNECTED) 25 % CONTINUOUS TOTAL (CODE) CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (FUSES AT S.E.S. - 20-AMP, 125V. SF SWITCH MOUNTED (FACE OF HOOD	BE A COME	A PL	38006 - 38006 UG-ON TION WI	40812 - 40812 TYPE, TH THE		40 40	812 N AI JPOI	NSUL
FACP SPACE SPACE TOTAL (CONNECTED) 25 % CONTINUOUS TOTAL (CODE) C.B. NOTE: CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (FUSES AT S.E.S. 20-AMP, 125V. SP SWITCH MOUNTED (FACE OF HOOD	BE A COME	A PL BINA	38006 - 38006 UG-ON TION WI	40812 - 40812 TYPE, TH THE		40 40	812 N AI JPOI	NSUL
FACP SPACE TOTAL (CONNECTED) 25 % CONTINUOUS TOTAL (CODE) C.B. NOTE: CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (FUSES AT S.E.S. 20-AMP, 125V. SF SWITCH MOUNTED (FACE OF HOOD	BE A COME	A PL BINA	38006 - 38006 UG-ON TION WI	40812 - 40812 TYPE, TH THE		40 40	812 N AI JPOI	NSUL
FACP SPACE TOTAL (CONNECTED) 25 % CONTINUOUS TOTAL (CODE) CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (FUSES AT S.E.S. CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (FUSES AT S.E.S.			38006 - 38006 UG-ON TION WI	40812 - 40812 TYPE, TH THE		40 40	N AI	NSUL
FACP SPACE SPACE TOTAL (CONNECTED) 25 % CONTINUOUS TOTAL (CODE) C.B. NOTE: CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (FUSES AT S.E.S. CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (FUSES AT S.E.S. CIRCUIT BREAKERS SHALL E CIRCUIT STALL ST	BE A COME	EXH.	38006 - 38006 UG-ON TION WI	40812 - 40812 TYPE, TH THE	- RELA OPEN	40 40	N AI JPOI	NSUL N AC
FACP SPACE SPACE TOTAL (CONNECTED) 25 % CONTINUOUS TOTAL (CODE) C.B. NOTE: CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (FUSES AT S.E.S. CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (FUSES AT S.E.S. COMP, 125V. SF SWITCH MOUNTED (FACE OF HOOD C-31 C-33 C-35 (C-35)	BE A COME	EXH,	38006 	40812 - 40812 TYPE, TH THE	- RELA 0PEN	40 40	812 812 JPOI	NSUL
FACP SPACE SPACE TOTAL (CONNECTED) 25 % CONTINUOUS TOTAL (CODE) C.B. NOTE: CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (FUSES AT S.E.S. CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (FACE OF HOOD C-31		EXH,	38006 - 38006 UG-ON TION WI AUST - - - - - - - - - - - - -	40812 - 40812 TYPE, TH THE		40 40	812 812	NSUL
FACP SPACE SPACE TOTAL (CONNECTED) 25 % CONTINUOUS TOTAL (CODE) C.B. NOTE: CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (FUSES AT S.E.S. CO-AMP, 125V. SP SWITCH MOUNTED (FACE OF HOOD C-31		EXH,	38006 	40812 - 40812 TYPE, TH THE		40 40		
FACP SPACE TOTAL (CONNECTED) 25 % CONTINUOUS TOTAL (CODE) CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (FUSES AT S.E.S. CIRCUIT BREAKERS SHALL E U.LLISTED SERIES-RATED (FUSES AT S.E.S. C-31		EXH,	38006 - 38006 UG-ON TION WI AUST - "C"- "C"- "C"-	40812 - 40812 TYPE, TH THE - - - - - - - - - - - - -		40 40		

EF/EC INTERLOCK DIAGRAM

30-AMP, 250V., 3-POLE Electrically held motor

RATED CONTACTOR MOUNTED

ABOVE PANEL IN NEMA 1

ENCLOSURE -

ABOVE PANEL IN NEMA 1

ENCLOSURE -

L SYSTEM, CTIVATION

	Icheck Software Version Prior Lighting Con	n 4.0.7.0 npliance	Certific	cate
Project Information				
Energy Code: Project Title:	2015 IECC			
Project Type:	New Construction			
Construction Site:	Owner/Agent:	Designe	r/Contractor:	
Additional Efficiency Unspecified	Package			
Allowed Interior Light	ing Power			
	A Area Category	B Floor Area (ft2)	C Allowed Watts / ft2	D Allowed Watts (B X C)
1-classrooms (Common Spa	ce Types:Classroom/Lecture/Training)	7937	1.24	9842
2-hallways (Common Space	Types:Corridor/Transition <8 ft wide)	1966	0.66	1298
3-restrooms (Common Space	Types:Restrooms)	885	0.98	867
4-conference (Common Space	e Types:Conference/Meeting/Multipurpose)	840	1.23	1033
5-office enclosed (Common 5	Space Types:Office - Enclosed)	541	1.11	601
6-electrical rooms (Common	Space Types:Electrical/Mechanical)	80	0.95	76
7-reception (Common Space	Types:Lobby - General)	331	0.90	298
8-workroom (Common Space	Types:Workshop)	216	1.69	343

	Tol	tal Allowed V	/atts =	15061	
Proposed Interior Lighting Power					
A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	E (C X D)	
1-classrooms (Common Space Types:Classroom/Lecture/Training) LED 1: A: LCAT2X2: LED Panel 33W:	1	93	29	2697	
2-hallways (Common Space Types:Corridor/Transition <8 ft wide) LED 1: A: LCAT2X2: LED Panel 33W:	1	28	29	812	
3-restrooms (Common Space Types:Restrooms) LED 2: B: LAW: Other:	1	10	43	430	
4-conference (Common Space Types:Conference/Meeting/Multipurpose) LED 4: D: conference main fixture: Other: LED 3: C: LC6ML: Other: LED 1: A: LCAT2X2: LED Panel 33W:	1 1 1	1 7 6	86 32 29	86 228 174	
5-office enclosed (Common Space Types:Office - Enclosed) LED 1: A: LCAT2X2: LED Panel 33W:	1	8	29	232	

128

365

262

0.63

1.21

0.69

81

442

181

A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast	B Lamps/ Fixture	C # of Fixtures	D Fixture Watt.	(C X D)
5-electrical rooms (Common Space Types:Electrical/Mechanical) LED 2: B: LAW: Other:	1	2	43	86
7-reception (Common Space Types:Lobby - General) LED 1: A: LCAT2X2: LED Panel 33W:	1	5	29	145
8-workroom (Common Space Types:Workshop) LED 1: A: LCAT2X2: LED Panel 33W:	1	3	29	87
9-storage (Common Space Types:Storage >=50 - <=1000 sq.ft.) LED 1: A: LCAT2X2: LED Panel 33W:	1	4	29	116
10-kitchen (Common Space Types:Food Preparation) LED 2: B: LAW: Other:	1	4	43	172
11-stairwell (Common Space Types:Stairwell) LED 1: A: LCAT2X2: LED Panel 33W:	1	1	29	29
		Total Propos	ed Watts =	5294

terior Lighting PASSES: Design 65% better than code

Interior Lighting Compliance Statement

9-storage (Common Space Types:Storage >=50 - <=1000 sq.ft.)

10-kitchen (Common Space Types:Food Preparation)

11-stairwell (Common Space Types:Stairwell)

Compliance Statement: The proposed interior lighting design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed interior lighting systems have been designed to meet the 2015 IECC requirements in COMcheck Version 4.0.7 Cland to comply with any applicable mandatory designed to meet the 2015 IECC requirements in COMcheck Version 4.0 requirements listed in the Inspection Checklist.

DAVID WATSON, P. Name - Title

Project Title: Data filename: Untitled.cck Report date: 12/18/17 Page 2 of 7

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E5

GENERAL CONDITIONS

The General Provisions of the Contract, including the Conditions of the Contract (General, Supplementary and other Conditions) and Division 1 – General Requirements as appropriate, apply to the work specified in this Section.

SCOPE OF WORK

The work included under this section consists of furnishing all materials, equipment, and labor and the performing of all functions, except as otherwise specified herein or shown on the drawings to be performed by others, for the installation and placing into operation of a complete electrical system as specified and shown on the drawings.

GENERAL DESCRIPTION

3.1 The work in general shall consist of, but is not necessarily limited to the following.

3.1.1 Furnishing and installing all fixtures with lamps as indicated on the drawings and as specified herein unless noted.

3.1.2 Furnishing and installing all electrical work, panels, service, conduit, wiring, etc., for all outlets and equipment.

3.1.3 Furnishing and installing all telephone outlets, conduits with pull strings and telephone mounting boards including conduit from telephone mounting board to the building entrance as indicated on the plan.

3.1.4 Furnishing and installing a complete Fire Alarm system as indicated on plans.

3.1.5 Include \$ hundred dollars) allowance for power and telephone company utility service charges. Difference between actual cost and allowance to be credited or billed to the Owner.

3.1.6 Furnishing and installing all motor starters and control components, not specifically specified to be furnished in accordance with other sections of the specifications.

Furnishing and installing all power and wiring 3.1.7 except that which is pre-wired in factory assembled equipment.

3.1.8 Installing all LINE VOLTAGE mechanical control wiring and associated controls which are furnished by the Mechanical Contractor (low voltage control wiring and controls shall be furnished and installed by the Mechanical Contractor).

3.1.9 Painting work as described under other sections of these specifications. Clean and prepare all surfaces ready for painting.

3.1.10 Provide temporary construction power as outlined below. This service shall be maintained throughout the entire job as the work progresses. Provide outlets at convenient points and in sufficient numbers so that no extension cord over 50 feet in length is required to reach any work point. Maintain general lighting in corridors, stairs, basement and other areas not receiving sufficient daylight required for safety. Remove temporary work as rapidly as required for or allowed by installation of permanent work.

3.1.11 Certain items of work by other trades will be necessary for the completion of work under this division. Cooperate with other trades and arrange for these items to be performed in orderly course.

3.1.12 This Contractor shall review the mechanical control requirements as specified and shown on the drawings and shall furnish and install all necessary conduit, wiring, boxes, protective devices, switches, etc., for the completion and proper operation of the system.

3.1.13 Review all drawings and all specifications for each section of work. Unless specifically noted otherwise, herein or elsewhere, furnish and install items of any electrical nature required for completion of work for other trades, whether or not same is shown or noted in this or other sections.

REGULATIONS AND CODES

4.

5.

The Contractor must comply with all state, municipal and federal safety laws, construction codes, ordinances and regulations relating to building and public health and safety. In addition, comply with rules and regulations of the State Fire Protection Code. Fire protection material must bear the Fire Underwriters Laboratories label.

GENERAL REQUIREMENTS

5.1 The Contractor shall examine the premises and satisfy himself of existing conditions under which he will be obligated to operate in performing his part of the work or that will in any manner affect the work under the contract. The Contractor shall cooperate with other trades so that the installations of all equipment may be properly coordinated.

5.2 All equipment furnished shall fit the space available, with connection, etc., in the required locations and with adequate space for operating and servicing. The drawings are generally diagrammatic and indicate the manner and method of the installation, while the specifications and fixture list denote the type and quality of material and workmanship to be used. Where a conflict exists between the drawings and the specifications, the Contractor shall promptly notify the Architect/Engineer whose decision shall be final. No allowance will be made subsequently in this connection in behalf of the Contractor after award of the contract.

EQUIPMENT AND MATERIAL

All materials furnished under this contract shall 6.1 be new (except as noted), free from defects of any character, shall conform with the standards of the Underwriters Laboratories, Inc. (U.L.) (or other nationally recognized Laboratory), in every case where such a standard has been established and shall be so labeled. It is the intention of these specifications to indicate a standard of quality for all materials incorporated in this work, and where materials are not specified herein and are required to complete the electrical installation, these materials shall be of first quality for use intended. Manufacturers of similar quality products will be considered unless the specifications or drawings indicate otherwise.

6.2 Materials shall be suitable for intended use and location. Unless otherwise shown use NEMA-1 for interior areas and NEMA-3R for exterior areas.

6.3 The Architect/Engineer decision as to equal in grade and guality shall rule and be final for all electrical materials incorporated in this work. Where two or more similar type items are furnished, all shall be of the same manufacturer (e.g., all disconnect switches shall be of the same manufacturer) unless otherwise noted herein or shown on the drawings. All material and installation methods used shall be in accordance with the latest and approved electrical and mechanical engineering practices.

SERVICE ENTRANCE EQUIPMENT

Service entrance equipment shall be in accordance 7.1 with the requirements of the municipal governing body and serving utility. Shop drawings shall be submitted to the serving utility for written approval before ordering equipment.

7.2 Label equipment and each individual overcurrent device per Section 16000.22.

7.3

PANELBOARDS Each panel shall be provided with door lock and two keys, all keyed alike. Each panel shall be provided with typewritten sheet installed on door identifying the use of each branch circuit. Panels shall have bussing as indicated on the drawings.

8.2 Label equipment per Section 16000.22

STARTERS

Approved manufacturers are: Square D, Cutler-Hammer, Siemens/ITE, General Electric

91 All motor starters shall be furnished under this section of the specifications unless an integral part of equipment or noted as furnished with equipment specified under other sections of these specifications.

9.2 Separately mounted motor starters shall be acrossthe-line combination magnetic with 120V coils, fused disconnect contactors, additional auxiliary contact for interlocking of controls. Provide pushbutton or selector switch in cover. Switchboard mounted starters shall be magnetic with 120V coils and additional auxiliary contacts as required for interlocking of controls. Starters shall have an integral control circuit transformer or separate 120V control with control circuit disconnect switch in cover.

9.3 Manual starters shall be horsepower, voltage and phase rated with overload protection and green "on" pilot light. Surface mounted unless noted otherwise.

9.4 All starters shall have overload protection in all phase lines. Furnish and install the proper size overload heater elements determined from full load nameplate readings on motors and compensation for ambient temperature in all starters whether they be furnished under this Section or other Sections.

9.5	Label p
9.6	Approve
10.	TRANSF

10.1 Transformers shall be dry type, with voltage ratings as indicated on plans. Transformers shall be rated for for full load operation at a maximum 150 degree centigrade rise above a 40 degree centigrade ambient or as otherwise noted on drawings. Provide at least (4) 2 1/2 percent taps, two above normal and two below normal and have a sound rating not to exceed NEMA standards. Special "K" factor ratings as noted.

10.2 Submit complete transformer data with shop drawings for approval. The data shall include efficiencies, core and copper losses, impedance, regulation and sound level. Installation of transformers shall be on vibration 10.3 isolators and all wiring connections with flexible conduit.

10.4

Approved manufacturers are: ACME, Square D, 10.5 Jefferson, Cutler-Hammer, Westinghouse, General Electric, or same manufacturer as distribution equipment.

CONDUIT 11. 11.1 equal to LTV Steel.

ELECTRICAL SYSTEM SPECIFICATIONS - DIVISION 16000

Approved manufacturers are: Sun Valley, Square D, Cutler-Hammer, Siemens/ITE, General Electric

per Section 16000.22

ed manufacturers are: Square D

ORMERS

Label per Section 16000.22

Metallic conduits shall be hot dipped galvanized

Electric metallic tubing (EMT) is permitted for 11.2 exposed work above 6'-0" A.F.F. or concealed work only. EMT is NOT permitted in the following: (1) in or under concrete, (2) in earth, (3) in grouted walls, (4) exterior of building, (5) with dissimilar metals, (6) where it will be subject to severe physical damage (either during or after installation), (7) in any hazardous (classified location) except as permitted by 502.10, 503.10 and 504.20, (8) without an equipment grounding conductor. Size and provide equipment grounding conductor per Article 250 and increase conduit size if required.

11.3 Rigid PVC conduit is permitted only underground or as noted on drawings. Provide rigid steel elbows and risers (NO MINIMUM SIZE). Size and provide equipment grounding conductor per Article 250 and increase conduit size if required.

Rigid galvanized or sheradized steel shall be used 11.4 for all exposed conduit below 6'-0" A.F.F. or as noted on drawings. Where used in or under concrete or in earth, shall be code approved PVC coated or half lap wrapped with Polyken #900 tape or equal.

11.5 Install exposed raceways parallel and perpendicular to nearby surfaces or structural members and follow the surface contours as much as practical.

11.6 Run exposed, parallel, or banked raceways together. Make bends in parallel or banked runs from the same center line so that the bends are parallel. Factory elbows may be used in banked runs only where they can be installed parallel. This requires that there be a change in the plane of the run such as from wall to ceiling and that the raceways be of the same size. In other cases provide field bends for parallel raceways.

12. WIRE

12.1 Soft drawn annealed copper (unless otherwise noted on plans) having conductivity of not less than 98% of that of pure copper, uniform in cross section, free from flaws, scales, and other imperfections. All wire larger than #10 shall be stranded.

Insulation: Type THHN/THWN, or XHHW for all branch 12.2 circuit and feeder wiring.

12.3 Sizes: No wire smaller than #12 unless otherwise noted on drawings.

Feeder conductors #2 awg and larger may be copper 12.4 or AA-8000 series alluminum alloy. Alluminum conductors shall be equal or larger ampacity to copper. Conduit fill shall not exceed 40% factor as described in NEC, annex C, table C1 (copper) or C1A (alluminum).

13. MISCELLANEOUS MATERIALS:

13.1 Safety switches: Heavy duty, fused rejection type, minimum 200,000 A.I.C. rated. "NF" indicates not fused.

13.1.1 Label per Section 16000.22

13.1.2 Approved manufacturers are: Square D, Cutler-Hammer, Westinghouse, General Electric or same manufacturers as distribution equipment.

Fuses: "Bussmann" or "Gould Shawmut" mfa. No substitutions unless by prior written approval from Engineer, or as noted on drawings.

13.3 Conduit strap: Heavy gauge steel snap-on type.

13.4 Electrical metallic tubing fittings: Equal to T&B compression type. Connectors shall have insulated bushings.

Rigid conduit locknuts and bushings: Equal to T&B. 13.5 Flexible conduit and fittings: Equal to California 13.6 Conduit and Cable Company, Inc.

13.7 Liquid tight conduit and fittings for all exterior and equipment connections.

Outlet boxes, plaster rings, pull, and junction boxes, etc: Equal to RACO. Zinc coated or Cadmium plated sheet steel for indoor locations, cast aluminum for outdoor locations.

13.8.1 For all light fixtures: Octagon or 4" square boxes.

13.8.2 For switches and receptacles: 4° or $4-11/16^{\circ}$ square boxes.

Junction and pull boxes: 4" square minimum size. 13.8.3 Provide with screwfastened covers located in accessible locations.

13.9 Condulets: Equal to Crouse-Hinds.

13.10 Wire and Cable: Equal to General Cable and/or Simplex.

13.11 Devices: "Hubbell", "Leviton", or approved equal. Receptacles: Duplex-20 amp #5362, isolated ground - 20 amp #IG-5362, GFCI- 20 amp #GF-5362. Switches: 20 amp #1221 single pole, 1222 double pole, 1223 three way, 1224 four way. Colors to be specified by Architect/Owner/Tenant.

Device plates: "Hubbell", "Leviton", or equal. 13.12 Ivory nylon in interior areas or as noted on drawings. Zinc die cast flip lid mounted horizontally for exterior or weatherproof locations.

Lighting fixtures: Equal to as shown on fixture 13.13 schedule or described on drawings, complete with lamps in original cartons and all canopies, stems, hangers and accessories including all structural members required for proper mounting. All fluorescent fixture ballasts shall be energy saving type. Submit shop drawings to Architect/Engineer for approval by the same. Must be C.E.C. approved in Calif. 13.14 Lamps: G.E. or equal and shall be for the maximum

rated wattage of fixture unless otherwise shown on drawings.

14. SLEEVES, INSERTS, OPENINGS

14.1 Contractor shall layout and install his work in advance of pouring concrete floors or walls. Provide all sleeves and/or openings through floors or walls required for electrical conduits or ducts.

14.2 Sleeves shall be of rigid conduit or galvanized sheet steel rigidly supported and suitably packed to prevent entrance of wet concrete.

15. EXCAVATION/CUTTING/FITTING/REPAIRING/FINISHING

15.1 The Contractor shall include in his bid all excavation, compaction, fill, backfill, cutting, fitting, repairing and finishing of all work necessary for the installation of all equipment under this specification but no cutting of the work of other Contractors shall be done without the consent of the General Contractor.

15.2 Earthwork shall be done in accordance with latest industry standards.

CLEANUP OF PREMISES

16.

Contractor shall at all times keep the premises clear of waste materials and debris caused by his employees and operation. Equipment not required in the work shall be removed prior to the termination of the contract.

TESTS AND INSPECTIONS 17.

Contractor shall test wiring and devices as 17.1 sections are completed and shall correct all defects immediately at his own expense, including any damage to walls, ceilings, floor or other portions of the building which may result from replacing defective equipment.

17.2 Furnish all meters, cable, connections and apparatus necessary for making tests.

Test system for shorts and arounds. Faulty wiring shall be removed and replaced. Any device, apparatus or fixture installed showing substandard performance shall be removed and replaced as directed by the Architect/Engineer.

17.4 Megger all systems neutrals to insure the neutral is not grounded within the system.

17.5 All equipment rated at 1,000 amps or more , or 480 volts shall be tested for insulation breakdown prior to its being energized. Such equipment shall withstand for a period of one minute without breakdown, the application of a 60HZ alternating potential of 1,000V plus twice the rated voltage of the device.

17.6 After the electrical wiring system installation is completed and at such time as the Architect/Engineer or his authorized representative may direct, the Contractor shall conduct an operating test for approval. Equipment shall be demonstrated to operate in accordance with requirements of specifications. Test shall be performed in presence of Architect/Engineer or his representative.

18. SHOP DRAWINGS

18.1 All data shall be submitted at one time, bound and indexed in an orderly manner. Prior to starting the work, submit to the Architect/Engineer for approval, six (6) sets of shop drawings of service (S.E.S.), panels, distribution sections, light fixtures, motor control centers, fire alarm system, dimmers, sound system, emergency generator, devices, transformers, labels as required by 16000.22, and all other equipment to be fabricated.

18.2 Procure shop drawings, wiring diagrams, etc., from other trades involved where such drawings may facilitate and expedite the work. Air conditioning and mechanical equipment shall be wired complete as per manufacturer's wiring diagrams furnished by the air conditioning and mechanical contractors.

19. DRAWINGS OF RECORD (AS-BUILT)

As-built drawings shall be submitted in accordance with and if required by Division 1 - General Requirements.

20. GUARANTEE

The Contractor shall guarantee all material and equipment to be free from defect of material and workmanship and shall replace or repair without cost to the owner all defective material and workmanship for a period of one year after final acceptance.

INSTRUCTIONS 21.

Contractor shall instruct the Owner in the proper 21.1 operating and maintenance of the equipment.

Contractor shall provide two (2) sets of operating 21.2 and maintenance manuals for each piece of equipment provided by this discipline, only when such manuals are available from the manufacturer.

(SOME SECTIONS MAY NOT APPLY)

Labels shall be engraved, black on white melamine

21.2.1 All manuals to be bound in a 3-ring binder and

plastic laminate, 1/16" minimum thickness for signs up to 20

square inches or 8 inches long; 1/8" thick for larger sizes.

Engraved legend shall be in white letters on black face with minimum 3/16" high letters. Labels shall be punched and

fastened to equipment with aluminum rivets or self tapping

22.2 Label equipment with name, amperage, voltage, phase, and wires (i.e. Panel "A", 400A., 120/208V,30,4W).

(S.E.S.) and all overcurrent devices, distribution sections and

overcurrent devices, fusible panelboards and all overcurrent

devices, panels, starters and transformers. Label other

all overcurrent devices, motor control centers (M.C.C.) and all

Submit list of all labels with wording for review as per

stainless steel screws or number 10/32 stainless steel machine

Equipment to be labeled shall include service

tabulated in an orderly manner.

LABELING

screws with nuts, flat and lock washers.

equipment as noted on plans.

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