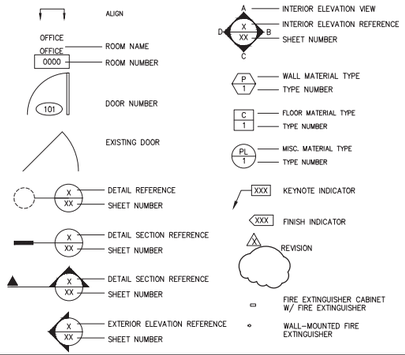
CAUTION: IF THIS SHEET IS NOT 30"x42" IT IS A REDUCED PRINT

ABBREVIATIONS

&	And	F.A.	Fire Alarm	PRCST.	Pre-cast
∠	Angle	F.B.	Flat Bar	PL.	Plate
@	At	F.D.	Floor Drain	P.LAM.	Plastic Laminate
℄	Centerline	FDN.	Foundation	PLAS.	Plaster
~	Diameter or Round	F.E.	Fire Extinguisher	PLYWD.	Plywood
#	Pound or Number	F.E.C.	Fire Extinguisher Cab	PR.	Pair
(E)	Existing	F.H.C.	Fire Hose Cabinet	PT.	Point
		FIN.	Finish	P.T.D	Paper Towel Dispenser
		FL.	Floor	P.T.D/R	Combination Paper Towel
ACOUS	Acoustical	FLASH.	Flashing	PTN.	Partition
A.D.	Area Drain	FLUOR.	Fluorescent	P.T.R.	Paper Towel Receptacle
ADJ.	Adjustable	F.O.C.	Face of Concrete	P.J.	Panel Joint
AGGR.	Aggregate	F.O.F.	Face of Finish		
AL.	Aluminum	F.O.M.	Face of Mullion	Q.T.	Quarry Tile
APPROX.	Approximate	F.O.SH.	Face of Sheathing		
ARCH.	Architectural	FPRF.	Fireproof	R.	Riser
ASB.	Asbestos	F.S.	Full Size	RAD.	Radius
ASPH.	Asphalt	FT.	Foot or Feet	R.D.	Roof Drain
		FTG.	Footing	REF.	Reference
BD.	Board	FURR.	Furring	REFR.	Refrigerator
BITUM.	Bituminous	FUT.	Future	REGTR.	Register
BLDG.	Building			REINF.	Reinforced
BLK.	Block	GA.	Gauge	REQ.	Required
BLKG.	Blocking	GALV.	Galvanized	RESIL.	Resilient
BM.	Beam	G.B.	Grab Bar	RM.	Room
B.O.C.	Bottom of Concrete	GL.	Glass	R.O.	Rough Opening
B.O.M.	Bottom of Mullion	GND.	Ground	RWD.	Redwood
B.O.P.	Bottom of Panel	GR.	Grade	R.W.L.	Rain Water Leader
B.O.R.	Bottom of Reveal	GYP.	Gypsum		
BOT.	Bottom			S.	South
		H.B.	Hose Bibb	SAF	Self Adhered Flashing
CAB.	Cabinet	H.C.	Hollow Core	S.C.	Solid Core
C.B.	Catch Basin	HDWD.	Hardwood	S.C.D.	Seat Cover Dispenser
CEM.	Cement	HDWE.	Hardware	SCHED.	Schedule
CER.	Ceramic	H.M.	Hollow Metal	S.D.	Soap Dispenser
C.I.	Cast Iron	HORIZ.	Horizontal	SECT.	Section
C.G.	Corner Guard	HR.	Hour	SH.	Shelf
CLG.	Ceiling	HGT.	Height	SHR.	Shower
CLKG.	Caulking			SHT.	Sheet
CLO.	Closet	I.D.	Inside Diameter (Dim.)	SIM.	Similar
CLR.	Clear	INSUL.	Insulation	S.N.D.	Sanitary Napkin Disp.
C.O.	Cased Opening	INT.	Interior	S.N.R.	Sanitary Napkin Recept.
COL.	Column			SPEC.	Specification
C.O.M.	Center of Mullion	JAN.	Janitor	SQ.	Square
CONC.	Concrete	JT.	Joint	S.ST.	Stainless Steel
CONN.	Connection	KIT.	Kitchen	S.SK.	Service Sink
CONSTR.	Construction	K.O.	Knock Out	STA.	Station
CONT.	Continuous			STD.	Standard
C.O.R.	Center of Reveal	LAB.	Laboratory	STL.	Steel
CORR.	Corridor	LAM.	Laminate	STOR.	Storage
CTSK.	Countersunk	LAV.	Lavatory	STRL.	Structural
CNTR.	Counter	LKR.	Locker	SUSP.	Suspended
CTR.	Center	LT.	Light	SYS.	Symmetrical
				TRD.	Tread
DBL.	Double	MAX.	Maximum	T.B.	Towel Bar
DEPT.	Department	M.C.	Medicine	T.C.	Top of Curb
D.F.	Drinking Fountain	MECH.	Mechanical	TEL.	Telephone
DET.	Detail	MEMB.	Membrane	TER.	Terrazzo
DIA.	Diameter	MET.	Metal	T. & G.	Tongue and Groove
DIM.	Dimension	MFR.	Manufacturer	THK.	Thick
DISP.	Dispenser	MH.	Manhole	T.O.C.	Top of Concrete
DN.	Down	MIN.	Minimum	T.O.P.	Top of Panel
D.O.	Door Opening	MIR.	Mirror	T.O.R.	Top of Reveal
DR.	Door	MISC.	Miscellaneous	T.O.R.C.	Top of Deep Recess
DWR.	Drawer	M.O.	Masonry Opening	T.O.M.	Top of Mullion
DS.	Downspout	MTD.	Mounted	T.O.W.	Top of Wall
D.S.P.	Dry Standpipe	MUL.	Mullion	T.P.	Top of Pavement
DWG	Drawing			T.P.D.	Toilet Paper Dispenser
				T.V.	Television
E.	East	N.	North	T.W.	Top of Wall
EA.	Each	N.I.C.	Not In Contract	TYP.	Typical
E.J.	Expansion Joint	NO.	Number	UNF.	Unfinished
EL.	Elevation	NOM.	Nominal	U.O.N.	Unless Otherwise Noted
ELEC.	Electrical	N.T.S.	Not To Scale	UR.	Urinal
ELEV.	Elevator				
EMER.	Emergency	O.A.	Overall	VERT.	Vertical
ENCL.	Enclosure	OBS.	Obscure	VEST.	Vestibule
E.P.	Electrical Panelboard	O.C.	On Center	W.	West
EQ.	Equal	O.D.	Outside Diameter (Dim.)	W/	With
EQPT.	Equipment	OFF.	Office	W.C.	Water Closet
E.W.C.	Electric Water Cooler	OPNG.	Opening	WD.	Wood
EXST.	Existing	OPP.	Opposite	W/O	Without
EXPO.	Exposed			WPM	Waterproofing Membrane
EXP.	Expansion			WRB	Wheather/Water Resistive Barrier
EXT.	Exterior			WSCT.	Wainscot
				WT.	Weight

SYMBOLS



GENERAL PROJECT NOTES

GENERAL NOTES:

1. ALL WORK SHALL BE PERFORMED SO AS TO COMPLY WITH ALL LEGAL, INDUSTRY AND PROJECT-SPECIFIC REQUIREMENTS AND STANDARDS INCLUDING WITHOUT LIMITATION OF THE FOLLOWING:

   A. ALL APPLICABLE BUILDING CODES
   B. ALL APPLICABLE SPECIALTY CODES INCLUDING THE MOST CURRENT ISSUES AND SUPPLEMENTS
   C. THE PROJECT MANUAL AND ASSOCIATED SPECIFICATIONS
   D. THE MANUFACTURER'S REQUIREMENTS OR RECOMMENDATIONS
   E. ALL APPLICABLE LANDLORD BUILDING STANDARDS

2. IN USING THESE PLANS FOR BIDDING OR CONSTRUCTION PURPOSES, ALL CONTRACTORS ARE REQUIRED TO REVIEW AND TREAT THEM AS A WHOLE IN ORDER TO IDENTIFY ALL REQUIREMENTS THAT DIRECTLY OR INDIRECTLY AFFECT THEIR PORTION OF THE WORK, EVEN REQUIREMENTS LOCATED IN SECTIONS DESIGNATED AS APPLICABLE TO OTHER TRADES OR IN DOCUMENTS PROVIDED BY OTHER MEMBERS OF THE PROJECT DESIGN TEAM. UNLESS EXPRESSLY PROVIDED OTHERWISE, THE INTENT IS TO INCLUDE ALL LABOR, MATERIALS, PRODUCTS AND SERVICES NECESSARY OR APPROPRIATE FOR THE COMPLETED PROJECT AS CALLED FOR OR REASONABLY IMPLIED FROM THE PLANS AND SPECIFICATIONS PROVIDED BY THE PROJECT'S DESIGN TEAM. IN CASE OF CONFLICTS OR OMISSIONS, THE AFFECTED CONTRACTOR IS REQUIRED TO EITHER OBTAIN DIRECTION FROM AN APPROPRIATE REPRESENTATIVE OF THE OWNER, OR OTHERWISE TO APPLY THE MORE STRINGENT OR COSTLY STANDARD.

3. IN INTERPRETING THESE PLANS, THE FOLLOWING GENERAL RULES APPLY:

   A. WRITTEN DIMENSIONS SHALL TAKE PRECEDENCE OVER SCALED DRAWINGS
   B. SPECIFIC NOTES AND DETAILS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS
   C. WORK NOT PARTICULARLY SHOWN OR SPECIFIED SHALL BE THE SAME AS SIMILAR PARTS THAT ARE SHOWN AND SPECIFIED
   D. WORK SHOWN AS "NIC" IS FOR REFERENCE ONLY AND THE RESPONSIBILITY OF THE CONTRACTOR ONLY TO THE EXTENT THAT THIS WORK MAY REQUIRE SOME REASONABLE PROTECTION OR COORDINATION EFFORTS.

4. THESE PLANS AND SPECIFICATIONS ARE INTENDED TO REPRESENT ONLY THE FINISHED CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR ALL CONSTRUCTION AND DEMOLITION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES INCLUDING ANY AND ALL SAFETY PRECAUTIONS AND PROGRAMS, AND SHALL INDEMNIFY TO THE FULLEST EXTENT ALLOWED BY LAW THE OWNER AND THE PROJECT DESIGN TEAM FROM AND AGAINST ANY AND ALL RELATED CLAIMS AND LIABILITY.

5. THESE PLANS AND SPECIFICATIONS ARE INTENDED TO SET FORTH THE REQUIREMENTS FOR CONSTRUCTION IN ONLY AN INDUSTRY-STANDARD LEVEL OF QUALITY AND DETAIL, AND THEY ARE INTENDED TO BE SUPPLEMENTED BY APPROPRIATE REQUESTS FOR INFORMATION (RFIs). ERRORS AND OMISSIONS ARE TO BE EXPECTED AND ANTICIPATED, AND ALL CONTRACTORS ARE REQUIRED TO CAREFULLY REVIEW THESE PLANS FOR ERRORS AND OMISSIONS AND TO BRING THESE ERRORS AND OMISSIONS TO THE ATTENTION OF AN APPROPRIATE OWNER REPRESENTATIVE IN A TIMELY MANNER; AND ANY CONTRACTOR WHO FAILS TO DO SO BEFORE BIDDING OR OTHERWISE PROCEEDING ASSUMES THE RISK OF ANY CONSEQUENCES.

6. SCALED DIMENSIONS SHOULD BE CONSIDERED ONLY APPROXIMATE; AND IN ANY EVENT ALL CONTRACTORS PROCEED AT THEIR OWN RISK IF THEY FAIL TO VERIFY AND FIELD MEASURE DIMENSIONS BEFORE PROCEEDING WITH ANY AFFECTED PROCUREMENT, FABRICATION OR CONSTRUCTION.

7. PLANS ARE TO BE CONSIDERED DIAGRAMMATIC IN NATURE AND INTENDED ONLY TO DEMONSTRATE THE RELATIONSHIP AMONG COMPONENT PARTS, AND NOT TO DEPICT SPECIFIC LOCATIONS..

8. CONTRACTOR RFI's ARE INTENDED TO OBTAIN INFORMATION NOT AVAILABLE FROM THE PLANS AND SPECIFICATIONS. RFI's WILL NOT BE PROCESSED THAT CAN BE ANSWERED BY A REVIEW OF THESE DOCUMENTS, THAT REQUEST DIMENSIONS THAT CAN BE OBTAINED FROM THE PLANS BY MATHEMATICAL CALCULATION THAT ARE IN EFFECT A SUBSTITUTION SUBMITTAL, OR THAT SEEK DIRECTION CONCERNING CONSTRUCTION MEANS AND METHODS OR SAFETY PRECAUTIONS. WHERE APPROPRIATE, RFI's SHOULD BE SPECIFIC AS TO WHICH PORTION OF THE PLANS AND SPECIFICATIONS NEEDS CLARIFICATION, AND WHAT INFORMATION IS REQUIRED.

9. NO DEVIATIONS OR OMISSIONS FROM THE REQUIREMENTS OF THE PLANS AND SPECIFICATIONS PROVIDED BY THE PROJECT'S DESIGN TEAM ARE ALLOWED WITHOUT THE EXPRESSED AUTHORIZATION OF AN APPROPRIATE OWNER REPRESENTATIVE, AND THE RESPONSIBLE CONTRACTOR WILL INDEMNIFY AND HOLD HARMLESS THE OWNER AND THE PROJECT DESIGN TEAM FROM AND AGAINST THE CONSEQUENCES OF ANY UNAUTHORIZED DEVIATIONS OR OMISSIONS. SUBSTITUTION SUBMITTALS WILL BE CONSIDERED ONLY IF THE PROPOSED SUBSTITUTION IMPROVES THE QUALITY OF THE PROJECT TO THE OWNER; AND IN NO EVENT WILL THE OWNER BE REQUIRED TO AUTHORIZE A SUBSTITUTION THAT IS NOT EQUAL IN QUALITY TO WHAT IS SPECIFIED.

10. DESIGN/BUILD CONTRACTOR SUBMITTALS WILL BE REVIEWED BY THE PROJECT DESIGN TEAM, IF AT ALL, ONLY FOR CONFORMANCE WITH THE AESTHETIC ASPECTS AND MAJOR SPACE LIMITATIONS OF THE PROJECT; AND EACH DESIGN/BUILD CONTRACTOR IS RESPONSIBLE FOR THE FOLLOWING:

    A. PREPARING ALL THE ENGINEERING AND OTHER DRAWINGS AND SPECIFICATIONS FOR THE COMPONENTS OF ITS DESIGN/BUILD UNDERTAKING.
    B. COMPLYING WITH THE PROJECT'S REQUIREMENTS AND SPACE LIMITATIONS.
    C. COORDINATION AND INTERFACING WITH OTHER TRADES AND CONSULTANTS.
    D. OBTAINING ANY REQUIRED OR APPROPRIATE APPROVALS FROM AUTHORITIES HAVING JURISDICTION OVER THE PROJECT.
    E. HAVING THEIR DESIGN CONSULTANTS SERVE AS THE PROFESSIONAL OF RECORD FOR THE PORTIONS OF WORK WHICH THEY DESIGN.

11. AT THE CONCLUSION OF THE CONSTRUCTION, EACH PRIME CONTRACTOR SHALL PROVIDE SUCH WRITTEN CERTIFICATION THAT THE CONSTRUCTION HAS BEEN PERFORMED IN COMPLIANCE WITH THE PROJECT'S APPROVED PLANS AND SPECIFICATIONS AS THE BUILDING OFFICIAL WITH JURISDICTION OVER THE PROJECT MAY REQUIRE, OR AS THE OWNER MAY REASONABLY REQUEST.

12. VERSIONS OF THESE PLANS PROVIDED IN ANY ELECTRONIC FORM ARE SUBJECT TO THE SAME PROVISION AS THE OTHER INSTRUMENTS OF SERVICE PREPARED BY OR ON BEHALF OF THE PROJECT DESIGN TEAM, INCLUDING WITHOUT LIMITATION THEIR COMMON LAW, STATUTORY OR OTHER RESERVED RIGHTS, INCLUDING COPYRIGHTS. A RECIPIENT IS GRANTED AT MOST A TRANSFERABLE NONEXCLUSIVE LICENSE TO REUSE THE PLANS SOLELY FOR PROJECT PURPOSES; AND NO RECIPIENT IS AUTHORIZED TO USE OR TO ALLOW THE USE OF ALL OR ANY PORTION OF THESE PLANS FOR ANY OTHER PURPOSE, AND ANY OTHER USE FOR ANY OTHER PURPOSE COULD CONSTITUTE ACTIONABLE PLAGIARISM. ANY ELECTRONIC DOCUMENTS WILL BE PROVIDED IN THE RESPONSIBLE DESIGN PROFESSIONAL'S STANDARD FORMATS AND CONVENTIONS AND WITH NO GUARANTEE OF THE ABSENCE OF VIRUSES OR OTHER HARMFUL MATERIAL, OR OF COMPATIBILITY WITH ANY RECIPIENT'S SOFTWARE OR HARDWARE SO THAT ANY USE WITH OR CONVERSION TO THE OTHER FORMS OR CONVENTIONS, OR THE USE WITH ANY PARTICULAR SOFTWARE OR HARDWARE, IS AT THE RECIPIENT'S SOLE RISK.

JOB SITE NOTES:

1. WHERE EXISTING TENANTS/BUSINESSES ARE ADJACENT TO THE JOB SITE/TENANT, THE CONTRACTOR SHALL MINIMIZE CONSTRUCTION NOISE – EXTREMELY NOISY CONSTRUCTION SHALL OCCUR AT NON-TYPICAL BUSINESS HOURS. CONTRACTOR SHOULD NOTIFY BUILDING REPRESENTATIVE OF SPECIAL CIRCUMSTANCES IN ADVANCE PRIOR TO WORK.
2. THE CONTRACTOR AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AND SURROUNDING AREA FREE FROM DUST AND DEBRIS. THE WORK SHALL BE IN CONFORMANCE WITH THE AIR AND WATER POLLUTION CONTROL STANDARDS AND REGULATIONS OF THE STATE DEPARTMENT OF HEALTH.
3. CONSTRUCTION DEBRIS AND WASTES SHALL BE DEPOSITED AT AN APPROPRIATE SITE. THE CONTRACTOR SHALL INFORM THE BUILDING REPRESENTATIVE OF THE LOCATION OF DISPOSAL SITES.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR THE GENERAL CLEANING OF THE JOB AFTER ITS COMPLETION. WHERE APPLICABLE, CLEANING SHALL INCLUDE, BUT NOT BE LIMITED TO, THE EXTERIOR AND THE INTERIOR OF THE BUILDING, THE PATH OF TRAVEL TO THE JOB SITE, PARKING LOTS, ELEVATORS, LOBBIES, AND CORRIDOR CARPETS.
5. THE CONTRACTOR SHALL PROVIDE PEDESTRIAN PROTECTION, WHERE REQUIRED PER STATE AND LOCAL CODES.
6. IF TRENCHES OR EXCAVATIONS 5'-0" OR MORE IN DEPTH ARE REQUIRED, OBTAIN ISSUANCE OF A BUILDING OR GRADING PERMIT.
7. NO HAZARDOUS MATERIALS SHALL BE USED OR STORED WITHIN THE BUILDING WHICH DOES NOT COMPLY WITH THE LOCAL FIRE AUTHORITY AND STATE & COUNTY REQUIREMENTS.
8. CONTRACTOR SHALL BE RESPONSIBLE FOR BLOCKING OFF SUPPLY AND RETURN AIR GRILLES, DIFFUSERS & DUCTS TO KEEP DUST FROM ENTERING INTO BUILDING AIR DISTRIBUTION SYSTEMS.
9. THE CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO ENSURE THE SAFETY OF THE OCCUPANTS AND WORKERS AT ALL TIMES.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE COMPLETE SECURITY OF THE BUILDING AND SITE WHILE JOB IS IN PROGRESS AND UNTIL THE JOB IS COMPLETED.

DRAWING NOTES:

1. UNLESS OTHERWISE NOTED OR INDICATED, ALL DIMENSIONS ON THESE DOCUMENTS SHALL BE TO FACE OF CURB, FACE OF CONCRETE OR MASONRY, FACE OF FINISH OR CENTERLINE OF GRIDS.
2. ALL VERTICAL DIMENSIONS SHOWN ARE FROM FLOOR SLAB, U.O.N.
3. DIMENSIONS SHOWN IN FIGURES TAKE PRECEDENCE OVER DIMENSIONS SCALED FROM DRAWINGS. LARGE SCALE DRAWINGS AND DETAILS TAKE PRECEDENCE OVER SMALLER SCALE DRAWINGS.
4. THE TERM "ALIGN", AS USED IN THESE DOCUMENTS, SHALL MEAN TO ACCURATELY LOCATE FINISHES IN THE SAME PLANE.
5. "TYPICAL" AS USED IN THESE DOCUMENTS SHALL MEAN THAT THE CONDITION IS THE SAME OR REPRESENTATIVE FOR ALL SIMILAR CONDITIONS THROUGHOUT, U.O.N.
6. DETAILS ARE USUALLY KEYED AND NOTED "TYPICAL" ONLY ONCE, WHEN THEY FIRST OCCUR AND ARE REPRESENTATIVE OF ALL SIMILAR CONDITIONS THROUGHOUT, U.O.N.
7. COLUMN CENTERLINES (GRID LINES) ARE SHOWN FOR DIMENSIONING PURPOSES.
8. WHERE CONSTRUCTION DETAILS ARE NOT SHOWN OR NOTED FOR ANY PART OF THE WORK, THE DETAILS SHALL BE THE SAME AS FOR OTHER SIMILAR WORK IN THE SAME BUILDING.

INTERIOR / EXTERIOR NOTES:

1. WHERE ELECTRICAL, MECHANICAL AND/OR PLUMBING ITEMS, SUCH AS LIGHTS, DUCTS, PIPING, DOWNSPOUTS, ETC. ARE TO PENETRATE ANY BUILDING FOOTINGS, SLABS, FLOORS, STRUCTURAL FRAMING, WALL PARTITIONS, CEILINGS, ETC., IT IS REQUIRED THAT AN APPROPRIATELY SIZED OPENING OR CLEARANCE BE FURNISHED. CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ALL ITEMS WITH THE CONSTRUCTION DOCUMENTS PRIOR TO THE INSTALLATION OF STRUCTURAL, MECHANICAL, PLUMBING AND ELECTRICAL WORK. ANY CONFLICT OR DISCREPANCY WITHIN CONSTRUCTION DOCUMENTS SHALL BE BROUGHT TO THE ARCHITECT'S ATTENTION FOR CLARIFICATION.
2. CONTRACTOR, ALONG WITH MECHANICAL CONTRACTOR, SHALL PROVIDE AND LOCATE ACCESS DOORS/PANELS IN WALL & CEILING CONSTRUCTION AS REQUIRED TO PROVIDE ACCESS TO MECHANICAL, FIRE SPRINKLER, PLUMBING & ELECTRICAL WORK. CONTRACTOR SHALL SUBMIT A PLAN OF ALL PROPOSED ACCESS PANEL LOCATIONS TO ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION.
3. ALL PENETRATIONS AT RATED CONSTRUCTION SHALL BE PROTECTED TO MAINTAIN RATING.
4. WHERE OCCURS, CONTRACTOR SHALL PATCH ANY EXISTING WALLS AND/OR CEILINGS AS NEEDED TO REFURBISH THE LEASE SPACE AND REPAIR ALL DAMAGES CAUSED BY CONTRACTOR.
5. INTERIOR WALLS AND CEILINGS SHALL BE INSTALLED IN ACCORDANCE TO STATE & LOCAL CODES, INCLUDING REQUIREMENTS FOR FLAME SPREAD AND SMOKE DENSITY RATINGS FOR FINISH MATERIALS.
6. WHEN USED, ALL NOISE BARRIER BATTS (SOUND INSULATION) AND INSULATION BATTS SHALL BE NON-COMBUSTIBLE AND SHALL NOT CONTAIN OR UTILIZE OZONE DEPLETING COMPOUNDS.
7. ALL NEW CONSTRUCTION MATERIALS SHALL BE 100% ASBESTOS-FREE.

US HEALTHWORKS

333 HEGENBERGER, SUITE 100
OAKLAND, CALIFORNIA 94621

(For Tenant Improvement Permit Only)

PROJECT DATA

BUILDING DEPARTMENT: CITY OF OAKLAND, CALIFORNIA

BUILDING CODES: 2016 CALIFORNIA BUILDING CODE
2016 CALIFORNIA ELECTRICAL CODE
2016 CALIFORNIA MECHANICAL CODE
2016 CALIFORNIA PLUMBING CODE
2016 CALIFORNIA FIRE CODE
2016 CALIFORNIA GREEN BUILDING STANDARDS CODE
TITLE 24 (ADA) CALIFORNIA ADMINISTRATIVE CODE

OCCUPANCY CLASSIFICATION: PER CBC CHAPTER 3 – B

OCCUPANCY SEPARATION: PER CBC TABLE 508.4 – N/A

TYPE OF CONSTRUCTION: PER CBC CHAPTER 6 (SECTION 602) – I-A

SPRINKLERED: NO

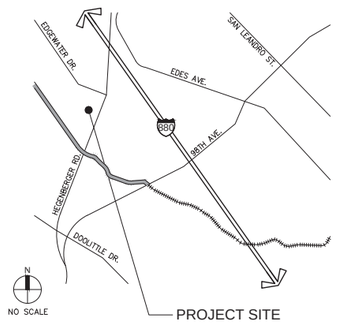
NUMBER OF STORIES: 8

PROJECT SCOPE: THE SCOPE OF THIS PROJECT IS SECOND GENERATION TENANT IMPROVEMENT. NEW PARTITIONS, NEW CEILING, NEW LIGHTING, NEW POWER, NEW RESTROOMS AND NEW FINISHES.

TENANT OCCUPANCY: OFFICE (B) 7,195 S.F.

SHEET INDEX

VICINITY MAP



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DEFERRED SUBMITTALS:

DEFERRED SUBMITTAL ITEMS SHALL BE SUBMITTED TO THE ARCHITECT AND ENGINEERS OF RECORD WHO SHALL REVIEW AND PROVIDE NOTATION INDICATING DOCUMENTS HAVE BEEN REVIEWED AND FOUND TO BE IN GENERAL CONFORMANCE WITH THE BUILDING DESIGN. SUBMITTAL MATERIALS SHALL INCLUDE PLANS, DETAILS AND CALCULATIONS PREPARED AND SIGNED BY A STATE REGISTERED ENGINEER.
CONTRACTOR SHALL SUBMIT ARCHITECT AND ENGINEER REVIEWED SUBMITTAL MATERIALS TO THE BUILDING OFFICIAL FOR REVIEW AND PERMIT APPROVAL. DEFERRED SUBMITTAL ITEMS SHALL NOT BE INSTALLED PRIOR TO OBTAINING THE BUILDING OFFICIAL'S APPROVAL OF THE SUBMITTAL.

1- FIRE ALARM SYSTEM.

WARE MALCOMB
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TITLE SHEET

REMARKS	DATE
DD SET ISSUED FOR CLIENT REVIEW	11/7/17
ISSUE FOR BID	12/4/2017

PA / PM:	S. HOOSHAMND
DRAWN BY:	J.A.U.
JOB NO.:	SNR17-6159-00

SHEET
A0.1

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Mon, 04 Dec 2017

FINISH NOTES

1. NO FINISH SUBSTITUTIONS MAY BE MADE UNLESS APPROVED BY ARCHITECT.
2. CONTRACTOR MUST NOTIFY THE ARCHITECT OF ANY DISCREPANCY IN PLANS. FINISH ITEMS CLEARLY SHOWN IN PLANS, BUT OMITTED FROM SCHEDULES OR LEGENDS MUST STILL BE PROVIDED AND INSTALLED BY CONTRACTOR. CONTRACTOR TO VERIFY OMITTED FINISHED WITH ARCHITECT PRIOR TO ORDERING PRODUCTS.
3. INSTALL MATERIALS ACCORDING TO MANUFACTURER'S SUGGESTED INSTALLATION AND PREPARATION/MAINTENANCE SPECIFICATIONS OR BETTER, UNLESS OTHERWISE APPROVED OR NOTED.
4. APPLICATION OF CONTROLLED INTERIOR FINISHES SHALL BE IN CONFORMANCE WITH STATE & LOCAL CODES.
5. DECORATIVE MATERIALS SHALL BE MAINTAINED IN A FLAME-RETARDANT CONDITION.
6. SUBMIT THE FOLLOWING SAMPLES FOR ARCHITECT'S APPROVAL:
   A. THREE (3) 12" X 12" SAMPLES FOR ALL PAINT AND STAIN BRUSHOUTS, VINYL AND FABRIC FINISHES AND COLORS APPLIED TO A SUBSTRATE WHICH IS REPRESENTATIVE OF THE SURFACE TO BE FINISHED. SUBMIT PAINT SAMPLES FROM THE PAINT LOT OR LOTS INTENDED FOR APPLICATION.
   B. ONE (1) 24" X 24" MOCK-UP WITH SAMPLE SEAM (CENTERED) OF ALL FABRIC AND VINYL FINISHES AND COLOR.
   C. THREE (3) 12" X 12" SAMPLES OF ALL FLOOR COVERING.
   D. SUBMIT ACTUAL CUTTINGS OF EACH PRODUCT FOR COLOR/QUALITY CONTROL.
6. WHERE MATERIALS ARE NOT RETURNABLE, SUBMIT SAMPLES TO ARCHITECT BEFORE PLACING FULL ORDERS.
7. SUBMIT SEAMING PLAN FOR ALL FLOOR FINISHES TO ARCHITECT FOR APPROVAL PRIOR TO ORDER.
8. NOTIFY ARCHITECT IMMEDIATELY OF ITEMS WITH LONG LEAD TIMES.
9. ALL PAINT FINISH OF METAL PARTS OF DOORS, HANDRAILS, PERIMETER ENCLOSURES, ETC., SHALL BE SEMI-GLOSS, U.O.N.
10. WHERE PAINT COLORS CHANGE, CORNERS ARE TO BE CUT-IN FREE OF OVERLAPPING.
11. PRIOR TO THE INSTALLATION OF WALL COVERINGS, SURFACES SHALL BE PROPERLY PREPARED WITH SEALER PER MANUFACTURER'S RECOMMENDATIONS.
12. CONTRACTOR TO VERIFY CONDITION AND LEVEL OF FLOOR SO AS TO RECEIVE NEW FINISHES WITHOUT BOWING AT FLOOR OR WALL BASE. CONTRACTOR IS RESPONSIBLE FOR ALL FLOOR PREPARATION.
13. ALL CARPETING SHALL BE INSTALLED WITH GLUE DOWN METHOD, U.O.N.
14. WHERE FLOOR-MOUNTED OUTLETS ARE REQUIRED ON CARPETED AREA, CUT CARPET IN AN "X" OVER FLOOR HOLE AND INSTALL CARPET OVER TOP. DO NOT TRIM CARPET.
15. ALL V.C.T. TO BE INSTALLED WITH FULL TILE FROM VINYL THRESHOLD STRIP AND FULL TILE FROM WALL ADJACENT TO DOOR SWING, U.O.N.
16. PROVIDE AND INSTALL SPECIFIED BASE FOR ALL AREAS TO RECEIVE FLOORING.
17. CONTRACTOR SHALL PROVIDE PRE-FORMED RUBBER BASE CORNERS. DO NOT CUT OR BEND STRAIGHT BASE TO MAKE CORNERS.
18. MILLWORK LOWER CABINETS ARE NOT TO RECEIVE WALL BASE UNLESS INDICATED ON FINISH PLANS.
19. FLOOR FINISHES TO CONTINUE UNDERNEATH "OPEN FLOOR" AREAS OF MILLWORK, INCLUDING SINK AREA AND AT ALL UNDER-COUNTER EQUIPMENT AREAS WHICH ARE OPEN TO THE FLOOR.
20. FLOORS SHALL BE SLOPED TO FLOOR DRAINS. COORDINATE WITH PLUMBING AND STRUCTURAL DRAWINGS. IN RATED FLOOR CONDITIONS, CONFIRM REMAINING FLOOR THICKNESS STILL CONFORMS TO MINIMUM RATING REQUIREMENT.
21. CONTRACTOR TO RUN CALCIUM CHLORIDE TEST ON ALL EXISTING OR NEW CONCRETE SLABS PRIOR TO INSTALLING ANY FLOORING AND COMPARE RESULTS WITH FLOORING MANUFACTURE'S RECOMMENDED MAXIMUM CONTENT FOR WARRANTIES AND ADHESIVE PRODUCTS.
22. PRIOR TO NEW FLOORING INSTALLATION REMOVE EXISTING FLOOR FINISHES. PATCH AND REPAIR SUB-FLOOR AS REQUIRED. PREPARE FLOORS AND TRANSITIONS AS REQUIRED FOR SMOOTH AND LEVEL FINISH PER APPLICABLE BUILDING CODES.
23. ALL FLOORING TRANSITIONS AMONG ALL THE DIFFERING FLOORING MATERIAL SPECIFICATION TYPES ARE TO BE A FLUSH TRANSITION.
24. FEATHER SUB-FLOOR UP FOR A) TILE FLOORING TO CARPET AND B) VINYL FLOORING TO CARPET, FOR FLUSH INSTALLATION.
25. INSTALL METAL TRANSITION STRIPS WHERE TILE MEETS ALL OTHER FLOORING TYPES. PROVIDE LOW PROFILE TRANSITION STRIP WHERE ALL OTHER DIFFERENT FLOOR TYPES MEET, VERIFY COLOR.
26. CONTRACTOR TO HEAT/CHEMICAL SEAM VINYL FLOORING AS PER MANUFACTURER'S SPECIFICATIONS AND SEAL ALL VINYL FLOORS PER MANUFACTURER'S MAINTENANCE SPECIFICATIONS.
27. FLOOR COVERING INSTALLER TO FOLLOW MANUFACTURER'S SPECIFIED CARPET INSTALLATION INSTRUCTIONS. USING ADHESIVES AND INSTALLATION METHODS REQUIRED INSTRUCTIONS TO MAINTAIN PRODUCT'S WARRANTY. CONTACT CARPET SALES REPRESENTATIVE WITH QUESTIONS PRIOR TO PROCEEDING.
28. FLOOR COVERING INSTALLER TO FOLLOW MANUFACTURER'S SPECIFIED CONTOURED RUBBER BASE INSTALLATION INSTRUCTIONS USING ADHESIVES AND INSTALLATION METHODS REQUIRED TO MAINTAIN PRODUCT'S WARRANTY.
29. FLOOR COVERING INSTALLER REQUIRED TO PROVIDE MINIMAL SEAMS/JOINTS AT ALL LOCATIONS FOR FLOOR AND WALL BASE MATERIAL INSTALLATION. PROVIDE LOW VOC, BUT HEAVY DUTY ADHESIVES TO ENDURE HEAVY FOOT TRAFFIC, CARTS AND TO MAINTAIN PRODUCT'S WARRANTY.
30. PRIOR TO PAINTING, WALLS MUST BE PATCHED AND REPAIRED, CLEAN AND DRY AND PROPERLY MEMBERED AND ALIGNED SO, AS TO LEAVE NO EVIDENCE OF PATCHING OR REPAIRS. ALL SCREW AND NAIL HEADS MUST BE SET AND SPACKLED. ALL JOINTS MUST BE TAPED AND COVERED WITH JOINT COMPOUND. JOINTS THAT ARE FILLED TO BE SANDED SMOOTH AND DUST REMOVED PRIOR TO RECEIVING NEW PAINT FINISH APPLICATION.
31. PRIOR TO PAINTING OVER WALL COVERING, SECURELY GLUE DOWN ANY LIFTING OR BUCKLING AND HIDE ALL SEAMING OR BUMPS.
32. WALLS TO HAVE AT LEAST ONE COAT OF COLORED PRIMER AND TWO COATS OF SPECIFIED PAINT FINISH TYPE. PAINT TO BE A LOW VOC UNLESS U.O.N. HIGH TRAFFIC/WEAR ABILITY WITH GOOD SCRUB AND CLEANING ABILITY. VERIFY ALL WITH TENANT OR OWNER PRIOR TO PURCHASING PAINT.
33. PAINT ALL SPEAKER COVERS AND HVAC GRILLS IN GYPSUM BOARD WALLS AND CEILINGS TO MATCH ADJACENT PAINT COLOR AS SPECIFIED.
34. PRIOR TO INSTALLING WALL TILES AND WALL BASE TILE, WALLS MUST BE PATCHED AND REPAIRED, CLEAN AND DRY AND BE PROPERLY MEMBERED AND ALIGNED, SO, AS TO LEAVE NO EVIDENCE OF PATCHING OR REPAIRS. ALL SCREW AND NAIL HEADS MUST BE SET AND SPACKLED. ALL JOINTS MUST BE TAPED AND COVERED WITH JOINT COMPOUND. JOINTS THAT ARE FILLED ARE TO BE SANDED SMOOTH AND BUMP FREE WITH DUST REMOVED PRIOR TO RECEIVING MORTAR BED/BOND COAT AND WALL TILES.
35. ALL WALL TILES ARE TO HAVE A MORTAR BED/BOND COAT THICKNESS TO ACCOMMODATE THE VARYING THICKNESSES OF ALL MATERIAL TYPES OF TILE SPECIFIED FOR WALL INSTALLATION WITH A FLUSH FRONT FACE.
36. ALL TRANSLUCENT GLASS TILE SPECIFIED ARE TO RECEIVE UNIFORM COVERAGE BY BACK BUTTERING TILES AND TROWEL RIDGES FLATTENED PRIOR TO SETTING TRANSLUCENT GLASS TILES.
37. FLOORS OF TOILETS, BATHING AND SHOWER ROOMS SHALL HAVE A SMOOTH, HARD, NONABSORBENT SURFACE. THE INTERSECTION OF SUCH FLOORS WITH WALLS SHALL HAVE A SMOOTH, HARD, NONABSORBENT VERTICAL BASE AS SPECIFIED IN FINISH PLANS OR RESTROOM ELEVATIONS. BASE SHALL EXTEND UPWARD ONTO THE WALLS NOT LESS THAN 4 INCHES.
38. WALLS AND PARTITIONS WITHIN 2 FEET OF SERVICE SINKS, URINALS AND WATER CLOSETS SHALL HAVE A SMOOTH, HARD, NONABSORBENT SURFACE TO A HEIGHT OF NOT LESS THAN 4 FEET ABOVE THE FLOOR.
39. CONTROL JOINTS AT GYPSUM BOARD ASSEMBLIES: THE MAXIMUM RECOMMENDED CONTROL JOINT SPACING FOR WALLS AND CEILINGS WITHOUT PERIMETER RELIEF IS 30 LINEAR FEET OR 900 SQUARE FEET OF SURFACE AREA, WITH PERIMETER RELIEF IS 50 LINEAR FEET OR 2,500 SQUARE FEET OF SURFACE AREA. EXTERIOR JOINT SPACING IS RECOMMENDED AT 30 LINEAR FEET OR 900 SQUARE FEET OF SURFACE AREA.
40. CONSTRUCTION JOINTS (EXPANSION JOINTS) AT GYPSUM BOARD ASSEMBLIES: CONSTRUCTION JOINTS ARE REQUIRED AT CONTINUOUS GYPSUM BOARD SURFACES WITH DISSIMILAR WALL STRUCTURE.

CEILING NOTES

1. SEE ELECTRICAL ENGINEERING DRAWINGS FOR SPECIFICATIONS OF NEW BUILDING STANDARD LIGHT FIXTURES, SWITCHES, EXIT SIGNS, ETC.
2. ALL REPLACEMENT FLUORESCENT LAMPS TO MATCH BUILDING STANDARD – SAME COLOR AND MANUFACTURER.
3. FIELD VERIFY EXISTING CEILING GRID LOCATION AND NOTIFY ARCHITECT OF ANY DISCREPANCIES ON PLANS.
4. WHERE DISCREPANCIES IN LOCATION OF LIGHT FIXTURES, AIR DIFFUSERS, GRILLES, ETC. OCCUR ON THE ELECTRICAL ENGINEERING PLANS, THE ARCHITECTURAL PLANS SHALL GOVERN. NOTIFY ARCHITECT OF ANY DISCREPANCIES FOR CLARIFICATIONS.
5. FIELD VERIFY ALL CLEARANCES OF DUCTS, PIPES, SPRINKLERS, ETC., AND NOTIFY ARCHITECT OF ANY CONFLICTS PRIOR TO INSTALLATION OF LIGHTS, ETC.
6. PLACEMENT OF LIGHT FIXTURES IN AREAS WHERE MAIN DUCTS MAY CAUSE INTERFERENCE MUST BE APPROVED BY ARCHITECT PRIOR TO INSTALLATION.
7. CONDUITS ABOVE CEILING MUST BE A MINIMUM OF 12" ABOVE THE CEILING GRID.
8. NO COMBUSTIBLE MATERIALS SHALL BE USED IN THE PLENUM SPACE, INCLUDING ALUMINUM FLEX, ALUMINUM CONDUIT, AND POT METAL CONNECTORS.
9. ALL JUNCTION BOXES AND MECHANICAL EQUIPMENT REQUIRING ACCESS FOR SERVICE SHALL BE LOCATED OVER ACOUSTICAL CEILINGS. NO ACCESS HATCHES SHALL BE INSTALLED IN GYPSUM BOARD CEILINGS WITHOUT PRIOR APPROVAL BY ARCHITECT. (NO EXCEPTION)
10. ALL SPRINKLER HEADS AT HARD-LID CEILINGS ARE TO BE FULLY RECESSED AND CONCEALED. HEADS ARE TO BE CENTERED BETWEEN LIGHTS IN A UNIFORM ARCHITECTURAL PATTERN. G.C. TO PROVIDE A SUBMITTAL WITH SPRINKLER HEAD LOCATIONS FOR ARCHITECT'S APPROVAL PRIOR TO INSTALLATION.
11. ALL GYPSUM BOARD CEILINGS ARE TO BE INSTALLED WITH LINEAR DIFFUSERS. G.C. TO PROVIDE A SUBMITTAL WITH ALL LINEAR DIFFUSER LOCATIONS PRIOR TO INSTALLATION.
12. LOCATE RECESSED DOWN LIGHTS, WALL WASHERS, SMOKE DETECTORS, EXIT SIGNS, SPEAKERS, FIRE SPRINKLERS, ETC. IN CENTER OF 24"x24" CEILING TILES OR IN CENTER OF 24"x24" PORTION OF 24"x48" CEILING TILES, UNLESS OTHERWISE NOTED.
13. PROVIDE SWITCHES AND LIGHT SENSORS FOR OPEN AREAS AND PRIVATE OFFICES. ACTUAL LOCATION OF ALL SWITCHES TO BE DETERMINED BY ELECTRICAL ENGINEER.
14. WHERE EXIT SIGNS ARE REQUIRED PER STATE & LOCAL CODES, THEY SHALL BE ILLUMINATED PER SAID CODES AND THE NEC. LOCATIONS SHALL BE COORDINATED WITH THE ARCHITECT.
15. PROVIDE BACK-UP POWER FOR EXIT SIGNS PER STATE & LOCAL CODES.
16. THE MEANS OF EGRESS, INCLUDING THE EXIT DISCHARGE, SHALL BE ILLUMINATED TO A LEVEL OF NOT LESS THAN ONE FOOT CANDLE AT THE WALKING SURFACE AT ALL TIMES THE BUILDING SPACE SERVED BY THE MEANS OF EGRESS IS OCCUPIED.
17. EMERGENCY LIGHTING SHALL BE (2) SEPARATE SOURCES OF POWER AND SHALL COMPLY WITH THE NEC.
18. PROVIDE FIRE DAMPERS AT ALL SUPPLY AND RETURN AIR OUTLETS, INLETS OR DUCTS PENETRATING FIRE RATED ASSEMBLIES, ENCLOSURES, WALLS, FLOORS OR SURFACES, AND AS REQUIRED BY THE FIRE DEPARTMENT.
19. CONTRACTOR SHALL PROVIDE EMERGENCY LIGHTING, STROBE LIGHTS, AUDIO-VISUAL ALARMS AND OCCUPANCY SENSORS TO MEET ALL APPLICABLE CODES.
20. CONTRACTOR SHALL PROVIDE LAMPS WITH TYPE IC RATED HOUSING WHERE FIXTURES COME IN DIRECT CONTACT WITH INSULATION.
21. EXIT SIGNS SHALL BE INTERNALLY OR EXTERNALLY ILLUMINATED AT ALL TIMES AND SHALL BE CONNECTED TO AN EMERGENCY POWER SYSTEM (BATTERIES, UNIT EQUIPMENT OR AN ON-SITE GENERATOR) THAT WILL AUTOMATICALLY ILLUMINATE THE EXIT SIGNS FOR A DURATION OF NOT LESS THAN 90 MINUETS.

MILLWORK NOTES

1. CONTRACTOR MUST NOTIFY ARCHITECT / DESIGNER OF ANY DISCREPANCY IN PLANS. FINISH ITEMS CLEARLY SHOWN IN PLANS, BUT OMITTED FROM SCHEDULES OR LEGENDS MUST STILL BE PROVIDED AND INSTALLED BY CONTRACTOR. CONTRACTOR TO VERIFY OMITTED FINISHES WITH ARCHITECT OR DESIGNER PRIOR TO ORDERING PRODUCTS.
2. SHOP DRAWINGS MUST BE PROVIDED FOR APPROVAL PRIOR TO FABRICATION TO THE ARCHITECT. CABINETMAKER SHALL USE ON SITE FIELD FRAMING DIMENSIONS FOR ALL SHOP DRAWINGS AND FABRICATIONS. ANY SUBSTITUTIONS TO THE FOLLOWING SPECIFICATIONS MUST BE APPROVED BY THE ARCHITECT PRIOR TO FABRICATION.
3. CABINET MAKER TO COORDINATE & VERIFY WITH CONTRACTOR FINAL LOCATION FOR CANTILEVERED COUNTERS FOR IN-WALL SUPPORT BRACKETS, PRIOR TO GYPSUM BOARD FINISHING OF WALLS. ALL FINAL INSTALLATION HEIGHTS FOR IN-WALL SUPPORT BRACKETS MUST MEET ALL APPLICABLE ACCESSIBILITY CODES AND STANDARDS WITH COUNTER TOP MATERIAL THICKNESS INCLUDED.
4. MATERIAL COLORS NOT LISTED SHALL BE REQUESTED FROM ARCHITECT/INTERIOR DESIGNER ON SHOP DRAWING SUBMITTALS OR BY LETTER.
5. ALL UPPERS TO BE LAMINATED TO MATCH BASE CABINETS. BOTH UPPERS & LOWER CABINETS IN WET AREAS TO HAVE MATCHING PVC EDGE, ALL OTHERS TO HAVE PLASTIC LAMINATE EDGE BANDING U.O.N.
6. ALL CABINETS AND DOORS SHALL BE CONSTRUCTED FROM 3/4" THICK MATERIAL, UNLESS APPROVED PRIOR TO EACH JOB.
7. ALL BASE CABINET ARE NOT TO RECEIVE WALL BASE UNLESS INDICATED ON FINISH PLANS OR ELEVATIONS.
8. ALL INTERIORS OF CLOSED CABINETS TO BE WHITE MELAMINE/POLYESTER OR APPROVED EQUAL, UNLESS OTHERWISE SPECIFIED.
9. ALL OPEN CABINETS OR SHELVES TO HAVE PLASTIC LAMINATE TO MATCH EXTERIORS.
10. NO 3/4" THICK SHELF SHALL SPAN LONGER THAN 32" WITHOUT SUPPORT.
11. ALL SHELVING TO BE ADJUSTABLE UNLESS OTHERWISE SPECIFIED.
12. ALL FILE PEDESTALS ARE TO BE CONFIGURED FOR "FRONT TO BACK" FILING AND BE ABLE TO ACCEPT METAL HANGERS TO ACCEPT PENDAFLEX TYPE FILE FOLDERS, UNLESS NOTED AS LATERAL.
13. ALL COUNTER TOPS TO BE 24" DEEP, UNLESS OTHERWISE SPECIFIED. WHERE NO BACKSPLASH IS SPECIFIED, COUNTER TOPS TO BE SCRIBED TIGHTLY TO BACK & SIDE WALLS.
14. ALL BACKSPLASHES TO BE SCRIBED TO WALLS, AND MUST BE FLUSH TO EDGE OF BASE, UNLESS OTHERWISE SPECIFIED. ALL COUNTER TRANSITION SEAMS MUST BE CAULKED SEALED, VERIFY EITHER MATCHING COLOR CAULK OR CLEAR SILICONE.
15. PROVIDE SIDE SPLASHES AT LOCATIONS ADJACENT TO WALLS OR WINDOWS, ESPECIALLY FOR SINKS U.O.N.
16. FACES OF PIGEONHOLES TO MATCH WORK SURFACE LAMINATE. COLOR OF EDGE BANDING ON ALL DOORS TO MATCH FACE MATERIAL.
17. SEE SPECIFICATIONS/PROJECT MANUAL FOR ADDITIONAL REQUIREMENTS.
18. COUNTERTOPS SHALL HAVE A NOSING OF COUNTERTOP MATERIAL AT LEAST 3" DEEP, WHEREBY THE COUNTER MATERIAL EXTENDS INTO THE INSIDE OF THE CABINET, I.E. OVER THE DOOR (WHEN PRESENT).
19. END PANELS AND FRONT EDGES OF EDGE PANELS WHICH ARE PROUD OF THE INTERIOR CABINET SHALL BE FACED TO MATCH DOOR FRONTS.
20. ALL HINGED DOORS TO HAVE CLEAR SILENCERS TOP AND BOTTOM ON DOOR (NOT CABINET).
21. ALL DRAWERS GLIDES SHALL HAVE SILENCERS BUILT INTO THE GLIDE AND NOT INSTALLED ON THE DRAWER OR DRAWER FRONT.
22. ALL DRAWER GLIDES SHALL BE FULL EXTENSION.
23. ALL HINGES SHALL OPEN ±105°, EXCEPT WHERE CABINETS ARE ADJACENT TO THE WALLS. PROVIDE HINGES WHICH LIMIT THE DOOR SWING TO KEEP THE DOOR PULL FROM DAMAGING THE WALL.

FLOOR PLAN NOTES

1. CONTRACTOR AND ARCHITECT TO REVIEW & APPROVE CHALK LINES OF PARTITION LAYOUT PRIOR TO COMMENCEMENT OF PARTITION CONSTRUCTION.
2. CONTRACTOR TO VERIFY DIMENSIONS FOR ALL PLUMBING PARTITION.
3. EXTEND ALL STUDS AND WALL MATERIALS TO CONSTRUCTION ABOVE, U.O.N.
4. ALL CONDUIT PIPING IN ELECTRICAL ROOM TO BE CONCEALED WITHIN THE WALL CONSTRUCTION.
5. DOOR OPENINGS IN PARTITIONS NOT DIMENSIONED ARE TO BE LOCATED WITHIN 0'-4" OF ADJACENT PERPENDICULAR PARTITION.
6. CONTRACTOR SHALL USE 3-5/8" METAL STUDS MINIMUM AT ALL PLUMBING WALLS. CONTRACTOR TO VERIFY ACTUAL DEPTH REQUIRED, ANY DISCREPANCIES SHALL BE REPORTED TO THE ARCHITECT.
7. USE WATER RESISTANT GYPSUM BOARD/FIBER BOARD AT ALL AREAS SUBJECT TO MOISTURE OR WHERE TILE IS USED.
8. ALL PLUMBING WORK SHALL BE IN ACCORDANCE WITH LOCAL AND NATIONAL CODES.
9. ALL HOT WATER LINES SHALL BE PROPERLY INSULATED. SEE PLUMBING DRAWINGS.
10. ALL PLUMBING CLEAN-OUTS SHALL BE INSTALLED WHERE READILY ACCESSIBLE. CONTRACTOR SHALL COORDINATE ALL CLEAN-OUT LOCATIONS WITH EQUIPMENT, AND CABINETS. SUBMIT A PLAN OF ALL PROPOSED LOCATIONS TO ARCHITECT FOR APPROVAL PRIOR TO INSTALLATION.
11. ALL MILLWORK SHALL CONFORM TO STATE & LOCAL WOODWORKING STANDARDS.
12. FIELD MEASURE AS REQUIRED FOR ALL MILLWORK CONDITIONS PRIOR TO FABRICATION.
13. CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR ARCHITECT AND TENANT APPROVAL PRIOR TO MANUFACTURE OF ANY CABINET WORK, MILLWORK AND ANY OTHER SPECIAL ITEMS REQUIRING CUSTOM SHOP FABRICATED WORK.
14. CONTRACTOR TO VERIFY FINAL LOCATION FOR CANTILEVERED COUNTERS AND IN-WALL SUPPORT BRACKETS PRIOR TO GYPSUM BOARD FINISHING OF WALLS. ALL FINAL INSTALLATION HEIGHTS FOR IN-WALL SUPPORT BRACKETS MUST MEET ALL ACCESSIBILITY CODES REQUIREMENTS WITH COUNTERTOP MATERIAL THICKNESS INCLUDED.
15. PROVIDE AND INSTALL ALL NECESSARY WALL BACKING, STIFFENERS, BRACING, BACK-UP PLATES AND/ OR SUPPORTING BRACKETS AS REQUIRED FOR THE INSTALLATION OF WALL-MOUNTED OR SUSPENDED EQUIPMENT OR BUILT-IN ITEMS. VERIFY REQUIREMENTS WITH MANUFACTURERS PRIOR TO INSTALLATION. SUPPLY CATALOG CUT SHEETS FOR ARCHITECT'S APPROVAL.
16. PROVIDE AND INSTALL ALL NECESSARY ELECTRICAL CONNECTIONS AND PLUMBING SUPPLY, FITTINGS & CONNECTORS TO COMPLETE INSTALLATION OF APPLIANCES & EQUIPMENT INDICATED ON PLAN. VERIFY REQUIREMENTS WITH MANUFACTURERS PRIOR TO INSTALLATION. SUPPLY CATALOG CUT SHEETS FOR ARCHITECT'S APPROVAL.
17. EXACT LOCATION OF FIRE EXTINGUISHER CABINETS TO BE CONFIRMED WITH ARCHITECT BEFORE INSTALLATION. PROVIDE ADDITIONAL FIRE EXTINGUISHERS & CABINETS AS REQUIRED BY THE FIRE DEPARTMENT FIELD INSPECTORS.
18. CONTRACTOR TO VERIFY LOCATION OF ALL THERMOSTATS WITH ARCHITECT PRIOR TO INSTALLATION.
19. ALL EXITS SHALL HAVE EXIT SIGNS AND ALL BLIND CORRIDOR TURNS SHALL HAVE DIRECTIONAL EXIT SIGNS.
20. PREPARE ALL FLOOR SURFACES AS REQUIRED TO RECEIVE FINISHES AS NOTED ON FINISH PLAN, ENLARGED FINISH PLANS & FINISH LEGEND.
21. UNLESS OTHERWISE NOTED, ALL GYPSUM BOARD SURFACES, WALLS, AND CEILINGS SHALL BE TAPED, SANDED SMOOTH TO A "LEVEL 4" FINISH, SO AS TO RECEIVE PAINT OR WALL COVERING MATERIAL.
22. PROVIDE SOUND INSULATION AT PERIMETER WALLS OF RESTROOMS, LOBBY, STAIRS, AND ACROSS CEILING OF RESTROOMS TO CREATE AN ACOUSTIC ENVELOPE, U.O.N.
23. PATCH AND FILL VARIOUS OPENINGS AT EXISTING GYPSUM BOARD PARTITIONS AND SOFFITS FOLLOWING REMOVAL OR INSTALLATION OF ANY SURFACE MOUNTED OR RECESSED FURNISHINGS, RECEPTACLES, UTILITY PIPING, SHELF STANDARDS & ALL OTHER SIMILAR ELEMENTS INDICATED TO BE REMOVED DURING THE DEMOLITION PHASE OR INSTALLED DURING THE CONSTRUCTION PHASE: TAPE AND SEAL ALL SEAMS WITH JOINT COMPOUND: APPLY NEW FINISH TO MATCH EXISTING FINISH AT ADJACENT GYPSUM BOARD SURFACES AND FEATHER NEW FINISH WITH EXISTING FINISH TO PROVIDE CONSISTENT & CONTINUOUS FINISH.

POWER & SIGNAL NOTES

1. COORDINATE TELEPHONE/DATA INSTALLATION WITH APPROPRIATE SUB-CONTRACTOR.
2. ALL EXISTING ELECTRICAL DEVICES ARE TO REMAIN, UNLESS NOTED OTHERWISE.
3. ALL OUTLETS TO BE INSTALLED AT LOCATIONS SHOWN BY DIMENSIONS ON THE POWER & SIGNAL PLAN. DIMENSION ALL OUTLETS FROM THE CENTERLINE OF THE OUTLET BOX. NON-DIMENSIONED OUTLETS ARE TO LOCATED AT THE NEAREST WALL STUD.
4. WHEN OUTLETS ARE GROUPED TOGETHER (2 OR MORE), THEY ARE TO BE SPACED NO MORE THAN 2" APART.
5. ALL ELECTRICAL OUTLETS OF 30 AMPERES OR LESS SHALL BE MOUNTED BETWEEN +15" TO BOTTOM RECEPTACLE AND +48" TO TOP OF RECEPTACLE FROM FINISH FLOOR. SEE NOTE 6, BELOW, FOR GENERAL MOUNTING HEIGHT
6. ALL NEW WALL MOUNTED 15, 20, AND 30 AMP OUTLETS/RECEPTACLES TO BE CENTERED AT +18" A.F.F., U.O.N.
7. ALL TELEPHONE AND DATA CABLE TO BE TEFLON COATED PLENUM RATED CABLE, SUPPORTED INDEPENDENTLY FROM SUSPENDED CEILING SYSTEM. CABLING TO BE SUPPLIED BY TENANT; ALL PULLS AND TERMINATIONS BY GENERAL CONTRACTOR.
8. LOCATIONS OF FURNITURE POWER FEEDS SHALL ACCOMMODATE CIRCUITS AND WIRE PER ELECTRICAL DRAWINGS. TENANT SHALL BE RESPONSIBLE FOR PROVIDING FURNITURE POWER FEED, GENERAL CONTRACTOR SHALL INSTALL THE POWER FEED.
9. WHERE DEDICATED ELECTRICAL OUTLETS ARE NOTED WITHIN THE FURNITURE PANEL SYSTEM, THE PANEL SYSTEM SHALL ACCOMMODATE THIS REQUIREMENT.
10. FLOOR OUTLETS ARE ACCEPTABLE NEXT TO SLIDING PANELS/WALLS AND OTHER SPECIAL CONVENIENT LOCATIONS.
11. WHERE ELECTRICAL WORK IS SPECIFIED IN CONJUNCTION WITH CABINET WORK, LAMPS AND FIXTURES ARE TO BE PROVIDED BY THE GENERAL CONTRACTOR.
12. CUT-OUTS FOR SWITCHES, OUTLETS, ETC. AS REQUIRED BY THE CABINET CONTRACTOR ARE TO BE COORDINATED WITH THE ELECTRICAL CONTRACTOR, U.N.O. ALL RECEPTACLES WHERE MILLWORK OCCURS SHALL BE LOCATED PER ELEVATIONS OF THE MILLWORK ITEM IN QUESTION.
13. ALL WALL COVER PLATES SHALL BE WHITE, UNLESS BUILDING STANDARD IS DIFFERENT, MATCH BUILDING STANDARD.
14. ALL SEPARATE CIRCUIT RECEPTACLES TO BE ORANGE COLOR WITH BUILDING STANDARD COLOR COVER PLATE.
15. POWER/SIGNAL AND REFLECTED CEILING PLANS ARE FOR THE GENERAL INFORMATION OF THE CONTRACTOR. EXACT LOCATIONS SHOULD BE VERIFIED.
16. TENANT TO PROVIDE AND INSTALL THE TELEPHONE AND DATA COMMUNICATION CABLING. CONTRACTOR TO COORDINATE SCHEDULING AND OTHER REQUIREMENTS WITH TENANT.
17. ALL/ANY CORE DRILL LOCATIONS SHALL BE VERIFIED WITH DESIGNER PRIOR TO DRILLING. ALL UNUSED CORE DRILLS SHALL BE PLUGGED AND CAPPED AS REQUIRED TO MAINTAIN FLOOR FIRE RATING.
18. ALL TELEPHONE AND COMPUTER WIRES SHALL BE PULLED BY TENANT CONTRACTOR U.O.N. ELECTRICAL CONTRACTOR SHALL PROVIDE PULL WIRES AND BOXES AT EACH LOCATION.
19. CONTRACTOR SHALL OBTAIN APPROVAL FROM ARCHITECT FOR ALL THERMOSTAT LOCATIONS.

FIRE AUTHORITY NOTES

1. FINAL INSPECTION BY FIRE DEPARTMENT IS REQUIRED – SCHEDULE 72 HOURS IN ADVANCE.
2. THE PROJECT ADDRESS SHALL BE PROVIDED FOR ALL NEW AND EXISTING BUILDINGS IN A POSITION AS TO BE PLAINLY VISIBLE AND LEGIBLE FROM THE STREET OR ROAD FRONTING THE PROPERTY PER LOCAL FIRE DEPARTMENT STANDARDS.
3. AN UNOBSTRUCTED ALL-WEATHER FIRE APPARATUS ACCESS ROAD SHALL BE IN PLACE PRIOR TO DELIVERY OF COMBUSTIBLE BUILDING MATERIALS TO THE SITE.
4. FIRE PREVENTION WATER SERVICE SHALL BE IN SERVICE PRIOR TO DELIVERY OF COMBUSTIBLE BUILDING MATERIALS TO THE SITE.
5. ACCESS GATES SHALL BE APPROVED PRIOR TO INSTALLATION AND SHALL BE IN COMPLIANCE WITH LOCAL FIRE AUTHORITY.
6. FIRE SPRINKLER SYSTEM(S) SHALL MEET STATE & LOCAL FIRE CODES AND BE PROVIDED TO PROTECT ENTIRE BUILDING INCLUDING PROJECTIONS OVER 4'-0".
7. FIRE SPRINKLER SYSTEM(S) AND ALL CONTROL VALVES, INCLUDING EXTERIOR SHALL BE SUPERVISED BY A U.L. LISTED CENTRAL ALARM STATION OR PER STATE & LOCAL FIRE CODES.
8. ALL VALVES CONTROLLING THE WATER SUPPLY FOR AUTOMATIC SPRINKLER SYSTEMS AND WATER-FLOW SWITCHES ON ALL SPRINKLER SYSTEMS SHALL BE ELECTRICALLY MONITORED WHERE THE NUMBER OF SPRINKLERS IS (100) OR MORE.
9. ELECTRICAL SUBCONTRACTORS TO INSTALL WIRING FOR FIRE SPRINKLER, ALARM BELL AND TELEPHONE WARNING AS REQUIRED BY FIRE DEPARTMENT.
10. INSTALLATION OF FIRE ALARM SYSTEMS SHALL BE IN ACCORDANCE WITH STATE & LOCAL FIRE CODES.
11. COMPLETE PLANS AND SPECIFICATIONS FOR ALL FIXED FIRE PROTECTION EQUIPMENT INCLUDING AUTOMATIC SPRINKLERS AND OTHER FIRE-PROTECTION SYSTEMS, SHALL BE SUBMITTED BY INSTALLING CONTRACTOR. SUCH PLANS SHALL BE APPROVED BY LOCAL FIRE AUTHORITY PRIOR TO INSTALLATION.
12. LOCATIONS AND CLASSIFICATIONS OF FIRE EXTINGUISHERS SHALL BE IN ACCORDANCE WITH STATE & LOCAL FIRE CODES AND PLACEMENT IS SUBJECT TO THE APPROVAL OF THE FIRE INSPECTOR. VERIFY QUANTITY & EXACT LOCATION FROM FIRE DEPARTMENT PRIOR TO ORDERING.
13. AT LEAST ONE (1) FIRE EXTINGUISHER WITH A MINIMUM RATING OF: 2-A-10B:C (FOR OFFICE), OR 10-A-80B:C (FOR WAREHOUSE), SHALL BE PROVIDED WITHIN 75'-0" MAXIMUM TRAVEL DISTANCE FOR EACH 3,000 SQUARE FEET OR PORTION THEREOF ON EACH FLOOR.
14. STORAGE, DISPENSING OR USE OF ANY FLAMMABLE AND COMBUSTIBLE LIQUIDS, FLAMMABLE AND COMPRESSED GASES, AND OTHER HAZARDOUS MATERIALS SHALL COMPLY WITH STATE & LOCAL FIRE CODES. THE STORAGE AND USE OF HAZARDOUS MATERIALS SHALL BE APPROVED BY THE FIRE AUTHORITY PRIOR TO ANY MATERIALS BEING STORED OR USED ON SITE. A SEPARATE PLAN SUBMITTAL IS REQUIRED PRIOR TO THE STORAGE AND USE OF HAZARDOUS MATERIALS.
15. BUILDING(S) NOT APPROVED FOR HIGH-PILED STOCK (MATERIALS IN CLOSELY PACKED PILES OR ON PALLETS, OR IN RACKS WHERE THE TOP OF STORAGE EXCEEDS 12'-0" IN HEIGHT, AND 6'-0" FOR GROUP "A" PLASTICS AND CERTAIN OTHER HIGH-HAZARD COMMODITIES). HIGH-PILED STOCK SHALL BE APPROVED BY THE FIRE AUTHORITY PRIOR TO MATERIALS BEING STORED ON SITE. A SEPARATE PLAN SUBMITTAL IS REQUIRED FOR HIGH-PILED STORAGE IN ACCORDANCE WITH STATE & LOCAL FIRE CODES.
16. A LETTER OF INTENDED USE MAY BE REQUIRED BY THE FIRE INSPECTOR.
17. ALL REQUIRED FIRE DOORS SHALL BEAR A LABEL FROM A RECOGNIZED AGENCY SHOWING THE SPECIFIC RATING.
18. EXIT SIGNS AND ILLUMINATION SHALL CONFORM TO ALL APPLICABLE BUILDING AND FIRE CODES.
19. EXIT DOORS SHALL BE OPERABLE FROM THE INSIDE WITHOUT THE USE OF A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.
20. PROVIDE OR MODIFY AS NEEDED SPRINKLER ALARM AND SMOKE DETECTION SYSTEM PER APPLICABLE CODES INCLUDING IF NECESSARY FOR HORNS, STROBE LIGHTS, CONTROL PANEL CONNECTIONS, SMOKE DETECTORS, AUDIO VISUAL ALARMS. SUBMIT SHOP DRAWINGS TO THE FIRE MARSHAL FOR APPROVAL.

DOOR NOTES

1. VERIFY THAT ALL DOORS AND DOOR HARDWARE MEET THE REQUIREMENTS OF ALL GOVERNING CODES & STANDARDS. NOTIFY THE ARCHITECT IMMEDIATELY IN CASE OF DISCREPANCY.
2. FIELD MEASURE, AS REQUIRED, ALL DOORS PRIOR TO FABRICATION.
3. PROVIDE A SIGN ON OR NEAR THE MAIN EXIT DOOR READING: "THIS DOOR TO REMAIN UNLOCKED WHEN BUILDING IS OCCUPIED".
4. VERIFY THAT EXISTING DOORS COMPLY WITH ACCESSIBILITY REQUIREMENTS.
5. RATED DOORS SHALL COMPLY WITH REQUIREMENTS OF ALL GOVERNING CODES & STANDARDS AND SHALL BEAR A LABEL FROM A RECOGNIZED AGENCY SHOWING THE SPECIFIC RATINGS.
6. ALL HARDWARE TO BE LEVER-TYPE PER GOVERNING CODES & ACCESSIBILITY STANDARDS.
7. DOOR HANDLES, PULLS OR KNOBS SHALL BE INSTALLED AT 40" ABOVE FINISH FLOOR. ALL OTHER OPERABLE PARTS OF DOOR HARDWARE (SUCH AS DEADBOLTS, KEYHOLES... ETC.) ARE TO BE CENTERED BETWEEN 34" AND 44" ABOVE FINISH FLOOR. IF EXISTING BUILDING STANDARD EXISTS, MATCH BUILDING STANDARD AND CONFIRM COMPLIANCE WITH ACCESSIBILITY REQUIREMENTS.
8. SPECIAL LOCKING DEVICES SHALL BE OF AN APPROVED TYPE.
9. PROVIDE WEATHER SEALS ON ALL EXTERIOR DOORS PER ANSI STANDARDS.
10. CONTRACTOR IS RESPONSIBLE TO COORDINATE & VERIFY ALL DOOR FRAME THROAT THICKNESS' FOR EACH LOCATION.
11. ALL DOOR FRAMES TO BE FACTORY FINISHED, U.O.N..
12. ALL WALL DOOR STOPS TO HAVE 2x6 BACKING IN THE WALL BEHIND.
13. MAXIMUM UNDERCUT OF ALL DOORS NOT IN A RATED CORRIDOR SHALL NOT EXCEED 1/2" ABOVE FINISH FLOOR SURFACE.
14. CONTRACTOR SHALL REFINISH ANY BLEMISHED DOOR OR REPLACE SAID DOOR IF NOT ABLE TO REFINISH TO "AS NEW" CONDITION.
15. ALL DOORS TO BE OPERABLE FROM THE INSIDE WITHOUT A KEY OR ANY SPECIAL KNOWLEDGE OR EFFORT.
16. ALL DOORS WITH ELECTRONIC SECURITY DOOR LOCKS MUST BE OPENABLE FOR EXITING PURPOSES UNDER ALL CONDITIONS. INCLUDING A POWER OUTAGE.
17. IF BUILDING STANDARDS ARE INCONSISTENT FOR DOORS, RELITES, HARDWARE, DOOR AND RELITE FRAMES OR OTHER STANDARD DETAILS, THEN CONTRACTOR MUST VERIFY WITH DESIGNER AND OWNER PRIOR TO CONSTRUCTION.

GLAZING NOTES

1. EACH LIGHT SHALL BEAR THE MANUFACTURER'S LABEL DESIGNATING THE TYPE AND THICKNESS OF THE GLASS.
2. GLASS SHALL BE FIRMLY SUPPORTED ON ALL FOUR EDGES.
3. FIELD MEASURE ALL OPENINGS PRIOR TO FABRICATION.
4. FIXED OR OPERABLE GLAZING IN HAZARDOUS LOCATIONS AS DEFINED IN THE BUILDING CODE SHALL BE TEMPERED GLASS (SAFETY GLASS).
5. GLAZING IN SWINGING, SLIDING AND BIFOLD DOORS SHALL BE TEMPERED.
6. GLAZING ADJACENT TO DOORS: ALL GLAZING WITHIN A 24" ARC OF EITHER EDGE OF A DOOR AND WITHIN 60" OF THE FLOOR SHALL BE TEMPERED.
7. GLAZING IN WINDOWS: ALL GLAZING THAT MEETS ALL OF THE FOLLOWING CONDITIONS SHALL BE TEMPERED:
   - 7.1. THE EXPOSED AREA OF AN INDIVIDUAL PANE IS GREATER THAN 9 SF.
   - 7.2. THE BOTTOM EDGE IS LESS THAN 18" ABOVE THE FLOOR.
   - 7.3. THE TOP EDGE IS GREATER THAN 36" ABOVE THE FLOOR.
   - 7.4. WALKING SURFACE IS WITHIN 36".
8. ALL GLASS SHALL COMPLY WITH THE REQUIREMENTS OF STATE AND LOCAL CODES AND THE U.S. PRODUCT SAFETY COMMISSIONS: SAFETY STANDARDS FOR ARCHITECTURAL GLAZING MATERIALS.
9. WHERE JOINTS ARE REQUIRED IN MULTIPLE LITE SITUATIONS, SILICON IS TO BE PROVIDED U.O.N.

PRE-CONST. MEETING

1. PRIOR TO START OF CONSTRUCTION, A PRE-CONSTRUCTION MEETING IS TO BE HELD INCLUDING A RESPONSIBLE REPRESENTATIVE OF THE ARCHITECT, THE OWNER AND THE GENERAL CONTRACTOR. THE DISCUSSION WILL BE IN REGARDS TO THE ARCHITECT-OWNER-CONTRACTOR (AOC) CORRESPONDENCE PROCESSES AND PROCEDURES. AT A MINIMUM, THE FOLLOWING IS TO BE DISCUSSED:
2. AOC REGULARLY SCHEDULED MEETINGS
   - 2.1. WHEN
   - 2.2. WHERE
   - 2.3. HOW OFTEN
   - 2.4. IN PERSON VERSUS CONFERENCE CALLS
   - 2.5. APPROXIMATE ALOTTED TIME PER MEETING
3. CONSTRUCTION MEETING MINUTES
   - 3.1. FORMAT FOR THE MINUTES
   - 3.2. CONTRACTOR TO AUTHOR THE MINUTES
4. FORMAL CHANGES IN THE WORK
   - 4.1. ADDENDA AND BULLETINS ISSUED BY THE ARCHITECT
   - 4.2. CHANGE ORDER REQUESTS ISSUED BY THE CONTRACTOR
   - 4.3. CHANGE ORDERS ISSUED BY THE CONTRACTOR
   - 4.4. TRACKING MECHANISMS
5. REQUESTS FOR INFORMATION PROCESS
   - 5.1. TRACKING MECHANISM
   - 5.2. DEFINE Cc: RECIPIENT LIST
   - 5.3. STANDARD RESPONSE TIMES (2-5 WORKING DAYS IS STANDARD)
6. SUBMITTAL PROCESS
   - 6.1. TRACKING MECHANISM
   - 6.2. ISSUANCE SCHEDULE BY THE CONTRACTOR
   - 6.3. DEFINE Cc RECIPIENT LIST
   - 6.4. STAMPED REVIEWED AND APPROVED BY CONTRACTOR PRIOR TO SUBMISSION
   - 6.5. NON-REQUESTED SUBMITTALS MAY NOT BE REVIEWED
   - 6.6. STANDARD RESPONSE TIMES (7-10 WORKING DAYS IS STANDARD)
7. SUBSTITUTIONS
   - 7.1. REQUEST FORMS WITH REASONS AND BENEFIT FOR SUBSTITUTION
8. PAYMENT APPLICATIONS
   - 8.1. PROCESS
   - 8.2. SUBMITTAL DATE
   - 8.3. ANTICIPATED TURN-AROUND
9. PUNCH LISTS
   - 9.1. ONLY ONE PUNCH WALK TO BE PROVIDED BY DESIGN TEAM
   - 9.2. CONTRACTOR TO PUNCH AND MAKE CORRECTIONS PRIOR TO DESIGN TEAM PUNCH.
   - 9.3. A FINAL WALK WILL OCCUR ONLY IF THE ARCHITECT IS CONTRACTED TO DO SO.

G.C. INSTRUCTIONS

SUBMITTALS

1. AT THE START OF JOB PROVIDE A SCHEDULE OF ALL ANTICIPATED SUBMITTALS AND DATES. FLAG SUBMITTALS WHICH ARE OR COULD BE CRITICAL PATH. FLAG SUBMITTALS THAT WILL BE REQUESTED TO BE EXPEDITED FASTER THAN THE STANDARD 7-10 DAYS.
2. A SUBMITTAL LOG IS TO BE MAINTAINED BY THE GENERAL CONTRACTOR AND A CURRENT COPY IS TO BE INCLUDED WITH EACH SUBMISSION.
3. ALL SUBMITTALS MUST BE REVIEWED AND APPROVED WITH A STAMP AND SIGNATURE BY THE GENERAL CONTRACTOR PRIOR TO SUBMISSION. THE REVIEW WILL INCLUDE BUT NOT BE LIMITED TO:
   - 3.1. CONFIRMING THAT THE SUBMITTAL MEETS THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.
   - 3.2. COORDINATION HAS TAKEN PLACE WITH ALL INTERCONNECTING TRADES
   - 3.3. THE SUBMITTAL IS COMPLETE AND COMPREHENSIVE
4. REQUESTS ON SUBMITTALS FOR DIMENSIONS WHICH CAN BE DISCERNABLE THROUGH MATHEMATICAL MEANS FROM INFORMATION ALREADY PROVIDED ON THE CONTRACT DOCUMENTS WILL NOT BE PROVIDED.
5. SUBMITTALS NOT REQUESTED BY THE CONTRACT DOCUMENTS MAY OR MAY NOT BE REVIEWED AT THE DESIGN TEAMS DISCRETION.
6. SUBMITTALS ARE TO BE ROUTED THROUGH THE ARCHITECT AND ARE NOT TO BE SENT DIRECTLY TO ARCHITECT'S CONSULTANTS UNLESS SPECIFICALLY AUTHORIZED BY THE ARCHITECT.
7. MINOR CHANGES IN THE WORK MAY OCCUR AS A RESULT OF THE DESIGN TEAM'S REVIEW. IF A CHANGE RESULTS IN MODIFICATIONS TO THE CONTRACT PRICE OR SCHEDULE, THE CONTRACTOR WILL ISSUE A CHANGE ORDER REQUEST FOR REVIEW AND APPROVAL BY THE OWNER AND ARCHITECT PRIOR TO PROCEEDING.

REQUESTS FOR INFORMATION (RFI's)

1. THE GENERAL CONTRACTOR IS TO REVIEW ALL PROSPECTIVE RFI's AND MAKE EVERY EFFORT TO ANSWER THEM BEFORE SUBMITTING TO THE DESIGN TEAM.
2. MINOR CHANGES IN THE WORK MAY OCCUR AS A RESULT OF THE DESIGN TEAM'S REVIEW. IF A CHANGE RESULTS IN MODIFICATIONS TO THE CONTRACT PRICE OR SCHEDULE, THE CONTRACTOR WILL ISSUE A CHANGE ORDER REQUEST FOR REVIEW AND APPROVAL BY THE OWNER AND ARCHITECT PRIOR TO PROCEEDING.
3. AN RFI LOG IS TO BE MAINTAINED BY THE GENERAL CONTRACTOR AND A CURRENT COPY IS TO BE INCLUDED WITH EACH RFI SUBMISSION ALONG WITH ANY CRITICAL RESPONSE DUE DATES.
4. RFI's REGARDING METHODS AND MEANS OF CONSTRUCTION WILL NOT BE REVIEWED AND WILL BE REMOVED FROM THE RFI LOG.

CHANGE ORDERS

1. A COMPLETE SCHEDULE OF VALUES OF THE BASE CONTRACT IS TO BE PROVIDED TO THE OWNER AND ARCHITECT PRIOR TO THE START OF ANY WORK.
2. ALL CHANGE ORDER REQUESTS ARE TO BE REVIEWED AND APPROVED BY THE OWNER AND ARCHITECT PRIOR TO SUBMISSION OF A CHANGE ORDER.
3. CHANGE ORDER REQUESTS ARE TO INCLUDE A COMPLETE BREAKDOWN BY TRADE ALONG WITH TRADE BACK-UP AND UNIT PRICING WHERE APPLICABLE.
4. A CHANGE ORDER REQUEST AND CHANGE ORDER LOG IS TO BE MAINTAINED BY THE GENERAL CONTRACTOR AND SUBMITTED ALONG WITH EACH CHANGE ORDER REQUEST.

RESTROOM NOTES

1. PROVIDE DRAIN WITH TRAP PRIMER FOR EACH RESTROOM IF THERE ARE TWO OR MORE FIXTURES. SLOPE FLOOR TO DRAIN AT MIN. 1/8" PER FOOT.
2. PROVIDE SINGLE LEVER HANDLE FAUCET SET AT 17" MAX. FROM THE FRONT EDGE OF THE SINK COUNTER.
3. VERIFY BUILDING STANDARD FOR WALL-HUNG/DROP-IN COUNTER SINK WHERE APPLICABLE.
4. TOILET PAPER DISPENSERS SHALL NOT BE OF TYPE THAT CONTROLS DELIVERY, OR THAT DO NOT ALLOW CONTINUOUS PAPER FLOW. OPERABLE PARTS SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING OF THE WRIST. THE FORCE REQUIRED TO ACTIVATE OPERABLE PARTS SHALL BE 5 POUNDS MAX.
5. OPERABLE PARTS OF ALL ACCESSORIES SHALL COMPLY WITH ALL APPLICABLE ACCESSIBILITY CODES AND STANDARDS.
6. WATER SUPPLY AND DRAIN PIPES UNDER LAVATORIES AND SINKS SHALL BE INSULATED OR OTHERWISE CONFIGURED TO PROTECT AGAINST CONTACT. THERE SHALL BE NO SHARP OR ABRASIVE SURFACES UNDER LAVATORIES AND SINKS.

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GENERAL NOTES

DATE	REMARKS
11/7/17	DD SET ISSUED FOR CLIENT REVIEW
12/4/2017	ISSUE FOR BID

PA / PM:	S. HOOSHAMND
DRAWN BY:	J.A.U.
JOB NO.:	SNR17-6159-00

SHEET
A0.2

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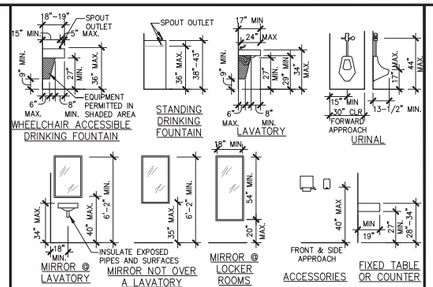

MOUNTING HEIGHTS

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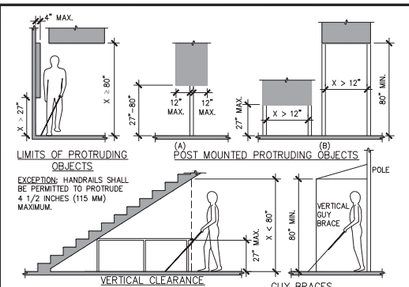

PROTRUDING OBJECTS

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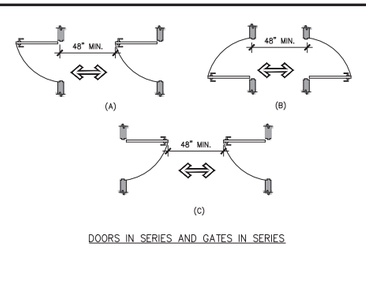


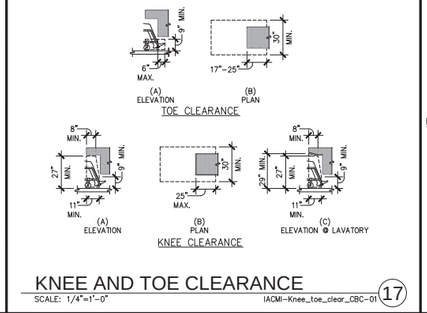
DOORS IN SERIES AND GATES IN SERIES

DOORS, DOORWAYS & GATES

SCALE: 1/4"=1'–0" IACDR–Series_CBC–01 6

ACCESSIBILITY NOTES

1. "THE ACCESSIBILITY GUIDELINES AND CODES" MENTIONED BELOW REFER TO ALL APPLICABLE LOCAL/STATE BUILDING CODES REFERENCED ON THE PROJECT DATA SHEET OF THIS SET IN ADDITION TO THE FEDERAL REQUIREMENTS OF THE ADA (THE AMERICANS WITH DISABILITIES ACT).
2. DETAILS ON THIS SHEET ARE FOR REFERENCE ONLY, REFER TO THE ACCESSIBILITY GUIDELINES AND CODES FOR ALL ACCESSIBILITY REQUIREMENTS.
3. THE GENERAL CONTRACTOR SHALL BECOME FAMILIAR WITH THE ACCESSIBILITY GUIDELINES AND CODES.
4. ANY DISCREPANCY CONTAINED HEREIN DOES NOT RELIEVE THE GENERAL CONTRACTOR OR OWNER FROM COMPLYING WITH THE ACCESSIBILITY GUIDELINES AND CODES.



KNEE AND TOE CLEARANCE

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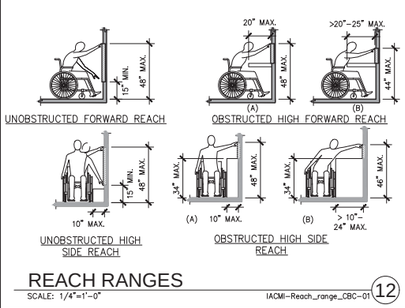
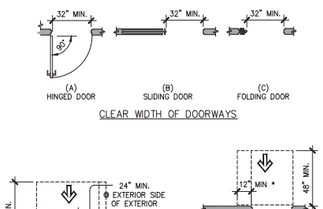


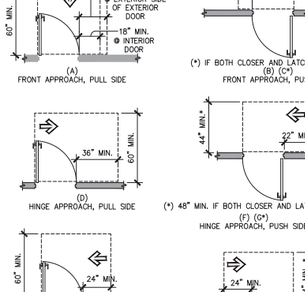
REACH RANGES

SCALE: 1/4"=1'–0" IACMI–Reach_range_CBC–01 12

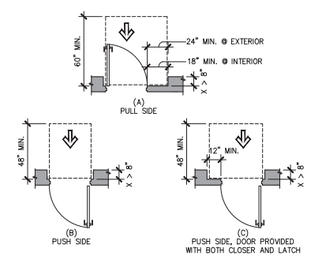
NOTES:
1. FLOOR OR GROUND SURFACE WITHIN REQUIRED MANEUVERING CLEARANCES SHALL COMPLY WITH [FLOOR OR GROUND SURFACES & CHANGES IN LEVEL] DETAIL AND SHALL HAVE A SLOPE NOT STEEPER THAN 1:48. CHANGES IN LEVEL ARE NOT PERMITTED AT DOOR LANDINGS.
2. THRESHOLDS, IF PROVIDED AT DOORWAYS SHALL BE 1/2" HIGH MAX. RAISED THRESHOLDS AND CHANGES IN LEVEL AT DOORWAYS SHALL COMPLY WITH [FLOOR OR GROUND SURFACES & CHANGES IN LEVEL] DETAIL.
3. HANDLES, PULLS, LATCHES, LOCKS AND OTHER OPERABLE PARTS ON DOORS AND GATES SHALL BE OPERABLE WITH ONE HAND AND SHALL NOT REQUIRE TIGHT GRASPING, PINCHING OR TWISTING OF THE WRIST.
4. THE FORCE REQUIRED TO ACTIVATE OPERABLE PARTS SHALL BE 5 LBS (22.5 N) MAX.
5. OPERABLE PARTS OF DOOR HARDWARE SHALL BE 34" MIN. AND 44" MAX. ABOVE THE FINISH FLOOR OR GROUND.
6. WHERE SLIDING DOORS ARE IN THE FULLY OPEN POSITION, OPERATING HARDWARE SHALL BE EXPOSED AND USABLE FROM BOTH SIDES.
7. DOOR AND GATE CLOSERS SHALL BE ADJUSTED SO THAT FROM AN OPEN POSITION OF 90° THE TIME REQUIRED TO MOVE THE DOOR TO A POSITION OF 12° FROM THE LATCH IS 5 SECONDS MIN.
8. DOOR AND GATE SPRING HINGES SHALL BE ADJUSTED SO THAT FROM THE OPEN POSITION OF 70° THE DOOR OR GATE SHALL MOVE TO THE CLOSED POSITION IN 1.5 SECONDS MIN.
9. THE FORCE FOR PUSHING OR PULLING OPEN A DOOR OR GATE SHALL BE AS FOLLOWS:
   9.1. INTERIOR HINGED DOORS AND GATES: 5 LBS (22.5 N) MAX.
   9.2. SLIDING OR FOLDING DOORS: 5 LBS (22.5 N) MAX.
   9.3. REQUIRED FIRE DOORS: THE MINIMUM OPENING FORCE ALLOWABLE BY THE APPROPRIATE ADMINISTRATIVE AUTHORITY, NOT TO EXCEED 15 LBS (66.7 N).
   9.4. EXTERIOR HINGED DOORS: 5 LBS (22.5 N) MAX.
10. SWINGING DOOR AND GATE SURFACES WITHIN 10" OF THE FINISH FLOOR OR GROUND MEASURED VERTICALLY SHALL HAVE A SMOOTH SURFACE ON THE PUSH SIDE EXTENDING THE FULL WIDTH OF THE DOOR OR GATE. PARTS CREATING HORIZONTAL OR VERTICAL JOINTS IN THESE SURFACES SHALL BE WITHIN 1/16" OF THE SAME PLANE AS THE OTHER AND BE FREE OF SHARP OR ABRASIVE EDGES. CAVITIES CREATED BY ADDED KICK PLATES SHALL BE CAPPED.
11. WHERE AUTOMATIC AND POWER-ASSISTED DOORS AND GATES WITHOUT STANDBY POWER ARE PART OF A MEANS OF EGRESS THE CLEAR BREAK OUT OPENING AT SWINGING OR SLIDING DOORS AND GATES SHALL BE 32" MIN. WHEN OPERATED IN EMERGENCY MODE.



CLEAR WIDTH OF DOORWAYS



MANEUVERING CLEARANCE AT MANUAL SWINGING DOORS AND GATES



MANEUVERING CLEARANCE AT RECESSED DOORS AND GATES

DOORS, DOORWAYS & GATES

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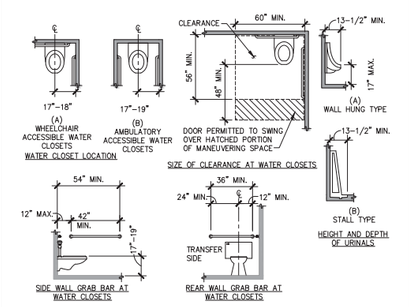

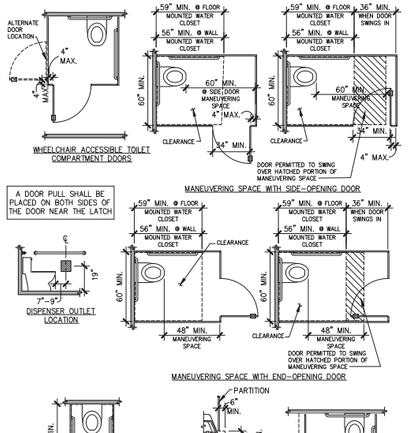

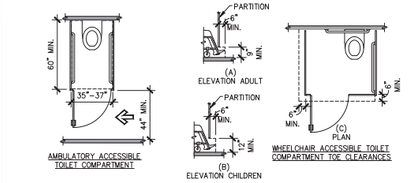

WATER CLOSETS AND TOILET COMPARTMENTS & URINALS

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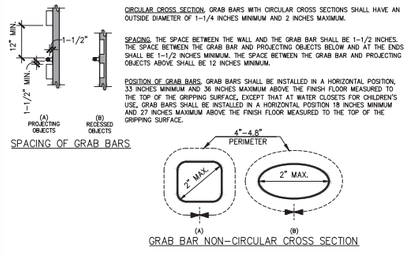


CIRCULAR CROSS SECTION. GRAB BARS WITH CIRCULAR CROSS SECTIONS SHALL HAVE AN OUTSIDE DIAMETER OF 1–1/4 INCHES MINIMUM AND 2 INCHES MAXIMUM.

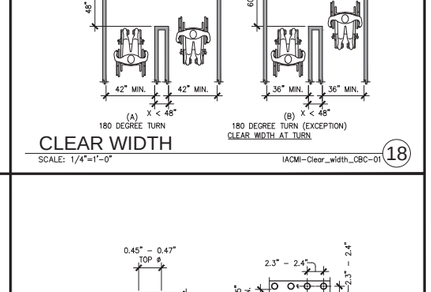
SPACING. THE SPACE BETWEEN THE WALL AND THE GRAB BAR SHALL BE 1–1/2 INCHES. THE SPACE BETWEEN THE GRAB BAR AND PROJECTING OBJECTS BELOW AND AT THE ENDS SHALL BE 1–1/2 INCHES MINIMUM. THE SPACE BETWEEN THE GRAB BAR AND PROJECTING OBJECTS ABOVE SHALL BE 12 INCHES MINIMUM.

POSITION OF GRAB BARS. GRAB BARS SHALL BE INSTALLED IN A HORIZONTAL POSITION, 33 INCHES MINIMUM AND 36 INCHES MAXIMUM ABOVE THE FINISH FLOOR MEASURED TO THE TOP OF THE GRIPPING SURFACE, EXCEPT THAT AT WATER CLOSETS FOR CHILDREN'S USE, GRAB BARS SHALL BE INSTALLED IN A HORIZONTAL POSITION 18 INCHES MINIMUM AND 27 INCHES MAXIMUM ABOVE THE FINISH FLOOR MEASURED TO THE TOP OF THE GRIPPING SURFACE.

GRAB BAR NON–CIRCULAR CROSS SECTION

GRAB BARS

SCALE: N.T.S. IACMI–Grab_bars_CBC–01 5



CLEAR WIDTH

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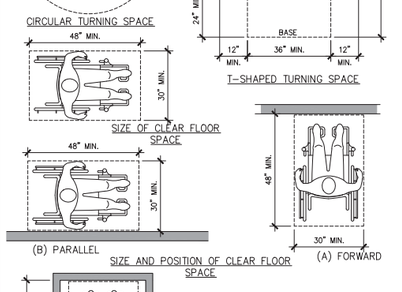

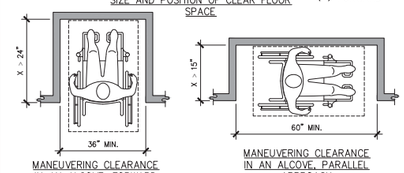

CLEAR FLOOR OR GROUND SPACE

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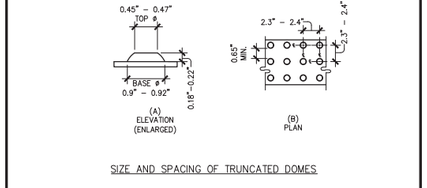
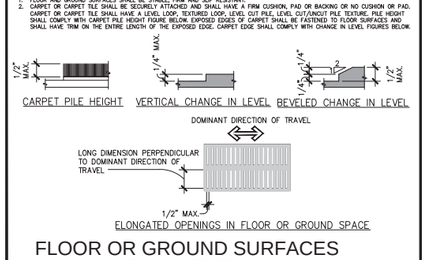


SIZE AND SPACING OF TRUNCATED DOMES

DETECTABLE WARNINGS

SCALE: N.T.S. IACMI–Truncated_domes_CBC–01 19



FLOOR OR GROUND SURFACES & CHANGES IN LEVEL

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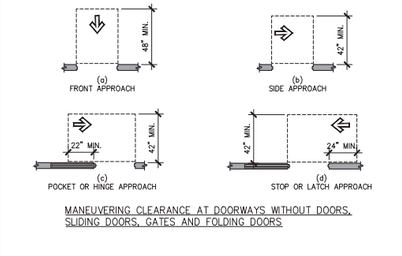

MANEUVERING CLEARANCE AT DOORWAYS WITHOUT DOORS, SLIDING DOORS, GATES AND FOLDING DOORS

DOORS, DOORWAYS & GATES

SCALE: 1/4"=1'–0" IACDR–2_CBC–01 15

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ACCESSIBILITY DETAILS

DATE	REMARKS
11/7/17	DD SET ISSUED FOR CLIENT REVIEW
12/4/2017	ISSUE FOR BID

PA / PM:	S. HOOSHMAND
DRAWN BY:	J.A.U.
JOB NO.:	SNR17–6159–00

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Mon, 04 Dec 2017

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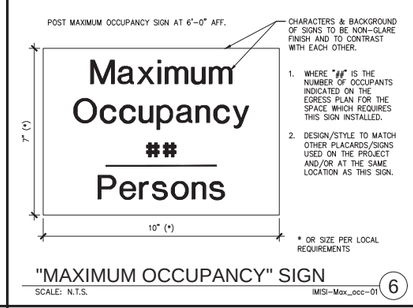

"MAXIMUM OCCUPANCY" SIGN 6

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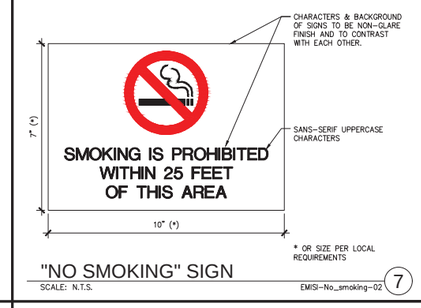
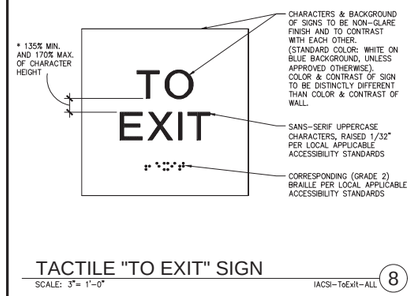


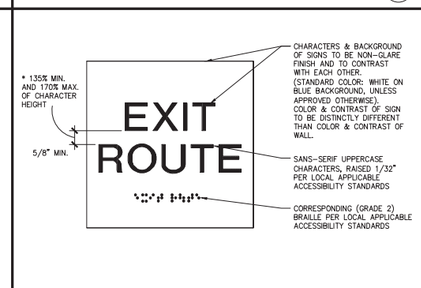
"NO SMOKING" SIGN 7

SCALE: N.T.S. EMISI-No_smoking-02



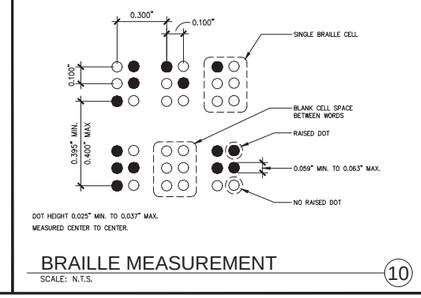
TACTILE "TO EXIT" SIGN 8

SCALE: 3"= 1'-0" IACSI-ToExit-ALL



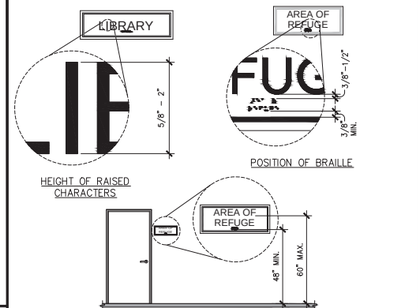
TACTILE "EXIT ROUTE" SIGN 9

SCALE: 3"= 1'-0" IACSI-Exitroute



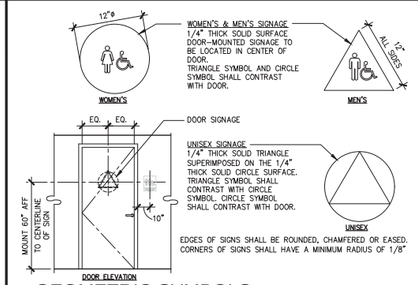
BRAILLE MEASUREMENT 10

SCALE: N.T.S.



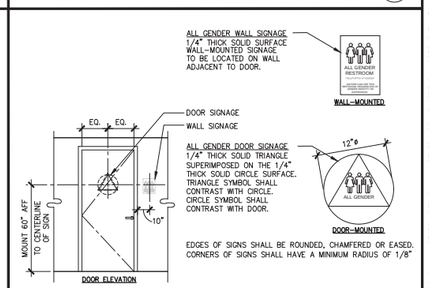
SIGNS 2

SCALE: N.T.S. IACSI-Signs_CBC-01



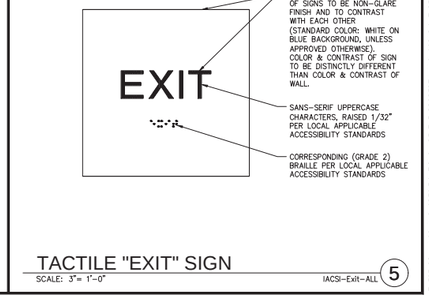
GEOMETRIC SYMBOLS (DOOR MOUNTED) 3

SCALE: N.T.S. IACSI-Geometric_symbols_CBC-01



ALL GENDER RESTROOM SIGNAGE 4

SCALE: N.T.S. IACSI-Geometric_symbols_CBC-02



TACTILE "EXIT" SIGN 5

SCALE: 3"= 1'-0" IACSI-Exit-ALL

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ACCESSIBILITY DETAILS

REMARKS	DATE
DD SET ISSUED FOR CLIENT REVIEW	11/7/17
ISSUE FOR BID	12/4/2017

PA / PM:	S. HOOSHAMND
DRAWN BY:	J.A.U.
JOB NO.:	SNR17-6159-00

SHEET
A0.3a

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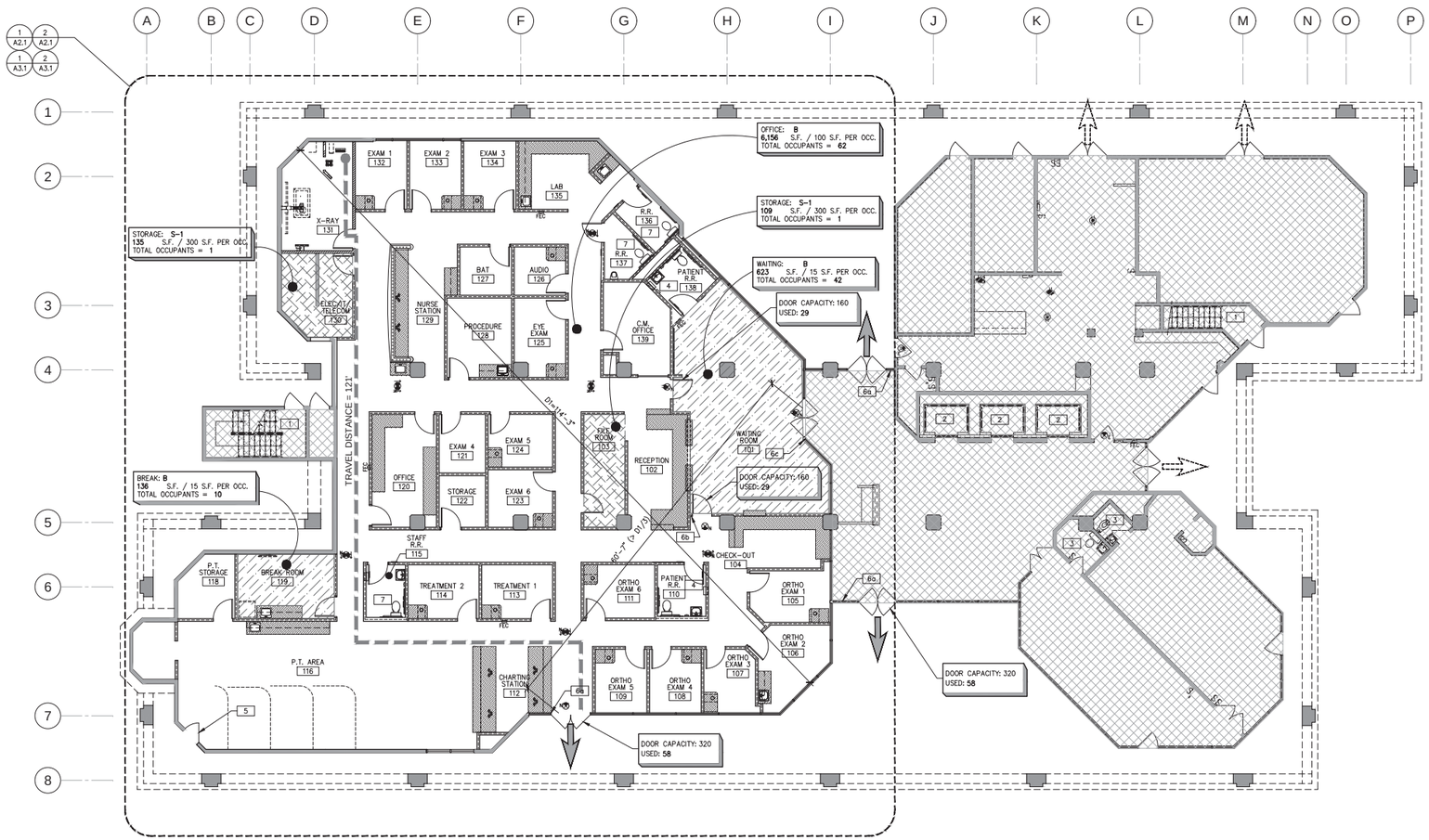
Mon, 04 Dec 2017



1/8"=1'-0"

0 4' 8' 16' 32'

OVERALL FLOOR & OCCUPANCY AND EGRESS PLAN

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

SEE SHEET A0.1 & A0.2 FOR ADDITIONAL GENERAL NOTES

OCCUPANCY & EGRESS NOTES

1. EXISTING STAIR TO REMAIN.
2. EXISTING ELEVATOR TO REMAIN.
3. EXISTING RESTROOM FACILITY.
4. NEW FULLY ACCESSIBLE RESTROOM FACILITY.
5. NOT AN EXIT.
6. WALL-MOUNTED TACTILE SIGNS LISTED BELOW AT LOCATIONS INDICATED. SEE 5/A0.3a, 8/A0.3a, 9/A0.3a
   a) "EXIT"
   b) "TO EXIT"
   c) "EXIT ROUTE"
7. NEW RESTROOM FACILITY.

RESTROOM SUMMARY

FIXTURES REQUIRED (BASED ON CPC TABLE 422.1):		UNISEX	WC. MEN	WC. WOMEN	URINALS	LAV. MEN	LAV. WOMEN	LAV. UNISEX	DRINKING FOUNTAINS
OFFICE	7,159 S.F. ÷ 200 = 36 ÷ 2 = 18 :	1	–	–	–	–	–	1	–
TOTAL PROVIDED		5	–	–	1	–	–	4	–

TRAVEL DISTANCES

MAXIMUM TRAVEL DISTANCE TO EXITS: (1017.2 WITHOUT SPRINKLER SYSTEM)

B/BUSINESS ____ 200 FEET MAX.

S-1/STORAGE (MODERATE-HAZARD WAREHOUSE) ____ 250 FEET MAX.

LEGENDS

MAXIMUM TRAVEL DISTANCE.

AREA NOT IN CONTRACT (N.I.C.).

INDICATES AREA OF OCCUPANCY CLASSIFICATION BREAK (B) WITH OCCUPANT LOAD OF 100 PER 2016 CBC

INDICATES AREA OF OCCUPANCY CLASSIFICATION BREAK (B) WITH OCCUPANT LOAD OF 15 PER 2016 CBC

INDICATES AREA OF OCCUPANCY CLASSIFICATION STORAGE, S PER 201366 CBC

OCCUPANCY & EGRESS LEGEND

REQUIRED EXIT.

EXISTING EXIT

NEW CEILING-MOUNTED EXIT SIGN W/ BATTERY BACKUP, SHADED QUADRANT INDICATES FACE OF LETTERING, SIGN TO INCLUDE DIRECTIONAL ARROW AS INDICATED – SEE ELEC. DWGS.

NOTE: ADDITIONAL DIRECTIONAL EXIT SIGNS MAY BE REQUIRED PRIOR TO FINAL INSPECTION AND SUBJECT TO BUILDING INSPECTOR.

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OVERALL FLOOR & OCCUPANCY AND EGRESS PLAN

DATE	REMARKS
11/7/17	DD SET ISSUED FOR CLIENT REVIEW
12/4/2017	ISSUE FOR BID

PA / PM:	S. HOOSHAMND
DRAWN BY:	J.A.U.
JOB NO.:	SNR17-6159-00

SHEET

A1.1

Mon, 04 Dec 2017

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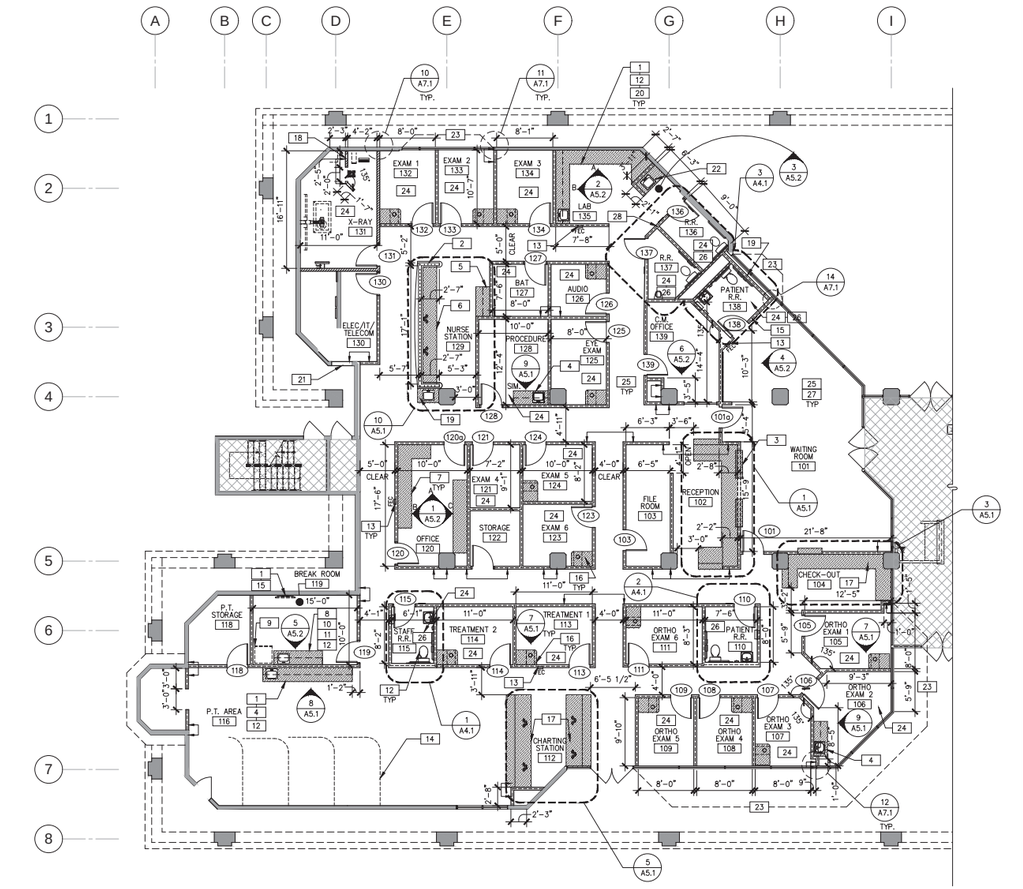
CONTRACTOR TO INCLUDE AN ALLOWANCE FOR AN ADDITIONAL 10 OUTLETS AND 10 DATA AND TWO ADDITIONAL ELECTRICAL FLOOR BOXES

POWER AND SIGNAL PLAN

SCALE: 1/8"=1'-0" (2)



1/8"=1'-0"
0 4' 8' 16' 32'

FLOOR PLAN

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

POWER & SIGNAL PLAN

1. ARCHITECTURAL DIMENSIONS AND LOCATIONS TAKE PRECEDENCE. SEE ELECTRICAL DRAWINGS FOR COORDINATION. IF INCONSISTENCIES OCCUR CONTACT ARCHITECT FOR CLARIFICATION.
2. CONTRACTOR TO RELOCATE LIGHTING, SWITCHING AND ELECTRICAL CIRCUITING AS REQUIRED.
3. ALL TELEPHONE/ELECTRICAL OUTLETS IN EXISTING WALLS TO REMAIN, U.O.N. PROVIDE NEW ELECTRICAL, DATA AND TELEPHONE OUTLETS AS INDICATED ON PLAN.
4. NEW DATA CABLING TO BE SUPPLIED AND INSTALLED BY TENANT (PLENUM RATED REQUIRED).
5. VERIFY POWER REQUIREMENTS FOR USER PROVIDE EQUIPMENT PRIOR TO INSTALLATION OF RELATED POWER & SIGNAL CONNECTIONS.
6. GENERAL CONTRACTOR TO INCLUDE ADDITIONAL (10) POWER AND DATA OUTLETS AND (2) MORE FLOOR BOXES IN THE PROPOSAL.

GENERAL NOTES:

SEE SHEET A0.1 & A0.2 FOR ADDITIONAL GENERAL NOTES

FLOOR PLAN

1. FOR METAL STUD SIZES AND SPACING SEE LIMITING WALL HEIGHT TABLE L/240
2. ALL WALL STUDS TO BE 3-5/8", U.O.N.
3. ALL RESTROOM WALL STUDS TO BE 6" AND FULLY INSULATED, U.O.N.
4. SEE KEYNOTE INFORMATION FOR ANY REQUIRED INSULATION.
5. CONTRACTOR SHALL PROVIDE RECORD DOCUMENTS AND PROVIDE SAID DOCUMENTATION TO TENANT CONSTRUCTION COORDINATOR OR ARCHITECT UPON COMPLETION.
6. CONTRACTOR TO FIELD VERIFY EXISTING CONDITIONS (IF ANY) AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.
7. CONTRACTOR TO INCLUDE ALL FLOOR PREPARATIONS IN BASE BID.
8. ALL DRYWALL CORNERS AND COLUMN EDGES TO BE FINISHED WITH CORNER "L" BEAD. ALL EXPOSED EDGES TO BE FINISHED WITH METAL TRIM.
9. DIMENSIONS OF COLUMN FURRING IN A COMMON AREA ARE TO BE EQUAL DIMENSIONS WITH EDGES ALIGNED, U.O.N.
10. INTERIOR GYPSUM BOARD WALL SHALL CONFORM TO ICC REPORT ESR-1338.
11. GENERAL CONTRACTOR TO REVIEW AND PRICE ALL STANDARDS WITHIN US HEALTHWORKS SPECIFICATIONS DATED 7/26/17

FLOOR PLAN NOTES

1. NEW BACKING SUPPORT BEHIND WALL-MOUNTED EQUIPMENT LOCATIONS. GENERAL CONTRACTOR TO SUBMIT BACKING PLAN FOR ARCHITECT AND TENANT APPROVAL. SEE (9 / A7.1)
2. NEW LOW WALL WITH 1-1/2" THICK PLASTIC LAMINATE TOP CAP AND 1/2" ALUMINUM REVEAL, PROVIDE STEEL SUPPORT AS REQUIRED. WALL TO BE 42" A.F.F.
3. CUSTOM RECEPTION DESK WITH TRANSACTION TOP AND ADA ACCESSIBLE PORTION. BASE STORAGE SHALL HAVE A BOX/BOX/FILE AND (1) MOBILE FORM PEDESTAL COORDINATE GROMMET LOCATION ON SITE. SEE DESK ELEVATIONS FOR ADDITIONAL INFORMATION.
4. NEW UPPER & LOWER CABINETRY WITH DRAWERS, BACK SPLASH AND SINGLE-BASIN STAINLESS STEEL SINK WITH HYTRONIC GOOSENECK SINK FAUCET WITH DUAL BEAM INFRARED SENSOR FAUCET.
5. NEW UPPER & LOWER CABINETRY, NO DRAWERS OR BACK SPLASH.
6. NEW WORK COUNTER WITH BUILT-IN WALL BRACKETS AND TRANSACTION TOP. PROVIDE GROMMETS AS REQUIRED. SEE ELEVATIONS FOR ADDITIONAL INFORMATION.
7. NEW WORK COUNTER WITH BUILT-IN WALL BRACKETS, PROVIDE GROMMETS AS NEEDED.
8. NEW COFFEE MAKER TO BE PROVIDED AND INSTALLED BY TENANT. PROVIDE RECESSED WATER LINE.
9. NEW REFRIGERATOR TO BE PROVIDED AND INSTALLED BY TENANT. PROVIDE RECESSED WATER LINE FOR ICE MAKER.
10. NEW UPPER AND LOWER CABINETRY WITH DRAWERS, BACK SPLASH AND DOUBLE-BASIN STAINLESS STEEL SINK WITH SINGLE HANDLE DECK MOUNT FAUCET WITH INTEGRAL SPRAY. PROVIDE GARBAGE DISPOSAL AND INSTA-HOT.
11. NEW MICROWAVE TO BE PROVIDED AND INSTALLED BY TENANT.
12. SAW-CUT EXISTING CONCRETE FLOOR IN THIS AREA AS REQUIRED FOR NEW PLUMBING. SEE (16 / A7.2)
13. FIRE EXTINGUISHERS - LARSEN "ARCHITECTURAL SERIES" CABINET, 1-1/4" SQUARE TRIM, SEMI RECESSED WITH "VERTICAL DUO CLEAR ACRYLIC DOOR TYPE. CLEAR SATIN ANODIZE FINISH ALUMINUM.TO BE INSTALLED WITH LARSENS MP-10 MULTIPURPOSE ABC 10lb. (15 / A7.2)
14. PROVIDE NEW CEILING MOUNTED CUBICLE TRACK AND ROLLER BY HEALTHCARE CURTAINS #5000 SERIES, TRACK STYLE 5 WITH DIAMOND DRAPERY, EQUALIZER FABRIC IN LIGHT BLUE. CONTACT AUSTIN@ DIAMONDDRAPHERY.COM. BOTTOM OF CURTAIN TO BE AT 12" A.F.F.
15. FLATSCREEN TV TO BE PROVIDED BY TENANT.
16. NEW LOWER CABINET WITH BULLNOSED FRONT EDGE. PROVIDE 6" TRASH RING OPENING.
17. NEW WORK COUNTER WITH BUILT-IN WALL BRACKETS. BASE STORAGE TO HAVE A BOX/BOX/FILE. COORDINATE GROMMET LOCATION ON SITE. SEE ELEVATION FOR MORE INFORMATION.
18. NEW LEAD LINED LOW WALL (WITHOUT TOP CAP), PROVIDE STEEL SUPPORT AS REQUIRED. WALL TO BE 72" A.F.F.
19. NEW LOWER CABINETRY WITH NO DRAWERS, PROVIDE BACK SPLASH AND SINGLE-BASIN STAINLESS STEEL SINK WITH HYTRONIC GOOSENECK SINK FAUCET WITH DUAL BEAM INFRARED SENSOR
20. NEW UPPER & LOWER CABINETRY WITH DRAWERS, BACK SPLASH AND SINGLE-BASIN STAINLESS STEEL SINK WITH HYTRONIC GOOSENECK SINK FAUCET WITH DUAL BEAM INFRARED SENSOR.
21. INFILL WALL WHERE DOOR REMOVED. GC TO VERIFY AND MATCH ADJACENT CONSTRUCTION. SEE 13/A7.1
22. THIS SIDE OF WALL TO BE EXPOSED METAL STUDS. PROVIDE FALSE MULLION TO ATTACH METAL STUDS. SEE 14/A7.1
23. PROVIDE OPAQUE WINDOW FILM AT THIS WINDOW, T.B.D.
24. NEW WALLS OF THIS ROOM TO BE INSULATED WITH R-11, UNFACED FIBERGLASS INSULATION.
25. FLOAT EXISTING WALLS LEVEL FOR FINISH TO MATCH NEW WALLS.
26. IN RESTROOM AND WET WALL LOCATIONS PROVIDE 5/ 8" MOISTURE RESISTANT GREEN/PURPLE BOARD ON ALL WET WALLS.
27. REMOTE FLUSH VALVE LOCATED HERE.
28. INCLUDE LOCKS ON ½ OF ALL UPPER AND LOWER CABINETS AT ALL LOCATIONS.

POWER & SIGNAL PLAN NOTES

30. ALL FURNITURE TO BE PROVIDED AND INSTALLED BY TENANT. VERIFY EXACT LOCATIONS WITH FURNITURE DEALER PRIOR TO INSTALLATION OF RELATED POWER & SIGNAL CONNECTIONS.
31. SAW-CUT EXISTING CONCRETE FLOOR THIS AREA AS REQUIRED FOR NEW POWER. NEW RECEPTACLES TO BE COMPLETELY FLUSH AND ACCEPT FLOOR SURFACE FOR CONCEALED LOOK, SEE (16 / A7.2)
32. PROVIDE #12 GROUNDING WIRE TO SERVER RACK.
33. KAN BAN STORAGE PANELS BY GRAINGER. GENERAL CONTRACTOR TO PROVIDE SHOP DRAWINGS FOR QUANTITIES. GC TO INCLUDE ALLOWANCE OF $7,500 FOR PANELS AND BACKING
34. PROVIDE POWER AS REQUIRED FOR EXTERIOR SIGNAGE, COORDINATE WITH CLIENTS SIGN VENDOR.

LEGENDS

INDICATES AREA NOT IN CONTRACT (N.I.C.)

WALL LEGEND

ALL WALLS TO BE LEVEL 4 FINISH.

- EXISTING CONSTRUCTION
- (L / A7.1) LOW WALL PARTITION, SEE PLAN SPECIFIC NOTES FOR WALL HEIGHT
- (A / A7.1) FULL HEIGHT PARTITION TO 6" ABOVE CEILING, INSULATED WITH R-11 UNFACED FIBERGLASS.
- (X / AX.X) LED LINED FULL HEIGHT PARTITION TO 6" ABOVE CEILING
- (X / AX.X) LED LINED LOW WALL PARTITION, SEE PLAN SPECIFIC NOTES FOR WALL HEIGHT

NOTE: SEE METAL WALL STUD TABLE ON SHEET A7.1 TO SELECT APPROPRIATE WALL STUD SIZE FOR WALL HEIGHT.

POWER AND SIGNAL LEGEND

- NEW 110v. DUPLEX RECEPTACLE, MOUNTED VERTICALLY AT +18" A.F.F., U.O.N. "C" DESIGNATES RECESSED TYPE SOCKET.
- NEW DEDICATED 110v./20 AMP DUPLEX RECEPTACLE, MOUNTED VERTICALLY AT +18" A.F.F., U.O.N.
- NEW 110v. DUPLEX RECEPTACLE, MOUNTED 6" ABOVE COUNTER OR SPLASH.
- NEW 110v. FOURPLEX RECEPTACLE, MOUNTED AT +18" A.F.F., U.O.N.
- NEW DATA OUTLET MUD RING, WALL-MOUNTED AT 18" A.F.F., U.O.N. PROVIDE PULL ROPE TO ABOVE ACCESSIBLE CEILING SPACE.
- NEW 110v. FOURPLEX RECEPTACLE, MOUNTED 6" ABOVE COUNTER OR SPLASH.
- DEDICATED 110v./20 AMP FOURPLEX RECEPTACLE, MOUNTED 6" ABOVE COUNTER OR SPLASH.
- NEW 110v. DUPLEX RECEPTACLE, MOUNTED FLUSH IN FLOOR BOX WITH FITTINGS. PROVIDE RATING AS REQUIRED. "P" DESIGNATES PEDESTAL TYPE
- WALL-MOUNTED 4'-0"W X 4'-0"H X 3/4" THICK, FIRE-RATED PLYWOOD BACKBOARD PANEL. BOTTOM OF PANEL TO BE INSTALLED AT 3'-0" A.F.F. PAINT TO MATCH WALL. PROVIDE (2) 20 AMP DEDICATED FOURPLEX OUTLETS, (1) FOR TELEPHONE EQUIPMENT & (1) FOR SECURITY.

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FLOOR PLAN AND POWER & SIGNAL PLANS

DATE	REMARKS
11/7/17	DD SET ISSUED FOR CLIENT REVIEW
12/4/2017	ISSUE FOR BID

PA / PM:	S. HOOSHAMND
DRAWN BY:	J.A.U.
JOB NO.:	SNR17-6159-00

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A2.1

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Mon, 04 Dec 2017

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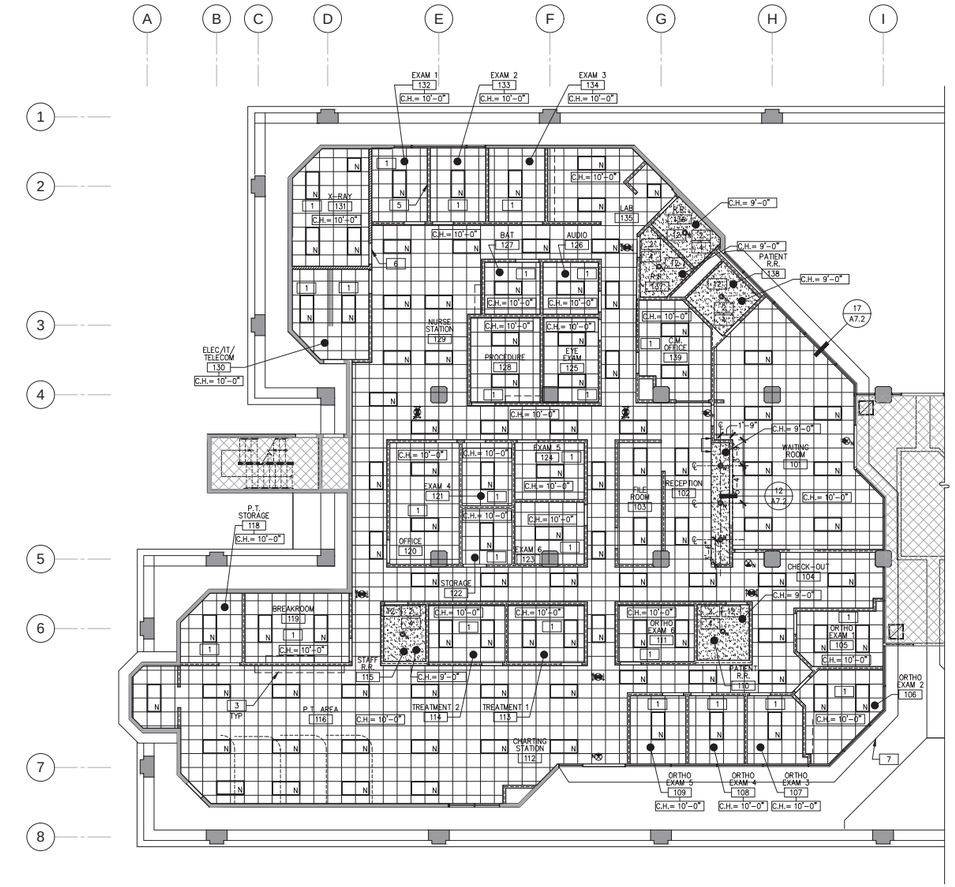
FINISH PLAN
SCALE: 1/8"=1'-0"



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

GENERAL NOTES:

SEE SHEET A0.1 & A0.2 FOR ADDITIONAL GENERAL NOTES

REFLECTED CEILING PLAN

1. SEE KEYNOTE INFORMATION FOR ANY REQUIRED INSULATION.

FINISH PLAN

1. SEE ENLARGED RESTROOM ELEVATIONS FOR WALL FINISHES.
2. SEE MILLWORK ELEVATIONS FOR COUNTERTOP AND CABINETRY FINISHES.
3. PROVIDE APPROPRIATE SEALER FOR ALL NEW FINISHES PER MANUFACTURER'S RECOMMENDATION.
4. PROTECT FINISHES FROM MARS, MARKS, INDENTATIONS, AND OTHER DAMAGE FROM CONSTRUCTION OPERATIONS AND PLACEMENT OF EQUIPMENT AND FIXTURES DURING REMAINDER OF CONSTRUCTION PERIOD. USE PROTECTION METHODS RECOMMENDED IN WRITING BY MANUFACTURER.
5. INSTALLATION LEVELS OF GYPSUM BOARD FINISHING AS FOLLOWS:
   5.1. LEVEL 4 FINISH: IN OFFICES AND OTHER AREAS THAT RECEIVE LOWER PUBLIC TRAFFIC AND VISIBILITY.
6. ROOMS TO RECEIVE PAINT (P-1), RUBBER BASE (RB-1) AND LUXURY VINYL TILE(LVT-1), U.O.N.
7. PREPARE WALLS TO RECEIVE (2) COATS EGGSHELL PAINT, U.O.N.
8. ALL WALLS TO BE PRIMED WITH SHERWIN WILLIAMS PROMAR 200 ZERO VOC PRIMER.
9. GC TO PROVIDE MOISTURE TEST ON SLAB FOR ARCH AND US HEALTHWORKS REVIEW PRIOR TO ORDERING AND INSTALLING FLOORING.
10. SEE US HEALTHWORKS SPECIFICATIONS FOR ALL FINISH REQUIREMENTS.

REFLECTED CEILING NOTES

1. NEW CEILING GRID/TILE TO BE CENTERED IN THIS ROOM.
2. NEW GYPSUM BOARD CEILING SYSTEM.
3. DASHED LINE INDICATES LOCATION OF UPPER CABINETRY.
4. NEW LIGHT FIXTURE TO BE CENTERED IN THIS ROOM.
5. TYPICAL INSTALLATION OF LIGHT SWITCHES AND T-STATS THROUGHOUT, U.O.N., SEE 14 / A7.2
6. PROVIDE PHILLIPS CHLORIDE CALIBER SIGNAGE CS-A-2-R-ME14 120/277V WALL MOUNTED LED "XRAY IN USE" LIGHT WITH RED LETTERS ABOVE AQ DOOR. TO BE OFCI.
7. PROVIDE FALSE HORIZONTAL MULLION AT 10' A.F.F. FOR CEILINGS TO DIE INTO. PROVIDE OPAQUE FILM ABOVE CEILING GLAZING.

FINISH NOTES

11. NEW PAINT IN THIS ROOM TO BE SEMI-GLOSS.
12. NEW GYPSUM BOARD SOFFIT/CEILING TO RECEIVE PAINT (P-7)
13. GENERAL CONTRACTOR TO PROVIDE TEXTURE 3D WALL PAINTED WITH ICICLE AT THIS WALL. CONTACT TEXTURES3D@PANELS.COM. SEE A/A5.2
14. PROVIDE 48" ACROVYN #SSM 20 SURFACE MOUNTED 90 DEGREE CORNER GUARDS IN PEARL GRAY #136. INSTALL CORNER GUARD ABOVE BASE ON ALL CORNERS THROUGHOUT. TO BE INSTALLED AT ALL CORNERS.
15. PROVIDE ACROVYN #FR-225N 2.25H WITH CONTINOUS ALUMINUM RETAINERS, INSIDE MITERED CORNERS AND END CAPS. COLOR PEARL GRAY #136 INSTALLED AT 33" A.F.F. TWO WALLS OF ALL EXAM, ORTHO, TREATMENT, AND PROCEDURE ROOMS AND LOBBY PARTITION WALLS.
16. PROVIDE OPAQUE FILM ABOVE CEILING AT ALL GLAZING AREAS.
17. PROVIDE CLUTCH ROLLER SHADES WITH STAINLESS STEEL CHAIN, WRAPPED HEM BAR AND CASSETTE VALANCES. MERMET/S-SCREEN/COLOR "SEA SALT" 4% OPEN

LEGENDS

INDICATES AREA NOT IN CONTRACT (N.I.C.)

CEILING LEGEND

SUSPENDED CEILING SYSTEM THROUGHOUT TO BE ARMSTRONG 2'X2' ULTIMA TILE #1952 WITH BEVELED TEGULAR EDGE, WITH SILOUHETTE XL 9/16 BOLT SLOT 1/8" REVEAL WHITE GRID 7608. 2 / A7.2 THRU 11 / A7.2

5/8" TYPE "X" GYPSUM BOARD CEILING OR SOFFIT – USE RATED MATERIAL & CONSTRUCTION WHERE REQUIRED.

N NEW 2'X4' LED DIRECT/INDIRECT RECESSED LIGHT FIXTURE. MANUF: LITHONIA "AVANTE SERIES".

N NEW 2'x2' LED DIRECT/INDIRECT RECESSED LIGHT FIXTURE. MANUF: LITHONIA "AVANTE SERIES".

18. CONTRACTOR TO INCLUDE AN ALLOWANCE OF $5500 FOR BACKING AND KAN BAN PANELS IN THE STORAGE ROOMS.

NEW RECESSED LED DOWNLIGHT.

CEILING-MOUNTED EXIT SIGN W/ BATTERY BACKUP, SHADED QUADRANT INDICATES FACE OF LETTERING, SIGN TO INCLUDE DIRECTIONAL ARROW AS INDICATED. LITHONIA PRECISE EDGE LIT LED EXIT WITH GREEN LETTERS.
NOTE: ADDITIONAL DIRECTIONAL EXIT SIGNS MAY BE REQUIRED PRIOR TO FINAL INSPECTION AND SUBJECT TO BUILDING INSPECTOR.

SYMBOLS LEGEND

INDICATES LINE OF FLOOR TRANSITION

X / X INDICATES LOCATION OF NON-TYPICAL WALL FINISH

INDICATES DIRECTION OF FLOORING INSTALLATION

FINISH LEGEND

WALL FINISHES

P / 1 — ITEM: PAINT – TYPICAL THROUGHOUT, U.O.N.
MFR: SHERWIN WILLIAMS
COLOR/NO: 6238 ICICLE.
FINISH: EGG SHELL

P / 2 — ITEM: PAINT – RESTROOM WALLS
MFR: SHERWIN WILLIAMS
COLOR/NO: BEHR'S D470-2 OCEANIC CLIMATE
FINISH: SEMI-GLOSS

P / 3 — ITEM: PAINT – ACCENT
MFR: SHERWIN WILLIAMS
COLOR/NO: OLYMPIC'S D58-4 DOVER GRAY
FINISH: EGG SHELL

P / 4 — ITEM: PAINT – ACCENT
MFR: SHERWIN WILLIAMS
COLOR/NO: BEHR'S D470-2 OCEANIC CLIMATE
FINISH: EGG SHELL

P / 5 — ITEM: PAINT – ACCENT
MFR: SHERWIN WILLIAMS
COLOR/NO: 7582 SALUTE
FINISH: EGG SHELL

P / 6 — ITEM: PAINT – ACCENT
MFR: SHERWIN WILLIAMS
COLOR/NO: DOVER GREY
FINISH: EGG SHELL

P / 7 — ITEM: PAINT – RESTROOM CEILING
MFR: SHERWIN WILLIAMS
COLOR/NO: TBD
FINISH: TBD

FOR ADDITIONAL INFORMATION AND REQUIREMENTS REGARDING PAINT SEE www.waremalcomb.com/ws/09900-001.pdf

FRP / 1 — ITEM: FIBERGLASS REINFORCED PANELS
MFR: MARLITE
COLOR/NO: 211 GRIZZEL
INSTALLATION: FROM WALL BASE TO 54" A.F.F., U.O.N. (48" ABOVE TOP OF 6" SELF-COVED BASE)

FOR ADDITIONAL INFORMATION AND REQUIREMENTS REGARDING FRP SEE www.waremalcomb.com/ws/09985-001.pdf

VB / 1 — ITEM: VINYL BASE
MFR: ARMSTRONG/MEDINTECH
COLOR/NO: SILVER GRAY MODEL NO. 84197
SIZE: 6"
STYLE: COVED

RB / 1 — ITEM: RUBBER BASE
MFR: BURKE PROFILES CONTEMPORARY TYPE TP 4.5 SCBR-663-CAN.
COLOR/NO: SKY GRAY #663
SIZE: 4-1/2"
STYLE: COVED

RB/1 TO BE INSTALLED AT ALL LOCATIONS WITH EXCEPTION TO ROOMS WHERE SV/1 ARE TO BE INSTALLED.

FLOOR FINISHES

C / 1 — ITEM: CARPET – TYPICAL THROUGHOUT, U.O.N.
MFR: SHAW CONTRACT GROUP
STYLE: VAPOR TILE 18"X36", STYLE #5T036
COLOR/NO: MYTH 37505
INSTALLATION: GLUE-DOWN, BRICK OFFSET LANDSCAPE PATTERN – ONE DIRECTION

FOR ADDITIONAL INFORMATION AND REQUIREMENTS REGARDING CARPET SEE www.waremalcomb.com/ws/09680-001.pdf

LVT / 1 — ITEM: LUXURY VINYL TILE – FIELD TILE
MFR: T.B.BURKE LVT20WB-2367D.
COLOR/NO: NATURAL WOODS, LIGHT OAK
INSTALLATION: BRICK OFFSET LANDSCAPE, ALL ONE DIRECTION

FOR ADDITIONAL INFORMATION AND REQUIREMENTS REGARDING RESILIENT FLOOR COVERING SEE www.waremalcomb.com/ws/09650-001.pdf

SV / 1 — ITEM: SHEET VINYL
MFR: ARMSTRONG MENDITECH
COLOR/NO: SILVER GREY #84197
INSTALLATION: HEAT WELDED WITH 6" COVED BASE. USE SINGLE WELDING ROD WS103 LIGHT STERLING

FOR ADDITIONAL INFORMATION AND REQUIREMENTS REGARDING RESILIENT FLOOR COVERING SEE www.waremalcomb.com/ws/09650-001.pdf

MISCELLANEOUS FINISHES

PL / 1 — ITEM: PLASTIC LAMINATE – VERTICAL SURFACES
MFR: WILSONTART
COLOR/NO: #7942K-02 COCOBALA MATTE FINISH

PL / 2 — ITEM: PLASTIC LAMINATE – HORIZONTAL SURFACES
MFR: WILSONART
COLOR/NO: #1863K-55 BRAINBROOK GREY

SSM / 1 — ITEM: SOLID SURFACE
MFR: SILESTONE
COLOR/NO: #SS-00020 ALPINE WHITE

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REFLECTED CEILING AND FINISH PLANS

REMARKS	DATE
DD SET ISSUED FOR CLIENT REVIEW	11/7/17
ISSUE FOR BID	12/4/2017

PA / PM:	S. HOOSHMAND
DRAWN BY:	J.A.U.
JOB NO.:	SNR17-6159-00

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A3.1

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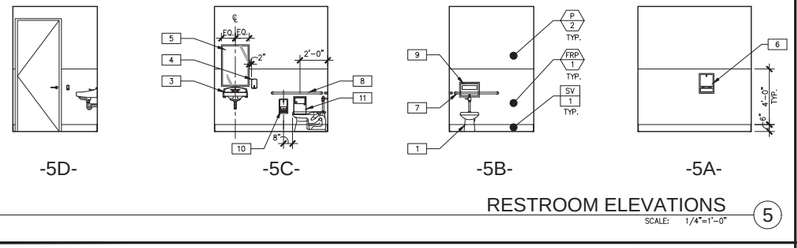
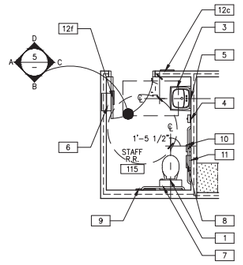
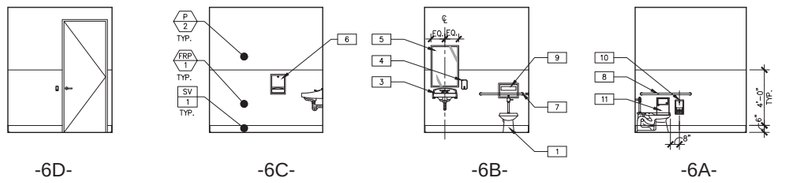


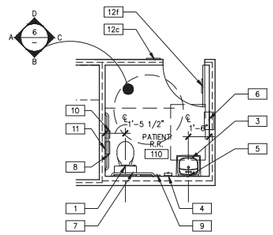
RESTROOM ELEVATIONS 5
SCALE: 1/4"=1'-0"



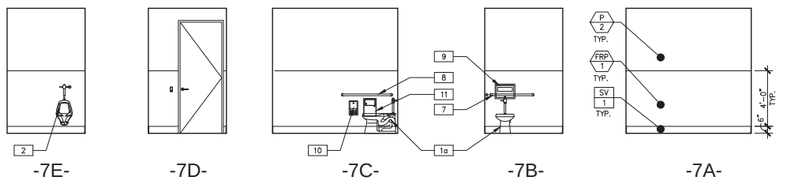
ENLARGED RESTROOM PLAN 1
SCALE: 1/4"=1'-0"



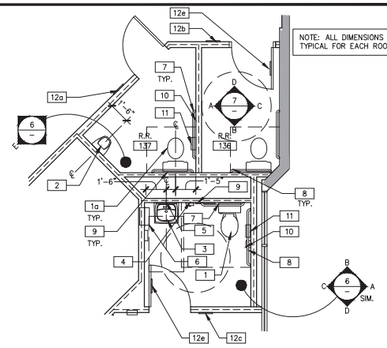
RESTROOM ELEVATIONS 6
SCALE: 1/4"=1'-0"



ENLARGED RESTROOM PLAN 2
SCALE: 1/4"=1'-0"



RESTROOM ELEVATIONS 7
SCALE: 1/4"=1'-0"



ENLARGED RESTROOM PLAN 3
SCALE: 1/4"=1'-0"

SEE SHEET A0.1 & A0.2 FOR GENERAL NOTES

SEE SHEET A0.3 FOR RESTROOM ACCESSIBILITY NOTES & DETAILS

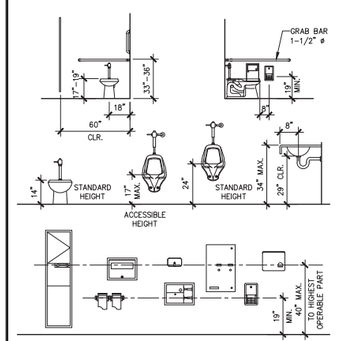
RESTROOM NOTES

1. WATER CLOSET – FULLY ACCESSIBLE, FLOOR-MOUNTED WITH FLUSH VALVE. KOHLER K4368 A.S. 3043.102 MADERA 1.6 GPF, CIT. CHINA ELONGATED.
1a. WATER CLOSET – FULLY ACCESSIBLE, FLOOR-MOUNTED WITH REMOTE ACTIVATED FLUSH VALVE. ZURN ZH6606AV-MSP WCI 1.6 GPF.
2. WATERLESS URINAL – FULLY ACCESSIBLE, WALL-MOUNTED.
3. LAVATORY – FULLY ACCESSIBLE, WALL-HUNG, SELF-RIMMING, PORCELAIN SINK WITH WRIST BLADE FAUCET CONTROLS. AMERICAN STANDARD "COMRADE" LAV. #0124.024 W/ FAUCET HOLES ON 4" CENTERS. COLOR: WHITE.
4. SOAP DISPENSER – WALL MOUNTED – 17216 MCKESSON 874029 GOJO TOUCHLESS HAND WASH DISPENSER CHROME/BLACK. MODEL #15066.
5. MIRROR AT SINK – 24"W X 36"H, BOBRICK #B-165 SERIES MIRROR WITH STAINLESS STEEL CHANNEL FRAME.
6. PAPER TOWEL DISPENSER – 17207 MKESSON 613677 GEORGIA PACIFIC 59498 MOTIONLESS HAND TOWEL DISPENSER EMOTION TRANSLUCENT SMOKE. VERIFY INSTALLATION ELEVATION WITH TENANT.
7. 36" GRAB BAR – TOILET COMPARTMENT REAR GRAB BAR – BOBRICK B-6806x36, 36L" X 1-1/2" DIAMETER GRAB-BAR WITH – BOBRICK B-2583 CONCEALED ANCHOR PLATES.
8. 42" GRAB BAR – TOILET COMPARTMENT REAR GRAB BAR, BOBRICK B-6806x42, 42"L X 1-1/2" DIAMETER GRAB-BAR WITH BOBRICK B-2583 CONCEALED ANCHOR PLATES.
9. TOILET SEAT COVER DISPENSER, SURFACE-MOUNTED – BOBRICK B-221 (OR EQUAL).
10. DOUBLE-ROLL TOILET TISSUE DISPENSER, SURFACE-MOUNTED – BOBRICK B-2740 (OR EQUAL).
11. SANITARY NAPKIN DISPOSAL, SURFACE-MOUNTED – BOBRICK B-270 (OR EQUAL).
12. SIGNAGE FOR WALLS AND DOORS. SEE DETAILS 2,3 & 4 ON SHEET A0.3a.
    a) MEN'S WALL-MOUNTED SIGN
    b) WOMEN'S WALL-MOUNTED SIGN
    c) ALL GENDER'S WALL-MOUNTED SIGN
    d) MEN'S DOOR-MOUNTED SIGN
    e) WOMEN'S DOOR-MOUNTED SIGN
    f) ALL GENDER'S DOOR-MOUNTED SIGN

SEE US HEALTHWORKS SPECIFICATIONS FOR ALL FIXTURE SPECS.

**KEYNOTE ITEMS 4 AND 6 TO BE OFCI.

RESTROOM MOUNTING HEIGHTS



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ENLARGED RESTROOM PLAN & ELEVATIONS

DATE	REMARKS
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DRAWN BY:	J.A.U.
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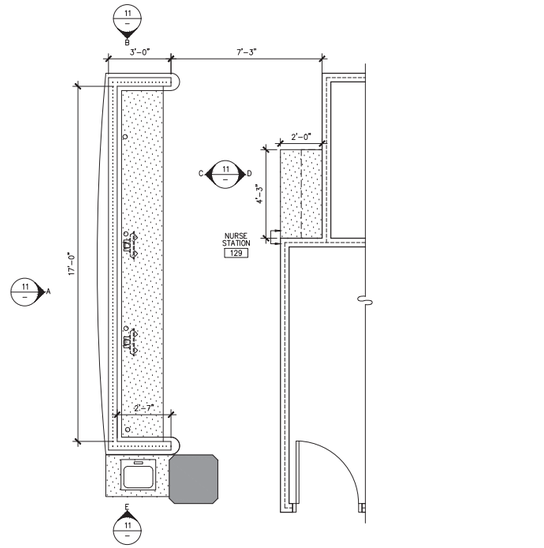
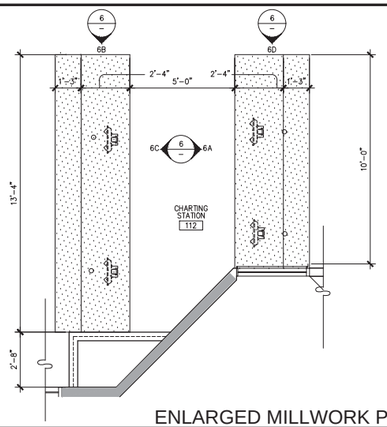
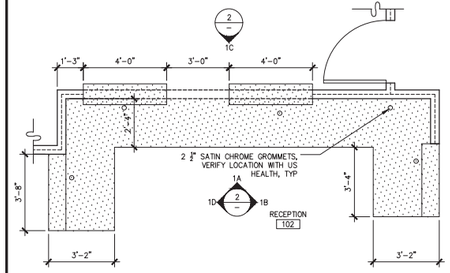


ENLARGED MILLWORK PLAN
SCALE: 3/8"=1'-0" 10



ENLARGED MILLWORK PLAN
SCALE: 3/8"=1'-0" 5



ENLARGED MILLWORK PLAN
SCALE: 3/8"=1'-0" 1

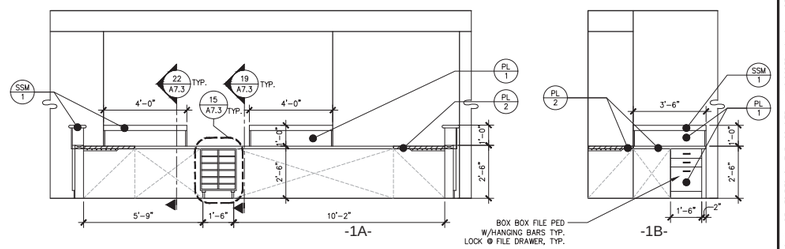
MILLWORK/CABINETRY NOTES:

SEE SHEET A0.2 FOR GENERAL NOTES

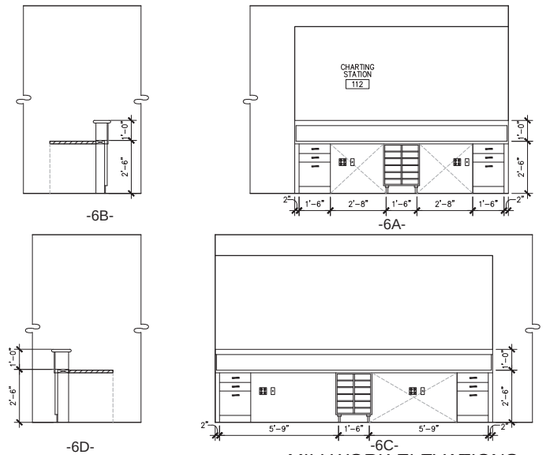
SEE SHEET A5.1 FOR FINISHES INFORMATION

FOR ADDITIONAL INFORMATION AND REQUIREMENTS REGARDING INTERIOR ARCHITECTURAL WOODWORK SEE www.waremalcomb.com/ws/06402-001.pdf

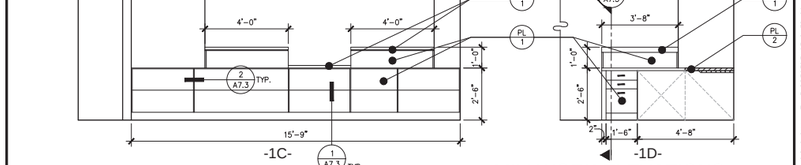
1. ALL MILLWORK SHALL CONFIRM TO THE CURRENT WOODWORK INSTITUTE STANDARDS [CUSTOM GRADE / PREMIUM GRADE]. ALL CABINETRY SHALL CONFORM TO THE CURRENT WOODWORK INSTITUTE STANDARDS [CUSTOM GRADE / PREMIUM GRADE].
2. SHOP DRAWINGS FOR ALL CABINETRY AND MILLWORK ARE REQUIRED TO BE SUBMITTED TO ARCHITECT AND OWNER FOR APPROVAL PRIOR TO FABRICATION AND INSTALLATION.
3. SEE ELEVATIONS FOR EXTERIOR FINISHES SPECIFICATIONS.
4. DOOR PULLS SHALL BE: 4" SATIN CHROMIUM WIRE PULLS.
5. COUNTERTOPS SHALL HAVE BACK-SPLASHES ONLY WHERE SHOWN ON ELEVATION.
6. CABINET INTERIORS SHALL BE WHITE MELAMINE, INCLUDING EDGES.
7. INTERIOR SHELVING SHALL BE COVERED IN WHITE MELAMINE.
8. DOORS SHALL BE OF FLUSH OVERLAY CONSTRUCTION.
9. DOORS EDGES SHALL BE EDGE BANDED TO MATCH THE FRONTS.
10. INTERIOR OF DOOR SHALL BE FACED WITH SAME MATERIAL AS THE FRONTS.
11. EACH CABINET DOOR TO BE NO LESS THAN 12" WIDE AND NO GREATER THAN 18" WIDE U.O.N.
12. (*) VERIFY ALL EQUIPMENT CLEARANCES.
13. SEE US HEALTHWORKS SPECIFICATIONS FOR ALL MILLWORK STANDARDS



MILLWORK ELEVATIONS
SCALE: 3/8"=1'-0" 2

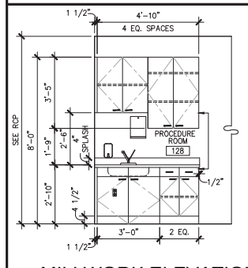


MILLWORK ELEVATIONS
SCALE: 3/8"=1'-0" 6

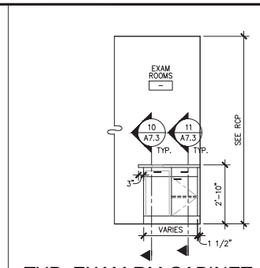


MILLWORK ELEVATIONS
SCALE: 3/8"=1'-0" 4

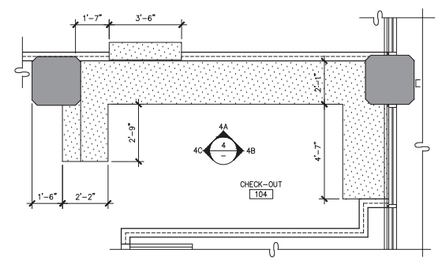
MILLWORK ELEVATIONS
SCALE: 3/8"=1'-0" 11



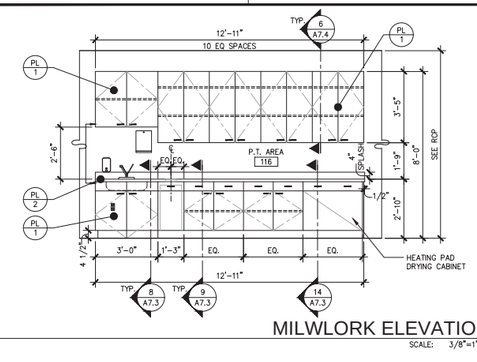
MILLWORK ELEVATION
SCALE: 3/8"=1'-0" 9



TYP. EXAM RM CABINET
SCALE: 3/8"=1'-0" 7



ENLARGED MILLWORK PLAN
SCALE: 3/8"=1'-0" 3



MILWLORK ELEVATION
SCALE: 3/8"=1'-0" 8

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ENLARGED PLANS MILLWORK ELEVATIONS

DATE	REMARKS
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PA / PM:	S. HOOSHMAND
DRAWN BY:	J.A.U.
JOB NO.:	SNR17-6159-00

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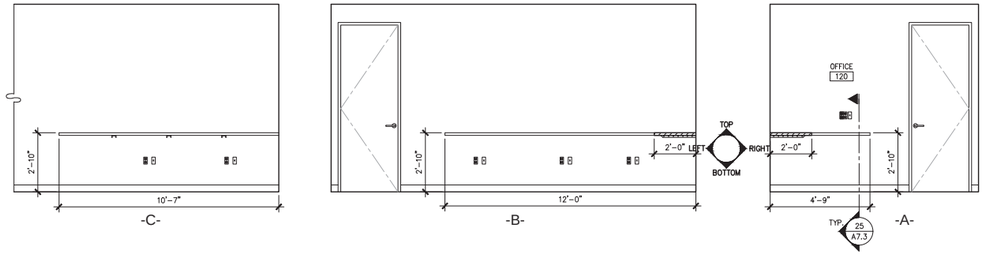

MILLWORK ELEVATION
SCALE: 3/8"=1'-0" 1

MILLWORK/CABINETRY NOTES:

SEE SHEET A0.2 FOR GENERAL NOTES
SEE SHEET A5.1 FOR FINISHES INFORMATION

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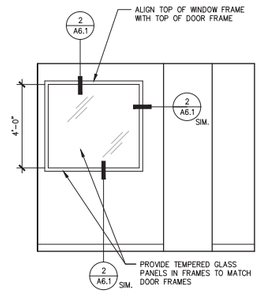
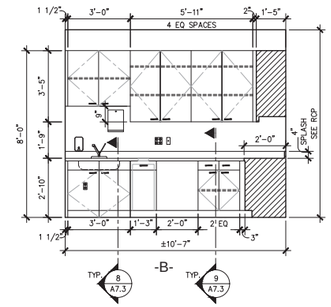
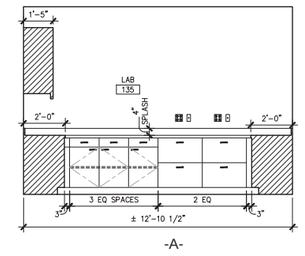
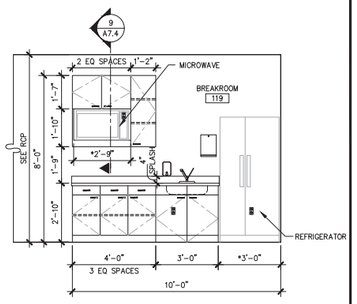


GLAZING ELEVATION
SCALE: 3/8"=1'-0" 6

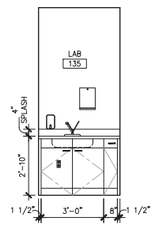




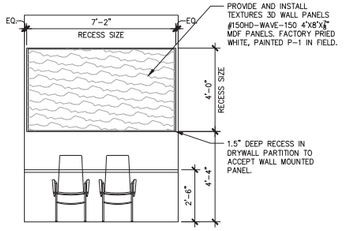
MILLWORK ELEVATION
SCALE: 3/8"=1'-0" 2



MILLWORK ELEVATION
SCALE: 3/8"=1'-0" 5



MILLWORK ELEVATION
SCALE: 3/8"=1'-0" 3



WAITING ROOM WAVE WALL
SCALE: 3/8"=1'-0" 4

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MILLWORK INTERIOR ELEVATIONS

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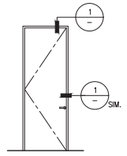
DOOR TYPES



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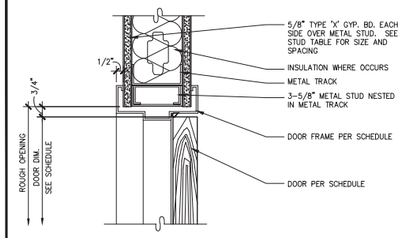
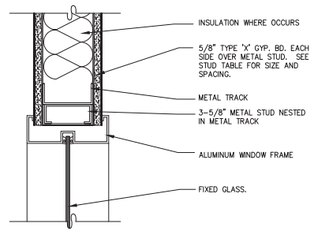


DOOR HEAD (JAMB SIM.)
SCALE: 3" = 1'-0" IDRAL-Head-07 (1)



WINDOW HEAD (JAMB & SILL SIM)
SCALE: 3"= 1'-0" IWAL-Window_head-01 (2)

DOOR SCHEDULE

DOOR NO.	ROOM NO.	DOOR TYPE ELEVATION	DOOR SIZE WIDTH	DOOR SIZE HEIGHT	DOOR SPECIFICATION	FRAME SPECIFICATION	FIRE RATING (MINUTES)	HARDWARE GROUP	OPERATING HARDWARE	DOOR COMPONENTS PER HARDWARE SPECIFICATIONS SECTION BELOW, U.O.N. PANIC DEVICE	CARD READER	CLOSER S: SURFACE X: CONCEALED	DOUBLE DOORS COORD.	DOUBLE DOORS ASTRAGAL	SEALS: A: ACOUSTICAL S: SMOKE W: WEATHER	DOOR BOTTOM	HOLD OPENS	DOOR STOP F: FLOOR STOP C: CONVEX STOP W: WALL STOP	KICKPLATES	COAT HOOK	NOTE: AT EXISTING DOORS WHICH REMAIN, HARDWARE INDICATED IN THIS SCHEDULE IS NEW AND TO BE ADDED TO THE EXISTING ASSEMBLY. (X) ITEM IN PARENTHESIS INDICATES EXISTING COMPONENT. G.C. TO VERIFY. DOOR KEYNOTES
101	101 WAITING ROOM	F1	3'-0"	7'-0"	D1	FR1	–	B1	1c	–	I	–	–	–	–	–	–	W	Y	–	1 3
101a	101 WAITING ROOM	F1	3'-0"	7'-0"	D1	FR1	–	B1	1c	–	–	–	–	–	–	–	–	W	Y	–	1 3
103	103 FILE ROOM	F1	3'-0"	7'-0"	D1	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	
105	105 ORTHO EXAM 1	F1	3'-0"	7'-0"	D1	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	
106	106 ORTHO EXAM 2	F1	3'-0"	7'-0"	D1	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	
107	107 ORTHO EXAM 3	F1	3'-0"	7'-0"	D1	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	
108	108 ORTHO EXAM 4	F1	3'-0"	7'-0"	D1	FR1	–	B1	1b	–	–	–	–	–	–	–	–	W	–	–	
109	109 ORTHO EXAM 5	F1	3'-0"	7'-0"	D1	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	
110	110 PATIENT R.R.	F1	3'-0"	7'-0"	D1	FR1	–	B1	1d	–	–	S	–	–	–	–	–	W	–	–	
111	111 ORTHO EXAM 6	F1	3'-0"	7'-0"	D1	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	
113	113 TREATMENT 1	F1	3'-0"	7'-0"	D1	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	
114	114 TREATMENT 2	F1	3'-0"	7'-0"	D1	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	
115	115 STAFF RESTROOM	F1	3'-0"	7'-0"	D1	FR1	–	B1	1d	–	–	S	–	–	–	–	–	W	–	–	
118	118 P.T. STORAGE	F1	3'-0"	7'-0"	D1	FR1	–	B1	1a	–	–	–	–	–	–	–	–	W	–	–	
119	119 BREAKROOM	F1	3'-0"	7'-0"	D1	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	1
120	120 OFFICE	F1	3'-0"	7'-0"	D1	FR1	–	B1	1b	–	–	–	–	–	–	–	–	W	–	Y	2
120a	120 OFFICE	F1	3'-0"	7'-0"	D1	FR1	–	B1	1b	–	–	–	–	–	–	–	–	W	–	Y	2
121	121 EXAM 4	F1	3'-0"	7'-0"	D1	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	
123	123 EXAM 6	F1	3'-0"	7'-0"	D1	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	
124	124 EXAM 5	F1	3'-0"	7'-0"	D1	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	
125	125 EYE EXAM	F1	3'-0"	7'-0"	D1	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	
126	126 AUDIO	F1	3'-0"	7'-0"	D1	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	
127	127 BAT	F1	3'-0"	7'-0"	D1	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	1
128	128 PROCEDURE	F1	3'-0"	7'-0"	D1	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	
130	130 ELEC./IT/	F1	3'-0"	7'-0"	D1	FR1	–	B1	1a	–	–	–	–	–	–	–	–	W	–	–	
131	131 X-RAY	F1	3'-0"	7'-0"	D2	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	
132	132 EXAM 1	F1	3'-0"	7'-0"	D1	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	
133	133 EXAM 2	F1	3'-0"	7'-0"	D1	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	
134	134 EXAM 3	F1	3'-0"	7'-0"	D1	FR1	–	B1	1e	–	–	–	–	–	–	–	–	W	–	–	
136	136 RESTROOM	F1	3'-0"	7'-0"	D1	FR1	–	B1	1d	–	–	S	–	–	–	–	–	W	–	–	
137	137 RESTROOM	F1	3'-0"	7'-0"	D1	FR1	–	B1	1d	–	–	S	–	–	–	–	–	W	–	–	
138	138 RESTROOM	F1	3'-0"	7'-0"	D1	FR1	–	B1	1d	–	–	–	–	–	–	–	–	W	–	–	
139	139 C.M. OFFICE	F1	3'-0"	7'-0"	D1	FR1	–	B1	1b	–	–	–	–	–	–	–	–	W	–	Y	2

DOOR HARDWARE

HARDWARE SPECIFICATIONS

BUTT HINGES:

1. IVES 3 KNUCKLE 3CB1 SERIES (OR 5 KNUCKLE 5BB1 SERIES) OR APPROVED EQUAL.
2. SIZE:
   a) 3-1/2" X 3-1/2" X 0.123 GA FOR 1-3/8" DOORS
   b) 4-1/2" X 4-1/2" X 0.134 GA FOR 1-3/4" DOORS TO 36" WIDE
   c) 4-1/2" X 4-1/2" X 0.180 GA FOR 1-3/4" FOR DOORS GREATER THAN 36" TO 42" WIDE.
   d) 5" X 4-1/2" X 0.190 GA FOR 1 3/4" FOR DOORS GREATER THAN 42" TO 48" WIDE.
   e) MANUFACTURER'S GUIDELINES FOR ALL OTHER DOOR THICKNESSES.
3. QUANTITY:
   1-1/2 PAIRS FOR DOORS 60" TO 90" IN HEIGHT AND AN ADDITIONAL 1/2 PAIR FOR EVERY 30" OR FRACTION THEREOF.
4. MATERIAL:
   a) ALL EXTERIOR OUTSWING DOOR BUTTS SHALL BE MADE OF NON-FERROUS MATERIAL AND SHALL HAVE STAINLESS STEEL HINGE PINS.
   b) ALL EXTERIOR OUTSWING DOORS SHALL HAVE NON-REMOVEABLE PINS.
   c) ALL FIRE RATED DOORS OR DOORS WITH CLOSING DEVICES SHALL HAVE BALL BEARING STEEL HINGES.

PIVOTS:

1. IVES 7000 SERIES.
2. HIGH STRENGTH FORCED BRONZE OR STAINLESS STEEL TILT-ON PRECISION BEARING AND BEARING PIN.
   a) BOTTOM AND INTERMEDIATE PIVOTS: ADJUSTABILITY OF MINUS 1/16", PLUS 1/8".

CLOSING DEVICES:

1. CONCEALED – FLOOR: DORMA BTS 80 SERIES.
   a) HYDRAULICALLY CONTROLLED, CEMENT CASE, MAXIMUM DEGREE DEAD STOP PERMITTED BY TRIM OR ADJACENT STRUCTURE. PROVIDE SPECIAL PINS, FLOOR PANS, AND LONGER SPINDLES TO ACCOMMODATE FLOOR AND JAMB CONDITIONS.
2. CONCEALED – OVERHEAD: LCN 2030 SERIES OR APPROVED EQUAL.
   a) CONCEALED IN TRACK BUMPERS WHERE SCHEDULED.
3. SURFACE – LCN 1461 SERIES OR APPROVED EQUAL.
   a) PROVIDE "DS" DESIGNER SERIES COVERS AT ALL DOORS VISIBLE BY THE PUBLIC (STANDARD COVERS AT MAINTENANCE ROOMS).
4. MAX. EFFORT TO OPERATE DOORS:
   a) EXTERIOR DOORS – 5 LBS.
   b) INTERIOR DOORS – 5 LBS.
   c) FIRE RATED DOORS – 15 LBS.
5. A CLOSING DEVICE MUST BE USED ON ALL FIRE-RATED DOORS.

STOPS:

1. IVES WS405/FS436 SERIES DOOR STOPS:
   a) WS406/407 CVX/CCV WALL STOP OR APPROVED EQUAL, TYPICAL U.O.N.
   b) FS436/R435 DOME FLOOR STOP (SIZE BASE TO FIT) OR APPROVED EQUAL – WHERE WALL STOP WILL NOT WORK.
   c) WHERE WALL OR FLOOR STOPS WILL NOT WORK PROVIDE AN OVERHEAD STOP OR SPRING "CRUSH" ARM ON THE CLOSER.

MAGNETIC HOLDERS:

1. LCN SEM7800 (24 VDC/VAC) MAGNETIC HOLDER OR APPROVED EQUAL AT FIRE-RATED AUTOMATIC RELEASE DOORS.
   a) PROVIDE EXTENDED ARMATURES AS REQUIRED TO SUIT CONDITIONS.

DOOR COORDINATORS (COORDINATORS TO MATCH DOOR FRAME):

1. IVES COR SERIES OR APPROVED EQUAL, SIZED TO FIT FROM STOP TO STOP.
   a) PROVIDE FULL LENGTH BRACKET FOR MOUNTING TO ALUMINUM FRAME.
2. IF JAMB STOP DOES NOT PERMIT USE OF IVES COR SERIES, SUBSTITUTE IVES CORG SERIES, GRAVITY COORDINATORS.

KICK PLATES:

1. IVES 8400/8402 SERIES OR APPROVED EQUAL.
2. PROVIDE 8400 SERIES AT NON-RATED DOORS AND 8402 SERIES AT FIRE RATED DOORS.
3. SIZE AS FOLLOWS:
   a) 10"x 2" LESS THAN DOOR WIDTH – SINGLE DOOR
   b) 10"x 1" LESS THAN DOOR WIDTH – PAIR OF DOORS.

WEATHER STRIPPING:

1. ZERO INTERNATIONAL (ZER) OR APPROVED EQUAL:
   a) THRESHOLDS – ZER 545 OR AS SHOWN ON SILL DETAILS AND AS REQUIRED TO SUIT CONDITIONS AT EXTERIOR DOORS.
   b) HEAD RAIN DRIPS – ZER 142 OR AS SHOWN ON HEAD DETAILS AND AS REQUIRED TO SUIT CONDITIONS AT EXTERIOR DOORS. (OMIT AT DOOR SHELTERED WITH OVERHANGS).
   c) BOTTOM RAIN DRIPS – ZER 11 OR AS SHOWN ON SILL DETAILS AND AS REQUIRED TO SUIT CONDITIONS. (AT IN-SWING DOORS).
   d) DOOR BOTTOMS/SHOES – ZER 8198 OR AS SHOWN ON SILL DETAILS AND REQUIRED TO SUIT CONDITIONS AT OUT-SWINGING EXTERIOR DOORS.
   e) DOOR BOTTOMS/SHOES – ZER 381 OR AS SHOWN ON SILL DETAILS AND AS REQUIRED TO SUIT CONDITIONS AT IN-SWINGING EXTERIOR DOORS.
   f) HEAD AND JAMB SEALS – ZER 8042 (OR AS REQUIRED TO MEET FIRE LABEL RATING) AT EXTERIOR DOORS AND FIRE RATED DOORS. (OMIT AT ALUMINUM FRAMES).
   g) ASTRAGALS – 383 AT NON-RATED WOOD DOORS AND 383FS AT FIRE RATED WOOD DOORS. (SEE LATCHGUARDS FOR EXTERIOR AND HOLLOW METAL DOORS)

LATCHGUARDS:

1. IVES LG SERIES OR APPROVED EQUAL FOR SINGLE OUTSWING EXTERIOR DOORS.
2. ZER 442P SERIES ASTRAGAL OR APPROVED EQUAL FOR PAIRS OF EXTERIOR HOLLOW METAL DOORS WITHOUT PANIC HARDWARE.

KEYING:

1. ON NEW CONSTRUCTION: PROVIDE SCHLAGE LARGE FORMAT INTERCHANGEABLE CORE CYLINDERS WITH CONSTRUCTION CORES AND A PERMANENT CORE.
2. ON EXISTING WORK: MATCH BUILDING STANDARD OR AS DIRECTED BY OWNER AND ARCHITECT.

BOLTS:

1. MANUAL FLUSH BOLTS:
   a) IVES FB458 OR APPROVED EQUAL
   b) LENGHT TO SET AS FOLLOWS:
      1b) BOTTOM BOLTS 12"
      2b) TOP BOLT 12" FOR DOORS TO 84" IN HEIGHT
      3b) TOP BOLT 12" PLUS AS 1" FOR EVERY ADDITIONAL INCH OF DOOR HEIGHT OVER 84"
   c) DO NOT USE ANY ROOMS NORMALLY OCCUPIED BY PEOPLE
2. AUTOMATIC FLUSH BOLTS:
   a) IVES FB30 OR APPROVED EQUAL FOR HOLLOW METAL DOORS
   b) IVES FB40 OR APPROVED EQUAL FOR WOOD DOORS
   c) AUTOMATIC FLUSH BOLTS MUST BE USED AT ALL PAIRS OR FIRE RATED DOORS.

OPERATING HARDWARE

1. CYLINDRICAL LOCKS – SCHLAGE "ND" SERIES LATCHING HARDWARE
   (FOR USE ON INTERIOR DOORS ONLY)
   LEVER DESIGN: "SPARTA"
   FINISH: #626 SATIN CHROMIUM PLATED (OR APPROVED EQUAL)
   a. ND80 – STOREROOM LOCK
   b. ND50 – OFFICE LOCK
   c. ND53 – ENTRANCE LOCK
   d. ND40S – BATH PRIVACY LOCK
   e. ND10S – PASSAGE LATCH
   f. ND60 – DOUBLE CYLINDER VESTIBULE LOCK
   g. ND70 – CLASSROOM LOCK
   h. ND75 – DOUBLE CYLINDER CLASSROOM LOCK
   i. ND80EL/EU – ELECTRIC LOCKSET (FAIL SAFE OR FAIL SECURE AS REQUIRED
2. MORTISE LOCKS – SCHLAGE "L" SERIES LATCHING HARDWARE
   FOR USE ON EXTERIOR AND INTERIOR DOORS
   LEVER DESIGN: "17A"
   FINISH: #626 SATIN CHROMIUM PLATED (OR APPROVED EQUAL)
   a. L9080 – STOREROOM LOCK
   b. L9050 – OFFICE LOCK
   c. L9453 – ENTRANCE LOCK
   d. L9040 – BATH PRIVACY LOCK
   e. L9010 – PASSAGE LATCH
   f. L9060 – DOUBLE CYLINDER VESTIBULE LOCK
   g. L9070 – CLASSROOM LOCK
   h. L9071 – DOUBLE CYLINDER CLASSROOM LOCK
   i. L9092EL/EU – ELECTRIC LOCKSET (FAIL SAFE OR FAIL SECURE AS REQUIRED)
3. PANIC HARDWARE – VON DUPRIN 98/99 SERIES
   (OR APPROVED EQUAL)
   a. RIM DEVICE: 99-L SINGLE DOOR
   b. MORTISE DEVICE: 9975-L SINGLE OR PAIR DOOR
   c. CONCEALED VERTICAL CABLE DEVICE: 9949-L PAIRS OF DOORS.
      DELETE: ASTRAGAL, CORDINATOR AND FLUSH BOLTS
      PROVIDE: ZERO 55X155 MEETING STILE SEALS AT NON-RATED DOORS AND ZERO 55FSX555FS MEETING STILE SEALS AT FIRE RATED DOORS
   d. SURFACE VERTICAL ROD DEVICE: 9927L PAIR OF DOORS
      DELETE: ASTRAGAL, CORDINATOR AND FLUSH BOLTS
      PROVIDE: ZERO 55X155 MEETING STILE SEALS AT NON-RATED DOORS AND ZERO 55FSX555FS MEETING STILE SEALS AT FIRE RATED DOORS.
   e. USE SCHLAGE 1-1/4" CYLINDER.
   f. USE FIRE RATED HARDWARE AS REQUIRED FOR FIRE RATING
4. PUSH/PULL PLATES – IVES 8000 SERIES
   a. 8200 4 X 16 PUSH PLATE
   b. 8305-6 4 X 16 PULL PLATE
5. CRL ALL GLASS DOORS HARDWARE
   FINISH: #626 SATIN CHROMIUM PLATED (OR APPROVED EQUAL)
   a. PA100 PANIC HANDLE
   b. PA100 PANIC HANDLE WITH KEY CYLINDER
   c. DB100-A DEADBOLT LOCK HANDLE WITH KEY CYLINDER
   d. PUSH AND/OR PULL HANDLES AS SHOWN ON DOOR ELEVATIONS, AS SPECIFIED OR SELECTED BY ARCHITECT. IF NONE SHOWN OR SPECIFIED, INCLUDE IVES #9266F LONG DOOR PULL(S) AND ASK FOR DIRECTION.

HARDWARE GROUPS

SINGLE WOOD OR HOLLOW METAL DOOR

(* = QUANTITY, TYPE AND SIZE DETERMINED BY DOOR TYPE AND SIZE. REFER TO HARDWARE SPECIFICATIONS)

B1 – STANDARD DOOR

* EA HINGE
1 EA OPERATING HARDWARE
1 EA STOP

DOOR & FRAME SPECIFICATIONS

D1 DOOR:
MANUFACTURER: MARSHFIELD
STYLE/SERIES: SIGNATURE SERIES
CONSTRUCTION: SOLID CORE 5-PLY
FACE MATERIAL: WHITE MAPLE, QUARTERED, SLIP MATCHED
FINISH: SLIP MATCHED
THICKNESS: 1-3/4"
NOTES:

D2 DOOR:
MANUFACTURER: RADIATION PRODUCTS INC.
STYLE/SERIES: T.B.D.
CONSTRUCTION: LEAD LINED,SOLID CORE 5-PLY
FACE MATERIAL: WILSONART-COCOBALA #7942K-07,
FINISH: PLASTIC LAMINATE
THICKNESS: 1-3/4"
NOTES:

FR1 FRAME:
MANUFACTURER: WESTERN INTEGRATED
MATERIAL: CLEAR ANOIDIZED ALUMINUM
NOTES:

REMARK KEY NOTES

1. PROVIDE 6"X24" TEMPERED VISION PANEL 6" FROM STIKE AND 42" AFF TO BOTTOM EDGE
2. ALL OFFICE DOORS TO HAVE BOBRICK #B-6717 COAT HOOK IN SATIN S.S. FINISH
3. PROVIDE 24" HIGH KICK PLATE
4. 36" X 45" H. VIEWING WINDOW IN ALUMINUM FRAME TO MATCH DOOR FRAMES. 3'-3" TO BOTTOM EDGE AFF.

GENERAL NOTES

SEE SHEET A0.1 & A0.2 FOR GENERAL DOOR NOTES

1. ALL HARDWARE SHALL MEET ALL APPLICABLE NATIONAL, STATE AND LOCAL BUILDING CODES.
2. REFER TO THE PARTITION PLAN AND SPECIFICATIONS (IF PROVIDED) FOR ADDITIONAL DOOR INFORMATION.
3. SOLID CORE DOORS TO BE LAMINATED WITH WILSONART–COCOALA, #7942K–07
4. ALL DOOR FRAMES TO BE FACTORY FINISHED. U.O.N.
5. PROVIDE RATED WIRE GLASS IN RATED ASSEMBLIES, U.N.O.
6. RATED DOORS SHALL HAVE AUTOMATIC CLOSERS AND COMPLY WITH REQUIREMENTS OF ALL GOVERNING CODES AND STANDARDS.
7. ALL EXISTING DOOR FRAMES TO BE PAINTED WITH SHERWIN WILLIAMS 6238 ICICLE IN GLOSS FINISH
8. ALL DOORS ARE TO BE MANUFACTURED PRE-FIT FOR EACH SPECIFIC HARDWARE GROUP. SHOP DRAWINGS FOR ALL DOORS AN HARDWARE ARE REQUIRED TO BE SUBMITTED TO THE ARCHITECT AND USHW TO REVIEW AND APPROVE PRIOR TO RELEASING DOORS AND HARDWARE FOR FABRICATION
9. SEE US HEALTHWORKS SPECIFICATIONS PACKAGE DATED 7/26/17 FOR ALL USHW STANDARDS THAT SHOULD BE FOLLOWED.

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DOOR SCHEDULE

DATE	REMARKS
11/7/17	DD SET ISSUED FOR CLIENT REVIEW
12/4/2017	ISSUE FOR BID

PA / PM:	S. HOOSHAMND
DRAWN BY:	J.A.U.
JOB NO.:	SNR17–6159–00

SHEET
A6.1

Mon, 04 Dec 2017

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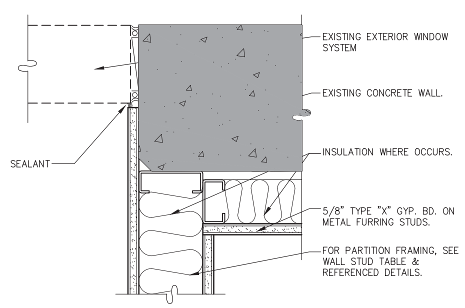


WALL JOINT AT PANEL END (11)

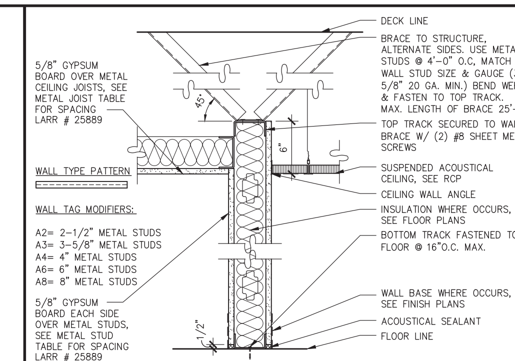
SCALE: 3"=1'-0" IWACO–Joint_panel_end–01

DESIGN BUILD METAL STUD (6)

DESIGN BUILD METAL STUD:

1. STEEL STUDS AND RUNNERS: MINIMUM BASE–METAL THICKNESS:
   a. 25 GAGE UNLESS INDICATED OTHERWISE ON DRAWINGS OR BELOW:
      1) INTERIOR METAL STUD/GYPSUM BOARD ASSEMBLIES, TYPICAL LOCATIONS: WITHSTAND LATERAL LOADING (AIR PRESSURE) OF 5 PSF WITH DEFLECTION LIMIT NOT MORE THAN L/240 OF PARTITION HEIGHT.
      2) INTERIOR METAL STUD/GYPSUM BOARD ASSEMBLIES AT LOCATIONS WITH CERAMIC TILE OR OTHER HARD SURFACE FINISHES: WITHSTAND TYPICAL LATERAL LOADING (AIR PRESSURE) WITH DEFLECTION LIMIT NOT MORE THAN L/360 OF PARTITION HEIGHT, MINIMUM 20 GAGE STUDS AT 16" ON CENTER
      3) WHERE WALL MOUNTED EQUIPMENT, WOODWORK, AND CASEWORK ITEMS ARE INDICATED OR ELSEWHERE AS SHOWN ON DRAWINGS, PROVIDE MINIMUM 16 GAGE STUDS.
      4) AT PARTITIONS SCHEDULED TO RECEIVE TILE BACKING PANELS OR CERAMIC TILE FINISH, PROVIDE MINIMUM 22 GAGE STUDS.
      5) AT JAMBS OF OPENINGS PROVIDE TWO MINIMUM 20 GAGE STUDS.
      6) CEILINGS: AT CEILINGS USING MOLD–MILDEW RESISTANT GYPSUM, FRAMING TO BE 16 INCHES O.C. FOR 5/8" GYPSUM.
      7) REFER TO DIVISION 5 FOR COLD FORMED STUD FRAMING WHICH IS EXPOSED TO WIND LOADS AND FOR STUDS CARRYING HEAVY VERTICAL LOADS (STONE TILE THICKER THAN 3/4 INCH, ETC)
   b. WHERE PARTITION HEIGHTS EXCEED STUD MANUFACTURER'S RECOMMENDED SPANS, PROVIDE STRUCTURAL CALCULATIONS.

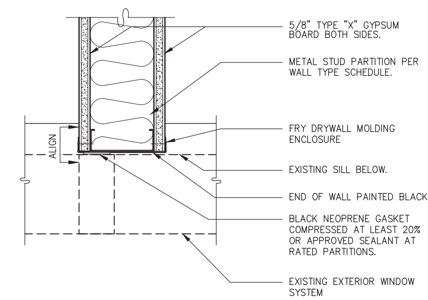
SCALE: N.S.C. IWAMT–Design_Build–Metal_Stud



WALL TYPE -A- (A)

WALL TO 6" ABOVE CEILING

SCALE: 1-1/2"=1'-0" IWAMT–Wall_type_A–01



PARTITION AT WINDOW (12)

SCALE: 3"=1'-0" IPISF–Partition_window–01a

LIMITING WALL HEIGHT TABLE-L/240 (8)

MEMBER DEPTH:
(EXAMPLE: 6" = 600 X 1/100 INCHES) ALL MEMEBER DEPTHS ARE TAKEN IN 1/100 INCHES. FOR ALL "T" SECTIONS MEMBER DEPTH IS THE INSIDE DIMENSION.

FLANGE WIDTH:
(EXAMPLE: 1 5/8" = 1.625" ~ 162 X 1/100 INCHES) ALL FLANGE WIDTHS ARE TAKEN IN 1/100 INCHES.

(600) (S) (162)-(54)

STYLE:
(EXAMPLE: STUD OR JOIST SECTION = S) THE FOUR ALPHA CHARACTERS UTILIZED BY THE DESIGNATOR SYSTEM ARE:

S = STUD OR JOIST, T = TRACK, U = CHANNEL, F = FURRING

MATERIAL THICKNESS:
(EXAMPLE: 0.054 IN. = 54 MILS; 1 MIL =1/1000 IN.) MATERIAL THICKNESS IS THE MINIMUM BASE METAL THICKNESS IN MILS. MINIMUM BASE METAL THICKNESS REPRESENTS 95% OF THE DESIGN THICKNESS.

INTERIOR NON-STRUCTURAL NON-COMPOSITE:

USE FOR FURRING PURPOSES ONLY, U.O.N.

(S) STUD MEMBER	SPACING (IN.) O.C.	5 PSF L/240
250S125–18	12"	10'–6"
250S125–18	16"	9'–7"
250S125–18	24"	8'–3"
250S125–33	12"	13'–2"
250S125–33	16"	12'–0"
250S125–33	24"	10'–6"
250S125–43	12"	14'–4"
250S125–43	16"	13'–0"
250S125–43	24"	11'–5"

(S) STUD MEMBER	SPACING (IN.) O.C.	5 PSF L/240
362S125–18	12"	14'–0"
362S125–18	16"	12'–2"
362S125–18	24"	9'–11" ●
362S125–33	12"	17'–7"
362S125–33	16"	16'–0"
362S125–33	24"	14'–0"
362S125–43	12"	19'–2"
362S125–43	16"	17'–5"
362S125–43	24"	15'–3"
362S125–54 (50 KSI)	12"	20'–6"
362S125–54 (50 KSI)	16"	18'–7"
362S125–54 (50 KSI)	24"	16'–3"
362S125–68 (50 KSI)	12"	21'–11"
362S125–68 (50 KSI)	16"	19'–11"
362S125–68 (50 KSI)	24"	17'–5"
400S125–18 x	12"	14'–9" ●
400S125–18 x	16"	12'–10" ●
400S125–18 x	24"	10'–5" ●
400S125–33	12"	19'–0"
400S125–33	16"	17'–3"
400S125–33	24"	15'–1"

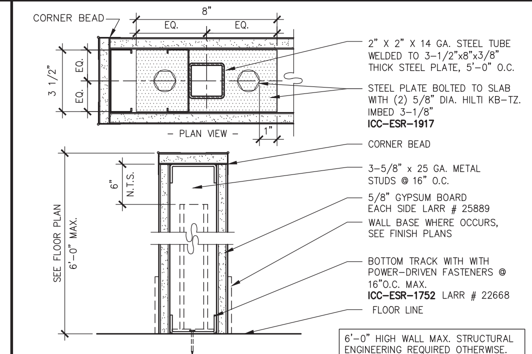
(S) STUD MEMBER	SPACING (IN.) O.C.	5 PSF L/240
400S125–43	12"	20'–9"
400S125–43	16"	18'–10"
400S125–43	24"	16'–5"
400S125–54 (50 KSI)	12"	22'–2"
400S125–54 (50 KSI)	16"	20'–2"
400S125–54 (50 KSI)	24"	17'–7"
400S125–68 (50 KSI)	12"	23'–8"
400S125–68 (50 KSI)	16"	21'–6"
400S125–68 (50 KSI)	24"	18'–10"
600S125–27 x	12"	24'–4" ●
600S125–27 x	16"	21'–6" ●
600S125–27 x	24"	17'–7" ●
600S125–33	12"	26'–2"
600S125–33	16"	23'–9"
600S125–33	24"	20'–6"
600S125–43	12"	28'–9"
600S125–43	16"	26'–1"
600S125–43	24"	22'–10"
600S125–54 (50 KSI)	12"	30'–9"
600S125–54 (50 KSI)	16"	27'–11"
600S125–54 (50 KSI)	24"	24'–5"
600S125–68 (50 KSI)	12"	33'–0"
600S125–68 (50 KSI)	16"	30'–0"
600S125–68 (50 KSI)	24"	26'–2"
800S125–43	12"	36'–1"
800S125–43	16"	32'–9"
800S125–43	24"	28'–8"
800S125–54 (50 KSI)	12"	38'–9"
800S125–54 (50 KSI)	16"	35'–2"
800S125–54 (50 KSI)	24"	30'–9"
800S125–68 (50 KSI)	12"	41'–11"
800S125–68 (50 KSI)	16"	38'–1"
800S125–68 (50 KSI)	24"	33'–4"

● INDICATES THAT WEB STIFFENERS ARE REQUIRED AT ENDS

x INDICATES THAT WEB STIFFENERS ARE REQUIRED AT ALL SUPPORT POINTS AND CONCENTRATED LOADS

NOTE: ALL STUD INFORMATION IS BASED ON: STEEL STUD MANUFACTURERS ASSOCIATION (SSMA) ICC ESR–3064P

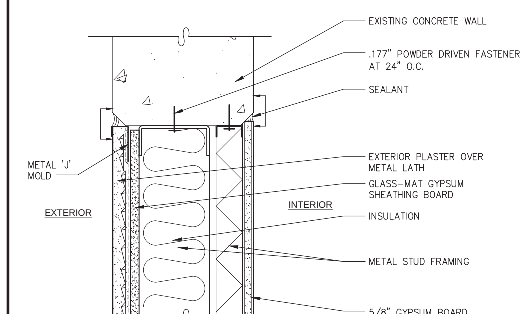
SCALE: NONE IWAMT–Height_table–L_240–SSMA



WALL TYPE -L- (L)

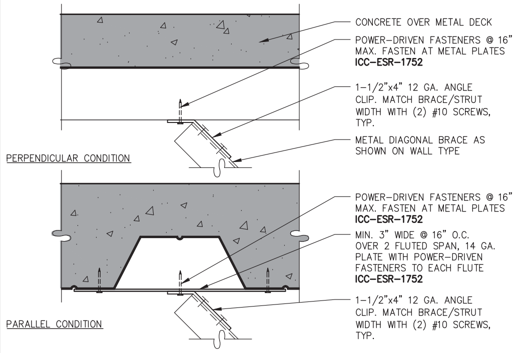
LOW WALL

SCALE: 3"=1'-0" IWAMT–Wall_type_L–02



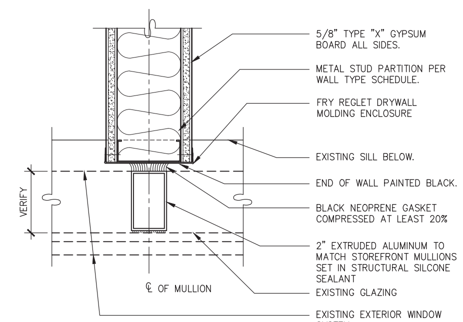
INFILL WALL (13)

SCALE: 3"= 1'-0" EWAPS–Infill_conc_mtl–01



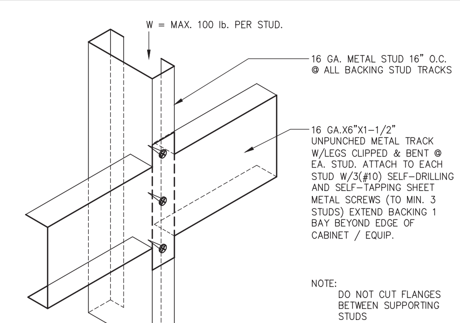
WALL SWAY BRACE (3)

SCALE: 3"=1'-0" IWAMT–Dia_brc_hd_md–01



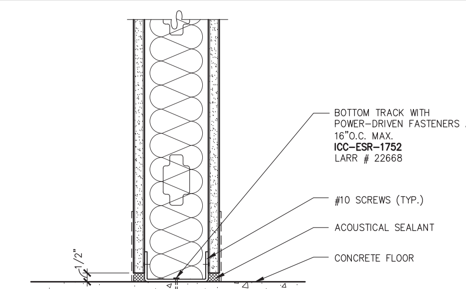
FALSE MULLION AT EXT. GLAZING (14)

SCALE: 3"= 1'-0" IPISF–False_mullion–01



BACKING DETAIL FOR MISC. EQUIP. (9)

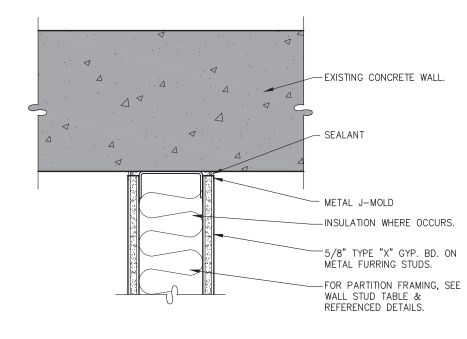
SCALE: N.T.S. IWAMI–Wall_equip_backing–01



WALL BASE (4)

FULL HEIGHT NON-RATED WALL

SCALE: 3"=1'-0" IWAMT–Base_typ–01



WALL AT PERIMETER (10)

SCALE: 3"=1'-0" IWACO–Wall_perimeter–01

WALL TYPE NOTES:

1. INTERIOR GYP. BD. WALLS SHALL CONFORM TO ICC–ESR–1338
2. SEE LIMITING WALL HEIGHT TABLE FOR METAL STUD GAUGE AND SPACING BASED ON WALL HEIGHTS AND STUD SIZES AS NOTED ON EACH WALL TYPE.
3. MAX. STUD SPACING SHALL BE 24".
4. MINIMUM FASTENER SIZE SHALL BE #6 – 1–1/4" SCREWS.
5. MAXIMUM FASTENER SPACING SHALL BE 12" FIELD AND 8" AT EDGES.
6. ALL WALL STUDS TO BE 3–5/8", U.O.N.
7. ALL RESTROOM WALL STUDS TO BE 6" AND FULLY INSULATED, U.O.N.

5

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DETAILS

DATE	REMARKS
11/7/17	DD SET ISSUED FOR CLIENT REVIEW
12/4/2017	ISSUE FOR BID

PA / PM:	S. HOOSHAMND
DRAWN BY:	J.A.U.
JOB NO.:	SNR17–6159–00

SHEET
A7.1

Mon, 04 Dec 2017
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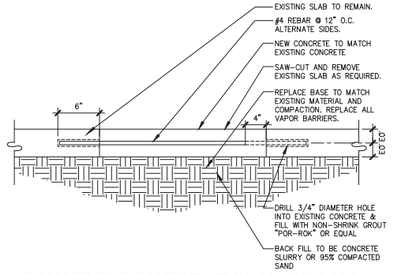
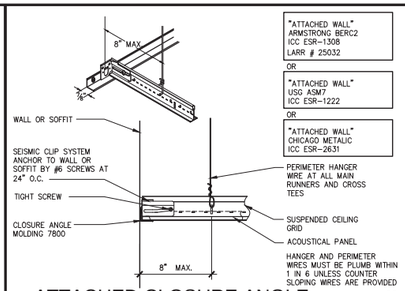


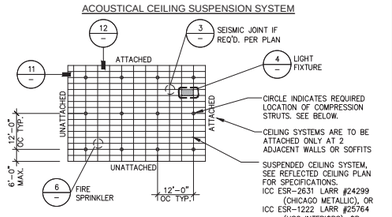
SAW-CUT CONCRETE SLAB REPAIR

SCALE: 1-1/2"=1'-0" IFLMI-Saw_cut_conc_slab_repair-01 (16)



ATTACHED CLOSURE ANGLE

SCALE: 3" = 1'-0" ICEAC-Clng_grid_wall_attach-ARMSTRONG (11)



LATERAL FORCE BRACING AND SUSPENSION

LATERAL FORCE BRACING: A STRUT FASTENED TO THE MAIN RUNNER SHALL BE EXTENDED TO THE STRUCTURAL MEMBERS SUPPORTING THE ROOF OR FLOOR ABOVE. LATERAL FORCE BRACING SHALL BE 12 FEET ON CENTER (MAXIMUM) AND BEGIN NO FARTHER THAN 6 FEET FROM WALLS. LATERAL FORCE BRACING MEMBERS MUST BE SPACED A MINIMUM OF 6" FROM ALL HORIZONTAL PIPING OR DUCT WORK THAT IS NOT PROVIDED WITH BRACING RESTRAINTS FOR HORIZ. FORCES. BRACING WIRES MUST BE ATTACHED TO THE GRID AND TO THE STRUCTURE IN SUCH A MANNER THAT THEY CAN SUPPORT A DESIGN LOAD OF NOT LESS THAN 200 POUNDS OR THE ACTUAL LOADS, WHICHEVER IS GREATER, WITH A SAFETY FACTOR OF 2.

THE FOLLOWING INSTALLATION DETAILS ARE TO BE CONSIDERED TO BE COMPLYING WITH THE ABOVE REQUIREMENTS.

NOTES:
1. WHERE THE ROOF SYSTEM IS COMPOSED OF WOOD BEAMS, PURLINS, AND SUB-PURLINS, THE 2 X 4 SUB-PURLINS ARE NOT TO BE CONSIDERED AS STRUCTURAL MEMBERS SUPPORTING THE ROOF.
2. CEILING SUSPENSION SYSTEM SHALL COMPLY WITH 808 AND 2506.2.1. COMPONENTS SHALL BE ASTM "HEAVY DUTY" CLASS.
3. THE COMPRESSION STRUT SHALL BE VERTICAL, AND SHALL NOT HANG MORE THAN 1 IN 6 OUT-OF-PLUMB.

METAL STUDS:

THE FOLLOWING SPANS ARE BASED UPON STUDS HAVING A 1-5/8" LEG WITH A 3/8" RETURN. DOUBLE STUDS ARE CONNECTED TOGETHER IN THE SHAPE OF A ⊢⊣, WITH ONE #6 SHEET METAL SCREW AT 16" O.C.. ATTACH THE METAL STUD TO THE T-BAR MAIN RUNNER WITH TWO #8 SCREWS. SEE DETAILS FOR ATTACHMENT TO STRUCTURE ABOVE.

STEEL STUDS	
3-5/8" x 25 GA.	TO 8'-0"
DBL 1-5/8 x 25 GA	TO 10'-0"
DBL 2-1/2" x 25 GA	TO 15'-0"
DBL 3-5/8" X 20 GA	TO 20'-0"

MANUFACTURED STRUTS:

PRE-MANUFACTURED STRUTS MAY ONLY BE USED IF ENGINEERING IS APPROVED BY THE BUILDING DEPARTMENT. GC TO SUBMIT FOR APPROVAL.

SUSPENDED CEILINGS

SCALE: N.T.S. ICEAC-Susp_vertical_strut_CatD-01 (9)

MEMBER DEPTH:
(EXAMPLE: 6" = 600 X 1/100 INCHES) ALL MEMEBER DEPTHS ARE TAKEN IN 1/100 INCHES. FOR ALL "I" SECTIONS MEMBER DEPTH IS THE INSIDE DIMENSION.

FLANGE WIDTH:
(EXAMPLE: 1 5/8" = 1.625" = 162 X 1/100 INCHES) ALL FLANGE WIDTHS ARE TAKEN IN 1/100 INCHES.

600 S 162 54

STYLE:
(EXAMPLE: STUD OR JOIST SECTION = S) THE FOUR ALPHA CHARACTERS UTILIZED BY THE DESIGNATOR SYSTEM ARE:

S = STUD OR JOIST, T = TRACK, U = CHANNEL, F = FURRING

MATERIAL THICKNESS:
(EXAMPLE: 0.054 IN. = 54 MILS; 1 MIL =1/1000 IN.) MATERIAL THICKNESS IS THE MINIMUM BASE METAL THICKNESS IN MILS. MINIMUM BASE METAL THICKNESS REPRESENTS 95% OF THE DESIGN THICKNESS.

CEILING SPAN TABLE NOTES:
1. VALUES ARE FOR SINGLE SPANS.
2. ALLOWABLE CEILING SPAN CALCULATIONS BASED ON 33KSI YIELD STRENGTH STEEL.
3. FOR FULLY BRACED CEILINGS, USE MID-SPAN BRACED VALUES.
4. END BEARING LENGTH = 1" MINIMUM.

SECTION:	(MIL)	4 PSF LATERAL SUPPORT OF COMPRESSION FLANGE UNSUPPORTED JOIST SPACING (IN.) O.C. 12"	16"	24"	MID-SPAN JOIST SPACING (IN.) O.C. 12"	16"	24"
362S125	18	9'-3"	8'-7"	7'-7"	12'-8"	11'-7	10'-0"
362S125	27	10'-8"	9'-10"	8'-10"	15'-0"	13'-11"	12'-4"
362S125	30	11'-0"	10'-2"	9'-1"	15'-6"	14'-4"	12'-10"
362S125	33	11'-5"	10'-7"	9'-5"	16'-2"	14'-10"	13'-3"
362S125	43	12'-8"	11'-8"	10'-5"	17'-9"	16'-5"	14'-8"
362S137	27	12'-0"	11'-2"	10'-0"	17'-2"	15'-11"	14'-3"
362S137	33	12'-11"	11'-11"	10'-8"	18'-4"	16'-11"	15'-2"
362S137	43	14'-3"	13'-2"	11'-8"	20'-0"	18'-6"	16'-7"
362S162	33	14'-8"	13'-7"	12'-2"	20'-10"	18'-11"	16'-6"
362S162	43	16'-2"	14'-11"	13'-4"	22'-8"	20'-7"	18'-0"
400S125	27	10'-11"	10'-1"	9'-1"	15'-5"	14'-3"	12'-9"
400S125	30	11'-4"	10'-5"	9'-4"	16'-0"	14'-9"	13'-2"
400S125	33	11'-9"	10'-10"	9'-8"	16'-7"	15'-3"	13'-8"
400S125	43	13'-0"	12'-0"	10'-8"	18'-3"	16'-10"	15'-0"
400S137	27	12'-4"	11'-5"	10'-3"	17'-7"	16'-4"	14'-8"
400S137	33	13'-3"	12'-3"	10'-11"	18'-9"	17'-4"	15'-7"
400S137	43	14'-7"	13'-6"	12'-0"	20'-7"	19'-0"	17'-0"
400S162	33	15'-0"	13'-11"	12'-6"	21'-5"	19'-10"	17'-9"
400S162	43	16'-7"	15'-3"	13'-8"	23'-4"	21'-7"	19'-4"
600S125	27	12'-5"	11'-6"	10'-4"	17'-11"	16'-6"	14'-9"
600S125	30	12'-9"	11'-10"	10'-8"	18'-5"	17'-1"	15'-3"
600S125	33	13'-2"	12'-3"	11'-0"	18'-11"	17'-7"	15'-10"
600S125	43	14'-6"	13'-4"	11'-11"	20'-6"	19'-0"	17'-0"
600S137	33	14'-11"	13'-9"	12'-5"	21'-5"	19'-10"	17'-10"
600S137	43	16'-3"	15'-0"	13'-5"	23'-1"	21'-5"	19'-3"
600S162	33	16'-11"	15'-8"	14'-1"	24'-5"	22'-8"	20'-5"
600S162	43	18'-5"	17'-0"	15'-3"	26'-4"	24'-4"	21'-11"

● INDICATES THAT WEB STIFFENERS ARE REQUIRED AT ENDS

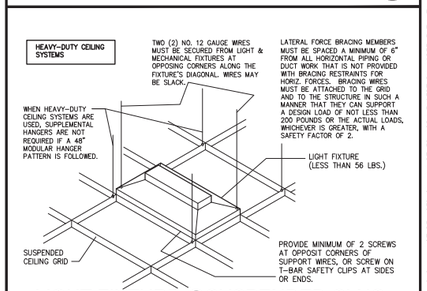
NOTE: ALL JOIST INFORMATION IS BASED ON STEEL STUD MANUFACTURERS ASSOCIATION (SSMA) ICC ESR-3064P

ALLOWABLE CEILING SPANS - L/240

SCALE: NONE ICEMT-Allowable_span-L240-SSMA (2)

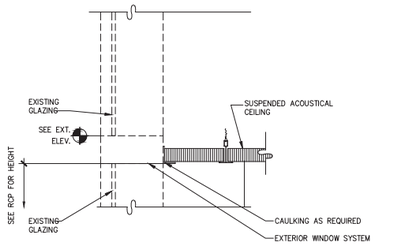
SEISMIC JOINT CLIP

SCALE: N.T.S. ICEAC-Clng_grid_seismic (3)



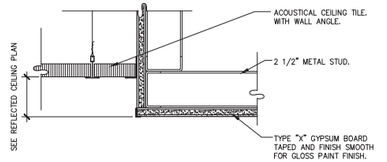
LIGHT FIXTURE @SUSPENDED CLNG

SCALE: N.T.S. ICEAC-Susp_light_heavyduty-02 (4)



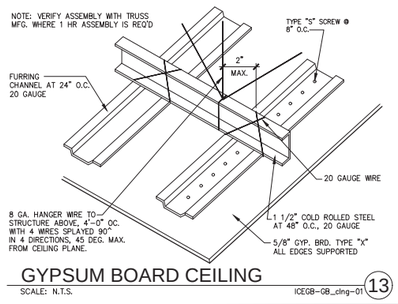
FALSE MULLION @ EXTERIOR WINDOW

SCALE: 3"=1'-0" ICEAC-Soffit_extr_window-01 (17)



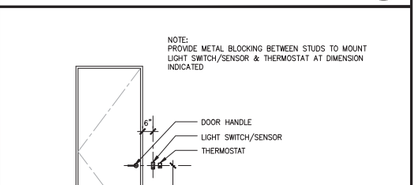
CEILING TRANSITION

SCALE: 3"= 1'-0" 6159_A72 (12)



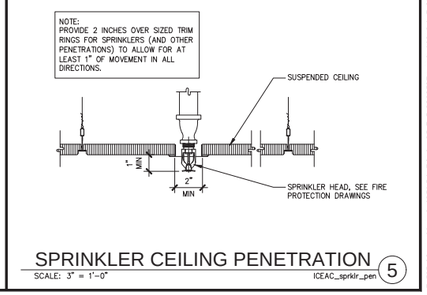
GYPSUM BOARD CEILING

SCALE: N.T.S. ICEGB-GB_clng-01 (13)



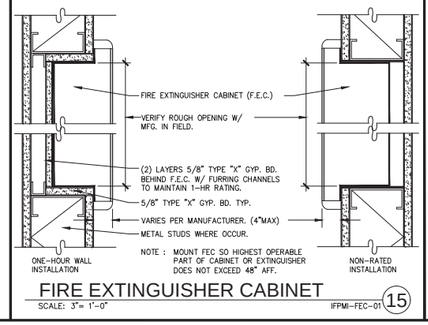
LT. SWITCH / T-STAT INSTALLATION

SCALE: 3/8"=1'-0" IMMI-Light_switch_T_stat-02 (14)



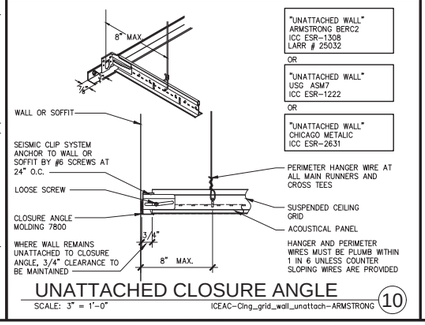
SPRINKLER CEILING PENETRATION

SCALE: 3" = 1'-0" ICEAC_sprklr_pen (5)



FIRE EXTINGUISHER CABINET

SCALE: 3"= 1'-0" IFPMI-FEC-01 (15)



UNATTACHED CLOSURE ANGLE

SCALE: 3" = 1'-0" ICEAC-Clng_grid_wall_unattach-ARMSTRONG (10)

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12/4/2017	ISSUE FOR BID

PA / PM:	S. HOOSHAMND
DRAWN BY:	J.A.U.
JOB NO.:	SNR17-6159-00

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Mon, 04 Dec 2017

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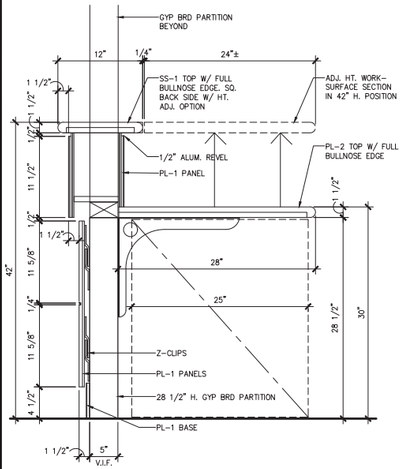
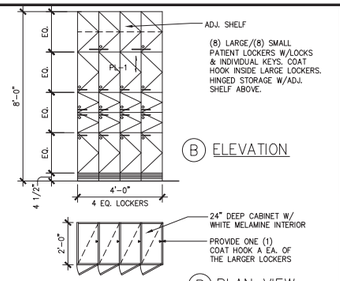
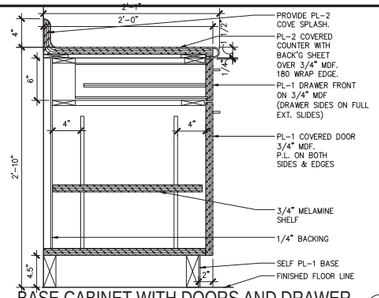


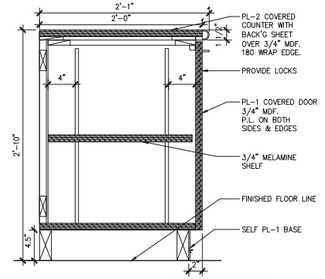
SECTION
SCALE: 1-1/2"=1'-0" 22



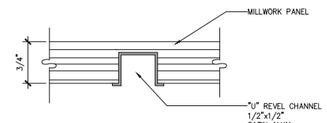
PATIENT LOCKERS
SCALE: 3/8"=1'-0" DETAIL NAME TO MATCH WITH CAD NAME 16



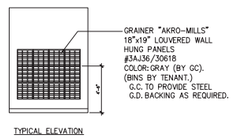
BASE CABINET WITH DOORS AND DRAWER
SCALE: 1 1/2"= 1'-0" 11



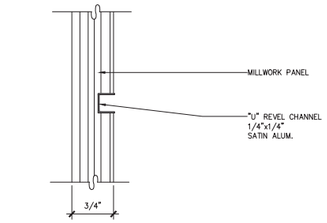
BASE CABINET W/ ADJ. SHELF
SCALE: 1 1/2"= 1'-0" 6



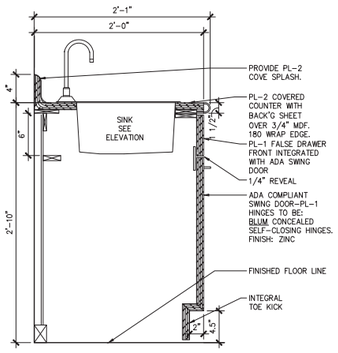
1/2" "U" REVEL CHANNEL
SCALE: N.T.S. 1



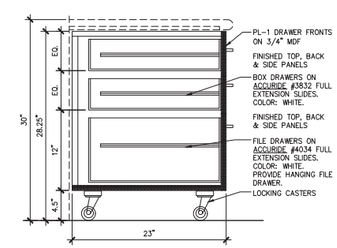
BIN STORAGE WALL PANELS
SCALE: 3/8"=1'-0" DETAIL NAME TO MATCH WITH CAD NAME 12



1/4" "U" REVEL CHANNEL
SCALE: N.T.S. 2



BASE CABINET W/ HAND SINK
SCALE: 1 1/2"= 1'-0" 8



2 BOX / 1 FILE MOBILE PEDESTAL
SCALE: 1 1/2"= 1'-0" 3

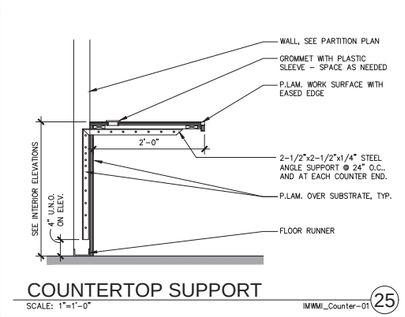
SECTION
SCALE: 1-1/2"=1'-0" 24

PHYSICAL THERAPY HAND SINK STATION
SCALE: 1-1/2"=1'-0" 18

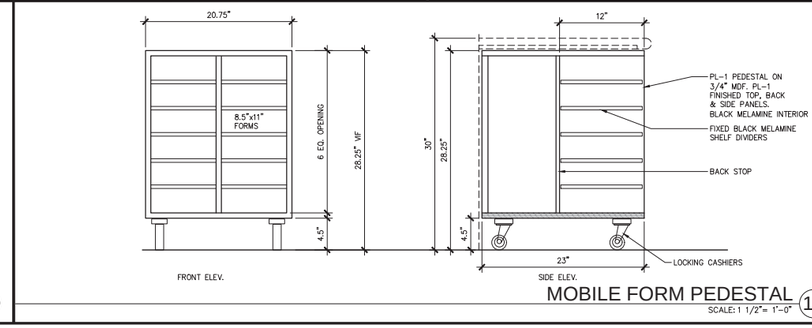
HEATING PAD DRYING CAB. STATION
SCALE: 1-1/2"=1'-0" 14

BASE CABINET W/ PULL-OUT SHELF
SCALE: 1 1/2"= 1'-0" 9

2 BOX / 2 FILE MOBILE PEDESTAL
SCALE: 1 1/2"= 1'-0" 4



COUNTERTOP SUPPORT
SCALE: 1"=1'-0" IMWM_Counter-01 25



MOBILE FORM PEDESTAL
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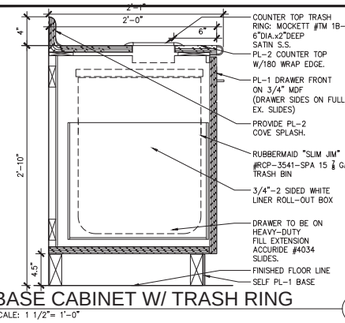
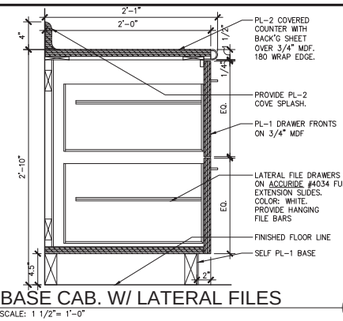


BASE CABINET W/ TRASH RING
SCALE: 1 1/2"= 1'-0" 10



BASE CAB. W/ LATERAL FILES
SCALE: 1 1/2"= 1'-0" 5

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MILLWORK DETAILS

REMARKS	DATE
DD SET ISSUED FOR CLIENT REVIEW	11/7/17
ISSUE FOR BID	12/4/2017

PA / PM:	S. HOOSHAMND
DRAWN BY:	J.A.U.
JOB NO.:	SNR17-6159-00

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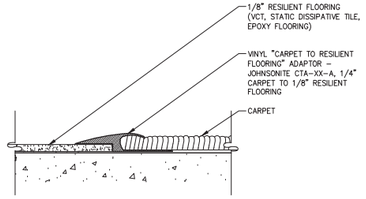
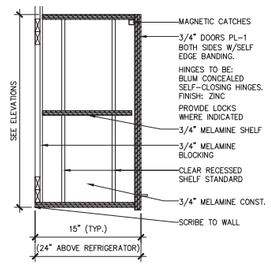
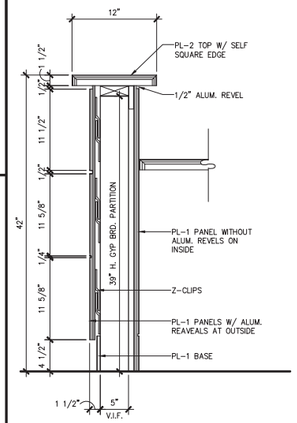


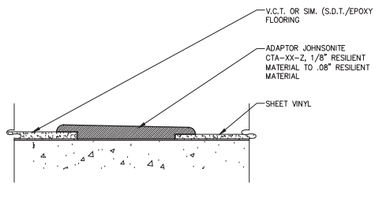
CARPET TO RESILIENT FLOORING 11
SCALE: FULL IFLTR-Carpet_resilient_floor_01



UPPER CABINET W/ DOOR 6
SCALE: 1 1/2"= 1'-0"



SECTION 2
SCALE: 1-1/2"=1'-0"



V.C.T. TO SHEET VINYL 12
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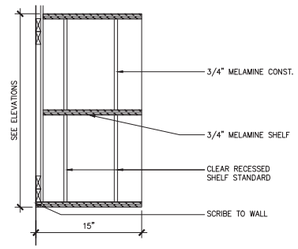
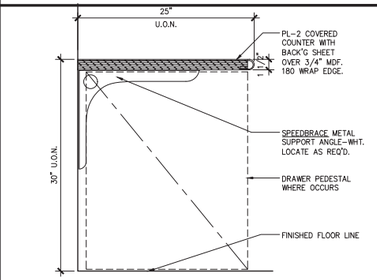
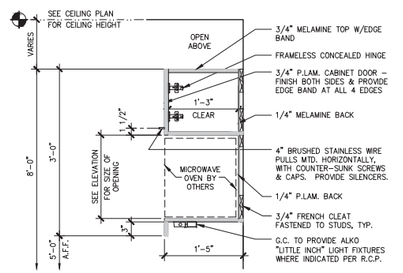


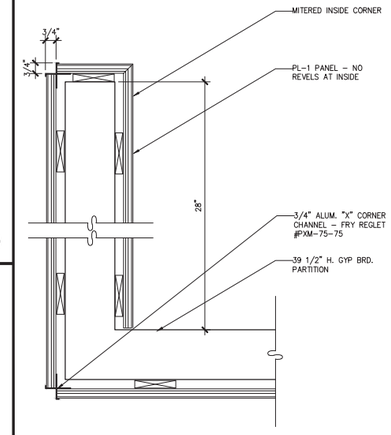
UPPER CABINET W/O DOOR 7
SCALE: 1 1/2"= 1'-0"



WORK COUNTER-30"H 8
SCALE: 1 1/2"= 1'-0"



UPPER CABINETS @ MICROWAVE 9
SCALE: 1"=1'-0" IMWCB-Up_microwave-01



SIDE WALL SECTION 4
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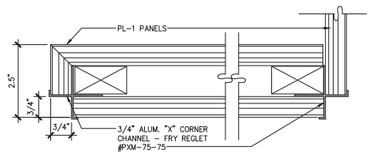

TYP. END PANEL SECTION 5
SCALE: N.T.S.

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MILLWORK DETAILS

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MECHANICAL GENERAL NOTES

1. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR.
2. THIS CONTRACTOR SHALL PERFORM ALL CONTROLLED INSPECTIONS IN ACCORDANCE WITH STATE AND LOCAL CODES. SECURE ALL REQUIRED PERMITS AND APPROVALS AND TRANSMIT SAME TO OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL FEES.
3. ALL DUCTWORK AND PIPING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICES FOR ROUTING OF DUCTWORK AND PIPING TO AVOID OBSTRUCTIONS. EXACT LOCATIONS SUBJECT TO APPROVAL OF ENGINEER.
4. SUPPORT ALL DUCTWORK AND PIPING FROM BUILDING STRUCTURE AND/OR FRAMING IN AN APPROVED MANNER. WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING OF SUPPORTS FOR EQUIPMENT, FURNISH ADDITIONAL STEEL FRAMING.
5. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.
6. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE PERFORMANCE OF THE GENERAL WORK. ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DETAILED ON THE DRAWINGS.THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES IN MAKING UP WORK PROPOSAL.
7. PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING OWNER. INSTALL ISOLATION VALVES AT POINT OF CONNECTION TO THE EXISTING PIPING. PROVIDE TEMPORARY DUCT CAPS AND/OR CONNECTIONS TO MINIMIZE SHUTDOWN TIME. ALL SHUT DOWNS SHALL BE ON OFF HOURS & INCLUDED IN BID.
8. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND APPROVED MANNER. RESTORE EXISTING WORK DISTURBED WHILE INSTALLING NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY ENGINEER.
9. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT, AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW SYSTEM.
10. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR. ALL DEMOLITION MATERIALS MUST BE REMOVED FROM THE BUILDING DAILY.
11. SEAL OPENINGS AROUND DUCTS AND PIPING THROUGH PARTITIONS, WALLS AND FLOORS (NOT IN SHAFTS) WITH MINERAL WOOL OR OTHER NON-COMBUSTIBLE MATERIAL. SEE SPECIFICATIONS.
12. ALL EXISTING MATERIAL AND EQUIPMENT TO BE REMOVED UNDER THIS CONTRACT WILL REMAIN THE PROPERTY OF THE OWNER OR SHALL BE DISPOSED OF BY THIS CONTRACTOR AS DIRECTED BY THE OWNER.
13. THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, AND IN A MANNER SATISFACTORY TO THE OWNER. THE WORK SHALL BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE PRESENT OCCUPANTS.
14. INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.
15. ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED.
16. SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT, ETC, WHICH AFFECT THIS WORK AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION.
17. PROVIDE ALL REQUIRED LABOR, MATERIALS, EQUIPMENT, AND SERVICES NECESSARY FOR A COMPLETE AND SAFE INSTALLATION OF HVAC IN FULL CONFORMITY WITH REQUIREMENTS OF ALL AUTHORITIES HAVING JURISDICTION; ALL AS INDICATED ON DRAWINGS AND/OR HEREIN SPECIFIED FOR THE SYSTEMS INCLUDED. WORK SHALL BE INSTALLED IN A NEAT, WORKMANLIKE MANNER. INCLUDE ALL COSTS FOR PERMITS, LICENSES, CERTIFICATES, FILING AND INSPECTIONS REQUIRED BY AUTHORITIES HAVING JURISDICTION.
18. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF ACCEPTANCE BY OWNER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.
19. EXISTING THERMAL INSULATION SHALL BE MAINTAINED AND PROTECT, OR REPLACED UNDER THIS CONTRACT; AND THAT EXISTING MISSING OR DAMAGED THERMAL INSULATION SHALL BE INSTALLED/REPLACED. THIS INCLUDES EXISTING CONDITIONS OR CONDITIONS CREATED BY THE PROJECT MODIFICATIONS.

MECHANICAL ABBREVIATIONS

AC	AIR CONDITIONING
ACU	AIR CONDITIONING UNIT
AD	ACCESS DOOR
AL	ACOUSTICAL LINING
AP	ACCESS PANEL
BTU	BRITISH THERMAL UNIT
BTU/H	BTU PER HOUR
CAP	CAPACITY
CD	CEILING DIFFUSER
CFM	CUBIC FEET PER MINUTE
CFSD	COMBINATION FIRE/SMOKE DAMPER W/ AD
CG	CEILING GRILLE
CLG	CEILING
ERN	EXISTING DEVICE/EQUIPMENT TO REMAIN
EF	EXHAUST FAN
EG	EXHAUST GRILLE
ESP	EXTERNAL STATIC PRESSURE
FC	FLEXIBLE CONNECTION
FCU	FAN COIL UNIT
FSD	FIRE/SMOKE DAMPER
MBH	THOUSAND BTU PER HR
MCA	MINIMUM CKT AMPACITY
MD	MOTORIZED DAMPER
MER	MECHANICAL EQUIPMENT ROOM
MFS/MOP	MAXIMUM FUSE SIZE
MHP	MOTOR HORSEPOWER
OA	OUTSIDE AIR
OAF	OUTSIDE AIR FAN
OAI	OUTSIDE AIR INTAKE
OBD	OPPOSED BLADE DAMPER
RA	RETURN AIR
RF	RETURN FAN
RM	ROOM
RPM	REVOLUTIONS PER MINUTE
RX	RELOCATED POSITION OF EXISTING EQUIPMENT
SD	SMOKE DETECTOR
TD	TRANSFER DUCT
V	VOLTS
VAV	VARIABLE AIR VOLUME
VD	VOLUME DAMPER
WMS	WIRE MESH SCREEN
WSA	WIRE SIZE AMPS
X	EXISTING DEVICE/EQUIPMENT TO BE REMOVED
XA	EXHAUST AIR
XR	EXISTING EQUIPMENT TO BE RELOCATED

DUCTWORK SYMBOLS

SINGLE LINE	DOUBLE LINE	DESCRIPTION
	FC	FLEXIBLE CONNECTION
		VANED ELBOW (PROVIDE ALL SQUARE OR RECTANG- ULAR ELBOWS WITH VANES EVEN IF SYMBOL IS MISSING)
		VANED ELBOW (SHORT RAD.)
		STANDARD RADIUS ELBOW
10x8	10x8	NEW DUCT (WIDTH x DEPTH)
		EXISTING DUCT TO REMAIN
		EXISTING DUCT TO BE REMOVED
		FLEXIBLE DUCTWORK (INSULATED)
		DUCT WITH SOUND LINING
		DUCTWORK WITH EXTERNAL INSULATION WRAP
VD	VD	MANUAL VOLUME DAMPER
FD	FD	FIRE DAMPER
BDD	BDD	BACK DRAFT DAMPER
FSD	FSD	COMBINATION FIRE/SMOKE DAMPER
M	M	MOTORIZED DAMPER
SD	SD	SMOKE DETECTOR
AD	AD	AUTOMATIC DAMPER (ELECTRIC)
LD	LD	LEAK DETECTOR
FS	FS	FLOW SWITCH
DP	DP	DIFFERENTIAL PRESSURE GAUGE
UP DN	UP DN	SUPPLY DUCT (UP & DOWN)
UP DN	UP DN	EXHAUST DUCT (UP & DOWN)
		CONNECT NEW DUCT TO EXISTING DUCT
R	R	INCLINED RISE, IN DIRECTION OF AIR FLOW
D	D	INCLINED DROP, IN DIRECTION OF AIR FLOW
		LIMIT OF DEMOLITION
		VERTICAL DUCT DROP
		VERTICAL DUCT RISE

PIPING SYMBOLS

SYMBOL	DESCRIPTION
	NEW PIPE
	EXISTING PIPE
—X—X—X—	EXISTING PIPE TO BE REMOVED
	DIRECTION OF PIPE PITCH (DOWN)
	DIRECTION OF FLOW
	REDUCER OR INCREASER
	ECCEMTRIC REDUCER
	PIPE DOWN
	PIPE UP
	TOP CONNECTION
	BOTTOM CONNECTION
	PIPE DROP
	PIPE RISE
	UNION
	FLANGED END
	DEAD END - SCREWED CAP
	DEAD END - WELDED CAP
	AUTOMATIC AIR VENT
	MANUAL AIR VENT
	STRAINER
	THERMOMETER WELL
	PRESSURE GAGE WITH NEEDLE VALVE
	THERMOMETER
	GATE VALVE
	THERMAL EXPANSION VALVE
S	SOLENOID VALVE
	FLOW CONTROL VALVE
	DRAIN VALVE
	GLOBE VALVE
	CHECK VALVE
S	SILENT CHECK VALVE
	BALL VALVE
	CIRCUIT SETTER
	2-WAY CONTROL VALVE
	PLUG VALVE
M	MOTORIZED VALVE
	THREE-WAY CONTROL VALVE
	PRESSURE REDUCING VALVE
R	SAFETY OR PRESSURE RELIEF VALVE
	BUTTERFLY VALVE
U	PITCH UP IN DIRECTION OF FLOW
D	PITCH DOWN IN DIRECTION OF FLOW
	CALIBRATED BALANCING VALVES (CIRCUIT SETTERS)

MECHANICAL DRAWING LIST

DRAWING NUMBER	DRAWING NAME
M0.1	MECHANICAL - SYMBOLS, NOTES, AND ABBREVIATIONS
M1.1	MECHANICAL - SCHEDULES
M2.1	MECHANICAL - SPECIFICATIONS
M2.2	MECHANICAL - SPECIFICATIONS
M4.1	MECHANICAL - FIRST FLOOR NEW WORK PLAN
M7.1	MECHANICAL - DETAILS
M8.1	MECHANICAL - TITLE 24 DOCUMENTATION

MECHANICAL SYMBOLS

SYMBOL	DESCRIPTION
	REVISION CLOUD
1	REVISION NUMBER INDICATOR
	POINT OF CONNECTION BETWEEN NEW AND EXISTING WORK
	LIMIT OF DEMOLITION
T	THERMOSTAT
SD	SMOKE DETECTOR SENSOR
C	CO_2 SENSOR
H	HUMIDITY SENSOR
SW	SWITCH
	VIBRATION ISOLATION, IN HANGER
	DUCT UNDER PRESSURE (SUPPLY AIR OR FAN DISCHARGE)
	DUCT UNDER NEGATIVE PRESSURE (RETURN, EXHAUST OR OUTSIDE AIR)
X / DWG	SECTION DESIGNATION; DRAWING REFERENCE NUMBER
X / DWG	ENLARGED PLAN DESIGNATION; DRAWING REFERENCE NUMBER

DIFFUSER SYMBOLS

SYMBOL	DESCRIPTION
	SUPPLY DIFFUSER
	RETURN/EXHAUST DIFFUSER
	3-WAY DIFFUSER
	2-WAY DIFFUSER
	2-WAY CORNER DIFFUSER
	1-WAY DIFFUSER
	LINEAR DIFFUSER
	SIDEWALL DIFFUSER
A(150)	TYPE A SUPPLY REGISTER. 150 CFM

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MECHANICAL - SYMBOLS, NOTES & ABBREVIATIONS

DATE	REMARKS	DATE	REMARKS
12.04.2017	ISSUE FOR PLAN CHECK		

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DRAWN BY:	EM
JOB NO.:	SNR16-6088-00

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DIFFUSER, REGISTER, AND GRILLE SCHEDULE

DESIGNATION	TYPE	CFM RANGE	FACE SIZE	NECK SIZE	PLENUM SIZE	NC LEVEL (MAX)	PRESSURE DROP	THROW FT. (50 FPM)	MANUFACTURER	MODEL	NOTES
B	PERFORATED DIFFUSER	0-95 100-200 200-375 375-475	24x24	6"Ø 8"Ø 10"Ø 12Ø	-	- 21 29 30	0.04 0.07 0.09 0.12	6' 10' 13' 17'	TITUS	PAS	1,2,3
E	PERFORATED DIFFUSER	0-100	12x12	6"Ø	-	21	0.1	-	TITUS	PAR	1,2,3
F	PERFORATED RETURN/EXHAUST GRILLE	0-110 111-240 241-360 361-500 501-700 701-830 830-1000	24x24	6"Ø 8"Ø 10"Ø 12Ø 14Ø 16Ø 18Ø	-	17 21 29	0.043 0.065 0.108	-	TITUS	PAR	1,2,6

NOTES:
1 - SEE SPECIFICATIONS FOR MORE DETAILS.
2 - FINISHES, COLORS AND BORDER TYPES SHALL BE AS APPROVED BY ARCHITECT. COORDINATE BORDER TYPE WITH CEILING CONSTRUCTION.
3 - VOLUME DAMPERS LOCATED IN INACCESSIBLE CEILING SHALL BE ADJUSTABLE VIA CHORDS RATHER THAN FACE OF DIFFUSER.
4 - PROVIDE LINEAR DIFFUSER WITH INSULATED PLENUM BY DIFFUSER MANUFACTURER AND END CAPS FOR TERMINATION OF LINEAR DIFFUSERS AT OR NEAR WALL.
5 - LINEAR DIFFUSER PATTERN CONTROLLERS SHALL BE FIELD ADJUSTED TO PROVIDE DRAFT FREE CONDITIONS.
6 - PROVIDE RETURN GRILLES WITH MANUFACTURERS STANDARD LIGHT SHIELD.

TERMINAL UNIT SCHEDULE

TERMINAL UNIT												
UNIT VAV-	SYSTEM	LOCATION	CFM COOLING		CFM HEATING		COLD DUCT ROUND INLET SIZE IN	HOT DUCT ROUND INLET SIZE IN	MAX PD IN WG	MODEL	NOTES
			MIN	MAX	MIN	MAX					
VAV-1	MZ-1/DX-1	1ST FLOOR- PT STORAGE, PT AREA	225	650	0	225	8	6		TITUS PEDV	1,2,3
VAV-2	MZ-1/DX-1	1ST FLOOR- CHARTING STATION	100	600	0	180	8	6		TITUS PEDV	1,2,3
VAV-3	MZ-1/DX-1	1ST FLOOR- ORTHO EXAM 1-5	150	1000	0	300	10	6		TITUS PEDV	1,2,3
VAV-4	MZ-1/DX-1	1ST FLOOR- PATIENT RESTROOM, STAFF RESTROOM, BREAKROOM, STORAGE, ORTHO EXAM 6, OFFICE, TREATMENT 1-2	400	1000	0	400	10	8		TITUS PEDV	1,2,3
VAV-5	MZ-1/DX-1	1ST FLOOR- WAITING ROOM, RECEPTION, FILE ROOM, PATIENT RESTROOM	300	1250	0	375	10	8		TITUS PEDV	1,2,3
VAV-6	DX-1	1ST FLOOR- CM OFFICE, BAT, AUDIO, CHECK OUT, EYE EXAM, EXAM 4-6	325	1200	-	-	10	-		TITUS PESV	3
VAV-7	DX-1	1ST FLOOR- ELEC/IT/TELCOM	50	200	-	-	6	-		TITUS PESV	3
VAV-8	DX-1	1ST FLOOR- PROCEDURE	50	200	-	-	6	-		TITUS PESV	3
VAV-9	MZ-1/DX-1	1ST FLOOR- LAB, RESTROOMS	60	180	0	60	6	4		TITUS PEDV	1,2,3
VAV-10	MZ-1/DX-1	1ST FLOOR- X-RAY, EXAM 1-3	150	1000	0	300	10	6		TITUS PEDV	1,2,3

1 - MIXING BOX SHALL MODULATE COLD DUCT DAMPER BETWEEN MAXIMUM AND MINIMUM SET POINTS WITH HOT DUCT CLOSED TO MAINTAIN ROOM TEMPERATURE SET POINT. IF ROOM TEMPERATURE IS BELOW HEATING SET POINT THE HOT DUCT SHALL MODULATE WITH THE COLD DUCT AT MINIMUM CFM SET POINT TO ACHIEVE ROOM HEATING TEMPERATURE SET POINT.

2 -PROVIDE MIXING BAFFLE

3 -PROVIDE STERILOC LINER

FAN SCHEDULE

DESIGNATION	SERVES	TYPE	FAN DATA					FAN MOTOR DATA			MANUFACTURER	MODEL NUMBER	NOTES
			DRIVE TYPE	CFM	RPM	SONES	ESP	FAN HP	BRAKE HP	V/PH/HZ			
EF-1	RESTROOMS	INLINE	DIRECT	500	1949	17	1	3 /4	0.31	277/1 /60	GREENHECK	SQ-98-VG	1
EF-2	ELECTRICAL/IT	INLINE	DIRECT	200	1477	4	0.2	1/4	0.02	120/1 /60	GREENHECK	SQ-60-VG	2
EF-3	WAITING	INLINE	DIRECT	1025	1498	9	1	3 /4	0.31	277/1 /60	GREENHECK	SQ-120-VG	3

NOTES:
1 - INTERLOCK EXHAUST FAN OPERATION WITH RESTROOM LIGHTING SYSTEM. REFER TO ELECTRICAL DRAWINGS.
2 - RUN FAN CONTINUOUSLY.
3 - MODULATE FAN OPERATION WITH VAV-5 SO WHEN VAV-5 IS AT MINIMUM SET POINT EXHAUST FAN SPEED IS AT MINIMUM.

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333 HEGENBERGER ROAD
OAKLAND, CA

MECHANICAL - SCHEDULES

DATE	REMARKS	DATE	REMARKS
12.04.2017	ISSUE FOR PLAN CHECK		

PA / PM:	JDS
DRAWN BY:	JR
JOB NO.:	SNR16-6088-00

SHEET
M1.1

OVERVIEW

010000 - GENERAL REQUIREMENTS:

A. INSTALL ALL NEW WORK IN A NEAT WORKMANLIKE MANNER READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR.

B. CODES, PERMITS AND INSPECTIONS:

1. ALL WORK SHALL COMPLY WITH REQUIREMENTS OF BUILDING MANAGEMENT, AND ALL AUTHORITIES HAVING JURISDICTION. APPLICABLE NATIONAL, STATE, AND LOCAL CODES, LAWS, AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK SHALL BE INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS. CONTRACTOR IS TO INFORM ENGINEER OF ANY EXISTING WORK OR MATERIALS WHICH VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED AT CONTRACTOR'S EXPENSE BY THIS CONTRACTOR AND AT NO EXPENSE TO THE OWNER.
2. THIS CONTRACTOR SHALL OBTAIN ALL EQUIPMENT USE PERMITS AS REQUIRED BY STATE AND LOCAL AUTHORITIES. PERMITS SHALL BE TURNED OVER TO OWNER AT JOB COMPLETION.

C. SITE VERIFICATION:

1. PRIOR TO SUBMISSION OF THE BID, THIS CONTRACTOR SHALL VISIT THE JOB SITE TO ASCERTAIN THE ACTUAL FIELD CONDITIONS AS THEY RELATE TO THE WORK INDICATED ON THE DRAWINGS AND DESCRIBED HEREIN. DISCREPANCIES, IF ANY, SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO SUBMISSION OF THE BID, AND IF NOT RESOLVED TO SATISFACTION, SHALL BE SUBMITTED AS A WRITTEN QUALIFICATION OF THE BID. SUBMISSION OF A BID SHALL BE EVIDENCE THAT SITE VERIFICATION HAS BEEN PERFORMED AS DESCRIBED ABOVE.
2. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE AND LATER CLAIMS WILL NOT BE RECOGNIZED FOR EXTRA LABOR, EQUIPMENT, OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN HAD SUCH AN EXAMINATION BEEN MADE. ANY DISCREPANCIES SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO BID. IF DISCREPANCIES ARE NOT RESOLVED TO CONTRACTOR'S SATISFACTION THEY SHALL BE QUALIFIED IN THEIR BID SUBMISSION.

D. CONTRACT DOCUMENTS:

1. PRIOR TO SUBMISSION OF THE BID, THIS CONTRACTOR SHALL REVIEW ALL DRAWINGS OF THE ENTIRE PROJECT INCLUDING GENERAL CONSTRUCTION, DEMOLITION, ARCHITECTURAL, MECHANICAL, ELECTRICAL, PLUMBING AND SPRINKLER AND SHALL INCLUDE ANY WORK REQUIRED IN THE BID WHICH IS INDICATED OR IMPLIED TO BE PERFORMED BY THIS TRADE IN OTHER SECTIONS OF THE WORK.
2. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF WORK AND APPROXIMATE LOCATION OF EQUIPMENT. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS AND COORDINATE FINAL LOCATIONS OF DIFFUSERS, GRILLES, REGISTERS, THERMOSTATS, SENSORS, SWITCHES AND ANY WALL MOUNTED DEVICES. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID CONFLICT. IT IS NOT INTENDED TO SPECIFY OR TO SHOW EVERY OFFSET, FITTING, OR COMPONENT. HOWEVER, CONTRACT DOCUMENTS REQUIRE COMPONENTS AND MATERIALS WHETHER OR NOT INDICATED OR SPECIFIED AS NECESSARY TO MAKE THE INSTALLATION COMPLETE AND OPERATIONAL. FINAL LOCATIONS OF DIFFUSERS, GRILLES, REGISTERS, THERMOSTATS, SENSORS, SWITCHES AND ANY WALL MOUNTED DEVICES SHALL BE AS PER THE ARCHITECT. ALL WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID CONFLICT.
3. IF A CONFLICT OCCURS IN THE SPECIFICATIONS AND/OR ON THE DRAWINGS, THE MORE STRINGENT SITUATION SHALL APPLY.
4. ANY EQUIPMENT, PARTS, MATERIALS, ACCESSORIES, OR LABOR THAT IS NECESSARY FOR PROPER PERFORMANCE OF THE MECHANICAL WORK ALTHOUGH NOT SPECIFICALLY MENTIONED HEREIN OR SHOWN ON THE DRAWINGS, SHALL BE FURNISHED AND INSTALLED WITHOUT ADDITIONAL COSTS.
5. THE LATEST EDITION OF AIA DOCUMENTS GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION, OR AS REQUIRED BY THE ARCHITECTURAL DOCUMENTS AND/OR THE STRUCTURAL ENGINEER'S DOCUMENTS ARE PART OF THE CONTRACT.

E. GUARANTEE:

1. ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF THIS WORK. FINAL ACCEPTANCE SHALL BE DEFINED AS THE TIME AT WHICH THE MECHANICAL WORK IS TAKEN OVER AND ACCEPTED BY THE OWNER, AND IS UNDER CARE, CUSTODY, AND CONTROL OF THE OWNER. ENGAGE THE SERVICES OF VARIOUS MANUFACTURERS SUPPLYING THE EQUIPMENT FOR THE PROPER STARTUP AND OPERATION OF ALL SYSTEMS INSTALLED. PROVIDE FORMAL TRAINING TO THE OWNERS PERSONNEL IN THE PROPER OPERATION AND SERVICING OF THE SYSTEM.
2. THE CONTRACTOR SHALL GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN THE GUARANTEE PERIOD. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL INCLUDE RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THIS CONTRACTOR.
3. THE REPLACEMENT OR REPAIR SHALL BE PERFORMED THE SAME DAY OF NOTIFICATION IN AN EMERGENCY FASHION WHEN NOTIFIED BY THE OWNER OR AUTHORIZED REPRESENTATIVE. THE CONTRACTOR SHALL ALSO REPAIR ALL DAMAGE TO SURROUNDING WORK CAUSED BY THE FAILURE, REPAIR OR REPLACEMENT OF DEFECTIVE EQUIPMENT.
4. THIS CONTRACTOR IS RESPONSIBLE FOR THE MAINTENANCE AND OPERATION OF ALL SYSTEMS UNTIL THE FINAL ACCEPTANCE OF THE WORK.
5. ALL AIR CONDITIONING UNIT COMPRESSORS AND REFRIGERATION COMPONENTS SHALL HAVE A 5-YEAR WARRANTY.
6. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION" AIA DOCUMENT A201, LATEST EDITION, OR AS REQUIRED BY THE ARCHITECT DOCUMENTS, AND/OR THE STRUCTURAL ENGINEER'S DOCUMENTS, AS APPLICABLE, ARE PART OF THIS CONTRACT.

F. DEFINITIONS:

1. MECHANICAL CONTRACTOR, "THIS CONTRACTOR": THE PARTY OR PARTIES THAT HAVE BEEN DULY AWARDED THE CONTRACT FOR AND ARE THEREBY MADE RESPONSIBLE FOR THE MECHANICAL WORK AS DESCRIBED HEREIN.
2. "THIS CONTRACT", "THE CONTRACT": THE AGREEMENT COVERING THE WORK TO BE PERFORMED BY "THIS CONTRACTOR".
3. "APPROVED", "EQUAL", "SATISFACTORY",

"ACCEPTED", "ACCEPTABLE", "EQUIVALENT": SUITABLE FOR USE ON THE PROJECT, AS DETERMINED BY THE ENGINEER BASED ON DOCUMENTS PRESENTED FOR SUCH DETERMINATION.

4. "THESE SPECIFICATIONS": "THIS SECTION, PART, DIVISION" (OF THE SPECIFICATION): THE DOCUMENT SPECIFYING THE WORK TO BE PERFORMED BY "THIS CONTRACTOR".
5. "THE MECHANICAL WORK", "THIS WORK": ALL LABOR MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES, AND OTHER ITEMS REQUIRED FOR A PROPER AND COMPLETE INSTALLATION BY THE MECHANICAL CONTRACTOR.
6. "ARCHITECT", "ENGINEER", "OWNER'S REPRESENTATIVE": THE PARTY OR PARTIES RESPONSIBLE FOR INTERPRETING, ACCEPTING AND OTHERWISE RULING ON THE PERFORMANCE UNDER THIS CONTRACT.
7. "FURNISH": PURCHASE AND DELIVER TO THE PROJECT SITE COMPLETE WITH EVERY NECESSARY APPURTENANCE AND SUPPORT, ALL AS PART OF THE MECHANICAL WORK.
8. "INSTALL": UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION NECESSARY TO ESTABLISH SECURE MOUNTING INSTALLATION AND CORRECT OPERATION AT THE PROPER LOCATION IN THE PROJECT, ALL AS PART OF THE MECHANICAL WORK.
9. "PROVIDE": "FURNISH" AND "INSTALL"
10. "NEW": MANUFACTURED WITHIN THE PAST TWO YEARS AND NEVER BEFORE USED.
11. "RELOCATE": MOVE EXISTING EQUIPMENT AND ALL ACCESSORIES AS REQUIRED.
12. "REMOVE": DISMANTLE AND CART AWAY FROM SITE INCLUDING ALL RELATED ACCESSORIES. ALL ITEMS SHALL BE LEGALLY DISPOSED OF. ALL OTHER EQUIPMENT AND OPERATIONS IN ANY WAY AFFECTED BY THE REMOVAL IS TO REMAIN IN FULL OPERATION. PROVIDE ALL NECESSARY COMPONENTS TO MAINTAIN SUCH OPERATION.

011000 - SCOPE OF WORK

A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, AND CONTRACTOR'S SERVICES NECESSARY FOR THE COMPLETE, SAFE INSTALLATION OF ALL MECHANICAL WORK. THE SCOPE OF WORK SHALL INCLUDE BUT NOT BE LIMITED TO THE FOLLOWING:

1. DUCTWORK AND DUCTWORK ACCESSORIES.
2. AIR DISTRIBUTION SYSTEM: AIR OUTLETS
3. PIPING AND PIPING ACCESSORIES INCLUDING ALL VALVING.
4. INSULATION OF PIPING, EQUIPMENT AND DUCTWORK.
5. SOUND ATTENUATORS AND SOUND LINING.
6. AUTOMATIC TEMPERATURE CONTROLS.
7. COMMISSIONING
8. TESTING AND BALANCING.
9. CUTTING AND PATCHING.
10. SHOP DRAWINGS.
11. AS-BUILT DRAWINGS.
12. OPERATING AND MAINTENANCE MANUALS.
13. FULL COORDINATION WITH OTHER TRADES.
14. WARRANTY AND GUARANTY.

B. PHASING AS REQUIRED BY OWNER, CONSTRUCTION MANAGER, GENERAL CONTRACTOR, OR BUILDING MANAGEMENT.

C. PREMIUM TIME FOR WORK TO BE PERFORMED AFTER-HOURS AS REQUIRED BY BUILDING MANAGEMENT AND/OR OWNER TO MEET DESIGNATED SCHEDULE

D. FILING, PERMITS, CONTROLLED INSPECTIONS.

E. FULL TESTING AND STARTUP OF ALL SYSTEMS.

F. CONTRACTOR SHALL PREPARE A LIST OF ALL OUTSTANDING ITEMS AND DEFICIENCIES FOR REVIEW PRIOR TO THE ENGINEERS FINAL WALK THROUGH.

G. SECURE CERTIFICATES, PAY ALL FEES AND CHARGES FOR ALL WORK INSTALLED, CERTIFYING COMPLIANCE WITH ALL AUTHORITIES. CONTRACTOR SHALL PERFORM REQUIRED CONTROLLED INSPECTION AND OBTAIN ALL EQUIPMENT USE PERMITS. DELIVER CERTIFICATES TO OWNER FOR SIGNING BEFORE FILING.

013100 - COORDINATION WITH BUILDING MANAGEMENT

THE CONTRACTOR SHALL OBTAIN A COPY OF THE BUILDING RULES AND REGULATIONS PRIOR TO BID SUBMISSION TO DETERMINE REQUIREMENTS AND THE EXTENT OF PREMIUM TIME WORK REQUIRED BY THE BUILDING. FOR THE PURPOSE OF THE BID, ASSUME ANY NOISY WORK (E.G., CHOPPING, CORE DRILLING, ETC.,) AND BASE BUILDING SYSTEM INTERRUPTIONS ARE TO BE PERFORMED OUTSIDE NORMAL BUSINESS HOURS.

A. THE CONTRACTOR SHALL ADHERE TO THE BUILDING OWNER'S RULES AND REGULATIONS. ANY DISCREPANCIES BETWEEN THE CONTRACT DOCUMENTS AND THE BUILDING RULES AND REGULATIONS SHALL BE SUBMITTED IN WRITING TO THE ARCHITECT/ENGINEER FOR REVIEW, WITH BID SUBMISSION.

B. COORDINATE WITH BUILDING OWNER FOR ANY SERVICE INTERRUPTION OF EXISTING SYSTEMS AND GIVE NOTICE AS REQUIRED BY BUILDING RULES AND REGULATIONS OR A MINIMUM OF TWO (2) DAYS PRIOR TO ANY WORK, WHICHEVER IS MORE STRINGENT.

013300- SHOP DRAWINGS

A. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH ALL SUBMITTALS REQUIRED BY THE CONSTRUCTION SPECIFICATIONS AND ANY REQUESTS FOR INFORMATION (RFI). THESE DOCUMENTS SHALL BE SUBMITTED ELECTRONICALLY TO THE ARCHITECT FOR DISTRIBUTION.

B. SUBMIT SHOP DRAWINGS CERTIFIED BY ALL TRADES THAT COORDINATION HAS BEEN COMPLETED. SUBMIT ALL CERTIFIED EQUIPMENT CUTS WITH CONSTRUCTION WIRING DIAGRAMS AND AUTOMATIC TEMPERATURE CONTROL REQUIREMENTS. SHOP DRAWINGS SUBMISSION SHALL INCLUDE, BUT NOT BE LIMITED TO, THE FOLLOWING:

1. DUCTWORK - PROVIDE DUCT SHOP STANDARDS AND LEAKAGE TEST CERTIFICATION, AS REQUIRED.
2. PIPING LAYOUT AND APPURTENANCES - PROVIDE PIPING, VALVING, CHEMICAL TREATMENT, SHOP STANDARDS AND PIPING LAYOUT WITH ALL VALVING.
3. INSULATION FOR DUCTWORK, PIPING AND EQUIPMENT.
4. CERTIFIED AIR AND WATER BALANCING REPORT.
5. EQUIPMENT CATALOG CUTS FOR ALL ITEMS TO BE UTILIZED ON PROJECT FANS, AIR CONDITIONING UNITS, LOUVERS AND DAMPERS.
6. AIR OUTLETS: DIFFUSERS, REGISTERS, GRILLES.
7. AUTOMATIC TEMPERATURE CONTROL DIAGRAMS, DEVICES AND SEQUENCE OF OPERATION.
8. LIST OF OUTSTANDING PUNCHLIST ITEMS.
9. COMMISSIONING PLAN AND CHECKLISTS.
10. SUBMITTAL SCHEDULE

B. AS-BUILT DRAWING REDLINE MARKUPS AT PROJECT COMPLETION SHOWING THE INSTALLED CONDITION OF WORK.

C. SHOP DRAWINGS SHALL BE DELIVERED ELECTRONICALLY IN PORTABLE DOCUMENT FORMAT (PDF). SPECIFIC JOB REQUIREMENTS MAY BE MORE STRINGENT AND CONTRACTOR IS RESPONSIBLE TO OBTAIN REQUIREMENTS FROM CONSTRUCTION MANAGER, GENERAL CONTRACTOR OR ARCHITECT.

D. WB WILL REQUIRE 5 BUSINESS DAYS TO REVIEW SHOP DRAWINGS. SHOP DRAWINGS WILL NOT BE REVIEWED IN THE FIELD.

016000 - ACCESS DOORS IN GENERAL CONSTRUCTION

A. THIS CONTRACTOR SHALL SUBMIT TO THE ARCHITECT FOR APPROVAL A PLAN INDICATING THE SIZE (MINIMUM 18"X 18") AND LOCATION OF ALL ACCESS DOORS REQUIRED FOR OPERATION AND MAINTENANCE OF ALL CONCEALED EQUIPMENT, DEVICES, VALVES, DAMPERS AND CONTROLS. CONTRACTOR SHALL ARRANGE FOR FURNISHING AND INSTALLING OF ALL ACCESS DOORS IN FINISHED CONSTRUCTION AND INCLUDE COSTS IN THE BID.

016330 - SUBSTITUTIONS

A. CONTRACTOR SHALL SUBMIT BID BASED ON SPECIFIED ITEMS AND SHALL SUPPLY AS AN ALTERNATE PRICE ANY SUBSTITUTIONS.

B. NO SUBSTITUTE MATERIAL OR MANUFACTURER OF EQUIPMENT SHALL BE PERMITTED WITHOUT A FORMAL WRITTEN SUBMITTAL TO THE ENGINEER WHICH INCLUDES ALL DIMENSIONAL, PERFORMANCE AND MATERIAL SPECIFICATIONS. ANY CHANGES IN LAYOUT, ELECTRICAL CHARACTERISTICS, STRUCTURAL REQUIREMENTS, OR DESIGN DUE TO THE USE OF A SUBSTITUTION SHALL BE SUBMITTED TO THE ENGINEER AS PART OF THIS PROPOSAL. THE CONTRACTOR TAKES FULL RESPONSIBILITY FOR THE SUBSTITUTION AND ALL CHANGES RESULTING FROM SUBSTITUTION. ALL ITEMS SHALL BE SUBMITTED FOR REVIEW IN CONJUNCTION WITH THE SUBMITTAL OF THE SUBSTITUTION. ANY SUBSTITUTION MUST BE SUBMITTED WITH AN EXPLANATION WHY A SUBSTITUTION IS BEING UTILIZED. IF THE SUBSTITUTED ITEM DEVIATES FROM THE SPECIFIED ITEM, THOSE DEVIATIONS ARE TO BE IDENTIFIED ON A LINE BY LINE BASIS. IF THE SUBSTITUTE IS BEING UTILIZED FOR FINANCIAL REASONS, THE ASSOCIATED CREDIT MUST BE SIMULTANEOUSLY SUBMITTED.

C. ALL SUBSTITUTED EQUIPMENT SHALL CONFORM TO SPACE REQUIREMENTS AND PERFORMANCE REQUIREMENTS SHOWN ON CONTRACT DOCUMENTS. CONTRACTOR SHALL REPLACE ANY EQUIPMENT THAT DOES NOT MEET THESE REQUIREMENTS AT HIS OWN EXPENSE. ANY MODIFICATIONS TO ASSOCIATED SYSTEMS OR ADDITIONAL COSTS ATTRIBUTED TO THIS SUBSTITUTION SHALL BE AT THIS CONTRACTOR'S EXPENSE.

017329 - CHASING, CHOPPING OR CORE DRILLING

A. PRIOR TO ANY CHASING, CHOPPING, OR CORE DRILLING BEING PERFORMED, THIS CONTRACTOR SHALL FIELD INVESTIGATE EXISTING CONDITIONS AND COORDINATE WITH ALL APPROPRIATE TRADES AND BUILDING MANAGEMENT TO ENSURE THAT WORK WILL BE IN HARMONY WITH OTHER WORK AND NOT AFFECT ANY EXISTING BUILDING SYSTEMS. THIS WORK MUST BE APPROVED BY BUILDING MANAGEMENT PRIOR TO PROCEEDING.

017350 - CONNECTIONS TO EXISTING WORK

A. PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING MANAGEMENT. INSTALL ISOLATION VALVES AT POINT OF CONNECTION TO THE EXISTING PIPING. INSTALL ISOLATION DAMPERS AT CONNECTION TO EXISTING DUCTWORK. PROVIDE TEMPORARY DUCTWORK AND PIPING CONNECTIONS AS REQUIRED TO MINIMIZE SHUTDOWN TIME.

B. REMOVAL, TEMPORARY CONNECTIONS AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE INSTALLATION OF THE NEW SYSTEMS. ALL EXISTING CONDITIONS ARE NOT COMPLETELY DETAILED ON THE DRAWINGS. THE CONTACTOR SHALL SURVEY THE SITE AND MAKE ALL NECESSARY CHANGES REQUIRED BASED ON EXISTING CONDITIONS FOR PROPER INSTALLATION OF NEW WORK.

C. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND APPROVED MANNER. RESTORE EXISTING WORK DISTURBED WHILE INSTALLING NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY ARCHITECT AND BUILDING MANAGER.

D. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITATES.

017823 - MAINTENANCE MANUALS

A. SUBMIT FOUR (4) LOOSE-LEAF BOUND OPERATING AND MAINTENANCE MANUALS WITH INDEX AND INDEX TABS TO INCLUDE THE FOLLOWING:

1. OPERATING AND MAINTENANCE INSTRUCTIONS ON ALL SYSTEMS.
2. MANUFACTURERS' CATALOG CUTS ON ALL EQUIPMENT.
3. AUTOMATIC TEMPERATURE CONTROL SYSTEMS WITH SEQUENCE OF OPERATIONS, CATALOG CUTS OF ALL DEVICES, AND POINT-TO-POINT WIRING DIAGRAMS.
4. CERTIFIED FINAL AIR AND WATER BALANCING REPORT.
5. COMMISSIONING REPORTS AND CHECKLISTS
6. DUCT AND PIPING AS-BUILT DRAWINGS WITH VALVE CHART AND KEY PLAN DRAWINGS INSERTED IN BINDER.
7. ALL ITEMS SUBMITTED FOR REVIEW IN SHOP DRAWING SECTION.

017839 - AS-BUILT DRAWINGS

A. CONTRACTOR SHALL MAINTAIN RECORD DRAWING PRINTS ON JOB SITE AND RECORD, AT TIME OF OCCURRENCE, DEVIATIONS FROM CONTRACT DOCUMENTS DUE TO FIELD COORDINATION, BULLETINS, OR ADDENDA.

B. CONTRACTOR SHALL REVISE SHOP DRAWINGS TO CONFORM TO RECORD DRAWINGS AND SUBMIT AS-BUILT CONDITION (PIPING AND DUCTWORK) DRAWINGS UPON COMPLETION OF THE PROJECT. FINAL SUBMISSION OF REDLINE MARKUPS ARE TO BE SIGNED AND CERTIFIED BY INSTALLING CONTRACTOR THAT THIS IS THE AS-BUILT CONDITION OF THE WORK.

017850 - SERVICE AND WARRANTY (MAINTENANCE CONTRACT)

A. THIS CONTRACTOR SHALL PROVIDE AS AN ADD ALTERNATE PRICE, A FULL ONE YEAR SERVICE AND WARRANTY OF ALL MECHANICAL COMPONENTS AND SYSTEMS, WITH PRICES FOR YEARS 2, 3 AND 4 FOLLOWING THIS FIRST YEAR. AT THE TIME OF ACCEPTANCE OF PROJECT, THE TENANT OR OWNER'S REPRESENTATIVE WILL DECIDE TO ACCEPT WHICH ALTERNATE, IF ANY.

EQUIPMENT

230100 - MECHANICAL EQUIPMENT

A. PROVIDE ALL EQUIPMENT AND ACCESSORIES OF THE SIZES AND CAPACITIES AS SCHEDULED AND AS INDICATED ON THE DRAWINGS.

B. INSTALL EQUIPMENT IN ACCORDANCE WITH APPROVED SHOP DRAWINGS, MANUFACTURERS RECOMMENDATIONS, INSTRUCTIONS, AND ALL AUTHORITIES HAVING JURISDICTION.

C. PROVIDE EQUIPMENT SUPPORTS AND/OR MOUNTINGS AS INDICATED ON THE DRAWING, IN VIBRATION SPECIFICATION AND AS FOLLOWS:

1. FLOOR MOUNTED EQUIPMENT - PROVIDE DIMENSIONS FOR A 4" CONCRETE HOUSEKEEPING PAD WITH ALL REQUIRED WATERPROOFING TO THE CONSTRUCTION MANAGER.
2. EQUIPMENT ON FLOOR STANDS - PROVIDE FLOOR STAND OF STRUCTURAL STEEL OR STEEL PIPES AND FITTINGS AND BOLT TO FLOOR.
3. ROOF MOUNTED EQUIPMENT - COORDINATE STRUCTURAL STEEL SUPPORTS WITH OTHERS.
4. CEILING MOUNTED EQUIPMENT - PROVIDE SUPPORTS WITH APPROVED SUITABLE ANCHORS SUSPENDED DIRECTLY FROM BUILDING STEEL STRUCTURE.
5. VAV BOXES - MOUNT ON THREADED ROD THROUGH MANUFACTURER-SUPPLIED MOUNTING BRACKETS.

D. PROVIDE SUPPLEMENTAL STEEL AS REQUIRED TO ADEQUATELY SUPPORT THE EQUIPMENT LOAD.

E. EQUIPMENT SHALL BE INSTALLED WITH VIBRATION ISOLATION, REFER TO VIBRATION ISOLATION SECTION.

F. ALL EQUIPMENT FILTER RATINGS SHALL BE AS DETERMINED BY ASHRAE 52.2 APPENDIX J EVALUATION PROCEDURES.

G. PROVIDE NEW ENGRAVED LABELS FOR ALL NEW EQUIPMENT. COORDINATE COLOR AND STYLE WITH BUILDING MANAGEMENT.

230529 - HANGERS AND SUPPORTS:

G. PROVIDE ALL PIPE HANGERS, HANGER RODS SUPPORTS, INSERTS, ATTACHMENTS, CLAMPS, GUIDES, SUPPLEMENTAL STEEL AND ANCHORS AS REQUIRED TO INSTALL PIPING SYSTEM SIZED TO ACCOMMODATE THE SYSTEM LOADS. HANGERS AND SUPPORTS ARE TO BE IN ACCORDANCE WITH SMACNA, STATE AND LOCAL CODE REQUIREMENTS.

H. PROVIDE INSULATED PROTECTIVE SADDLES FOR INSULATED PIPING.

I. PIPING SHALL BE SUPPORTED IN ACCORDANCE WITH RECOMMENDATIONS OF SMACNA AND ALL APPLICABLE CODES. ALL THREADED ROD IS TO BE GALVANIZED. PROVIDE 2" VERTICAL ADJUSTMENT FOR ALL HANGERS. PROVIDE ADDITIONAL SUPPORTS AT CHANGES IN DIRECTION, BRANCH PIPING OVER 5 FEET, AND CONCENTRATED LOADS DUE TO VALVES, STRAINERS AND OTHER ACCESSORIES.

J. HANGER AND SUPPORTS SHALL BE MANUFACTURED BY GRINNELL OR APPROVED EQUAL.

230548.01 - VIBRATION ISOLATION

A. FURNISH AND INSTALL ALL NECESSARY VIBRATION ISOLATORS, VIBRATION HANGERS, MOUNTING PADS, RAILS, ETC., TO ISOLATE VIBRATION AND SOUND FROM BEING TRANSMITTED TO THE BUILDING CONSTRUCTION. ALL VIBRATION ISOLATION PRODUCTS SHALL BE SPECIFICALLY DESIGNED FOR THEIR INTENDED USE.

B. MANUFACTURER OF VIBRATION ISOLATION EQUIPMENT SHALL HAVE THE FOLLOWING RESPONSIBILITIES:

1. DETERMINE VIBRATION ISOLATOR SIZES AND LOCATIONS.
2. PROVIDE SUITABLE PIPING AND EQUIPMENT VIBRATION ISOLATION SYSTEMS.
3. GUARANTEE SPECIFIED ISOLATION SYSTEM ATTENUATION AND DEFLECTION.
4. PROVIDE INSTALLATION INSTRUCTIONS, DRAWINGS AND FIELD SUPERVISION TO ASSURE PROPER INSTALLATION AND PERFORMANCE. STARTERS SHALL BE SELECTED TO SUIT MOTOR RUNNING AND STARTING CHARACTERISTICS.

C. ISOLATION SYSTEMS SHALL BE MANUFACTURED BY MASON INDUSTRIES.

MOUNTING TYPES:

1. STATIC DEFLECTION OF ISOLATORS SHALL BE A MINIMUM OF 90% EFFICIENT. PROVIDE CORROSION PROTECTION FOR EQUIPMENT MOUNTED OUTDOORS.
2. FLOOR MOUNTING OF CENTRIFUGAL FANS (3 HP AND LESS) SPRING ISOLATORS (TYPE SLF).
3. FLOOR AND ROOF MOUNTING OF FACTORY ASSEMBLED AIR HANDLING UNITS, AIR CONDITIONING UNITS, HEAT EXCHANGERS AND CONDENSING UNITS, - SPRING ISOLATORS (ROOF MOUNTED EQUIPMENT TYPE SLR), OR (INDOOR EQUIPMENT TYPE SLF).
4. FLOOR MOUNTING OF CENTRIFUGAL FANS (5 HP AND ABOVE) - SPRING ISOLATOR WITH INERTIA BASE - (TYPE KSL).

MOTOR HP	REQUIRED MINIMUM CONCRETE INERTIA BASE THICKNESS	MINIMUM ISOLATION DEFLECTION
UP TO 30 HP	6"	3/4"
40 TO 75 HP	8"	3/4"
100 HP AND GREATER	12"	3/4"

1. MOUNTING OF CEILING-SUPPORTED FANS, IN-LINE PUMPS, HEAT EXCHANGERS, AND AIR HANDLING UNITS - SPRING ISOLATORS - (TYPE DNHS).
2. FLOOR MOUNTING OF PACKAGED AIR CONDITIONING UNIT WITH INTERNAL ISOLATION FOR COMPRESSORS - NEOPRENE IN SHEAR - TYPE SUPER W.
3. MOUNTING OF PACKAGED COOLING TOWER - TYPE SLR WITH VERTICAL LIMIT STOPS - COORDINATE REQUIREMENTS WITH EQUIPMENT MANUFACTURER.
4. ROOFTOP AC UNITS - SPRING ROOF CURB - TYPE RSC
5. PROVIDE FLEXIBLE CONNECTIONS BETWEEN ALL FANS AND DUCTWORK (REFER TO DUCTWORK SECTION FOR SPECIFICATIONS.

230548.02 - SEISMIC RESTRAINTS

A. ALL EQUIPMENT, PIPING AND DUCTWORK SHALL BE ADEQUATELY RESTRAINED TO RESIST SEISMIC FORCES. THIS SPECIFICATION IS IN ADDITION TO THE SPECIFIED VIBRATION ISOLATION FOR THIS PROJECT. RESTRAINT DEVICES SHALL BE DESIGNED AND SELECTED TO MEET SEISMIC REQUIREMENTS AS DEFINED IN THE LATEST ISSUE OF THE STATE AND LOCAL CODE HAVING JURISDICTION.

B. ANCHOR BOLT CALCULATIONS, SIGNED AND STAMPED BY A REGISTERED PROFESSIONAL ENGINEER, SHALL BE SUBMITTED SHOWING ADEQUACY OF THE BOLT SIZING AND TYPE. CALCULATIONS SHALL INCLUDE ANCHOR EMBEDMENT, MINIMUM EDGE DISTANCE AND MINIMUM CENTER DISTANCE. THE DEIGN LATERAL FORCES SHALL BE DISTRIBUTED IN PROPORTION TO THE MASS DISTRIBUTION OF THE EQUIPMENT. CALCULATIONS SHALL BE FURNISHED FOR ANCHORS ON RESTRAINT DEVICES, CABLES, ISOLATORS AND ON RIGIDLY MOUNTED EQUIPMENT. THE SEISMIC DESIGNER MUST PERFORM FINAL JOBSITE INSPECTION TO VERIFY ANCHOR INSTALLATION.

C. RESTRAINT OF RIGIDLY MOUNTED PIPING AND DUCTWORK MAY CONFORM TO "NATIONAL UNIFORM SEISMIC INSTALLATION GUIDELINES", OR "GUIDELINES FOR SEISMIC RESTRAINTS OF MECHANICAL SYSTEMS AND PLUMBING PIPING SYSTEMS", SMACNA.

D. CONTRACTOR SHALL SUPPLY ALL SUPPLEMENTAL STEEL REQUIRED FOR ALL EQUIPMENT, DUCTWORK AND PIPING INCLUDING ROOF MOUNTED EQUIPMENT.

E. ALL ISOLATORS AND EQUIPMENT SHALL MEET OSHPD REQUIREMENTS AND CONTAIN APPROVAL FROM OSHPD (WHERE OSHPD APPROVAL IS REQUIRED FOR PROJECT).

F. MANUFACTURER TO BE MASON INDUSTRIES, OR APPROVED EQUAL BY THE ENGINEER.

G. ISOLATED EQUIPMENT

1. FLOOR AND ROOF MOUNTED ISOLATED EQUIPMENT SHALL BE PROTECTED, AS REQUIRED, WITH ISOLATORS AND RESTRAINTS. FOR EQUIPMENT WITH HIGH CENTER OF GRAVITY, ADDITIONAL CABLE RESTRAINTS. FOR EQUIPMENT WITH HIGH CENTER OF GRAVITY, ADDITIONAL CABLE RESTRAINTS SHALL BE FURNISHED, AS REQUIRED TO LIMIT FORCES AND MOTION CAUSED BY ROCKING.
2. ALL SUSPENDED ISOLATED EQUIPMENT AND VESSELS SHALL BE PROTECTED WITH CABLE RESTRAINTS. CABLES SHALL BE INSTALLED TO PREVENT EXCESSIVE SEISMIC MOTION AND SO ARRANGED THAT THEY DO NOT ENGAGE DURING NORMAL OPERATION, STARTING OR STOPPING.
3. ALL SEISMIC RESTRAINTS FOR ISOLATED EQUIPMENT SHALL BE DESIGNED AND FURNISHED BY THE ISOLATION MANUFACTURER OR SUPPLIER.

H. ISOLATED PIPING

1. ALL REQUIRED SHALL BE PROTECTED IN ALL PLANES BY CABLE RESTRAINTS, DESIGNED TO ACCOMMODATE THERMAL MOVEMENT AS WELL AS RESTRAIN SEISMIC MOTION. TANKS AND VESSELS CONNECTED TO ISOLATED PIPING SHALL BE RESTRAINED SAME AS PIPING. LOCATIONS SHALL BE AS DETERMINED BY THE ISOLATOR SUPPLIER AND SHALL INCLUDE, BUT NOT BE LIMITED TO:
   a. AT ALL DROPS TO EQUIPMENT CONNECTIONS.
   b. AT CHANGES IN DIRECTION OF PIPE.
   c. AT HORIZONTAL RUN OF PIPE.
   d. ON BOTH SIDES OF FLEXIBLE CONNECTIONS.

I. ISOLATED DUCTWORK

1. All REQUIRED ISOLATED DUCTWORK SHALL BE PROTECTED IN ALL PLANES BY CABLE RESTRAINTS. THE DUCTWORK SHALL BE REINFORCED AT ALL RESTRAINT LOCATIONS AS PER SMACNA. LOCATIONS SHALL BE DETERMINED BY THE ISOLATOR SUPPLIER AND SHALL INCLUDE, BUT NOT BE LIMITED TO:
   a. AT ALL EQUIPMENT CONNECTIONS.
   b. AT ALL DUCT RUNS AND DUCT RUN ENDS (TRANSVERSE BRACING).
   c. AT HORIZONTAL RUNS.

J. RIGIDLY MOUNTED EQUIPMENT

1. ALL FLOOR MOUNTED AND SUSPENDED EQUIPMENT AND VESSELS AND ALL SUSPENDED OR WALL MOUNTED EQUIPMENT SHALL BE PROTECTED BY PROPERLY SIZED ANCHOR BOLTS OR HANGERS, RODS AND BRACING AND, IF REQUIRED, BY ADDITIONAL SEISMIC RESTRAINTS AS DESCRIBED ABOVE FOR ISOLATED EQUIPMENT. THE NEED FOR ADDITIONAL RESTRAINTS SHALL BE DETERMINED BY, AND IF REQUIRED, FURNISHED BY THE SUPPLIER OF THE SEISMIC RESTRAINTS FOR THE ISOLATED EQUIPMENT.

K. RIGIDLY MOUNTED PIPING

1. ALL NON-ISOLATED PIPING SHALL BE PROTECTED IN ACCORDANCE WITH NUSIG AND/OR SMACNA GUIDELINES. AT CONTRACTOR'S OPTION, FOR EASE OF INSTALLATION, CABLE RESTRAINT SYSTEM MAY BE USED AS DESCRIBED ABOVE FOR ISOLATED PIPING.

L. RIGIDLY MOUNTED DUCTWORK

1. ALL DUCTWORK SHALL BE PROTECTED THE SAME AS RIGIDLY MOUNTED PIPING.

M. DIFFUSERS

1. AIR DIFFUSERS THAT WEIGH NOT MORE THAN 10 KG (20 POUNDS) AND THAT RECEIVE NO TRIBUTARY LOADING FROM DUCTWORK MAY BE POSITIVELY ATTACHED TO AND SUPPORTED BY THE CEILING RUNNERS.

N. INSTALLATION

1. ALL SEISMIC RESTRAINTS ARE TO BE SECURELY ANCHORED OR FASTENED TO THE EQUIPMENT AND SUPPORTING STRUCTURE IN ACCORDANCE WITH THE APPROVED SUBMITTAL DATA.
2. OPERATING CLEARANCES ARE TO BE ADJUSTED SO THAT RESTRAINTS DO NOT INTERFERE DURING NORMAL OPERATION OF THE EQUIPMENT.
3. UPON COMPLETION OF THE INSTALLATION, THE SUPPLIER OF THE SEISMIC RESTRAINTS SHALL INSPECT AND CERTIFY IN WRITING TO THE ARCHITECT THAT RESTRAINTS HAVE BEEN INSTALLED PROPERLY AND IN ACCORDANCE WITH HIS RECOMMENDATIONS.

O. SUBMITTALS

1. THE SEISMIC AND VIBRATION CONTROL MANUFACTURER SHALL DETERMINE THE NUMBER, SIZE, AND TYPE OF ANCHOR BOLTS, CABLE RESTRAINTS, SEISMIC SNUBBERS, ETC., FOR EACH PIECE OF EQUIPMENT AND GROUPS OF PIPES AND DUCTS.
2. COMPLETE ENGINEERING CALCULATIONS AND DRAWINGS FOR ALL VIBRATION AND SEISMIC REQUIREMENTS FOR ALL EQUIPMENT, PIPING AND DUCTWORK.
3. THE STATE PROFESSIONAL ENGINEERING STAMP OF THE ENGINEER WHO IS RESPONSIBLE FOR THE DESIGN, CALCULATIONS AND OPERATION OF THE VIBRATION AND SEISMIC SYSTEM.
4. THE TYPE, SIZE, AND DEFLECTION OF EACH ISOLATOR PROPOSED FOR ITEMS IN THIS SPECIFICATION AND ON THE DRAWINGS.
5. DETAILS FOR ALL THE ISOLATORS AND SEISMIC BRACING WITH SNUBBERS PROPOSED FOR ITEMS IN THIS SPECIFICATION AND ON THE DRAWINGS.
6. DETAILS FOR STEEL FRAMES AND CONCRETE INERTIA BASES TO BE USED IN CONJUNCTION WITH THE ISOLATION AND SEISMIC RESTRAINT OF THE ITEMS IN THIS SPECIFICATION AND DRAWINGS.
7. CLEARLY OUTLINED PROCEDURES FOR INSTALLING AND ADJUSTING THE ISOLATIONS, SEISMIC BRACING AND SNUBBER.

INSULATION

230700.00 - INSULATION

A. ALL INSULATION SHALL MEET THE REQUIREMENTS OF ASTM, NFPA AND ALL AUTHORITIES HAVING JURISDICTION. ALL MECHANICAL ISULATION, (JACKETING, COVERINGS, ADHESIVES, MASTICS, FACINGS, TAPES, ETC.), SHALL HAVE RATINGS NOT EXCEEDING A "FLAME SPREAD" OF 25 OR LESS AND "SMOKE DEVELOPED" INDEX OF 50 OR LESS.

B. BEFORE APPLYING INSULATION, ALL PRESSURE AND LEAK TESTS SHALL BE COMPLETED AND APPROVED. FURNISH AND INSTALL AS PER MANUFACTURERS REQUIREMENTS.

C. INSULATION FOR FITTINGS OR ACCESSORIES REQUIRING SERVICING OR INSPECTION SHALL HAVE INSULATION REMOVABLE AND REPLACEABLE WITHOUT DAMAGE.

230700.01 - DUCT INSULATION:

A. GENERAL

1. INSULATION SHALL BE APPLIED WITH MASTICS, ADHESIVES, COATINGS, WITH COVERS, WEATHER PROTECTION AND OTHER WORK AS REQUIRED BY MANUFACTURER'S RECOMMENDATIONS. DO NOT INSULATE SOUND LINED DUCTWORK. MATERIALS SHALL MEET REQUIREMENTS OF ADHESIVE AND SEALANT COUNCIL STANDARDS AND SMACNA.

B. CONCEALED DUCTWORK

1. INSULATE SUPPLY AND RETURN AIR DUCTS AND PLENUMS IN CONCEALED, NON-CONDITIONED SPACES WITH FIBROUS GLASS DUCT WRAP HAVING A MINIMUM R-VALUE OF 8.0, WITH FOIL-KRAFT FLAME RESISTANT VAPOR BARRIER.

C. EXPOSED DUCTWORK

1. INSULATE EXPOSED SUPPLY, RETURN, FRESH AIR DUCTS, AND EXPOSED PLENUM WITH 1-1/2" THICK, SEMI-RIGID FIBROUS GLASS BOARDS WITH FACTORY APPLIED FIRE RETARDANT FOIL REINFORCED KRAFT VAPOR BARRIER FACING HAVING A MINIMUM R-VALUE OF 5.0. PROVIDE WELD PINS AND VAPOR SEAL ALL JOINTS WITH TAPE.

D. OUTDOOR DUCTWORK

1. FOR OUTDOOR DUCTWORK OR DUCTWORK EXPOSED TO THE ELEMENTS PROVIDE 2" THICK, 1.50 LB./CU. FT DENSITY FIBROUS GLASS DUCT WRAP WITH AN R-VALUE OF R-8, WITH FOIL KRAFT FLAME RESISTANT VAPOR BARRIER. APPLY TWO (2) COATS OF WEATHERPROOF MASTIC AND EMBED INTO WET COAT TWO (2) LAYERS OF GLASS CLOTH OVER INSULATION JACKET. SMOOTH MEMBRANE TO AVOID WRINKLES AND OVERLAP ALL SEAMS AT LEAST 3". APPLY A SECOND COAT OF SAME COATING TO THE ENTIRE SURFACE. TOP CENTER OF RECTANGULAR DUCT SHALL PITCH TO EACH SIDE TO AVOID TRAPPING OF WATER IN THE CENTER.

SYSTEM COMMISSIONING

230800 - SYSTEM COMMISSIONING

A. CONTRACTOR'S RESPONSIBILITIES FOR COMMISSIONING

1. PRIOR TO SYSTEM ACCEPTANCE THE CONTRACTOR SHALL BE RESPONSIBLE TO PROVIDE A COMPLETE DEMONSTRATION AND TESTING OF ALL OF THE COMPONENTS OF THE MECHANICAL SYSTEMS INCLUDING BUT NOT LIMITED TO THE FOLLOWING:
   a. TRANSFER/EXHAUST FANS,
   b. FIRE SMOKE DAMPERS
   c. AUTOMATIC LOUVER DAMPERS
   d. LEAK DETECTION
   e. REMOTE ANNUNCIATING PANELS
   f. BUILDING MANAGEMENT SYSTEM
2. THE CONTRACTOR SHALL SUBMIT AS A SHOP DRAWING PRIOR TO COMMISSIONING, RELEVANT COMMISSIONING CHECK LISTS AND PROCEDURES FOR ENGINEER'S REVIEW. OPERATING FUNCTIONS SHALL BE PERFORMED IN THE PRESENCE OF A CLIENT'S REPRESENTATIVE.
3. AFTER COMPLETION OF COMMISSIONING, CONTRACTOR SHALL SUBMIT A COMPLETE PACKAGE OF COMMISSIONING CHECKLISTS, AND CHECK, TEST AND STARTUP CERTIFICATES FROM VENDORS.
4. CONTRACTOR SHALL PROVIDE A WRITTEN STATEMENT STATING THAT THE FULL OPERATION OF ALL SYSTEMS, FUNCTIONS AND ALARMS HAVE BEEN DEMONSTRATED AND ARE OPERATIONAL AS WELL AS A LISTING OF ALL SYSTEMS, ALARMS AND FUNCTIONS THAT HAVE BEEN COMMISSIONED. (ANY ADDITIONAL COSTS ARISING FROM SITE VISITS OR ADDITIONAL WORK AS A RESULT OF INCOMPLETE COMMISSIONING BY THE CONTRACTOR SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR).
5. THIS TESTING SHALL TAKE PLACE AFTER HAVING SATISFACTORILY MET THE REQUIREMENTS OF SHOP DRAWING ACCEPTANCE.
6. COMMISSIONING OF THE SYSTEMS SHALL BE SCHEDULED BEFORE THE SPACE IS OCCUPIED LEAVING ENOUGH TIME TO CORRECT SYSTEM DEFICIENCIES AND AFTER SHOP DRAWING ACCEPTANCE. ALL ITEMS SHALL BE SUBMITTED FOR REVIEW AND ACCEPTANCE TO THE OWNER, OWNER'S REPRESENTATIVE AND ENGINEER BEFORE FINAL ACCEPTANCE CAN TAKE PLACE.

A. CONTRACTOR'S RESPONSIBILITY FOR COMMISSIONING OF SYSTEM BY AN COMMISSIONING AGENT (CXA)

1. CONSTRUCTION MANAGER'S RESPONSIBILITIES
   a. ATTEND HVAC COMMISSIONING MEETINGS AS SCHEDULED BY THE CXA.
   b. NOTIFY THE CXA A MINIMUM OF 2 WEEKS IN ADVANCE OF PLANNED OR SCHEDULED EQUIPMENT SHIPPING AND SETTING TO FACILITATE COORDINATION OF INSTALLATION CHECK ACTIVITIES.
   c. NOTIFY THE OWNER AND CXA A MINIMUM OF 2 WEEKS IN ADVANCE OF SCHEDULED EQUIPMENT START-UPS, SO THAT THE CXA MAY BE PRESENT TO WITNESS SYSTEM VERIFICATION AND EQUIPMENT AND SYSTEM START-UPS.
   d. ATTEND THE INITIAL TAB MEETING FOR REVIEW OF THE TAB PROCEDURES.
   e. ATTEND CONSTRUCTION PHASE CONTROLS COORDINATION MEETINGS.
   f. ATTEND TAB REVIEW AND COORDINATION MEETINGS.
   g. PROVIDE A COMPLETE SET OF O&M MANUALS TO THE CXA FOR REVIEW.
2. MECHANICAL CONTRACTOR'S RESPONSIBILITIES
   a. EACH CONTRACTOR AND SUB-CONTRACTOR SHALL INCLUDE IN THEIR QUOTES THE COST OF PARTICIPATING IN THE COMMISSIONING PROCESS AS SPECIFIED HEREIN.
   b. ENSURE COOPERATION AND PARTICIPATION IN THE COMMISSIONING PROCESS OF SPECIALTY SUB-CONTRACTORS SUCH AS SHEET METAL, PIPING, REFRIGERATION, AND WATER TREATMENT WHERE APPLICABLE.
   c. ENSURE PARTICIPATION OF MAJOR EQUIPMENT MANUFACTURERS IN APPROPRIATE START-UP, TESTING, AND TRAINING ACTIVITIES.
   d. PARTICIPATE IN HVAC SYSTEMS, ASSEMBLIES, EQUIPMENT, AND COMPONENT MAINTENANCE ORIENTATION AND INSPECTION AS DIRECTED BY THE CXA.
   e. PROVIDE CALIBRATED MEASURING INSTRUMENTS AND LOGGING DEVICES TO RECORD TEST DATA, AND PROVIDE DATA ACQUISITION EQUIPMENT TO RECORD DATA FOR THE COMPLETE RANGE OF TESTING FOR THE REQUIRED TEST PERIOD.
   f. COMMISSIONING MEETINGS SCHEDULED BY THE CXA.
   g. NOTIFY THE OWNER AND CXA A MINIMUM OF 2 WEEKS IN ADVANCE OF SCHEDULED EQUIPMENT INSTALLATIONS, START-UPS, SO THAT THE CXA MAY BE PRESENT TO WITNESS SYSTEM VERIFICATION AND EQUIPMENT AND SYSTEM START-UPS
   h. ATTEND THE INITIAL TAB MEETING FOR REVIEW OF THE TAB PROCEDURES.
   i. SUBMIT ALL HYDROSTATIC TESTING PROCEDURES TO THE CXA PRIOR TO PERFORMING ANY HYDROSTATIC TESTING FOR REVIEW.
3. TAB CONTRACTOR'S RESPONSIBILITIES
   a. INCLUDE COSTS FOR HVAC COMMISSIONING REQUIREMENTS IN THE QUOTED PRICE.
   b. ATTEND COMMISSIONING MEETINGS SCHEDULED BY THE CXA PRIOR TO, AND DURING, ON-SITE TAB WORK BEING DONE.
   c. SUBMIT PROPOSED TAB PROCEDURES TO THE CXA AND MECHANICAL ENGINEER FOR REVIEW AND ACCEPTANCE.
   d. ATTEND THE TAB PLANNING MEETING SCHEDULED BY THE CXA. BE PREPARED TO DISCUSS THE PROCEDURES THAT SHALL BE FOLLOWED IN TESTING, ADJUSTING, AND BALANCING OF THE HVAC SYSTEM.
   e. AT THE COMPLETION OF TAB WORK, SUBMIT THE FINAL TAB REPORT TO THE GENERAL CONTRACTOR, WITH COPIES TO THE OWNER, CXA, AND MECHANICAL ENGINEER.
   f. PARTICIPATE IN VERIFICATION OF THE TAB REPORT WITH THE CXA.
   g. PARTICIPATE IN O&M PERSONNEL TRAINING SESSIONS AS SCHEDULED BY THE CXA.
4. CONTROLS CONTRACTOR'S RESPONSIBILITIES
   a. EACH CONTRACTOR SHALL INCLUDE IN THEIR QUOTES THE COST OF PARTICIPATING IN THE COMMISSIONING PROCESS AS SPECIFIED HEREIN.
   b. REVIEW DESIGN FOR CONTROLLABILITY WITH RESPECT TO EQUIPMENT SELECTED FOR THE PROJECT.
   i. REVIEW AND CONFIRM IN WRITING THAT A PROPER HARDWARE SPECIFICATION EXISTS TO PERMIT FUNCTIONAL PERFORMANCE TESTING AS REQUIRED BY SPECIFICATION AND SEQUENCE OF OPERATION.
   ii. REVIEW AND CONFIRM IN WRITING THAT PROPER SAFETIES AND INTERLOCKS ARE INCLUDED IN DESIGN.
   iii. ENSURE THE PROPER SIZING OF CONTROL VALVES AND ACTUATORS, BASED ON DESIGN PRESSURE DROPS. ENSURE THAT CONTROL VALVE AUTHORITY WILL RESULT IN CAPACITY CONTROL AS SPECIFIED. INCLUDE VALVE SIZING AND AUTHORITY INFORMATION IN SUBMITTAL TO MECHANICAL ENGINEER.
   iv. ENSURE PROPER SIZING OF CONTROL DAMPERS. ENSURE DAMPER AUTHORITY TO CONTROL AIR FLOW AS SPECIFIED. REVIEW AND CONFIRM IN WRITING PROPER DAMPER POSITIONING FOR MIXING TO PREVENT STRATIFICATION. INCLUDE DAMPER SIZING, CONTROL AUTHORITY AND ACTUATOR SELECTION DATA IN SUBMITTAL TO MECHANICAL ENGINEER.
   v. ENSURE THE PROPER SELECTION OF SENSOR RANGES, AND INCLUDE DATA WITH SUBMITTAL TO MECHANICAL ENGINEER.
   vi. CLARIFY ALL QUESTIONS CONCERNING SEQUENCE OF OPERATION WITH THE MECHANICAL ENGINEER.
   c. ATTEND COMMISSIONING MEETINGS SCHEDULED BY THE CXA.
   d. PROVIDE THE FOLLOWING SUBMITTALS TO THE CXA FOR REVIEW:
   i. CONTROL PANEL CONSTRUCTION SHOP DRAWINGS.
   ii. DIAGRAMS SHOWING ALL CONTROL POINTS, SENSOR LOCATIONS, POINT NAMES, ACTUATORS, CONTROLLERS AND WHERE NECESSARY, POINTS OF ACCESS, ALL SUPERIMPOSED ON DIAGRAMS OF PHYSICAL EQUIPMENT.
   iii. NARRATIVE DESCRIPTION OF ALL CONTROL SEQUENCES FOR EACH PIECE OF EQUIPMENT CONTROLLED.
   iv. LOGIC DIAGRAMS SHOWING THE LOGIC FLOW OF ALL CONTROL SEQUENCES.
   v. A LIST OF ALL CONTROL POINTS, INCLUDING ANALOG INPUTS, ANALOG OUTPUTS, DIGITAL INPUTS AND DIGITAL OUTPUTS. PROVIDE A SEPARATE LIST OF ALL STAND-ALONE CONTROL UNITS.
   vi. HARDWARE O&M MANUALS.
   vii. APPLICATION SOFTWARE AND PROJECT APPLICATIONS CODE MANUALS.
   e. INSPECT, CHECK, AND CONFIRM THE PROPER INSTALLATION AND PERFORMANCE OF CONTROLS/BMS HARDWARE AND SOFTWARE PROVIDED BY OTHERS.
   f. INTEGRATE INSTALLATION AND PROGRAMMING SCHEDULING WITH CONTRACTION AND COMMISSIONING SCHEDULES.
   g. INSPECT, CHECK, AND CONFIRM THE CORRECT INSTALLATION AND OPERATION OF INPUT AND OUTPUT FIELD POINTS AND DEVICES THROUGH DOCUMENTED AND SIGNED OFF POINT-TO-POINT CHECKOUTS.
   h. PROVIDE THOROUGH TRAINING TO OPERATING PERSONNEL ON HARDWARE OPERATIONS AND PROGRAMMING, AND THE APPLICATION PROGRAM FOR THE SYSTEM, IN ACCORDANCE WITH THE O&M STAFF TRAINING PROGRAM IN THE COMMISSIONING PLAN.
   i. IN CONJUNCTION WITH THE MECHANICAL CONTRACTOR, DEMONSTRATE SYSTEM PERFORMANCE TO THE CXA INCLUDING ALL MODES OF SYSTEM OPERATION DURING FUNCTIONAL PERFORMANCE TESTS. IF IMPROPER FUNCTIONALITY, INCOMPLETE WORK, OR OTHER DEFICIENCIES AFFECTING SYSTEM PERFORMANCE ARE DISCOVERED, THE FPT'S WILL BE STOPPED BY THE CXA.
   j. PROVIDE CONTROL SYSTEM TECHNICIAN TO ASSIST DURING SYSTEM VERIFICATION AND FUNCTIONAL PERFORMANCE TESTING.
   k. PROVIDE SUPPORT AND COORDINATION WITH TAB CONTRACTOR ON ALL INTERFACES BETWEEN CONTROLS AND TAB SCOPES OF WORK. PROVIDE, AT NO ADDITIONAL COST TO THE TAB AND COMMISSIONING AUTHORITY, ALL DEVICES, SUCH AS PORTABLE OPERATOR'S TERMINALS AND ALL SOFTWARE FOR THE TAB AGENCY TO USE IN COMPLETING TAB PROCEDURES.
   l. PARTICIPATE IN O&M PERSONNEL TRAINING SESSIONS AS SCHEDULED BY THE COMMISSIONING AUTHORITY.

REGISTERED PROFESSIONAL ENGINEER
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Exp. Sept. 30, 2019
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MECHANICAL - SPECIFICATIONS

DATE	REMARKS	DATE	REMARKS
12.04.2017	ISSUE FOR PLAN CHECK		

PA / PM:	JDS
DRAWN BY:	EM
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SHEET
M2.1

CAUTION: IF THIS SHEET IS NOT 30"x42" IT IS A REDUCED PRINT

AUTOMATIC TEMP. CONTROL

230900 - AUTOMATIC TEMPERATURE CONTROLS

A. NEW INDEPENDENT AUTOMATIC TEMPERATURE CONTROL SYSTEM:

1. FURNISH AND INSTALL AS DESCRIBED HEREIN, A COMPLETE AUTOMATIC TEMPERATURE CONTROL SYSTEM (ATC) AS APPROVED BY THE ENGINEER.

2. ALL TEMPERATURE CONTROL SYSTEMS AND COMPONENTS UNDER THIS SUBCONTRACT ARE TO BE FULLY MODULATING TYPE, EXCEPT WHERE NOTED OTHERWISE. THE SYSTEM SHALL BE COMPLETE IN ALL RESPECTS INCLUDING ALL ASSOCIATED CONTROL EQUIPMENT, THERMOSTATS, CONTROL VALVES, VALVE ACTUATORS, DAMPER OPERATORS, RELAYS, PILOT POSITIONERS, CONTROL WIRING, CONTROL AIR PIPING, SWITCHES, INTERLOCK WIRING, ELECTRICAL OR PNEUMATIC CONTROL COMPONENTS AND ASSOCIATED PIPING OR WIRING, APPURTENANCES, ETC., TO PROVIDE THE FUNCTIONS DESCRIBED IN THESE SPECIFICATIONS AND PLANS, REGARDLESS OF WHETHER OR NOT SAID DEVICE RELAY, ETC., IS SPECIFICALLY MENTIONED HEREAFTER.

1. THE SYSTEM SHALL BE SUPERVISED AND CHECKED OUT COMPLETELY IN ALL RESPECTS BY COMPETENT MECHANICS, REGULARLY EMPLOYED BY THE MANUFACTURER.

2. ALL CONTROLS MUST BE THE PRODUCT OF ONE MANUFACTURER. ALL AUTOMATIC CONTROL VALVES, SENSORS AND DAMPER OPERATORS SHALL BE MANUFACTURED BY THE TEMPERATURE CONTROL MANUFACTURER.

3. THE CONTROL SYSTEMS SHALL BE IN ACCORDANCE WITH THE FOLLOWING DESCRIPTION OF SYSTEM OPERATIONS AND/OR DETAIL INFORMATION SHOWN ON THE PLANS AND AS DESCRIBED HEREIN.

4. THE MANUFACTURER OF THE AUTOMATIC CONTROL EQUIPMENT SHALL SUBMIT THE FOLLOWING FOR APPROVAL:

a. A SCHEMATIC DIAGRAM OF EACH CONTROL SYSTEM WHICH SHALL INDICATE THE PROPER SEQUENCE OF OPERATION AND RANGE OF THE CONTROLS FOR ALL CYCLES.

b. A COMPLETE DESCRIPTION OF THE AUTOMATIC OPERATION OF EACH SYSTEM. THE DESCRIPTION SHOULD INCLUDE THE DUTY OF EACH THERMOSTAT, VALVE, SWITCH, ETC., INCORPORATED IN THE CONTROL SYSTEM WITH A SCHEDULE AND ILLUSTRATION OF ALL CONTROL INSTRUMENTS AND EQUIPMENT INCLUDING CONTROL PANELS AND DEVICES FOR EACH SYSTEM.

c. CUTS OF ALL EQUIPMENT INCLUDING THERMOSTATS, CONTROL PANELS, FRONT END COMPUTERS, CONTROL VALVES, ETC.

5. ALL CONTROLS MUST BE THE PRODUCT OF THE MANUFACTURER. ALL AUTOMATIC CONTROL VALVES AND DAMPER OPERATORS SHALL BE MANUFACTURED BY THE TEMPERATURE CONTROL MANUFACTURER.

6. INSTALL SMOKE DETECTORS IN MAIN SUPPLY DUCT OF ALL AIR MOVING SYSTEMS GREATER THAN 2,000 CFM. SIGNAL FROM THE BUILDING FIRE ALARM SYSTEM SHALL AUTOMATICALLY INTERRUPT POWER TO THESE SYSTEMS AND SHUT DOWN EQUIPMENT. INTERLOCK WIRING, POWER WIRING AND FINAL CONNECTIONS WILL BE PROVIDED BY THE ELECTRICAL CONTRACTOR.

7. FIRE SMOKE DAMPERS SHALL BE UNDER THE FULL CONTROL OF THE FIRE ALARM SYSTEM AND OPERATE IN ACCORDANCE WITH BASE BUILDING REQUIREMENTS.

8. ELECTRIC WIRING

a. ALL ELECTRICAL WORK (EXCEPT FOR MOTOR FEEDERS, WIRING BETWEEN MOTORS, MOTOR CONTROLLERS, FEEDER PANELS, FUSES, CIRCUIT BREAKERS AND BUS BARS) REQUIRED FOR THE AUTOMATIC TEMPERATURE CONTROL SYSTEM SHALL BE PROVIDED BY THIS CONTRACTOR. WORK SHALL INCLUDE BUT NOT BE LIMITED TO TIME SWITCHES, DAMPER MOTORS, DAMPER SWITCHES, ELECTRIC THERMOSTATS, ELECTRIC RELAYS, E/P SWITCHES, INTERLOCKING WIRING, WIRE, CONDUIT, ETC.

b. ALL 115 VOLT POWER REQUIRED FOR CONTROL PURPOSES SHALL BE PROVIDED BY THE CONTROL CONTRACTOR FROM A SOURCE ESTABLISHED BY THE ELECTRICAL CONTRACTOR.

a. THE CONTROL MANUFACTURER SHALL INCLUDE WIRING DIAGRAMS IN HIS SHOP DRAWINGS SUBMITTALS FULLY COORDINATED WITH THE ELECTRICAL CONTRACTORS WORK. IT SHALL BE THE AUTOMATIC TEMPERATURE CONTROL CONTRACTOR'S RESPONSIBILITY TO PROVIDE ALL WIRING AND CONDUIT AS REQUIRED TO ACHIEVE THE FUNCTION CALLED FOR IN THESE SPECIFICATIONS, CONFORMING WITH LOCAL CODES FOR MATERIAL AND INSTALLATION.

b. THE ELECTRICAL SPECIFICATION FOR THE PROJECT ELECTRICAL WORK IS TO BE FOLLOWED.

c. FURNISH A CERTIFICATE INDICATING METHOD OF WIRING COMPLIANCE WITH LOCAL CODES AS PART OF FIRST SHOP DRAWING SUBMITTAL.

9. ROOM TEMPERATURE AND SWITCH LOCATIONS

a. ALL ROOM THERMOSTATS AND SWITCH LOCATIONS (WHETHER SHOWN ON PLANS OR NOT) SHALL BE SELECTED AND SUBMITTED BY THE TEMPERATURE CONTROL MANUFACTURER FOR APPROVAL BY THE ARCHITECT AND ENGINEER PRIOR TO ACTUAL INSTALLATION.

b. ALL ROOM THERMOSTATS/SENSORS AND SWITCH LOCATIONS SHALL BE SUBMITTED FOR REVIEW BY THE ARCHITECT AND ENGINEER PRIOR TO INSTALLATION WHETHER DEVICES ARE SHOWN ON PLANS OR NOT.

10. THERMOSTAT TYPES: PROVIDE A THERMOSTAT SUMMARY, WITHIN THE CONTROLS SUBMITTAL, INDICATING WHICH THERMOSTATS WILL BE USED IN EACH APPLICATION.

PIPING

232113 - HYDRONIC PIPING

A. PROVIDE ALL PIPING, FITTINGS, VALVES, SPECIALITIES, THERMOMETERS, AND PRESSURE GAUGES REQUIRED FOR THE OPERATING AND MAXIMUM PRESSURE AND TEMPERATURE OF THE PIPING SYSTEMS.

B. ALL PIPING SHALL BE NEW, STANDARD SIZE, FREE FROM SCALE OR RUST WITH ENDS CAPPED FOR DELIVERY AND STORAGE. EACH LENGTH OF PIPING SHALL BE PROPERLY MARKED AT THE MILL FOR PROPER IDENTIFICATION WITH NAME OR SYMBOL OF MANUFACTURER.

C. PROVIDE LABELING OF ALL PIPING (BOTH EXPOSED AND CONCEALED) IN ACCORDANCE WITH ANSI STANDARDS AND COLOR CODED AS PER BUILDING MANAGEMENT STANDARDS. LABELS SHALL BE SECURELY FASTENED TO PIPING WITH LETTERING OF SUFFICIENT SIZE FOR EASY IDENTIFICATION BY OPERATING PERSONNEL.

D. PIPE APPLICATION SCHEDULE:

SERVICE	SIZE	MATERIAL	WEIGHT	STANDARD	SOCKET WELD
COLD CONDENSATE DRAINS, MISC. DRAINS & OVERFLOWS	ALL	HARD COPPER	TYPE L	ASTM 88	BRAZE OR SILVER SOLDER

E. FITTING MATERIALS AND APPLICATION SCHEDULE:

1. ALL FITTING JOINT TYPE SHALL BE THE SAME AS THE PIPING JOINT TYPE REQUIRED FOR SERVICE, BASED ON THE PIPING APPLICATION SCHEDULE.
2. FITTING CLASS SHALL MEET THE PRESSURE AND TEMPERATURE REQUIREMENT OF THE PIPING SYSTEM BASED ON ITS MAXIMUM OPERATING PRESSURE AND TEMPERATURE OR TEST PRESSURE, WHICHEVER IF MORE STRINGENT. PRESSURE AND TEMPERATURE RATINGS OF A FITTING SHALL BE DETERMINED BY ITS CLASS AND THE CORRESPONDING ANSI STANDARD.
3. FITTING APPLICATION TABLE

PIPE MATERIAL	PIPE SIZE (INCHES)	JOINT TYPE	FITTING MATERIAL	FITTING CLASS
COPPER TUBING HARD DRAWN TYPE "L"	≤ 4"	SOLDER 95-5 TIN ANTIMONY ASTM B32-GR-95TA OR SILVER SOLDER ASTM B32-GR-95TS BRAZING	WROUGHT COPPER	300 SPIG AT 100°F, 150 PSIG AT 250°F
	≤ 4"	SOLDER 95-5 TIN ANTIMONY ASTM B32-GR-95TA OR SILVER SOLDER ASTM B32-GR-95TS BRAZING	WROUGHT COPPER	450 PSIG AT 100°F TO 200°F, 150 PSIG 250°F
	≤ 4"	SOLDER 15-5-80 SILVER PHOSPHOROURS COPPER AWS A5.8 OR BRAZING	WROUGHT COPPER	STANDARD
	ALL	THREADED	CAST BRONZE	125 AND 250

E. PROVIDE DIELECTRIC FITTING AT ALL PIPING CONNECTIONS JOINING DISSIMILAR METALS, SUCH AS STEEL AND COPPER.

232300 - REFRIGERANT SYSTEMS:

A. PROVIDE ALL REFRIGERANT PIPING REQUIRED FOR A COMPLETE REFRIGERATION SYSTEM, WITH ALL VALVES, FITTINGS AND SPECIALTIES NECESSARY FOR SATISFACTORY OPERATION IN ACCORDANCE WITH ASHRAE STANDARD 15 LATEST EDITION AND ALL AUTHORITIES HAVING JURISDICTION. REFRIGERATION SYSTEM SHALL INCLUDE ALL REQUIRED ITEMS FOR CHARGING, DRAINING AND PURGING THE SYSTEM.

B. JOINTS IN REFRIGERATION PIPING SHALL BE BRAZED. REFRIGERANT PIPING SHALL BE OF THE SIZE RECOMMENDED BY THE MANUFACTURER AND AS APPROVED BY THE ENGINEER.

C. HORIZONTAL PIPING OF THE COMPRESSOR SUCTION AND DISCHARGE LINES AND THE CONDENSER DISCHARGE LINES SHALL BE PITCHED A MINIMUM OF 1/2" IN 10', IN THE DIRECTION OF REFRIGERANT FLOW. EACH SUCTION GAS VERTICAL RISER SHALL BE TRAPPED AT ITS EVAPORATOR WITH A TRAP AS RECOMMENDED BY THE COMPRESSOR MANUFACTURER.

D. INSTALL REFRIGERANT PIPING TO PREVENT EXCESSIVE OIL FROM BEING TRAPPED IN THE SYSTEM. ANY ADDITIONAL RISERS OR EQUALIZER LINES REQUIRED BY THE MANUFACTURER OF EQUIPMENT FOR THE PROPER SYSTEM OPERATION SHALL BE INSTALLED AS PART OF THIS CONTRACT.

E. PROVIDE A FULLY PIPED OIL SEPARATOR FOR EACH REFRIGERANT SYSTEM AS PER MANUFACTURER'S RECOMMENDATIONS.

F. VALVES SHALL BE DESIGNED FOR REFRIGERANT SERVICE. SHUTOFF VALVES SHALL BE BRASS PACKLESS TYPE. UNIONS, FLANGED VALVES OR FITTINGS SHALL BE PROVIDED FOR DISCONNECTING EQUIPMENT, CONTROLS, ETC., FOR MAKING REPAIRS. PIPING SHALL BE RUN IN A SINGLE LAYER, WITH EACH LINE ISOLATED FROM ANOTHER TO PREVENT RUBBING. PROVISION SHALL BE MADE FOR EXPANSION AND CONTRACTION OF PIPING. ALL PIPING PASSING THROUGH WALLS, PARTITIONS, ETC., SHALL BE FURNISHED WITH SLEEVES AS REQUIRED.

G. REFRIGERANT PIPING PASSING THROUGH RATED FLOORS OR DEMISING WALLS SHALL BE ENCLOSED IN A RIGID AND GAS-TIGHT CONTINUOUS FIRE-RESISTING PIPE DUCT OR SHAFT VENTED TO THE OUTSIDE, IN ACCORDANCE WITH ASHRAE STANDARD 15 LATEST EDITION. PIPE CONDUIT SHALL BE COPPER TUBE TYPE L WITH SOLDERED FITTINGS.

H. PIPE APPLICATION SCHEDULE:

SERVICE	SIZE	MATERIAL	WEIGHT	STANDARD	JOINT TYPE
REFRIGERANT (AIR COOLED) & COMMERCIAL REFRIGERATION	ALL	HARD COPPER	TYPE ACR OR TYPE L	ASTM B280	BRAZED OR SILVER SOLDER
REFRIGERANT VENT	2" AND BELOW	BLACK STEEL	SCHEDULE 40 SEAMLESS GRADE B	A53 OR A106	SOCKET WELD

I. TESTING: TEST REFRIGERANT PIPING FOR TIGHTNESS AND LEAKS UNDER PRESSURE OR VACUUM. THE DURATION OF EACH TEST SHALL BE TWENTY-FOUR (24) HOURS. TEST JOINTS IN ACCORDANCE WITH ASHRAE 15-1994. THERE SHALL BE NO OBSERVABLE LEAKS OR CHANGES IN PRESSURE. IF EITHER IS OBSERVED, SEAL LEAKS, AND REPEAT TEST PROCEDURES.

PROVIDE LABELING OF ALL PIPING (BOTH EXPOSED AND CONCEALED) IN ACCORDANCE WITH ANSI STANDARDS AND COLOR CODED AS PER BUILDING MANAGEMENT STANDARDS.LABELS SHALL BE SECURELY FASTENED TO PIPING WITH LETTERING OF SUFFICIENT SIZE FOR EASY IDENTIFICATION BY OPERATING PERSONNEL.

DUCTWORK

233113 - DUCTWORK

A. ALL DUCTWORK SHALL BE FABRICATED AND INSTALLED IN ACCORDANCE WITH SMACNA HVAC DUCT CONSTRUCTION STANDARDS - METAL AND FLEXIBLE, LATEST EDITION, SMACNA HVAC AIR DUCT LEAKAGE TEST MANUAL, LATEST EDITION, STATE AND LOCAL CODES. THE MORE STRINGENT REQUIREMENT OF ANY CODES SHALL APPLY.

B. PROVIDE ALL SUPPORTING AND HANGING DEVICES IN ACCORDANCE WITH SMACNA, STATE BUILDING CODE AND ALL APPLICABLE LOCAL AND NATIONAL CODES

C. DUCTWORK LAYOUT AND ROUTING IS SCHEMATIC AND THE MECHANICAL CONTRACTOR IS RESPONSIBLE FOR ALL DUCT SIZE CHANGES AND RELOCATIONS TO ACCOMMODATE SPACE AND STRUCTURAL CONDITIONS. OFFSETS AND TRANSFORMATIONS SHALL PRESERVE THE FULL INSIDE CROSS-SECTIONAL AREA OF DUCTWORK SHOWN ON THE DRAWINGS.

D. DUCTWORK (NEW AND EXISTING TO BE REUSED) SHALL HAVE PRESSURE CLASSIFICATION, SEALING REQUIREMENTS AND LEAKAGE TESTING IN ACCORDANCE WITH SMACNA AND AS LISTED BELOW UNLESS OTHERWISE SPECIFIED OR SHOWN ON THE DRAWINGS:

1. 4" CLASS: ALL SUPPLY DUCTWORK FROM DISCHARGE OF AIR HANDLING UNITS TO INLETS OF TERMINAL BOXES. SEAL CLASS "A", LEAKAGE CLASS 6 (RECTANGULAR) OR CLASS 3 (ROUND).
2. 3" CLASS: ALL SUCTION AND DISCHARGE OF KITCHEN HOOD, AND SMOKE EXHAUST DUCTWORK. SEAL CLASS "B", LEAKAGE CLASS 12 (RECTANGULAR) OR CLASS 6 (ROUND).
3. 2" CLASS: ALL OTHER LOW PRESSURE DUCTWORK. SEAL CLASS "C", LEAKAGE CLASS 24 (RECTANGULAR) OR CLASS 12 (ROUND).

E. LEAKAGE TESTING

1. ALL TESTING SHALL BE DONE IN THE PRESENCE OF THE ENGINEER OR OWNER'S REPRESENTATIVE. THE CONTRACTOR IS RESPONSIBLE FOR PROVIDING ALL COLLARS, CAPS, ELECTRIC POWER, ETC. NECESSARY TO PERFORM THE TESTS. THE CONTRACTOR IS ALSO RESPONSIBLE FOR SCHEDULING THE TEST NO LESS THAN THREE (3) BUSINESS DAYS PRIOR TO ITS INTENDED OCCURRENCE. LOW PRESSURE DUCTWORK (2"CLASS) SHALL BE TESTED ON AN AS-NEEDED BASIS AT THE ENGINEER'S DIRECTION. LEAKAGE TEST PROCEDURES SHALL FOLLOW THE OUTLINES AND CLASSIFICATIONS IN THE SMACNA HVAC DUCT LEAKAGE TEST MANUAL. IF SPECIMEN FAILS TO MEET ALLOTTED LEAKAGE LEVEL, THE CONTRACTOR SHALL MODIFY TO BRING IT INTO COMPLIANCE AND SHALL RETEST IT UNTIL ACCEPTABLE LEAKAGE IS DEMONSTRATED. TESTS AND NECESSARY REPAIR SHALL BE COMPLETED PRIOR TO CONCEALMENT OF DUCTS.
2. FOR PROJECTS UTILIZING THE EXISTING MAIN TRUNK LINES, CONTRACTOR SHALL IS RESPONSIBLE FOR PROVIDING ALL COLLARS, CAPS, ELECTRIC POWER, ETC. NECESSARY TO PERFORM THE TESTS. THE CONTRACTOR IS ALSO RESPONSIBLE FOR SCHEDULING THE TEST NO LESS THAN THREE (3) BUSINESS DAYS PRIOR TO ITS INTENDED OCCURRENCE. LOW PRESSURE DUCTWORK (2"CLASS) SHALL BE TESTED ON AN AS-NEEDED BASIS AT THE ENGINEER'S DIRECTION. LEAKAGE TEST PROCEDURES SHALL FOLLOW THE OUTLINES AND CLASSIFICATIONS IN THE SMACNA HVAC DUCT LEAKAGE TEST MANUAL. IF SPECIMEN FAILS TO MEET ALLOTTED LEAKAGE LEVEL, THE CONTRACTOR SHALL SUBMIT A RECOMENDATION AND PRICE TO MODIFY TO BRING IT INTO COMPLIANCE. DUCTWORK SHALL BE RETESTED. UNTIL ACCEPTABLE LEAKAGE IS DEMONSTRATED. TESTS AND NECESSARY REPAIR SHALL BE COMPLETED PRIOR TO CONCEALMENT OF DUCTS.

F. MATERIALS:

1. SHEET METAL: UNLESS OTHERWISE SPECIFIED OR INDICATED, DUCTS SHALL BE CONSTRUCTED OF HOT-DIPPED GALVANIZED SHEETMETAL WITH G60 COMMERCIAL COATING ACCORDING TO ASTM A653 & A924.

G. FABRICATION:

1. CONFORM TO SMACNA REQUIREMENTS FOR METAL THICKNESS, REINFORCING, JOINTS, AND SEALING FOR MAXIMUM STATIC PRESSURES INVOLVED. ALL SEAMS AND JOINTS SHALL BE SEALED AND TAPED.
2. ELBOWS SHALL CONFORM TO SMACNA REQUIREMENTS AND THE FOLLOWING:
   a. PROVIDE LONG RADIUS TYPE WITH CENTERLINE RADIUS MINIMUM 1.5 TIMES DUCT WIDTH. PROVIDE SHORT RADIUS OR SQUARE ELBOWS WHERE INDICATED OR WHERE REQUIRED TO FIT RESTRICTED SPACES. PROVIDE TURNING VANES ON ALL SHORT RADIUS AND MITERED ELBOWS. CONFORM TO SMACNA FOR THE NUMBER OF VANES FOR FITTINGS.
1. BRANCH CONNECTIONS: PROVIDE 45 DEGREE ENTRY OR CONICAL TAPS. PROVIDE RADIUS TYPE FITTINGS FOR DIVIDED FLOW BRANCHES.

H. ACOUSTICALLY LINED DUCTWORK:

1. PROVIDE MAT-FACED GLASS DUCT LINER, 1-INCH THICK, 2 LB/CF DENSITY. DUCT DIMENSIONS INDICATED ARE CLEAR (NET) INSIDE DIMENSIONS. FOR DUCT VELOCITIES GREATER THAN 2,000 FPM, FACE DUCTLINER WITH 24 GAUGE PERFORATED ALUMINUM OR GALVANIZED STEEL, FULLY COVERING DUCTLINER, AND SUPPORTED 12" ON CENTER. DO NOT EXTERNALLY INSULATE ACOUSTICALLY LINED DUCTWORK. CONFORM TO SMACNA REQUIREMENTS FOR INSTALLATION. PROVIDE ACOUSTICALLY LINED DUCT WHERE LISTED BELOW AND/OR SHOWN ON THE DRAWINGS:

ALL TRANSFER DUCTS

WITHIN MINIMUM 20 FEET OF ALL AC UNIT DISCHARGES

WITHIN MINIMUM 20 FEET OF FAN INLET AND DISCHARGES

233300 - DUCTWORK ACCESSSORIES

A. VOLUME DAMPERS:

1. DAMPERS SHALL BE GALVANIZED STEEL OR SAME MATERIAL AS DUCT CONSTRUCTION. CONFORM TO SMACNA HVAC DUCT CONSTRUCTION STANDARDS, LATEST EDITION, OPPOSED BLADE TYPE. PROVIDE BEARING AT BOTH ENDS OF DAMPER ROD AND QUADRANT, WITH LEVER AND LOCKSCREW, AT ONE END. INSTALL WITH LEVERS ACCESSIBLE THROUGH INSULATION. SPLITTER DAMPER OR AIR EXTRACTORS SHALL NOT BE USED ON THIS PROJECT.
2. WHERE VOLUME DAMPERS ARE REQUIRED TO BE INSTALLED IN INACCESSIBLE CEILINGS, CONTRACTOR TO PROVIDE CABLE OPERATED DAMPER.
3. PROVIDE MANUAL BALANCING VOLUME DAMPERS AS REQUIRED TO PROPERLY BALANCE THE AIR DISTRIBUTION SYSTEM. IF THE LOCATIONS OF BALANCING DAMPERS ARE NOT DEFINED ON THE DRAWINGS, THE FOLLOWING MINIMUM STANDARDS SHALL GOVERN:
   a. LOW PRESSURE: ALL SUPPLY AIR MAIN BRANCHES FROM TRUNK, EACH SPLIT, AND ALL SUB-BRANCHES FROM MAINS SHALL BE PROVIDED WITH BALANCING DAMPERS.
   a. LOW PRESSURE: ALL EXHAUST AND RETURN BRANCHES FROM TRUNK, EACH SPLIT AND ALL SUB-BRANCHES FROM MAINS SHALL BE PROVIDED WITH BALANCING DAMPERS.
   b. AS NOTED ON PLANS.

B. DUCT ACCESS DOORS:

1. CONFORM TO SMACNA WITH PIANO TYPE HINGES, TWO SASH LOCKS AND DOOR GASKETS. SCREWED ACCESS PANELS ARE NOT PERMITTED. PROVIDE REMOVABLE ACCESS DOORS WHERE DOOR SWING CAN NOT BE ACCOMMODATED.
2. SIZE: MINIMUM 20" X 14" EXCEPT DUCTS LESS THAN 16", ONE DIMENSION 20" AND THE OTHER DIMENSION, 2" LESS THAN THE DUCT WIDTH.
3. PROVIDE ACCESS DOORS: AT ENTERING AND LEAVING SIDES OF COILS IN DUCTS; AUTOMATIC DAMPERS ON LINKAGE SIDE, MANUAL VOLUME DAMPERS 2 SQ. FT. AND LARGER, FIRE DAMPERS, SMOKE DAMPERS, COMBINATION FIRE/SMOKE DAMPERS, SMOKE DETECTION HEADS, FAN BEARINGS ENCLOSED IN DUCTS, SUCTION AND DISCHARGE SIDES OF CEILING MOUNTED FANS, FILTERS, REHEAT COILS, AT ALL EQUIPMENT REQUIRING ACCESS AND AS INDICATED ON DRAWINGS.

C. FIRE DAMPERS:

1. FUSIBLE LINK FIRE DAMPERS SHALL BE INSTALLED AS INDICATED ON DRAWINGS AND ALL NATIONAL, STATE AND LOCAL CODES. DAMPER SHALL BE UL LISTED AND LABELED AND IN CONFORMANCE WITH NFPA.
2. FIRE DAMPERS SHALL BE FACTORY FABRICATED WITH FUSIBLE LINK SHUTTER TYPE MECHANISM OUT OF AIRSTREAM. THE HVAC CONTRACTOR SHALL PROVIDE AN ACCESS DOOR AT EACH DAMPER.
3. DAMPER SHALL BE MANUFACTURED BY RUSKIN, MODEL IBD2 (1 ½ HR RATED, VERTICAL STATIC) OR MODEL DIBD2 (1 ½ HR RATED, HORIZONTAL DYNAMIC) AS REQUIRED, TYPE "B", BSA #297-71SA.

D. COMBINATION FIRE/SMOKE DAMPERS:

1. COMBINATION FIRE/SMOKE DAMPERS SHALL BE INSTALLED AS INDICATED ON DRAWING AND AS REQUIRED BY ALL NATIONAL, STATE AND LOCAL CODES. DAMPERS SHALL BE UL 555S LATEST EDITION LISTED AND LABELED AND IN CONFORMANCE WITH NFPA.
2. COMBINATION FIRE/SMOKE DAMPERS SHALL BE CLASS 1 (ONE), DUAL OVERRIDE REMOTE RESETTABLE, OPPOSED MULTIBLADE TYPE WITH FUSIBLE MECHANICAL HEAT RESPONSIVE DEVICE, 120-VOLT ACTUATOR AS REQUIRED MOUNTED OUT OF THE AIR STREAM, WITH DAMPER OPERATOR AND BLADE POSITION INDICATOR SWITCHES. PROVIDE MOTOR MOUNT BRACKET STRENGTHENER FOR DAMPERS OVER 10" IN HEIGHT. PROVIDE A 10 GAUGE WELDED VERTICAL STIFFENER AT EACH CORNER TO PREVENT DAMPER MISALIGNMENT.
3. THE HVAC CONTRACTOR SHALL PROVIDE ALL DEVICES, RELAYS, END SWITCHES, E/P SWITCHES, CONTROL COMPONENTS, AIR PIPING, POWER WIRING, CONTROL WIRING AND INTERLOCK WIRING AS REQUIRED TO ACCOMPLISH THE SEQUENCE OF OPERATION FOR THESE DAMPERS.
4. DAMPERS SHALL BE MANUFACTURED BY RUSKIN MODEL FSD-60 (MEA #176-82-SM).

F. SEAL OPENINGS AROUND DUCTS THROUGH WALLS WITH MINERAL WOOL OR OTHER NON-COMBUSTIBLE MATERIAL. SEAL ALL DUCT PENETRATIONS THROUGH WALLS AIRTIGHT.

G. ALL DUCTS EXPOSED TO MOISTURE SHALL BE ALUMINUM, SLOPED, DRAINED, AND SHALL NOT BE INTERNALLY LINED.

H. EXISTING DUCTWORK TO BE REUSED:

1. THIS CONTRACTOR SHALL INSPECT, SEAL PER SMACNA REQUIREMENTS, LEAK TEST, AND INSULATE ALL EXISTING DUCTWORK TO BE REUSED. EXISTING DUCTWORK TO BE REUSED SHALL CONFORM TO SPECIFICATIONS FOR NEW DUCTWORK LISTED HEREIN. ALL REQUIRED WORK SHALL BE PART OF BID.

I. EXPOSED DUCTWORK:

1. WHERE DUCTWORK IS INDICATED TO BE EXPOSED TO VIEW IN OCCUPIED SPACES, PROVIDE MATERIALS WHICH ARE FREE FROM VISUAL IMPERFECTIONS, INCLUDING FITTINGS, SEAM MARKS, STAINS, DISCOLORATIONS, AND OTHER IMPERFECTIONS. PROVIDE FINISHES WHICH WILL ALLOW PAINTING. PROVIDE FLAT TYPE SEAMS AND JOINTS FOR ALL EXPOSED DUCT CONSTRUCTION.

233713 - DIFFUSERS, GRILLES AND REGISTERS:

A. GENERAL

1. GRILLES, REGISTERS AND DIFFUSERS SHALL BE TESTED IN ACCORDANCE WITH ASHRAE STANDARD 70-1991 OR LATEST EDITION. THE MANUFACTURER SHALL PROVIDE PUBLISHED PERFORMANCE DATA FOR ALL AIR INLETS AND OUTLETS TO BE USED ON PROJECT AS PART OF SUBMISSION.
2. MECHANICAL CONTRACTOR SHALL COORDINATE THE LOCATION OF DIFFUSERS, GRILLES AND REGISTERS WITH OTHER TRADES AND WITH CEILING AND WALL CONSTRUCTION. THE MECHANICAL CONTRACTOR SHALL VERIFY THAT ALL DIFFUSERS, GRILLES AND REGISTERS ARE COMPATIBLE WITH CEILING CONSTRUCTION TO WHICH THEY ARE TO BE INSTALLED.
3. COORDINATE ALL WORK WITH GENERAL CONTRACTOR AND REFER TO ARCHITECTURAL DRAWINGS FOR EXACT LOCATION, LENGTHS AND FOR FRAMING AND MITERING ARRANGEMENTS THAT MAY DIFFER FROM THOSE SHOWN ON HVAC DRAWINGS. PROVIDE ALL REQUIRED GENERAL CONSTRUCTION, FRAMING, BLOCKING, PLASTERING AND SUPPORTS TO MATCH CEILING, SOFFIT OR WALL CONSTRUCTION AS PART OF PROJECT.
4. INLETS AND OUTLETS SHALL HANDLE AIR QUANTITIES INDICATED AT OPERATING VELOCITIES WITH SOUND PRESSURE LEVEL NOT TO EXCEED NC-30, UNLESS NOTED OTHERWISE.
5. DIFFUSERS, GRILLES AND REGISTERS SHALL BE INSTALLED WITH FACES SET LEVEL AND PLUMB AND MOUNTED TIGHTLY AGAINST MOUNTING SERVICE.
6. ALL AIR INLETS AND OUTLETS TO BE STEEL OR ALUMINUM IF EXPOSED TO MOISTURE UNLESS OTHERWISE INDICATED. FINISHES SHALL BE SELECTED BY ARCHITECT.
7. DIFFUSERS, GRILLES AND REGISTERS SHALL BE MANUFACTURED BY TITUS OR APPROVED EQUAL.
8. SUBMIT FOR APPROVAL A COMPLETE SCHEDULE OF ALL AIR INLETS AND OUTLETS TO BE USED ON PROJECT INCLUDING MANUFACTURERS MODELS, SIZES, PERFORMANCE, ACCESSORIES, ACOUSTIC INFORMATION, FINISHES, ETC., BEFORE RELEASE FOR FABRICATION. NOTE ANY DEVIATIONS FROM SPECIFICATIONS AND SCHEDULES SHALL BE INDICATED ON SUBMITTAL.

B. AIR INLET AND OUTLET DEVICES

1. PROVIDE DIFFUSERS, GRILLES AND REGISTERS FOR SUPPLY, RETURN AND EXHAUST INLETS AND OUTLETS, OF THE SIZE, TYPE, AND DESIGN INDICATED ON DRAWINGS.
2. ALL SUPPLY RETURN AND EXHAUST AIR INLETS AND OUTLETS SHALL BE PROVIDED WITH AN OPPOSED BLADE DAMPER AND GRID (ADJUSTABLE THROUGH THE FACE) FOR TRIM BALANCING.
3. SUPPLY REGISTERS SHALL HAVE TWO SETS OF DIRECTIONAL CONTROL BLADES.
4. ONLY 4 WAY DIFFUSERS SHALL BE USED, PROVIDE BLANK OFF SHEETMETAL BAFFLE FOR ALL 1-WAY, 2-WAY AND 3-WAY DIFFUSERS.
5. ALL LINEAR DIFFUSERS SHALL BE PROVIDED WITH CABLE OPERATED OPPOSED BLADE DAMPER ADJUSTABLE THROUGH THE FACE OF THE DIFFUSER. DAMPERS AND PLENUM TAPS SHALL BE SPACED AT A MAXIMUM OF 4 FEET ON CENTER. PROVIDE DIFFUSERS WITH ADJUSTABLE AIR PATTERN CONTROL VANES.

230593 - TESTING AND BALANCING

B. GENERAL

1. TESTING AND BALANCING WORK SHALL BE PERFORMED BY AN INDEPENDENT NEBB OR AABC CERTIFIED COMPANY (NOT ASSOCIATED WITH THE HVAC CONTRACTOR). CONTRACTOR SHALL SUBMIT THE NAME OF THE TESTING AND BALANCING COMPANY AT TIME OF BID.
2. AFTER ALL PROJECT HVAC WORK IS COMPLETE, TESTED AND IN FULL WORKING ORDER, THE AGENCY SHALL PERFORM THE BALANCING AND TESTING OF THE PROJECT HEATING, VENTILATING AND AIR CONDITIONING SYSTEMS.
3. UPON THE COMPLETION OF THE AIR CONDITIONING SYSTEM, THE BALANCING AGENCY SHALL PERFORM TESTING AND BALANCING AND COMPILE ALL TEST DATA IN A CERTIFIED REPORT AND SUBMIT FOUR (4) COPIES FOR REVIEW AND APPROVAL TO THE ENGINEER.
4. THE REPORT SHALL INCLUDE DESIGN AND ACTUAL READINGS FOR ALL EQUIPMENT AND LOCATION PLAN INDICATING WHERE ALL WORK HAS BEEN PERFORMED, AND METHODS OF BALANCING AND DETAILS OF INSTRUMENTS USED.
5. IF DISCREPANCIES EXIST IN THE REPORT THAT REQUIRE FIELD VERIFICATION, THE TESTING AND BALANCING COMPANY IN THE PRESENCE OF THE ENGINEER SHALL VISIT THE JOBSITE FOR FIELD VERIFICATION OF THE REPORT.
6. AFTER SUBMISSION OF THE FIELD VERIFIED BALANCING REPORT, THE AIR BALANCING COMPANY SHALL RETURN TO THE JOB SITE TO PERFORM TWO (2) OCCUPANT COMFORT BALANCES AS DIRECTED BY THE OWNER OR ENGINEER.
7. THE FINAL REPORT AFTER THE COMFORT BALANCE IS TO BE INCLUDED IN PROJECT OPERATING AND MAINTENANCE MANUAL.
8. THE TESTING AND BALANCING AGENCY SHALL INCLUDE AS PART OF THEIR WORK AN EXTENDED WARRANTY OF 90 DAYS AFTER COMPLETION OF TEST AND BALANCE WORK. THE ENGINEER AT HIS DISCRETION DURING THE WARRANTY PERIOD MAY REQUEST A RECHECK, OR RESETTING OF ANY EQUIPMENT. THE MECHANICAL CONTRACTOR AND THE BALANCING CONTRACTOR SHALL PROVIDE THE NECESSARY TECHNICIANS TO FACILITATE THIS WORK.
9. BALANCING AGENCY SHALL PERMANENTLY MARK ALL ADJUSTMENT DEVICES (VALVES, DAMPERS, ETC.,) TO ENABLE THE SETTING TO BE RESTORED.

A. AIR BALANCING

1. PRE-CONSTRUCTION AIR TESTING
   a. MEASURE PRESSURE, TEMPERATURE, AND VOLUME OF AIR FROM EXISTING BASE BUILDING SYSTEM BEFORE STARTING WORK. TRAVERSE MAIN SUPPLY AND RETURN DUCTS BEFORE WORK TO OBTAIN TOTAL FLOW. SUBMIT REPORT TO ENGINEER IMMEDIATELY AFTER COMPLETION OF TEST.
1. HVAC CONTRACTOR SHALL ENSURE THAT A FIRST SET OF AIR FILTERS ARE IN PLACE, WHENEVER FANS ARE RUNNING AND REPLACED WITH A NEW CLEAN SET OF FILTERS BEFORE TESTING IS COMMENCED.
2. TEST, ADJUST, REPLACE SHEAVES, AND BALANCE ALL EQUIPMENT AND AIR DISTRIBUTION SYSTEMS TO PROVIDE AIR QUANTITIES INDICATED ON PLANS WITHIN PLUS OR MINUS 5 PERCENT.
3. TEST REPORT SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:
   a. FLOW, LEAKAGE CLASS, TEMPERATURE, STATIC PRESSURE OF AIR AT ALL TRUNK DUCTS SERVING AREAS OF WORK.
   b. TEMPERATURE OF AIR LEAVING OUTLETS AT TWO (2) TYPICAL AIR OUTLETS.
   c. QUANTITY OF AIR AT EACH AIR INLET AND OUTLET AFTER BALANCING.
   d. PROVIDE FOR ALL FANS, FAN MOTOR HP, AMPS, VOLTS, FAN RPM, CFM, INLET AND DISCHARGE STATIC PRESSURE, SHEAVE POSITION.
   a. PROVIDE FOR ALL AIR CONDITIONING UNITS, SUPPLY CFM, OUTSIDE AIR CFM, RETURN AIR CFM, MIXED AIR CFM. PROVIDE OUTSIDE AIR, MIXED AIR AND SUPPLY AIR TEMPERATURES (DRY BULB - COOLING AND HEATING, WET-BULB-COOLING.) INDICATE UNIT OPERATING MODE DURING TEST.
   b. CALIBRATE ALL NEW AND EXISTING TO BE REUSED TERMINAL BOXES (VAV, FAN POWERED OR DUAL DUCT) AS REQUIRED TO MEET SPECIFIED MINIMUM/MAXIMUM CFM.
   c. LISTING OF DESIGN AND ACTUAL READINGS AS WELL AS ALL MANUFACTURER'S DATA FOR EQUIPMENT.

REGISTERED PROFESSIONAL ENGINEER
JOHN HOWARD REYNA
No. M32522
Exp. Sept. 30, 2019
MECHANICAL
STATE OF CALIFORNIA

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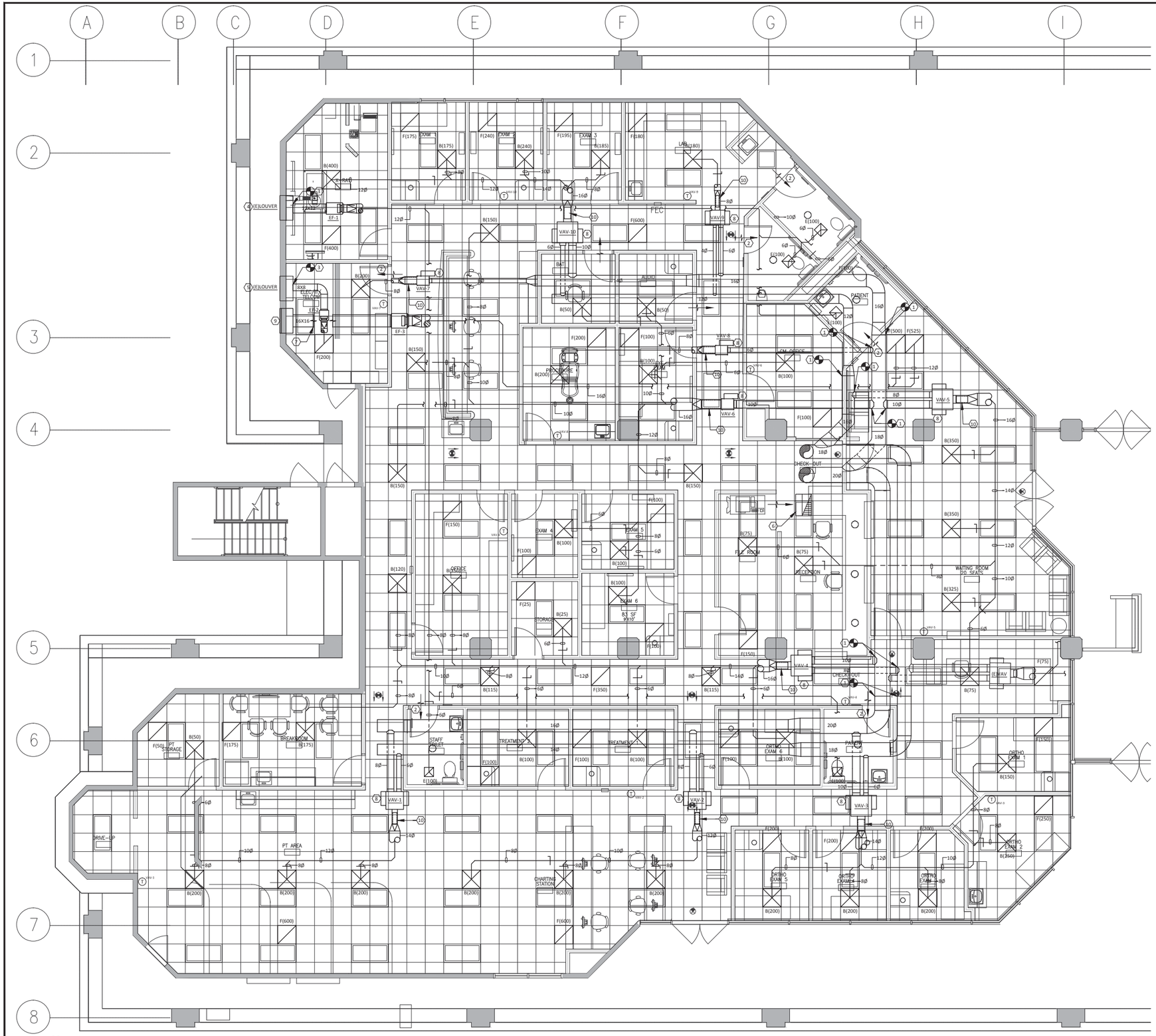
MECHANICAL - SPECIFICATIONS

DATE	REMARKS
12.04.2017	ISSUE FOR PLAN CHECK

PA / PM:	RED
DRAWN BY:	SF
JOB NO.:	SNR16-6088-00

SHEET
M2.2

CAUTION: IF THIS SHEET IS NOT 30"x42" IT IS A REDUCED PRINT



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

GENERAL NOTES

1. FOR GENERAL NOTES & SYMBOL LIST, SEE DRAWING M-001.
2. COORDINATE EXACT DIFFUSER LOCATION WITH FINAL ARCHITECTURAL CEILING PLANS.
3. FLEX DUCT SHALL NOT EXCEED A LENGTH OF 5 FEET.
4. CONTRACTOR TO INSULATE ALL SUPPLY AND RETURN AIR DUCTWORK PER TITLE 24 REQUIREMENTS.
5. BALANCE SYSTEM WITHIN AREA OF WORK.
6. COORDINATE THE ELEVATIONS OF THERMOSTATS, NEW AND RELOCATED, WITH THE ARCHITECTURAL PLANS.
7. CONTRACTOR SHALL PERFORM A LEAKAGE TEST ON ALL DUCTWORK WITHIN AREA OF WORK. PATCH AND REPAIR ANY AND ALL LEAKS.
8. CONTRACTOR TO CONFIRM THAT AC UNIT DUCT SMOKE DETECTORS AND CO2 SENSORS WERE INSTALLED AS PART OF THE ORIGINAL UNIT INSTALLATION.

KEYED NOTES

1. CONNECT TO EXISTING HOT AND COLD DUCTS AS SHOWN.
2. PROVIDE DOOR UNDER CUT FOR MAKE-UP/TRANSFER AIR.
3. CONNECT TO EXISTING PLENUM.
4. CONTRACTOR TO MEASURE EXISTING LOUVER NET FREE AREA. IF EXISTING LOUVER NET FREE AREA IS LESS THAN 1 FEET SQUARE, CONTRACTOR SHALL INCREASE LOUVER SIZE AS NECESSARY TO ACHIEVE 1 FEET SQUARE OF NET FREE AREA.
5. CONTRACTOR TO MEASURE EXISTING LOUVER NET FREE AREA. IF EXISTING LOUVER NET FREE AREA IS LESS THAN 0.5 FEET SQUARE, CONTRACTOR SHALL INCREASE LOUVER SIZE AS NECESSARY TO ACHIEVE 0.5 FEET SQUARE OF NET FREE AREA.
6. EXISTING RETURN AIR DUCT.
7. RUN DUCT ABOVE EF-2 AND PROVIDE MANUFACTURER RECOMMENDED MAINTENANCE ACCESS CLEARANCE FOR FAN.
8. CONTRACTOR TO LOCATE EXISTING PNEUMATIC CONTROL SYSTEM MANIFOLD ABOVE CEILING AND PROVIDE NEW CONTROL TUBING TO THERMOSTATS.
9. CONTRACTOR TO PROVIDE NEW LOUVER WITH A NET FREE AREA OF 2 FEET SQUARE. LOUVER FINISH AND ELEVATION SHALL BE SIMILAR TO ADJACENT EXISTING LOUVERS.
10. PROVIDE MINIMUM 3 FEET OF INTERNALLY LINED DUCT AT ALL VAV DISCHARGE.

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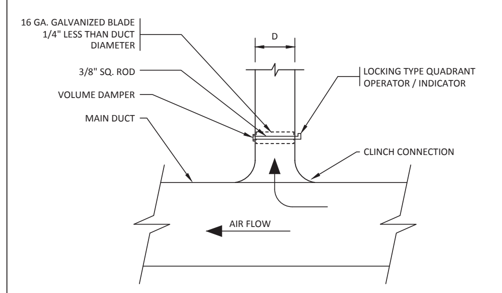
MECHANICAL - NEW WORK PLAN

DATE	REMARKS
12.04.2017	ISSUE FOR PLAN CHECK

PA / PM:	JDS
DRAWN BY:	MJE
JOB NO.:	SNR16-6088-00

SHEET
M4.1

REGISTERED PROFESSIONAL ENGINEER
No. M32522
Exp. Sept. 30, 2019
MECHANICAL
STATE OF CALIFORNIA



233113-9

CIRCULAR BRANCH CONNECTION TO SINGLE AIR OUTLET

5 NTS

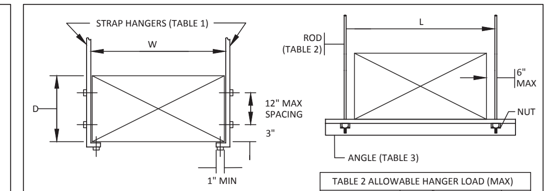


TABLE 1 STRAP HANGERS (PAIR) SPACED			
W + D MAX.	10'-0" MAX.	8'-0" MAX.	5'-0" MAX.
72"	1"x22 GA	1"x 22 GA	1"x 22 GA
96"		1"x 20 GA	1"x 22 GA
120"		1"x 18 GA	1"x 22 GA
168"			1"x 18 GA
192"			1"x 16 GA
193" UP	SPECIAL ANALYSIS REQUIRED		

TABLE 2 ALLOWABLE HANGER LOAD (MAX)			
STRAPS	LBS	STRAPS	LBS
2 - 1"x 22 GA	520	2 - 3/8" DIA	1360
2 - 1"x 22 GA	640	2 - 3/8" DIA	2500
2 - 1"x 22 GA	840	2 - 3/8" DIA	4000
2 - 1"x 22 GA	1400	2 - 3/8" DIA	6000

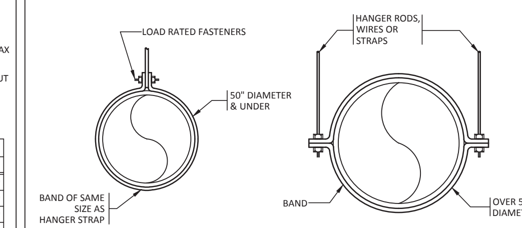
TABLE 3 TRAPEZE ANGLE LOAD (MAX)		
L	2"x2"x1/4"	2 1/2"x2 1/2"x1/4"
36"	1200 LBS	1940 LBS
48"	1160 LBS	1900 LBS
60"	1060 LBS	1800 LBS
72"	900 LBS	1640 LBS
84"	660 LBS	1400 LBS
96"	320 LBS	1060 LBS

NOTES:
1. TABULATED DATA FROM SMACNA ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.
2. PROVIDE HIGH DENSITY INSERT AT TRAPEZE FOR INSULATED DUCTS.
3. NO PIPING OR ELECTRIC CONDUIT SHALL BE SUPPORTED FROM THE DUCTWORK.

233113-1

RECTANGULAR DUCT HANGERS

3 NTS



HANGER STRAPS OR RODS			
MAX DUCT DIAMETER	HANGER	MAX LOAD LBS	MAX SPACING FT
26"	ONE 1"x 22 GA STRAP	260	12
36"	ONE 1"x 18 GA STRAP	420	12
50"	ONE 1"x 16 GA STRAP	700	12
60"	TWO 3/8" DIA. RODS	1320	12
84"	TWO 1/2" DIA. RODS	2500	12

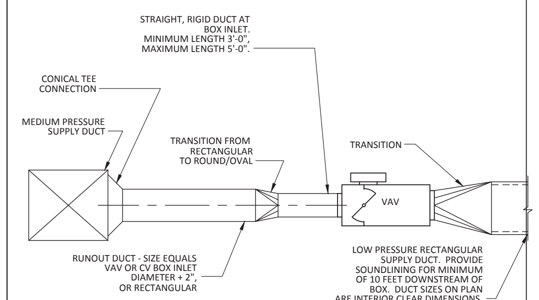
NOTE:

1. TABULATED DATA FROM SMACNA ALLOWS FOR DUCT REINFORCING AND INSULATION, BUT NO EXTERNAL LOAD.

233113-2

ROUND DUCT HANGERS

1 NTS



CHECKLIST:
1. SCHEDULE MIN/MAX SETTING OF BOX.
2. COORDINATE WITH ELECTRICAL ENGINEERS.
3. VERIFY LOCATION OF THERMOSTAT.

233300

TYPICAL TERMINAL UNIT DETAIL

NTS

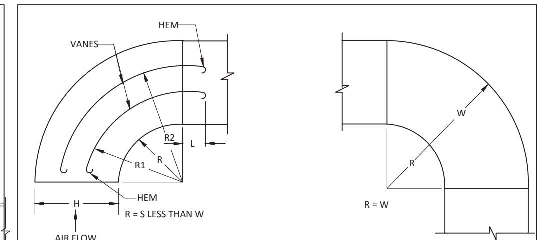


FIGURE D
SHORT RADIUS ELBOW

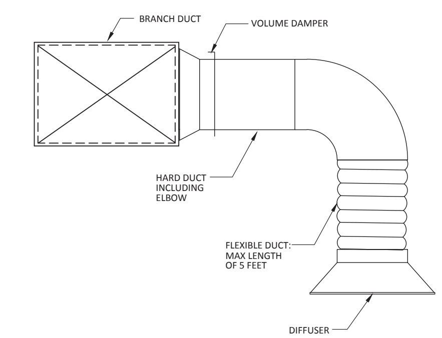
FIGURE B
STANDARD RADIUS ELBOW

NOTES:
1. FOR SHORT RADIUS ELBOW, VANE SHALL BE MADE OF SAME METAL AS ELBOW AND RIVITED OR SPOT WELDED TO DUCT SIDES TO PREVENT VIBRATION.
2. VANE ENDS SHALL BE HEMMED FOR STIFFENING.
3. R1=R/(CR) WHERE (CR)=CURVE RATION
   R2=R/(CR)2 AS DEFINED BY SMACNA
   R3=R/(CR)3
   ETC.

233300

RADIUS ELBOW

4 NTS



233300

TYPICAL FLEX DUCT DIFFUSER CONNECTION

2 NTS

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MECHANICAL DETAILS

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SHEET
M7.1

STATE OF CALIFORNIA

MECHANICAL VENTILATION AND REHEAT

CEC-NRCC-MCH-03-E (Revised 05/16)

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-MCH-03-E
Mechanical Ventilation & Reheat	Page of
Project Name: US HEALTH WORKS	Date Prepared: 12/01/2017

A. Mechanical Ventilation and Reheat

In lieu of this compliance document, the required outdoor ventilation rates and airflows may be shown on the plans or the calculations can be presented in a spreadsheet. Mechanical Ventilation and Reheat worksheet available on the Energy Commission's website at: http://www.energy.ca.gov/title24/2016standards/.
Note: In all of the calculations that compare a supply quantity to the REQ'D V.A. quantity, the actual percentage of outdoor air in the supply is ignored.
Areas in buildings for which natural ventilation is used should be clearly designated. Specifications must require that building operating instructions include explanations of the natural ventilation system.

ACTUAL DESIGN (FROM EQUIPMENT SCHEDULES, ETC)						AREA BASIS			OCCUPANCY BASIS			ROOM BASIS	MINIMUM		VAV REHEATED PRIMARY AIR CFM			VAV DEADBAND PRIMARY AIR CFM		
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21
ZONE/SYSTEM/VAV BOX TAG	DESIGN PRIMARY COOLING AIRFLOW (CFM)	DESIGN PRIMARY DEADBAND AIRFLOW (CFM)	DESIGN PRIMARY HEATING AIRFLOW (CFM)	CONTROL TYPE DDC (Y/N)	TRANSFER AIRFLOW (CFM)	CONDITIONED AREA (ft²)	MIN CFM PER AREA	MIN CFM BY AREA	NUMBER OF PEOPLE	CFM PER PERSON	MIN CFM BY OCCUPANT	MIN CFM BY ROOM	REQ'D VENT AIRFLOW (CFM)	COMPLIES?	BASED DESIGN PRIMARY COOLING AIR	MAXIMUM REHEAT (CFM)	COMPLIES?	PRIMARY COOLING AIR	AIRFLOW	COMPLIES?
VAV-1	650	225	225	No	0	745	0.15	112	6	15	90		225	PASS	225	225	PASS	N/A	N/A	
VAV-2	600	100	180	No	0	640	0.15	96	5	15	75		100	PASS	180	180	PASS	N/A	N/A	
VAV-3	1000	150	300	No	0	500	0.15	75	10	15	150		150	PASS	300	300	PASS	N/A	N/A	
VAV-4	1000	400	400	No	0	400	0.15	60	15	15	225		400	PASS	400	400	PASS	N/A	N/A	
VAV-5	1250	300	375	No	0	1185	0.15	178	20	15	300		300	PASS	375	375	PASS	N/A	N/A	
VAV-6	1200	325		No	0	1545	0.15	232	15	15	225		325	PASS			N/A	N/A	N/A	
VAV-7	200	50		No	0	155	0.15	23	0	15	0		50	PASS			N/A	N/A	N/A	
VAV-8	200	50		No	0	130	0.15	20	2	15	30		50	PASS			N/A	N/A	N/A	
VAV-9	180	60	60	No	0	285	0.15	43	3	15	45		60	PASS		60	PASS	N/A	N/A	
VAV-10	1000	150	300	No	0	485	0.15	73	8	15	120		150	PASS	300	300	PASS	N/A	N/A	

Add Row Remove Last

STATE OF CALIFORNIA

MECHANICAL VENTILATION AND REHEAT

CEC-NRCC-MCH-03-E (Revised 05/16)

CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE NRCC-MCH-03-E

Mechanical Ventilation & Reheat Page of

Project Name: US HEALTH WORKS Date Prepared: 12/01/2017

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: ELIAS MELA	Documentation Author Signature: *Elias Mela*
Company: WB ENGINEERS + CONSULTANTS	Signature Date: 12/01/2017
Address: 5934 GIBRALTAR DRIVE SUITE 100	CEA/ HERS Certification Identification (if applicable):
City/State/Zip: PLEASANTON, CA 94588	Phone: 925-399-6687

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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

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

Responsible Designer Name: JOHN REYNA	Responsible Designer Signature: *John Reyna*
Company: WB ENGINEERS + CONSULTANTS	Date Signed: 12/01/2017
Address: 5934 GIBRALTAR DRIVE SUITE 100	License: M32522
City/State/Zip: PLEASANTON, CA 94588	Phone: 925-399-6687

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No. M32522
Exp. Sept. 30, 2019
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MECHANICAL-TITLE 24 DOCUMENTATION

DATE	REMARKS	DATE	REMARKS
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JOB NO.:	SNR16-6088-00

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PLUMBING GENERAL NOTES

1. PLUMBING CONTRACTOR TO FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING WET COLUMN RISERS AND BRANCH PIPING PRIOR TO ANY CONNECTIONS.
2. NO WORK IS TO BE REMOVED WITHOUT APPROVAL OF BUILDING MANAGER.
3. PORTION OF MAINS TO BE REMOVED OR ABANDONED AS A RESULT OF DEMOLITION WORK, BUT WHICH ARE REQUIRED TO REMAIN ACTIVE SHALL BE CUT AT CONVENIENT LOCATIONS, RE ROUTED AND RECONNECTED.
4. THE CONTRACTOR SHALL NOTIFY THE BUILDING AT THE APPROPRIATE TIME OF THE PROJECTED DEMOLITION AND SCHEDULE SO THAT REMOVAL OR RELOCATION OF AFFECTED UTILITIES MAY BE CARRIED OUT IN COORDINATION WITH THE PROJECT REQUIREMENTS.
5. ALL EXISTING MATERIAL IN USEABLE CONDITION WHICH IS TO BE REMOVED UNDER THIS CONTRACT, SHALL BE PROTECTED AND REMAIN THE PROPERTY OF THE OWNER OR SHALL BE DISPOSED OF BY THIS CONTRACTOR, AS DIRECTED BY THE BUILDING MANAGER.
6. ARRANGE TO WORK CONTINUOUSLY, INCLUDING OVERTIME, IF REQUIRED TO ASSURE THAT SYSTEMS WILL BE SHUT DOWN ONLY DURING THE TIME OF ACTUALLY REQUIRED TO MAKE THE NECESSARY CONNECTIONS TO THE EXISTING SYSTEMS.
7. ALL SERVICE SHUT DOWN SHALL BE COORDINATED WITH THE BUILDING.
8. MAINTAIN CONTINUITY OF ALL EXISTING DOMESTIC WATER AND SYSTEM WHICH SERVE ADJACENT AREA AND ARE NOT AFFECTED BY THIS CONTRACT.
9. DURING DEMOLITION PHASE OF THIS PROJECT, CONTRACTOR SHOULD PROTECT EXISTING PIPING LOCATED IN THE STUD WALL.
10. THE GENERAL CONTRACTOR SHALL OBTAIN PERMISSION FROM THE BUILDING MANAGER FOR INSTALLATION OF SANITARY PIPING AT THE CEILING OF THE FLOOR BELOW.
11. REFER TO ARCHITECTURAL DRAWING FOR PLUMBING FIXTURE SCHEDULE AND / OR COORDINATE WITH THE BUILDING STANDARDS.
12. ALL EXPOSED P-TRAO SHALL BE PROVIDED WITH TRAP WRAP.
13. ALL SINKS SHALL BE EQUIPPED WITH THERMOSTATIC MIXING VALVES.
14. ALL EXISTING PLUMBING ASSOCIATED PIPING SHALL BE PROTECTED DURING ALL PHASE OF CONSTRUCTION. PROVIDE LABELING ON ALL EXISTING PIPING COLD WATER, SANITARY AND VENT PIPING.
15. STRUCTURAL ENGINEERING SHALL SPECIFY TYPES OF ANCHORS/METHODOLOGY TO USE FOR EVERY TYPE OF HANGING LOAD. (SANITARY PIPING, VENT PIPING, AND WATER PIPING.)
16. STRUCTURAL ENGINEERING SHALL REVIEW SUBMUTTALS/CUT SHEETS FOR ALL ANCHORS TO BE USED FOR THE PLUMBING PIPING INSTALLATION.
17. THE BUILDING MANAGER SHALL REVIEW A REPORT FROM TENANT STRUCTURAL ENGINEER STATING THEY OBSERVED DURING SITE VISITS THAT ANCHORS WERE INSTALLED IN ACCORDANCE WITH THE SPECIFICATION AND SUBMITTALS.
18. PROVIDE ADEQUATE SUPPORT ON ALL THE EXISTING HORIZONTAL HOT AND COLD WATER BRANCH PIPING LOCATED IN THE CORE TOILETS. (WHERE REQUIRED)
19. PROVIDE CLAMP SUPPORT ON ALL EXISTING VERTICAL SANITARY, VENT, HOT AND COLD WATER PIPING TO MATCH EXISTING. (WHERE REQUIRED)
20. PROVIDE INSULATION ON ALL EXISTING HOT AND COLD WATER PIPING LOCATED IN THE BATHROOMS. (WHERE REQUIRED)

PLUMBING NOTES

1. ALL WORK SHALL CONFORM TO THE BUILDING STANDARDS, IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO MEET WITH THE BUILDING MANAGER IN ORDER TO BECOME TOTALLY FAMILIAR WITH BUILDING RULES. THERE SHALL BE NO DEVIATION FROM THE BUILDING STANDARDS WITHOUT PRIOR WRITTEN APPROVAL FROM THE BUILDING MANAGER IN ORDER TO BECOME TOTALLY FAMILIAR WITH BUILDING RULES. THERE SHALL BE NO DEVIATION FROM THE BUILDING STANDARDS WITHOUT PRIOR WRITTEN APPROVAL FROM THE BUILDING MANAGER.
2. INSULATE ALL WATER SUPPLY LINES.
3. WASTE LINES SHALL BE PROPERLY PITCHED TO PREVENT "TRAPPED" WATER. INSTALL WASTE LINE CONNECTIONS WITH LONG TERMOR 45° "Y" FITTINGS.
4. RETAIN EXISTING CLEAN OUT CONNECTIONS AND PROVIDE CLEAN OUT CONNECTIONS AT NEW FITTINGS.
5. WHEN CONNECTING NEW HOT AND COLD WATER LINES TO EXISTING RISERS, CONTRACTORS SHALL LEAVE A PLUGGED VALVED OUTLET FOR EACH, FOR FUTURE USE.
6. ALL NEW HOT AND COLD WATER LINES AND FITTINGS MUST BE PROPERLY INSULATED AND COVERED.
7. INDIVIDUAL SHUT-OFF VALVES MUST BE SUPPLIED AND INSTALLED FOR EACH NEW FIXTURE, INCLUDING WATER COOLERS.
8. ALL NEW PIPES ARE TO BE SUPPORTED FROM SLAB OR STEEL BEAMS, NOT FROM EXISTING PIPES OR DUCT WORK.
9. ALL WATER SHUTDOWNS TO BE COORDINATED THROUGH THE BUILDING MANAGER. ALL WATER SHUTDOWNS ARE TO BE PERFORMED OR SUPERVISED BY BUILDING PERSONNEL, AT THE DISCRETION OF THE BUILDING MANAGER.
10. PROVIDE FIRE & SMOKE STOPPING FOR ALL PLUMBING PIPING PASSING THROUGH RATED WALLS OR SMOKE PARTITIONS.
11. PLUMBER SHALL BE RESPONSIBLE THAT ENTIRE INSTALLATION IS IN ACCORDANCE WITH LOCAL AND STATE CODES. CONTRACTOR TO OBTAIN AND PAY FOR ALL PERMITS, INSPECTION AND FEES, ETC.
12. ALL VALVES ARE TO BE PROPERLY TAGGED.

ABBREVIATIONS

AFF	ABOVE FINISHED FLOOR	SAN	SANITARY
CW	COLD WATER	TYP	TYPICAL
DN	DOWN	V	VENT
EX	EXISTING	VIF	VERIFY IN FIELD
FD	FLOOR DRAIN	VB	VACUUM BREAKER
HW	HOT WATER	VTR	VENT THROUGH ROOF
MER	MECHANICAL EQUIPMENT ROOM	VO	VALVED OUTLET
NTS	NOT TO SCALE	W	WASTE
PLBG	PLUMBING	WCO	WALL CLEANOUT
RD	ROOF DRAIN	WH	WALL HYDRANT
REV	REVISE, REVISION		

ELECTRICAL DRAWING LIST

DRAWING #	DRAWING TITLE
P0.1	PLUMBING COVER SHEET
P1.1	PLUMBING SCHEDULES
P2.1	PLUMBING SPECIFICATIONS
P4.1	PLUMBING DOMESTIC WATER PLAN
P4.2	PLUMBING SANITARY AND WASTE PLAN
P6.1	PLUMBING RISERS
P7.1	PLUMBING DETAILS
P8.1	PLUMBING TITLE 24 DOCUMENTATION

PLUMBING SYMBOLS

	NEW GATE VALVE
	EXISTING GATE VALVE
	NEW CHECK VALVE
	PIPE UP
	EXISTING CHECK VALVE
	BALL VALVE
	PIPE DROP
	BOTTOM CONNECTION
	TOP CONNECTION
	CAP
	CLEAN OUT
	PLUG OUTLET
	SHOCK ABSORBER
	VACUUM BREAKER
	UNION
	PRESSURE GAUGE
	THERMOMETER
	FLOOR DRAIN
	POINT OF NEW CONNECTION TO EXISTING WORK
	HOSE BIB

PIPING REPRESENTATIONS

	NEW COLD WATER PIPING
	NEW HOT WATER PIPING
	NEW VENT PIPING
	NEW SANITARY OR STORM WATER PIPING BELOW GROUND
	EXISTING COLD WATER PIPING TO REMAIN
	EXISTING HOT WATER PIPING TO REMAIN
	EXISTING VENT PIPING TO REMAIN
	PIPING FLOW DIRECTION

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PLUMBING COVER SHEET

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PLUMBING FIXTURE SCHEDULE

DESIGNATION	DESCRIPTION	MANUFACTURER	MODEL NUMBER	SANITARY WASTE	INDIRECT SANITARY	GREASE	VENT	COLD WATER	FILTERED WATER	HOT WATER	GAS	NOTES
CM-1	COFFEE MAKER	SEE ARCHITECTURAL DRAWINGS	SEE ARCHITECTURAL DRAWINGS	-	-	-	-	1/4"	-	-	-	
GD-1	GARBAGE DISPOSAL	INSINKERATOR	BADGER 5	-	-	-	-	-	-	-	-	
LAV-1	LAVATORY	AMERICAN STANDARD	COMRADE 0124.024	1-1/2"	-	-	1-1/2"	1/2"	-	1/2"	-	
REFR-1	REFRIGERATOR	SEE ARCHITECTURAL DRAWINGS	SEE ARCHITECTURAL DRAWINGS	-	-	-	-	1/4"	-	-	-	
SK-1	SINK	ELKAY	LRAD191865PD	1-1/2"	-	-	1-1/2"	1/2"	-	1/2"	-	19"X18"X6-1/2" SINGLE BOWL TOP MOUNT
SK-2	SINK	ELKAY	LRAD191865PD	1-1/2"	-	-	1-1/2"	1/2"	-	1/2"	-	19"X18"X6-1/2" SINGLE BOWL TOP MOUNT
UR-1	URINAL	SEE ARCHITECTURAL DRAWINGS	SEE ARCHITECTURAL DRAWINGS	2"	-	-	1-1/2"	-	-	-	-	WATERLESS URINAL
WC-1	WATER CLOSET	AMERICAN STANDARD	3043.102 MADERA	3"	-	-	1-1/2"	1-1/2"	-	-	-	1.6 GALLON PER FLUSH
WC-2	WATER CLOSET	AMERICAN STANDARD	3043.102 MADERA	3"	-	-	1-1/2"	1-1/2"	-	-	-	1.6 GALLON PER FLUSH

PLUMBING ACCESSORY SCHEDULE

DESIGNATION	DESCRIPTION	MANUFACTURER	MODEL NUMBER	NOTES
ASSE 1022	BACKFLOW PREVENTER	APOLLO	4C-102-02	INSTALLED ON ALL CM-1.
ASSE 1070	MIXING VALVE	APOLLO	MVBS12-LF	INSTALLED ON ALL HAND WASHING SINKS.
ASSE 1010	WATER HAMMER ARRESTOR	WILKINS	1250-B	
FCT-1	FAUCET - LAVATORY			INSTALLED ON ALL LAV-1.
FCT-2	FAUCET - SINK	CHICAGO FAUCETS	116.123.AB.1	INSTALLED ON ALL SK-1.
FCT-3	FAUCET - SINK	DELTA	300 DST	INSTALLED ON ALL SK-2. PROVIDE WITH INTEGRAL SPRAY.
FV-1	FLUSH VALVE - WATER CLOSET	KOHLER	K-10674-SV-CP	INSTALLED ON ALL WC-1.
FV-2	FLUSH VALVE - WATER CLOSET	ZURN	ZH6606AV-MBP-WS1	INSTALLED ON ALL WC-2.

ALL PLUMBING FIXTURES TO BE SUPPLIED AND INSTALLED IN STRICT ACCORDANCE WITH USHW'S SPECIFICATIONS.

ELECTRIC HOT WATER HEATER (TANK)

						PLUMBING DATA						ELECTRICAL DATA			
DESIGNATION	DESCRIPTION	MANUFACTURER	MODEL	INSTALLATION LOCATION	QUANTITY	TANK CAPACITY	COLD WATER INLET	HOT WATER OUTLET	DRAIN LINE	DESIGN TEMP RISE	RECOVERY GPH	NUMBER OF ELEMENTS	TOTAL KW	VOLTAGE	PHASE
EWH-1	ELECTRIC WATER HEATER	A.O. SMITH	DRE-52-12	PT STORAGE ROOM	1	50 GALLON	1-1/4"	1-1/4"		100° F	49	3	12	480	3

PLUMBING DOMESTIC WATER WSFU SCHEDULE

DESIGNATION	DESCRIPTION	QUANTITY	CW WSFU (PER FIXTURE)	HW WSFU (PER FIXTURE)	CW WSFU (TOTAL)	HW WSFU (TOTAL)
HB(E)	HOSE BIBB	1	3.0	-	3.0	-
			EXISTING TO REMAIN CW WSFU TOTAL		3.0	
			EXISTING TO REMAIN HW WSFU TOTAL			0.0
CM-1	COFFEE MAKER	1	0.5	-	0.5	-
LAV-1	LAVATORY	3	1.5	1.5	4.5	4.5
REFR-1	REFRIGERATOR	1	0.25	-	0.25	-
SK-1	SINK	6	1.0	1.0	6.0	6.0
SK-2	SINK	1	1.0	1.0	1.0	1.0
UR-1	URINAL (WATERLESS)	1	-	-	-	-
WC-1	WATER CLOSET	3	10.0	-	30.0	-
WC-2	WATER CLOSET	2	10.0	-	20.0	-
				NEW CW WSFU TOTAL	62.25	
				NEW HW WSFU TOTAL		11.5

PLUMBING SANITARY DFU SCHEDULE

DESIGNATION	DESCRIPTION	QUANTITY	DFU (PER FIXTURE)	DFU (TOTAL)
LAV-1	LAVATORY	3	1	4
SK-1	SINK	6	2	12
SK-2	SINK WITH GD-1	1	2	2
UR-1	URINAL	1	2	2
WC-1	WATER CLOSET	3	4	12
WC-2	WATER CLOSET	2	4	8
			NEW DFU TOTAL	40

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PLUMBING SCHEDULES

DATE	REMARKS
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PLUMBING SPECIFICATIONS

01000 - GENERAL REQUIREMENTS:

A. THE "GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION," AIA DOCUMENT A201, LATEST EDITION, AND THESE SPECIFICATIONS AS APPLICABLE ARE PART OF THIS CONTRACT.

1. INSURANCE: IN ACCORDANCE WITH BUILDING REQUIREMENTS AND SHALL INCLUDE A HOLD HARMLESS CLAUSE FOR OWNER AND ENGINEER.

B. CODES, PERMITS AND INSPECTIONS:

1. ALL APPLICABLE CODES, LAWS AND REGULATIONS GOVERNING OR RELATING TO ANY PORTION OF THIS WORK ARE HEREBY INCORPORATED INTO AND MADE A PART OF THESE SPECIFICATIONS, AND THEIR PROVISIONS SHALL BE CARRIED OUT BY THE CONTRACTOR WHO SHALL INFORM THE OWNER, PRIOR TO SUBMITTING A PROPOSAL, OF ANY WORK OR MATERIAL WHICH VIOLATES ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED BY THE CONTRACTOR.

2. THE CONTRACTOR SHALL GIVE NECESSARY NOTICE, FILE DRAWINGS AND SPECIFICATIONS WITH THE DEPARTMENT HAVING JURISDICTION, OBTAIN PERMITS OR LICENSES NECESSARY TO CARRY OUT THIS WORK AND PAY ALL FEES THEREFORE. THE CONTRACTOR SHALL ARRANGE FOR INSPECTION AND TESTS OF ANY OR ALL PARTS OF THE WORK IF SO REQUIRED BY AUTHORITIES AND PAY ALL CHARGES FOR SAME. THE CONTRACTOR SHALL PAY ALL COSTS FOR, AND FURNISH TO THE OWNER BEFORE FINAL BILLING, ALL CERTIFICATES NECESSARY AS EVIDENCE THAT THE WORK INSTALLED CONFORMS WITH ALL REGULATIONS WHERE THEY APPLY TO THIS WORK.

C. SITE VERIFICATIONS

1. INVESTIGATE EACH SPACE THROUGH WHICH EQUIPMENT MUST BE MOVED. WHERE NECESSARY, EQUIPMENT SHALL BE SHIPPED FROM MANUFACTURER IN SECTIONS OF SIZE SUITABLE FOR MOVING THROUGH AVAILABLE RESTRICTIVE SPACES. ASCERTAIN FROM BUILDING OWNER AND TENANT AT WHAT TIMES OF DAY EQUIPMENT MAY BE MOVED THROUGH ALL AREAS.

2. THE LOCATIONS OF THE EXISTING SERVICES ARE BELIEVED TO BE AS INDICATED ON THE DRAWINGS. THE CONTRACTOR SHALL VERIFY THE ACTUAL LOCATION OF THESE SERVICES AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES PRIOR TO COMMENCING ANY WORK.

3. SUBMISSION OF A PROPOSAL SHALL BE CONSTRUED AS EVIDENCE THAT A CAREFUL EXAMINATION OF THE PORTIONS OF THE EXISTING BUILDING, EQUIPMENT, ETC., WHICH AFFECT THIS WORK, AND THE ACCESS TO SUCH SPACES, HAS BEEN MADE AND THAT THE CONTRACTOR IS FAMILIAR WITH EXISTING CONDITIONS AND DIFFICULTIES THAT WILL AFFECT THE EXECUTION OF THE WORK. THE CONTRACTOR IS RESPONSIBLE TO INDICATE ANY DISCREPANCIES BETWEEN THE CONTRACT DRAWINGS AND ACTUAL FIELD CONDITIONS PRIOR TO SUBMITTAL OF BID. SUBMISSION OF A PROPOSAL WILL BE CONSTRUED AS EVIDENCE THAT SUCH AN EXAMINATION HAS BEEN MADE. LATER CLAIMS SHALL NOT BE MADE FOR LABOR, EQUIPMENT OR MATERIALS REQUIRED BECAUSE OF DIFFICULTIES ENCOUNTERED WHICH COULD HAVE BEEN FORESEEN DURING SUCH AN EXAMINATION. THE ON-SITE INSPECTION SHALL VERIFY EXISTING PIPE SIZES, CLEARANCES, ETC. AND CONDITIONS.

D. CONTRACT DOCUMENTS

1. PRIOR TO SUBMISSION OF THE BID, THIS CONTRACTOR SHALL REVIEW ALL DRAWINGS OF THE ENTIRE PROJECT INCLUDING GENERAL CONSTRUCTION, DEMOLITION, ARCHITECTURAL MECHANICAL, ELECTRICAL, PLUMBING AND SPRINKLER AND SHALL INCLUDE ANY WORK REQUIRED IN THE BID WHICH IS INDICATED OR IMPLIED TO BE PERFORMED BY THIS TRADE IN OTHER SECTIONS OF THE WORK.

2. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF SYSTEMS AND WORK. PIPE ROUTING IS SHOWN DIAGRAMMATICALLY AND DOES NOT SHOW ALL OFFSETS, DROPS AND RISES OF RUNS. THE CONTRACTOR SHALL ALLOW IN HIS PRICE FOR ROUTING OF PIPE TO AVOID OBSTRUCTIONS. COORDINATION WITH THE EXISTING SERVICES, INCLUDING THOSE OF OTHER TRADES IS REQUIRED. MAINTAIN HEADROOM AND SPACE CONDITIONS.

3. IF A CONFLICT OCCURS IN THE SPECIFICATIONS AND/OR ON THE DRAWINGS, THE MORE STRINGENT SITUATION SHALL APPLY.

4. ANY EQUIPMENT, PARTS, MATERIALS, ACCESSORIES, OR LABOR THAT IS NECESSARY FOR PROPER PERFORMANCE OF THE MECHANICAL WORK ALTHOUGH NOT SPECIFICALLY MENTIONED HEREIN OR SHOWN ON THE DRAWINGS, SHALL BE FURNISHED AND INSTALLED WITHOUT ADDITIONAL COSTS.

5. THE BASE BUILDING DRAWINGS, PLANS, DETAILS, SPECIFICATIONS AND SPECIFICATION ADDENDA ARE MADE PART OF THIS CONTRACT AND SHALL APPLY TO ALL WORK UNDER THE CONTRACT UNLESS OTHERWISE AMENDED, MODIFIED, SUPPLEMENTED OR SPECIFIED HEREIN.

E. GUARANTEE:

1. THE CONTRACTOR SHALL FURNISH A WRITTEN GUARANTEE TO REPLACE OR REPAIR PROMPTLY AND ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED FOR ANY WORKMANSHIP AND EQUIPMENT IN WHICH DEFECTS DEVELOP WITHIN ONE YEAR FROM THE DATE OF FINAL CERTIFICATE FOR PAYMENT AND/OR FROM DATE OR ACTUAL USE OF EQUIPMENT OR OCCUPANCY OF SPACES BY OWNER INCLUDED UNDER THE VARIOUS PARTS OF THE WORK, WHICHEVER DATE IS EARLIER. THIS WORK SHALL BE DONE AS DIRECTED BY THE OWNER. THIS GUARANTEE SHALL ALSO PROVIDE THAT WHERE DEFECTS OCCUR, THE CONTRACTOR WILL ASSUME RESPONSIBILITY FOR ALL EXPENSES INCURRED IN REPAIRING AND REPLACING WORK OF OTHER TRADES AFFECTED BY DEFECTS, REPAIRS OR REPLACEMENTS IN EQUIPMENT SUPPLIED BY THE CONTRACTOR.

2. ALL MATERIAL AND EQUIPMENT TO BE NEW UNLESS OTHERWISE NOTED AND SHALL BE IN ACCORDANCE WITH BUILDING STANDARDS AND LOCAL BUILDING CODE. CERTIFICATES OF INSPECTION AND APPROVAL.

3. QUALITY AND GAUGE OF MATERIALS: NEW, BEST OF THEIR RESPECTIVE KINDS, FREE FROM DEFECTS AND LISTED BY UNDERWRITERS LABORATORIES, INC., OR BEARING THEIR LABEL. MATERIALS AND EQUIPMENT OF SIMILAR APPLICATION SHALL BE OF SAME MANUFACTURER, EXCEPT AS NOTED.

4. THE FINAL ACCEPTANCE WILL BE MADE AFTER THE CONTRACTOR HAS ADJUSTED HIS EQUIPMENT, TESTED THE VARIOUS SYSTEMS, DEMONSTRATED THAT IT FULFILLS THE REQUIREMENTS OF THE DRAWINGS AND SPECIFICATIONS AND HAS FURNISHED ALL THE REQUIRED.

F. DEFINITIONS:

1. "PROVIDE": TO SUPPLY, INSTALL AND CONNECT UP COMPLETE AND READY FOR SAFE AND REGULAR OPERATION THE PARTICULAR WORK REFERRED TO UNLESS SPECIFICALLY OTHERWISE NOTED.

2. "INSTALL": TO ERECT, MOUNT AND CONNECT COMPLETE WITH RELATED ACCESSORIES.

3. "FURNISH" OR "SUPPLY: TO PURCHASE, PROCURE, ACQUIRE AND DELIVER COMPLETE WITH RELATED ACCESSORIES.

4. "WORK": LABOR, MATERIALS, EQUIPMENT, APPARATUS, CONTROLS, ACCESSORIES AND OTHER ITEMS REQUIRED FOR PROPER AND COMPLETE INSTALLATION.

5. "WIRING": RACEWAY, FITTINGS, WIRE, BOXES AND RELATED ITEMS.

6. "CONCEALED": EMBEDDED IN MASONRY OR OTHER CONSTRUCTION, INSTALLED IN FURRED SPACES, WITHIN DOUBLE PARTITIONS OR HUNG CEILINGS, IN TRENCHES, IN CRAWL SPACES, OR IN ENCLOSURES.

7. "EXPOSED": NOT INSTALLED UNDERGROUND OR "CONCEALED" AS DEFINED ABOVE.

8. "SIMILAR" OR "EQUAL": EQUAL IN MATERIALS, WEIGHT, SIZE, DESIGN AND EFFICIENCY OF SPECIFIED PRODUCT.

01100 - SCOPE OF WORK:

A. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT, SERVICES AND FEES NECESSARY FOR COMPLETE AND SAFE INSTALLATION IN CONFORMITY WITH THE PLUMBING CODE AND ALL OTHER APPLICABLE INDUSTRY, NATIONAL AND LOCAL CODES AND AUTHORITIES HAVING JURISDICTION, AS INDICATED ON DRAWINGS AND HEREIN SPECIFIED.

B. PHASING AS REQUIRED BY OWNER, CONSTRUCTION MANAGER, GENERAL CONTRACTOR, OR BUILDING MANAGEMENT.

C. INSTALL WORK SO AS TO BE READILY ACCESSIBLE FOR OPERATION, MAINTENANCE AND REPAIR. MINOR DEVIATIONS FROM DRAWINGS MAY BE MADE TO ACCOMPLISH THIS, BUT CHANGES WHICH INVOLVE EXTRA COST SHALL NOT BE MADE WITHOUT APPROVAL.

D. THE CONTRACTOR'S PROPOSAL FOR ALL WORK SHALL BE PREDICATED ON THE PERFORMANCE OF THE WORK DURING REGULAR WORKING HOURS. WHEN SO DIRECTED, HOWEVER, THE CONTRACTOR SHALL INSTALL WORK IN OVERTIME AND THE ADDITIONAL COST TO BE CHARGED THEREFORE SHALL BE ONLY THE "PREMIUM" PORTION OF THE WAGES PAID.

E. UNLESS OTHERWISE SPECIFICALLY SPECIFIED, INCLUDE ALL CUTTING AND PATCHING OF EXISTING FLOORS, WALLS, PARTITIONS AND OTHER MATERIALS IN THE EXISTING BUILDING. THE CONTRACTOR SHALL RESTORE THESE AREAS TO ORIGINAL CONDITION.

F. REMOVAL AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE INSTALLATION OF THE NEW WORK. ALL EXISTING CONDITIONS CANNOT BE COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND INCLUDE ALL CHANGES IN MAKING UP THE WORK PROPOSAL.

G. THE CONTRACTOR SHALL KEEP ALL EQUIPMENT AND MATERIALS, AND ALL PARTS OF THE BUILDING, EXTERIOR SPACES AND ADJACENT STREETS, SIDEWALKS AND PAVEMENTS, FREE FROM MATERIAL AND DEBRIS RESULTING FROM THE EXECUTION OF THIS WORK. EXCESS MATERIALS WILL NOT BE PERMITTED TO ACCUMULATE EITHER ON THE INTERIOR OR THE EXTERIOR.

H. SEAL OPENINGS THROUGH PARTITIONS, WALLS AND FLOORS WITH NON-SHRINKING FIRE PROOF CAULKING OR OTHER NONCOMBUSTIBLE MATERIAL.

I. PROVIDE ALL NECESSARY FLASHING AND COUNTER FLASHING TO MAINTAIN THE WATERPROOFING INTEGRITY OF THIS BUILDING AS REQUIRED BY THE INSTALLATION OR REMOVAL OF PIPING AND EQUIPMENT. PROVIDE EQUIPMENT CURBS AS REQUIRED.

J. CONTRACTOR SHALL PREPARE A LIST OF ALL OUTSTANDING ITEMS AND DEFICIENCIES FOR REVIEW PRIOR TO THE ENGINEERS FINAL WALK THROUGH.

01310 - COORDINATION WITH BUILDING MANAGEMENT

A. THE WORK IN THE BUILDING SHALL BE DONE WHEN AND AS DIRECTED, AND IN A MANNER SATISFACTORY TO THE OWNER. THE WORK SHALL BE PERFORMED SO AS TO CAUSE THE LEAST POSSIBLE INCONVENIENCE AND DISTURBANCE TO THE PRESENT OCCUPANTS.

B. CONNECTIONS TO EXISTING WORK: INSTALL NEW WORK AND CONNECT TO EXISTING WORK WITH MINIMUM INTERFERENCE TO EXISTING FACILITIES. TEMPORARY SHUTDOWNS OF EXISTING SERVICES SHALL BE PERFORMED AT NO ADDITIONAL CHARGES, AT TIMES NOT TO INTERFERE WITH NORMAL OPERATION OF EXISTING FACILITIES AND ONLY WITH WRITTEN CONSENT OF OWNER. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES AS REQUIRED WITH NECESSARY TEMPORARY CONNECTIONS BETWEEN NEW AND EXISTING WORK. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND ACCEPTABLE MANNER. RESTORE EXISTING DISTURBED WORK TO ORIGINAL CONDITION.

C. ALL PRESENT MATERIAL, EQUIPMENT AND CONSTRUCTION DEBRIS TO BE REMOVED UNDER THIS CONTRACT SHALL BECOME THE PROPERTY OF THE CONTRACTOR WITH THE EXCEPTION OF SPECIFIC EQUIPMENT AND APPARATUS REQUESTED BY THE BUILDING REPRESENTATIVE, ARCHITECT OR AS NOTED TO BE RELOCATED ON THE DRAWINGS. REMOVED EQUIPMENT SHALL BE PROPERLY DISPOSED OF BY THIS CONTRACTOR.

01330 - SHOP DRAWINGS

A. THE CONTRACTOR SHALL PROVIDE THE ENGINEER WITH ALL SUBMITTALS REQUIRED BY THE CONSTRUCTION SPECIFICATIONS AND ANY REQUESTS FOR INFORMATION (RFI). THESE DOCUMENTS SHALL BE SUBMITTED ELECTRONICALLY TO SUBMITTALSDC@WBENGINEERING.COM, AS WELL AS THE WB PROJECT MANAGER.

B. INDICATE ON EACH SHOP DRAWINGS SUBMITTED:

1. PROJECT NAME AND LOCATION
2. NAME OF ARCHITECT AND ENGINEER
3. ITEM IDENTIFICATION
4. APPROVAL STAMP OF PRIME CONTRACTOR

C. SUBMISSIONS:

1. SUBMISSIONS 11 IN. X 17 IN. OR SMALLER: IF THE SUBMISSION IS A CATALOG CUT, THE CONTRACTOR SHALL SUBMIT ONE ORIGINAL AND THREE COPIES. OTHERWISE, HE SHALL SUBMIT THREE COPIES. THE ARCHITECT WILL FORWARD THE ORIGINAL AND ONE COPY (TWO COPIES WHEN NO ORIGINAL IS RECEIVED) TO THE ENGINEER. ALL CATALOG CUTS SHALL BE COMPLETE.

2. SUBMISSIONS LARGER THAT 11 IN. X 17 IN.: SUBMIT TWO PRINTS AND ONE PAPER SEPIA TO THE ARCHITECT. THE ARCHITECT WILL FORWARD ONE PRINT AND THE PAPER SEPIA TO THE ENGINEER.

D. BUILT DRAWINGS AND EQUIPMENT OPERATIONAL INSTRUCTIONS

1. UPON COMPLETION AND ACCEPTANCE OF WORK, CONTRACTOR SHALL FURNISH WRITTEN INSTRUCTIONS AND EQUIPMENT MANUALS AND DEMONSTRATE TO THE OWNER THE PROPER OPERATION AND MAINTENANCE OF ALL EQUIPMENT AND APPARATUS FURNISHED UNDER THIS CONTRACT.

2. THESE INSTRUCTIONS SHALL BE TYPED ON 8-1/2 IN. X 11 IN. PAPER AND BOUND IN THREE RING BINDERS WITH CLEAR ACETATE COVERS. CONTRACTOR SHALL GIVE THREE COPIES OF THE INSTRUCTIONS TO THE OWNER AND ONE COPY TO THE ENGINEER.

3. THE INSTRUCTION BOOKLET SHALL BEAR THE NAME, ADDRESS AND TELEPHONE NUMBER OF THE PROJECT, ARCHITECT AND ENGINEER.

4. REPRODUCIBLE "AS-BUILT" DRAWINGS SHALL BE PROVIDED INDICATING THE AS INSTALLED CONDITIONS OF THE WORK. "AS-BUILT" DRAWINGS SHALL BE PROVIDED TO THE ARCHITECT AFTER COMPLETION OF THE INSTALLATION IN AUTOCAD R14 FORMAT.

01633 - SUBSTITUTIONS

A. NO SUBSTITUTE MATERIAL OR MANUFACTURER OF EQUIPMENT SHALL BE PERMITTED WITHOUT A FORMAL WRITTEN SUBMITTAL TO THE ENGINEER WHICH INCLUDES ALL DIMENSIONAL, PERFORMANCE AND MATERIAL SPECIFICATIONS. ANY CHANGES IN LAYOUT, ELECTRICAL CHARACTERISTICS, STRUCTURAL REQUIREMENTS, OR DESIGN DUE TO THE USE OF A SUBSTITUTION SHALL BE SUBMITTED TO THE ENGINEER AS PART OF THIS PROPOSAL. THE CONTRACTOR TAKES FULL RESPONSIBILITY FOR THE SUBSTITUTION AND ALL CHANGES RESULTING FROM SUBSTITUTION. ALL ITEMS SHALL BE SUBMITTED FOR REVIEW IN CONJUNCTION WITH THE SUBMITTAL OF THE SUBSTITUTION. ANY SUBSTITUTION MUST BE SUBMITTED WITH AN EXPLANATION WHY A SUBSTITUTION IS BEING UTILIZED. IF THE SUBSTITUTED ITEM DEVIATES FROM THE SPECIFIED ITEM, THOSE DEVIATIONS ARE TO BE IDENTIFIED ON A LINE BY LINE BASIS. IF THE SUBSTITUTE IS BEING UTILIZED FOR FINANCIAL REASONS, THE ASSOCIATED CREDIT MUST BE SIMULTANEOUSLY SUBMITTED.

B. ALL SUBSTITUTED EQUIPMENT SHALL CONFORM TO SPACE REQUIREMENTS AND PERFORMANCE REQUIREMENTS SHOWN ON CONTRACT DOCUMENTS. CONTRACTOR SHALL REPLACE ANY EQUIPMENT THAT DOES NOT MEET THESE REQUIREMENTS AT HIS OWN EXPENSE. ANY MODIFICATIONS TO ASSOCIATED SYSTEMS OR ADDITIONAL COSTS ATTRIBUTED TO THIS SUBSTITUTION SHALL BE AT THIS CONTRACTOR'S EXPENSE.

C. CONTRACTOR SHALL SUBMIT BID BASED ON SPECIFIED ITEMS AND SHALL SUPPLY AS AN ALTERNATE PRICE ANY SUBSTITUTIONS.

01731 - CHASING, CHOPPING OR CORE DRILLING

A. PRIOR TO ANY CHASING, CHOPPING, OR CORE DRILLING BEING PERFORMED, THIS CONTRACTOR SHALL FIELD INVESTIGATE EXISTING CONDITIONS AND COORDINATE WITH ALL APPROPRIATE TRADES AND BUILDING MANAGEMENT TO ENSURE THAT WORK WILL BE IN HARMONY WITH OTHER WORK AND NOT AFFECT ANY EXISTING BUILDING SYSTEMS. THIS WORK MUST BE APPROVED BY BUILDING MANAGEMENT PRIOR TO PROCEEDING.

01732 - DEMOLITION, REMOVAL AND RELOCATION

A. REMOVAL, TEMPORARY CONNECTIONS AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE INSTALLATION OF THE NEW SYSTEMS. ALL EXISTING CONDITIONS ARE NOT COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND MAKE ALL NECESSARY CHANGES REQUIRED BASED ON EXISTING CONDITIONS FOR PROPER INSTALLATION OF NEW WORK.

B. DISCONNECT, REMOVE AND/OR RELOCATE EXISTING MATERIAL, EQUIPMENT, AND OTHER WORK AS NOTED OR REQUIRED FOR PROPER INSTALLATION OF NEW SYSTEM.

C. EQUIPMENT REQUIRED TO BE TEMPORARILY DISCONNECTED AND RELOCATED SHALL BE CAREFULLY REMOVED, STORED, CLEANED, REINSTALLED, RECONNECTED AND MADE OPERATIONAL.

D. ALL EXISTING WORK NOT INDICATED FOR DEMOLITION SHALL BE PROTECTED FROM DAMAGE. WHERE EXISTING WORK TO REMAIN IS DAMAGED OR DISTURBED, CONTRACTOR SHALL REPAIR OR REPLACE TO OWNER'S AND BUILDING MANAGER'S SATISFACTION AT NO COST TO THE OWNER OR BUILDING MANAGEMENT.

E. GENERAL CONTRACTOR TO REMOVE ALL CEILING IN AREAS WHERE NEW PIPING IS TO BE INSTALLED OR EXISTING IS ALTERED, AS PER ARCHITECT'S INSTRUCTIONS.

F. NECESSARY CUTTING AND PATCHING TO ACCOMMODATE THE NEW WORK SHALL BE PERFORMED BY THIS CONTRACTOR AND COORDINATED WITH BUILDING MANAGEMENT SO AS TO MINIMIZE DISRUPTION OF EXISTING TENANTS AND SERVICES. UPON COMPLETION OF DEMOLITION, RESTORE ALL ITEMS TO MATCH EXISTING CONDITIONS.

G. ALL EXISTING MATERIAL AND EQUIPMENT TO BE REMOVED UNDER THIS CONTRACT WILL REMAIN THE PROPERTY OF THE OWNER OR SHALL BE LEGALLY DISPOSED OF BY THIS CONTRACTOR AS DIRECTED BY THE ARCHITECT OR OWNER. REFRIGERATION CONTAINED IN EXISTING EQUIPMENT TO BE REMOVED SHALL BE RECLAIMED OR LEGALLY DISPOSED OF IN ACCORDANCE WITH EPA REQUIREMENTS AND ASHRAE.

H. PROVIDE FOR LEGAL REMOVAL AND DISPOSAL OF ALL RUBBISH AND DEBRIS FROM THE BUILDING AND SITE. COORDINATE ALL DEMOLITION AND REMOVALS WITH BUILDING MANAGEMENT.

01735 - CONNECTIONS TO EXISTING WORK

A. PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING MANAGEMENT. INSTALL ISOLATION VALVES AT POINT OF CONNECTION TO THE EXISTING PIPING. PROVIDE TEMPORARY DUCTWORK AND PIPING CONNECTIONS AS REQUIRED TO MINIMIZE SHUTDOWN TIME.

B. CONNECT NEW WORK TO EXISTING WORK IN NEAT AND APPROVED MANNER. RESTORE EXISTING WORK DISTURBED WHILE INSTALLING NEW WORK TO ACCEPTABLE CONDITION AS DETERMINED BY ARCHITECT AND BUILDING MANAGER.

C. MAINTAIN CONTINUOUS OPERATION OF EXISTING FACILITIES.

01781 - AS-BUILT DRAWINGS

A. CONTRACTOR SHALL MAINTAIN RECORD DRAWING PRINTS ON JOB SITE AND RECORD, AT TIME OF OCCURRENCE, DEVIATIONS FROM CONTRACT DOCUMENTS DUE TO FIELD COORDINATION, BULLETINS, OR ADDENDA.

B. CONTRACTOR SHALL REVISE SHOP DRAWINGS TO CONFORM TO RECORD DRAWINGS AND SUBMIT AS-BUILT CONDITION DRAWINGS UPON COMPLETION OF THE PROJECT. FINAL SUBMISSION OF REPRODUCIBLE AS-BUILT DRAWINGS ARE TO BE SIGNED AND CERTIFIED BY INSTALLING CONTRACTOR THAT THIS IS THE AS-BUILT CONDITION OF THE WORK. CONTRACTOR SHALL SUPPLY THE RECORD DRAWINGS IN AUTOCAD R14 FORMAT.

01782 - MAINTENANCE MANUALS

A. SUBMIT FOUR (4) LOOSE-LEAF BOUND OPERATING AND MAINTENANCE MANUALS WITH INDEX AND INDEX TABS TO INCLUDE THE FOLLOWING:

1. OPERATING AND MAINTENANCE INSTRUCTIONS ON ALL SYSTEMS.
2. MANUFACTURERS' CATALOG CUTS ON ALL EQUIPMENT.
3. CONTROL SYSTEMS WITH SEQUENCE OF OPERATIONS, CATALOG CUTS OF ALL DEVICES, AND POINT-TO-POINT WIRING DIAGRAMS.
4. PIPING AS-BUILT DRAWINGS WITH VALVE CHART AND KEY PLAN DRAWINGS INSERTED IN BINDER.
5. ALL ITEMS SUBMITTED FOR REVIEW IN SHOP DRAWING SECTION.

01785 - SERVICE AND WARRANTY (MAINTENANCE CONTRACT)

A. THIS CONTRACTOR SHALL PROVIDE AS AN ADD ALTERNATE PRICE, A FULL ONE YEAR SERVICE AND WARRANTY OF ALL MECHANICAL COMPONENTS AND SYSTEMS, WITH PRICES FOR YEARS 2, 3 AND 4 FOLLOWING THIS FIRST YEAR. AT THE TIME OF ACCEPTANCE OF PROJECT, THE TENANT OR OWNER'S REPRESENTATIVE WILL DECIDE TO ACCEPT WHICH ALTERNATE, IF ANY.

08311 - ACCESS DOORS IN GENERAL CONSTRUCTION

A. THIS CONTRACTOR SHALL SUBMIT TO THE ARCHITECT FOR APPROVAL A PLAN INDICATING THE SIZE (MINIMUM 18"X 18") AND LOCATION OF ALL ACCESS DOORS REQUIRED FOR OPERATION AND MAINTENANCE OF ALL CONCEALED EQUIPMENT, DEVICES, VALVES, AND CLEANOUTS. CONTRACTOR SHALL ARRANGE FOR FURNISHING AND INSTALLING OF ALL ACCESS DOORS IN FINISHED CONSTRUCTION AND INCLUDE COSTS IN THE BID.

15060 - HANGERS AND SUPPORTS

A. SUPPORT ALL PIPING FROM BUILDING CONSTRUCTION BY PROVIDING INSERTS, BEAM CLAMPS, STEEL FISHPLATES (IN CONCRETE FILL ONLY), AND ACCEPTABLE BRACKETS. SUBMIT ALL METHODS FOR REVIEW.

B. PROVIDE TRAPEZE HANGERS OF BOLTED ANGLES OR CHANNELS FOR GROUPED LINES AND SERVICES.

C. PROVIDE ADDITIONAL FRAMING WHERE BUILDING CONSTRUCTION IS INADEQUATE. SUBMIT FOR REVIEW.

D. SUSPENDED HORIZONTAL PIPING:

1. SUPPORT ALL PIPING INDEPENDENTLY FROM STRUCTURE USING HEAVY IRON-HINGED TYPE HANGERS, SIMILAR TO GRINNEL CLEVIS No. 260.

2. PROVIDE ELECTROPLATED SOLID-BAND HANGERS SIMILAR TO AUTO-GRIP, FOR TWO-INCH AND SMALLER PIPE.

3. PROVIDE WALL BRACKETS FOR WALL SUPPORTED PIPING AND PROVIDE PIPE SADDLES FOR FLOOR MOUNTED PIPING.

4. PROVIDE SUPPORTS WITH COPPER LINING FOR UNINSULATED COPPER PIPING.

5. SUSPEND PIPING FROM INSERTS, USING BEAM CLAMPS WITH RETAIN CLAMP OR LOCKNUT, STEEL FISHPLATES, CANTILEVER BRACKETS OR OTHER ACCEPTED MEANS. BEAM CLAMPS SHALL BE SIMILAR TO GRINNEL FIGURES 61, 87, 131, OR 225.

6. SUSPEND PIPING BY RODS WITH DOUBLE NUTS.

7. PROVIDE ADDITIONAL STEEL FRAMING AS REQUIRED AND ACCEPTED WHERE OVERHEAD CONSTRUCTION DOES NOT PERMIT FASTENING HANGER RODS IN REQUIRED LOCATIONS.

8. SUPPORT BRANCH FIXTURE WATER PIPING IN CHASES WITH COPPER- PLATED METAL BRACKETS, SECURED TO STUDS, SIMILAR TO HOLDRITE NOS. 102-18, 107-18, 102-26, OR 101-26.

E. PROVIDE 180 DEGREE ARC GALVANIZED METAL COVERING SHIELDS ON HANGERS FOR INSULATED PIPING WITHOUT INCOMPRESSIBLE INSULATING BLOCK IN INSULATION AT HANGERS.

F. MAXIMUM HANGER SPACING AS INDICATED.

1. PIPE 1 INCH AND SMALLER SHALL BE EVERY 8 FEET.
2. PIPE 1-1/4 INCH AND LARGER SHALL BE EVERY 10 FEET.
3. COPPER TUBING 1-1/4 INCH AND SMALLER SHALL BE EVERY 6 FEET.
4. COPPER TUBING 1-1/2 INCH AND LARGER SHALL BE EVERY 10 FEET.
5. CAST IRON: EVERY FIVE FEET AND AT EVERY FITTING OR JOINT.

G. VERTICAL PIPING:

1. PROVIDE SPACING AS INDICATED:

a. THREADED PIPING SHALL BE EVERY OTHER FLOOR LEVEL, AT A MAXIMUM OF 25 FEET ON CENTERS.
b. CAST IRON PIPING SHALL BE EVERY FLOOR LEVEL, MAXIMUM 20 FEET ON CENTERS; HUBLESS PIPE IS THE EXCEPTION, REQUIRING A MAXIMUM OF 10 FEET ON CENTERS.
c. TUBING SHALL BE EVERY FLOOR LEVEL MAXIMUM TEN FEET ON CENTERS.

H. EXPANSION ANCHORS:

1. PROVIDE SMOOTH WALL, NON-SELF-DRILLING INTERNAL PLUG EXPANSION TYPE ANCHORS CONSTRUCTED OF AISC 12L14 STEEL AND ZINC PLATED IN ACCORDANCE WITH FED. SPEC. QQ-A-325 TYPE 1, CLASS 3.

2. DO NOT EXCEED 1/4 OF AVERAGE VALUES FOR A SPECIFIC ANCHOR SIZE USING 2000 PSIG (13,800 KPA) CONCRETE ONLY, FOR MAXIMUM WORKING LOADS.

3. PROVIDE SPACING AND INSTALL ANCHORS IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

4. EXPANSION ANCHORS SHALL BE U.L. LISTED AND SIMILAR TO HILTI HDI.

15083 - PIPE INSULATION

A. ALL INSULATION (INCLUDING JACKET, FACING AND ADHESIVE) SHALL HAVE COMPOSITE FIRE AND SMOKE HAZARD RATINGS AS TESTED BY PROCEDURES LISTED IN ASTM E-84, NFPA 255 AND UL 273; NOT EXCEEDING A FLAME SPREAD OF 25 AND A SMOKE DEVELOPED OF 50.

B. ON VALVES AND FITTINGS PROVIDE PREMOLDED FIBERGLASS FITTINGS. VAPOR SEAL INSULATION ON "CW".

C. "CW" PIPING: PROVIDE 1/2 IN. THICK FIBERGLASS SECTION PIPE COVERING WITH VAPOR BARRIER JACKET.

D. "HW" PIPING: PROVIDE 1 IN. THICK FIBERGLASS SECTIONAL PIPE COVERING.

15110 - VALVES

A. GATE VALVES:

1. BRONZE RISING STEM, 200 PSI WOG; SIMILAR TO STOCKHAM #B-105, B-109.

B. BALL VALVES:

1. TWO-PIECE, BRONZE, END ENTRY, 600 PSI WWP; SIMILAR TO STOCKHAM #S-216 BR-R-T, #S-216 BR-R-S.

C. CHECK VALVES:

1. BRONZE, THREADED CAP, TEFLON DISC; SIMILAR TO STOCKHAM #B310T, B-320T.

15140 - DOMESTIC WATER PIPING

A. TYPE L HARD COPPER TUBING WITH CAST BRONZE OR WROUGHT COPPER FITTINGS AND 95/5 TIN ANTIMONY SOLDER JOINTS.

B. STANDARD WEIGHT RED BRASS PIPE WITH STANDARD WEIGHT CAST BRONZE THREADED FITTINGS.

C. ALL EXPOSED PIPE AND FITTINGS SHALL BE CHROME PLATED BRASS.

D. ALL EXPOSED PIPING PASSING THROUGH WALLS, FLOORS, CEILINGS, AND PARTITIONS SHALL BE PROVIDED WITH CHROME PLATED CAST BRASS ESCUTCHEONS HELD IN PLACE WITH SET SCREWS.

15150 - SANITARY DRAINAGE AND VENT

A. SERVICE WEIGHT HUB AND SPIGOT CAST IRON SOIL PIPE AND FITTINGS WITH LEAD AND OAKUM JOINTS.

B. HUBLESS CAST IRON SOIL PIPE AND FITTINGS WITH EXTRA WIDE HEAVY DUTY GASKETED HUBLESS COUPLINGS FOR FOOD SERVICE APPLICATIONS.

C. GALVANIZED SCHEDULE 40 STEEL PIPE WITH GALVANIZED THREADED MALLEABLE IRON FITTINGS.

15410 - PLUMBING FIXTURES:

A. PROVIDE ALL FIXTURES WITH STOP VALVES AND SUPPLIES, FIXTURE TRAPS, AND BACKFLOW PREVENTION DEVICES AS REQUIRED.

B. ALL FIXTURES SHALL BE AS INDICATED ON THE ARCHITECTURAL DRAWING.

15950 - TESTING, ADJUSTING AND BALANCING:

A. ARRANGE AND COORDINATE TESTS WITH LOCAL INSPECTOR AND OWNER 48 HOURS IN ADVANCE NOTIFY ENGINEER AND ARCHITECT OF TEST AND DATE TIME.

B. DOMESTIC WATER PIPING:

1. TEST PIPING HYDROSTATICALLY AT A PRESSURE OF 125 PSI.

2. DURATION OF TEST SHALL BE 2 HOURS WITHOUT A LOSS IN PRESSURE.

C. DRAINAGE AND VENT PIPING:

1. CAP ALL OUTLETS AND FILL PIPING SYSTEM TO OVERFLOWING FROM A POINT AT LEAST 10 FEET ABOVE THE FLOOR.

2. THE WATER LEVEL SHALL REMAIN CONSTANT THROUGHOUT THE TEST DURATION OF 30 MINUTES.

REGISTERED PROFESSIONAL ENGINEER
No. M32522
Exp. Sept. 30, 2019
MECHANICAL
STATE OF CALIFORNIA

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OAKLAND, CA

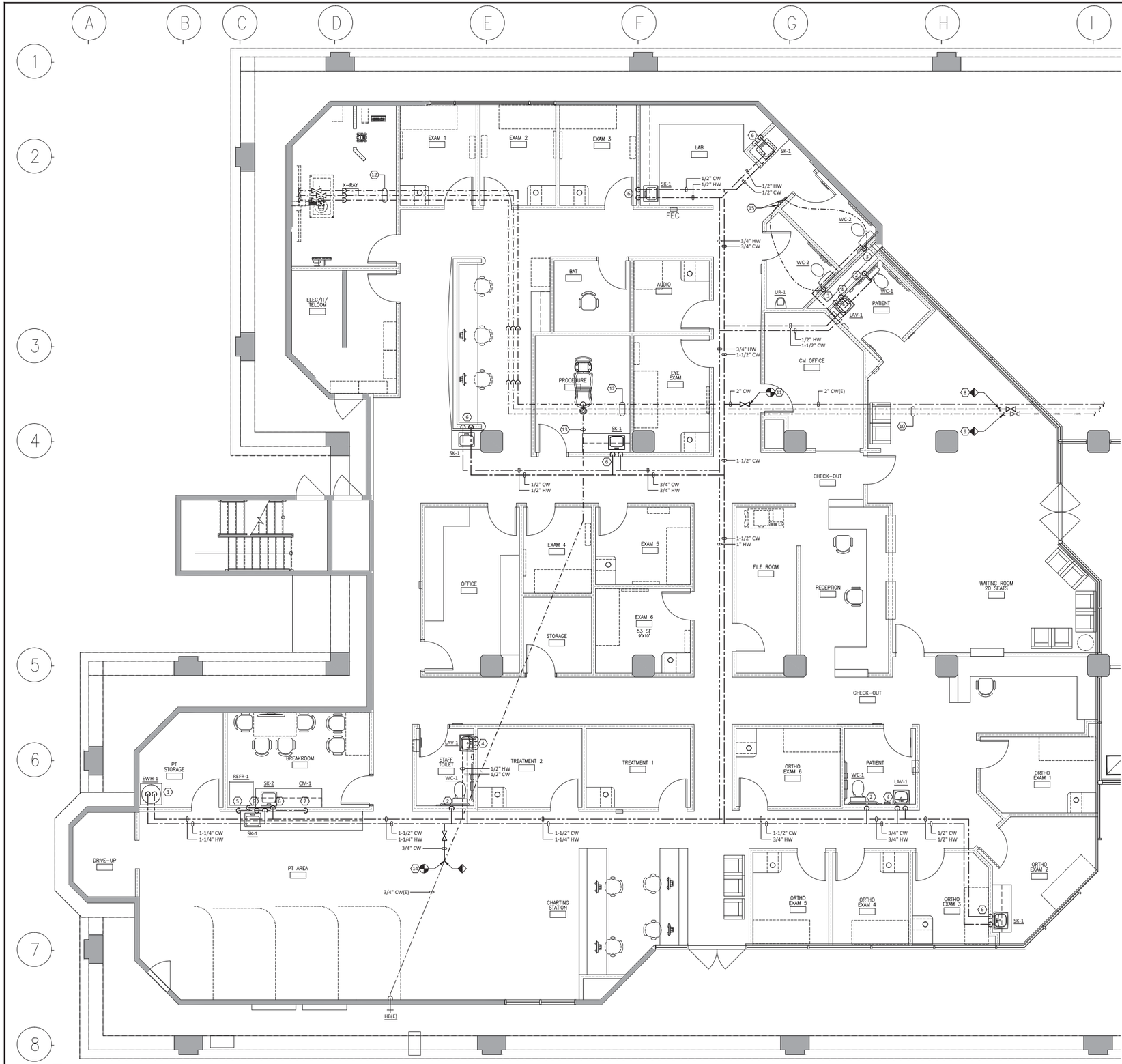
PLUMBING SPECIFICATIONS

DATE	REMARKS
12.04.2017	ISSUE FOR PLAN CHECK

PA / PM:	JDS
DRAWN BY:	JDS
JOB NO.:	SNR16-6088-00

SHEET
P2.1

CAUTION: IF THIS SHEET IS NOT 30"x42" IT IS A REDUCED PRINT



1 PLUMBING - DOMESTIC WATER PLAN
SCALE: 1/4" = 1'-0"

PLUMBING GENERAL NOTES

1. PLUMBING CONTRACTOR TO FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING WET COLUMN RISERS AND BRANCH PIPING PRIOR TO ANY CONNECTIONS.
2. NO WORK IS TO BE REMOVED WITHOUT APPROVAL OF BUILDING ENGINEERS.
3. THE CONTRACTOR SHALL NOTIFY THE BUILDING ENGINEER AT THE APPROPRIATE TIME OF THE PROJECTED DEMOLITION AND SCHEDULE SO THAT REMOVAL OR RELOCATION OF AFFECTED UTILITIES MAY BE CARRIED OUT IN COORDINATION WITH THE PROJECT REQUIREMENTS.
4. ALL EXISTING MATERIAL IN USEABLE CONDITION WHICH IS TO BE REMOVED UNDER THIS CONTRACT, SHALL BE PROTECTED AND REMAIN THE PROPERTY OF THE OWNER OR SHALL BE DISPOSED OF BY THIS CONTRACTOR, AS DIRECTED BY THE BUILDING ENGINEER.
5. ARRANGE TO WORK CONTINUOUSLY, INCLUDE OVERTIME, IF REQUIRED, TO ASSURE THAT SYSTEMS WILL BE SHUT DOWN ONLY DURING THE TIME OF ACTUALLY REQUIRED TO MAKE THE NECESSARY CONNECTIONS TO THE EXISTING SYSTEMS.
6. ALL SERVICE SHUT DOWN SHALL BE COORDINATED WITH THE BUILDING ENGINEER.
7. MAINTAIN CONTINUITY OF ALL EXISTING DOMESTIC WATER AND SYSTEM WHICH SERVE ADJACENT AREA AND ARE NOT AFFECTED BY THIS CONTRACT.
8. DURING DEMOLITION PHASE OF THIS PROJECT, CONTRACTOR SHOULD PROTECT EXISTING PIPING LOCATED IN THE STUD WALL.
9. REFER TO ARCHITECTURAL DRAWING FOR PLUMBING FIXTURE SCHEDULE AND / OR COORDINATE WITH THE BUILDING STANDARDS.
10. ALL EXPOSED P-TRAP SHALL BE PROVIDED WITH TRAP WRAP.
11. ALL SINKS SHALL BE EQUIPPED WITH THERMOSTATIC MIXING VALVES.
12. ALL EXISTING PLUMBING ASSOCIATED PIPING SHALL BE PROTECTED DURING ALL PHASE OF CONSTRUCTION. PROVIDE LABELING ON ALL EXISTING PIPING COLD WATER, SANITARY AND VENT PIPING.

PLUMBING KEY NOTES

#	
1	1-1/4" DOMESTIC COLD WATER AND 1-1/4" DOMESTIC HOT WATER PIPING TO SERVE EWH-1. WATER HEATER IS SUSPENDED ABOVE ACCESSIBLE CEILING.
2	1-1/2" DOMESTIC COLD WATER PIPING TO SERVE WC-1.
3	1-1/2" DOMESTIC COLD WATER PIPING TO SERVE WC-2.
4	1/2" DOMESTIC COLD WATER AND 1/2" HOT WATER DOMESTIC PIPING TO SERVE LAV-1.
5	1/4" DOMESTIC COLD WATER PIPING TO SERVE REFR-1. PROVIDE A RECESSED WATER BOX FOR REFR-1 CONNECTION.
6	1/2" DOMESTIC COLD WATER AND 1/2" DOMESTIC HOT WATER PIPING TO SERVE SK-1.
7	1/4" DOMESTIC COLD WATER PIPING TO SERVE CM-1. PIPING TO BE CONCEALED WITHIN MILLWORK.
8	EXISTING DOMESTIC HOT WATER WATER PIPING TO BE CUT, VALVED, AND CAPPED.
9	EXISTING DOMESTIC HOT WATER RE-CIRCULATION WATER PIPING TO BE CUT, VALVED, AND CAPPED.
10	EXISTING DOMESTIC HOT WATER AND HOT WATER RE-CIRCULATION WATER PIPING TO BE REMOVED.
11	EXISTING 2" DOMESTIC COLD WATER DOMESTIC PIPING TO BE CUT, VALVED AND CONNECTED TO NEW PIPING SERVING THE NEW NEW TENANT DISTRIBUTION.
12	EXISTING DOMESTIC COLD WATER, HOT WATER, AND HOT WATER RE-CIRCULATION WATER PIPING TO BE REMOVED.
13	EXISTING 3/4" DOMESTIC COLD WATER SERVING EXISTING HOSE BIB TO BE REMOVED.
14	NEW 3/4" DOMESTIC COLD WATER PIPING TO BE CONNECTED TO EXISTING PIPING TO SERVE EXISTING HOSE BIB.
15	REMOTE FLUSH VALVE ACTIVATION POINT FOR WC-2.

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PLUMBING DOMESTIC WATER PLAN

DATE	REMARKS
12.04.2017	ISSUE FOR PLAN CHECK

DATE	REMARKS

PA / PM:	JDS
DRAWN BY:	JDS
JOB NO.:	SNR16-6088-00

SHEET
P4.1

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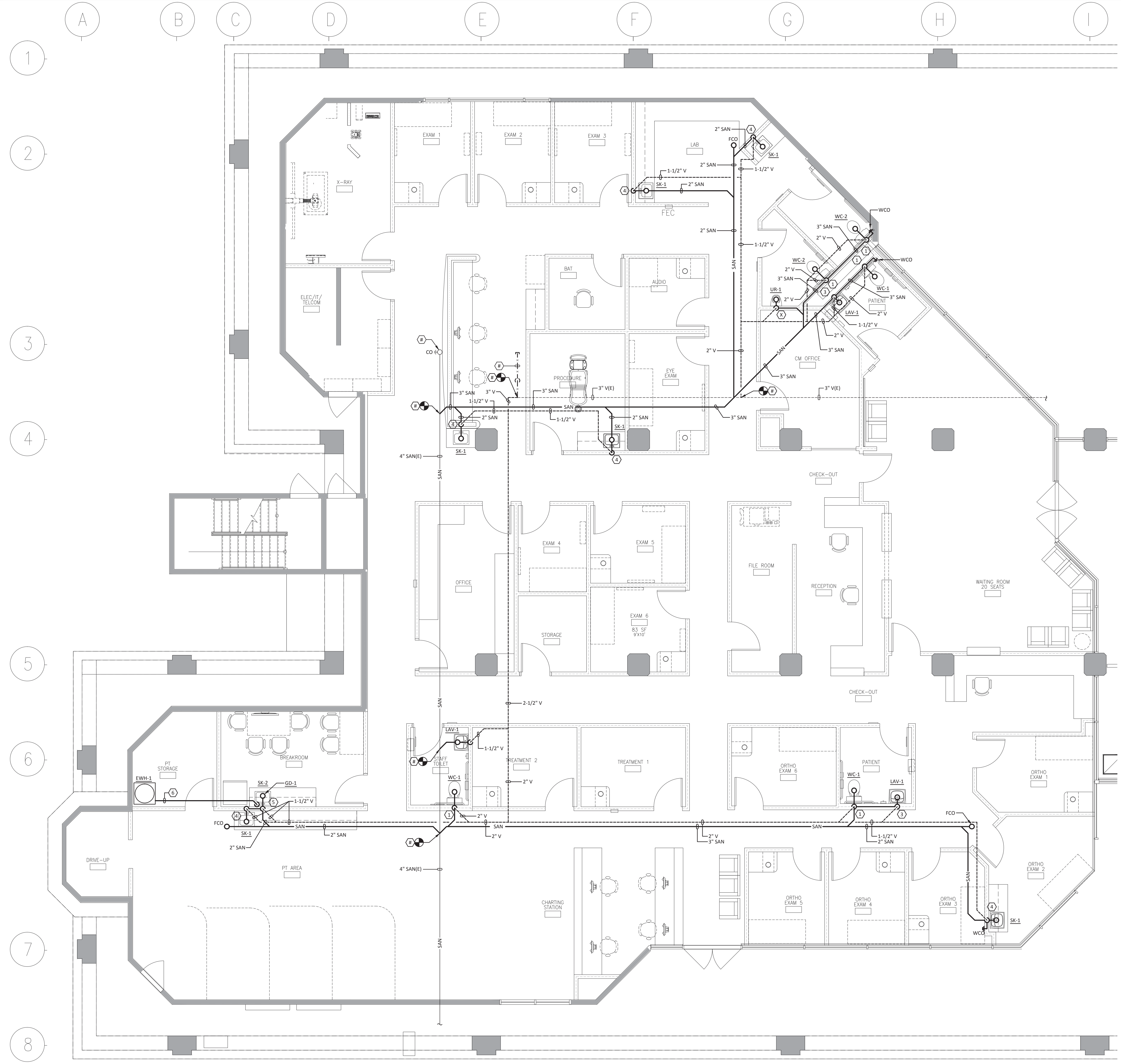

1 PLUMBING - SANITARY AND WASTE PLAN

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

PLUMBING GENERAL NOTES

1. PLUMBING CONTRACTOR TO FIELD VERIFY EXACT SIZE AND LOCATION OF EXISTING WET COLUMN RISERS AND BRANCH PIPING PRIOR TO ANY CONNECTIONS.
2. NO WORK IS TO BE REMOVED WITHOUT APPROVAL OF BUILDING ENGINEERS.
3. THE CONTRACTOR SHALL NOTIFY THE BUILDING ENGINEER AT THE APPROPRIATE TIME OF THE PROJECTED DEMOLITION AND SCHEDULE SO THAT REMOVAL OR RELOCATION OF AFFECTED UTILITIES MAY BE CARRIED OUT IN COORDINATION WITH THE PROJECT REQUIREMENTS.
4. ALL EXISTING MATERIAL IN USEABLE CONDITION WHICH IS TO BE REMOVED UNDER THIS CONTRACT, SHALL BE PROTECTED AND REMAIN THE PROPERTY OF THE OWNER OR SHALL BE DISPOSED OF BY THIS CONTRACTOR, AS DIRECTED BY THE BUILDING ENGINEER.
5. ARRANGE TO WORK CONTINUOUSLY, INCLUDE OVERTIME, IF REQUIRED, TO ASSURE THAT SYSTEMS WILL BE SHUT DOWN ONLY DURING THE TIME OF ACTUALLY REQUIRED TO MAKE THE NECESSARY CONNECTIONS TO THE EXISTING SYSTEMS.
6. ALL SERVICE SHUT DOWN SHALL BE COORDINATED WITH THE BUILDING ENGINEER.
7. MAINTAIN CONTINUITY OF ALL EXISTING DOMESTIC WATER AND SYSTEM WHICH SERVE ADJACENT AREA AND ARE NOT AFFECTED BY THIS CONTRACT.
8. DURING DEMOLITION PHASE OF THIS PROJECT, CONTRACTOR SHOULD PROTECT EXISTING PIPING LOCATED IN THE STUD WALL.
9. REFER TO ARCHITECTURAL DRAWING FOR PLUMBING FIXTURE SCHEDULE AND / OR COORDINATE WITH THE BUILDING STANDARDS.
10. ALL EXPOSED P-TRAP SHALL BE PROVIDED WITH TRAP WRAP.
11. ALL SINKS SHALL BE EQUIPPED WITH THERMOSTATIC MIXING VALVES.
12. ALL EXISTING PLUMBING ASSOCIATED PIPING SHALL BE PROTECTED DURING ALL PHASE OF CONSTRUCTION. PROVIDE LABELING ON ALL EXISTING PIPING COLD WATER, SANITARY AND VENT PIPING.

PLUMBING KEY NOTES

1	3" SANITARY AND 2" VENT TO SERVE WC-1.
2	3" SANITARY AND 2" VENT TO SERVE WC-2.
3	1-1/2" SANITARY AND 1-1/2" VENT PIPING TO SERVE LAV-1.
4	1-1/2" SANITARY AND 1-1/2" VENT PIPING TO SERVE SK-1.
5	1-1/2" SANITARY AND 1-1/2" VENT PIPING TO SERVE SK-2.
6	3/4" SANITARY PIPING SERVING EWH-1 DRAIN PAN TO INDIRECTLY CONNECT TO SK-2. PIPING IS TO BE ROUTED AS TIGHT TO THE WALL AS POSSIBLE.

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PLUMBING SANITARY & WASTE PLAN

DATE	REMARKS	DATE	REMARKS
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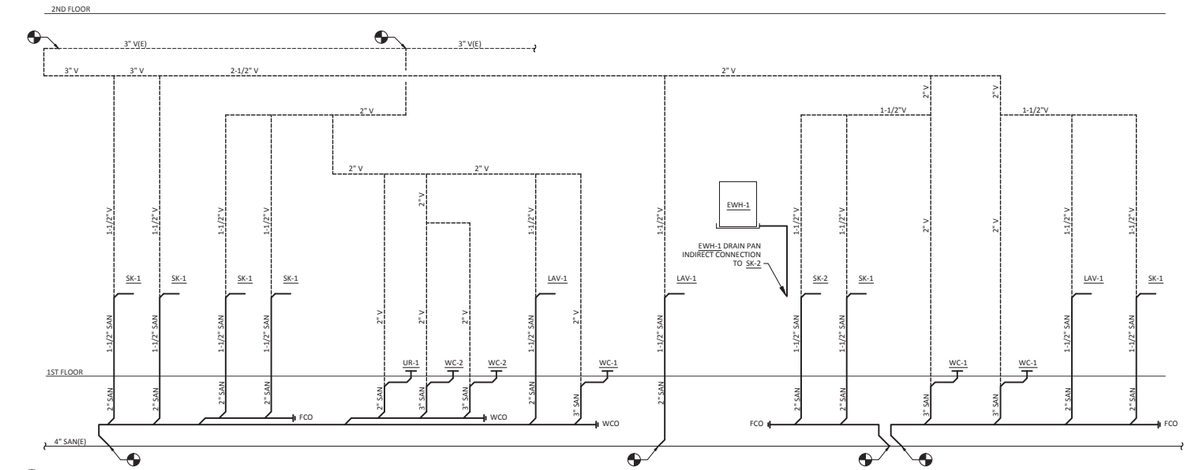
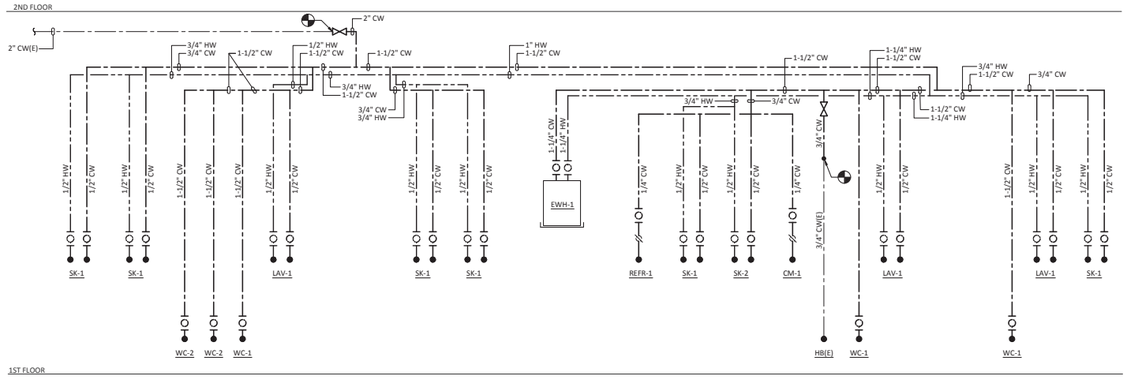


2 PLUMBING - SANITARY AND VENT RISER DIAGRAM

SCALE: NTS



1 PLUMBING - DOMESTIC WATER RISER DIAGRAM

SCALE: NTS

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PLUMBING RISERS

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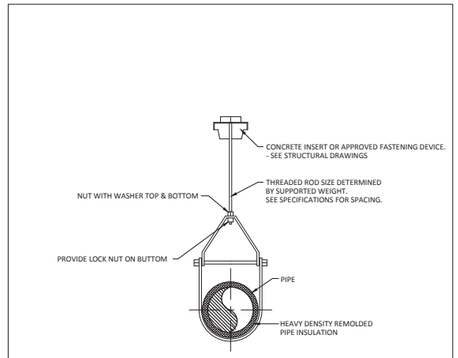
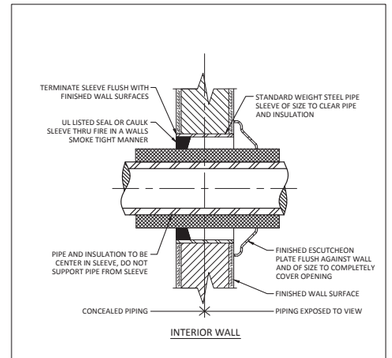
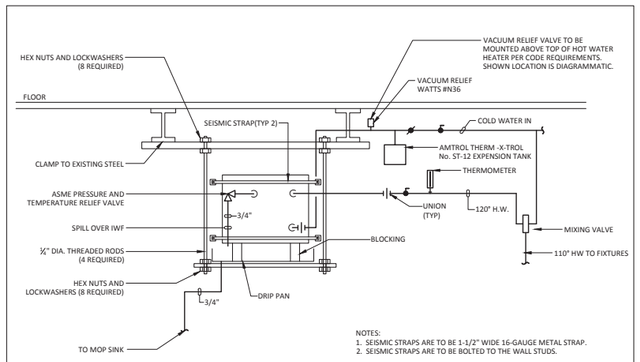


HANGER AND SUPPORT
CLEVIS HAGNER

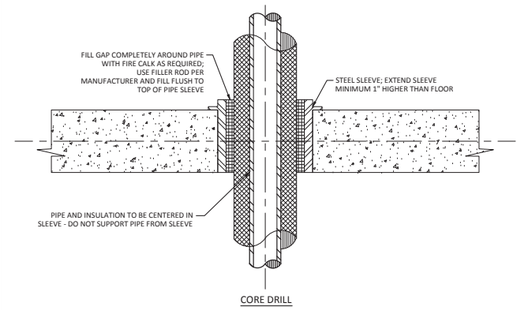


INTERIOR WALL

PIPE SLEEVE THRU WALL



PIPING SCHEMATIC FOR
NEW DOMESTIC WATER HEATER



PIPE SLEEVE PENETRATION THRU CONCRETE FLOOR

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PLUMBING DETAILS

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STATE OF CALIFORNIA
WATER HEATING SYSTEM GENERAL INFORMATION
CEC-NRCC-PLB-01-E (Revised 01/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-PLB-01-E
Water Heating System General Information	(Page 1 of 2)
Project Name: US Health Works	Date Prepared: 12/02/2017

A. GENERAL INFORMATION/SYSTEM INFORMATION

01	Water Heater System Name:	EWH-1
02	Water Heater System Configuration:	Single Water Heater
03	Water Heater System Type:	Domestic Hot Water
04	Building Type:	Nonresidential
05	Total Number of Water Heaters in Systems:	1
06	Central DHW Distribution Type:	Other
07	Dwelling Unit DHW Distribution Type:	N/A

B. WATER HEATER INFORMATION
Each water heater type requires a separate compliance document.

01	Water Heater Type:	Small Storage - Electric
02	Fuel Type:	Electricity
03	Manufacture Name:	AO Smith
04	Model Number:	DRE-52
05	Number of Identica Water Heaters:	1
06	Installed Water Heater System Efficiency:	97%
07	Required Minimum Efficiency:	96%
08	Standby Loss Percent or Standby Loss Total:	N/A for small storage system, but meets ASHRAE 90.1 requirements
09	Rated Input:	12 kW
10	Pilot Energy:	N/A
11	Water Heater Tank Storage Volume:	50 gallons
12	Exterior Insulation on Water Heater:	Factory installed insulation
13	Volume of Supplemental Storage:	N/A
14	Internal Insulation on Supplemental Storage:	N/A
15	Exterior Insulation on Supplemental Storage:	N/A

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

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

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

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance January 2016

STATE OF CALIFORNIA
WATER HEATING SYSTEM GENERAL INFORMATION
CEC-NRCC-PLB-01-E (Revised 01/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-PLB-01-E
Water Heating System General Information	(Page 2 of 2)
Project Name: US Health Works	Date Prepared: 12/02/2017

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: Jimmy Sneed	Documentation Author Signature: *Jimmy Sneed*
Company: WB Engineers+Consultants	Signature Date: 12/02/2017
Address: 5934 Gibraltar Drive, Suite 100	CEA/HERS Certification Identification (if applicable):
City/State/Zip: Pleasanton, CA 94588	Phone: (925) 399-6687

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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

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

Responsible Designer Name: John H. Reyna	Responsible Designer Signature: *John H. Reyna*
Company: WB Engineers+Consultants	Date Signed: 12/02/2017
Address: 5934 Gibraltar Drive, Suite 100	License: M32522
City/State/Zip: Pleasanton, CA 94588	Phone: (925) 399-6687

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance January 2016

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PLUMBING TITLE 24 DOCUMENTATION

DATE	REMARKS
12.04.2017	ISSUE FOR PLAN CHECK

PA / PM:	JDS
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SHEET
P8.1

GENERAL NOTES

1. ALL WORK SHALL BE INSTALLED CONCEALED UNLESS OTHERWISE NOTED.
2. CONTRACTOR SHALL FIELD VERIFY DIMENSIONS OF FINISHED CONSTRUCTION PRIOR TO FABRICATION AND INSTALLATION OF FIXTURES AND EQUIPMENT.
3. MOUNTING HEIGHTS OF EQUIPMENT AND DEVICES SHALL BE AS INDICATED ON THE ARCHITECTURAL DRAWINGS. WHERE MOUNTING HEIGHTS ARE NOT GIVEN ON THE ARCHITECTURAL DRAWINGS, UTILIZE THE FOLLOWING MOUNTING HEIGHTS UNLESS OTHERWISE NOTED (ALL DIMENSIONS TO CENTERLINE OF BOX):
   A. RECEPTACLES (WALL MOUNTED) - 18 A.F.F.
   B. RECEPTACLES (COUNTER HEIGHT) - HORIZONTAL 6 ABOVE COUNTER
   C. TELEPHONE/DATA OUTLETS - SAME HEIGHT AS RECEPTACLES
   D. LIGHTING SWITCHES AND CONTROLS - 48 A.F.F.
   E. MANUAL FIRE ALARM STATIONS - 48 A.F.F.
   F. FIRE ALARM HORN/SPEAKER AND STROBE UNITS - 80 A.F.F.
   G. PANELBOARD -78 TO TOP OF ENCLOSURE
4. WHERE EQUIPMENT, LIGHTING FIXTURES AND WIRING DEVICES ARE SHOWN WITH CIRCUIT NUMBERS ONLY, THE MINIMUM BRANCH CIRCUITING REQUIREMENTS SHALL BE AS FOLLOWS:
   A. LIGHTING FIXTURES - 2#12, #12 GRD.- 3/4 C.
   B. RECEPTACLES - 2#12, #12 GRD.- 3/4 C.
   C. BRANCH CIRCUIT BREAKERS (120 VOLT) - 1P, 20A
   D. BRANCH CIRCUIT BREAKERS (277 VOLT) - 1P, 20A
5. EXISTING ELECTRICAL EQUIPMENT AND PANELBOARDS SHALL BE MODIFIED AS REQUIRED TO ACCOMMODATE THE WORK OF THIS CONTRACT. REPLACE EXISTING CIRCUIT BREAKERS IN PANELS WITH IDENTICAL NEW BREAKERS AS REQUIRED.
6. EXISTING EQUIPMENT AFFECTED BY THE WORK OF THIS CONTRACT SHALL BE COMPLETELY IDENTIFIED IN ACCORDANCE WITH THE REQUIREMENTS OF THIS CONTRACT.
7. FINAL LOCATION OF CEILING MOUNTED EQUIPMENT SHALL BE IN ACCORDANCE WITH ARCHITECTURAL REFLECTED CEILING PLANS.
8. SEPARATELY MOUNTED OUTLET BOXES AND FLEXIBLE CONDUIT PIGTAIL CONNECTIONS SHALL BE PROVIDED FOR LIGHTING FIXTURES RECESSED IN HUNG CEILINGS. IN ACCESSIBLE TILE HUNG CEILING AREAS A SINGLE OUTLET BOX MAY SERVE UP TO A MAXIMUM OF FOUR (4) LIGHTING FIXTURES USING FLEXIBLE CONDUIT PIGTAIL CONNECTIONS WITH A MAXIMUM LENGTH OF 6'-0 .
9. ELECTRICAL CONTRACTOR SHALL VISIT THE JOB SITE TO MAKE HIMSELF AWARE OF EXISTING CONDITIONS BEFORE SUBMITTING HIS PRICE.
10. THE MINIMUM RATING OF DISCONNECT SWITCHES SHALL BE EQUAL TO OR GREATER THAN THE RATING OF THE PROTECTIVE DEVICE ON THE SUPPLY SIDE OF THE DISCONNECT SWITCH. ALL RATINGS OF DISCONNECT SWITCHES AND OR FUSES/ OVER-CURRENT DEVICES SHALL BE SIZED IN ACCORDANCE WITH CODE FOR THE LOADS SERVED PER DESIGN DRAWINGS.
11. LOW VOLTAGE WIRING IN AIR PLENUM HUNG CEILINGS INSTALLED WITHOUT CONDUIT OR EMT SHALL BE PLENUM RATED TEFLON JACKETED.
12. COORDINATE WITH OTHER TRADES TO DETERMINE THE EXACT LOCATION OF MOTORS, MOTOR TERMINAL BOXES, AND OTHER EQUIPMENT TO BE INSTALLED BY OTHER TRADES BEFORE CONDUIT WORK IS STARTED. REFER TO MECHANICAL DRAWINGS FOR LOCATIONS OF ALL MECHANICAL EQUIPMENT.
13. NO LOW VOLTAGE WIRING SHALL BE PERMITTED IN THE SAME RACEWAY AS LINE VOLTAGE POWER WIRING.
14. ALL JUNCTION OR OUTLET BOXES SHALL BE INSTALLED SO AS TO ALLOW ACCESS TO COVER. PROVIDE APPROVED ACCESS DOORS OR PLATES AS REQUIRED IN AREAS WHERE UNOBSTRUCTED ACCESS TO BOX OR OUTLET IS NOT POSSIBLE.
15. WHERE LIGHT SWITCH INDICATIONS ARE NOT SHOWN, SWITCHES SHALL BE PROVIDED TO CONTROL ALL FIXTURES (EXCEPT FOR NIGHT-LIGHTS) WITHIN THE CORRESPONDING SPACE (ROOMS, OPEN AREA LIGHTING ZONES, ETC).
16. AT ALL EMPTY CONDUITS PROVIDE BUSHINGS AT ENDS AND DRAG WIRES.
17. ALL EMPTY CONDUIT THAT ARE STUBBED UP SHALL BE BENT 90° TO HORIZONTAL POSITION AT TOP TOWARDS THE DIRECTION OF NEAREST CABLE TRAY.
18. PROVIDE SEPARATE NEUTRALS FOR ALL LIGHTING FIXTURES WITH ELECTRONIC BALLASTS AND FOR CIRCUITS WITH INSULATED GROUND (IG).
19. ALL BRANCH CIRCUIT WIRING SHALL BE ROUTED CONCEALED IN WALLS AND IN HUNG CEILING CAVITY, U.O.N. WHERE EXPOSED CONDUITS CANNOT BE AVOIDED, ROUTE ALL SUCH CONDUITS IN A NEAT MANNER FOLLOWING BUILDING STRUCTURAL LINES. COORDINATE ROUTING WITH OTHER TRADES.
20. ELECTRICAL CONTRACTOR SHALL PROVIDE AN ELECTRICAL INSPECTION APPROVAL CERTIFICATE TO BUILDING MANAGEMENT UPON COMPLETION OF WORK.
21. REFER TO ARCHITECTURAL DRAWINGS FOR DESCRIPTION OF ANY SYMBOL NOT LISTED ON THIS DRAWING BUT IS SHOWN ON THE POWER OR LIGHTING PLANS.
22. REFER TO ARCHITECTURAL DRAWINGS FOR FIXTURE TYPE DESIGNATIONS IF THEY ARE NOT SHOWN ON LIGHTING PLANS.
23. CONTRACTOR TO MAINTAIN THE CONTINUITY OF ALL ELECTRICAL SERVICES TO EXISTING AREAS WHICH ARE TO REMAIN. COORDINATE WITH CLIENT/BLDG. MANAGEMENT.
24. CIRCUIT ASSIGNMENTS FOR LIGHTING FIXTURES, RECEPTACLES, WIRING DEVICES, AND ELECTRICAL EQUIPMENT ARE DESIGNATED BY THE NUMBER SHOWN ADJACENT TO THESE DEVICES / EQUIPMENT. PROVIDE CONDUITS, WIRES AND BOXES REQUIRED TO ENERGIZE THE EQUIPMENT AS SHOWN.
25. CIRCUIT NUMBERS ARE FOR REFERENCE ONLY. CIRCUIT NUMBERS ARE INTENDED TO BE USED FOR QUANTITIES AND FOR DESIGNATING WHAT OUTLETS (FIXTURES, EQUIPMENT, ETC.) WILL BE ON THE SAME CIRCUIT. CONTRACTOR SHALL REARRANGE CIRCUITS PER FIELD CONDITIONS SO THAT LOAD VALUES FOR EACH PHASE DO NOT EXCEED CODE REQUIREMENTS AND TO BALANCE THE LOADS AT THE PANELS PER SPECIFICATIONS. THE ELECTRICAL CONTRACTOR SHALL PROVIDE CIRCUITS WITH PROPER PHASE SEQUENCES FOR EVERY REQUIRED NEUTRAL WIRE THAT IS SHARED. ELECTRICAL CONTRACTOR SHALL DOCUMENT ALL AFFECTED CIRCUITS, LABEL EACH OUTLET COVER WITH ACTURAL PANEL DESIGNATION AND CIRCUIT NUMBER, AND PROVIDE AS-BUILT PANEL DIRECTORIES AND DRAWINGS PER SPECIFICATIONS.
26. ALL PENETRATIONS INTO FIRE-RATED WALLS OR CORE HOLES BETWEEN FLOOR SLABS MUST BE PROPERLY FIRE-STOPPED IN ACCORDANCE WITH THE GUIDELINES OF THE LOCAL BUILDING CODE AND THE LOCAL ELECTRICAL CODE.
27. ALL VOICE, DATA, A.V. & SECURITY COMMUNICATIONS CABLING SHALL BE PER REQUIREMENTS SPECIFIED BY OTHERS, PROVIDED AND INSTALLED BY OTHERS. COORDINATE ALL POWER AND CABLING BETWEEN SPECIFIED EQUIPMENT (MONITORS, PRINTERS, ETC.) WITH CONSTRUCTION MANAGER. PROVIDE BACK-BOX AND EMPTY CONDUITS AS REQUIRED.
28. ALL WORK SHALL COMPLY WITH REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, LOCAL BUILDING CODE AND BUILDING MANAGEMENT RULES AND REGULATIONS.
29. ¾" SHALL BE THE MINIMUM CONDUIT INSTALLED.
30. ALL CIRCUITS TO COMPUTERS, LASER PRINTERS, COPIERS, FAX MACHINES AND ANY OTHER LOADS OF NON-LINEAR NATURE OUTLETS SHALL HAVE SEPARATE NEUTRAL WIRES. STANDARD SHARED NEUTRAL HOMERUNS ARE NOT PERMITTED.
31. REFER TO I.T., A.V., & SECURITY DESIGN DRAWINGS FOR ALL EMPTY CONDUIT AND BACK-BOX REQUIREMENTS (QUANTITY AND ROUTING).

ABBREVIATIONS

A, AMP	AMPERE
ADA	AMERICANS WITH DISABILITIES ACT
AF	AMPERE FRAME
AFF	ABOVE FINISH FLOOR
AHJ	AUTHORITY HAVING JURISDICTION
AIC	AMPS INTERRUPTING CAPACITY
AT	AMPERE TRIP
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
BMS	BUILDING MANAGEMENT SYSTEM
C	CONDUIT
CAT	CATALOG
CB	CIRCUIT BREAKER
CD	CANDELA
CFSD	COMBINATION FIRE/SMOKE DAMPER
CKT	CIRCUIT
CLG	CEILING
CO	CONDUIT ONLY
CU	COPPER
DACS	DIGITAL ALARM COMMUNICATION SYSTEM
DACT	DIGITAL ALARM COMMUNICATION TERMINAL
DGP	DATA GATHERING PANEL
DIFF	DIFFERENTIAL
DISC	DISCONNECT
DN	DOWN
DWG	DRAWING
ELEC	ELECTRICAL
EMR	ELEVATOR MACHINE ROOM
EMT	ELECTRICAL METAL TUBING
FACP	FIRE ALARM CONTROL PANEL
FBO	FURNISH BY OTHER DIVISION OF WORK
FCO	FUSE CUTOUT BOX
FCS	FIRE COMMAND STATION
FSD	FIRE SMOKE DAMPER
FU	FUSE
FL	FLOOR
FLEX	FLEXIBLE
FT	FEET OR FOOT
GA	GAUGE
G, GRD	GROUND
GC	GENERAL CONTRACTOR
GFI	GROUND FAULT INTERRUPTER
HID	HIGH INTENSITY DISCHARGE
HP	HORSEPOWER
HVAC	HEATING, VENTILATING & AIR CONDITIONING DIVISION ON WORK
HZ	HERTZ
IC	INTERRUPTING CAPACITY
JB	JUNCTION BOX
LEMCS	LOCAL EMERGENCY CONTROL SYSTEM
LTG	LIGHTING
MCB	MAIN CIRCUIT BREAKER
MECH	MECHANICAL
MER	MECHANICAL EQUIPMENT ROOM
MIN	MINIMUM
MLO	MAIN LUGS ONLY
MTD	MOUNTED
N	NEUTRAL
NC	NORMALLY CLOSED
NO	NUMBER
NTS	NOT TO SCALE
OL	OVERLOAD DEVICE
P	POLE
PNL	PANEL
Ø	PHASE
RA	RETURN AIR
RG, RAG	RETURN AIR GRILLE
SN	SOLID NEUTRAL
SPCP	STAIR PRESSURIZATION SYSTEM CONTROL PANEL
STP	STAIR PRESSURIZATION
SW	SWITCH
SWBD	SWITCHBOARD
TEL	TELEPHONE
TYP	TYPICAL
UON	UNLESS OTHERWISE NOTED
UL	UNDERWRITERS LABORATORIES
UV	ULTRAVIOLET
VESDA	VERY EARLY SMOKE DETECTION APPARATUS
V	VOLTAGE
VDC	DIRECT CURRENT VOLTAGE
VFD	VARIABLE FREQUENCY DRIVE
WP	WEATHER PROOF

LIGHTING ANNOTATIONS AND CONTROLS LEGEND

SYMBOL	DESCRIPTION
A P# a / A-EM P# a / A P# a	TYPICAL LIGHTING FIXTURE SYMBOL - REFER TO ARCHITECTS PLAN FOR COMPLETE LIST OF SYMBOLS AND FIXTURE SPECIFICATIONS TYPICAL LIGHTING FIXTURE WITH OUTLET BOX. 'A' - UPPER CASE LETTER DENOTES NEW FIXTURE TYPE. 'P#' - INDICATED PANEL ABBREVIATION AND CIRCUIT NUMBER 'a' - LOWER CASE LETTER DENOTES SWITCH CONTROL. 'NL' - DENOTES UN-SWITCHED NIGHT LIGHT. 'EM'- INDICATES FIXTURE TO BE PROVIDED WITH 9O MINUTE INTEGRAL BATTERY PACK(OR CONNECTION TO EMERGENCY CIRCUIT).
A	HALF SHADING INDICATED EMERGENCY LIGHTING FIXTURE - 90 MINUTE EMERGENCY BALLAST OR EMERGENCY CIRCUIT
	SINGLE FACE EXIT SIGN, CEILING OR WALL MOUNTED. DIRECTIONAL ARROWS AS INDICATED ON THE DRAWINGS.
	DOUBLE FACE EXIT SIGN, CEILING OR WALL MOUNTED. DIRECTIONAL ARROWS AS INDICATED ON THE DRAWINGS.
	DUAL HEAD, 90-MINUTE BATTERY BACKUP WALL MOUNTED EMERGENCY LIGHT
$ a	SEE SHEET E6.17L FOR ALL LIGHTING CONTROLS INFORMATION.
S1 a OC	SEE SHEET E6.17L FOR ALL LIGHTING CONTROLS INFORMATION.

ONE LINE/RISER DIAGRAM LEGEND

SYMBOL	DESCRIPTION
##A/#P	CIRCUIT BREAKER "##A" - INDICATES AMPERAGE RATING "#P" - INDICATES NUMBER OF POLES
##AS ##AF	FUSED DISCONNECT SWITCH "##AS" - INDICATES SWITCH SIZE "##AF" - INDICATES FUSE SIZE
#A/#P	NON-FUSED DISCONNECT SWITCH "#A" - INDICATES SWITCH SIZE "#P" - INDICATES NUMBER OF POLES
480Δ 120Y/208V	TRANSFORMER, 480V INDICATES PRIMARY VOLTAGE, 120/208V INDICATES SECONDARY VOLTAGE
	GROUNDING CONNECTION
PANEL PP1	PANELBOARD - REFER TO PANELBOARD SCHEDULES FOR ADDITIONAL INFORMATION

LIGHTING FIXTURE SCHEDULE

DESIG.	MFG. & CAT. NO.	TYPE	MOUNTING	BALLAST TYPE	NO. LAMP	WATT-LAMP TYPE	VOLTAGE	REMARKS
A	LITHONIA 2AVL4-40L-MDR-EZ1-LP840	2' X 4' LED	RECESSED	LED DRIVER 0-10V DIMMING	LED	48 WATT 4000K LED	277	-
AE	LITHONIA 2AVL4-40L-MDR-EZ1-LP840-E10WLCP	2' X 4' LED	RECESSED	LED DRIVER 0-10V DIMMING	LED	48 WATT 4000K LED	277	-
B	LITHONIA 2AVL2-40L-MDR-EZ1-LP840	2' X 2' LED	RECESSED	LED DRIVER 0-10V DIMMING	LED	57 WATT 4000K LED	277	-
C	LITHONIA 5BPMW-LED-40K90CRI-L5LEDT24	LED DOWNLIGHT	RECESSED	LED DRIVER 0-10V DIMMING	LED	9.9 WATT 4000K LED	120	-
R	PHILIPS CS-A-2-R-M-E14	X-RAY IN USE SIGN	RECESSED	LED	LED	9.3 WATT LED	277	-
X	LITHONIA LRP-1-GC-120/277-EL N	EXIT SIGN	RECESSED	LED	LED	5 WATT LED	UNV	-
X2	LITHONIA LRP-1-GC-120/277-EL N	EXIT SIGN	RECESSED	LED	LED	5 WATT LED	UNV	-

LIGHTING FIXTURE NOTES:

1. COORDINATE FIXTURE TYPES, MODEL NUMBERS AND COMPATIBILITY WITH DROP CEILING WITH ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
2. REFER TO ARCHITECTURAL DRAWINGS FOR QUANTITY AND EXACT LOCATION OF ALL LIGHTING FIXTURES.
3. CONFIRM ALL DIMMING DRIVER REQUIREMENTS AND PROVIDE COMPATIBLE DIMMERS AS REQUIRED.

ELECTRICAL DRAWING LIST

POWER AND SIGNAL DEVICE LEGEND

SYMBOL	DESCRIPTION
	UON, 20A, 125V, 2P, 3W, GROUNDED WALL MOUNTED DUPLEX AND DOUBLE DUPLEX RECEPTACLES, NEMA 5-20R. (COLOR PER ARCHITECT). ALL OUTLETS SHALL BE LABELED WITH ITS SOURCE PANEL AND BREAKER # ID. "WP" - INDICATES WEATHERPROOF (TYP FOR WIRING DEVICES) "C" - INDICATES COUNTER HEIGHT (TYP FOR WIRING DEVICES)
	SHADING FOR DUPLEX OR DOUBLE DUPLEX PER ABOVE INDICATES DEDICATED CIRCUIT
	UON, 20A, 125V, 2P, 3W, GROUNDED WALL MOUNTED DUPLEX AND DOUBLE DUPLEX RECEPTACLES WITH GROUND FAULT CIRCUIT INTERRUPTER, NEMA 5-20R. (COLOR PER ARCHITECT). ALL OUTLETS SHALL BE LABELED WITH ITS SOURCE PANEL AND BREAKER # ID.
	20A, 125V, 2P. 3W, GROUNDED WALL MOUNTED SIMPLEX RECEPTACLE, NEMA 5-20R. (COLOR BY ARCHITECT). ALL OUTLETS SHALL BE LABELED WITH SOURCE PANEL AND BREAKER # ID.
	SPECIAL PURPOSE RECEPTACLE AS INDICATED BY NOTES OR SCHEDULES ON DRAWING.
OR P	ELECTRIFIED FURNITURE POWER/TELEPHONE/DATA INFEED. COORDINATE FURNITURE SYSTEM IN-FEED LOCATIONS WITH THE FURNITURE VENDOR. FOR FURNITURE SYSTEMS THAT ARE NOT ADJACENT TO COLUMNS OR PARTITION WALLS, USE FLOOR CELL SYSTEM ACTIVATIONS FROM THE CELL SYSTEM MANUFACTURER. PROVIDE ONE (1) ¾"C FOR POWER AND (2) 1½"C OR (1) 2"C FOR VOICE/DATA INFEEDS. SEE DETAIL SHEET E-401 AND TYPICAL FURNITURE SYSTEMS WIRING DETAILS.
J	ELECTRICAL JUNCTION BOX FOR HARDWIRED EQUIPMENT. (2) INDICATES DOUBLE-GANG BOX. (F) INDICATES FLOOR RECESSED. (CE) INDICATES CEILING RECESSED. (AFC) INDICATES ABOVE FINISHED CEILING, SURFACE MTD.
	RECESSED/POKE-THRU TYPE FLOOR BOX WITH TEL/DATA CONNECTION, DUPLEX OR DOUBLE DUPLEX RECEPTACLE
	SURFACE MOUNTED PANELBOARD - SOLID INDICATES NEW, UNSHADED/DASHED INDICATES EXISTING
	FLUSH MOUNTED PANELBOARD - SOLID INDICATES NEW, UNSHADED/DASHED INDICATES EXISTING
T	DRY TYPE TRANSFORMER - SIZE AS INDICATED ON THE DRAWINGS
M	ELECTRICAL METER OR SUB-METER AS IDENTIFIED ON THE DRAWINGS
1 CKT PNL-(#) 2 CKT PNL-(#),(#) 3 CKT PNL-(#),(#),(#)	ONE, TWO, OR THREE HOME RUNS TO ELECTRICAL PANEL 'PNL' - INDICATED PANEL NAME '#' - INDICATES CIRCUIT NUMBER, U.O.N.
G	GROUND BAR
	¾" PLYWOOD BACKBOARD WITH 2"x4" STUDS PLACED 16" OFF CENTER
AV	FLUSH WALL MOUNTED VOICE, DATA, VOICE/DATA COMBO, OR A/V OUTLET. PROVIDE JUNCTION BOX (2 GANG BACKBOX WITH 1 GANG ADAPTER RING WHERE REQUIRED PER IT DRAWINGS) WITH 1" EMPTY CONDUIT STUBBED UP TO 6" ABOVE ACCESSIBLE HUNG CEILING WITH PULL STRING. "C" - INDICATED COUNTER HEIGHT "W" INDICATED WALL MOUNTED
TV	FLUSH WALL MOUNTED COAXIAL CABLE TELEVISION CONNECTION. PROVIDE JUNCTION BOX (2 GANG BACKBOX WITH 1 GANG ADAPTER RING WHERE REQUIRED PER IT DRAWINGS) WITH 1" EMPTY CONDUIT STUBBED UP TO 6" ABOVE ACCESSIBLE HUNG CEILING WITH PULL STRING.
	CCTV CAMERA - PROVIDE BACK BOX AND 1" EMPTY CONDUIT WITH PULL STRING STUBBED UP TO 6" ABOVE ACCESSIBLE CEILING.
CR	LOW VOLTAGE CARD READER - PROVIDE BACK BOX AND 1" EMPTY CONDUIT WITH PULL STRING STUBBED UP TO 6" ABOVE ACCESSIBLE CEILING.
ML	MAGNETIC DOOR LOCK
DS	ELECTRIC DOOR STRIKE
DH	MAGNETIC DOOR HOLDER
KP	LOW VOLTAGE KEY PAD
SEC	SECURITY EQUIPMENT PANEL

MOTORS AND CONTROLS LEGEND

SYMBOL	DESCRIPTION
#	MOTOR - "#" INDICATES HORSEPOWER RATING
$T	THERMAL RATED MOTOR SWITCH
##A/#P	DISCONNECT SWITCH "##A" - INDICATES AMPERAGE RATING "#P" - INDICATES NUMBER OF POLES "3R" - INDICATES NEMA 3R RATING
##AS/##AF	FUSED DISCONNECT SWITCH "##AS" - INDICATES SWITCH SIZE "##AF" - INDICATES FUSE SIZE "3R" - INDICATES NEMA 3R RATING
##AS/##AF	COMBINATION MOTOR STARTER AND DISCONNECT SWITCH "##AS" - INDICATES SWITCH SIZE "##AF" - INDICATES FUSE SIZE
	FLEXIBLE METAL OR LIQUIDTIGHT METAL CONDUIT WHIP - 3 FEET MAX
VAV	VAV BOX ELECTRICAL CONNECTION
CP	CONDENSATE PUMP ELECTRICAL CONNECTION
LD	LEAK DETECTION SYSTEM ELECTRICAL CONNECTION
MD	MOTORIZED DAMPER ELECTRICAL CONNECTION

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ELECTRICAL - SYMBOLS, NOTES AND ABBREVIATIONS

DATE	REMARKS	DATE	REMARKS
12.04.2017	ISSUE FOR PLAN CHECK		

PA / PM:	JDS
DRAWN BY:	KS
JOB NO.:	SNR16-6088-00

SHEET
E0.1

REGISTERED PROFESSIONAL ENGINEER
No. E21028
ELECTRICAL
STATE OF CALIFORNIA

XRAY

☑ NEW ☐ EXISTING — PANELBOARD SCHEDULE

RATING (AMPS): 100A — MAIN TYPE: THERMAL MAG — VOLTAGE: 208/120V — PHASE: 1 — NEUTRAL: 100% — WIRE: 3 — ENCLOSURE: NEMA 1 — MOUNTING: SURFACE — FEED THRU LUGS: NO — ISOLATED GND: NO — AIC: 10K

CKT #	TYPE	NOTE	TRIP / POLE	DESCRIPTION	BRANCH CKT Ø	N	C	LOAD (KVA) LTG	REC	MTR	A/C	HTG	DATA	KIT	MISC	PHASE
1	-	-	15/1	X-RAY TABLE	#10	#10	3/4"								A	A
3	-	-	-	BUSSED SPACE	-	-	-								B	B

CKT #	TYPE	NOTE	TRIP / POLE	DESCRIPTION	LOAD (KVA) LTG	REC	MTR	A/C	HTG	DATA	KIT	MISC	BRANCH CKT Ø	N	C
2	-	-	-	BUSSED SPACE									-	-	-
4	-	-	-	BUSSED SPACE									-	-	-

LIGHTING (KVA):	0.0
RECEPTACLES (KVA):	0.0
MOTORS (KVA):	0.0
A/C (KVA):	0.0
HEATING (KVA):	0.0
DATA PROCESSING (KVA):	0.0
KITCHEN(KVA): 0 PIECES	0.0
MISCELLANEOUS (KVA):	0.0

PHASE BREAKDOWN

PHASE A	0	0.0
PHASE B	0	0.0

		KVA	AMPS
BASIS OF DESIGN:			
EATON CUTLER HAMMER			

TYPES

ST =	SHUNT TRIP
GF =	GROUND FAULT
AF =	ARC FLASH
KK =	KIRK KEY

NOTES

EX =	EXISTING
ME =	MATCH EXISTING
SR =	SEE RISER(1-LINE)
ES =	SEE EQUIP. CONN. SCH.

CONNECTED LOAD (KVA):	0.0
DEMAND LOAD (KVA):	0.0
CONNECTED LOAD (AMPS):	0.0
DEMAND LOAD (AMPS):	0.0
AMPACITY REQUIRED:	0.0

NOTES:

PL

☐ NEW ☑ EXISTING — PANELBOARD SCHEDULE

RATING (AMPS): 100A — MAIN TYPE: LUGS ONLY — VOLTAGE: 480Y/277V — PHASE: 3 — NEUTRAL: 100% — WIRE: 4 — ENCLOSURE: NEMA 1 — MOUNTING: SURFACE — FEED THRU LUGS: NO — ISOLATED GND: NO — AIC: EXIST.

CKT #	TYPE	NOTE	TRIP / POLE	DESCRIPTION	BRANCH CKT Ø	N	C	LOAD (KVA) LTG	REC	MTR	A/C	HTG	DATA	KIT	MISC	PHASE
1	-	EX	20/1	LIGHTING - NORTH	#12	#12	3/4"	2.7								A
3	-	EX	20/1	LIGHTING - SOUTH	#12	#12	3/4"	2.1								B
5	-	EX	20/1	EF-1	#12	#12	3/4"			1.3						C
7	-	EX	20/1	EF-3	#12	#12	3/4"			1.3						A
9	-	EX	20/1	SPARE	-	-	-									B
11	-	EX	20/1	SPARE	-	-	-									C
13	-	-	-	BUSSED SPACE	-	-	-									A
15	-	-	-	BUSSED SPACE	-	-	-									B
17	-	-	-	BUSSED SPACE	-	-	-									C
19					#12											
21	-	ME	20/3	EWH-1	#12	-	3/4"									
23					#12											

CKT #	TYPE	NOTE	TRIP / POLE	DESCRIPTION	LOAD (KVA) LTG	REC	MTR	A/C	HTG	DATA	KIT	MISC	BRANCH CKT Ø	N	C
2	-	EX	20/1	SPARE									-	-	-
4	-	EX	20/1	SPARE									-	-	-
6	-	EX	20/1	BUSSED SPACE									-	-	-
8	-	-	-	BUSSED SPACE									-	-	-
10	-	-	-	BUSSED SPACE									-	-	-
12	-	-	-	BUSSED SPACE									-	-	-
14	-	-	-	BUSSED SPACE									-	-	-
16	-	-	-	BUSSED SPACE									-	-	-
18	-	-	-	BUSSED SPACE									-	-	-
20															
22	-	EX	-	EXIST. 30KVA XFMR ("P1")	50/3										
24															

LIGHTING (KVA):	4.8
RECEPTACLES (KVA):	27.7
MOTORS (KVA):	3.4
A/C (KVA):	0.0
HEATING (KVA):	0.0
DATA PROCESSING (KVA):	0.0
KITCHEN(KVA): 0 PIECES	0.0
MISCELLANEOUS (KVA):	15.6

4.7	0.0	2.6	0.0

PHASE BREAKDOWN

PHASE A	19	70.3
PHASE B	17	60.9
PHASE C	15	54.8
	KVA	AMPS
BASIS OF DESIGN:		
EATON CUTLER HAMMER		

0.0	0.0	0.0	0.0

4.0	A	9.0	0.0
4.0	B	9.9	0.8
4.0	C	8.8	0.0
		27.7	0.8

0.0	0.0	0.0	0.0

2.5	SR		
0.1	SR	SR	SR
1.0	SR		
3.6			

TYPES

ST =	SHUNT TRIP
GF =	GROUND FAULT
AF =	ARC FLASH
KK =	KIRK KEY

NOTES

EX =	EXISTING
ME =	MATCH EXISTING
SR =	SEE RISER(1-LINE)
ES =	SEE EQUIP. CONN. SCH.

CONNECTED LOAD (KVA):	51.5
DEMAND LOAD (KVA):	43.8
CONNECTED LOAD (AMPS):	61.9
DEMAND LOAD (AMPS):	52.7
AMPACITY REQUIRED:	52.7

NOTES:

P1

☐ NEW ☑ EXISTING — PANELBOARD SCHEDULE

RATING (AMPS): 100A — MAIN TYPE: THERMAL MAG — VOLTAGE: 208Y/120V — PHASE: 3 — NEUTRAL: 100% — WIRE: 4 — ENCLOSURE: NEMA 1 — MOUNTING: SURFACE — FEED THRU LUGS: NO — ISOLATED GND: NO — AIC: EXIST.

CKT #	TYPE	NOTE	TRIP / POLE	DESCRIPTION	BRANCH CKT Ø	N	C	LOAD (KVA) LTG	REC	MTR	A/C	HTG	DATA	KIT	MISC	PHASE
1	-	EX	20/1	RECEPT - PT AREA	#12	#12	3/4"	0.2								A
3	-	EX	20/1	RECEPT - PT AREA	#12	#12	3/4"	0.4							0.1	B
5	-	EX	20/1	RECEPT - PT AREA	#12	#12	3/4"	0.2								C
7	-	EX	20/1	RECEPT - PT AREA	#12	#12	3/4"	1.1								A
9	-	EX	20/1	RECEPT - PT AREA	#12	#12	3/4"	1.1								B
11	-	EX	20/1	RECEPT - PT AREA	#12	#12	3/4"	0.2								C
13					SR			0.0	2.9	0.0	0.0	0.0	0.0	0.0	0.0	A
15	-	EX	40/3	EXIST. PANEL P2	SR	SR	SR	0.0	2.0	0.0	0.0	0.0	0.0	0.0	0.0	B
17					SR			0.0	2.2	0.0	0.0	0.0	0.0	0.0	0.0	C
19	-	EX	20/1	RECEPT - PT AREA	#12	#12	3/4"		0.2							A
21	-	EX	20/1	RECEPT - PT AREA	#12	#12	3/4"		0.2							B
23	-	EX	20/1	RECEPT - PT AREA	#12	#12	3/4"		0.2							C
25	-	ME	20/1	RECEPT - CHARTING STATION	#12	#12	3/4"		0.2							A
27	-	ME	20/1	RECEPT - CHARTING STATION	#12	#12	3/4"		0.7							B
29	-	EX	20/1	RECEPT - CHARTING STATION	#12	#12	3/4"		0.7							C
31	-	EX	20/1	REFRIG - BREAKROOM	#12	#12	3/4"								0.5	A
33	-	EX	20/1	DISPOSER - BREAKROOM	#12	#12	3/4"			0.8						B
35	-	EX	20/1	RECEPT - MICROWAVE	#12	#12	3/4"								1.0	C
37	-	EX	20/1	RECEPT - COFFEE MAKER	#12	#12	3/4"								1.0	A
39	-	ME	20/1	RECEPT - SOUTH CORR	#12	#12	3/4"	0.5								B
41	-	ME	20/1	RECEPT - TREATMENT 1	#12	#12	3/4"	0.9								C

CKT #	TYPE	NOTE	TRIP / POLE	DESCRIPTION	LOAD (KVA) LTG	REC	MTR	A/C	HTG	DATA	KIT	MISC	BRANCH CKT Ø	N	C
2	-	EX	20/1	RECEPT - PT AREA		1.1							#12	#12	3/4"
4	-	EX	20/1	RECEPT - PT AREA		1.1							#12	#12	3/4"
6	-	EX	20/1	RECEPT - PT AREA		1.1							#12	#12	3/4"
8	-	EX	20/1	RECEPT - PT AREA		0.9							#12	#12	3/4"
10	-	EX	20/1	RECEPT - PT AREA		0.9							#12	#12	3/4"
12	-	EX	20/1	RECEPT - PT AREA		0.9							#12	#12	3/4"
14					0.0	0.0	0.0	0.0	0.0	0.0	0.0		#12	#12	3/4"
16	-	EX	40/3	EXIST. PANEL P2	SR	SR	SR	0.0	0.0	0.0	0.0	0.0	#12	#12	3/4"
18					0.0	0.0	0.0	0.0	0.0	0.0	0.0		#12	#12	3/4"
20	-	EX	20/1	RECEPT - PT AREA		1.1							#12	#12	3/4"
22	-	EX	20/1	RECEPT - PT AREA		1.1							#12	#12	3/4"
24	-	EX	20/1	RECEPT - PT AREA		1.1							#12	#12	3/4"
26	-	ME	20/1	RECEPT - CHARTING STATION		0.9							#12	#12	3/4"
28	-	ME	20/1	RECEPT - CHARTING STATION		0.7							#12	#12	3/4"
30	-	EX	20/1	RECEPT - CHARTING STATION		0.7							#12	#12	3/4"
32	-	EX	20/1	REFRIG - BREAKROOM		0.7							#12	#12	3/4"
34	-	EX	20/1	DISPOSER - BREAKROOM		1.1							#12	#12	3/4"
36	-	EX	20/1	RECEPT - MICROWAVE	1.0								#12	#12	3/4"
38	-	EX	20/1	RECEPT - COFFEE MAKER									-	-	-
40	-	ME	20/1	RECEPT - SOUTH CORR									-	-	-
42	-	ME	20/1	RECEPT - TREATMENT 1									-	-	-

LIGHTING (KVA):	0.1
RECEPTACLES (KVA):	27.7
MOTORS (KVA):	0.8
A/C (KVA):	0.0
HEATING (KVA):	0.0
DATA PROCESSING (KVA):	0.0
KITCHEN(KVA): 0 PIECES	0.0
MISCELLANEOUS (KVA):	3.6

0.0	13.7	0.8	0.0

PHASE BREAKDOWN

PHASE A	12	95.8
PHASE B	11	90.0
PHASE C	10	82.3
	KVA	AMPS
BASIS OF DESIGN:		
EATON CUTLER HAMMER		

0.0	0.0	0.0	0.0

2.6		0.1	14.0

0.0	0.0	0.0	0.0

1.0			

TYPES

ST =	SHUNT TRIP
GF =	GROUND FAULT
AF =	ARC FLASH
KK =	KIRK KEY

NOTES

EX =	EXISTING
ME =	MATCH EXISTING
SR =	SEE RISER(1-LINE)
ES =	SEE EQUIP. CONN. SCH.

CONNECTED LOAD (KVA):	32.2
DEMAND LOAD (KVA):	23.3
CONNECTED LOAD (AMPS):	89.3
DEMAND LOAD (AMPS):	64.7
AMPACITY REQUIRED:	64.7

NOTES:

P2

☐ NEW ☑ EXISTING — PANELBOARD SCHEDULE

RATING (AMPS): 100A — MAIN TYPE: THERMAL MAG — VOLTAGE: 208Y/120V — PHASE: 3 — NEUTRAL: 100% — WIRE: 4 — ENCLOSURE: NEMA 1 — MOUNTING: SURFACE — FEED THRU LUGS: NO — ISOLATED GND: NO — AIC: EXIST.

CKT #	TYPE	NOTE	TRIP / POLE	DESCRIPTION	BRANCH CKT Ø	N	C	LOAD (KVA) LTG	REC	MTR	A/C	HTG	DATA	KIT	MISC	PHASE
1	-	EX	20/1	SPARE	-	-	-									A
3	-	EX	20/1	SPARE	-	-	-									B
5	-	EX	20/1	SPARE	-	-	-									C
7	-	EX	20/1	SPARE	-	-	-									A
9	-	EX	20/1	SPARE	-	-	-									B
11	-	EX	20/1	SPARE	-	-	-									C
13	-	EX	20/1	SPARE	-	-	-									A
15	-	-	-	BUSSED SPACE	-	-	-									B
17	-	-	-	BUSSED SPACE	-	-	-									C
19	-	EX	20/1	SPARE	-	-	-									A
21	-	-	-	BUSSED SPACE	-	-	-									B
23	-	-	-	BUSSED SPACE	-	-	-									C

CKT #	TYPE	NOTE	TRIP / POLE	DESCRIPTION	LOAD (KVA) LTG	REC	MTR	A/C	HTG	DATA	KIT	MISC	BRANCH CKT Ø	N	C
2	-	EX	20/1	RECEPT - WAITING ROOM		0.7							#12	#12	3/4"
4	-	EX	20/1	RECEPT - CM OFFICE		0.7							#12	#12	3/4"
6	-	EX	20/1	RECEPT - EYE EXAM		0.9							#12	#12	3/4"
8	-	EX	20/1	RECEPT - AUDIO, BAT RM		0.7							#12	#12	3/4"
10	-	EX	20/1	RECEPT - PROCEDURE		0.7							#12	#12	3/4"
12	-	EX	20/1	RECEPT - PROCEDURE		0.7							#12	#12	3/4"
14	-	EX	20/1	RECEPT - PROCEDURE		0.7							#12	#12	3/4"
16	-	EX	20/1	RECEPT - STATION		0.2							#12	#12	3/4"
18	-	EX	20/1	RECEPT - STATION		0.5							#12	#12	3/4"
20	-	EX	20/1	RECEPT - STATION		0.7							#12	#12	3/4"
22	-	EX	20/1	RECEPT - PROCEDURE		0.4							#12	#12	3/4"
24	-	EX	20/1	SPARE									-	-	-

LIGHTING (KVA):	0.0
RECEPTACLES (KVA):	7.0
MOTORS (KVA):	0.0
A/C (KVA):	0.0
HEATING (KVA):	0.0
DATA PROCESSING (KVA):	0.0
KITCHEN(KVA): 0 PIECES	0.0
MISCELLANEOUS (KVA):	0.0

0.0	0.0	0.0	0.0

PHASE BREAKDOWN

PHASE A	3	24.0
PHASE B	2	16.5
PHASE C	2	18.0
	KVA	AMPS
BASIS OF DESIGN:		
EATON CUTLER HAMMER		

0.0	0.0	0.0	0.0

0.0	7.0	0.0	0.0

0.0	0.0	0.0	0.0

0.0			

TYPES

ST =	SHUNT TRIP
GF =	GROUND FAULT
AF =	ARC FLASH
KK =	KIRK KEY

NOTES

EX =	EXISTING
ME =	MATCH EXISTING
SR =	SEE RISER(1-LINE)
ES =	SEE EQUIP. CONN. SCH.

CONNECTED LOAD (KVA):	7.0
DEMAND LOAD (KVA):	7.0
CONNECTED LOAD (AMPS):	19.5
DEMAND LOAD (AMPS):	19.5
AMPACITY REQUIRED:	19.5

NOTES:

P3

☑ NEW ☐ EXISTING — PANELBOARD SCHEDULE

RATING (AMPS): 250A — MAIN TYPE: THERMAL MAG — VOLTAGE: 208Y/120V — PHASE: 3 — NEUTRAL: 100% — WIRE: 4 — ENCLOSURE: NEMA 1 — MOUNTING: SURFACE — FEED THRU LUGS: NO — ISOLATED GND: NO — AIC: 10K

CKT #	TYPE	NOTE	TRIP / POLE	DESCRIPTION	BRANCH CKT Ø	N	C	LOAD (KVA) LTG	REC	MTR	A/C	HTG	DATA	KIT	MISC	PHASE
1	-	-	20/1	RECEPT - LAB	#12	#12	3/4"	0.2								A
3	-	-	20/1	RECEPT - LAB	#12	#12	3/4"	0.2								B
5	-	-	20/1	RECEPT - LAB	#12	#12	3/4"	0.2								C
7	-	-	20/1	RECEPT - LAB	#12	#12	3/4"	0.9								A
9	-	-	20/1	RECEPT - EXAM 3	#12	#12	3/4"	1.1								B
11	-	-	20/1	RECEPT - EXAM 2	#12	#12	3/4"	1.1								C
13	-	-	20/3	RECEPT - EXAM 1	#12	#12	3/4"	1.1								A
15	-	-	20/1	RECEPT - NORTH CORRIDOR	#12	#12	3/4"	0.7								B
17	-	-	20/1	RECEPT - X-RAY	#12	#12	3/4"	1.0								C
19	-	-	20/1	SPARE												A
21	-	-	20/1	SPARE												B
23	-	-	20/1	SPARE												C
25	-	-	-	BUSSED SPACE	-	-	-									A
27	-	-	-	BUSSED SPACE	-	-	-									B
29	-	-	-	BUSSED SPACE	-	-	-									C
31	-	-	-	BUSSED SPACE	-	-	-									A
33	-	-	-	BUSSED SPACE	-	-	-									B
35	-	-	-	BUSSED SPACE	-	-	-									C
37	-	-	-	BUSSED SPACE	-	-	-									A
39	-	-	-	BUSSED SPACE	-	-	-									B
41	-	-	30/2	X-RAY LOADCENTER	SR	SR	SR									C

CKT #	TYPE	NOTE	TRIP / POLE	DESCRIPTION	LOAD (KVA) LTG	REC	MTR	A/C	HTG	DATA	KIT	MISC	BRANCH CKT Ø	N	C
2	-	-	15/1	EF-2		0.7							#12	#12	3/4"
4	-	-	-	SPARE									-	-	-
6	-	-	-	SPARE									-	-	-
8	-	-	-	SPARE									-	-	-
10	-	-	-	SPARE									-	-	-
12	-	-	-	SPARE									-	-	-
14	-	-	-	SPARE									-	-	-
16	-	-	-	SPARE									-	-	-
18	-	-	-	SPARE									-	-	-
20	-	-	-	SPARE									-	-	-
22	-	-	-	SPARE									-	-	-
24	-	-	-	SPARE									-	-	-
26	-	-	-	BUSSED SPACE	-	-	-						-	-	-
28	-	-	-	BUSSED SPACE	-	-	-						-	-	-
30	-	-	-	BUSSED SPACE	-	-	-						-	-	-
32	-	-	-	BUSSED SPACE	-	-	-						-	-	-
34	-	-	-	BUSSED SPACE	-	-	-						-	-	-
36	-	-	-	BUSSED SPACE	-	-	-						-	-	-
38	-	-	-	BUSSED SPACE	-	-	-						-	-	-
40	-	-	-	BUSSED SPACE	-	-	-						-	-	-
42	-	-	-	BUSSED SPACE	-	-	-						-	-	-

SUB FEED BREAKER

SUB	-	-	150/3	X-RAY	SR	SR	SR						16.7	A		
					SR								16.7	B		
					SR								16.7	C		

LIGHTING (KVA):	0.0
RECEPTACLES (KVA):	6.4
MOTORS (KVA):	0.7
A/C (KVA):	0.0
HEATING (KVA):	0.0
DATA PROCESSING (KVA):	0.0
KITCHEN(KVA): 0 PIECES	0.0
MISCELLANEOUS (KVA):	50.0

0.0	6.4	0.0	0.0

PHASE BREAKDOWN

PHASE A	3	23.8
PHASE B	2	16.5
PHASE C	2	18.8
	KVA	AMPS
BASIS OF DESIGN:		
EATON CUTLER HAMMER		

0.0	0.0	0.0	0.0

50.0	0.0	0.0	0.7

0.0	0.0	0.0	0.0

0.0			

TYPES

ST =	SHUNT TRIP
GF =	GROUND FAULT
AF =	ARC FLASH
KK =	KIRK KEY

NOTES

EX =	EXISTING
ME =	MATCH EXISTING
SR =	SEE RISER(1-LINE)
ES =	SEE EQUIP. CONN. SCH.

CONNECTED LOAD (KVA):	57.1
DEMAND LOAD (KVA):	57.1
CONNECTED LOAD (AMPS):	158.5
DEMAND LOAD (AMPS):	158.5
AMPACITY REQUIRED:	158.5

NOTES:

REGISTERED PROFESSIONAL ENGINEER — KEVIN M SOTO — No. E21028 — ELECTRICAL — STATE OF CALIFORNIA

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333 HEGENBERGER ROAD
OAKLAND, CA

ELECTRICAL - PANEL SCHEDULES

DATE	REMARKS
12.04.2017	ISSUE FOR PLAN CHECK

DATE	REMARKS

PA / PM:	JDS
DRAWN BY:	KS
JOB NO.:	SNR16--6088--00

SHEET
E1.1

CAUTION: IF THIS SHEET IS NOT 30"x42" IT IS A REDUCED PRINT

260500 - GENERAL REQUIREMENTS

A. ALL WORK SHALL COMPLY WITH REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE, LOCAL BUILDING CODE AND BUILDING MANAGEMENT RULES AND REGULATIONS. CONTRACTOR IS TO INFORM ENGINEER OF ANY EXISTING WORK OR MATERIALS THAT VIOLATE ANY OF THE ABOVE LAWS AND REGULATIONS. ANY WORK DONE BY THE CONTRACTOR CAUSING SUCH VIOLATION SHALL BE CORRECTED AT CONTRACTOR'S EXPENSE BY THIS CONTRACTOR AND AT NO EXPENSE TO THE OWNER.

B. ALL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE EXISTING BUILDING CONSTRUCTION STANDARDS.

C. PRIOR TO SUBMISSION OF BID, THIS CONTRACTOR SHALL VISIT THE JOB SITE TO ASCERTAIN THE ACTUAL FIELD CONDITIONS AS THEY RELATE TO THE WORK AS INDICATED ON THE DRAWINGS AND DESCRIBED HEREIN. DISCREPANCIES IF ANY, SHALL BE BROUGHT TO THE ENGINEER'S ATTENTION PRIOR TO SUBMISSION OF HIS BID, AND IF NOT RESOLVED TO SATISFACTION SHALL BE SUBMITTED AS A WRITTEN QUALIFICATION OF THE BID. SUBMISSION OF A BID SHALL BE EVIDENCE THAT SITE VERIFICATION HAS BEEN PERFORMED AS DESCRIBED ABOVE. REQUEST FOR ADDITIONAL COMPENSATION DUE TO CONTRACTOR'S FAILURE TO EXAMINE THE SITE PRIOR TO SUBMISSION OF BID SHALL NOT BE CONSIDERED.

D. DRAWINGS ARE DIAGRAMMATIC AND INDICATE GENERAL ARRANGEMENT OF WORK AND APPROXIMATE LOCATION OF EQUIPMENT. REFER TO ARCHITECTURAL DRAWINGS FOR ALL DIMENSIONS FOR FINAL LOCATIONS OF EQUIPMENT AND DEVICES, ETC. WORK SHALL BE COORDINATED WITH OTHER TRADES TO AVOID CONFLICTS. IF A CONFLICT OCCURS IN THE SPECIFICATIONS AND/OR ON THE DRAWINGS, THE MORE STRINGENT SITUATION SHALL APPLY.

E. PRIOR TO SUBMISSION OF BID, THIS CONTRACTOR SHALL REVIEW ALL DRAWINGS OF THE ENTIRE PROJECT INCLUDING GENERAL CONSTRUCTION, DEMOLITION, ARCHITECTURAL, MECHANICAL, ELECTRICAL, AND PLUMBING, AND SHALL INCLUDE ANY WORK REQUIRED IN THE BID THAT IS INDICATED OR IMPLIED TO BE PERFORMED BY THIS TRADE IN OTHER SECTIONS OF THE WORK.

F. ANY EQUIPMENT, PARTS, MATERIALS, ACCESSORIES, OR LABOR THAT IS NECESSARY FOR PROPER PERFORMANCE OF THE ELECTRICAL WORK, ALTHOUGH NOT SPECIFICALLY MENTIONED HEREIN, OR SHOWN ON THE DRAWINGS, SHALL BE FURNISHED AND INSTALLED AS IF CALLED FOR IN DETAIL WITHOUT ADDITIONAL COST.

G. ALL MATERIALS AND WORKMANSHIP SHALL BE GUARANTEED FOR A PERIOD OF ONE YEAR FROM DATE OF FINAL ACCEPTANCE OF THIS WORK. FINAL ACCEPTANCE SHALL BE DEFINED AS THE TIME THAT THE ELECTRICAL WORK IS TAKEN OVER AND ACCEPTED BY THE OWNER, AND IS UNDER CARE, CUSTODY, AND CONTROL OF THE OWNER. ENGAGE THE SERVICES OF VARIOUS MANUFACTURERS SUPPLYING THE EQUIPMENT FOR THE PROPER STARTUP AND OPERATION AND SERVICING OF THE EQUIPMENT.

H. ALL MATERIALS SHALL BE NEW AND SHALL CONFORM TO THE STANDARDS OF THE UNDERWRITERS' LABORATORIES INC. MATERIALS SHALL BE FABRICATED IN ACCORDANCE WITH THE SPECIFICATIONS AND APPROVED RULES AND REGULATIONS OF NEMA AND SHALL BEAR THE UL INSPECTION LABEL. MATERIAL AND APPARATUS FOR LIKE SHALL BE BY THE SAME MANUFACTURER.

I. PROVIDE ALL LABOR, MATERIALS, EQUIPMENT AND CONTRACTOR'S SERVICES NECESSARY FOR COMPLETE, SAFE INSTALLATION OF ALL ELECTRICAL WORK. THE SCOPE OF WORK SHALL INCLUDE, BUT NOT BE LIMITED TO THE FOLLOWING:

1. DISCONNECTION AND REMOVAL OF ELECTRICAL EQUIPMENT AS REQUIRED FOR NEW INSTALLATION, INCLUDING ALL CONDUCTORS AND CONDUIT BACK TO THEIR SOURCE. (SEE DEMOLITION NOTE)
2. PROVIDING OF LIGHT FIXTURES AND LAMPS INCLUDING EXIT AND EMERGENCY LIGHTING AND ALL ASSOCIATED COMPONENTS AND BRANCH CIRCUITING. PROVIDE FLUORESCENT LIGHT FIXTURES WITH ELECTRONIC BALLASTS CLASS P, HIGH POWER FACTOR ETL AND CBM APPROVeD.
3. PROVIDING OF NEW RACEWAY AND CONDUCTORS FOR LIGHTING AND POWER.
4. CUTTING, CHANNELING AND CHASING REQUIRED TO ACCOMMODATE THE ELECTRICAL INSTALLATION AND ROUGH PATCHING.
5. ADDITIONS AND MODIFICATIONS TO EXISTING ELECTRICAL POWER DISTRIBUTION EQUIPMENT AND RELATED FEEDERS.
6. PROVIDING OF HVAC POWER WIRING AND FINAL CONNECTIONS TO HVAC EQUIPMENT.
7. PROVIDING OF CONDUIT, JUNCTION BOXES, PULL BOXES, ETC., REQUIRED FOR THE AFOREMENTIONED EQUIPMENT.
8. MAINTENANCE AND PROPER OPERATION OF EXISTING BASE BUILDING SYSTEMS WITHIN THE CONTRACT AREA DURING CONSTRUCTION IN ACCORDANCE WITH THE REQUIREMENTS OF BUILDING MANAGEMENT.
9. GROUNDING OF ALL EQUIPMENT AS REQUIRED BY NATIONAL ELECTRICAL CODE AND AS SHOWN ON THE DRAWINGS.
10. MAINTAIN CONTINUITY OF EXISTING CIRCUITING TO ADJACENT AREAS NOT AFFECTED BY THE NEW WORK.
11. PROVIDING TELEPHONE/DATA AND SIGNAL EMPTY CONDUIT, PULLBOXES, OUTLETS, SLEEVES AND FISHWIRES.
12. COORDINATE WITH BUILDING FIRE ALARM MAINTENANCE CONTRACTOR AND PROVIDE ALL REQUIRED ADDITIONS AND MODIFICATIONS TO THE EXISTING BUILDING FIRE ALARM SYSTEM.
13. PROVIDING RECEPTACLES, LIGHT SWITCHES, DISCONNECT SWITCHES, FUSES, DIMMERS, OUTLET BOXES, CONTACTORS AND OTHER WIRING DEVICES INCLUDING RELATED BRANCH CIRCUIT WIRING.
14. PROVIDING ENGRAVED LAMICOID NAMEPLATES FOR NEW PANELBOARDS, SWITCHES, CABINETS, MOTOR STARTERS, ETC.

J. PERFORM ANY NOISY WORK (E.G., CHOPPING, CORE DRILLING, DEMOLITION, ETC.) AND BASE BUILDING SYSTEM TEMPORARY SHUTDOWNS OUTSIDE OF NORMAL BUSINESS HOURS ON SAFE TIME (PREMIUM TIME). SAFE TIME WORK SHALL BE PERFORMED WHEN AND AS DIRECTED BY THE BUILDING MANAGEMENT.

K. FOLLOW THE GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION AIA DOCUMENT A201 LATEST EDITION, OR AS REQUIRED BY THE ARCHITECTS DOCUMENTS AND/OR ENGINEERS DOCUMENTS.

L. SUBMIT SHOP DRAWINGS CERTIFIED BY ALL TRADES THAT COORDINATION HAS BEEN ESTABLISHED. SUBMIT ALL CERTIFIED EQUIPMENT CUTS WITH CONSTRUCTION WIRING DIAGRAMS. PROVIDE A MINIMUM OF SIX (6) COPIES OF 8-1/2"X11" SUBMISSIONS AND ONE (1) REPRODUCIBLE AND ONE (1) PRINT OF ALL DRAWINGS.

SUBMIT SHOP DRAWINGS FOR THE FOLLOWING ELECTRONICALLY TO SUBMITTALSDC@WBENGINEERING.COM, AS WELL AS THE WB PROJECT MANAGER:

1. LIGHTING FIXTURES AND LAMPS.
2. SWITCHES AND FUSES.
3. PANELBOARDS AND CIRCUIT BREAKERS.
4. WIRING DEVICES.
5. ANY OTHER ITEM THAT MAY BE REQUIRED BY ARCHITECT.

M. SUBMIT FOUR (4) LOOSE-LEAF BOUND OPERATING AND MAINTENANCE MANUALS WITH INDEX AND INDEX TABS TO INCLUDE ALL SHOP DRAWINGS AND OPERATING AND MAINTENANCE INSTRUCTIONS ON ALL SYSTEMS.

N. CONTRACTOR SHALL REVISE DRAWINGS TO CONFORM TO RECORD DRAWINGS AND SUBMIT AS-BUILT CONDITION (DEVICES, EQUIPMENT, CIRCUITRY, ETC.), DRAWINGS UPON COMPLETION OF THE PROJECT. FINAL SUBMISSION OF REPRODUCIBLE AND ACAD DISKETTE OF AS-BUILT DRAWINGS ARE TO BE SUBMITTED TO THE OWNER AND WB ENGINEERS AND CONSULTANTS FOR REVIEW AND RECORDS.

O. SUBSTITUTE MATERIAL OR MANUFACTURER OF EQUIPMENT SHALL NOT BE PERMITTED WITHOUT A FORMAL WRITTEN SUBMITTAL TO THE ENGINEER THAT INCLUDES ALL DIMENSIONAL, PERFORMANCE AND MATERIAL SPECIFICATIONS. ANY CHANGES IN LAYOUT, ELECTRICAL CHARACTERISTICS, STRUCTURAL REQUIREMENTS, OR DESIGN DUE TO THE USE OF A SUBSTITUTION SHALL BE SUBMITTED TO THE ENGINEER AS PART OF THIS PROPOSAL. THE CONTRACTOR TAKES FULL RESPONSIBILITY FOR THE SUBSTITUTION AND ALL CHANGES RESULTING FROM SUBSTITUTION.

P. REMOVAL, TEMPORARY CONNECTIONS AND RELOCATION OF CERTAIN EXISTING WORK WILL BE NECESSARY FOR THE INSTALLATION OF THE NEW SYSTEMS. ALL EXISTING CONDITIONS ARE NOT COMPLETELY DETAILED ON THE DRAWINGS. THE CONTRACTOR SHALL SURVEY THE SITE AND MAKE ALL NECESSARY CHANGES REQUIRED BASED ON EXISTING CONDITIONS FOR PROPER INSTALLATION OF NEW WORK.

Q. PLAN INSTALLATION OF NEW WORK AND CONNECTIONS TO EXISTING WORK TO INSURE MINIMUM INTERFERENCE WITH REGULAR OPERATION OF EXISTING FACILITIES. ALL SYSTEM SHUTDOWNS AFFECTING OTHER AREAS SHALL BE COORDINATED WITH BUILDING MANAGEMENT. PROVIDE TEMPORARY FEEDERS, CIRCUITRY, ETC., AS REQUIRED TO MINIMIZE DOWNTIME.

R. DEFINITIONS:

1. "ELECTRICAL CONTRACTOR", "THIS CONTRACTOR" - THE PARTY OR PARTIES HAVE BEEN DULY AWARDED THE CONTRACT FOR AND ARE THEREBY MADE RESPONSIBLE FOR THE ELECTRICAL WORK AS DESCRIBED HEREIN.
2. "ARCHITECT", "ENGINEER", "OWNER'S REPRESENTATIVE" - THE PARTY OR PARTIES RESPONSIBLE FOR INTERPRETING, ACCEPTING AND OTHERWISE RULING ON THE PERFORMANCE UNDER THIS CONTRACT.
3. "FURNISH" - PURCHASE AND DELIVER TO THE PROJECT SITE COMPLETE WITH EVERY NECESSARY APPURTENANCE AND SUPPORT, ALL AS PART OF THE ELECTRICAL WORK.
4. "INSTALL" - UNLOAD AT THE DELIVERY POINT AT THE SITE AND PERFORM EVERY OPERATION NECESSARY TO ESTABLISH SECURE MOUNTING INSTALLATION AND CORRECT OPERATION AT THE PROPER LOCATION IN THE PROJECT, ALL AS PART OF THE ELECTRICAL WORK.
5. "PROVIDE" - "FURNISH" AND "INSTALL"
6. "RELOCATE" - MOVE EXISTING EQUIPMENT/DEVICES/FIXTURE AND ALL ACCESSORIES AS REQUIRED, INCLUDING THE EXTENSION OF EXISTING OR PROVIDING NEW CIRCUIT/CONDUCTORS/WIRING AS REQUIRED.
7. "REMOVE" - DISMANTLE AND CART AWAY FROM SITE INCLUDING ALL RELATED ACCESSORIES. ALL OTHER EQUIPMENT AND OPERATIONS IN ANY WAY EFFECTED BY THE REMOVAL IS TO REMAIN IN FULL OPERATION. PROVIDE ALL NECESSARY COMPONENTS TO MAINTAIN SUCH OPERATION.

S. ACCEPTABLE MANUFACTURERS:
DISCONNECT SWITCHES: ITE, CUTLER HAMMER, GE OR SQUARE "D"
FUSES: BUSSMAN, GOULD SHAWMUTT
RACEWAY: NTIONAL WIRE PRODUCTS, TRIANGLE OR REPUBLIC
WIRE/CABLE: ROME PHELPS DOGGE, GENERAL CABLE, SIMPLEX
PANELBOARDS: ITE, SQUARE 'D', GE, OR CUTLER HAMMER.
JUNCTION/PULL BOXES: APPLETOWN ELECTRIC, CROUSE HINDS OR O.Z./ GEDNEY CO.
FIRE STOP MATERIAL: HILTI, 3M (NOTE: MATERIAL MUST BE ACCEPTABLE TO LOCAL AHJ)
FITTINGS, COUPLINGS, BUSHINGS, CONNECTORS: OZ GEDNEY, BURNDY, NEPCO, THOMAS AND BETTS

ABBREVIATIONS

A	AMP/AMPERE	KVA	KILOVOLTAMPERE
AFF	ABOVE FINISH FLOOR	KW	KILOWATT
ATS	AUTOMATIC TRANSFER SWITCH	LTG	LIGHTING
AWG	AMERICAN WIRE GAUGE	MCB	MAIN CIRCUIT BREAKER
CB	CIRCUIT BREAKER	KCMIL	THOUSAND CIRCULAR
CKT	CIRCUIT	MLO	MAIN LUGS ONLY
CO	CONDUIT ONLY	MTD	MOUNTED
CU	COPPER	N	NEUTRAL
DISC	DISCONNECT	NTS	NOT TO SCALE
E	EXISTING	PB	PULL BOX
ELEC	ELECTRICAL	PNL	PANELBOARD
EM	EMERGENCY	PWR	POWER
FA	FIRE ALARM	SD	SMOKE DETECTOR
FBO	FURNISHED BY OTHERS	SWBD	SWITCHBOARD
GFI/GF		GROUND FAULT INTERRUPTER	
TYP	TYPICAL		
GRD	GROUND	UF	UNFUSED
HZ	HERTZ	UON	UNLESS OTHERWISE NOTED
IG	ISOLATED GROUND	W	WIRE
JB	JUNCTION BOX	WP	WEATHERPROOFE

260519 - WIRE AND CABLE

A. ALL CONDUCTORS SHALL BE COPPER, TYPE THHN/THWN INSULATED. ALL CONDUCTORS SHALL HAVE 600 VOLT RATED INSULATION. CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID WIRE. CONDUCTORS AND #8 AWG AND LARGER SHALL BE STRANDED WIRE.

B. METAL CLAD CABLE (TYPE MC) IS PERMISSIBLE FOR CONCEALED BRANCH CIRCUITRY WHERE PERMITTED BY CODE AND BUILDING MANAGEMENT.

C. BRANCH CIRCUIT WIRE SIZE: THE MINIMUM WIRE SIZE FOR BRANCH CIRCUIT SHALL BE #12 AWG EXCEPT 120 VOLT CIRCUITS OVER 80 FEET IN LENGTH SHALL BE 10# AWG. REFER TO DRAWINGS FOR FURTHER WIRE SIZING INFORMATION.

D. PROVIDE ALL BRANCH CIRCUITS WITH DEDICATED GROUND WIRES.

E. COLOR CODING OF 120/208 VOLT WIRING SYSTEM:

1. BLACK FOR A PHASE
2. RED FOR B PHASE
3. BLUE FOR C PHASE
4. WHITE FOR NEUTRAL
5. GREEN FOR EQUIPMENT GROUND

F. COLOR CODING OF 277/480 VOLT WIRING SYSTEM:

1. BROWN FOR A PHASE
2. YELLOW FOR B PHASE
3. ORANGE FOR C PHASE
4. WHITE FOR NEUTRAL
5. GREEN FOR EQUIPMENT GROUND

G. PROVIDE FLAMEPROOF IDENTIFICATION TAGS IN ALL JUNCTION BOXES, PULL BOXES AND PANELBOARDS FOR ALL FEEDERS, BRANCH CIRCUIT AND CONTROL WIRING. TAGS SHALL IDENTIFY CONDUCTOR SIZES, SOURCE AND TERMINATION POINTS.

H. INSTALL NO MORE THAN 3 LIGHTING OR CONVENIENCE BRANCH CIRCUITS IN ONE CONDUIT OR HOMERUN UNLESS OTHERWISE NOTED.

260526 - GROUNDING AND BONDING OF ELECTRICAL SYSTEMS

A. EQUIPMENT: GROUND NON-CURRENT CARRYING METAL PARTS OF THE ELECTRICAL SYSTEM. PROVIDE A SEPARATE GREEN INSULATED EQUIPMENT GROUNDING CONDUCTOR WITH ALL FEEDERS AND BRANCH CIRCUITS, SIZED IN ACCORDANCE WITH THE OVER CURRENT PROTECTIVE DEVICE SERVING THAT FEEDER OR BRANCH CIRCUIT.

260533 - RACEWAY

A. CONDUIT FOR BRANCH CIRCUIT SHALL BE THIN WALL TUBING (EMT), WITH COMPRESSION FITTINGS SIZED PER DRAWING, 3/4" MINIMUM. (MAXIMUM 3 CIRCUITS PER HOMERUN EXCEPT AS NOTED). USE RIGID GALVANIZED STEEL CONDUIT FOR FIRE ALARM POWER RISER.

B. FLEXIBLE STEEL CONDUIT MAY BE USED ONLY FOR:

1. SHORT CONNECTIONS WHERE RIGID CONDUIT IS IMPRACTICABLE.
2. FROM OUTLET BOX TO RECESSED LIGHTING FIXTURE: MINIMUM 4 FT. MAXIMUM 6 FT. LENGTHS.
3. FOR FINAL CONNECTION TO MOTOR TERMINAL BOX. TRANSFORMERS AND OTHER VIBRATING EQUIPMENT: WITH POLYVINYL SHEATHING AND GROUND CONDUCTOR. MINIMUM LENGTH 18 IN. WITH SLACK. CONNECT GROUND CONDUCTOR TO ENCLOSURE OR RACEWAY AT EACH END.
4. FOR EXPANSION JOINT CROSSINGS, CROSS AT RIGHT ANGLES AND ANCHOR ENDS.
5. CONNECT GROUND CONDUCTOR TO ENCLOSURE OR RACEWAY AT EACH END.

C. EXPANSION FITTINGS: INSTALL AT RIGHT ANGLES WITH CLIP CENTERED IN EXPANSION JOINT. PROVIDE LENGTH OF RUNS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

D. RACEWAYS PASSING THROUGH FIRE-RATED CONSTRUCTION: SEAL OPENING WITH FIRE SEALANT AS REQUIRED TO MAINTAIN THE EXISTING FIRE RATING.

E. PROVIDE FISH OR PULL WIRE IN ALL EMPTY CONDUITS OVER 10 FEET LONG.

F. MAINTAIN GROUND CONTINUITY OF ALL INTERRUPTED RACEWAYS WITH GROUND CONDUCTOR.

G. ALL WIRING WITHIN ELECTRICAL CLOSET AND IN BUILDINGS CORE CEILINGS SHALL BE INSTALLED IN CONDUIT.

H. INSTALL ACCESSIBLE JUNCTION AND PULLBOXES CLEAR OF OTHER TRADES AND SUPPORTED FROM BUILDING STRUCTURE INDEPENDENT OF CONDUIT.

260534 - PULL BOXES, JUNCTION BOXES AND OUTLET BOXES

A. PULLBOXES, JUNCTION BOXES AND OUTLET BOXES SHALL BE MANUFACTURED FROM GALVANIZED INDUSTRY STANDARD GAUGE SHEET STEEL.

B. PROVIDE PULL BOXES AND JUNCTION BOXES IN LONG STRAIGHT RUNS OF RACEWAY TO ASSURE THAT CABLES ARE NOT DAMAGED WHEN THEY ARE PULLED, TO FULFILL REQUIREMENTS AS TO THE NUMBER OF BENDS PERMITTED IN RACEWAY BETWEEN CABLE ACCESS POINTS, THE ACCESSIBILITY OF CABLE JOINTS AND SPLICES, AND THE APPLICATION OF CABLE SUPPORTS.

C. PULLBOXES AND JUNCTION BOXES SHALL BE SIZED SO THAT THE MINIMUM BENDING RADIUS CRITERIA SPECIFIED FOR THE WIRES AND CABLE ARE MAINTAINED.

D. ALL EQUIPMENT, DEVICE BOXES, JUNCTION BOXES, PULLBOXES AND OUTLET BOXES SHALL BE INSTALLED SO AS TO ALLOW ACCESS TO THE BOX. IF NECESSARY AND APPROVED BY ARCHITECT, PROVIDE ACCESS DOOR OR COVERPLATES IN AREAS WHERE UNOBSTRUCTED ACCESS IS NOT POSSIBLE.

E. USE WEATHERPROOF BOXES, JUNCTION BOXES AND DEVICES FOR ALL REQUIRED WEATHERPROOF INSTALLATION.

260535 - TELEPHONE AND DATA EMPTY CONDUIT SYSTEM

A. PROVIDE LABOR, MATERIALS AND SERVICES FOR A COMPLETE AND SAFE INSTALLATION IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND ALL APPLICABLE CODES AND AUTHORITIES HAVING JURISDICTION FOR THE SYSTEM INCLUDING THE FOLLOWING:

1. CONDUIT
2. PULL BOXES
3. OUTLET BOXES
4. SLEEVES

B. PROVIDE PLASTER RING FOR RECESSED MOUNTED DEVICE WITH TWO PULL STRINGS TO ACCESSIBLE CEILING PLENUM FOR NON-INSULATED WALLS.

C. FOR ALL INSULATED PARTITIONS AND WALLS, PROVIDE RECESSED DEVICE BOX WITH 3/4" CONDUIT WITH TWO PULL STRINGS TO ACCESSIBLE CEILING PLENUM.

D. ALL RACEWAY SHALL BE EMT WITH BUSHED TERMINATIONS AT HUNG CEILING WITH TWO PULL STRINGS.

262200 - DRY-TYPE TRANSFORMERS

A. THREE PHASE TRANSFORMERS SHALL BE 480 VOLT DELTA PRIMARY, 120Y/208V, 3 PHASE, 4 WIRE SECONDARY, U.O.N. TRANSFORMERS 30 kVA AND LARGER SHALL HAVE A MINIMUM OF 2 1/2 PERCENT FULL CAPACITY TAPS ABOVE AND FOUR 2 1/2 PERCENT FULL CAPACITY TAPS BELOW NORMAL RATED PRIMARY VOLTAGES.

B. TRANSFORMERS 30 kVA AND ABOVE SHALL BE 150° C TEMPERATURE RISE ABOVE 40° C AMBIENT U.O.N.

C. CLASS 220 INSULATION.

D. TRANSFORMERS SHALL COMPLY WITH ST20 AND UL 1561.

E. TRANSFORMERS 25 kVA AND LARGER SHALL BE IN A HEAVY GAUGE SHEET STEEL, VENTILATED ENCLOSURE, IN ACCORDANCE WITH UL, NEMA, AND NATIONAL ELECTRICAL CODE STANDARDS FOR VENTILATED ENCLOSURE.

F. TRANSFORMER WINDINGS SHALL BE OF COPPER, WITHOUT SPLICES, EXCEPT FOR TAPS.

262416 - PANELBOARDS

A. FURNISH AND INSTALL THREE-PHASE, 4 WIRE COPPER BUS PANELBOARDS AS INDICATED ON PANEL SCHEDULES.

B. PANELBOARDS SHALL BE IN INSTALLED IN ENCLOSURES FABRICATED OF CODE GAUGE GALVANIZED SHEET STEEL WITHOUT KNOCKOUTS.

C. ALL MAIN AND BRANCH BUS BARS, NEUTRAL AND GROUND BUS BARS, CABLE LUGS AND ALL CONNECTORS TO BE MADE OF COPPER. PANELBOARD BUS BARS SHALL BE COPPER AND PROPORTIONED FOR A CURRENT DENSITY OF 1000 AMPERES PER SQUARE INCH OF CROSS SECTIONAL AREA.

D. THE MAIN AND BRANCH CIRCUIT OVERCURRENT PROTECTIVE DEVICE SHALL BE MOLDED CASE CIRCUIT BREAKERS, LISTED IN ACCORDANCE WITH UL 489 AND WITH INTERRUPTING CAPACITY TO MEET AVAILABLE FAULT CURRENTS. THE CIRCUIT BREAKERS SHALL BE THERMAL-MAGNETIC WITH INVERSE TIME-CURRENT ELEMENT FOR LOW LEVEL OVERLOADS AND INSTANTANEOUS MAGNETIC TRIP FOR SHORT CIRCUITS. FOR BRANCH CIRCUITS PROVIDE BOLT-ON TYPE BREAKERS FOR FRAMES 125 A OR SMALLER.

E. CIRCUIT WIRING IN PANELBOARDS SHALL BE TRIMMED AND DRESSED IN A NEAT AND WORKMANLIKE MANNER. ALL WIRING SHALL BE TAGGED. PANELBOARDS SHALL BE PROVIDED WITH A DETAILED TYPE WRITTEN DIRECTORY.

F. CABINETS: CODE GAUGE GALVANIZED STEEL WITH DOOR IN DOOR LOCKABLE TRIM. LAP AND RIVET CORNERS OR FORM AS APPROVED. BACKBOX AND TRIM TO BE PRIMED AND PAINTED WITH GRAY ENAMEL. PANEL TRIM (OUTER DOOR) SHALL BE MOUNTED VIA TRIM CLAMPS OR SHALL BE SCREW MOUNTED. DOOR SHALL BE MOUNTED WITH FULL LENGTH PIANO HINGES AND SHALL BE PROVIDED WITH MULTI-PIN CYLINDER LOCKS WITH MILLED KEYS. ALL PANELS TO BE KEYED ALIKE, AND KEYS TO BE CUT AS DIRECTED.

G. DIRECTORY HOLDER: METAL FRAME WITH NON-BREAKABLE TRANSPARENT COVER AND DIRECTORY CARD. PROVIDE TYPEWRITTEN PANELBOARD CIRCUIT DIRECTORY ON THE INSIDE OF THE DOOR AND UPDATE EXISTING PANELBOARD DIRECTORIES AS REQUIRED BY NEW WORK.

H. 120/208 VOLT PANELS: MINIMUM SHORT CIRCUIT RATING 10,000 AMPERES, RMS SYMMETRICAL, 277/480 VOLT PANELS: MINIMUM SHORT CIRCUIT RATING 14,000AMPERES, RMS SYMMETRICAL.

I. MINIMUM GUTTER SPACE: BOX SHALL BE OF SUFFICIENT SIZE TO ALLOW A GUTTER AT LEAST 5-3/4" IN WIDTH ENTIRELY SURROUNDING EACH SECTION OF BOARD. INCREASE GUTTER SIZE TO ACCOMMODATE FEEDER AND FEEDER TAPS.

J. PANELS SHALL HAVE ENGRAVED WHITE CORE, BLACK LAMICOID NAMEPLATE AFFIXED WITH EPOXY CEMENT. RATINGS OF BRANCH CIRCUIT BREAKERS AS SCHEDULED ON PANEL SCHEDULES.

262726 - WIRING DEVICES

A. WIRING DEVICES SHALL BE OF THE COMMERCIAL SPECIFICATION GRADE. ALL DEVICES AND PLATES SHALL BE PLUMB AND FLUSH MOUNTED, UNLESS OTHERWISE NOTED.

B. SWITCHES SHALL BE 120/277 VOLTS, RATED AT 20 AMPERES, QUITE OPERATION DECORA TYPE, SIMILAR TO LEVITON CAT #5621 COLOR AND DEVICE PLATES AS SELECTED BY ARCHITECT.

C. 20 AMP RECEPTACLES SHALL BE 125 VOLT DECORA NEMA 5-20R.

D. ALL RECEPTACLES AND COVERPLATES COLOR SHALL BE AS SELECTED BY ARCHITECT U.O.N.

262727 - SWITCHES, FUSES AND CIRCUIT BREAKERS

A. SWITCHES SHALL BE QUICK-BREAK HEAVY DUTY IN NEMA 1 ENCLOSURE, FUSED OR UNFUSED, AS INDICATED ON THE DRAWINGS. FUSES FOR SWITCHES SHALL BE CURRENT LIMITING TYPE WITH AN INTERRUPTING CAPACITY OF 200,000 RMS AMPERES AND OF THE CONTINUOUS CURRENT RATING AS SHOWN ON THE DRAWINGS.

B. CIRCUIT BREAKERS SHALL BE 'THERMAL MAGNETIC' TYPE, QUICK-MAKE, QUICK-BREAK WITH NON-WELDING CONTACTS COMPENSATED FOR AMBIENT TEMPERATURES AND SHALL HAVE A MINIMUM SHORT CIRCUIT RATING OF 10,000 AMPERES SYMMETRICAL FOR 120/280V PANELS AND 14,000 AMPERES FOR 277/480V.

265100 - LIGHTING FIXTURES AND LAMPS

A. BALLASTS/DRIVERS AND LAMPS SHALL BE ENERGY EFFICIENT COMPLYING WITH THE STATE ENERGY CODE.

1. PROVIDE COMPLETE LIGHT FIXTURES WITH ASSOCIATED LAMPS, MOUNTING ACCESSORIES ETC. AS PER ARCHITECTS SPECIFICATIONS. ALL EMERGENCY LIGHT FIXTURES SHALL MEET LOCAL BUILDING CODE REQUIREMENTS.

B. WIRING:

1. LUMINAIRE WIRING: 600 VOLT, 302 DEG F, TYPE SFF-2, BEGINNING AT SEPARATELY MOUNTED OUTLET PERMITTED.
2. SPLICES: MECHANICAL BORING PRESSURE CONNECTOR OR CRIMP CONNECTOR, WIRE NUTS NOT BOX.
3. FIXTURES FED FROM MORE THAN ONE PANEL: SEPARATE NEUTRAL TO EACH PANEL.
4. FLEXIBLE CONDUIT CONNECTIONS FOR RECESSED FIXTURES, MAXIMUM LENGTH: 6 FT. 0 IN.

C. SUPPORTS:

1. INDIVIDUAL FIXTURES: CARRY WEIGHT OF FIXTURE TO BUILDING CONSTRUCTION, CLEAR OF DUCTS OR PIPES.
2. PENDANT-MOUNTED FIXTURES: WITH CONDUIT STEMS SUPPORTED TO CEILING FRAMEWORK SELF-LEVELING FITTINGS.

D. BASE BID MANUFACTURES

1. BASE BID FOR LIGHTING FIXTURES SHALL BE BASED ON MANUFACTURERS LISTED IN LIGHTING FIXTURES SCHEDULE.

E. ELECTRONIC BALLASTS

1. PROVIDE UL LISTED CLASS P, "A" SOUND RATED BALLASTS WITH HIGH POWER FACTOR WITH REQUIRED VOLTAGE AND FREQUENCY.
2. BALLAST TO HAVE A FIVE (5) YEAR WARRANTY INCLUDING REASONABLE REPLACEMENT LABOR COSTS.
3. THIRD HARMONICS DISTORTION SHALL BE LESS THAN 10%.
4. BALLAST TO CONTAIN REQUIRED FILTERING SO AS NOT TO INTERFERE WITH POWER LINE CARRIER SYSTEM.
5. BALLAST SHALL BE RAPID START, FULL LIGHT OUTPUT.

F. LOCATIONS:

1. LOCATIONS ON THE DRAWINGS ARE DIAGRAMMATIC.
2. VERIFY WITH ARCHITECTURAL REFLECTED CEILING DRAWINGS & COORDINATE SPACE CONDITIONS WITH OTHER TRADES.
3. FIXTURE ROWS SHALL BE IN STRAIGHT LINES EXCEPT AS NOTED. FIXTURE DOORS SHALL OPEN FROM SAME SIDE.

G. MOUNTING

1. FOR CEILING CONSTRUCTION, REFER TO ARCHITECTURAL DRAWINGS FOR FINISH SCHEDULES AND REFER TO MANUFACTURER'S INSTALLATION DETAILS AND APPLICABLE CODES FOR REQUIRED FIXTURE MOUNTING ACCESSORIES.
2. VERIFY ALL CEILING TRIMS WITH ARCHITECTURAL DRAWINGS.

H. REPLACE BLEMISHED, DAMAGED OR UNSATISFACTORY FIXTURES AS DIRECTED.

I. REPLACE LAMPS THAT FAIL DURING CONSTRUCTION PRIOR TO OWNER'S ACCEPTANCE OF SPACE.

J. ALL FIXTURES THAT ARE EXISTING TO BE REUSED SHALL BE CLEANED, RELAMPED AND RE-BALLASTED. ANY DEFECTIVE OR DAMAGED PARTS SHALL BE REPAIRED OR REPLACED.

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ELECTRICAL - SPECIFICATIONS

DATE	REMARKS
12.04.2017	ISSUE FOR PLAN CHECK

P.A / P.M:	JDS
DRAWN BY:	KS
JOB NO.:	SNR16--6088--00

SHEET
E2.1

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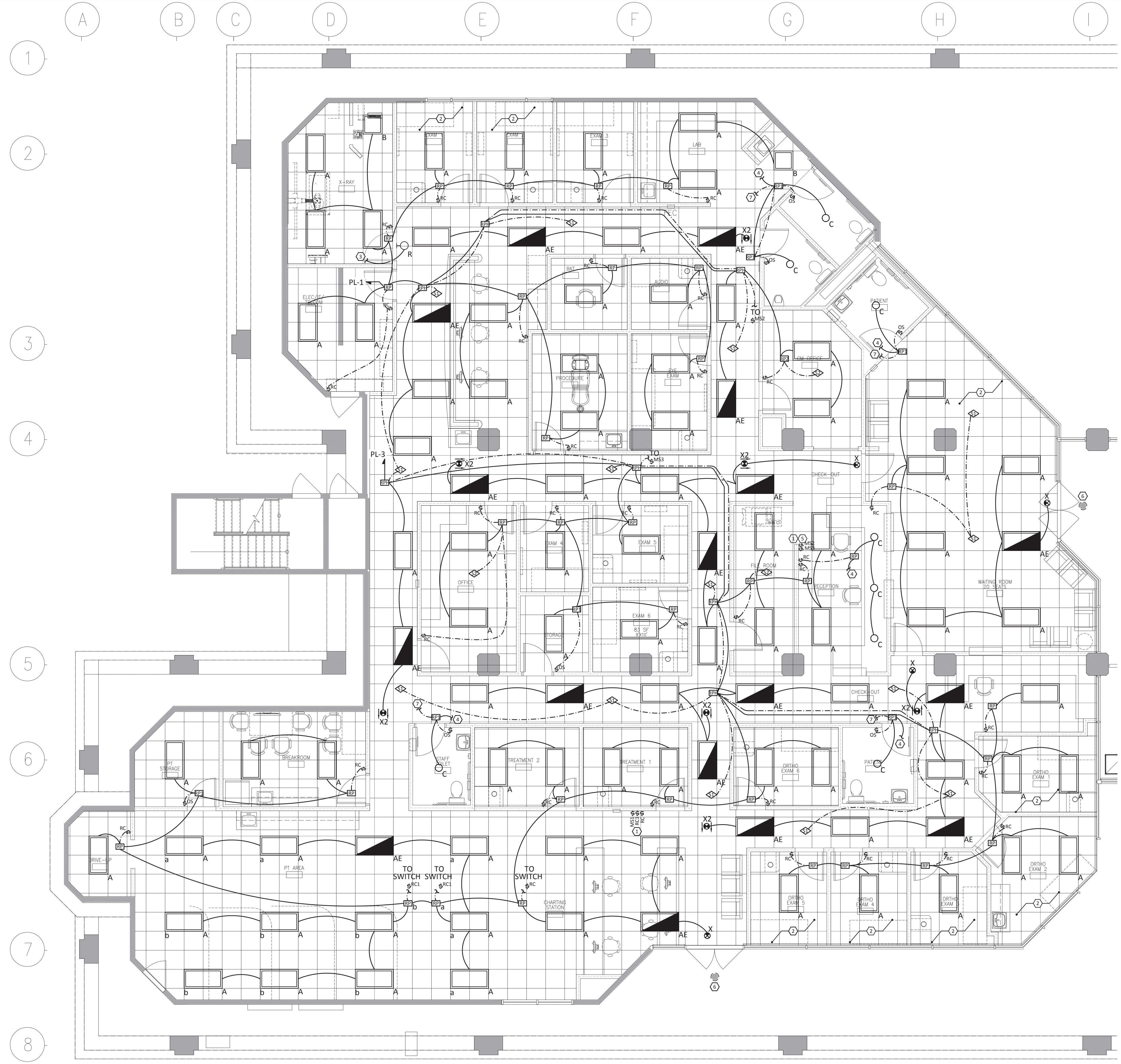

1 ELECTRICAL - NEW WORK LIGHTING PLAN

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

LIGHTING GENERAL NOTES

1. FOR GENERAL PROJECT NOTES AND SYMBOL LIST, SEE SHEET E0.1.
2. BEFORE BID SUBMISSION AND COMMENCING WORK, CONTRACTOR SHALL FIELD INSPECT SCOPE OF PROJECT, AND SUBMIT A REQUEST OF INFORMATION TO THE ENGINEER FOR ANY DISCREPANCIES OR INCOMPATIBILITIES FOUND BETWEEN DESIGN AND ACTUAL CONDITIONS.
3. ALL JUNCTION OR OUTLET BOXES SHALL BE INSTALLED SO AS TO ALLOW ACCESS TO COVER. PROVIDE ARCHITECT APPROVED ACCESS DOORS OR PLATES AS REQUIRED IN AREAS WHERE UNOBSTRUCTED ACCESS TO BOX OR OUTLET IS NOT POSSIBLE.
4. ALL BRANCH CIRCUIT WIRING SHALL BE ROUTED CONCEALED IN WALLS AND IN HUNG CEILING CAVITY, U.O.N. FINAL CONNECTIONS TO LIGHTING FIXTURES SHALL BE MADE WITH WIRING HAVING 90°C RATED INSULATION.
5. FOR LIGHTING FIXTURE SCHEDULES (FOR REFERENCE ONLY), SEE SHEET E0.1. COORDINATE TYPE, QUANTITY & LOCATIONS WITH FINAL ARCHITECTURAL CEILING PLANS.
6. FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL LIGHTING FIXTURES AND SWITCHES SEE ARCHITECTURAL DRAWINGS.
7. PRIOR TO ORDERING LIGHTING FIXTURES, COORDINATE WITH ARCHITECTURAL DRAWINGS AND SPECIFICATIONS. IF DISCREPANCIES EXIST BETWEEN ARCHITECTURAL AND ENGINEERING INFORMATION, OBTAIN CLARIFICATION PRIOR TO PROCEEDING.
8. MULTIPLE SWITCHES SHOWN IN SAME LOCATION SHALL BE GANGED TOGETHER WITH A COMMON FACEPLATE.
9. ALL LIGHTING FIXTURES CONTROLLED BY DIMMER SWITCHES SHALL BE PROVIDED WITH DEDICATED NEUTRAL CONDUCTOR AND DIMMING BALLAST OR DRIVER. PROVIDE FLUORESCENT DIMMING BALLASTS AS REQUIRED.
10. ANY "SWITCHED" ROOMS WITH EMERGENCY LIGHTING EMERGENCY CIRCUIT SHALL BE EQUIPPED WITH A TRANSFER SWITCH RELAY (BODINE GTD) AT EACH FIXTURE IN THE EVENT OF A POWER OUTAGE.
11. PROVIDE UNSWITCHED HOT LEG FOR ALL NIGHT LIGHTS, EXIT LIGHTS, AND EMERGENCY BATTERY PACKS.
12. CONTRACTOR SHALL PROVIDE ALL REQUIRED JUNCTION BOXES, THROUGH WIRING, DROPS, CONDUIT, WIRING AS REQUIRED TO PROVIDE A COMPLETE AND OPERATIONAL INSTALLATION IN ACCORDANCE WITH LIGHTING MANUFACTURERS SHOP DRAWINGS, FIELD CONDITIONS, CODE REQUIREMENTS, BUILDING STANDARDS AND CONTRACT DOCUMENTS. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR ALL REQUIRED WIRING BETWEEN THE LIGHT SWITCHES/OCCUPANCY/VACANCY SENSORS TO THE LIGHTING FIXTURES.
13. THE LOCATION OF SENSORS SHOWN ON THE DRAWINGS ARE DIAGRAMMATIC FOR WORK SCOPE PURPOSES ONLY. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO PROPERLY LOCATE, AIM, AND MASK THE SENSORS BASED ON MANUFACTURER'S RECOMMENDATIONS .ARRANGE FOR MANUFACTURER'S FIELD REPRESENTATIVE TO VISIT THE SITE AND SUPERVISE FINAL LOCATION AND ADJUSTMENTS AS REQUIRED.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR THE WIRING OF THE OCCUPANCY/VACANCY SENSOR. FOLLOW MANUFACTURER'S INSTALLATION INSTRUCTIONS AND WIRING DIAGRAMS. POWER PACK/RELAY CONTROL MODULE QUANTITIES & LOCATIONS ARE NOT SHOWN. COORDINATE WITH MANUFACTURER FOR REQUIREMENTS AND LIMITATIONS OF SYSTEM.
15. CONTRACTOR SHALL COORDINATE EXACT LOCATIONS OF ALL CEILING MOUNTED OCCUPANCY SENSORS WITH ALL OTHER CEILING APPURTENANCES SUCH AS HVAC DIFFUSERS, SPRINKLER HEADS, ETC. SENSORS SHALL BE LOCATED AT A MINIMUM OF 6 FEET AWAY FROM ANY HVAC DIFFUSER.
16. CEILING MOUNTED OCCUPANCY SENSOR TIME DELAY SHALL BE SET FOR NO LESS THAN 15 MINUTES AND SHALL NOT EXCEED 30 MIN.AS PART OF OCCUPANCY SENSOR SHOP DRAWING SUBMITTAL, PROVIDE LIGHTING PLAN SHOWING EXACT QUANTITIES AND LOCATIONS OF ALL SYSTEM COMPONENTS, INCLUDING SENSOR TYPES, POWER PACKS, CONTROLLERS, BRIDGES, GATEWAYS, ETC.
17. UPON COMPLETION OF THE INSTALLATION, THE COMPLETE LIGHTING CONTROL SYSTEM SHALL BE COMPLETELY COMMISSIONED BY THE MANUFACTURER'S FACTORY AUTHORIZED TECHNICIAN WHO WILL VERIFY ALL ADJUSTMENTS AND SENSOR PLACEMENT TO ENSURE SATISFACTORY OPERATION OF THE SYSTEM.
18. THE CONTRACT SHALL ALSO SUPPLY, AT THE CLIENT'S FACILITY, THE TRAINING NECESSARY TO FAMILIARIZE THE CLIENT PERSONNEL WITH THE LIGHTING CONTROL SYSTEM OPERATION, ADJUSTMENT, AND PROBLEM RESOLUTION OF THE OCCUPANCY/VACANCY SENSORS AND SYSTEM.
19. ALL "EM", AND EXIT LIGHT FIXTURES SHALL BE EQUIPPED WITH A EMERGENCY BATTERY BALLAST WITH 90 MINUTES OF BACK-UP TIME, LED INDICATION LIGHT, AND PUSH-TO-TEST BUTTON.
20. COORDINATE FIXTURE TYPES, MODEL NUMBERS AND COMPATIBILITY WITH DROP CEILING WITH THE ARCHITECTURAL DRAWINGS AND SPECIFICATIONS.
21. COLOR AND RENDERING INDEX OF ALL FLUORESCENT LAMPS SHALL BE SELECTED BY ARCHITECT.
22. CONTRACTOR SHALL CLEAN & RE-LAMP ALL EXISTING LIGHTING FIXTURES BEING RE-USED AS PART OF THIS PROJECT. COORDINATE EXACT LAMPING REQUIREMENTS IN FIELD WITH EXISTING LIGHTING FIXTURES.
23. ANY BALLASTS THAT ARE NOT FUNCTIONING WITHIN EXISTING LIGHTING FIXTURES SHALL BE REPLACED AS REQUIRED. CONTRACTOR SHALL PROVIDE A UNIT PRICE TO REPLACE ALL LAMPS AND BALLASTS PER FIXTURE.

LIGHTING PLAN KEY NOTES

#	
1	VERIFY LOCATION OF SWITCHES WITH OWNER PRIOR TO ROUGH-IN.
2	THE INSTALLED LIGHTING POWER IN THIS DAYLIGHTING ZONE SPACE IS LESS THAN 120 WATTS. THEREFORE, THIS AREA IS EXEMPT FROM TITLE 24 DAYLIGHTING REQUIREMENTS.
3	COORDINATE INSTALLATION OF X-RAY IN-USE SIGN (LIGHTING FIXTURE TYPE R) WITH X-RAY INSTALLER. SEE ENLARGED PLAN ON SHEET E5.1 FOR ADDITIONAL INFORMATION.
4	CONNECT ALL RESTROOM LIGHTING MODULES TO CIRCUIT P1-36.
5	PROVIDE LABEL FOR CORRIDOR MANUAL OVERRIDE IDENTIFICATION.
6	EXISTING EXTERIOR EMERGENCY EGRESS LIGHTING TO REMAIN.
7	CONNECT TO EXHAUST FAN EF-1 OPERATION. SEE POWER PLAN ON SHEET E4.2 FOR ADDITIONAL INFORMATION.

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ELECTRICAL - NEW WORK LIGHTING PLAN

DATE	REMARKS	DATE	REMARKS
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DRAWN BY:	KS
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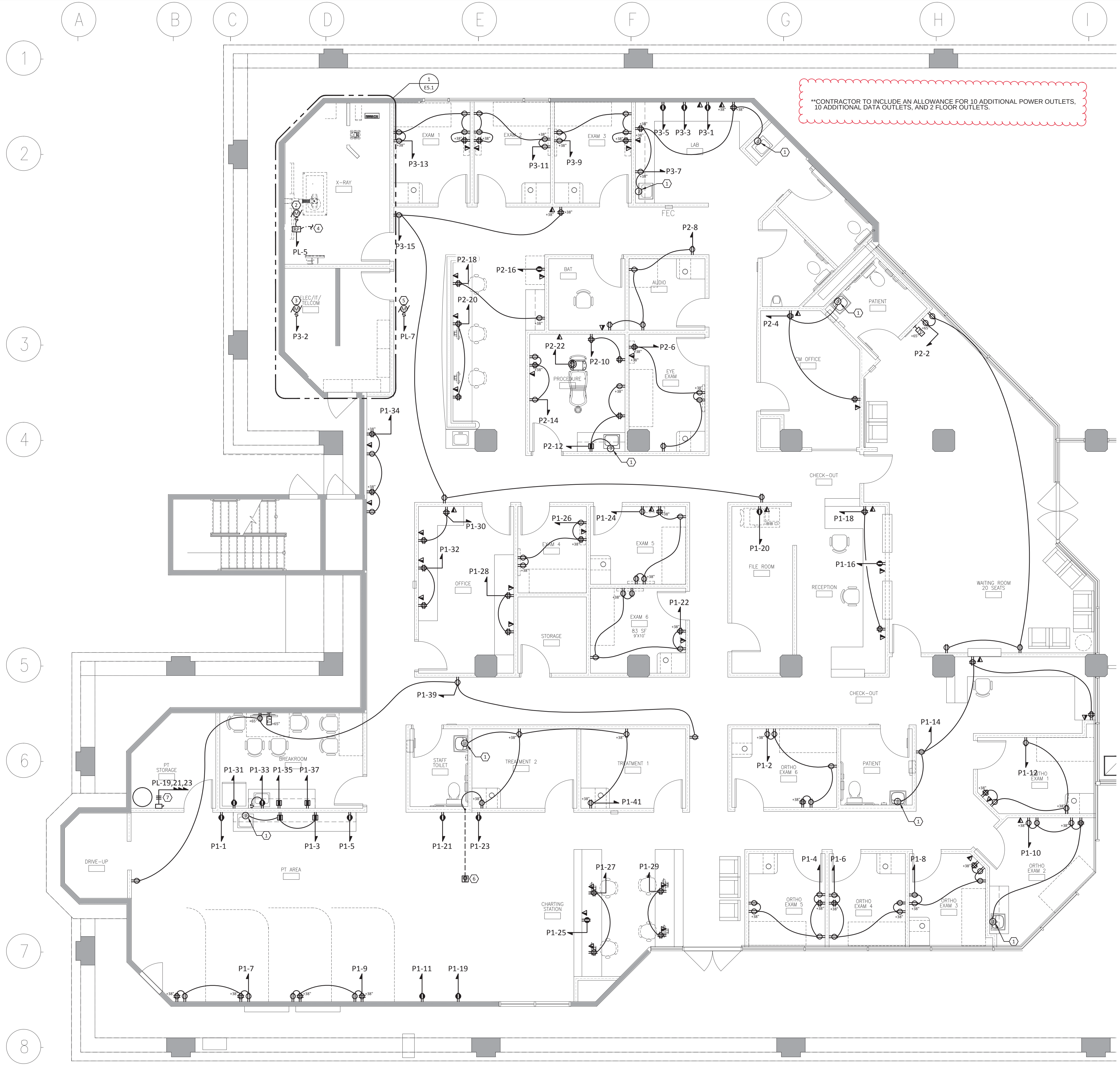

1 ELECTRICAL - NEW WORK POWER PLAN

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

POWER GENERAL NOTES

1. FOR GENERAL NOTES AND SYMBOL LIST, SEE SHEET E0.1.
2. BEFORE BID SUBMISSION AND COMMENCING WORK, CONTRACTOR SHALL FIELD INSPECT SCOPE OF PROJECT, AND SUBMIT A REQUEST OF INFORMATION TO THE ENGINEER FOR ANY DISCREPANCIES OR INCOMPATIBILITIES FOUND BETWEEN DESIGN AND ACTUAL CONDITIONS.
3. ALL JUNCTION OR OUTLET BOXES SHALL BE INSTALLED SO AS TO ALLOW ACCESS TO COVER. PROVIDE ARCHITECT APPROVED ACCESS DOORS OR PLATES AS REQUIRED IN AREAS WHERE UNOBSTRUCTED ACCESS TO BOX OR OUTLET IS NOT POSSIBLE.
4. ALL BRANCH CIRCUIT WIRING SHALL BE ROUTED CONCEALED IN WALLS AND IN HUNG CEILING CAVITY, U.O.N. FINAL CONNECTIONS TO LIGHTING FIXTURES SHALL BE MADE WITH WIRING HAVING 90°C RATED INSULATION.
5. EQUIPMENT LOCATIONS, WHERE SHOWN, ARE APPROXIMATE. FIELD VERIFY AND REFER TO ARCHITECTURAL DRAWINGS FOR MORE DETAILED DIMENSIONS AND OTHER CONSTRUCTION RELATED INFORMATION.
6. ALL CIRCUITS TO COMPUTERS, LASER PRINTERS, COPIERS, FAX MACHINES AND ANY OTHER LOADS OF NON-LINEAR NATURE OUTLETS SHALL HAVE SEPARATE NEUTRAL WIRES. STANDARD SHARED NEUTRAL HOMERUNS ARE NOT PERMITTED.
7. PROVIDE TEMPORARY LIGHT AND POWER IN AREAS INDICATED WHERE PERMANENT LIGHTING IS BEING REMOVED.
8. EXISTING CONDUIT RISER AND PANEL LOCATIONS (WHERE SHOWN) ARE FOR INFORMATIONAL / REFERENCE PURPOSES.
9. WHEN TRANSITIONING EXISTING EQUIPMENT FROM TEMPORARY TO PERMANENT SOURCE, ELECTRICAL CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY PRECAUTIONS TO SAFE-OFF ALL EXISTING DOWNSTREAM LOADS PRIOR TO RE-ENERGIZING ON NEW PERMANENT POWER. DOWNSTREAM LOADS SHALL BE RE-ENERGIZED ONE AT A TIME SO AS TO ISOLATE SHORT CIRCUITS, VERIFY PROPER CONNECTIONS, PHASE ROTATION, ETC. ELECTRICAL CONTRACTOR SHALL THOROUGHLY VERIFY AND UNDERSTAND EXISTING FIELD CONDITIONS AND PROJECT SCOPE. DEVELOP AND DOUBLE CHECK RESPECTIVE METHODS OF PROCEDURE (MOP) PRIOR TO PERFORMING WORK.
10. UON, EXISTING OUTLETS NOT SHOWN ON THIS PLAN, WITHIN AREAS OF WORK, ARE TO REMAIN - PROTECT AND MAINTAIN AS REQUIRED.
11. CIRCUIT ALL NEW OUTLETS PER CIRCUITING NOTES. ALL OUTLETS (NEW AND EXISTING) SHALL BE LABELED WITH ITS SOURCE PANEL AND CIRCUIT NUMBER. SEE DEMOLITION PLAN FOR CIRCUIT TRACING SCOPE. PROVIDE AS-BUILT DRAWINGS SHOWING FINAL CIRCUIT NUMBERS OF ALL DEVICES AT COMPLETION OF WORK.
12. OUTLET TYPE AND CIRCUITING REQUIREMENT FOR SPECIAL PURPOSE OFFICE EQUIPMENT WHERE SHOWN ARE FOR PRICING ONLY. COORDINATE EXACT REQUIREMENTS WITH CLIENT / ARCHITECT / EQUIPMENT MANUFACTURER.
13. SEE LATEST HVAC DRAWINGS FOR HVAC EQUIPMENT LOCATIONS AND QUANTITIES. THIS INCLUDES EXISTING EQUIPMENT TO BE REMOVED OR RELOCATED AND NEW EQUIPMENT TO BE INSTALLED PROVIDE NEW FEEDERS, BREAKERS, AND LOCAL DISCONNECTS AS REQUIRED PER POWER PLAN AND DETAILS.
14. REFER TO ARCHITECTURAL DRAWING FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL DEVICES AND OUTLETS.
15. CIRCUIT NUMBERS ARE INDICATED FOR INTENT ONLY. THE ELECTRICAL CONTRACTOR SHALL ADJUST ACCORDINGLY IN THE FIELD TO BALANCE THE CIRCUITS EVENLY ON ALL PHASES.
16. 3/4" SHALL BE THE MINIMUM CONDUIT INSTALLED.
17. ALL VOICE AND DATA CABLING SHALL BE PROVIDED BY OTHERS. THIS ELECTRICAL CONTRACTOR IS ONLY RESPONSIBLE FOR PROVIDING CONDUIT AND BACKBOXES ASSOCIATED WITH VOICE AND DATA. REFER TO TELECOM DRAWINGS FOR ADDITIONAL ELECTRICAL REQUIREMENTS. SUBMIT BID ACCORDINGLY.

(#) POWER PLAN KEY NOTES

1	PROVIDE POWER CONNECTION FOR AUTOMATIC FAUCET. CONNECT TO NEAREST RECEPTACLE CIRCUIT.
2	**EF-1:** 3/4 HP, 277V, 1Ø. PROVIDE 277V, 20A, 1P MOTOR RATED TOGGLE DISCONNECT. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
3	**EF-2:** 1/4 HP, 120V, 1Ø. PROVIDE 120V, 20A, 1P MOTOR RATED TOGGLE DISCONNECT. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
4	EF-1 TO ACTIVATE UPON OCCUPANCY OF ANY RESTROOM. SEE LIGHTING PLAN ON SHEET E4.1 FOR ADDITIONAL INFORMATION.
5	**EF-3:** 3/4 HP, 277V, 1Ø. PROVIDE 277V, 15A, 1P MOTOR RATED TOGGLE DISCONNECT. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.
6	PROVIDE FLUSH MOUNTED ONE-GANG STAMPED STEEL FLOOR BOX LEGRAND WIREMOLD CAT. # 880S1. PROVIDE WITH (1) ONE-GANG NONMETALLIC CARPET FLANGE CAT. #: 817PCC-BLK AND (1) NONMETALLIC DUPLEX COVER PLATE CAT. #: 828PR-BLK. PROVIDE (1) 1" EMPTY CONDUIT BELOW SLAB TO NEAREST FULL HEIGHT WALL.
5	**EWH-1:** 12 kW, 480V, 3Ø. PROVIDE 600V, 30A, 3P N.F.S.S. COORDINATE EXACT LOCATION WITH MECHANICAL CONTRACTOR PRIOR TO ROUGH-IN.

TITLE 24 CONTROLLED RECEPTACLES EXEMPTION NOTE:
(REF: CEC 2016 TITLE 24 PART 6 SECTION 141.0.b.2.P.iv)
THE ELECTRICAL POWER DISTRIBUTION IS EXISTING.
THEREFORE CONTROLLED RECEPTACLES ARE EXEMPT FROM TITLE 24 REQUIREMENTS.

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ELECTRICAL NEW WORK POWER PLAN

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PA / PM:	JDS
DRAWN BY:	KS
JOB NO.:	SNR16-6088-00

SHEET
E4.2

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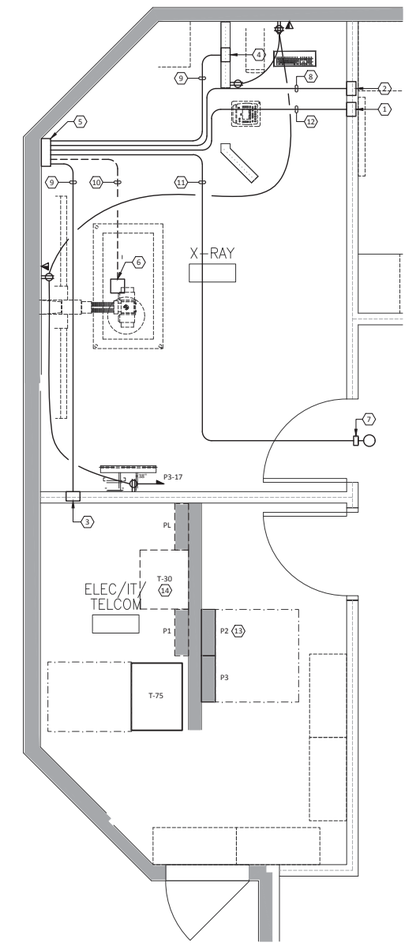

1 ELECTRICAL - X-RAY AND ELECTRICAL ROOM POWER PLAN
SCALE: 1/2" = 1'-0"

POWER GENERAL NOTES

1. FOR GENERAL NOTES AND SYMBOL LIST, SEE SHEET E0.1.
2. BEFORE BID SUBMISSION AND COMMENCING WORK, CONTRACTOR SHALL FIELD INSPECT SCOPE OF PROJECT, AND SUBMIT A REQUEST OF INFORMATION TO THE ENGINEER FOR ANY DISCREPANCIES OR INCOMPATIBILITIES FOUND BETWEEN DESIGN AND ACTUAL CONDITIONS.
3. ALL JUNCTION OR OUTLET BOXES SHALL BE INSTALLED SO AS TO ALLOW ACCESS TO COVER. PROVIDE ARCHITECT APPROVED ACCESS DOORS OR PLATES AS REQUIRED IN AREAS WHERE UNOBSTRUCTED ACCESS TO BOX OR OUTLET IS NOT POSSIBLE.
4. ALL BRANCH CIRCUIT WIRING SHALL BE ROUTED CONCEALED IN WALLS AND IN HUNG CEILING GAVITY, U.O.N. FINAL CONNECTIONS TO LIGHTING FIXTURES SHALL BE MADE WITH WIRING HAVING 90°C RATED INSULATION.
5. EQUIPMENT LOCATIONS, WHERE SHOWN, ARE APPROXIMATE. FIELD VERIFY AND REFER TO ARCHITECTURAL DRAWINGS FOR MORE DETAILED DIMENSIONS AND OTHER CONSTRUCTION RELATED INFORMATION.
6. ALL CIRCUITS TO COMPUTERS, LASER PRINTERS, COPIERS, FAX MACHINES AND ANY OTHER LOADS OF NON-LINEAR NATURE OUTLETS SHALL HAVE SEPARATE NEUTRAL WIRES. STANDARD SHARED NEUTRAL HOMERUNS ARE NOT PERMITTED.
7. PROVIDE TEMPORARY LIGHT AND POWER IN AREAS INDICATED WHERE PERMANENT LIGHTING IS BEING REMOVED.
8. EXISTING CONDUIT RISER AND PANEL LOCATIONS (WHERE SHOWN) ARE FOR INFORMATIONAL / REFERENCE PURPOSES.
9. WHEN TRANSITIONING EXISTING EQUIPMENT FROM TEMPORARY TO PERMANENT SOURCE, ELECTRICAL CONTRACTOR SHALL TAKE ALL NECESSARY SAFETY PRECAUTIONS TO SAFE-OFF ALL EXISTING DOWNSTREAM LOADS PRIOR TO RE-ENERGIZING ON NEW PERMANENT POWER. DOWNSTREAM LOADS SHALL BE RE-ENERGIZED ONE AT A TIME SO AS TO ISOLATE SHORT CIRCUITS, VERIFY PROPER CONNECTIONS, PHASE ROTATION, ETC. ELECTRICAL CONTRACTOR SHALL THOROUGHLY VERIFY AND UNDERSTAND EXISTING FIELD CONDITIONS AND PROJECT SCOPE. DEVELOP AND DOUBLE CHECK RESPECTIVE METHODS OF PROCEDURE (MOP) PRIOR TO PERFORMING WORK.
10. UON, EXISTING OUTLETS NOT SHOWN ON THIS PLAN, WITHIN AREAS OF WORK, ARE TO REMAIN - PROTECT AND MAINTAIN AS REQUIRED.
11. CIRCUIT ALL NEW OUTLETS PER CIRCUITING NOTES. ALL OUTLETS (NEW AND EXISTING) SHALL BE LABELED WITH ITS SOURCE PANEL AND CIRCUIT NUMBER. SEE DEMOLITION PLAN FOR CIRCUIT TRACING SCOPE. PROVIDE AS-BUILT DRAWINGS SHOWING FINAL CIRCUIT NUMBERS OF ALL DEVICES AT COMPLETION OF WORK.
12. OUTLET TYPE AND CIRCUITING REQUIREMENT FOR SPECIAL PURPOSE OFFICE EQUIPMENT WHERE SHOWN ARE FOR PRICING ONLY. COORDINATE EXACT REQUIREMENTS WITH CLIENT / ARCHITECT / EQUIPMENT MANUFACTURER.
13. SEE LATEST HVAC DRAWINGS FOR HVAC EQUIPMENT LOCATIONS AND QUANTITIES. THIS INCLUDES EXISTING EQUIPMENT TO BE REMOVED OR RELOCATED AND NEW EQUIPMENT TO BE INSTALLED PROVIDE NEW FEEDERS, BREAKERS, AND LOCAL DISCONNECTS AS REQUIRED PER POWER PLAN AND DETAILS.
14. REFER TO ARCHITECTURAL DRAWING FOR EXACT LOCATION AND MOUNTING HEIGHTS OF ALL DEVICES AND OUTLETS.
15. CIRCUIT NUMBERS ARE INDICATED FOR INTENT ONLY. THE ELECTRICAL CONTRACTOR SHALL ADJUST ACCORDINGLY IN THE FIELD TO BALANCE THE CIRCUITS EVENLY ON ALL PHASES.
16. 3/4" SHALL BE THE MINIMUM CONDUIT INSTALLED.
17. ALL VOICE AND DATA CABLING SHALL BE PROVIDED BY OTHERS. THIS ELECTRICAL CONTRACTOR IS ONLY RESPONSIBLE FOR PROVIDING CONDUIT AND BACKBOXES ASSOCIATED WITH VOICE AND DATA. REFER TO TELECOM DRAWINGS FOR ADDITIONAL ELECTRICAL REQUIREMENTS. SUBMIT BID ACCORDINGLY.

POWER PLAN KEY NOTES

1	PROVIDE NEMA 1, 208V, SINGLE PHASE, FRONT OPERATED, CIRCUIT BREAKER ENCLOSURE WITH GROUND. ENCLOSURE SHALL CONTAIN ONE 150A, 208V, 2-POLE THERMOMAGNETIC CIRCUIT BREAKER WITH SHUNT TRIP DEVICE. FLUSH MOUNT ON WALL WHERE SHOWN. LOCATE ENCLOSURE CENTER LINE 5'-6" A.F.F. CONTRACTOR SHALL ENSURE THAT LUGS ARE LARGE ENOUGH TO FACILITATE OVERSIZED INCOMING CABLES REQUIRED BY X-RAY EQUIPMENT. REFER TO X-RAY WIRING REQUIREMENTS. COORDINATE EXACT LOCATION WITH X-RAY INSTALLER PRIOR TO ROUGH-IN.
2	PROVIDE NEMA 1, 125A, 208V, 8-SPACE, SINGLE PHASE, 3-WIRE, MLO, GENERAL PURPOSE, COMMERCIAL GRADE LOAD CENTER WITH NEUTRAL AND GROUND ACCESSORIES. ENCLOSURE SHALL CONTAIN THERMOMAGNETIC CIRCUIT BREAKERS WITH THE FOLLOWING RATINGS: ONE 15A, 1 POLE CIRCUIT BREAKER FOR TABLE. LOCATE CENTER LINE OF ENCLOSURE AT 5'-6" A.F.F. COORDINATE EXACT LOCATION WITH X-RAY INSTALLER PRIOR TO ROUGH-IN. BASIS OF DESIGN: SQUARE D QO148L125GF.
3	CABLE ACCESS FOR WALL STAND. PROVIDE 6"x6"x4" DEEP JUNCTION BOX. FLUSH MOUNT AT WALL WHERE SHOWN. LOCATE CENTER LINE 30" A.F.F. AND PROVIDE REMOVABLE COVER. COORDINATE EXACT LOCATION WITH X-RAY INSTALLER PRIOR TO ROUGH-IN.
4	CABLE ACCESS FOR CONTROL CONSOLE. PROVIDE 6"x6"x4" DEEP JUNCTION BOX. FLUSH MOUNT AT WALL WHERE SHOWN. LOCATED CENTER LINE 12" A.F.F. AND PROVIDE REMOVABLE COVER. COORDINATE EXACT LOCATION WITH X-RAY INSTALLER PRIOR TO ROUGH-IN.
5	PROVIDE 12"x12"x4" DEEP JUNCTION BOX. SURFACE MOUNT AT WALL WHERE SHOWN. LOCATE CENTER LINE AT 24" A.F.F. AND PROVIDE REMOVABLE COVER. COORDINATE EXACT LOCATION WITH X-RAY INSTALLER PRIOR TO ROUGH-IN.
6	CABLE ACCESS FOR TABLE. PROVIDE 6"x6"x4" DEEP FLUSH FLOOR MOUNTED JUNCTION BOX IN FLOOR WHERE SHOWN. PROVIDE WITH BLANK LIQUID TIGHT COVER PLATE. COORDINATE EXACT LOCATION WITH X-RAY INSTALLER PRIOR TO ROUGH-IN.
7	PROVIDE 4"x4"x2" DEEP JUNCTION BOX FOR "X-RAY IN USE" WARNING SIGN. FLUSH MOUNT IN WALL ABOVE DOOR. COORDINATE EXACT LOCATION WITH X-RAY INSTALLER PRIOR TO ROUGH-IN.
8	PROVIDE (2) #10 + (1) #10 NEUTRAL + (1) #12 GROUND IN 3/4". CONTRACTOR SHALL TERMINATE CONDUCTORS AT THE CIRCUIT BREAKER AND AT THE EQUIPMENT. COORDINATE EXACT TERMINATIONS WITH X-RAY INSTALLER PRIOR TO ROUGH-IN.
9	PROVIDE (1) 1" EMPTY CONDUIT WITH PULL STRINGS. CONDUIT LENGTH SHALL NOT EXCEED 35'-0".
10	PROVIDE (1) 1-1/2" EMPTY CONDUIT WITH PULL STRING AND (1) 1-1/2" CONDUIT FOR POWER CONNECTION TO X-RAY BELOW SLAB.
11	PROVIDE (1) 3/4" FOR "X-RAY IN USE" POWER.
12	PROVIDE (1) 1-1/2" CONDUIT WITH (3) #1/0 + (1) #6 GROUND FOR X-RAY GENERATOR POWER. TERMINATE CONDUCTORS AT X-RAY DISCONNECT AND LEAVE 10'-0" TAIL AT FLOOR BOX UNDER X-RAY.
13	NEW LOCATION FOR EXISTING PANEL P2.
14	EXISTING TRANSFORMER SUSPENDED ABOVE FLOOR.

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ELECTRICAL ENLARGED PLAN

DATE	REMARKS
12.04.2017	ISSUE FOR PLAN CHECK

PA / PM:	JDS
DRAWN BY:	KS
JOB NO.:	SNR16-6088-00

SHEET
E5.1

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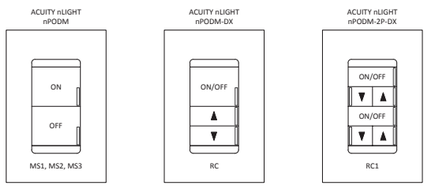
TIME CLOCK CONTROLLED ZONES

CONTROL ZONE	GROUP DESCRIPTION	AUTOMATION SCENARIO	DATA
ALL	US HEALTH TENANT SPACE	X SCHEDULE ON/OFF	OCCUPIED MON-FRI (TIME SCHEDULE PER OWNER)
		MANUAL ON/SCHEDULE OFF	SAT,SUN (TIME SCHEDULE PER OWNER)

TIME CLOCK CONTROL NOTES	
1.	COORDINATE DAILY TIME SCHEDULE WITH OWNER.
2.	SWITCH MS1, MS2, MS3 WILL ALLOW FOR A 2-HOUR OVERRIDE.



3 LIGHTING CONTROL SWITCHES

SCALE: NONE

NOTE:

CONTRACTOR SHALL ENGAGE ACUITY nLIGHT TO PROVIDE FULL LIGHTING CONTROL SYSTEM COMPONENTS. DRAWINGS ARE DIAGRAMMATIC ONLY AND ARE INTENDED TO SHOW CONTROL SEQUENCE OF OPERATION ONLY.

LIGHTING CONTROL DEVICE SCHEUDLE

OCCUPANCY SENSORS

SYMBOL TYPE	MANUFACTURER MODEL/SERIES	EQUIVALENT MANUFACTURER	DEVICE DESCRIPTION	COVERAGE (W X D)	ON MODE	TIME DELAY	VOLTAGE	NOTES
^{OS}	ACUITY nLIGHT nWSX PDT LV	N/A	WALL MOUNT DUAL TECHNOLOGY OCCUPANCY SENSOR.	PIR MAJOR 36' Ø PIR MINOR 20' Ø ULT MAJOR 36' Ø ULT MINOR 20' Ø	AUTO	15 MIN	24V	-
^{OS1}	ACUITY nLIGHT nWSX PDT LV DX	N/A	WALL MOUNT DUAL TECHNOLOGY OCCUPANCY SENSOR WITH ON/OFF AND RAISE/LOWER	PIR MAJOR 36' Ø PIR MINOR 20' Ø ULT MAJOR 36' Ø ULT MINOR 20' Ø	MANUAL	15 MIN	24V	-
(S2)	ACUITY nLIGHT nCM PDT 9	N/A	CEILING MOUNT DUAL TECHNOLOGY OCCUPANCY SENSOR. SMALL MOTION.	PIR MAJOR 12' Ø PIR MINOR 6' Ø ULT MAJOR 12' Ø ULT MINOR 6' Ø	AUTO	20 MIN	24V	-
(S)	ACUITY nLIGHT nCM PDT 10	N/A	CEILING MOUNT DUAL TECHNOLOGY OCCUPANCY SENSOR. LARGE MOTION.	PIR MAJOR 28' Ø PIR MINOR 14' Ø ULT MAJOR 28' Ø ULT MINOR 14' Ø	AUTO	20 MIN	24V	-

DAYLIGHTING DEVICES

SYMBOL TYPE	MANUFACTURER MODEL/SERIES	EQUIVALENT MANUFACTURER	DEVICE DESCRIPTION	USE	SETPOINT	VOLTAGE	NOTES
DP	ACUITY nLIGHT nPP16D	N/A	RELAY PACK WITH 0-10V DIMMING OUTPUT	-	-	120/277V 24V	-
DP	ACUITY nLIGHT nPP16	N/A	RELAY PACK - AUTO OFF / AUTO ON CONTROL	-	-	120/277V 24V	-
DP	ACUITY nLIGHT nPP16D SA	N/A	RELAY PACK WITH 0-10V DIMMING OUTPUT - AUTO OFF / MANUAL ON CONTROL	-	-	120/277V 24V	-
DP	ACUITY nLIGHT nPP16D	N/A	RELAY PACK WITH 0-10V DIMMING OUTPUT. LIGHTING IN CORRIDOR AREA TO 50% WHEN UNOCCUPIED PER TITLE 24 REQUIREMENTS.	-	-	120/277V 24V	-
PS	ACUITY nLIGHT ncM ADCX DZ	N/A	AUTOMATIC DIMMING CONTROL PHOTOCELL	DAYLIGHT HARVESTING	30 FC @ 30" AFF	24V	1,3

WALL DIMMING SWITCHES

SYMBOL TYPE	MANUFACTURER MODEL/SERIES	EQUIVALENT MANUFACTRUER	DEVICE DESCRIPTION	LOAD TYPE	WATTAGE	VOLTAGE	NOTES
^{MS1}	ACUITY nLIGHT nPODM	N/A	LOW VOLTAGE DIGITAL WALL SWITCH FOR MASTER OVERRIDE.	LED		24V	2
^{RC}	ACUITY nLIGHT nPOD-DX	N/A	LOW VOLTAGE DIGITAL ON/OFF, RAISE/LOWER	LED		24V	2
^{RC1}	ACUITY nLIGHT nPODM-2P-DX	N/A	LOW VOLTAGE DIGITAL ZONE CONTROL SWITCH FOR CONTROL OF TWO ZONES AND RAISE/LOWER CONTROL OF ZONES	LED		24V	2
^{RC2}	ACUITY nLIGHT nPODM-4P-DX	N/A	LOW VOLTAGE DIGITAL ZONE CONTROL SWITCH FOR CONTROL OF FOUR ZONES AND RAISE/LOWER CONTROL OF ZONES	LED		24V	2

GENERAL NOTES:

A OCCUPANCY SENSOR LAYOUT BASED ON ACUITY COVERAGE PATTERNS. ADJUST QUANTITIES AND LOCATIONS FOR EQUIVALENT MANUFACTURERS LISTED.

B SHOP DRAWINGS FOR LIGHTING CONTROL DEVICES THAT ARE INTENDED FOR USE AS A LIGHTING CONTROL SYSTEM SHALL INCLUDE PROJECT SPECIFIC LIGHTING CONTROL SCHEMATICS AND SCHEDULES. ALSO, AT ENGINEERS REQUEST, PROVIDE A SCALED EQUIPMENT PLAN FOR REVIEW OF EQUIPMENT LOCATIONS WITHIN PROJECT SPACE.

C OCCUPANCY SENSOR SHOP DRAWINGS SHALL INCLUDE LIGHTING PLANS SHOWING LOCATION, MOUNTING HEIGHT, ORIENTATION AND COVERAGE AREAS FOR EACH OCCUPANCY SENSOR. ALSO INCLUDE ON PLANS OTHER CEILING MOUNTED SYSTEMS SHOWING COORDINATION WITH CEILING DEVICES INCLUDING BUT NOT LIMITED TO HVAC SUPPLY AND RETURN DEVICES, SPRINKLERS, AND LIGHT FIXTURES.

D PROVIDE ALL OCCUPANCY SENSORS BY THE SAME MANUFACTURER.

E VERIFY COLOR(S) FOR ALL WALL AND CEILING MOUNTED LIGHTING CONTROL DEVICES WITH THE ARCHITECT.

F PROVIDE COPIES OF OPERATION INSTRUCTIONS FOR ALL DEVICES TO OWNER.

G ALL WALL SWITCH AND CEILING SENSORS SHALL HAVE AN ADJUSTABLE TIME DELAY RANGE OF 0-30 MIN, UNLESS OTHERWISE NOTED.

H DO NOT INSTALL LINE VOLTAGE SENSORS ON GFCI PROTECTED CIRCUITS.

I LIGHTING CONTROLS PRICING SHALL BE COMPLETELY SEPARATE OF ANY LIGHT FIXTURE PRICING. ANY LIGHTING CONTROLS PRICING THAT IS SUBMITTED WITH LIGHT FIXTURE PRICING (UNIT OR MINI-LOT) WILL BE IMMEDIATELY REJECTED IN ITS ENTIRETY.

J INSTALL WALL BOX DIMMERS TO ACHIEVE FULL RATING SPECIFIED AND INDICATED AFTER DE-RATING FOR GANGING AS INSTRUCTED BY MANUFACTURER.

K CONTRACTOR SHALL RE RESPONSIBLE FOR ENSURING COMPATIBILITY OF ALL LIGHTING CONTROL DEVICES IN THIS SCHEDULE THAT ARE INTENDED TO OPERATE TOGETHER

L PROVIDE A NEUTRAL CONDUCTOR TO ALL WALL BOX DIMMERS. DO NOT SHARE NEUTRAL CONDUCTOR ON LOAD SIDE OF DIMMER.

SCHEDULED NOTES:

1. FOR SELECTED DAYLIGHT SENSOR, CONFIRM FINAL LOCATION AND INSTALLATION PER MANUFACTURER'S RECOMMENDATIONS. INCLUDE MANUFACTURER'S RECOMMENDED LOCATION WITH SUBMITTALS FOR REVIEW.
2. MOMENTARY SWITCH SHALL BE COMPATIBLE WITH ITS CONNECTED LIGHTING CONTROL DEVICE (I.E., OCCUPANCY SENSOR, RELAY PANEL, ETC.)
3. LIGHT LEVEL SETPOINT REPRESENTS AVERAGE MEASURED VALUE AT HORIZONTAL TASK PLANE WITHIN DAYLIT ZONE AND DOES NOT NECESSARILY REFLECT VALUE MEASURED AT THE SENSOR ITSELF. DURING STARTUP, COMMISSION DAYLIGHT SENSOR AND LIGHTING CONTROLLER TO ADJUST LIGHTS ON/OFF AND RAISE/LOWER TO SATISFY INDICATED SETPOINT.

LIGHTING CONTROLS - GENERAL NOTES

1. LIGHTING CONTROL DIAGRAM IS DIAGRAMMATIC AND REPRESENTS THE GENERAL SCOPE OF WORK AND THE LOCATION OF DEVICES IN RELATION TO EACH OTHER ALONG THE POWER CIRCUIT. ELECTRICAL CONTRACTOR SHALL COORDINATE WITH SELECTED MANUFACTURER. PROVIDE ALL PARTS AND PIECES REQUIRED FOR A FULLY FUNCTIONAL SYSTEM.
2. LIGHTING CONTROL SYSTEM INCLUDING, BUT NOT LIMITED TO INTEGRAL TIME CLOCK, RELAYS, AND DIGITAL LIGHTING CONTROL SWITCHES. PROVIDE SHOP DRAWINGS FOR APPROVAL PRIOR TO PURCHASE.
3. INTEGRAL TIME CLOCK SHALL BE ASTRONOMIC AND PROGRAMMABLE WITH 365 DAY AND HOLIDAY SCHEDULING AND 24 HOUR BATTERY BACK-UP. RELAYS SHALL BE MECHANICALLY HELD, SINGLE POLE, 20A RATED, NORMALLY CLOSED CONTACTS. LIGHTING CONTROL SYSTEM SHALL COMPLY WITH ALL LOCAL AND STATE ENERGY CODES.
4. CIRCUITING SHOWN ON THE PLAN CORRESPONDS TO THE LIGHTING CONTROL SCHEME. IF CIRCUITING IS CHANGED IN THE FIELD, ENSURE THAT SYSTEM PROGRAMMING WITH REVISED CIRCUITRY MEETS THE ORIGINAL LIGHTING CONTROL SCHEME. UPDATE RELAY PANEL SCHEDULES IN RECORD DRAWINGS.
5. COORDINATE WITH OWNER AND LANDLORD FOR PROGRAMMABLE TIME CLOCK SCHEDULES. PROVIDE THE GENERAL CONTRACTOR WITH OPERATIONS MANUAL AFTER JOB IS COMPLETE. A COPY OF THE RECORD DRAWINGS AND RELAY SCHEDULE WITH ANY FIELD CONDITION CHANGES IDENTIFIED SHALL BE LEFT IN THE DOOR OF THE PANEL.

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ELECTRICAL - LIGHTING CONTROLS

DATE	REMARKS
12.04.2017	ISSUE FOR PLAN CHECK

PA / PM:	JDS
DRAWN BY:	KS
JOB NO.:	SNR16-6088-00

SHEET
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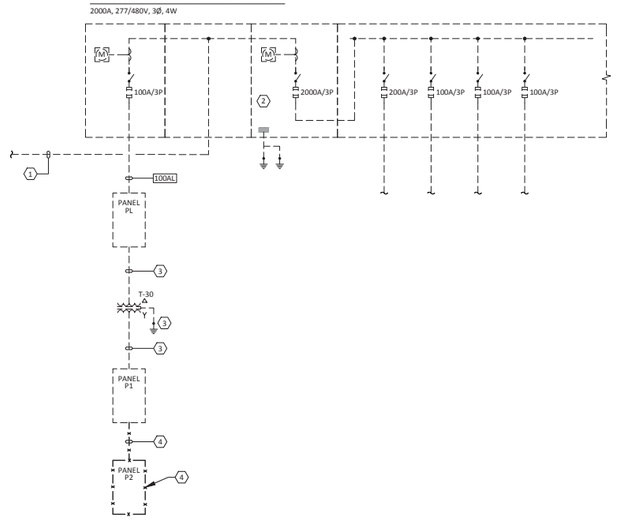
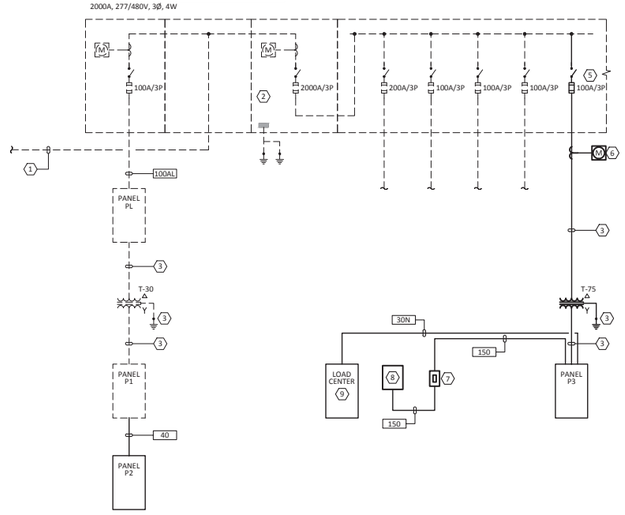


1 ELECTRICAL - EXISTING PARTIAL ONE-LINE DIAGRAM - DEMO WORK

SCALE: NONE



2 ELECTRICAL - EXISTING PARTIAL ONE-LINE DIAGRAM - NEW WORK

SCALE: NONE

ONE LINE DIAGRAM GENERAL NOTES

1. FOR GENERAL NOTES AND SYMBOL LIST SEE SHEET E0.1.
2. RISER IS STRICTLY DIAGRAMATIC. FIELD VERIFY EXACT LOCATIONS, AND NECESSARY HARDWARE FOR REQUIRED OPERATION
3. SEE PANEL SCHEDULES FOR FEEDER AND PROTECTIVE DEVICE RATINGS WHERE THIS INFORMATION IS NOT SHOWN ON THE RISER.
4. COORDINATE ALL POWER SHUTDOWNS WITH BUILDING MANAGEMENT, TENANT, AND ALL AFFECTED TRADES.
5. ALL FEEDER TAPS SHALL MEET CODE REQUIREMENTS.
6. CONTRACTOR SHALL USE PROPERLY LISTED COPPER TO ALUMINUM SPLICE AND TERMINATION CONNECTIONS AND CORROSION INHIBITORS FOR ALL COPPER TO ALUMINUM CONNECTIONS OR SPLICES.

ONE LINE DIAGRAM KEY NOTES

#	
1	EXISTING FEEDER FROM PG&E TRANSFORMER.
2	EXISTING SERVICE ENTRANCE TAP TO REMAIN.
3	SEE TRANSFORMER SCHEDULE ON THIS SHEET.
4	RELOCATE EXISTING PANEL "P2" AND ASSOCIATED FEEDER. SEE DETAIL 2 ON THIS SHEET FOR NEW WORK AND SHEET E5.1 FOR ADDITIONAL INFORMATION.
5	PROVIDE SWITCH AND FUSE UNIT IN EXISTING PREPARED SPACE. MATCH EXISTING SQUARE D SWITCH AND FUSE UNIT.
6	PROVIDE E-MON D-MON CLASS 2000 3ϕ SUBMETER MODEL #E20-480100-J-D-KIT. INSTALL WITH INLINE FUSES PER MANUFACTURERS INSTALLATION INSTRUCTIONS. COORDINATE MOUNTING LOCATION WITH BUILDING OWNER.
7	X-RAY DISCONNECT. SEE SHEET E5.1 FOR MORE INFORMATION.
8	X-RAY MACHINE. SEE SHEET E5.1 FOR MORE INFORMATION.
9	SINGLE PHASE LOAD CENTER IN X-RAY ROOM. SEE SHEET E5.1 FOR MORE INFORMATION.

TYPICAL SYMBOL ANNOTATIONS AND LINE TYPES

SYMBOL	DESCRIPTION
———	NEW EQUIPMENT OR WIRING
- - - - -	EXISTING EQUIPMENT OR WIRING TO REMAIN
—x—x—x—	DEMOLITION EQUIPMENT OR WIRING TO REMAIN

TRANSFORMER SCHEDULE

ID	kVA (SIZE)	PRIMARY OCPD		PRIMARY VOLTAGE	PRIMARY FEEDER SIZE	SECONDARY OCPD		SECONDARY VOLTAGE	SECONDARY FEEDER SIZE	GROUNDING ELECTRODE SIZE
		AMP	POLES			AMP	POLES			
T-30	30	50	3	480V	50N	100	3	120Y/208V	100	#6
T-75	75	100	3	480V	100N	250	3	120Y/208V	250	#2

FEEDER SCHEDULE - COPPER

FEEDER ID	AMPS	SETS	CONDUCTORS	GROUND CONDUCTORS	RACEWAY SIZE	NEC FEEDER RATING
30N	30	1	(3) #10	(1) #10	3/4"	35
50N	50	1	(3) #8	(1) #10	3/4"	50
100N	100	1	(3) #3	(1) #8	1-1/4"	100
40	40	1	(4) #8	(1) #10	3/4"	50
100	100	1	(4) #3	(1) #8	1-1/4"	100
150	150	1	(4) #1/0	(1) #6	2"	150
250	250	1	(4) 250 kCMIL	(1) #4	2-1/2"	255

FEEDER SCHEDULE - ALUMINUM

FEEDER ID	AMPS	SETS	CONDUCTORS	GROUND CONDUCTORS	RACEWAY SIZE	NEC FEEDER RATING
100AL	100	1	(3) #1	(1) #2	2"	100

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ELECTRICAL - PARTIAL ONE-LINE DIAGRAMS

DATE	REMARKS
12.04.2017	ISSUE FOR PLAN CHECK

PA / PM:	JDS
DRAWN BY:	KS
JOB NO.:	SNR16-6088-00

SHEET
E6.2

REGISTERED PROFESSIONAL ENGINEER
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STATE OF CALIFORNIA
INDOOR LIGHTING
CEC-NRCC-LTI-01-E (Revised 04/16) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 1 of 6)
Project Name: US Health Works	Date Prepared: 12/04/2017

A. General Information

Climate Zone: 3	Conditioned Floor Area: 6000					
	Unconditioned Floor Area:					
Building Type:	[x]	Nonresidential	[ ]	High-Rise Residential	[ ]	Hotel/Motel
[ ] Schools	[ ]	Relocatable Public Schools	[ ]	Conditioned Spaces	[ ]	Unconditioned Spaces
Phase of Construction:	[ ]	New Construction	[ ]	Addition	[x]	Alteration
Method of Compliance:	[ ]	Complete Building	[x]	Area Category	[ ]	Tailored
Project Address: 333 Hegenberger Road, Oakland, CA						

B. Lighting Compliance Documents (select yes for each document included)

For detailed instructions on the use of this and all Energy Efficiency Standards compliance documents, refer to the Nonresidential Manual published by the California Energy Commission.

YES	NO	COMP. DOC.	TITLE
(•)	( )	NRCC-LTI-01-E	Certificate of Compliance. All Pages required on plans for all submittals.
(•)	( )	NRCC-LTI-02-E	Lighting Controls, Certificate of Compliance, and PAF Calculation. All Pages required on plans for all submittals.
(•)	( )	NRCC-LTI-03-E	Indoor Lighting Power Allowance
( )	(•)	NRCC-LTI-04-E	Tailored Method Worksheets
( )	(•)	NRCC-LTI-05-E	Line Voltage Track Lighting Worksheets
( )	( )	NRCC-LTI-06-E	Indoor Lighting Existing Conditions

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance — April 2016

STATE OF CALIFORNIA
INDOOR LIGHTING
CEC-NRCC-LTI-01-E (Revised 04/16) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 2 of 6)
Project Name: US Health Works	Date Prepared: 12/04/2017

C. Summary of Allowed Lighting Power

Conditioned and Unconditioned space Lighting must not be combined for compliance

	Indoor Lighting Power for Conditioned Spaces		Watts	Indoor Lighting Power for Unconditioned Spaces		Watts
01	**Installed** Lighting NRCC-LTI-01-E, Table H, page 5	+	4945.2	**Installed** Lighting NRCC-LTI-01-E, Table H, page 5	+	
02	Portable Only for Offices NRCC-LTI-01-E, Table G, page 4	+				
03	Minus Lighting Control Credits NRCC-LTI-02-E, page 2	-		Minus Lighting Control Credits NRCC-LTI-02-E, page 2	-	
04	Adjusted **Installed** Lighting Power (row 1 plus row 2 minus row 3)	=	4945.2	Adjusted **Installed** Lighting Power (row 1 minus row 3)	=	0
	Complies ONLY if **Installed** ≤ **Allowed** (Box 04 < Box 05)			Complies ONLY if **Installed** ≤ **Allowed** (Box 04 < Box 05)		
05	**Allowed** Lighting Power Conditioned NRCC-LTI-03-E, page 1. Alterations with replacement luminaires that have at least 50/35%lower power compared to the original existing luminaires, may instead use the allowed wattage from NRCC-LTI-06, page 2		6000	**Allowed** Lighting Power Unconditioned NRCC-LTI-03-E, page 1. Alterations with replacement luminaires that have at least 50/35% lower power compared to the original existing luminaires, may instead use the allowed wattage from NRCC-LTI-06, page 2		

D. Declaration of Required Certificates of Installation

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

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

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance — April 2016

STATE OF CALIFORNIA
INDOOR LIGHTING
CEC-NRCC-LTI-01-E (Revised 04/16) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 3 of 6)
Project Name: US Health Works	Date Prepared: 12/04/2017

E. Declaration of Required Certificates of Acceptance

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

YES	NO	FORM/TITLE	
(•)	( )	NRCA-LTI-02-A - Must be submitted for occupancy sensors and automatic time switch controls.	[ ] Field Inspector
(•)	( )	NRCA-LTI-03-A - Must be submitted for automatic daylight controls.	[ ] Field Inspector
( )	(•)	NRCA-LTI-04-A - Must be submitted for demand responsive lighting controls.	[ ] Field Inspector
( )	(•)	NRCA-LTI-05-A - Must be submitted for institutional tuning power adjustment factor (PAF).	

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

F. Indoor Lighting Schedule and Field Inspection Energy Checklist

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

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CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 4 of 6)
Project Name: US Health Works	Date Prepared: 12/04/2017

G. Installed Portable Luminaires in Offices – Exception to Section 140.6(a)

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

Office Portable Luminaire Schedule	Office Installed Portable Luminaire W/ft²							Office Location	Field Inspector	
01	02	03	04	05	06	07	08	09	10	
Complete Luminaire Description (i.e., LED, under cabinet, furniture mounted direct/indirect)	Watts per Luminaire	Number of Luminaires	Installed portable luminaire watts in this office (G02 x G03)	Square feet of this office	Watts per square foot (G04 / G05)	If G06 ≤ 0.3, enter zero; If G06 > 0.3, (G06-0.3)	(G05 x G07)	Identify Office area in which these portable luminaires are installed	Pass	Fail
			0				0		( )	( )
			0				0		( )	( )
			0				0		( )	( )
			0				0		( )	( )
			0				0		( )	( )
Total installed portable luminaire watts that are greater than 0.3 W/ft² per office:								Enter sum total of all pages into NRCC-LTI-01-E; Page 2		

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STATE OF CALIFORNIA
INDOOR LIGHTING
CEC-NRCC-LTI-01-E (Revised 04/16) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 5 of 6)
Project Name: US Health Works	Date Prepared: 12/04/2017

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

H. Indoor Lighting Schedule and Field Inspection Energy Checklist

Luminaire Schedule		Installed Watts					Location	Field Inspector[1]	
01	02	03	04		05	06	07	08	
Name or Item Tag	Complete Luminaire Description (i.e, 3 lamp fluorescent troffer, F32T8, one dimmable electronic ballast)	Watts per luminaire	How wattage was determined: CEC Default from NA8	How wattage was determined: According to §130.0(c)	Number Luminaires	Total Installed Watts in this area (H03 xH05)	Primary Function area in which these luminaires are installed	Pass	Fail
A	LED Troffer - Dimmable	48	[ ]	[x]	82	3936	General Illumination	( )	( )
AE	LED Troffer - Dimmable	48	[ ]	[x]	17	816	General Illumination	( )	( )
B	LED Troffer - Dimmable	57	[ ]	[x]	2	114	General Illumination	( )	( )
C	LED Downlight - Dimmable	9.9	[ ]	[x]	8	79.2	General Illumination	( )	( )
			[ ]	[ ]		0		( )	( )
			[ ]	[ ]		0		( )	( )
			[ ]	[ ]		0		( )	( )
			[ ]	[ ]		0		( )	( )
			[ ]	[ ]		0		( )	( )
INSTALLED WATTS PAGE TOTAL:						4945.2	Enter sum total of all pages into NRCC-LTI-01-E; Page 2		

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STATE OF CALIFORNIA
INDOOR LIGHTING
CEC-NRCC-LTI-01-E (Revised 04/16) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-01-E
Indoor Lighting	(Page 6 of 6)
Project Name: US Health Works	Date Prepared: 12/04/2017

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: Kevin Sotto	Documentation Author Signature: *Kevin Sotto*
Company: WB Engineers+Consultants	Signature Date: 12/04/2017
Address: 5934 Gibraltar Drive, Suite 100	CEA Certification Identification (if applicable):
City/State/Zip: Pleasanton, CA 94588	Phone: (925) 399-6687

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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

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

Responsible Designer Name: Kevin Sotto	Responsible Designer Signature: *Kevin Sotto*
Company: WB Engineers+Consultants	Date Signed: 12/04/2017
Address: 5934 Gibraltar Drive, Suite 100	License: E21028
City/State/Zip: Pleasanton, CA 94588	Phone: (925) 399-6687

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance — April 2016

STATE OF CALIFORNIA
INDOOR LIGHTING – LIGHTING CONTROLS
CEC-NRCC-LTI-02-E (Revised 01/16) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-02-E
Indoor Lighting - Lighting Controls	(Page 1 of 3)
Project Name: US Health Works	Date Prepared: 12/04/2017

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

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

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance — January 2016

STATE OF CALIFORNIA
INDOOR LIGHTING – LIGHTING CONTROLS
CEC-NRCC-LTI-02-E (Revised 01/16) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-02-E
Indoor Lighting - Lighting Controls	(Page 2 of 3)
Project Name: US Health Works	Date Prepared: 12/04/2017

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

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

Lighting Control Schedule			Standards Complying With[1] (✓ all that apply, or leave empty if Exempted)							PAF Credit Calculation[2]			✓ if Acceptance Test Required	Field Inspector	
01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	
Location in Building	Type/ Description of Lighting Control (i.e.: occupancy sensor, automatic time switch, dimmer, automatic daylight, etc...)	# of Units	§130.1(a)	§130.0(b)	§130.1(c)	§130.1(d)	§130.1(e)	§140.6(a)2	§140.6(d)	Watts of Controlled Lighting	PAF	Control Credit (11 x 12)		Pass	Fail
Office Areas, File Room	Occupancy Sensors, Dimming, Time Clock	6	•	•	•					288		0	[ ]	( )	( )
Corridor Areas	Occupancy Sensors, Dimming, Time Clock	20	•	•	•					1344		0	[ ]	( )	( )
Restrooms	Occupancy Sensors, Time Clock	5	•		•					49.5		0	[ ]	( )	( )
IT Room	Dimming, Time Clock	1	•		•					96		0	[ ]	( )	( )
Exam/Procedure/Lab/X-Ray Room	Dimming, Time Clock	20	•	•	•					1554		0	[ ]	( )	( )
Waiting Room, Reception, Storage	Occupancy Sensors, Dimming, Time Clock	12	•	•	•					749.7		0	[ ]	( )	( )
PT Area/Charting/Breakroom	Dimming, Time Clock	4	•	•	•					864		0	[ ]	( )	( )
Control Credit PAGE TOTAL (Sum of Column 13):												0			
IF MULTIPLE PAGES ARE USED, ENTER SUM TOTAL OF Control Credit for all pages HERE (Sum of all Column 13):															
												Enter Control Credit total into NRCC-LTI-01-E; Page 1.			

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

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance — January 2016

STATE OF CALIFORNIA
INDOOR LIGHTING – LIGHTING CONTROLS
CEC-NRCC-LTI-02-E (Revised 01/16) — CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-02-E
Indoor Lighting - Lighting Controls	(Page 3 of 3)
Project Name: US Health Works	Date Prepared: 12/04/2017

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: Kevin Sotto	Documentation Author Signature: *Kevin Sotto*
Company: WB Engineers+Consultants	Signature Date: 12/04/2017
Address: 5934 Gibraltar Drive, Suite 100	CEA Certification Identification (if applicable):
City/State/Zip: Pleasanton, CA 94588	Phone: (925) 399-6687

RESPONSIBLE PERSON'S DECLARATION STATEMENT

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

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

Responsible Designer Name: Kevin Sotto	Responsible Designer Signature: *Kevin Sotto*
Company: WB Engineers+Consultants	Date Signed: 12/04/2017
Address: 5934 Gibraltar Drive, Suite 100	License: E21028
City/State/Zip: Pleasanton, CA 94588	Phone: (925) 399-6687

CA Building Energy Efficiency Standards - 2016 Nonresidential Compliance — January 2016

REGISTERED PROFESSIONAL ENGINEER — KEVIN W. SOTTO — No. E21028 — ELECTRICAL — STATE OF CALIFORNIA

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5934 GIBRALTAR DRIVE, SUITE 100
PLEASANTON, CA 94588
P. 925.399.6687

US HEALTH WORKS
333 HEGENBERGER ROAD
OAKLAND, CA

ELECTRICAL - TITLE 24 DOCUMENTATION

DATE	REMARKS	DATE	REMARKS
12.04.2017	ISSUE FOR PLAN CHECK		

PA / PM:	JDS
DRAWN BY:	KS
JOB NO.:	SNR16-6088-00

SHEET
E8.1

STATE OF CALIFORNIA
INDOOR LIGHTING POWER ALLOWANCE
CEC-NRCC-LTI-03-E (Revised 04/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-03-E
Certificate of Compliance - Indoor Lighting Power Allowance	(Page 1 of 4)
Project Name: US Health Works	Date Prepared: 12/04/2017

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

A. SUMMARY TOTALS OF LIGHTING POWER ALLOWANCES

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

	(a)	(b)
01 Complete Building Method Allowed Watts. Documented in section 3 of NRCC-LTI-03-E (below on this page)	6000	
02 Area Category Method Allowed Watts. Documented in section C-1 of NRCC-LTI-03-E (below on this page)		
03 Tailored Method Allowed Watts. Documented in section A of NRCC-LTI-04-E		
TOTAL ALLOWED BUILDING WATTS. Enter number into correct cell on NRCC-LTI-01, Page 2, Row 1	6000	0

☐ Check here if building contains both conditioned and unconditioned areas.

B. COMPLETE BUILDING METHOD LIGHTING POWER ALLOWANCE

01	02		03		04
TYPE OF BUILDING (From §140.6 Table 140.6-B)	WATTS PER ft²	x	COMPLETE BLDG. AREA	=	ALLOWED WATTS
Medical/Clinic	1.0		6000		6000
	Total Area:		6000		
Total Watts. Enter Total Watts into section A, row 1 (Above on this page)					6000

C -1 AREA CATEGORY METHOD TOTAL LIGHTING POWER ALLOWANCES	Watts
Total from section C-2.	
Total from section C-3.	
Total Watts. Enter Total Watts into section A, row 2 (Above on this page).	0
For Alterations Only – Reduced lighting power option (Total Allowed Watts x 0.85). Enter this value into section A, row 2 if using this option.	

STATE OF CALIFORNIA
INDOOR LIGHTING POWER ALLOWANCE
CEC-NRCC-LTI-03-E (Revised 04/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-03-E
Certificate of Compliance - Indoor Lighting Power Allowance	(Page 2 of 4)
Project Name: US Health Works	Date Prepared: 12/04/2017

A separate page must be filled out for Conditioned and Unconditioned Spaces. This page is only for:
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C -2 AREA CATEGORY METHOD GENERAL LIGHTING POWER ALLOWANCE

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

01		02		03		04
AREA CATEGORY (From §140.6 Table 140.6-C)		WATTS PER ft²	x	AREA (ft²)	=	ALLOWED WATTS
Location in Building	Primary Function Area per Table 140.6-C					
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
						0
		TOTALS		0		
Enter sum total Area Category allowed watts into section C-1 of NRCC-LTI-03-E (this compliance document)						
						WATTS

STATE OF CALIFORNIA
INDOOR LIGHTING POWER ALLOWANCE
CEC-NRCC-LTI-03-E (Revised 04/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-03-E
Certificate of Compliance - Indoor Lighting Power Allowance	(Page 3 of 4)
Project Name: US Health Works	Date Prepared: 12/04/2017

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

01	02	03 [2]	04	05	06	07
Primary Function	Sq Ft or Linear ft [1]	Additional Watts Allowed	Wattage Allowance (02 x 03)	Description(s) and Quantity of Special Luminaire Types in each Primary Function Area	Total Design Watts [3]	ALLOWED WATTS Smaller of 04 or 06
			0			
			0			
			0			
			0			
			0			
			0			
			0			
			0			
			0			
			0			
			0			
			0			
			0			
			0			
			0			
			0			
			0			
			0			
TOTALS – Enter into TOTAL AREA CATEGORY METHOD ADDITIONAL ALLOWANCES – Section C-1						

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

STATE OF CALIFORNIA
INDOOR LIGHTING POWER ALLOWANCE
CEC-NRCC-LTI-03-E (Revised 04/16) CALIFORNIA ENERGY COMMISSION

CERTIFICATE OF COMPLIANCE	NRCC-LTI-03-E
Certificate of Compliance - Indoor Lighting Power Allowance	(Page 4 of 4)
Project Name: US Health Works	Date Prepared: 12/04/2017

DOCUMENTATION AUTHOR'S DECLARATION STATEMENT

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

Documentation Author Name: Kevin Sotto	Documentation Author Signature: *Kevin Sotto*
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City/State/Zip: Plesanton, CA 94588	Phone: (925) 399-6687

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Responsible Designer Name: Kevin Sotto	Responsible Designer Signature: *Kevin Sotto*
Company: WB Engineers+Consultants	Date Signed: 12/04/2017
Address: 5934 Gibraltar Drive, Suite 100	License: E21028
City/State/Zip: Pleasanton, CA 94588	Phone: (925) 399-6687

REGISTERED PROFESSIONAL ENGINEER KEVIN W SOTTO No. E21028 ELECTRICAL STATE OF CALIFORNIA

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US HEALTH WORKS
333 HEGENBERGER ROAD
OAKLAND, CA

ELECTRICAL - TITLE 24 DOCUMENTATION

DATE	REMARKS
12.04.2017	ISSUE FOR PLAN CHECK

PA / PM:	JDS
DRAWN BY:	KS
JOB NO.:	SNR16-6088-00

SHEET
E8.2