

KEY NOTES:
APPLY TO THIS SHEET ONLY

REFER TO MECHANICAL DRAWINGS FOR PLUMBING AND FIRE PROTECTION SPECIFICATIONS.

2" DOMESTIC COLD WATER SERVICE, SEE CIVIL DRAWINGS FOR CONTINUATION. WATER METER AND CONTAINMENT BACKFLOW PREVENTER BY CIVIL.

6" FIRE SERVICE, SEE CIVIL DRAWINGS FOR CONTINUATION. BACKFLOW PREVENTER AND SITE SIAMESE FIRE DEPARTMENT CONNECTION BY CIVIL.

PLUMBING GENERAL NOTES: APPLY TO ALL PLUMBING DRAWINGS

- 1. THE FOLLOWING CODE APPLIES TO THIS PROJECT:

 INTERNATIONAL BUILDING CODE-2006 EDITION WITH LATEST AMENDMENTS.

 STANDARD, SA CODE: AND SE DITION WITH LATEST AMENDMENTS.

 SIATIONAL FUEL 6AS CODE: AND SE DITION WITH LATEST AMENDMENTS.

 INTERNATIONAL PLUMBING CODE: 2006 EDITION, WITH LATEST AMENDMENTS.

 INTERNATIONAL FLECTRIC CODE: 2006 EDITION, WITH LATEST AMENDMENTS.

 INTERNATIONAL FLECTRIC CODE: 2006 EDITION, WITH LATEST AMENDMENTS.

 INTERNATIONAL FIRE PREVENTION CODE: 2006 EDITION, WITH LATEST AMENDMENTS.

 MODEL BURGAY CODE: 2006 EDITION WITH LATEST AMENDMENTS.

 LOCAL COUNTY AND CITY CODES: AS APPLICABLE, LATEST EDITIONS.

 ALL WORK SHALL BE PROVIDED IN STREET ACCORDANGE WITH THE

 LATEST EDITIONS OF STATE OF GEORGIA CODES, APPLICABLE SECTIONS.
- THESE PLUMBING DRAWINGS ARE ACCOMPANIED BY DRAWING SPECIFICATIONS, SEE MECHANICAL SHEETS. NO TAKE-OFFS, BIDS OR WORK SHALL PROCEED WITHOUT ADHERENCE TO THE MECHANICAL SPECIFICATIONS.
- THESE DRAWINGS ARE INSTRUMENTS OF SERVICE AND REMAIN THE PROPERTY OF ENGINEER. NO PART MAY BE USED OR REPRODUCED WITHOUT WRITTEN PERMISSION OF THE ENGINEER.
- THE CONTRACTOR SHALL PAY FOR AND OBTAIN ALL NECESSARY FEES, PERMITS AND INSPECTION FOR APPLICABLE PORTIONS OF THE WORK.

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- LAYOUT SHOWN IS DIGGRAMMATIC, THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE ARCHITECTURAL (OPIL, STRUCTURAL, AND INSECTIVABLE, DRAWINGS TO ENSURE ALL PLUMBING WORK IS PROVIDED TO FACILITATE PLUMBING SERVICE FOR ALL EQUIPMENT FROVIDED ON THE PROJECT, NEW OR DISISTING TO REMAIN, PROVIDED RECESSION OFFERTS, RESE, AND PHEN OR DISISTING TO REMAIN, PROVIDED RECESSION OFFERTS, RESE, AND PHEN OF COCORONATE WITH THE BUILDING STRUCTURE AND THE WORK OF OTHER TRADES.
- PLUMBING FIXTURES SHOWN ON FLOR PLANS ARE ARCHITECTURAL SYMBOLS. THE CONTRACTOR IS RESPONSIBLE FOR REMEMING THE ARCHITECTURAL DRAWINGS FOR BEXACT DIMENSIONS AND LOCATING OF PLUMBING FIXTURES. (IE SINK SIZE AND COUTERTOP SPACE, ETC) PLUMBING FIXTURES. (IE SINK SIZE AND COUTERTOP SPACE, ETC) OF EACH FIXTURE.

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- Çī 5. THE CONTRACTOR SHALL OBTAIN EXACT WALL, FUTURE AND LAYOUT DIMENSIONS FROM THE ARCHITECTURAL DRAWINGS. THE CONTRACTOR IS RESPONSIBLE FOR DITAINING ROUGH-IN AND INSTALLATION DRAWING FOR ALL PLUMBING FOR THE FOR DITAINING ROUGH-IN AND INSTALLATION DRAWING FOR ALL PLUMBING FOR THE PLUMBING CONTRACTORS RESPONSIBLE FOR PROYUDING AND INSTALLING ALL NECESSARY VIALVES, CONNECTIONS, TRAPS, ACCESS PANELS, UNIONS, ESCUTICHEONS, WATER HAMMER ARRESTORS, VIALUM BREAKERS, RELIEF VIALVES, PIPE INSULATION AND EQUIPMENT SPECIALTY DEVICES NA REQUIRED TO PACILITATE COMPLETE AND DEPENDING, CONDITIONS WHICH ARE IN STRACT COMPLENCE WITH THE FIXTURE OR EQUIPMENT.

 MANUFACTURERS INSTALLATION INSTRUCTIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE CIVIL DRAWNINGS AND ACTUAL SITE CONDITIONS TO ENSURE SANITARY INVERTIS AVAILABLE ON SITE WILL ACCOMODATE THE PLANNED BUILDING SANITARY PIPING, REPORT ANY DISCREPANCIES PRIOR TO COMMENCING WITH THE WORK.
- 7. THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING WITH THE CAYL.
 DRAWINGS, ACTUAL SITE CONDITIONS AND THE LOCAL AUTHORISTY HANNE
 JURISDICTION. THE REQUIREMENTS FOR THE TYPE AND LOCATION OF THE
 DONESTIC WATER AND FIRE WATER BACK FLOW PREVENTION DEVICES AND
 AND SIAMESE FIRE DEPARTMENT CONNECTION. REPORT ANY DISCREPANCIES
 PRIOR TO COMMENCING WITH THE WORK.
- THE CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL UNDERSALA PLUMBING WITH THE STRUCTURE FRAMING DAWNING, STRUCTURAL FRAMING DAWNING STRUCTURAL FOUNDATION DRAWNINGS GRADE BEAMS, THOCKENED SLABS, AND ALL FOUNDATION DRAWNINGS GRADE BEAMS, THOCKENED SLABS, AND ALL FOUNDATION DRAWNINGS CONTRACTOR SHALL SUBMIT A SECTION OF PROPOSED UNDERSLAB PIPE ROUTING FOR APPROVAL PRIOR TO ROUGH INI.
- COORDINATE THE ELECTRICAL RECUIRRIENTS AND CHARACTERISTICS OF ALL PLUMBING EQUIPMENT WITH THE ELECTRICAL CONTRACTOR PRIOR TO PURCHASE, INDICATE VOLTAGE, PHASE, MINIMUM CIRCUIT AMPACITY, AND MAXIMUM OVERCURRENT PROTECTION ON ALL SHOP DRAWNGS.
- 0.
- THE CONTRACTOR IS RESPONSIBLE FOR REVIEWING THE ARCHITECTURAL DRAWINGS FOR ADEQUATE WALL THICKNESS TO ENSURE ALL SANITARY PIPING, VENT PIPING, WALL CELFANDUTS, HOSE BIBBS, NON FREEZE HOSE BIBBS, AND RECESSED ACCESS PANELS WILL FIT IN WALL SPACE, CONTRACTOR SHALL NOTHY THE ARCHITECT IF WALL SPACE IS ONLY ACTOR SHALL NOTHY THE ARCHITECT IF WALL SPACE IS NADEQUATE PRIOR TO COMMENCING WITH THE WORK.

- 12 ⇉ NO PLUMBING WATER PIPING IS ALLOWED IN AN EXTERIOR WALL. THE CONTRACTOR SHALL NOTIFY THE ARCHTIECT IF CHASE SPACE IS INADEQUATE OR IF FATURES ARE LOCATED ON OUTSIDE WALLS. ROUTE ALL PIPING ON WARM SIDE OF BUILDING INSULATION.
- NO WORK SHALL BE INSTALLED WITHOUT APPROVED SHOP DRAWINGS FOR THE MATERIALS AND EQUIPMENT INVOLVED.
- 13. PRESSURE TESTS SHALL BE PERFORMED TO PROVE PPING SYTEMS NSTALLED TO BE ITHAT HUNDER PRESSURE AND DURATION AS FOLLOWS. BEAUTY PIPING, FILL WITH WATER TO POINT OF OVERFLOW AT NOT LESS THAN 15 FEET OF HEAD. MANTAIN WATER LEVEL DURING IN SPECIOUS OF ALL DUNIS. SELECTION OF ALL DUNIS. SELECTION OF ALL DUNIS. SELECTION OF THE SELECTI
- TEST BY SECTION OR BY ENTIRE SYSTEM. CLOSE OFF OPENINGS WITH PLUGS OR SECTIONALIZING VALVES, PROVE TIGHTNIESS OF SYSTEM WITHOUT LOSS OF TEST LEVEL OR PRESSURE. CORRECT ANY LEAKS AND RETEST.
- 4 AFTER POTABLE WATER SYSTEM HAS BEEN PROVEN TO BE TIGHT UNDER PRESSURE. DISINFECT THE PIPING SYSTEM IN ACCORDANCE WITH FEDERAL SPECIFICATION BBS-C-120 AND THE FOLLOWING:
- DRAIN AND REFILL PIPING SYSTEM WITH WATER CONTAINING 50 PARTS PER MILLION AVAILABLE CHLORINE. LET STAND FOR 8 HOURS, DRAIN, AND FLUSH CHLORINATED WATER FROM SYSTEM BEFORE PLACING WISERY CE.

 SUBSECULENT TO THE DISINFECTING OF THE POTABLE WATER PIPING SYSTEM WATER SAMPLE SENT TO THE LOCAL HEALT NEPERATIMENT (LHD) OR NIDEPENDENT LABORATORY APPROVED BY THE LHD FOR TESTING. APPROVAL SHALL BE OBTAINED FROM THE LHD OR NIDEPENDENT LABORATORY REFORE THE THO OR NIDEPENDENT SAMPLE BEFORE THE OTTABLE WATER SYSTEM IS PLACED NTO SERVICE PROVIDE CERTIFED REPORTS TO ARCHITECT, MARK ALL FAUGETS, SINKS AND VALVES NON POTABLE, DO NOT DRINK UNTIL DISINFECTION IS COMPLETED.

UPON COMPLETION OF CLEANING, FLUSHING AND CHLORINATION, HAVE LOCAL HEALTH DEPARTMENT CERTIFY IN WRITING THAT THE BUILDING WATER SYSTEM IS SAFE FOR DRINKING.

- 15 INSULATE ALL DOMESTIC COLD, HOT AND HOT WATER RECIRCULATION WATER LINES, FITTINGS, ASSOCIATED FLANGES, UNIONS, AND VALVE BODIES, RAPINLEADERS, AND OVERFLOW PORAIN LINES ABOVE CELLINGS, INTEROR RAPINLEADERS AND OVERFLOW PORAIN LINES ABOVE CELLINGS, INTEROR CONDENSATE DRAIN LINES, AND BENEATH LUANTORY PER CODE AND ADA, USING FIBERGLASS SECTIONAL PIPE COVERING, INSULATED COLD WATER WITH MINL⁺ HOT WATER & HOT WATER RECORCULTION LINES WITH MINL⁺ OR THICKNESS PER LOCAL ENERGY CODE - WHICH EVERY IS GREATER.
- 6 MAINTAIN BUILDING FIRE INTEGRITY WITH PLUMBING PENETRATIONS BY PROVIDING METAL SLEEVES AND UL APPROVED FIRE SAFFING.
- 17. PRIOR TO BID, CONTRACTOR SHALL CONFIRM IF THIS PROJECT UTILIZES A RETURN AIR PLENUM. IS A RETURN AIR PLENUM IS USED, ALL MATERIALS WITHIN THE RETURN AIR PLENUM MUST CONFORM TO NFPA 90A AND LOCAL CODE REQUIRMENTS.

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GREASE TRAP WASTE LINE	FIRE PROTECTION SUPPLY LINE	EWERGENCY OVERFLOW DRAIN	COLD WATER SUPPLY LINE	EMERGENCY OVERFLOW DRAIN	NOOL DIVERNIT	ROOF DRAIN	GAS METER, SEE DETAIL		WATER RISER, SEE WATER ENTRANCE DETAIL(S)	SPRINKLEK RISER, SEE DE IAL		FINISHED GRADE, WOODFORD B-89VB UNLESS OTHERWISE NOTED	HOSE BIBB, EXTERIOR TO BE NON-FREEZE TYPE 18" ABOVE		WALL CLEAN OUT TEE AT BASE OF STACK IN 6" WALL		FLOOR CLEAN OUT / YARD CLEANOUT	HUB DRAIN WITH 2" TRAP PRIMER, UNO		FLOOR DRAIN WITH $rac{1}{2}^{t_1}$ TRAP PRIMER, UNO		TEE IN HORIZONTAL	PIPE TURNED DOWN		PIPE TURNED UP	PLUMBING LEGEND: NOT ALL USED
		YCO WHA	WCO WCO	≶	UNO SAMAS	무 공 공	PRV PRHB	MBH X	ξZ	E HWR	∓⋶	ଚ୍ଚ	GPM	4 8	Z 7 7	75×	DS EOD	DIA Ø	80	BTUH	3 4 8	AWTR	AFG	AC 0°	v ^	
		WATER HEATER WATER HAMMER ARRESTOR YARD CLEAN OUT	WASH BASIN WATER CLOSET WATER CLEAN OUT	OP VENT LINE VENT THROUGH ROOF WASTE LINE	SHOWER UNDERGROUND UNLESS NOTED OTHERWISE	ROOF DRAIN RECIRCULATION PUMP	NON FREEZE HOSE BIBB POUND PER SQUARE INCH PRESSURE REDUCING VALVE	MAXIMUM 1000 BTUH MINIMUM	INCH INDIRECT WASTE	HOT WATER RECIRCULATION LINE INVERT ELEVATION	HORSE POWER	GREASE TRAP GATE VALVE	GAS LINE GALLONS PER MINUTE	FLOOR DRAIN FEET	FINISHED FLOOR LEVEL	FLOOR CLEAN OUT	DOWNSPOUT EMERGENCY OVERFLOW DRAIN	DIAMETER DOWN	CLEAN OUT	BALL VALVE	BELLANCING COCK BELLANCING COCK BEACUTE OW DEEL TRATED	ACID VENT THROUGH ROOF ACID WASTE	ABOVE FINISH GRADE ACID VENT	ABOVE CEILING	GREATER THAN LESS THAN	

PLUMBING NOTES

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INDICATES PLUMBING LEGEND NOTE NUMBER A, NUMBER INDICATED.

ELECTRICAL PANELS - PLUMBING, WASTE, VENT, AND GAS PIPING SHALL NOT CROSS ABOVE PANELBOARDS OR ELECTRICAL EQUIPMENT

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CME PRESSURE RELIEF VALVE

INDICATES PLUMBING LEGEND NOTE NUMBER 1, NUMBER INDICATES NOTE IS USED ONLY ONCE ON THE SHEET INDICATED.

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PRESSURE GAGE

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GATE VALVE CHECK VALVE BALL VALVE

VENT LINE

WASTE LINE BELOW FLOOR UNO

RAIN LEADER

NATURAL GAS SUPPLY LINE

HOT WATER RECIRCULATING LINE

HOT WATER SUPPLY LINE

BALL VALVE IN VERTICAL



REFER TO MECHANICAL SPECIFICATIONS, COORDINATE ALL WORK WITH ARCHITECTURAL, STRUCTURAL, PLUMBING AND ELECTRICAL DRAWINGS. FIELD VERIFY ALL CONDITIONS PRIOR TO BEGINNING THE WORK.

- CO-ORDINATE EXACT LOCATION OF EACH AIR DISTRIBUTION DEVICE WITH THE ARCHITECTURAL REFLECTED CEILING PLAN, LIGHTS AND SPRINKLER HEADS.
- SHELL BUILDING EXHAUST LOUVER. REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION AND ELEVATION, 4" DEEP SHEETMETAL DUCT BEHIND FOR FUTURE EXHAUST CONNECTION.
- SHELL BUILDING EXHAUST DUCT, PROVIDE 4"Ø EXHAUST DUCT UP THRU ROOF, CAP FOR FUTURE EXHAUST FAN CONNECTION REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION.
- THERMOSTAT, BY BASE BUILDING, PER LOCAL ENERGY CODE, MOUNT NEAR RETURN GRILLE, CO-ORDINATE WITH INTERIORS, FOR RTUS WITH NO DUCTWORK, DROP THERMOSTAT AND 30' WIRE NEAR RETURN.

CODES & DESIGN CONDITIONS:

(S) TENANT

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- THE FOLLOWING CODE APPLIES TO THIS PROJECT:
 GENERAL CONSTRUCTION 2006 INTERNATIONAL BUILDING CODE WITH LATEST GEORGIA AMENDMENTS.
 PLUMBING 2006 INTERNATIONAL PLUMBING CODE WITH LATEST GEORGIA AMENDMENTS.
 MECHANICAL 2006 INTERNATIONAL PLUMBING CODE WITH LATEST GEORGIA AMENDMENTS.
 ELECTRICAL 2006 INTERNATIONAL MECHANICAL CODE WITH LATEST GEORGIA AMENDMENTS.
 HERE PROTECTION 2006 INTERNATIONAL ELECTRICAL CODE WITH LATEST GEORGIA AMENDMENTS.
 HERE PROTECTION 2006 INTERNATIONAL CODE, WITH GEORGIA AMENDMENTS.
 ENERGY CODE 2006 ECC. WITH LATEST GEORGIA AMENDMENTS.
 GWINETT ORDINANCES AND CITY OF DULUTH, GA BUILDING CODES.
 WIFA CODES AND STANDARDS LATEST EDITION WITH STATE FIRE MARSHAL MODIFICATIONS
 TILLE 25 CCGA.
 TILLE 25 CCGA.

- THE CONTRACTOR SHALL HAVE ALL APPLICABLE CODES ON SITE AND SHALL COMPLY WITH ALL APPLICABLE SECTIONS OF THE CODE.
- OUTSIDE SUMMER DESIGN CONDITIONS: ASHRAE 97.1% DRY BULB = 93°F ASHRAE 97.2% WET BULB = 74°F
- OUTSIDE WINTER DESIGN CONDITIONS: ASHRAE 97.99% = 13°F
- INDOOR SUMMER DESIGN CONDITIONS FOR AIR CONDITIONED SPACES.

 14 db FAI 55% DESIGN POINT BH (RH NOT CONTROLLED).

 14 db FAI 55% DESIGN POINT BH (RH NOT CONTROLLED).

 15 db NOT CONTROL OF TEMPERATURE ANDIOR HUMDITY IS NOT PROVIDED.

 17 NDOOR WINTER DESIGN CONDITIONS FOR HEATED AREAS.

 18 db NO HUMIDIFICATION PROVIDED.
- VENTILATION CRITERIA, INTERNATIONAL MECHANICAL CODE CHAPTER 4 & TABLE 403.3 OUTDOOR AIR.
- NO EXHAUST FANS ARE TO BE USED AS INTEGRAL PART OF A SMOKE (FIRE) EVACUATION SYSTEM.

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TENANT 104

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Θ PROGRAMMABLE THERMOSTAT, 30' WIRE HANG FROM RETURN, PER 6232. ASHRAE 901-2001

SHELL BUILDING HVAC DOES NOT INCLUDE HEAT LOADS FOR TENANT SPACES FOR "FUTURE RESTAURANTS" - THOSE SPACES MAY REQUIRE ADDITIONAL TENANT PROVIDED HVAC SYSTEMS.

1 8 60 1 g (0) 150 9"x6" 6 TON 2'-0"x1'-0" \$ O TENANT 105 ₫**© B** 15 (O) Tġ 🕲 \$ O TENANT (S) 100 eļ. RTU-A 2 TON # (i) - 1500 - 1500 - 1500 RTU-A 2 TON SIDE WALK 7 100 150 2 Provide 1" undercut to bath door (consult architect) - 1 S (0) RTU-A 2 TON \$ (0) TENANT 150 - Tig (0) T_g (s) 150 8 150 150

9"x6"

150 CFM

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FLOOR PLAN - HVAC LAYOUT SCALE 1/8" = 1'-0"

HVAC LAYOUT

HVAC GENERAL NOTES: APPLY TO ALL MECHANICAL DRAWINGS

- ALL WORK SHALL BE PROVIDED IN STRICT ACCORDANCE WITH THE LATEST EDITIONS OF CITY OF DULUTH AND GA STATE CODES, APPLICABLE SECTIONS THESE DRAWINGS ARE INSTRUMNETS OF SERVICE AND REMAIN THE PROPERTY OF DORSEY ENGINEERING, INC. AND SHALL NOT BE REUSED IN WHOLE OR IN PART. REFER TO DRAWING SPECIFICATIONS MB1 AND MB2.
- HVAC CONTRACTOR SHALL PAY FOR OBTAIN ALL NECESSARY FEES, PERMITS AND INSPECTION FOR APPLICABLE PORTIONS OF THE WORK.
- CO-ORDINATE THE EXACT LOCATION AND CONFIGURATION OF AL EQUIPMENT WITH THE ARCHITECTURAL ROOF PLAN, ROOF FRAMING DRAWINGS, ROOF DRAMINS, GENERAL, CONTRACTOR AND STRUCTURAL ENGINEER SUBMIT DETAILED SHOP DRAWINGS OF ALL PROPOSED ROOF AND WALL MOUNTED EQUIPMENT TO THE STRUCTURAL REQUIREER FOR APPROVAL. NIDICATE UNIT LOCATION OPERATING WEIGHTS, MOUNTING METHODS AND DETAILS, ROOF OPENINGS FOR DUCTWORK, ETC., AS REQUIRED FOR COMPLETE COORDINATION, NO EQUIPMENT SHALL BE PURCHASED WAS RESTALLED UNTIL THESE SHOP DRAWING HAVE BEEN SUBMITTED AND APPROVED.
- CO-ORDINATE THE LOCATION OF ALL HYAC EQUIPMENT WITH STRUCTURAL PLANS, REFLECTIVE CELLING PLANS AND WORK OF OTHER TRADES BEFORE ORDERING OR NIGHLALTION, PROVIDE DETAILE FOURPMENT INSTALLATION REPOILE FOURPMENT INSTALLATION BETAILS FOR ALL HYACE EQUIPMENT LOCATED IN THE ATTIC, SHOP DRAWING SHALL INCLUDE UNIT MOUNTING, ORIENTATION, SUPPLY AND RETURN DUCTWORK ROUTING, CONDENSATE DRAWN PIPMG, ETC. NO DRAWINGS HAVE BEEN SUBMITTED AND APPROVED.
- DRAWING SARE DIAGRAMMATIC AND NDICAE GENERAL ARRANGHENT OF THE HANG SYSTEMS, PIPING AND DUCTWORK, REFER TO THE ARCHTECTURAL AND STRUCTURAL DRAWINGS FOR DETAILS AND EXACT LOCATION OF BUILDING STRUCTURAL MEMBERS, LIGHTS AND DELECTS WHICH MAY NITERFERE WITH THE INSTALLATION OF THE HAVAC SYSTEM, WHERE COVILICTS ARE DENTHIFLED, NOTIFY THE ARCHTECT IN WRITING PRIOR TO PROCEEDING WITH THE WORK, VERIFY ADEQUATE SPACE EXISTS FOR THE PROPOSED DUCTWORK SIZING AND ROUTING. CO-ORDINATE THE ELECTRICAL REQUIRMENTS AND CHARACTERISTICS OF ALL HVAC EQUIPMENT WITH THE ELECTRICAL CONTRACTOR PRIOR TO PURCHASE INDICATE VOLTACE, EMASE, MINIMAM CIRCUIT AMPACITY, AND MAXIMUM OVERCURRENT PROTECTION ON ALL SHOP DRAWNINGS.
- ALL ROOF MOUNTED EQUIPMENT SHALL BE PROVIDED WITH INSULATED CURB OR RAIL AS APPROVED BY EQUIPMENT MANUFACTURE, CURBSEALLS SHALL BE SET LUCKLAND BE A NIMINUMO OF 10 NOCHES IN HEIGHT, CURBS ARE TO BE PROVIDED TO THE GENERAL CONTRACTOR FOR INSTALLATION.

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X - SUPPLY OR RETURN TYPE, YYY - CFM OR LENGTH OF SLOT DIFFUSER, SEE AIR DISTRIBUTION SCHEDULE

VOLUME CONTROL DAMPER

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LEGEND NOTE LETTER 1. LETTER INDICATES NOTE IS USED ONLY ONCE ON THE SHEET INDICATED. LEGEND NOTE LETTER A. LETTER INDICATES NOTE IS USED MULTIPLE TIMES ON THE SHEET INDICATED.

- FBERGIASS NOR FBERBOARD DUCTWORK IS NOT ALLOWED. ALL SHEET METAL DUCTWORK SHALL BE FABRICATED, AND INSTALLED IN STRUCT ACCORDANCE WITH THE LATEST PUBLISHED EDITION OF SMACHA. STANDARDS. ALL DUCTWORK SHALL BE SEALED WITH TWO (2) COATS OF MASTIC. TAPING OF JOINTS WILL NOT BE ALLOWED.
- PRIOR TO FINIAL INSPECTION, ALL HVAC SYSTEMS SHALL BE TESTED, ADJUSTED AND BALANCED TO WITHIN 10% OF DESIGN, TEST AND BALANCE REPORTS SHALL BE SEALED BY A REGISTERED ENGINEER AND SUBMITTED FOR APPROVAL ALL EQUIPMENT SHALL BE INSTALLED LEVEL AND FREE OF VIBRATION.
- 10. PROVIDE TOUCHUP PAINT ON ALL SURFACED MARRED DURING CONSTRUCTION. PAING FLAT BLACK ALL PORTIONS OF DUCTWORK OR INSULATION VISIBLE THROUGH FACE OF AIR DISTRIBUTION DEVICES.
- = CO-ORDINATE THE LOCATION OF ALL CEILING MOUNTED AIR DEVICES AND EXHAUST FANS WITH ARCHITECT AND REFLECTED CEILING PLAN.
- 12. ALL EXHAUST DISCHARGE LOUVERS AND DUCTS SHALL BE AT LEAST 10 FEET FROM ANY EQUIPEMNT OUTSIDE AIR INTAKE, PTWP OR WINDOW.

SHEET METAL DUCT SIZES GIVEN ARE INSIDE CLEAR DIMENSIONS.

1 3 TAIN BUIL DING FIRE INTEGRITY WITH MECHANICAL PENETRATIONS.
UDE FIRE DAMPERS, WITH DUCTYMORK ACCESS DOORS FOR ALL FIRE
DWALLS. THE CONTRACTOR SHALL RECIEW THE ARCHITECTURAL
WINGS AND PROVIDE FIRE DAMPERS, AT ALL FARTED WALLS, WHETHER
ATED ON THE MECHANICAL DRAWINGS OR NOT.

ALL WALL SLEEPVES AND FLOOR PENETRATIONS WITH UL APPROVED FIRE OOF SAFING, SEAL WHETERTIGHT AND OVERLAY WITH COLORED CAULKING SANCH ALDACENT SURFACES WHERE VERBLE, NETACALLIK 3M, GS WATCH ALDACENT SURFACES WHERE VERBLE, NETACLATION INSTRUCTIONS ACHIEVE UL LISTED CONDITIONS.

PROVIDE WEATHER PROOF FLASHINGS AND SEALANT FOR ALL ROOF AND EXTERIOR WALL PENETRATIONS.

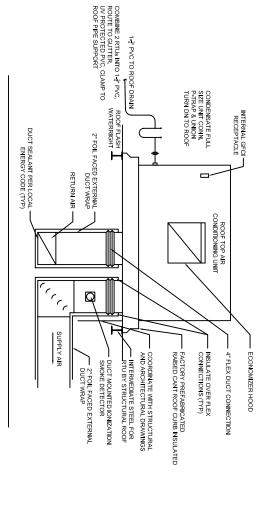
PROVIDE DUCT CLOSURE COLLARS IN STRICT ACCORDANCE WITH THE STANDARD MECHANICAL CODE (SNO), LATEST EDITION AND WITH THE LOCAL ALTHORITY HAVING, JURSBOTTON, DUCT CLOSURE COLLARS SHALL BE CONSTRUCTED OF SHEET METAL, MINIMUM 0.0271 INCHES THICK, USE FOR SHEET METAL DUCTS DENETRATING ONE HOUR FIRE RATED PARTIONS - AS SHEET METAL DUCTS DENETRATING ONE HOUR FIRE RATED PARTIONS - AS THE CODE ALLOWS, PROVIDED ELANGED DUCT CLOSURE COLLAR, CONTINUOUS AROUND THE DUCT AND FILL WITH FIRE SAFING, REFER TO SMC 610.

- 5 DO NOT USE MANUAL DAMPERS IN DUCTWORK WHICH IS ABOVE GYP BOARD CELLINGS UNLESS DAMPER ACCESSBLE IN THE ATTIC. IF MANUAL DAMPER IN NACCESSBLE US SPINM FOLLAR WITH EXTRACTOR NO MANUAL DAMPER AND USE AN OPPOSED BLADE DAMPER AT DIFFUSER.
- 16 PROVIDE SEISMIC SUPPORTS FOR DUCTWORK AND EQUIPMENT PER THE LOCAL AUTHORITY HAVING JURISDICTION AND IN STRICT ACCORDANCE WITH THE DETAILS AND PROCEDURES IN SMACNA SEISMIC RESTRIN MANUAL LATEST EDITION.
- 17 ALL DUCTWORK AND PRING INSULATION SHALL BE IN STREET ACCORDANCE WITH THE STATE OF GEORGAE RERGY CODE AND LOCAL ALTHORITY HANDLE LURISDICTINO, ALL EQUIPMENT SEER, BEFFERENCY RATINGS SHALL COMPLY WITH THE WINNIUM RECURRENTS OF THE STATE OF GEORGAE ENERGY CODE AND THE LOCAL AUTHORITY HAVING JURISDICTION.
- 18 ALL AIR ELOWS (CFMs) MUST ADD UP. THE CONTRACTOR SHALL VERBY ALL AIR ELOWS AND SELECTED AIR HANDLING (FMS) EDUPEMENT PROVIDE FOR THE OUTLET INLET TOTALS. TERMINAL TOTALS OR MOST STRUCENT FOR PROPOSED NOUTMENTS, NOLLDING ADJUSTMENTS IN STATIC PRESSURE FOR PROPOSED DEVICES AND PROPOSED ROUTING OR DUCTWORK.
- 19. FLEX DUCT IS NOT ALLOWED FOR EXHAUST SERVICE.

HVAC LEGEND: NOT ALL USED

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FIRE DAMPER WITH ACCESS DOOR IN DUCTWORK	THERMOSTAT AND SUB-BASE WITH LOCKING COVER	AIR FLOW DIRECTION	SUPPLY AIR CEILING DIFFUSER SHADED AREAS INDICATE QUADRANTS TO BE BLANKED OFF	SUPPLY AIR CEILING DIFFUSER	RETURN OR EXHAUST AIR CEILING GRILLE OR REGISTER	RECTANGULAR TO RIGID ROUND TRANSITION		45 DEGREE DUCT LATERAL			DUCT RUNOUT, INSULATED FLEXIBLE DUCT (MAX LENGTH 6') TO SUPPLY DIFFUSER	SPINAN FITTING WITH LOCKING DAMPER, INSULATED RIGID ROUND		CACCARE FEECOM AND CONTRACT AND FO	SOLIARE ELBOW WITH TURNING VANES		SHEET METAL DUCT WITH 1" DUCT LINER		
UP 1	SMACNA SP	SD SA	RAG RTU	O M N	MAX MBH	등 귀	Ð Å	E E	3 47 5	2 2	DIA B	CRAG	8	втин	AF A	à A	v	۸	
UNDERCUT DOOR 1". CO-ORDINATE WITH ARCHITECT UP	SHEET METAL & AIR CONDITIONING CONTRACTORS NATIONAL ASSOCIATION, INC. STATIC PRESSURE THERMOSTAT	SUPPLY AIR SPLITTER DAMPER	RETURN AIR GRILLE ROOFTOP HYAC UNIT	MANUAL DAMPER MINIMUM OUTDOOR AIR	INCH INCH 1000 BTUH	FOOT, FEET HORSEPOWER	DEGREES FAHRENHEIT FIRE DAMPER	EXTERNAL STATIC PRESSURE	EXHAUST FAM DESIDE	DOWN O AID TEMPERATION	DIAMETER	CEILING RETURN AIR GRILLE	CEILING DIFFUSER	BRITISH THERMAL UNITS PER HOUR	ABOVE FINISHED FLOOR	AIR CONDITIONING	LESS THAN	GREATER THAN	

ROOF TOP UNIT SCHEDULE			
TAG		RTU-A	RTU-B
TOTAL CAPACITY	втин	24,000	69,000
SUPPLY AIR CFM	CFM	800	2400
OUTDOOR AIR CFM	CFM	150	450
ENTERING AIR DB/WB	F/F	78/65	78/65
LEAVING AIR TEMP DB/WB	F/F	57/53	57/53
HEATING MBH - INPUT	1000 BTUH	56	151
HEATING MBH - OUTPUT	1000 BTUH		
Ext. Statle	IN. H20	0.5	0.5
Motor	H.P.	1/2	1/2
Electrical	VOLT/PH	240/208/1 ph	240/208/1 ph
Electrical Heat	KW	10	10
MOCP	AMPS	60	60
SEER		14.0	•
EER		11.4	12.0
Filter Type		Throwaway	Throwaway
Manufacturer		CARRIER	CARRIER
Model#		48PG03	48PG07
Notes	#		



GWINETT DETAIL - RTU INSTALLATION NOT TO SCALE

NOTES:
REFER TO DIVISION 16, ELECTRICAL FOR EQUIPMENT ELECTRICAL CHARACTERISTICS. DISCONNECT BY ELECTRICAL DISCONNECT BY ELECTRICAL . 15 AMP, WP, GFOI RECEPTABLE IN EACH UNIT.
CONTRACTOR SHALL VERIFY MINIMUM SEER AND EER REQUIREMENTS WITH LOCAL CODE AUTHORITY.

ALL DUCT MOUNTED SMOKE DETECTORS ARE TO BE PROVIDED BY THE ELECTRICAL CONTRACTOR WHERE A FIRE ALARM SYSTEM IS PRESENT ANDPROVIDED
AND INSTALLED BY THE MECHANICAL CONTRACTOR WHERE THERE IS NOT A FIRE ALARM SYSTEM, INSTALL IN THE EXACT LOCATION AS DICTATED BY LOCAL
AUTHORITY HAVING JURISDICTION, BY THE MECHANICAL CONTRACTOR MEREER TO SECTION 16720, EXACT SMOKE DETECTOR LOCATIONS PER LOCAL CODE MANUAL
EMERGENCY STOP PER METHAS QUADLO LOCATED PER LOCAL CONTRACTOR MASSHAL.

PROVIDE ECONOMIZER AND BAROMETRIC RELIEF FOR UNITS GREATER THAN 7 TONS.

MINIMUM OUTSIDE AIR REFER TO IMC 4033 VENTILATION SCHEDULE FOR SPECIFIC SPACE OA.

Acumento pueppuneque					Office	AREA
Occupancy			2,100 SF.	AREA SF.		Outs
			COUNT	(P/1000 SF)	"Vocupanoy"	Outside Air Calculations
			15	Person		ations
	Total Supplier	Total Required	9	CFM*/Person		
	300	150	150	9		

HVAC NOTES

SECTION 13301	2.3 ALARM CHECK VALVE ASSEMBLY, DRY PIPE	PART 3 - EXECUTION	 Fabrication Drawings: Provide scaled and detailed Fabrication Drawings
EIRE DROTECTION SERINK I ERS			where any equipment or material appear not to fit within the area as
DADET A DENIEDAL	 A. Description, alarm check valve: Latching differential type valve in 	3.1 INSTALLATION OF SPRINKLER SYSTEM	indicated on the drawings. Fabrication drawings are herein defined as
TOTAL TOTAL PARTY	ductlle Iron body with flanged inlet and grooved outlet, coated steel		scaled and dimensioned drawings produced by the Contractor indicating
11 SCORE OF WORK	clapper, EPDM clapper ring, brass ring seat, stainless steel trim, and trim	 Coordinate piping layout with locations of ductwork located above 	the exact location, size and routing of ductwork, piping and equipment, in
THE GOOD FOR WORKS	package, openings in body tapped for air pressure, alarm switches, main	suspended cellings as shown on Mechanical drawings. Coordinate with	conflict. Fabrication drawing shall be coordinated with the work of all
A Consol Boardsonasto Estabased based blood assemble the work of the	drain, and valve room sprinklers, Viking Model F-L.	work of Division 16 Electrical to assure that supervisory switches are	trades. Fabrication drawings shall not deviate from the design intent as
A. General requirements, or general provisions governing are work or units		connected by alarm and detection system wiring to building alarm system.	delineated on the drawings. Fabrication drawings shall be of sufficient
A DEDUCTOR AND CONTROL OF THE TAIL THE TAIL OF THE TAI	 B. Description, accelerator/anti-flood assembly: Ductile Iron or cast bronze 		detail to indicate the exact placement of materials and equipment and
A PERFORMANCE OPECIFICATION. CONTROL POPULATION	bodies with tapped ends and accessories, Viking Model E-1 Accelerator	 B. Install fire sprinkler mains and branches to facilitate all tenant spaces to 	shall show materials and equipment of other trades for coordination
Engineering, resing and ristaliation of a fully approved life	and Model B-1 Anti-flood Device.	have future celling height of 15'-0". Rough heads to present Tenant Space	purposes. Exact equipment dimensions of the equipment indicated on the
abilinate ayatem completely coordinated with the abecute and continuous,		celling heights. Turn up heads in all spaces which do not receive Tenant	approved shop drawings shall be used, Fabrication drawings shall

ubmission of bid.	B Indicates requirements for CONTRACTOR to verify prior to submission of bid.	
	Division is Electrical.	
ms without	freezing, such as attics, Mechanical Rooms, and exterior rooms without heat. For alarm device witho connections to alarm systems, refer to	
#10	glass. Provide dry pipe systems as required for areas subject to	
ounts of	other open areas and/or areas with high cellings or large amounts of	
ims or	requirements are to be incorporated for full coverage for Atriums or	
orlnkler	systems reliable and satisfactory in operation. Special fire sprinkler	
ake the	switches alarm devices, and other accessories required to make the	
ies, tamper	valves, dry pipe and wet pipe alarm check valves, flow switches, tamper	
iklers, control	sizing by computer driven hydraulic calculations, piping, sprinklers, control	
olng system	and plping layout, fire protection supply water flow testing, piping system	

- Sprinkler systems must comply with seismic restraints per Local AHU and per IBC 16213.101 as well as NFPA 13 installation guideling
- The Work of this section includes conditional of the fire sprisher system with celling originate equipment and lights, structural dements and letter included in the architectural plans and seffected celling plans, bothining water supply data from water citity company's service lights, performing computerated phyrautic calculations of pipe sizes, preparing stop crawings of system, obtaining review and approval or calculations and crawings for whe state and Local Authority Having utrisdiction (AHJ), material and equipment submittals are dreviews and statisticing of the appriheter systems in complete accordance with the applicable codes and ordances. The Work of this portion of the project includes the wet pipe automatic fire sprinklers for occupied and unoccupied spaces, dry pipe for attic and areas subject to freezing.
- The Work of this section is based on an available street, water pressure adequate to provide the required water flow to the sprinker system. Coordinate with water flow sering building to perform water supply testing to writy that the volume of water that can be discharged from the distribution system at or near the expected point of connection to the street main will be at a residual pressure adequate to obtain designed water flow to the system. Document the test results with the Engineer prior to commencing with the hydraulic design.

- Prepare plaining layout drawings to serve the approved sprinkler locations, complete with Bleads, hangers, valves, fundantial needs, yard mash piping, and all other perthent deaths, drawn at a scale not less than \$\frac{x}{2} = 1.0^{\circ}\$. Attam valve ricers and hanger deaths shall be drawn at minimum \$\frac{x}{2} = 1.0^{\circ}\$.
- Perform hydraullic calculations based on the pipe layout drawings. Submit copies of sprinkler system layout, with piping drawings, and hydraulic salculations, to the AH for review and approval prior to submission to the Architect for review. Obtain approvals in accordance with the paragraph prior to proceeding with the work.
- Submit copies of drawings and calculations, after approval by AHJ, for Architect's review and in number of copies adequate for Architect's and Owners records, including:
- Sprinkler layout, with approval stamp from AHJ.
- Hydraullic calculations for sprinkler system, including pressure bases from point of connection at the flow test location, through the building, pipe staring, and water supply curve, with approval stamp from AHJ.

- All products under this Section of manufacturer and model, which is UL listed and FM approved.

- Description, retard chamber: Ductile Iron body with tapped ends and accessories to sult alarm system used, Viking Model C-L.

- Describtion, alt compressor and timi. Oil-less compressor dies connected to electric motor, body arranged for clamping to main piping, with pressure control switch, pressure relief valve and volume restrictor. Viking Model EL Objekacement and brespower as exquired to restore the full system volume to operable pressure within 30 minutes. Description, alf pressure maintenance device and preassembled thin soldage. Pressure maintenance device in cast brass body with stabless solding and thin padaged including three-arable bytass. Wiking Model D. "Description, electric alarm system: Pressure alarm switch with circuit, soser went from fit."
- The contractor shall welfy and conform to all State and Local codes. Only correctly State I careful Fine Sprike Postign and that statistics. Contractors with the teven regularly in grapated fire is full firm destign permitting and inclusion of commercial and industrial File Sprikele systems of similar capacity, for a minimum period of the years shall be considered of the project. Submit proposed File Sprinkler Contractors certifications and experience for approval.
- Perform fire flow testing as described in NFPA 251, and with NFPA 13, Article 7-21 and appendix A-7-21.
- Perform hudraullic calculations of pipe sibring on the basis of a water flow density for the assigned conspiring, such as 01 gallons per minute per square foot one the most individually remote 1200 quater field near a sprinker operation to Ordinary Hazard conspirations. The area of application for Ordinary Hazard conspirings in accordance with NFPA 13, Chapter 5 Design Appropriates and Chapter 6 Plans and Calculations. The area of application for orly pize systems serving attest and ordiner areas; subject to reacting a latel the adjusted upward by a story of 20%, without revising density. Hydraulically most remote areas shall be determined by the complete, and withing the design area grid by grid. Hose steam demands shall be adouted to the fire synthetic floridualities with the point of loss comercision, and the bases of the nite of leave.

 And the point of loss comercision is all the bases of the nite of leave.

 And the point of loss comercision is all the bases of the nite of leave.

 And the point of loss comercision is all the bases of the nite of leave.
- Submit equipment, materials and product data for all fire sprinkler work.

- Plping layout, with approval stamp from AHJ.

- ALARM CHECK VALVE ASSEMBLY, WET PIPE
- Description, alarm check valves: Valves in ducille iron body with flanged or grooved ends as required for boation. Tellon coatest skeel chapper EPAM clapper frig. breas seat, stainless stell tim, and tim package, openings in body lapped for pressure gauges, alarm devices, and main drain. Withing bloods!
- Description, alarm system: Either water motor alarm, with strainer, water operated motor, and alarm gong in decorate cover, or pressure alarm switch with circuit closer vent trim kit.

- building conditions, the work of other trades and in strict compliance with the Local Authority Having Jurisdiction. The Contractor shall provide and Install the automatic fire protection spirited by the strict of the automatic fire protection spirited by the strict of the automatic fire protection spirited by the strict of the automatic fire protection spirited by the strict of the automatic fire protection spirited by the strict of the strict o
- MAKE INSTALLATION TO CONFORM TO:
- NFPA is standard for the installation Automatic Fire Protection Sprinkler Systems.

- PIPING UNIONS, STEEL
- General: Service class to match piping.
- 2.10 SUPERVISORY SWITCHES
- Description, Valve Position Supervisory Switch: Two sets of SPDT, form C switches, trip rod to sult control valve style to which attached.
- Description, Waterflow Supervisory Switch: Two sets of SPDT, form C switches, adjustable pneumatic retard, 10 gallons per minute minimum flow for actuation, U-bolt or threaded boss mounting type.

- Description, Swing check valves: Durdle Iron body, flanged or grooved ends, rubber-faced dapper assembly hinged to removable access cover tapped outlets on inlet and outlet for gauge connections. Viking Swing Check Valve,

- Description, water motor alarm system: Outside water motor alarm gang decorative cover, with strainer, water operated motor, and drain piping.
- 2.4 AUTOMATIC SPRINKLERS
- Layout Basis: Viking models listed. ptable Manufacturers: Automatic Sprinkler, Central Grinnell.
- Description, Pendent Sprinklers (Wet pipe systems only): Oulck Respo type with glass bub, ordhary temperature rating for air conditioned spaces and Intermediate temperature for un-airconditioned spaces. ½" ordice, chrome plated escurcheon and sprinkler;
- Finished gypsum ceilings: Concealed pendent sprinkler head with facroty painted cover plate to match adjacent ceiling.
- Description, Pendent Sprinklers (Dry pipe systems); Oulck, Response dry-pendent type with extended dry barrel to match pipe drop length, glass bulb, intermediate temperature, ½ orifice, chrome plated escutcheon and sprinkler.
- Bronze upright heads: Oulck Response Exposed type with glass bulb, ordinary temperature rating for air conditioned spaces and intermediate temperature for un-airconditioned spaces, \(\frac{1}{2} \) orlifice, rought bronze finish
- Sidewall heads: Viking Microfast extended coverage horizontal sidewall heads, chrome plated.

GROWED END COUPLINGS

- Coupling bodies: Cast from malleable or ductle Iron, recessed for gasket Gaskets: Sultable for water service at temperature listed for system.
- Bolts and nuts: Track type steel bolts, ASTM, AIBS, oval necks coordinated with housing clamps, heavy pattern steel nuts.
- Bolted branch outlets utilizing a U-bolt arrangement and gasketed coupling are not acceptable. All piping branches in feed mains shall be formed using a shop welded. UL listed. "Thread-O-Lot" style forged steel welding outlet with threaded connection.
- Acceptable manufacturers: Grinnell GruvLok, Victaulic.
- HANGERS AND ACCESSORIES Acceptable manufacturers: B-Line systems (BLS), Grinnell, Michlgan Hanger (M-CO).
- Hangers for steel piping and tubing: UL listed and PM approved adjustable "J" hangers, Manufacturers Standardization Society SP-63, Model 5.
- Hangers for PM approved CPVC shall be as recommended by the manufacturer, specifically listed for service in CPVC piping.
- PIPE AND FITTINGS, STEEL Pipe - ASTM A-53 and A-120, black steel, coated or uncoated, schedule as specified.
- Fittings, pressure class as specified: Threaded, cast iron - ASTM A126 Class B and ANSI B16.4, class 125 SWP.
- Threaded, malleable iron ASTM A131 and ANSI B16.3, 150 psig SWP.
- Welding butt welding or slip-on type, wrought carbon steel, ASTM A234 and ANSI B16.25, and B16.3.
- Flanged, cast iron ASTM A126 class B and ANSI B16J, class 125 SWP
- PIPE AND FITTINGS, THREADABLE LIGHT WALL STEEL Thread compounds - sulted to service, temperature, and fluid.
- Pipe ASTM A-133/A-795, black enamel coated threadable light wall sprinkler pipe in sizes 1" through 2", Central Sprinkler Company Type "TL", Allied Xtra Light.
- Screwed joints: Forged stell, ground joints, non-corrosive seats.
- Flanged Joints: Companion flanges. For water service, forged steel, ground jonts, non-corrosive seats.
- Description, butterfly valves: Valves in cast fron lug or wafer body as required for location, nickel plated ducille fron butterfly disc, stainless steel stem, and gear operator with hand wheel and indicator flag. Niboo
- Description, Outside screw and yoke gate valves: Cast Iron body 125 lb. SWP, 175 lb. non shock odd water Ul. listed, PM approved bronze mounted, resilient, wedge, flanged ends. Approved manufacturers: Milwaukee F-2883, Stockham G-823, Nibco.
- Descripton, test and drain valves: Cast iron body, threaded ends, ball type valve with 3-position operating handle marked "Off-Test-Drain", nominal \(\frac{1}{2}'' \) test orlice, and integral sight glass.

- SPRINKLER LOCATIONS Sprinkler shall be installed aligned with the ceilling tiles, located at the quarter points of 2x4' tiles, centered in 2x2' tiles, to tolerances within
- TESTING Pay special attention to file storage areas and/or areas where vertical and/or horizontal clearnoes must be maintained in order to facilitate adequate coverage. Add heads in aisles if necessary.
- Pressure and duration, steel systems pneumatic test. Prove system to be tight under pneumatic test pressure of 175 pounds per square inch gauge (psig) for 1 hour. Test new plping systems in two stages, first with air pressure and second with hydrostatic pressure. CPVC plping shall not be tested with air.
- Pressure and duration, hydrostatic test: Fill system with water and vent all air from system, then prove system to be tight under hydrostatic test pressure of 200 psig for 2 hours.
- ND OF SECTION 13501
- SECTION 15000 NICAL GENERAL REQUIREMENTS
- PART 1 GENERAL 1.01 CONTRACT CONDITIONS For conditions of the Contract, refer to the General Condition of the Contract
- * Indicates requirement for CONTRACTOR to verify prior to submission of bid
- D. Contrastor Challifications; Only currently licensed Contractors who have been regularly reagged in the still line report, reconstruction and instillation of commercial and industrial HVAC, Plumbing and Fire Protection systems of similar reports for an immum period of five years shall be considered on the project. Only currently licensed Contractors who have been regularly engaged in the full time regular, reconstruction and installations of commercial and industrial Plumbing systems of similar regularity, for a minimum period of five years shall be consistened for the project. The drawings and specifications are performance based and do not describe in detail, nor may not fully represent in detail all required work.
- All work involving refrigerant and refrigerant piping shall be accomplished by EPA certified technicians, with current, state refrigerant handling license.
- WORK INCLUDED The contractor shall arrange for, and pay for, all necessary fees, points and inspections required to obtain a endifience of concapanty of the Mechanical Funnishing and fine Protection portions of the work, Pay for all Hosel parents, Foolities and pay for an opposite and fully operational HVAC, Plumbing and Fire Sprinkler system.
- Prepare shop drawing, fabrication drawings (as indicated), manufacturers product and material data and samples for approval.
- Confirm seamire requirements with the Local Authority Having Litriscitizations and provide selector estraints per SMAVAL Selector Resident Manual, and Couledness for Mechanical Systems, litest editions and for the Free Sprikker system, confirm Selector equipments with the Local Authority Selector Se
- Coordinate the Electrical requirements for the Mechanical, Plumbing and Fig Protection systems and controls with Division 16. Electrical to provide complete and fully operational Plumbing and Fite Protection systems, including alarms and control devices.
- Preserve and protect all existing utilities to maintain uninterrupted services throughout the course of the construction. Provide temporary utilities as required to criply with this requirement.
- Label all Mechanical Equipment, engraved laminate, glued to equipment small laminated label (installed on side) for thermostats/sensors.
- CODES AND STANDARDS
- "The Nechanical, Plumbing and Fije Protection marshals, equipment and systems installable stall conform to the following codes. Utiliza the LATEST edition of any referenced code and out litze all codes and standards as prescribed by the Local Authorby having Judistiction, including any referenced amendments. Contact the local Building Inspector to verify applicable codes or with code questions. Codes cited herein represent minimum requirements. Express requirements of the contract documents are in excess of the minimum requirements. Conform to the Contract General, Special and Supplemental Conditions.
- LAYOUT BASIS
- The equipment of any listed "exceptable manifestum" for that time of equipment may be annihed for substitution provided that all provideors of "Space Confederars" will be compled with, that all equipment on the complex with that all equipment despendences will be made, and all building and systems despendency for the made and all building and systems despendency for the made at no additional cost to the owner.
- 1.05 SUBMITTALS
- N. Submit for review by the Owner's Representative detailed shop drawings and manufacturer's product data for all materials and equipment to be incorporated from the Mechanical work. No material or equipment small be delivered to the job after or installed before the Contractor has in his possession the approved shop drawings and manufacturer's product data for that particular material or equipment. Assemble into a SINGLE submittal indicating coordination with all reasons and bearing the sample of approved in the contractor of the contractor and Subcontractor. Clearly mark that all Electrical characteristics have been coordinated and approved by the Electrical Contractors and that his Electrical Characteristics have not been coordinated with the Electrical Contractor will be returned without review.
- Review rendered on stop drawings shall not be considered as a guarantee of measurements, bo conflorous not performance. Ball review does not mean that the shop drawings and data submitted have been cheaded in deall no recorditated within the world of dome tractes. Review of shop drawings does not relieve the Comzactor from the responsibility of performing this work and shall not relieve the Contractor from conducting the work (benifying any drawing disceptances and providing complete and ultry operational Mechanical systems as required by the Contract Documents.

- Any discognancy between actual conditions and those inclinate on the drawings or in the specifications, which prevents foliantly be intent of the drawings and specifications, shall be immediately prought to the attention of the General Contraction and that phase of the work shall not proposed until written instructions are excluded. Make a measurements on the site for locating themse, appearable, duration, and plying. Do not rely or dimensions obtained by scaling the drawings install all equipment, in stick accordance with the equipment manufacturer's published installation instructions, paying special attention for equipments or service accesses.
- Provide high efficiency type motors where horsepower is 1 hp or greater
- The Contractor shall coordinate HVAC controls, whing, materials and equipment with the General and Electrical Contractor prior to submission of his bit to ensure the elictrical components of the Mechanical equipment are coordinated with the Electrical requirements.
- D. The Mechanical Contractor is responsible for ensuring the Mechanical Leuroment submitted will conform to the Electrical Equilments stated on the Electrical Drawings. for voilage, pieses, minimum circuit ampsetly, and maximum overcurrent protection sizes. Should the proposed Mechanical equilment inclusived on the Electrical Drawings, the Mechanical Contractor shall immediately submit a Request for information PROR TO BIO or in his submittal; states that the Mechanical Contractor is soldly responsible for any recessiny design or construction costs related to needed changes in the electrical system(s) to occanorable the change.

- The Contractor's personnel shall become familiar with and obey all General Contractor rules, procedures, safety rules, fire safety regulations and security regulations.
- Prior to beginning the work, the Contractor shall prepare and submit for the General Contractor's approval, a detailed work schedule and sequence of performance of all work, hotolding a description of all construction activities, phases, proposed dates of utility telns, anticipated duration of any utility coulages and any specific tasks requiring overline or weakend work.
- 1.11 CONTRACTOR SITE STORAGE
- The Contractor shall coordinate all storage requirments with the General Contractor. The Contractor is responsible for receiving all devilered materials and immediately inventorying the delivery for accuracy.
- The Dowling are diagrammatic and indicate its general arrangement of the systems. <u>Domining shall not be supplied.</u> Field, we'll, as leaking condition PRICR TO BID. condition probable, subcloaders of materials and prior to proceeding with the work. Provide in BID. ducts, pipes and work, as necessary to Initial the work for the size.
- Coordinate all mechanical work with the work of all trades to werly space availability where the equipment and materials are to be installed. Maintail maintain service desentors, space conditions, and destinate equipment, access at all plottes. Where space conditions, or equipment access appearance, togic special contraction mendately and avail of feedom for the purchasing materials or equipment. Coordinate the special conditions or explored to the special conditions or equipment. Coordinate the spoul of the Mechanical specialisms with the work of all modes.
- 1.14 SUPERINTENDENCE, QUALITY CONTROL AND INSPECTIONS
- Provide operation and maintenance manuals and on-site owner trainin for all mechanical systems, document training and receipt of manuals,
- All painting shall be provided by the Contractor to match specified standards or existing adjacent surfaces. Touch up any married surfaces or new equipment. Paint all miscellaneous steel ductwork supports which are not galvanized steel.

- specifically point out any equipment or materials which will not fit within spealiable space. Installation, fabrication or equipment purchase shall not proceed until these Fabrication drawings are approved in writing.
- SPACE CONDITIONS
- Prior to submission of bid, review Architectural and Structural conditions, visit the job afte, observe and review design conditions and become exqualment with all factors affecting the work, available desarrores, including required scheduling and delivery of materials, temporary utilises and services.
- 1.07 ELECTRIC CURRENT CHARACTERISTICS
- The Mechanical Contractor is responsible for coordinating all electrical characteristics for equipment with the Electrical Contractor prior to shop drawing preparation.
- P
- KW (1000 watts) indicated on the Mechanical Schedule is the actual output KW at the rated voltage, not the unit nominal KW.
- WORK SCHEDULE
- 1.10 CLEAN UP The Contractor shall clean up his work area and remove all debris from site dally.
- 1.12 DRAWINGS
- 1.13 PROTECTION 4. Protect vork, materials and equiperinit against theft, Injury and damage until finally inspected, tested and accepted. Carefully store all materials and equipment respect on site which is not immediately inside of Close all open exits of work, including ductwork and pling, with temporary covers or plugs during storage and construction to prevent the entry of obstructing materials, diff and debris. Do not leave tenches or open excavations exceeding 2 feet in depth owenight. Backlif tenches as the work progresses. Provide issual protective barriers for pedestrans. Provide trench backs and or shoring for all occupied excavations in excess of 4 feet depth.
- Protect all areas during waiting operations, including provisions for a file waith and vision screen for presonnet. Notify the General Contractor 24 hours prior to weighting operations. Provide file waiting presonnel and the earthquishers durign all weighing or cutting operations. Weighing in occupied buildings is prohibeted without written prior approval from the Owner, Architect and Local Code Official.
- The Contractor is responsible for superintendence and quality control the installations of Mechanical Systems.
- B. Prior to find acceptance, all equipment, piping and ductwork shall be considered in desirable on some fully operational systems as specified and considered in the considered processingly as the first of the considered processingly as the first of the considered processingly as the considered of the considered prior to the considered by the financial conditional cost to the Control of the Control considered prior and the considered to the satisfaction to the Control control of the Control control control of the Contro
- 1.15 PAINTING

MECHANICAL NOTES

MECHANICAL SPECIFICATIONS, CONTINIUED:			
1.16 CUTTING AND PAINTING.	2.02 CORROSION RESISTANT COMPOUND	ALL noof curbs, rails, vent penetrations and equipment mounting curbs are to be a windercood to the Machinetra Controller accordinated with the	MECHANICAL:
 Provide all cutting and patching necessary for the installition of the 	 A. Acceptable: Koppers bitumastic super service Black, Tranotex V-20, 	requirements of the General Contractor and Roofing Contractor	1.01 MECHANICAL GENERAL REQUIREMENTS
work as specified herein. No existing structural members shall be cut	Royston Laboratories A-51, TapecoatTC-20 hot applied coal tar epoxy	installed by the Roofing Contractor. "Plumbers Strap" is NOT ALLOWED.	
without the approval of the architect and the General Contractor and all	coaling.	Wooden blocking is not allowed. Use factory prefabricated supports and	 A. ALL work involving refrigerant and refrigerant piping
such cutting shall be as directed by the Architect and General		stand-offs. All exterior supports to be galvanized or epoxy coated.	accomplished by EPA certified technicians, with cu
Contractor	2.03 ESCUTCHEON PLATES		handling license.
		C. CAST IRON AND PVC SOIL PIPE AND FITTINGS	
1.17 ROOFING.	 A. Chromium - plated paltes formed from not less than 20 guage steel split 	Verify with Local Authority having jurisdication that PVC piping is allowed	Refrigerant piping shall be in strict accordance with
	pattern,set screws on ceiling plates,spring clips on others Sized to fit	for below grade and above grade soil, waste and vent piping. Provide	manufacturers installation instrctions and procedure
 A. Any roofing work shall be accomplished by the general contractor. This 	over insulation and to cover sleeves, wall and floor openings completely.	fire stops for PVC piping at floor and chase wall penetrations to maintain	responsible for contacting the equipment manufact
includes cutting of plumbing vents roof curbs for mechanical equipment and roof supports for mechanical equipment all roof penetrations shall	2.04 MATCHING PRODUCTS	fire integrity. Provide letter from Local Fire Official indicating if fire stops are required for PVC piping which extends through floors and/or	necessary information and details to ensure the refe
have factory fabricated penetration assemblies.	 A. Provide matching products where more than one item exists even though 	Irre rated assemblies Coordinate exact requirements for seats with Architect and Local Fire Marshil prior to installation refer to 131053.16.1	responsible for coordinating any derating of refrigera to length of refrigerant piping to facilitate the output r

lar-cvalled to matter pipe, conforming to Ab i M A / 4, plush on joints, As i M C 504 elastomeric gaskets for below grade.	 Conform to the applicable standards and procedures outlined in 41CFR Part 50-204 which requires Contractors to comply with the regulations 	
Cast Iron Pipe Fittings: Service weight and extra heavy uncoated and	 D. Provide daily job site clean upto ensure a safe workplace. 	
litting for each change in direction keter to Details published in the Cast iron Soil Pipe Handbook	C. Provide certificate of warranties.	
conforming to CISP-310-88. All roof drain leaders and roof overflow drain leaders to have heavy duty cast ion fittings. All suspended drain leaders 6" and larger, shall have friction clamps and tie rods across the	and warretnere manuals including I-VAL controls Humang and Fre Protection system controls and alarms. Label all equipment and thermostats/sensors.	
ASTM A74 and CS 188 for below grade. No hub, CISPI 301-88 for above floor work with "no hub" fittings and gasketted, 88 4band no hub joints,	B. Providing witing schematics and control witing diagrams with the Operation	
Cast Iron Pipe: Service weight asphalt mastic coated,conforming to	Operation and Maintenence Manuals at project close out.	
PVC Fittings: shall be scheduls 40 wall thickness, DWV pattern, conforming to ASTM D-2665 with purple tinted primer and solvent welded joints.	manulacturer's published(applicable)installation instructions. Provide one copy of the manufacturer's installation and maintenance instructions, made and the manufacturer's installation and maintenance instructions, made and the manufacturer's installation and renoerone with the made and the manufacturer's installation and renoerone with the	
court core labo to bronnerson	A. Install all equipment and materials in strict accordance with the	_
conforming to AS IM U-1/84 with socket type solvent weld joints using a purple tinted primer and solvent welded joint. Coextruded cellular PVC "foam core"nine is mohibiled	3.01 GENERAL	3.01
PVC Pipe: shedule 40, Type I, solid wall, polyninyl chloride(PVC)	PART-3 EXECUTION	PART:
not be used for above ground rainwater, roof drain or roof overflow drain piping.	 When in doubt of manufacturer acceptance, clasify PRIOR to bid. 	
plenums. PVC Piping shall not be used where code dis-allows PVC-shall	be of the same manufacturer, etc.	
Laundries or anywhere high temperature(greater than 140degrees F.)	plumbing lixtures are to be of the same manufactureral ceiling diffusers are to be of the same manufacturer all HVAC requirement of like types shall	
PVC soil, waste and vent piping shall not be used in Kitchen areas,	other manufacturers are listed in the specifications. For instance, all	
Architect and Local Fire Marshill prior to installation refer to 131053.16.1	 A. Provide matching products where more than one item exists even though 	
stops are required for PVC piping which extends through floors and/or	ZU4 MATCHING PRODUCTS	2.04
fire integrity Provide letter from Local Fire Official indicating if fire		,
fire stops for PVC piping at floor and chase wall penetrations to maintain	over insulation and to cover sleeves, wall and floor openings completely.	
for below grade and above grade soil, waste and vent piping. Provide	pattern, set screws on ceiling plates, spring clips on others. Sized to fit	
	A. Chromium - plated paltes formed from not less than 20 guage steel split	
0. 0301 1303 240 - 40 0011 11 11400		

CLEANING PURGING AND TESTING.

All duct work, piping and miscellaneous seed shall be cleaned of grease, only part soot amedicalling discussion for and other construction debris. Clean all Mechanical equipment and leave fies of tool marks clears, marks scratches, cracks, chips and other defects. Paint to marks other surfaces.

							3.02			
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Arrange work to allow space for installation of insulation on eqiupment, plping and ductwork.	Provide supports and anchors for work to avoid damage from movement caused by dynamic forces or by expansion and contraction.	Except where otherwise indicated, arrange piping to run symmentrical, either parallel or normal to building lines, and true to grade.	Arrange parts of work requiring normal service to be readlly accessible.	Arrange work to provide maximum headroom and clearence consitent w requirements of the documents and in order to maintain adequate personnel passage, access and maintenence clearances.	Coordinate and schedule installation of ductwork equipment and piping as required to fit the work into the spaces provided in the building.	Coordinate work under this divition with work under other divisions.	COORDINATION OF INSTALLATION	Conform to the applicable standards and procedures outlined in 4/CFR, part 5/2-2/4 which requires Contractors to comply with the requisitions and standards for construction outline in the U.S.Department of Labor 25 CFR 100 BHA Cheared inclusiny. Standards and Regulations All employers of the Contractor shall have one safely Institute gession specifically designed for the activities of this project broken shall be seen and document alterndance. Conform to the contract of the provide procedure and the contract of the contr	Provide daily job site clean upto ensure a safe workplace.	Provide certificate of warranties.

F	I	6	Ţ	m	D	ç	g.
Where work to installed above in accessible eatings or locations make provisions for items exich a disrupers, valvies control exict but made accessible by the installation of access parels or provide disruper. valves controlers exica mother appead location which will facilitate the operational and services benefits, one such example to provide duct equaliting girl and sproved black damper at reck of ceiling diffuser where branch to climate channels duction would be inconsistible.	 Where cutting and repairing is required due to defective or iii-timed work under the Division pay all costs for cutting and repairing. 	 Arrange work to allow space for installation of insulation on equipment, plaing and ductwork. 	 Provide supports and anchors for work to avoid damage from movement caused by dynamic forces or by expansion and contraction. 	 Except where otherwise indicated arrange piping to run symmentical, either parallel or normal to building lines and true to grade. 	Arrange parts of work requiring normal service to be readlly accessible.	 Arrange work to provide maximum headcom and desented consitent with requirements of the documents and nodes to maintain adequate personnel passage accesses and maintenance determines. 	 Coordinate and schedule installation of ductwork equipment and piping as required to fit the work into the spaces provided in the building.

ဂ	'n	۶
Provide duct closure collar in stird accordance with the Standard Mechanical Code(SMC) clastes etition and with the Local Authority Having Jurisdiction. Duct closure collars shall be constructed of sheatmental minimum 0027 truches thoughtes the standard ducts penetrating maximum of 1 hour fire rated partitions-AS THE CODE ALLOWS. Provide Integral Wall Server at wall, minimum 22 gags. commous on both sides of opening-sall light with the salling-place for SMC 010.	Provide weather proof flashings and sealents for all roof and exterior wall penetrations.	Seal wall slaves and floor penetrations with LLL approved the proof safing-fassi wateringth and overlay with obcurred causing to match adjacent authors, where visibs Manufacturers, Meteraulk SM-CS Netion, Fully comply with the manufacturers installation instructions to achieve UL listed conditions.

1.25 PIPING IN ELECTRICAL AND ELECTRONIC EQUIPMENT ROOMS

Acceptable Manufacturers Dow Coming,3M ,Metacaulk. Description:Firestopping materials UL Listed silicons products for application in accordance with standard detailes published by manufacturer and listed in UL Fire Resistance Directory.

No water piping is allowed in electrical closets electrical equipment Room. Telephone Room Local Area the theoric(LA) Riports or coms specifically interneded for use for centralized electrical or electronics equipment-unless the Contract Drawings specifically indicate piping in these areas. Fire syntheir head if required to be well pipe sprinkler system, is an exception. This includes rool drain princip coil of the horizontal and verifical leaders, sanitary water fines, sanitary vent fin

1.23 FIRE SAFETY CONTROLS

The Contractor shall maintain accurate measurements and record them on As Built chamitys, prior to final acceptance, the contractor sail submit one set of As Build manages to the Acceptance for approaches. As Build drawings shall be full size, and marked to indicate conditions as installed. The As Built set shall also include the indicated calling just showing final diffuser, built and spinisher locations with respect to the ceiling grid, the contractor is responsible for incorporating any comments/addended changes into the final As Built markups.

A. Provide, install and test new ductwork mounted loratation type smoke destactors to ensure unit shut down and interconnection with fine alarm system in accordance with NFPs QNA and the latest offition of the Standard Sulfding Code, and latest edition of the State Mechanical Code, All smoke delections are to be provided by the Electrical Contractor and installed by the Mechanical Contractor.

PLUMBING:	END OF SECTION 15000	Þ
	TION 15000	Where work of this Division is located concealed in building construction and otherwise inaccessible,furnish access doors of adequate size and coordinate with general construction work to establish locations for access doors to be installed to provide access to the concealed work.

-	7	TO TEOMBING GENERAL PERCHAPITATION
	≯	Maintenece clearence from footings of not less than 48" measured
		horizontally and at an angle from horizontal to bottom of footing of less than 45 degrees. Where piping is laid on loose fill earth or sand compact
		trench bottoms prior to piping installation to obtain minimum 95% of dry maximum density compaction as determined by Standard Proctor
		Compaction Test, ASTM D-698, minimum 88% dry proctor for paved areas.
		Begin backfilling for each section only after piping has been completed,
		tested,inspected and location recorded.
		Backfill with earth that is free from vegetable matter and rocks of size
		greater than 2" hand tamp backfill in 6" lifts to 24" above piping and
		compact to 95% of Standard Proctor or 98% as specified Remaining
		backfill lifts may be placed at one time compacted as required for
		the location Maintain depth of bury as noted from finished grade over
		underground piping 24" minimum for domestic and sanitary and 42"minimum
		for fire water piping.

ACCESS DOORS-BUILDING

THERMOSTATS PROVIDE ELECTRONIC BATTERY BACK UP 7 DAY PROGRAMMABLE THERMOSTAT, WITH LOCKNIG COVER FOR EACH RTU WIRE PRODERAMMABLE THERMOSTAT, WITH LOCKNIG COVER FOR EXPLAIN BY FROM RTU NOTALL IN PROTECTIVE PLASTIC COVER BENEATH RTU FOR TENANT USE THERMOSTAT TO HAVE BATTEREST HERMOSTAT FOB ES MALE MANUFACTURER AS RTU OR AN APPROVED MODEL BY THE RTU MANUFACTURER.

Changes involving time and money must conform to the General and Supplementary conditions of the contract No changes shall be initiated from verhal communication. No changes shall commence without written directive from the architect and the General Contractor.

Size doors to provide adequate clearance for acces

Coordinate number, size, style, and location of access doors with general construction work.

Normal door size is 24"x24",minimum door size is 12"x12".

Access doors or panels in fire rated construction shall bear the manufacturer's UL isting and number for fire rating of the construction. Verify that the fire rating of the access door or panel is commonsurate with the adjacent surfaces.

	requirements of the General Contractor and Roofing Contractor-and
	installed by the Roofing Contractor. "Plumbers Strap" is NOT ALLOWED.
	Wooden blocking is not allowed Use factory prefabricated supports and
	stand-offs. All exterior supports to be galvanized or epoxy coated.
<u>.</u>	CAST IRON AND PVC SOIL PIPE AND FITTINGS
	Verify with Local Authority having jurisdication that PVC piping is allowed
	for below grade and above grade soil, waste and vent piping. Provide
	fire stops for PVC piping at floor and chase wall penetrations to maintain
	fire integrity. Provide letter from Local Fire Official indicating if fire
	stops are required for PVC piping which extends through floors and/or
	fire rated assemblies. Coordinate exact requirements for seals with
	Architect and Local Fire Marshil prior to installation refer to 131053.16.1
	PVC soil,waste and vent piping shall not be used in Kitchen areas,
	Laundries or anywhere high temperature(greater than 140degrees F.)
	waste may be encountered PVC Piping shall not be used in return air
	plenums. PVC Piping shall not be used where code dis allows PVC-shall
	not be used for above ground rainwater, roof drain or roof overflow
	drain piping.

fitting for each change in direction.Refer to Details published in the Cast iron Soil Pipe Handbook	drain leaders to have heavy duty cast iron fittings. All suspended drain leaders 6" and larger, shall have friction clamps and the rods across the	floor work with "no hub" fittings and gasketted ,88 4band no hub joints, conforming to CISPI-310-88.All roof drain leaders and roof overflow	Cast Iron Pipe: Service weight asphalt mastic coated, conforming to ASTM A74 and CS 188 for below grade. No hub, CISPI 301-88 for above	PVC Fittings: shall be scheduls 40 wall thickness DWV pattern.conforming to ASTM D-2665 with purple tinted primer and solvent welded joints.

workplace.		Cast Iron Pipe Fittings: Service weight and extra heavy,uncoated
		tar-coated to match pipe conforming to ABTM A74, push on joint
edures outlined in 41CFR		C 504 elastomeric gaskets for below grade.
nply with the regulations		
J.S.Department of Labor		Slope minimum 1/8" per foot for sanitary waste and vent piping.
nd Regulations.All employees		
j session,specifically		Kitchen Grease drainage piping shall be sloped 1/4"per foot
project,Include weekly job		
endance Conform to the	ņ	COPPER DWV TUBING AND FITTINGS
ure and rules. Conform to		
edures Provide M8D8 sheets		PVC and/or CPVC piping is NOT allowed for Domestic Water.
th OBHA 29 CFR1910,1200.P		
thing for employees and		Copper tubing: Type "L" hard drawn tubing conforming to ASTM
es and telephone numbers in		
		Fittings:Drainage pattern for sweat connections,wrought copper

WELDERS CERTIFICATION.

Freeze Projectional Contrador shall provide written instructions to the owner for drainage, water systems and freeze producing the building water systems, include specific instructions for areas subject to freezing when building utilities decidic power or natural gashare intempled-provide specific instruktions to protect the building valved systems from freezing during bia storm and extremes cold weather conditions. Document training to the Architect.

Plumbing and Fire Protection systems pressure leak testing per Local Code, potable water disinfection per federal specification bb-c-12Ø

Test, Adjust and Balance hvac systems to 10%.

Test all duct work leak tight against the operational static pressure.

Repair any noticeable leaks found leak tests shall be performed by the
Contractor and witnessed by the Owner's reprecentative.

All welding shall be performed by perified welders in accordance with the American Niveling Scelet (AMP), 4.5.1 and Local Authority is wish president, assume to entire circumstance of welder competency for each welder and eathern certification, within one yound plus and what Documentation of welding provided as well welde qualifications is fall to presented in the form of an editing provided and welder greated and a provided and the provided and provided and provided and the pr

Describlion and removal of existing materials perdating to the Mechanical providers of this control cleas NLOT include the identification amount or abantement of asbestos natural his is to immediately stop work in the vicinity of the suspect material and inform the General Contractor Aveal direction prior to proceeding.

Provide a written ONE year warranty for all labour parts, materials and equipment from the date of beneficial occupancy as determined by the equipment from the date of beneficial occupancy as determined by the Architect

Provide shock absorbers in hot and cold water supply lines as follows. At isolated single flush valve futures or isolated quick closing valves on the supply between Josef from 4eet futures sideoffs, on the supply between Josef from 4eet futures sideoffs. At batteries of flush valve futures with up to 20feet branch piping length-on supply between between between the control provided in the provided sideoffs. Coordinate exact locations of each shock absorber so that it is in an	Filler materials: lead free solder,JM Harris "Bridgit",Englehard "Silvabrite 100" or Taramet.	Fittings: Wrought copper for brazed connections, conforming to ASTM B-68/an81 b1622.	Fittings: Cast bronze with joint recesses miled out smooth, each recess provided for sweat connections, conforming to ASTM B-62	Copper tubing Type K,annealed soft temper conforming to ASTM B-88 for below floor and underground piping up to and including 3^* ,4" and above water service to be ducille iron.	COPPER WATER TUBING AND FITTINGS Copper tubing:Type L, hard temper, conforming to ASTM B-88, for above floor and interior wall piping.	Fittings:Drainage pattern for sweat connections, wrought copper with swaged recesses provided conforming to ASTM B-88 or cast brass with milled recesses conforming to ASTM B-62	Copper many. Type in the case of the control of the

	accessible area of an access parter into the provider. The inectantial Contractor is responsible for providing access panels and coordinating exact locations with the General Contractor and Architect.	
•	Natural gas: per Standard Gas Code(SGC), scheule 40 black steel or schedule 40 galvanized steel which over is directed by the Local	
	Authority Having Jurisdication No grooved and piping nor PVC piping shall be used for natural gas No flexible appliance tubing shall be used.	
	Any underground gas piping shall be shedule 40 black steel or shedule 40 galvanized steel which over is directed by the Local	
	Authority Having Jurisdiction and shall be externally cleaned and have Republic X-Tru-Coat mill wrap. Tape coat and wrap all connections and	
	joints. Any gas piping installed beneath covered sidewalks connecting to	
	pipe vented condiuit, vented to atmosphere at least 15 feet from any	
	door indow or fresh air intake Refer to Local Authority Having	
	Jurisdiction for vented conduit requirements. Clean, degrase, prime coat	
	Concealed natural gas piping per BGC 308.6 Medium Pressurre gas	
	piping per SGC Chapter 10, vent limiting device and/or copper vent	
	tubing from regulator vent to outdoors, terminating with elbow down and insect screen, per SGC 1006, and 40213 Medium pressure regulators may	
	not be concealed by building construction Sizing downstream of medium	
	pressure regulator per SGC Chapter 3. Provide listed shutor halve immmediately before each MP regulator. Vent each regulator to outside	
	per NFPA 54. All gas piping and installation of natural gas piping system and equipment shall be in strict accordance with NFPA 54.	

3.04 CLOSURE DUCT CLOSURE COLLARS AND WEATHERPROOFING

B. Store equipment and material under cover and off the ground.

Provide protective cover, skids, plugs, caps and coating to protect equipment, material from damage and deterloration during construction.

3.03 PROTECTION OF WORK DURING CONSTRUCTION

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The Contractor must verify with Local Code Official all requirements for condensate drain lines and discharge of condensates.	Provide condenste drain piping, from trap fitting at cooling coil drain pan outlets to roof drains or gulfer, as prescribed by local code. Provide pipe to gutter rooks with gutters. If the local code allows. Condensate pipe insulation not required on roof.

condensate drainge system to the sanitary/waste drainage system, either in drain trap from lavatory or sink or in separate p-trap into vent riser, as	Coordinate with installation of plumbing piping to ensure that a separate water-seal p-trap is provided at each connection point from the	Schedule 40 galvanized steel pipe and pipe fittings PVC condensate drain line only allowed on roof, and must be UV resistant PVC.	Where piping is laid on a Mechanical Room or other room floor, do not use copper Do not use copper piping o roof	Piping: Type "L" copper tubing and wrought fittings, soldered joints.

Insulate Hot water, Cold Water and Circulating Water piping per Local Energy Code.	Provide identification system for piping using a system of identifying legends denoting the service, with direction arrow applied adjacent to service identifiers.	indicated on the drawings. Support piping at constant pitch down to drain points without low points.

- manufactures installation instrutions and procedures. The Contractor is reaponsible for contacting the equipment amountains responsible for contacting the equipment manufacture and obtaining responsible for contacting the equipment manufacture and obtaining processary information and details to resure the entirgeneral line states, piping arrangement and piping institutions are maintened. The Contractor is responsible for coordinating any dearling of refrigerence equipment due to length of refrigerent piping to dealine the output refrigerent on capacity as indicated on the equipment exhebits. Provide refrigerent capacity as indicated on the equipment exhebits. Provide refrigerent piping to secondary of the provider of the pro
- All ductwork dimensi sheetmetal size for in FIBERGLASS Ductw Precharged tubing sets assembled with flare joints or Type ACR refrigerant tubing with wrought copper fittings, assembled by soldering with 15% silver solder. sons indicated are clear inside dimensions. Increase internal installation, as applicable, FIBERBOARD or work in NOT allowed.
- Febricate and install in Accordance with References:

 ASTIM A 56, ASTIM A 90, ASTIM A 986, ISSTIM A 582, ASTIM A 580,
 ASTIM A 56, ASTIM A 90, ASTIM A 586, ASTIM A 587, ASTIM A 580,
 ASTIM A 566, AVIS DOJ. INFEP 904, SUMOVIN, FWIAC AIP Duct
 Leadage Test Manual, SIMACMA, FWIAC Duct Construction Standards
 Medial and Flexible, U. If a Factory Media AIP Ducts and Commercions,
 Medial and Flexible, U. If a Factory Media AIP Ducts and Commercions,
 SIMAGNA Selsimine Restriant Manual, Guidelines for Mechanical
 Isless edition, SIMACMA, Seismine Restriant Manual, Guidelines for Mechanical
 Systems latest edition.
- Variations in duct configuration or sizes permitted to facilitate installation and coordination with other trades. The Contractor shall follow duct sizing chart on drawings and SMACNA Standards.
- Provide high and low combustion air intakes, per the Standard Mechanical Code, for ALL rooms housing fule fired appliances. Louries: Antille Type (6776, 4" or 6" desp. Estuded alminum, coul. by Architect, latherated by welding aimst clamble blacks and grant by Architect, and the state of the state of the state of the reset is 19 paying consigned alminum when the libed estuded alminum frame attached to inside of louver, and full-width loose all extension. Flue Piping: Galvanized, Double waled, Ul Listed and labelled, galvanized steel, factory fabricated, Type B. In accordance with the Standard Mechanical Code.
- All air flows (CFMs) must add up. The Contracoir shall verify all air flow and select air handling equipment to facilitate outlet totals, terminal totals or most stringent requirments, including adjustments in static pressure for proposed devices and proposed routing of ductwork.
- C. Sealant: Non-handering, water resistant, fire resistive, compatible with mailing materials liquid used alone or with tape, or heavy mastic, UL classified as to the hazard. Sealant shall have films groad of 25 or less and fuel contribution of 0 with a smoke developed rating of 50 or less. The sealer shall be specially formulated for joining and sealing sheet metal advanct of all least medium class. Duct sealing in strict accordance with the Sales Energy Code and the Local Courty Energy Code, latest defilions.
- Provide Unlisted and leastled for dampers in stitled accordance with the call code authority having jurisdishor. The Comractor is salely responsible for reserving the plans and decording the location and fire rating of all partitions, it looks and assembles and stale prouds fire dampers and clowork installation as and clow date the flee highly of any partition, floor or assembles when the ductook preference. Fire rated partitions, floors or assembles known to the Engineer at the time of design are indicated on the drawings. However, the contractor shall verify the location and fire rating of all partitions, floors and assembles prior to submitting his bid and shall incorporate all work required to completely comply with the requirements of the Local Code Authority having jurisdiction.

- SPECIFICATION NOTES MECHANICAL

 1. ALL DUCTNOCK 6AS PRING PULMBING PULMBING PULMBING VENT PERING AND FREE SPRINGLER PERING SHALL BE INSTALLED TO FACULTATE ANY TENANT SPACE TO MAKE A CELLING HEIGHTS AS INDICATED ON ARCHITECTURAL DRAWINGS.
- INSULATE ALL NEW SUPPLY AIR DUCTWORK PER ENERGY CODE.
- THERMOSTATS: PROVIDE ELECTRONIC, BATTERY BACKUP, 7 DAY PROCRAMMABLE THERMOSTAT, WITH LOCKING COVER FOR EACH RTU. WIRE FROM RTU TO FACILITATE INSTRUCTION OF FROM RTU. MISTAL IN PROTECTIVE PLASTIC COVER BENEATH RTU FOR TEMANT USE. THERMOSTAT TO HAVE BATTERIES. THERMOSTAT TO BE SAME MANUFACTURER AS RTU OR AN APPROVED MODEL BY THE RTU MANUFACTURER.
- FIRE DAMPERS AS REOUIRED, PROVDE NEW ULSSS LISTED 1/2 HOUR RAILED FIRE DAMPER WITH ACCESS DOOR, RUSKIN BIDZ, REFER TO ARCHITECTURAL DOWNINGS FOR FIRE WALLS, IN ADDITION, FELD VERIFY EXISTING WALLS FOR FIRE BATING, MANTAIN FIRE INTEGRITY WITH FIRE DAMPERS AND BY SEALING ALL WALL PENETRATIONS THRU FIRE RATED PENETRATIONS PER LOCAL COOLE.
- SEAL ALL RATED WALL AND FLOOR PENETRATIONS WITH DUCT CLOSURE COLLAR AND FIRE SAFFING, PROVIDE DUCT FIRE DAMPERS FOR ALL DUCTWORK PENETRATING ONE HOUR FIRE RATED PARTITIONS.
- MECHANICAL CONTRACTOR TO PROVIDE TEMPORARY FILTERS ON RETURN AIR TO RTU DURING CONSTRUCTION.

MECHANICAL NOTES CONTD.

M-4

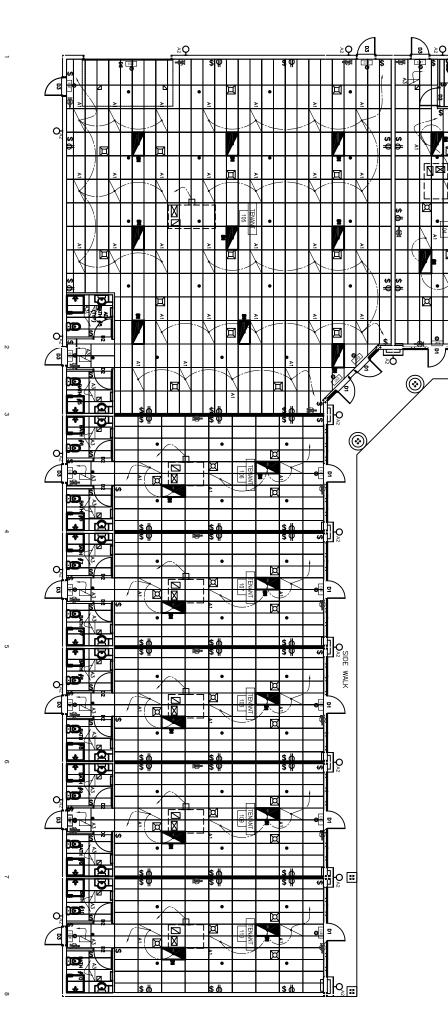
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à**O** SIDE WALK



Ø SYMBOL **⊕** ∰ **∽ O**A2 Ø SHOLE POLE FLUSH TUMBLER SWITCH (MOUNT 42"
FRE CHINGUISER
WALL-MOUNTED DIPLEY RECEPTAGE (2P, 3W, 15A, 125Y)
MOUNT 15' AFF/UCN. SMOKE DETECTOR WITH EXIT LAMP DIFFUSERS / RETURN RECESS MOUNTED CEILING FOUR BULB T8 (48") FLUORESCENT FIXTURE RECESS MOUNTED CEILING FOUR BULB T8 (24") FIXTURE SURFACE MOUNTED FLUORESCENT FIXTURE SPRINKLER OUTLET. RECESS MOUNTED CEILING FLUORESCENT FIXTURE WITH BATTERY PACK (SELF CONTAINED EMERGENCY LAMP) LOUVERS DESCRIPTION

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SYMBOLS

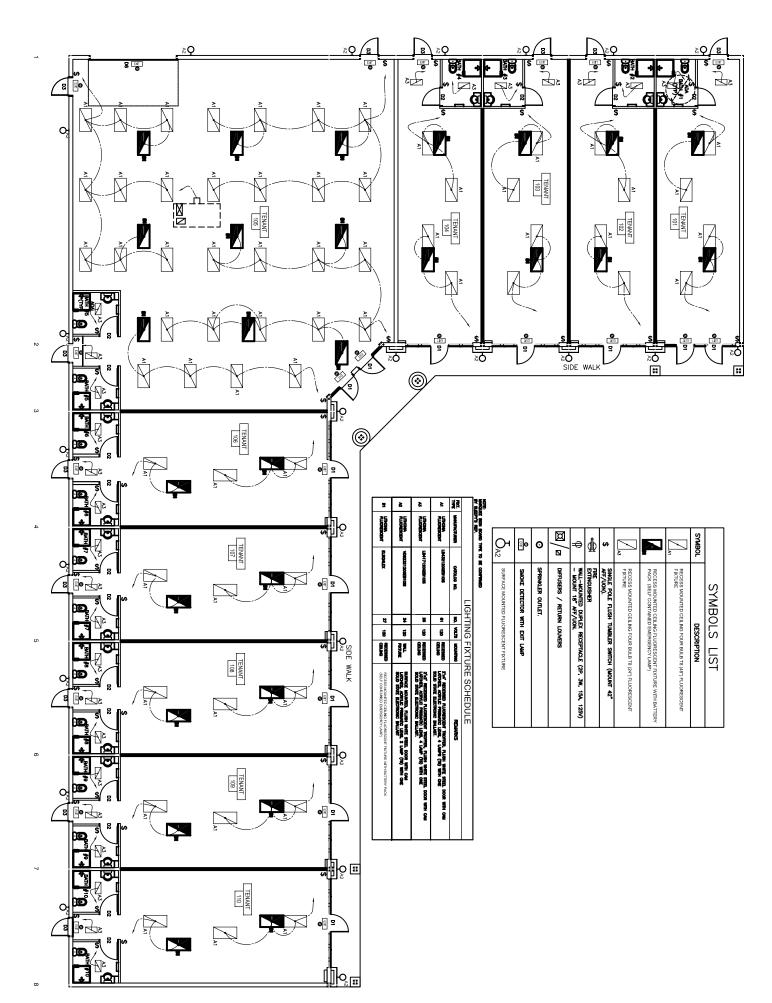
LIST

REFLECTED CEILING PLAN

SHT 1 OF 1

REFLECTED CEILING PLAN
SCALE 1/8" = 1'-0"

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FLOOR PLAN - LIGHTING LAYOUT SCALE 1/8" = 1'-0"

LIGHTING PLAN

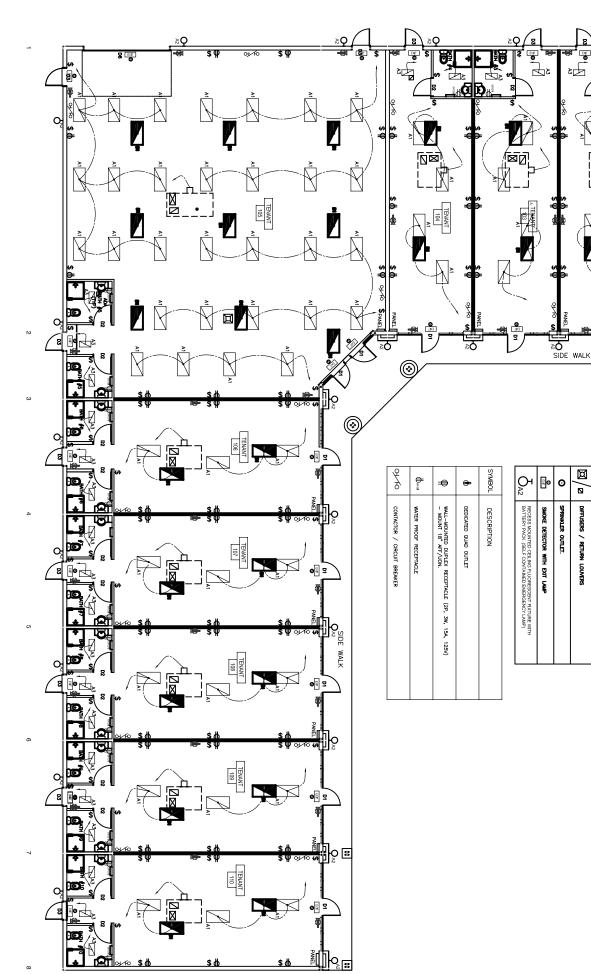
ф

SINGLE POLE FLUSH TUMBLER SMITCH (MOUNT 42"
MET/MON,
PER
SITHOLINETS DUPLEX RECEPTACLE (2P. 3W, 154, 125V)
MOUNT 18" AFF/MON.

SYMBOL

SYMBOLS LIST

RECESS MOUNTED CEILING FLUORESCENT FIXTURE WITH BATTERY PACK (SELF CONTAINED EMERGENCY LAMP)



FLOOR PLAN - POWER LAYOUT SCALE 1/8" = 1'-0"

POWER PLAN

SHT 1 OF 1

- 16.01 GENERAL INFORMATION
- A. ELECTRICAL INSTALLATION SHALL CONFORM WITH SPECIFICATION AND LOCAL CODES AND ORDINANCES,THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE,NFPA LIFE SAFETY CODE AND LOCAL BUILDING CODE.
- B. INCLUDE ALL LABOUR,MATERIALS,EQUIPMENT AND SERVICE REQUIRED TO FURNISH AND INSTALL. A COMPLETE ELECTRICAL SYSTEM AS INDICATED ON THE DRAWING AND AS
- C. THE ELECTRICAL LAYOUT INDICATED ON THE DRAWINGS ARE DIAGRAMMATIC.
 THEY ARE NOT INTENDED TO INDICATE ABSOLUTE OR UNCONDITIONAL KNOWLEDGE OF ACTUAL CONDITIONS,EXACT LOCATION,DISTANCES,LEVELS, AND OTHER CIRCUMSTANCES SHALL BE GOVERNED BY ACTUAL FIELD CONDITIONS.
- D. THE WORK SHALL ALSO INCLUDE THOSE ITEMS NOT SPECIFICALLY MENTIONED, DESCRIBED, BUT WHICH ARE OBVIOUSLY NECESSARY TO CONFORM TO THE, DESIGN INTENT, THE APPLICABLE CODES, AND TO PRODUCE A COMPLETE ELECTRICAL
- E. FOR THE ACTUAL FABRICATION,INSTALLTION AND TESTING OF THE WORK,USE ONLY THROUGHLY TRAINED AND EXPERIENCED WORKMEN COMPLETELY FAMILIAR WITH THE ITEMS REQUIRED AND WITH THE MANUFACTURE'S RECOMMENDED METHODS OF INSTALLATION, IN ACCEPTANG OR REJECTION OF THE INSTALLED WORK,NO ALLOWANCE WILL BE MADE FOR LACK OF SKILL ON THE PART OF THE WORKMEN.
- F. EQIUPMENT SHALL HAVE THE UL LABEL WHERE SUCH LABLE IS AVAILABLE.
- G. OBTAIN PERMITS AND CERTIFICATES OF APPROVAL FROM ALL AUTHORITIES HAVING JURISDICTION
- H. CONTRACTOR SHALL INSTRUCT OWNER ON PROPER USAGE, CARE AND MAINTANENCE OF THE ELECTRICAL SYSTEM, INCLUDING ALL SPECIAL SYSTEMS, OR APPARATUS.
- I. REQUESTS FOR APPROVAL OF PRODUCTS AND MATERIALS COMPITITIVE WITH AND SIMILAR TO THOSE SPECIFIED BY PROPRIETARY NAME MAY BE SUBMITTED FOR APPROVAL.SEE
- 16.02 DESCRIPTION OF WORK- INCLUDING, BUT NOT LIMITED TO, THE FOLLOWING.

DEVISION 1-SUBSTITUTIONS AND PRODUTS OPTIONS FOR REQUIREMENTS

- A. A COMPLETE DESCRIPTION SYSTEM FOR LIGHTING AND POWER INCLUDING NECESSARY FEEDERS, PANEL BOARDS, BRANCH CIRCUITS, LIGHTING FIXTURES, CONTROL SWITCHES AND RECEPTACLES.
- B. EMPTY RACEWAYS DOR TELEPHONE SYSTEM.
- D. EXCAVATION, TRENCHING AND BACK FILLING.
- E. CONNECTION OF ALL EQUIPMENT REQUIRING ELECTRICAL SERVICES AS INDICATED ON THE DRAWINGS AND AS SPECIFIED UNDER OTHER SECTIONS OF THE SPECIFICATIONS.
- 16.03 RELATED WORK— ITEMS THAT SHALL BE FURNISHED UNDER DIVITION 15 BUT WIRED AND CONNECTED UNDER DIVISION 16 SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING.
- A. CABINET HEATERS.

B. ROOF TOP HVAC UNITS

- 16.04 CODES-IN ADDITION TO COMPLYING WITH ALL APPLICABLE CODES COMPLY WITH. AND REGULATIONS,
- A. NATIONAL ELECTRICAL CODE, LATEST EDITION.
- B. NATIONAL FIRE PROTECTION ASSOCIATION STANDARDS.
- C. LOCAL BUILDING CODE
- D. AMERICANS WITH DISABILITIES ACT.
- SUBMITTALS-PRIOR TO MANUFACTURE.ORDER OR INSTALLATION OF MATERIALS, SUBMIT TO THE ARCHITECT FOR APPROVAL THE FOLLOWING.
- A. SHOP DRAWING SHOWING DIMENTIONS, AND DETAILED DATA FOR ALL ITEMS OF EQUIPMENT, PANEL, FIXTURES AND OTHERS ELECTRICAL PRODUCTS.
- B. SUBMIT SEPARATE FULLY DESCRIPTIVE MANUFACTURER'S LITERATURE FOR ALL MAJOR EQUIPMENT ITEMS INCLUDING, BUT NOT BE LIMITED TO, THE FOLLOWING:
- LIGHTING FIXTURES
- PANEL BOARDS AND DISCONNECT SWITCHES.
- ALL DATA SUBMITTED SAHLL BEAR THE INITIALD STAMP OF APPROVAL THE CONTRACTOR RESPONSIBLE FOR THE WORK. SUBMITTAL NOT BEARING THIS STAMP SHALL BE RETURNED TO THE CONTRACTOR WITHOUT HAVING BEEN REVIEWED BY THE ARCHITECT.
- D. DELIVER TO THE OWNER AND THE ARCHITECT ONE (1) COPY EACH OF A MANUAL WHICH INCLUDES A COPY OF THE RECORD DOCUMENTS RELATING TO THE ELECTRICAL SYSTEM.THIS SHALL ALSO INCLUDE, BUT NOT BE LIMITED TO, EQUIPMENT CATALOG SHEETS, MANUFACTURERS SPECIFICATIONS.
- 16.06 PROTECTION OF WORK.
- A. USE ALL MEANS NECESSARY TO PROTECT THE WORK AND MATERIAL OF THIS DIVISION BEFORE, DURING AND AFTER INSTALLATION AND TO PROTECT THE WORK AND MATERIALS OF ALL OTHER TRADES.
- B. IN THE EVENT OF DAMAGE,IMMEDIATELY MAKE ALL REPAIRS AND REPLACEMENTS NECESSARY TO MEET THE APPROVAL OF THE ARCHITECT AND AT NO ADDITIONAL COST OF THE OWNER.
- A. USE REGID OR INTERMIDIATE GRADE GALVANIZED CONDUIT,EXCEPT WHERE EMT OR PVC SCHEDULE 40 IS PERMITTED THIS SPECIFICATIONS.CONDUIT BELOW GRADE OR IN GROUND FLOOR SLAB SHALL BE RIGID GALVANIZED OR PVC
- EMT MAY BE USED OVERHEAD OR CONCEALED IN WALLS AND SHALL BE GENERAL ELECTRIC, YOUNGSTOWN COMPANY OR APPROVED EQUAL.COMPLINGS AND CONNECTIONS SHALL BE COMPRESSION TYPE STEEL(NO POTMETAL) WITH
- THROATED TNSULATED BUSHING T& B COMPANY OR APPROVED EQUAL
- C. PVC MAY BE USED WHERE ALLOWED BY LOCAL CODES.
 D. FITTINGS (I.E. CONNECTORS,COUPLINGS,TEES,BOXES,BALL ALIGNERS AND SIMILAR ITEMS) IN EXPOSED CONDUIT: CROUSE HINDS CONDULETS OR APPROVED EQUAL.

- 16.08 FIRE STOP MATERIAL.
 A. FIRE STOP MATERIAL. SHALL BE IN COMPLAINS WITH UL STANDARD 1479 AND SHALL BE CLASSIFIED FOR USE IN 1,2 OR 3 HOUR FIRE RATED SYSTEMS.
- B. FIRE— STOPPING MATERIAL. SHALL MAINTAIN ITS DIMENTION AND INTEGRITY WHILE PREVENTING THE PASSAGE OF FLAME, SMOKE AND GASES INDER CONDITIONS OF INSTALLATION AND USE WHEN EXPOSED TO THE ASTM E119 TIME— TEMPARATURE CURVE FOR A TIME PERIOD EQUIVALENT TO THE RATING OF THE ASSEMBLY PENETRATED.
- ? FIRE—STOP MATERIAL SHALL BE FIRE STOP SEALANT OR FIRE STOP FOAM AS REQUIRED BY THE EXPOSED TO THE ASTM E119 TIME— TEMPARATURE CURVE FOR A TIME PERIOD EQUIVALENT TO THE RATING OF THE ASSEMBLY PENETRATED.
- 16.09 PULL AND JUNCTION BOXES. D. FIRE-STOP MATERIAL SHALL BE FIRE STOP SYSTEMS AND MATERIAL BY 3-M OR APPROVED EQUAL
- A FABRICATE FROM CODE CUAGE SHEET STEEL WITH SCREW COVERS HEID IN PLACE BY CORROSION- RESISTANT MACHINE SCREWS.INSTALL WHERE INDICATED AND WHERE NECESSARY TO FACILITATE CABLE PULLING AND SPUCING.BOX SIZES AS REQUIRED BY THE NEC FOR NUMBER OF CONDUITS AND CONDUCTORS ENTERING AND LEAVING.

16.10 WIREWAYS.

- A. WHERE INDICATED ON THE DRAWINGS,APPROVED WIREWAYS SHALL BE PROVIDED COMPLETE WITH NECESSARY COMPLEMENTS OF FITTINGS,CONNECTORS AND PARTS.WIREWAYS SHALL BE SQUARE D,GENERAL ELECTRIC,WESTINGHOUSE OR APPROVED EQUAL.
- WIRE AND CABLE.
- CONDUCTORS; SOFT DRAWN COPPER BY ANACONDA,GENERAL ELECTRIC OR APPROVED EQUAL NO.8 GUAGE AND LARGER SHALL BE STRANDEDCONSTRUCTION,NO.10 AND SMALLER SHALL BE SOLD,FACTORY COLOR CODED,WITH A SEPARATE COLOR FOR EACH PHASE AND NEUTRAL USED CONSISTENTLY THROUGHOUT THE SYSTEM(NOTE:GREEN CODING REQUIRED BY THE NEC FOR CONDUCTORS IS INTENDED SOLELY FOR GROUNDING PURPOSES). USE COLOR CODED WIRE FOR CONTROL CIRCUITS.APPROVED COLOR TAPE IS ACCEPTABLE FOR FEEDERS.
- IN GENERAL WIRE AND CABLE SHALL MEET THE FOLLOWING RELEVANT REQUIREMENTS;
- 1. CONDUCTORS FOR FEEDERS:600 VOLT, TYPE THW OR XHHW.
- CONDUCTORS FOR LIGHTING AND RECEPTACLE BRANCH CIRCUITS:600 VOLTS,TYPE THW OR THHW/THWN MINIMUM SIZE NO.12 AWG.WHERE BRANCH CIRCUIT HOME RUNS EXCEED 70'-0" IN LENGTH,NO.10 SHALL BE USED TO THE FIRST OUTLET.
- 3. USE NO.12,TYPE THHN,CONDUCTORS FROM OUTLET BOXES TO FLUORESCENT FIXTURES AND THROUGH CHANNELS.
- USE NO.14,TYPE THHN/THWN FOR CONTROL WIRING, UNLESS ANOTHER TYPE IS DESIGNATED, OR AS SPECIFIED BY MANUFACTURER OF EQUIPMENT.
- 5. ALL SIZES OF WIRE AND CABLE FEEDERS SHALL BE FACTORY-COLOR-CODED AS FOLLOWS
- 120/208 VOLT
 LINE 1 BLACK
 LINE 2 RED
 LIST 3 SLIST
 NEUTRAL- WHITE
 GROUND- GREEN

16.12 OUTLET BOXES

- A. OUTLET BOXES SHALL BE FABRICATED OF CALVANIZED STEELAT LEAST 1-1/2" DEEP AND OF SUFFICIENT SIZE TO ACCOMODATE DEVICES NOTED, WITH MOUNTING LUGS OR EARS FOR COVERS, KNOCKOUTS FOR CONDUCT TERMINATIONS. PROVIDE BOXES FOR FIXTURES WITH FIXTURE STUDS IN CENTER.
- B. STANDARD DEEP TYPE OUTLET BOXES (CONCRETE RINGS WITH APPROPRIATE COVERS) SHALL BE USED IN FLOOR SLAB CONSTRUCTION SO THAT CONCEALED CONDUCTS ENTERING SIDES OF BOXES CAN CLEAR STEEL REINFORCING RODS.
- OUTLET BOXES FOR WIRING DEVICES IN FINISHED WALLS:ONE PIECE STANDARD GANG TYPE OF SIZE TO ACCOMMODATE NUMBER OF DIVICES NOTED. WITH PLASTER COVERS TO BRING BOX OPENINGS FLUSH WITH FINISHED WALL,OR NOT MORE THAN 1/4" BAC OF SAME. THE USE OF SLEEVES AND LONG SCREWS TO BRING DEVICE FLUSH WITH WALL PLAY WILL NOT BE PERMITTED. BACK PLATE

16.13 WIRING DEVICES

- LIGHTING SWITCHES FOR ALL AREAS SHALL BE 20 AMPERE.GE-5961-2 (3-WAY) AND GE-5964-2 (4-WAY)
- B. DUPLEX RECEPTACLES FOR ALL AREAS SHALL BE 20 AMPERE,GE-5342-2 AMPHERE, GE-5342-2.
- C. SPECIAL PURPOSE OUTLETS REQUIRED BUT NOT SPECIFIED ABOVE SHALL BE SIMILAR IN CONSTRUCTION TO THOSE LISTED ABOVE.
- D. GROUND FAULT CIRCUIT INTERRUPTER (GFC) DUPLEX RECEPTACLE SHALL BE GENERAL ELECTRIC GF-5342-2.

- F. DEVICES SHALL BE GENERAL ELECTRIC, HUBBELL, LEVITON, SLATER OR APPROVED EQUAL.

E. COLOR OF DIVICES SHALL BE IVORY.

- 16.14 PLATES
- PROVIDE SMOOTH WORY PLASTIC WALL PLATES OF APPROPRIATE TYPE AND SIZE FOR WIRING AND CONTROL DEVICES.
- PROVIDE PROPERLY DESIGNED PLATES AND COVERS WHEN DEVICES ARE INSTALLED IN EXPOSED CONDUT, FITTINGS OR OUTLET BOXES.
- ? WALL PLATES TO BE SIERRA, HUBBELL, LEVITON, SLATER OR APPROVED EQUAL
- WEATHERPROOF OUTLET PLATES FOR OUPLEX RECEPTACLES SHALL BE TAY-MAC $60310\,$ OR APPROVED EQUAL.
- 16.15 SAFETY SWITCHES
- A. SQUARE D,GENERAL ELECTRIC WESTINGHOUSE OR APPROVED EUAL HEAVY DUTY TYPE QUICK-MAKE,QUICK-BREAK,IN NEMA TYPE 3R GENERAL PURPOSE ENCLOSURE WITH INTERLOCKING COVER,UNLESS OTHERWISE INDICATED.

- 16.17 BRANCH CIRCUIT OANELBOARDS
- A. BOLT-IN CIRCUIT BREAKER TYPE WITH SOLDERLESS LUGS AND ARRANGED FOR SERVICE ON A 208Y/120 VOLT,3 PHASE,4 WIRE SYSTEM.SQUARE D.GENERAL ELECTRIC,WESTINGHOUSWE OR APPROVED EQUAL WITH EQUIPMENT GROUND AND COPPER BUS.
- C. DOOR-SINGLE TYPE WITH SPRING LATCH LOCK.PANEL MOUNTING RIM AS INDICATED ON THE SHEDULE KEY PANEL LOCKS AUKE. B. CABINETS FOR PANELBOARDS-CODE GAUGE STEEL WITH AMPLE WIRING GUTTERS, FOR WIRE AND CONNECTIONS.
- D. CIRCUIT DIRECTORY WITH COMPLETE TYPED CIRCUIT DESCRIPTIONS AND CLEAR PLASTIC COVER
- 16.18 OTHER MATERIAL.
- ALL OTHER MATERIALS NOT SPECIFICALLY DESCRIBED ON THE DRAWINGS OR IN THESE SPECIFICATIONS.BUT THE CONTRACTOR SUBJECT TO THE APPROVAL OF THE ARCHITECT.
- 16.19 LIGHT FIXTURES AND LAMPS
- A. LIGHT FIXTURES SHALL BE AS SPECIFIED IN THE FIXTURE S SUBMITTED FOR REVIEW AND APPAROVAL OBTAIBNED PRIOR SHEULE SUBSTITUTED LIGHTING FIXTURES SHALL BE TO PLACEMENT OF ANY MATERIAL ORDERS.
- B. BALLASTS SHALL BE ELECTRONIC.
- C. FURNISH PLASTER FRAMES,TRIM RINGS AND BACK BOXES TO OTHER TRADES FOR INSTALLATION IN PLASTER,PLASTERBOARD,CEMENT PLASTER OR CONCRETE.
- D. COORDINATE WITH DIVISION 15 TO AVOID CONFLICTS BETWEEN FIXTURES, SUPPORTS, FITTINGS AND MECHANICAL EQUIPMENT.
- E. FLUORESCENT LAMPS SHALL BE T8,3500K.AS MANUFACTURED BY SYLVANIA,PHILIPS,GENERAL ELECTRIC OR APPROVED EQUAL.

16.20 INSTALLATION

- A. VERIFY ALL MEASUREMENTS AT THE SITE. NO EXTRA COMPENSATION WILL BE ALLOWED BECAUSE OF DIFFERENCES BETWEEN LOCATIONS SHOWN ON THE DRAWINGS AND MEASUREMENTS AT THE BUILDING.
- B. PROVIDE, MAINTAIN AND REMOVE AFTER CONSTRUCTION IS COMPLETED, TEMPORARY LIGHTING FOR ALL TRADES. IS COMPLETED
- C. PROVIDE AND MAINTAIN BARRICADE LIGHTING WHERE REQUIRED TO ADEQUATELY PROTECT THE OWNER AGAINST LABILITY FOR DAMAGE TO THE PIBLIC OR PERSONNEL. ALL LIAMPS USED ON BARRICADE SHALL BE 60 WATT RED. INSTALLED IN WEATHERPROOF SOCKET WITH WIRE GUARD. ALL WIRING SHALL BE APPROVED FOR WEATHERPROOF INSTALLATION.
- D. GROUNDING-ACCOMPLISH IN ACCORDANCE WITH ARTICLE 250 OF THE NEC.
- E. CONDUIT INSTALLATION
- 1. IN GENERAL CONDUIT INSTALLATION SHALL FOLLOW LYOUIT INDICATED ON DRAWNINGS; HOWEVER THIS LAYOUT IS DIAGRAMMATIC ONLY AND WHERE CHANGES ARE NECESSARY DUE TO STRUCTURAL CONDITIONS, OTHER APPLARATUS OR OTHER CAUSES, MAKE THEM. OFFSETS INCONDUITS ARE NOT INDICATED.FURNISH AS REQUIRED.
- COAT METAL CONDUIT PLACED IN FILL BELOW CONCRETE OR UNDERCROUNG WITH TWO HEAVY COATS OF ASPHALTUM.RECOAT ANY DAMAGE TO ASPHALTUM COATING BEFORE BACKFILLING.
- 3. CONDUIT SHALL BE ELECTRICALLY CONTINUOUS FOR SERWICE EQUIPMENT TO OUTLETS AND CABINETS.SECURE TO BOXES OF SHEET METAL CONSTRUCTION WITH ONE LOCKNUT OUTSIDE AND ONE INSIDE BOX WITH REINFORCED BAKELITE BUSHING, O.Z,TYPE "A THROUGH 2" AND TYPE "B" FOR 2 1/2" LARGER.
- USE FLEXIBLE CONDUIT(GREENFIELD) WITH PROPER FITTIN CONDUIT TERMINATIONS AND MOTORS EQUIPMENT, AND OTH MOTORS AND EQUIPMENT OUTSIDE OR WHERE SUBJECT T TO WATER SPRAY. IGS WHERE CONNECTIONS ARE MADE BETWEEN
 HER APPARATUS.USE(SEATITE) FLEXIBLE CONDUIT ON
- IN CONCRETE SLABS,4" MINIMUM IN THICKNESS,CONDUIT
 STEEL. IN SLABS ARE GRADE HAVING WIRE MESH REINFO
 BE SUPPORTED TO PROVIDE MINIMUM OF 2" COVERAGE
 BE DEPRESSED TO OBTAIN 2" MINIMUM COVERAGE FOR (SHALL BE INSTALLED UNDER REINFORCED ORCING AND NO STEEL BARS,CONDUIT SHALL OF CONCRETE ON ALL DIRECTIONS,SLAB MUST CONDUITS 1-1/4" AND LARGER.
- 6. ALL CONDUITS IN GROUND FLOOR SLAB SHALL BE PLACED ABOVE WATERPROOFING. PUNCTURING WATERPROOFING MATERIAL WILL NOT BE PERMITTED. WHERE NO WATERPROOFING MATERIAL IS PROVIDED, CONDUIT LARGER THAN 1-1/4" MAY BE PLACED IN CRUSHED STONE FILL WHEN PROPERLY COATED WITH ASPHALTUM.
- 7. DO NOT USE PERFORATED IRON OR BALING WIRE FOR SUPPORTING CONDUITS.
- 8. WHERE INSTALLED EXPOSED, RUN CONDUITS PARALLEL WITH OR AT RIGHT ANGLES TO BUILDING LINES, WHERE MORE THAN ONE CONDUIT IS FOLLOWING A GIVEN PATH. INSTALL WITH UNIFORM DISTANCES BETWEEN EACH OTHER AND WITH NEAT BENDS, OFFSETS, PILEATS AND SADDLES.
- 9. WHERE CONDUIT PASSES THROUGH BUILDING EXPANSION FITTINGS. JOINTS, PROVIDE O.Z. TYPE 'AX' OR EQUAL EXPANSION
- 10. PULL NUMBER 14 GUAGE GALVANIZED PULL WIRE INTO CONDUITS LEFT EMPTY.
- 11. LAYOUT AND INSTALL ELECTRICAL WORK IN COOPERATION WITH OTHER CRAFTS.PROVIDE SLEEVES OR OPENINGS THROUGH FLOORS OR WALLS REQUIRED FOR PASSAGE OF CONDUITS.PIPES AND DUCTS.
- 12. AS FAR AS PRACTICAL,ALL FEEDER CABLES SHALL BE CONTINUOUS FROM ORIGIN TO TERMINATIONS TO MAKE PROPER CONNECTIONS.
- UNLESS OTHERWISE NOTED, EACH CONDUIT RACEWAY SHALL CONTAIN ONLY THOSE CONDUCTORS CONSTITUTING A SINGLE FEEDER CIRCUIT.
- 14. WHERE FEEDERS CONSISTING OF MULTIPLE CONDUCTORS PER PHASE PASS THROUGH PULL BOXES OR PANELS.
 A CONDUCTOR OF EACH PHACE SHALL BE GROUPED TOGETHER TO PREVENT HEATING THE SURROUNDING METAL
- 15. ENTIRE INSTALLATION SHALL BE FREE FROM IMPROPER GROUNDS AND FROM SHORTED AND OPEN CIRCUITS.

 MAKE TEST TO INSURE THAT ENTIRE SYSTEM IS IN PROPER OPERATING CONDITION, THAT LIGHT BURN WHEN
 ON AND ARE CONTROLLED BY PROPER SWITCHES, AND THAT ADJUSTMENTS AND

ELECTRICAL NOTES

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