GENERAL STRUCTURAL NOTES

GENERAL NOTES:

1. CONTRACTOR IS RESPONSIBLE FOR AND SHALL VERIFY AND COORDINATE ALL DIMENSIONS AND DETAILS BEFORE PROCEEDING WITH WORK. ANY DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE ARCHITECT AND ENGINEERS.
2. DETAILS SHOWN IN ANY SECTION APPLY TO ALL SIMILAR SECTIONS AND CONDITIONS UNLESS NOTED OTHERWISE.
3. CONTRACTOR SHALL FULLY BRACE AND OTHERWISE PROTECT ALL WORK IN PROGRESS UNTIL THE BUILDING IS COMPLETED.
4. ALL STRUCTURAL ITEMS FOR THIS PROJECT HAVE BEEN DESIGNED IN ACCORDANCE WITH APPROPRIATE PROVISIONS OF EACH OF THE FOLLOWING:

   A. THE FLORIDA BUILDING CODE, (SIXTH EDITION) 2017.
   B. ACI STANDARD 318-14 BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE.
   C. BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (ACI 530-13/ASCE 5-13/TMS 402-16).
   D. AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS" 360-10.
   E. NDS FOR WOOD CONSTRUCTION WITH 2015 NDS SUPPLEMENT.
   F. ASCE 7-10 (WITH ERRATA DATED JANUARY11, 2011) "MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES".

5. THE STRUCTURAL DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE SPECIFICATIONS AND THE ARCHITECTURAL AND MECHANICAL DRAWINGS. IF THERE IS A DISCREPANCY BETWEEN DRAWINGS, IT IS THE CONTRACTOR'S RESPONSIBILITY TO NOTIFY THE ARCHITECT PRIOR TO PERFORMING WORK. IN CASE OF CONFLICT THE MOST STRINGENT CONDITION SHALL APPLY.
6. ALL DIMENSIONS MUST BE COORDINATED WITH ARCHITECTURAL DRAWINGS AND WITH EQUIPMENT MANUFACTURER (I.E. WINDOW, DOOR, AIR HANDLER, ETC.). CONTRACTOR MUST OBTAIN AN ARCHITECTURAL DIRECTIVE IN CASE OF ANY CONFLICT. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS NOT SHOWN IN STRUCTURAL DRAWINGS.
7. ROOFTOP EQUIPMENT ANCHORAGE & OUTDOOR RACK MOUNTED EQUIPMENT ANCHORAGE. ALL ROOF TOP EQUIPMENT CURBS, ROOF TOP MECHANICAL EQUIPMENT, EQUIPMENT TIE DOWNS, AND CONNECTIONS OF ALL EQUIPMENT TO OUTDOOR RACKS OR BUILDING STRUCTURE FOR WIND LOADING ARE TO BE DESIGNED AND ENGINEERED BY A REGISTERED SPECIALTY ENGINEER RETAINED BY THE MECHANICAL EQUIPMENT SUPPLIER. SIGNED AND SEALED DRAWINGS AND CALCULATIONS ARE TO BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL. THE EQUIPMENT MANUFACTURER SHALL PROVIDE THE ATTACHMENT OF THE UNIT TO THE STRUCTURE AND SUBMIT TO THE ENGINEER LOADS, LOCATIONS, AND METHODS OF ATTACHMENT. THE STRUCTURAL ENGINEER WILL MAKE PROVISIONS IN THE DESIGN OF THE PRIMARY STRUCTURAL FRAME TO ACCOMMODATE THE LOADS AND ATTACHMENTS SUBMITTED BY THE MANUFACTURER.

CONCRETE AND REINFORCING:

1. ALL CONCRETE WORK SHALL CONFORM TO THE LATEST ACI "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE, ACI-318".
2. ALL CONCRETE SHALL HAVE A MINIMUM 28-DAY COMPRESSIVE STRENGTHS AS INDICATED BELOW:

CONCRETE STRENGTH	MAX WATER CEMENT RATIO	TYPE AGGREGATE	LOCATION USED
4000 PSI	0.45	STONE	CONCRETE U.N.O.
3000 PSI	0.52	STONE	FOUNDATIONS

3. ALL REINFORCING STEEL SHALL BE INTERMEDIATE GRADE, NEW BILLET STEEL, DEFORMED BARS, CONFORMING TO ASTM A-615, GRADE 60. ALL BARS SHALL BE SECURELY SUPPORTED AND WIRED IN PLACE PRIOR TO POURING CONCRETE. ALL REINFORCING STEEL TO BE WELDED SHALL CONFORM TO ASTM A-706.
4. ALL WELDED WIRE FABRIC (W.W.F.) IN FLAT SHEETS ONLY AND SHALL CONFORM TO ASTM A-185.
5. UNLESS NOTED, ALL BARS MARKED CONTINUOUS SHALL BE SPLICED AT ALL LAP POINTS AND CORNERS AND DEVELOPED AT NON-CONTINUOUS ENDS AS PER TYPICAL DETAILS. SPLICE CONTINUOUS TOP BARS AT CENTER BETWEEN SUPPORTS AND SPLICE CONTINUOUS BOTTOM BARS AT SUPPORTS.
6. CONCRETE COVER FOR REINFORCING BARS SHOWN IN TYPICAL DETAILS.
7. UNLESS NOTED, TEMPERATURE REINFORCING (ASTM A-615-60) TO BE 0.0018 X CONCRETE AREA.
8. PROVIDE #4 @ 12" O.C., WITH STANDARD HOOK, TOP BARS IN ALL SLABS AT DISCONTINUOUS ENDS UNLESS OTHERWISE NOTED ON PLANS. LENGTH OF BARS 1/4 OF SPAN, MINIMUM 3'-0". UNLESS OTHERWISE NOTED PROVIDE #4 @ 12" O.C IN ALL CANTILEVERS. BAR LENGTH SHALL BE CANTILEVER SPAN PLUS 10'-0" PLUS STANDARD HOOK AT CANTILEVER ENDS.
9. WHERE PIPE SLEEVES (UP TO 2" IN DIAMETER) PASS THROUGH CONCRETE BEAMS, PROVIDE ADDITIONAL STIRRUP EACH SIDE OF SLEEVE, SLEEVES FOR PIPES 2" IN DIAMETER OR LARGER MUST BE STEEL OR CAST IRON, AND THE LOCATION MUST BE APPROVED BY THE STRUCTURAL ENGINEER.
10. ALL CONSTRUCTION JOINTS SHALL BE THOROUGHLY CLEANED JUST BEFORE PLACING NEW CONCRETE IN ACCORDANCE WITH THE BUILDING CODE.
11. FOR CHAMFER OF EXPOSED CORNERS OF BEAMS AND/OR COLUMNS, SEE ARCHITECTURAL DRAWINGS.
12. CONTRACTOR SHALL COORDINATE PLACEMENT OF, OR BOX OUT FOR, ALL PIPE SLEEVES, OPENINGS, ETC, REQUIRED FOR VARIOUS TRADES.
13. CONTRACTOR SHALL COORDINATE AND NOTIFY OTHER TRADES IN SUFFICIENT TIME TO ALLOW THEM TO SET ANCHORS, INSERTS, BOLTS, HANGERS, ETC., AS REQUIRED FOR THEIR USE.
14. SEE ARCHITECTURAL DRAWINGS FOR DETAILS OF FLASHING REGLETS, FASCIA DETAILS, ETC.
15. UNDER NO CIRCUMSTANCES SHALL CONCRETE BE PUMPED THROUGH ALUMINUM PIPES. CONCRETE SHALL NOT BE PLACED IN CONTACT WITH ALUMINUM, ALUMINUM MIXING DRUMS, TRUCK MIXERS, BUGGIES, CHUTES, CONVEYORS, TREMIE PIPES, AND OTHER EQUIPMENT MADE OF ALUMINUM SHALL NOT BE USED ON THIS PROJECT.
16. SLUMPS OF OVER 4 INCHES WILL NOT BE PERMITTED UNLESS THE HRWR ADMIXTURE (SUPER PLASTICIZER) IS USED. MAXIMUM SLUMP IS THEN 8 INCHES UNLESS OTHERWISE DIRECTED BY THE ENGINEER.
17. NO ADMIXTURE SHALL BE USED IN CONCRETE EXCEPT WITH THE PERMISSION OF THE ENGINEERS AND AFTER LABORATORY DESIGN MIX APPROVAL. ALL ADMIXTURES SHALL CONTAIN NO MORE CHLORIDE IONS THAN ARE PRESENT IN MUNICIPAL DRINKING WATER.
18. WATER REDUCING ADMIXTURE SHALL CONFORM TO THE ASTM C-494, TYPE A, AND SHALL BE USED IN ALL CONCRETE.
19. AIR ENTRAINING ADMIXTURE SHALL CONFORM TO ASTM C260. AIR CONTENT OF CONCRETE SHALL BE USED AS FOLLOWS:

    A. FOR CONCRETE EXPOSED TO SOIL AND/OR WEATHER, 5%.
    B. FOR INTERIOR WALLS, COLUMNS, AND SLABS, 3%.

20. FLY ASH - ASTMC618, TYPE C OR TYPE F SHOULD BE USED BUT NOT TO EXCEED 20% CEMENTITIOUS CONTENT.
21. ALL EXPOSED CONCRETE SLABS SHALL RECEIVE A CURING COMPOUND. THE CURING COMPOUND SHALL CONFORM TO ASTM C309 AND SHALL HAVE 30% SOLIDS MINIMUM. WATER/BLANKET CURING AS PER ACI RECOMMENDATION MAY BE USED AS ALTERNATE.

FOUNDATION NOTES:

1. SITE SOIL FOR THIS PROJECT HAS BEEN INVESTIGATED BY THE FIRM OF ARHENA ENGINEERING, INC. AND FOUND, AS PRESENTED IN THEIR REPORT DATED JULY 10, 2020. FOUNDATIONS HAVE BEEN DESIGNED IN ACCORDANCE WITH THE REPORT BASED UPON AN ALLOWABLE SOIL BEARING PRESSURE OF 2,500 PSF.
2. FILL AND SUBGRADE PREPARATION SHALL BE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER RECOMMENDATION AS CONTAINED IN THEIR REPORT STATED IN ITEM 1.
3. ALL COLUMN FOOTINGS SHALL BE CENTERED UNDER COLUMN CENTERLINES UNLESS OTHERWISE NOTED.
4. BACKFILLING AGAINST FOUNDATION WALLS SHALL BE DONE CAREFULLY WITH SMALL COMPACTION EQUIPMENT, AFTER SLABS ON GROUND ARE IN PLACE AND CONCRETE HAS SET. NO TRUCKS, BULLDOZERS, ETC. SHALL BE ALLOWED CLOSER THAN 6'-0" TO ANY FOUNDATION WALL. ANY WALL 3'-0" OR HIGHER MUST BE BRACED DURING THE CONSTRUCTION PROCESS.
5. NO FOUNDATIONS SHALL BE PLACED ABOVE 1 VERTICAL ON 2 HORIZONTAL SLOPES EXTENDED FROM THE CLOSEST EDGE OF ANY UNDISTURBED SOIL OR OTHER FOUNDATION STRUCTURE. BOTTOM OF FOOTINGS SHALL NOT BE LESS THAN 1'-0" BELOW EXISTING GRADE (U.N.O.).
6. FOR FOUNDATIONS SIZE AND REINFORCING SEE SCHEDULE.
7. CONTRACTOR SHALL TREAT SOIL BENEATH BUILDING FOR TERMITES.

MASONRY:

1. DESIGN AND CONSTRUCTION SHALL CONFORM TO BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES (ACI 530-13 / ASCE 5-13) / TMS 402-16 AND SPECIFICATIONS FOR MASONRY STRUCTURES ACI 530.1-13 / ASCE 6-13 (WITH ERRATA DATED JANUARY 10, 2011 / TMS 602-16).
2. MINIMUM NET COMPRESSIVE STRENGTH OF BLOCK ASSEMBLY SHALL BE 2000 P.S.I. (f'm) MORTAR FOR MASONRY SHALL BE TYPE "S" OR "M".
3. FOR ALL EXTERIOR AND INTERIOR BEARING, BED JOINTS ARE TO COVER 100% OF THE MASONRY SURFACES AND ALL HEAD JOINTS ARE TO COVER 100% OF THE PROJECTED AREA OF THE FACE SHELLS.
4. FILL ALL CELLS AS REQUIRED WITH 3000 P.S.I. GROUT. SLUMP SHALL BE 8 TO 11 INCHES. SUBMIT DESIGN MIX FOR APPROVAL.
5. MINIMUM HORIZONTAL JOINT REINFORCING SHALL BE 9 GAGE HOT DIP GALVANIZED TRUSS OR LADDER TYPE JOINT REINFORCING AT 16" O.C., PROVIDE MANUFACTURE "T" AND "L" SHAPES FOR INTERSECTIONS AND CORNERS, (MINIMUM LAP 8").
6. MINIMUM VERTICAL REINFORCING SHALL BE (1)-#5 @ 48" OR (1)-#4 @ 32" O.C., (U.N.O.).
7. PROVIDE ADDITIONAL VERTICAL REINFORCING BAR AT EVERY CORNER, INTERSECTION, CONTROL JOINT, AND OPENING EDGES (U.N.O.).
8. MINIMUM SPLICE FOR VERTICAL REINFORCING IS SHOWN IN DETAIL 4-023, SPLICE FOR HORIZONTAL JOINT REINFORCING = 12".
9. WALLS ARE DESIGNED TO BE BRACED BY FLOOR OR ROOF MEMBERS, CONTRACTOR SHALL PROVIDE TEMPORARY BRACING DURING CONSTRUCTION.
10. ALL CELLS BELOW FIRST FLOOR FINISHED ELEVATION MUST BE FULLY GROUT FILLED.
11. ALL KNOCK OUT BLOCK HORIZONTAL BARS SHALL HAVE CORNER BARS AT ALL CORNERS AND WALL INTERSECTIONS. SIZE AND NUMBER OF CORNER BARS SHALL BE SAME AS HORIZONTAL BARS.
12. ALL INTERSECTING WALLS AND CORNER WALLS SHALL BE LAID IN AN OVERLAPPING MASONRY BONDING PATTERN, WITH ALTERNATE UNITS HAVING A BEARING OF NOT LESS THAN 3 INCHES ON UNIT BELOW.

WOOD FRAMING NOTES:

1. ALL WOOD FRAMING SHALL BE IN COMPLIANCE WITH THE LATEST NDS EDITION FOR WOOD CONSTRUCTION. DIMENSIONED LUMBER SHALL BE DRESSED S4S, AND SHALL BEAR THE GRADE STAMP OF THE MANUFACTURER'S ASSOCIATION.
2. ALL LUMBER SHALL BE SOUND, SEASONED, AND FREE FROM WRAP.
3. ALL FRAMING LUMBER SHALL BE SOUTHERN YELLOW PINE #2 OR BETTER.
4. INTERIOR NON-LOAD BEARING WALLS SHALL BE UTILITY GRADE OR BETTER.
5. MINIMUM OF 3-PLY STUD COLUMNS TO BE INSTALLED AT BEAM OR GIRDER TRUSS BEARING LOCATIONS UNLESS NOTED OTHERWISE.
6. INSTALL BLOCKING IN ALL WALL STUDS OVER 8'-0" AT MID-HEIGHT, AND SHEATHING JOINT. BRACE GABLE END AT 4'-0" O.C. AS SHOWN IN THE DRAWINGS.
7. ALL LUMBER IN CONTACT WITH MASONRY OR CONCRETE SHALL BE PRESSURE TREATED OR OF NATURAL DURABLE WOOD.
8. PRESSURE TREATED LUMBER SHALL BE IMPREGNATED WITH AN APPROVED TREATMENT IN ACCORDANCE WITH F.S. 11-W-571 AND BARE THE AMERICAN WOOD PRESERVES INSTITUTE EQUALITY MARK LP-2.
9. SHEATHING SHALL BE APA EXTERIOR GRADE RATED, AND INSTALLED WITH PLY-CLIPS AT 24" O.C. SEE NAILING SCHEDULE FOR SHEATHING CONNECTION.
10. FLOOR SHEATHING SHALL BE A MINIMUM OF 5/8" TONGUE AND GROOVE TYPE SUPPORTED AT 24" O.C. MAX, UNLESS NOTED OTHERWISE IN PLAN.
11. ALL NAILING AND BOLTING SHALL COMPLY WITH AMERICAN INSTITUTE OF TIMBER CONSTRUCTION REQUIREMENTS. ALL NAILS EXPOSED TO THE EXTERIOR SHALL BE GALVANIZED.
12. ALL CONNECTION HARDWARE SHALL BE GALVANIZED AND SUPPLIED BY SIMPSON STRONG TIE OR APPROVED EQUAL. SUBMIT CUT SHEETS FOR ALL CONNECTION HARDWARE TO ENGINEER FOR APPROVAL. ALL NAIL HOLES SHALL BE FILLED OR AS REQUIRED BY THE MANUFACTURER TO ACHIEVE LOAD CAPACITY.
13. BRACING: TEMPORARY BRACING OF THE ROOF SYSTEM SHALL BE INSTALLED PER BCSI-13 RECOMMENDATIONS AND SHALL BE UTILIZED AS THE PERMANENT BRACING FOR THE ROOF SYSTEM, UNLESS NOTED OTHERWISE.
14. ALL WOOD FRAMING SHALL BE IN COMPLIANCE WITH THE LATEST NDS EDITION FOR WOOD CONSTRUCTION.

PRE-ENGINEERED WOOD PRODUCTS:

1. ALL PRE-ENGINEERED WOOD PRODUCTS SHALL BE VERIFIED BY TRUSS MANUFACTURER. TRUSS MANUFACTURER SHALL HAVE THE AUTHORITY TO MAKE SUBSTITUTIONS FOR PRODUCTS SPECIFIED ON THE PLANS DUE TO AVAILABILITY OR ECONOMICS. CHANGES SPECIFIED BY THE TRUSS MANUFACTURER SHALL CONTROL. CHANGES MADE AFTER TRUSS ENGINEERING HAS BEEN PROVIDED TO ENGINEER OF RECORD, MUST BE APPROVED BY THE ENGINEER OF RECORD.
2. FRAMING PLAN IS DIAGRAMMATIC IN NATURE AND IS PROVIDED FOR ILLUSTRATION PURPOSES ONLY. TRUSS MANUFACTURER TO PROVIDE SEPARATE LAYOUT AND TRUSS COMPONENT DESIGN SIGNED AND SEALED BY A FLORIDA REGISTERED PROFESSIONAL ENGINEER.
3. ALL PRE-ENGINEERED WOOD PRODUCTS ARE THE RESPONSIBILITY OF THE TRUSS MANUFACTURER. THE TRUSS ENGINEER IS A DELEGATED ENGINEER FOR THIS PROJECT, AND AS SUCH, IS RESPONSIBLE FOR THE VALIDITY OF THE COMPONENTS PROVIDED. FRAMING LAYOUTS SHOWN MAY BE CHANGED BY THE TRUSS MANUFACTURER. THE DELEGATE ENGINEER IS RESPONSIBLE FOR PROVIDING A FINAL SEALED SET OF ALL CALCULATIONS AND LAYOUTS FOR THIS PROJECT TO THE ENGINEER OF RECORD FOR REVIEW PRIOR TO MANUFACTURE OF SAID COMPONENTS. ENGINEER OF RECORD HAS NOT REVIEWED THE PRE-ENGINEERED TRUSS MANUFACTURER'S COMPONENTS AT THIS TIME AND RESERVES THE RIGHT TO MAKE ANY CHANGES AFTER SUCH INFORMATION HAS BEEN PROVIDED FOR REVIEW. CONTRACTOR, AS PROJECT COORDINATOR, SHALL BE RESPONSIBLE FOR INSURING INFORMATION REQUESTED ABOVE HAS BEEN SUBMITTED TO ENGINEER OF RECORD IN A TIMELY MANNER WHEN AVAILABLE.
4. ALL PRE-ENGINEERED TRUSSES TO BE DESIGNED USING THE MOST RECENT TPI CRITERIA. TRUSSES TO BE HANDLED AND INSTALLED USING MOST RECENT HIB RECOMMENDATIONS. TEMPORARY AND PERMANENT BRACING SHALL BE IN ACCORDANCE WITH BCSI-13 RECOMMENDATIONS UNLESS NOTED OTHERWISE, OR MORE STRINGENT CODE REQUIREMENTS APPLY. TRUSS ENGINEER IS RESPONSIBLE FOR INDICATING ALL TRUSS TO TRUSS CONNECTORS, ALL COMPONENTS TO BE DESIGNED FOR BOTH GRAVITY AND UPLIFT LOAD CASES, INCLUDING BEAM COMPONENTS.
5. UPON REVIEW, ENGINEER OF RECORD WILL PROVIDE A REVIEW LETTER INDICATING ANY CHANGE IN STRAPPING OR SUPPORT BASED ON THAT REVIEW. CONSTRUCTION COMMENCING PRIOR TO ENGINEER'S REVIEW IS SUBJECT TO MODIFICATION BASED ON REVIEW LETTER.

POST-INSTALLED ANCHORS

1. POST-INSTALLED ANCHORS SHALL ONLY BE USED WHERE SPECIFIED ON THE CONSTRUCTION DOCUMENTS. SPECIAL INSPECTIONS ARE REQUIRED PER THE PROVISIONS SET FORTH BELOW. CONTRACTOR TO CONTACT MANUFACTURER'S REPRESENTATIVE FOR PROPER PRODUCT INSTALLATION TRAINING ON INITIAL ANCHORS.
2. SUBSTITUTION REQUESTS, FOR PRODUCTS OTHER THAN THOSE SPECIFIED BELOW, SHALL BE SUBMITTED BY THE CONTRACTOR TO THE ENGINEER-OF-RECORD ALONG WITH CALCULATIONS THAT ARE PREPARED & SEALED BY A REGISTERED PROFESSIONAL ENGINEER. THE CALCULATIONS SHALL DEMONSTRATE THAT THE SUBSTITUTED PRODUCT IS CAPABLE OF ACHIEVING THE PERTINENT EQUIVALENT PERFORMANCE VALUES (MINIMUM) OF THE SPECIFIED PRODUCT USING THE APPROPRIATE DESIGN PROCEDURE AND/OR STANDARD(S) AS REQUIRED BY THE BUILDING CODE.
3. EXPANSION ANCHORS SHALL BE STUD TYPE WITH A SINGLE PIECE OF THREE SECTION WEDGE AND ZINC PLATED IN ACCORDANCE WITH ASTM B633. THE ANCHORS SHALL MEET FEDERAL SPECIFCATION FF-S-325, GROUP II, TYPE 4, CLASS I FOR CONCRETE EXPANSION ANCHORS. ANCHORS SHALL BE HILTI KWIK BOLT 3 AS SUPPLIED BY HILTI INC. TULSA OKLAHOMA. ANCHORS SHALL BE INSTALLED IN HOLES DRILLED WITH HILTI CARBIDE TIPPED DRILL BITS OR MATCHED TOLERANCE DIAMOND CORE BITS. ANCHORS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURE'S RECOMMENDATIONS.
4. INJECTED ADHESIVE ANCHORS SHALL BE USED FOR INSTALLATION OF THREADED RODS. ADHESIVE SHALL BE FURNISHED IN A SIDE BY SIDE REFILL PACK WHICH KEEP COMPONENT A AND B SEPARATE. INJECTION ADHESIVE SHALL BE HILTI HIT HY 200 AS SUPPLIED BY HILTI INC. TULSA OKLAHOMA. ANCHOR RODS MEET ASTM F1554 (36 KSI). NUTS AND WASHERS SHALL BE FURNISHED TO MEET THE REQUIREMENTS OF AN ASTM F1554 (36 KSI) STEEL ROD.

DELEGATED DESIGN

1. SELECT SCOPE ITEMS IN THE PROJECT ARE CUSTOM DESIGNED AND ENGINEERED. THE ENGINEERING RESPONSIBILITY IS DELEGATED TO THE CONTRACTOR AND RELATED SUBCONTRACTORS.
2. CONTRACTOR SHALL SUBMIT SIGNED AND SEALED SHOP DRAWINGS FOR SUCH ELEMENTS DESIGNATED TO BE DESIGNED BY A DELEGATED ENGINEER.
3. DELEGATED ENGINEERING WILL ADDRESS ALL LOADING REQUIREMENTS INCLUDING WIND PRESSURES IN ACCORDANCE WITH THE LATEST FLORIDA BUILDING CODE. REFER TO THE COMPONENTS AND CLADDING PRESSURES PROVIDED FOR DESIGN PRESSURES ELEMENTS SHALL BE IN CONFORMANCE WITH.
4. DELEGATED ENGINEERED DRAWINGS SHALL DEFINE MATERIAL THICKNESS, SIZING, CONNECTIONS, ETC. OF THE SUBMITTED SYSTEM.
5. DELEGATED ENGINEERED DRAWINGS WILL BE REVIEWED AS PART OF THE SUBMITTAL PROCESS.
6. BUILDING COMPONENTS THAT ARE NOT SPECIFIED AS DELEGATED TO OTHER ENGINEERS SHALL BE SUBMITTED WITH APPROPRIATE FLORIDA PRODUCT APPROVAL INFORMATION IN THE SUBMITTAL. WHERE A FLORIDA PRODUCT APPROVAL DOES NOT EXIST FOR A COMPONENT REQUIRING APPROVAL, THE DESIGN SHALL BE DELEGATED TO AN ENGINEER ON THE CONTRACTOR'S TEAM.

STRUCTURAL SHEET INDEX

TO THE BEST OF OUR KNOWLEDGE INFORMATION AND BELIEF, THESE STRUCTURAL PLANS CONFORM TO AND SATISFY, THE FLORIDA BUILDING CODE, SIXTH EDITION 2017, ACI 318-14 AND LOCAL CODES AS APPLICABLE

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BOARD OF COUNTY COMMISSIONERS
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601 E KENNEDY BLVD
TAMPA, FL 33601

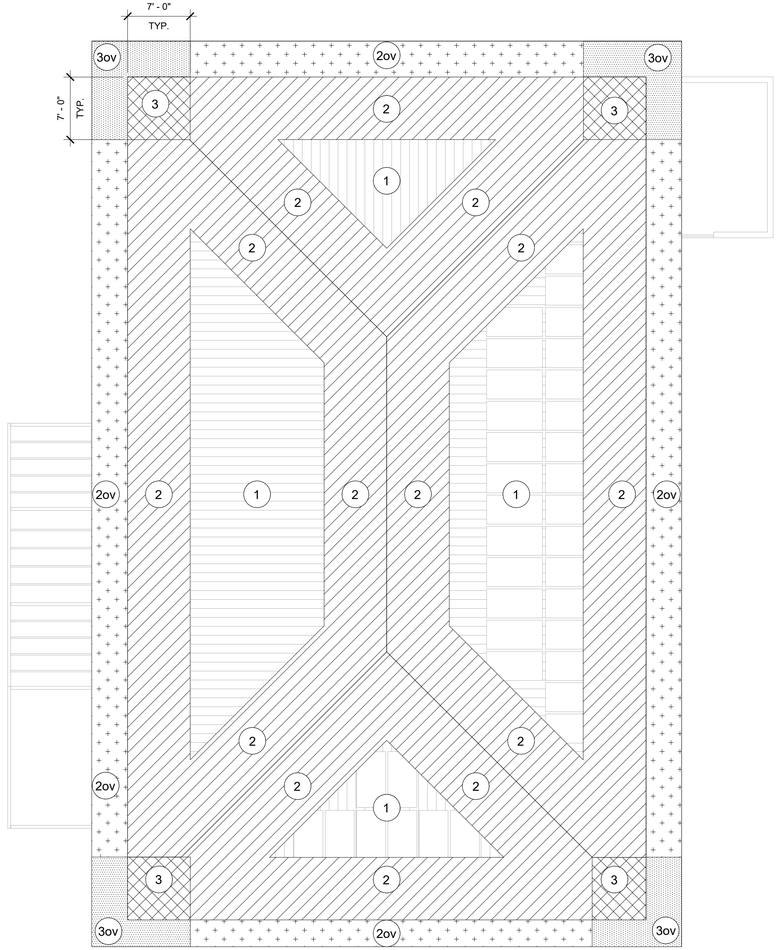
HILLSBOROUGH COUNTY
NORTHWEST AREA HEAD START

PROJECT #: 2010-00

DISTRIBUTION	DATE
SCHEMATIC DESIGN	05.01.2020
DESIGN DEVELOPMENT	06.11.2020
90% CONST DOCS	08.19.2020
PERMIT SET	12.21.2020

GENERAL STRUCTURAL NOTES

S1.1



ROOF PRESSURE PLAN

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

LOAD SCHEDULE:

ROOF:	DEAD LOAD	=	30 PSF
	LIVE LOAD	=	20 PSF
			50 PSF

WIND DESIGN DATA:

CODE:
ASCE 7-10 FLORIDA BUILDING CODE, (SIXTH EDITION) 2017.

BASIC WIND SPEED	142 mph (Vult) 110 mph (Vasd)
CATEGORY (RISK)	II
EXPOSURE	C
BUILDING HEIGHT	21 ft.
ENCLOSURE CLASSIFICATION	± 0.18

* GLAZED OPENINGS IN RISK CATEGORY II, III, IV LOCATED IN HURRICANE PRONE REGIONS SHALL BE PROTECTED IN ACCORDANCE WITH FBC 2017 SEC. 1609.1.2

COMPONENTS AND CLADDING (ULTIMATE) UPLIFT PRESSURE SCHEDULE

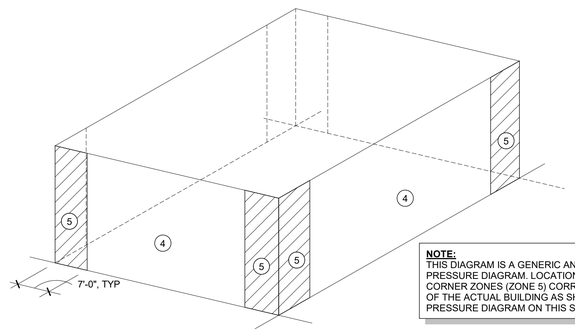
PATTERN	ZONE	MAIN ROOF EFFECTIVE WIND AREA				
		10 SQ. FT.	20 SQ. FT.	50 SQ. FT.	100 SQ. FT.	500 SQ. FT.
	1	+32 PSF/-51 PSF	+30 PSF/-51 PSF	+25 PSF/-48 PSF	+23 PSF/-46 PSF	+23 PSF/-46 PSF
	2	+32 PSF/-88 PSF	+30 PSF/-81 PSF	+25 PSF/-72 PSF	+23 PSF/-65 PSF	+23 PSF/-65 PSF
	3	+32 PSF/-130 PSF	+30 PSF/-123 PSF	+25 PSF/-111 PSF	+23 PSF/-102 PSF	+23 PSF/-102 PSF
	2' ov	-111 PSF	-111 PSF	-111 PSF	-111 PSF	-111 PSF
	3' ov	-181 PSF	-167 PSF	-144 PSF	-125 PSF	-125 PSF

COMPONENTS AND CLADDING
DESIGN WIND PRESSURE (ULTIMATE) FOR WALLS, DOORS & WINDOWS

PATTERN	ZONE	EFFECTIVE WIND AREA				
		10 SQ. FT.	20 SQ. FT.	50 SQ. FT.	100 SQ. FT.	500 SQ. FT.
	4	+55 PSF/-60 PSF	+53 PSF/-58 PSF	+51 PSF/-55 PSF	+46 PSF/-51 PSF	+41 PSF/-46 PSF
	5	+55 PSF/-74 PSF	+53 PSF/-69 PSF	+51 PSF/-65 PSF	+46 PSF/-60 PSF	+41 PSF/-46 PSF

NOTE:

1. ALL EXTERIOR DOORS & WINDOW ASSEMBLIES SHALL SATISFY THE REQUIREMENTS OF THE FLORIDA BUILDING CODE (SIXTH EDITION 2017, SECTION 1709.5). ALL CONNECTIONS TO BUILDING STRUCTURE SHALL HAVE THE CAPACITY TO WITHSTAND THE PRESSURES INDICATED IN THIS SCHEDULE.
2. PLUS AND MINUS SIGNS SIGNIFY PRESSURES ACTING TOWARD AND AWAY FROM THE SURFACES, RESPECTIVELY.
3. ALL WIND PRESSURE VALUES INDICATED ARE IN POUNDS PER SQUARE FOOT (PSF). MULTIPLY ULTIMATE WIND PRESSURE BY 0.60 FOR ASD PRESSURE.



NOTE:
THIS DIAGRAM IS A GENERIC AND SIMPLIFIED WALL PRESSURE DIAGRAM. LOCATION AND WIDTH OF CORNER ZONES (ZONE 5) CORRESPOND TO ZONE 3 OF THE ACTUAL BUILDING AS SHOWN IN THE ROOF PRESSURE DIAGRAM ON THIS SHEET.

WALL PRESSURES DIAGRAM

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

TO THE BEST OF OUR KNOWLEDGE INFORMATION AND BELIEF, THESE STRUCTURAL PLANS CONFORM TO AND SATISFY, THE FLORIDA BUILDING CODE, SIXTH EDITION 2017, ACI 318-14 AND LOCAL CODES AS APPLICABLE

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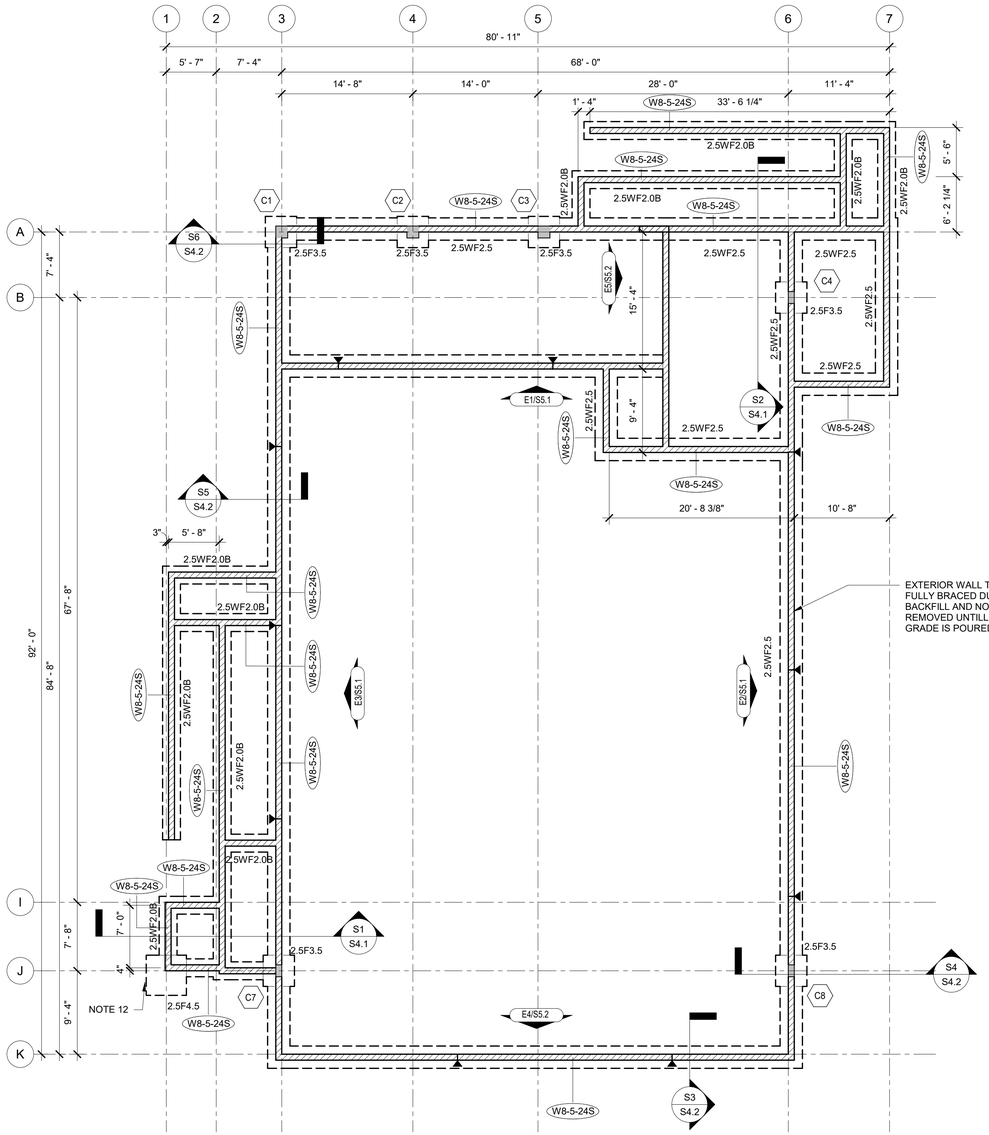
NORTHWEST AREA HEAD START

PROJECT #: 2010-00

DISTRIBUTION	DATE
SCHEMATIC DESIGN	05.01.2020
DESIGN DEVELOPMENT	06.11.2020
90% CONST DOCS	08.19.2020
PERMIT SET	12.21.2020

WIND DESIGN DATA AND LOAD SCHEDULE

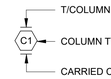
S1.2



FOUNDATION PLAN NOTES:

1. FOR TYPICAL FOUNDATION PLAN DETAILS, SEE DRAWINGS S3.1, S3.2 & S3.3
2. FOR GENERAL STRUCTURAL NOTES, SEE DRAWING S1.1.
3. FOR FOOTING SIZE AND REINFORCING, SEE SCHEDULE ON THIS DRAWING.
4. ( ) DENOTES TOP OF FOOTING ELEVATION.
5. TOP OF FOOTING: ELEVATION @ INTERIOR = (-2' - 0")
   TYPICAL U.N.O.
   ELEVATION @ EXTERIOR = (-2' - 0")
   TYPICAL U.N.O.
6. FOR PLAN DIMENSIONS NOT SHOWN, REFER TO ARCHITECTURAL DRAWINGS.
7. TYPICAL WALL REINFORCING SCHEDULE:
   A. FOR CMU EXTERIOR WALL REINFORCING, SEE SCHEDULE THIS SHEET.
   B. ▩ INDICATES ADDITIONAL (1) VERTICAL IN GROUT FILLED CELL.
   C. PROVIDE ADDITIONAL (1) VERTICAL IN FIRST (2) CELLS EACH SIDE OF ALL WALL OPENINGS, CORNERS AND INTERSECTIONS.

8. COLUMN DESIGNATION SHOWN THUS ⬡ ON PLAN. FOR SIZE AND REINFORCING SEE SCHEDULE ON DRAWING S5.2.



9. ALL CMU WALLS SHALL BE REINFORCED AS SHOWN ON PLAN WITH DOWELS TO MATCH, U.N.O. ALL CELLS AT REINFORCING LOCATION SHALL BE FILLED WITH GROUT. PROVIDE INSPECTION/CLEANOUT HOLE AT BASE WHEN POUR HEIGHT IS GREATER THAN 4'-0".
10. WHERE FOOTING MARK NUMBER HAS A SUFFIX B, I.E., WF5.0B, THE REINFORCING INDICATED SHALL BE APPLIED TO BOTTOM OF FOOTING ONLY.
11. MASONRY CONTROL JOINT SHOWN THUS ◀ MCJ ON PLAN. MAXIMUM SPACING OF JOINTS = 24' - 0", COORDINATE LOCATION WITH THE ARCH. & STRUCT WALL ELEVATIONS. DO NOT LOCATE A MCJ CLOSER THAN 24" TO ANY CMU OPENING.
12. CANOPY FOUNDATIONS TO BE COORDINATED WITH COVERED CANOPY SHOP DRAWINGS.

COLUMN FOOTING SCHEDULE

MARK*	LENGTH	WIDTH	THICKNESS	TOP & BOTT. REINF.* EA. WAY U.N.O.	REMARKS
2.5F3.5	3' - 6"	3' - 6"	1' - 6"	4-#5	
2.5F4.5	4' - 6"	4' - 6"	1' - 6"	6-#5	

WALL FOOTING SCHEDULE

MARK*	WIDTH	THICKNESS	TOP & BOTT. REINF. CONT.	TOP & BOTT. REINF. TRANSV.	REMARKS
2.5WF2.0B	2' - 0"	1' - 4"	3-#5	#4 @ 24"	SEE NOTE 10
2.5WF2.5	2' - 6"	1' - 4"	3-#5	#4 @ 16"	

WALL SCHEDULE

TYPE	DESCRIPTION
W8-5-24S	8" CMU WALL REINF. W/ #5 AT 24" O.C.

0 4' 8' 16'

FOUNDATION PLAN
1/8" = 1'-0"
A5

N

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PROJECT #: 2010-00

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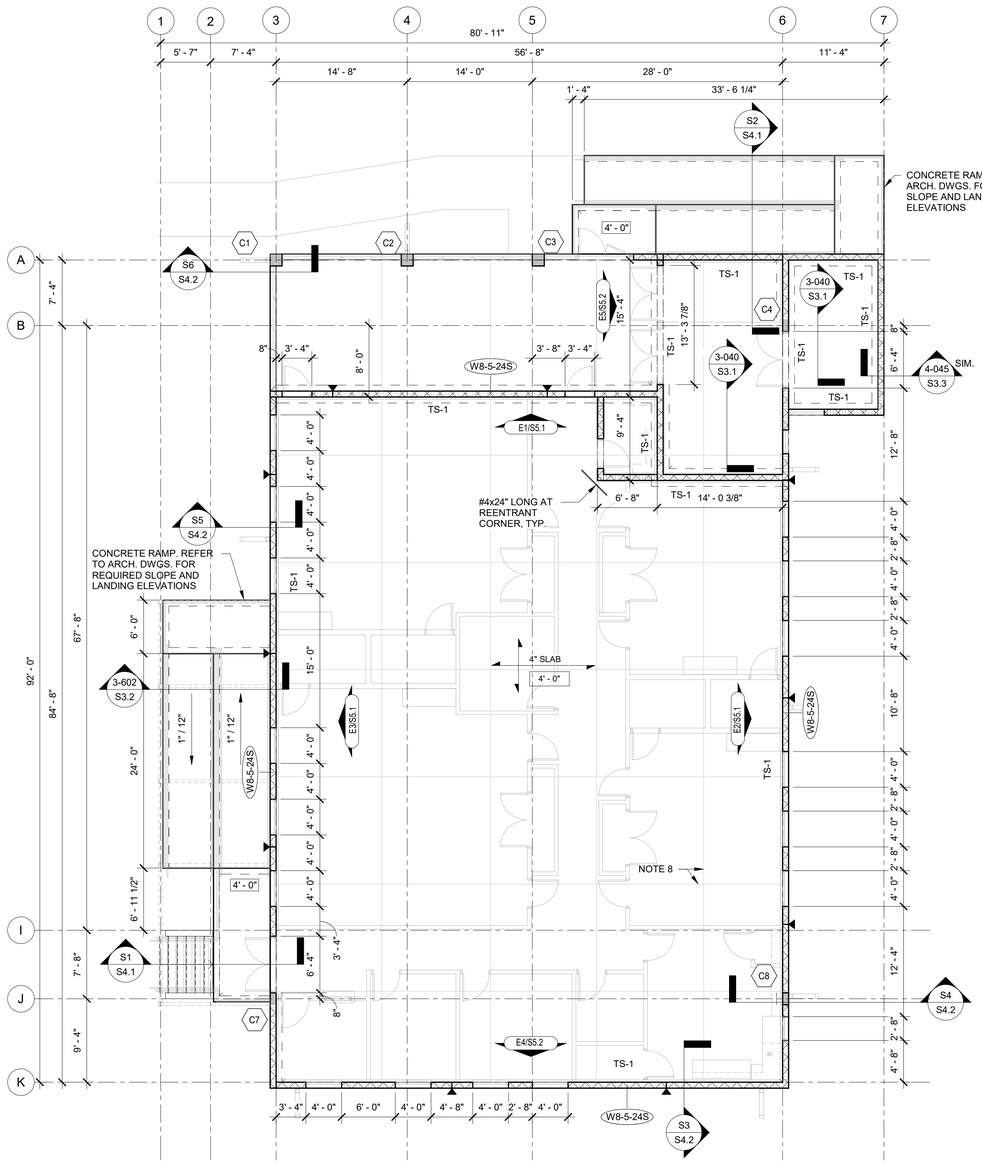
90% CONST DOCS	08.19.2020
PERMIT SET	12.21.2020

FOUNDATION PLAN

S2.1



SLAB ON GRADE PLAN NOTES:

1. SLAB ON GRADE TO BE 4" THICK CONCRETE OVER VAPOR BARRIER ON COMPACTED SUB-BASE AS PER GEOTECHNICAL REPORT REINFORCED WITH 6x6xW2.1xW2.1 W.W.F. (FLAT SHEETS) CENTERED IN SLAB. SUPPORT WELDED WIRE FABRIC WITH 2" SLAB BOLSTER OR APPROVED EQUAL @ 3'-0"(±) O.C. BOTH WAYS. USE OF CONCRETE BRICK IS NOT ALLOWED.
2. VAPOR BARRIER REQUIREMENTS/APPLICATION/INSTALLATION SHALL BE DONE AS PER ARCHITECTURAL OR MOISTURE CONSULTANT DOCUMENTS AND RECOMMENDATIONS. IF NONE ARE AVAILABLE, AT A MINIMUM THE FOLLOWING RECOMMENDATIONS SHALL BE FOLLOWED.
   A. VAPOR BARRIER SHALL CONFORM TO ASTM E-1745 , MEETS OR EXCEEDS CLASS "B".
   B. VAPOR BARRIER INSTALLATION SHALL FOLLOW MANUFACTURER'S INSTRUCTIONS AND ASTM E 1643-98.
   C. UNROLL VAPOR BARRIER WITH THE LONGEST DIMENSION PARALLEL WITH THE DIRECTION OF THE POUR.
   D. LAP VAPOR BARRIER OVER FOOTINGS AND SEAL TO FOUNDATION WALLS.
   E. OVERLAP JOINTS 6 INCHES AND SEAL WITH MANUFACTURER'S TAPE.
   F. SEAL ALL PENETRATIONS (INCLUDING PIPES) WITH MANUFACTURER'S PIPE BOOT.
   G. NO PENETRATION OF THE VAPOR BARRIER IS ALLOWED EXCEPT FOR REINFORCING STEEL AND PERMANENT UTILITIES.
   H. REPAIR DAMAGED AREAS BY CUTTING PATCHES OF VAPOR BARRIER, OVERLAPPING DAMAGED AREA 6 INCHES AND TAPING ALL FOUR SIDES WITH TAPE.
3. TOP OF SLAB ELEVATION SHOWN THUS [-'-"] ON PLAN EQUALS REFERENCE EL., FOR ACTUAL EL., SEE CIVIL DRAWINGS.
4. FOR GENERAL STRUCTURAL NOTES, SEE DRAWING S1.1.
5. FOR FLOOR SLAB DEPRESSION LOCATIONS AND LIMITS NOT SHOWN ON PLAN SEE ARCHITECTURAL DRAWINGS.
6. FOR PLAN DIMENSIONS NOT SHOWN, REFER TO ARCHITECTURAL DRAWINGS.
7. COLUMN DESIGNATION SHOWN THUS ⬡ ON PLAN. FOR SIZE AND REINFORCING SEE SCHEDULE ON DRAWING S5.2.

8. COORDINATE LOCATION OF (CJ) CONTROL JOINTS (SAWCUTS & TOOLED JOINTS) AT WALKWAY SLABS WITH ARCHITECTURAL DRAWINGS. CONTROL JOINTS AT EXPOSED TO WEATHER WALKWAYS SHALL BE TOOLED JOINTS SEE TYPICAL DETAIL 3-201 ON S3.2.
9. ALL CMU WALLS SHALL BE REINFORCED AS SHOWN ON PLAN WITH DOWELS TO MATCH, U.N.O. ALL CELLS AT REINFORCING LOCATION SHALL BE FILLED WITH GROUT. PROVIDE INSPECTION/CLEANOUT HOLE AT BASE WHEN POUR HEIGHT IS GREATER THAN 4'-0".
10. RAIN LEADER SHOWN THUS ⊗ R.L ON PLAN. SEE PLUMBING DRAWINGS FOR SIZE AND LOCATIONS.
11. GENERAL CONTRACTOR TO COORDINATE LOCATION OF ALL WALL PENETRATIONS REQUIRED FOR MECHANICAL EQUIPMENT AND PROVIDE A PRECAST LINTEL AT ALL OPENINGS REFER TO TYPICAL DETAIL 4-004 ON S3.2.
12. MASONRY CONTROL JOINT SHOWN THUS ⊣◀ MCJ ON PLAN. MAXIMUM SPACING OF JOINTS = 24' - 0", COORDINATE LOCATION WITH THE ARCH. & STRUCT WALL ELEVATIONS. DO NOT LOCATE A MCJ CLOSER THAN 24" TO ANY CMU OPENING. SEE TYPICAL DETAIL 4-002/S3.2

THICKENED SLAB SCHEDULE

MARK*	SIZE	THICKNESS	TOP & BOTT.* REINF. CONT.	TOP & BOTT.* REINF. TRANSV.	REMARKS
TS-1	0' - 8" x CONT.	0' - 8"	(2)-#5	N/A	

WALL SCHEDULE

TYPE	DESCRIPTION
W8-5-24S	8" CMU WALL REINF. W/ #5 AT 24" O.C.

CONCRETE BEAM SCHEDULE

MARK	BEAM WIDTH	BEAM DEPTH	CONT. REINFORCING	TIE REINFORCING	REMARKS
CB-1	8"	16"	(2) #5 T&B CONT.	#3 @ 6" O.C.	
CB-2	8"	24"	(2) #6 T&B CONT.	#3 @ 6" O.C.	

0 4' 8' 16'

SLAB ON GRADE PLAN
1/8" = 1'-0"

A5

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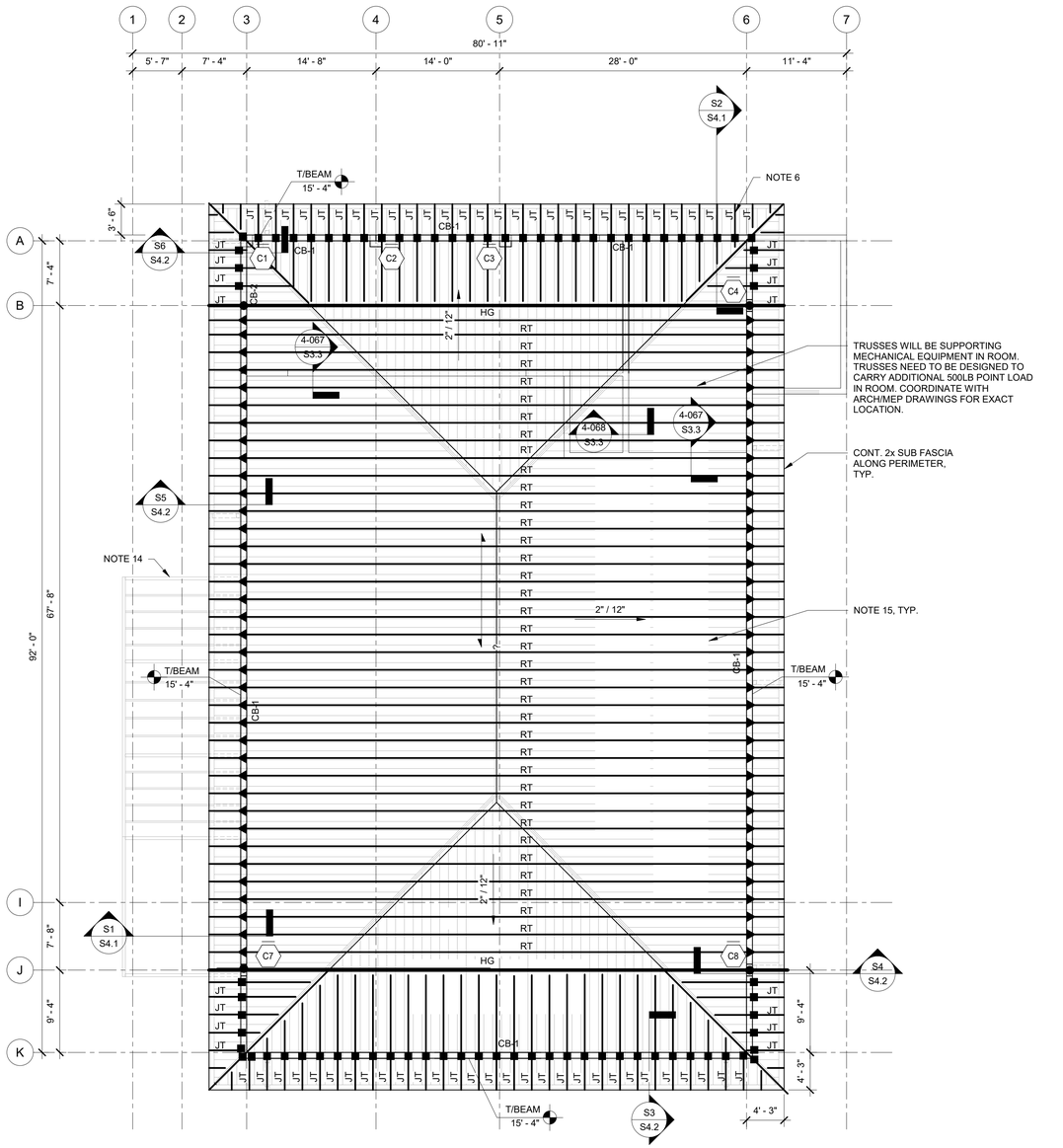
SLAB ON GRADE PLAN

S2.2

ROOF TRUSS LEGEND:

1. RT - ROOF TRUSS
2. GT - GIRDER TRUSS
3. GET - GABLE END
4. FT - FLAT TRUSS
5. HG - HIP GIRDER
6. JT - JACK TRUSS
7. AT - ATTIC TRUSSES



ROOF FRAMING NOTES:

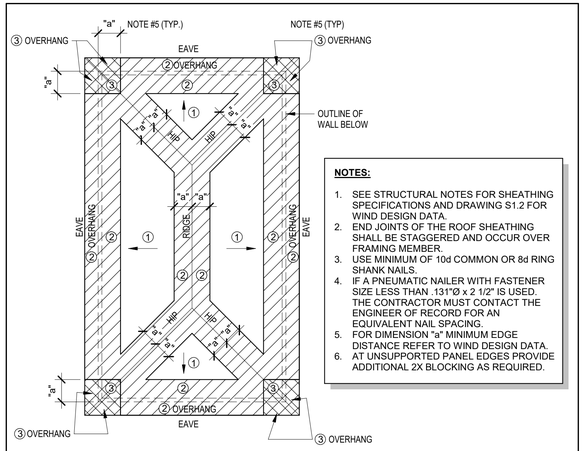
1. ROOF FRAMING SHALL BE 19/32" (CDX) EXTERIOR GRADE STRUCTURAL PLYWOOD SHEATHING SPANNING OVER PRE-ENGINEERED/ PRE-FABRICATED WOOD TRUSSES SPACED AT 2'-0" ON CENTER (MAX.). REFER TO ARCHITECTURAL DRAWINGS FOR ROOF SLOPES AND FINISH.
2. DIRECTION OF PLYWOOD SHEATHING SPAN SHOWN THUS ◄——► ON PLAN.
3. FOR WIND DESIGN DATA AND ROOF LOAD SCHEDULE SEE DRAWING S1.2.
4. FOR TYPICAL DETAILS SEE DRAWINGS S3.1 THRU S3.3.
5. UNLESS OTHERWISE NOTED, FASTEN ALL STRUCTURAL ELEMENTS IN ACCORDANCE WITH THE INTERNATIONAL BUILDING CODE, 2017.
6. ROOF TRUSSES @ 2'-0" MAX. BY DELEGATED TRUSS SYSTEM ENGINEER. DELEGATED TRUSS DESIGNER TO DESIGN TRUSSES FOR THE UPLIFT FORCES SHOWN ON THE LOADING SCHEDULE AND PROVIDE CERTIFICATION THAT CHORD AND WEB MEMBERS HAVE BEEN DESIGNED FOR LOAD REVERSAL STRESSES DUE TO UPLIFT FORCES.
7. TRUSS MANUFACTURER SHALL HAVE THE OPTION TO CHANGE LOCATION OF TYPICAL ROOF TRUSSES. GIRDER TRUSS LOCATION SHALL REMAIN AS SHOWN ON PLAN. IF TRUSS DESIGNER CHANGES LOCATION OF GIRDERS, SUPPORT SECTIONS AND CONNECTIONS ARE SUBJECT TO CHANGE. SUBMIT TRUSS SHOP DRAWINGS AND CALCULATIONS WHICH ARE SIGNED AND SEALED BY A REGISTERED PROFESSIONAL ENGINEER IN THE STATE OF FLORIDA FOR REVIEW AND APPROVAL.
8. LOCATION OF PERMANENT AND TEMPORARY TRUSS BRACING NOT SHOWN AND SHALL BE DETERMINED AND DETAILED BY DELEGATED TRUSS DESIGNER WHO SIGNS AND SEALS THE ROOF TRUSS DRAWINGS. ALL BRACING SHALL BE SHOWN ON THE TRUSS DRAWINGS.
9. ALL TRUSS TO TRUSS CONNECTIONS SHALL BE DESIGNED BY THE DELEGATED REGISTERED PROFESSIONAL ENGINEER WHO SIGNS AND SEALS THE ROOF TRUSS DRAWINGS AND SHALL BE NOTED AND LOCATED ON THE TRUSS DRAWINGS.
10. FOR PLAN AND OVERHANG DIMENSIONS NOT SHOWN, SEE ARCHITECTURAL DRAWINGS.
11. ALL PRE-ENGINEERED TRUSS CONNECTIONS TO STRUCTURE SHOWN ARE SUBJECT TO CHANGE UPON RECEIPT OF TRUSS SHOP DRAWINGS AND CALCULATIONS.
12. COORDINATE ALL HORIZONTAL AND VERTICAL OPENING LOCATIONS IN TRUSSES WITH MECHANICAL AND ARCHITECTURAL DRAWINGS FOR HORIZONTAL PENETRATIONS.
13. COORDINATE ROOF SHAPE, DIMENSIONS, AND SLOPE WITH ARCH, ROOF DRAWINGS.
14. ALUMINUM CANOPY BY DELEGATED ENGINEER. PROVIDE CALCULATIONS AND SHOP DRAWINGS SIGNED AND SEALED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF FLORIDA.
15. SOLAR PANEL BY OTHERS. ALL EXTERIOR SOLAR PANELS ASSEMBLIES SHALL SATISFY THE REQUIREMENTS OF THE FLORIDA BUILDING CODE (2017 EDITION). SECTION 1715.5 ALL CONECTIONS TO BUILDING STRUCTURE SHALL HAVE THE CAPACITY TO WITHSTAND THE PRESSURES INDICATED IN THE WIND LOAD SCHEDULE

CONCRETE BEAM SCHEDULE

MARK	BEAM WIDTH	BEAM DEPTH	CONT. REINFORCING	TIE REINFORCING	REMARKS
CB-1	8"	16"	(2) #5 T&B CONT.	#3 @ 6" O.C.	
CB-2	8"	24"	(2) #6 T&B CONT.	#3 @ 6" O.C.	

CONNECTOR SCHEDULE

MARK	APPLICATION	QUANTITY	MANUFACTURER	MODEL NUMBER	FASTENERS
▲	TRUSS TO CMU / CONC. BEAM	2	SIMPSON	META16	(6) 16d TO TRUSS EMBED TO TIE-BEAM
●	MAIN GIRDER TO CONC. COLUMN	1	SIMPSON	HGT-2	(16)-10d TO TRUSS (2) 3/4"Ø ANCHORS TO CONC. COLUMN
■	TRUSS TO CMU / CONC. BEAM	1	SIMPSON	META 16	(8)-10d X 1-1/2" TO TRUSS EMBED TO TIE-BEAM



NOTES:

1. SEE STRUCTURAL NOTES FOR SHEATHING SPECIFICATIONS AND DRAWING S1.2 FOR WIND DESIGN DATA.
2. END JOINTS OF THE ROOF SHEATHING SHALL BE STAGGERED AND OCCUR OVER FRAMING MEMBER.
3. USE MINIMUM OF 10d COMMON OR 8d RING SHANK NAILS.
4. IF A PNEUMATIC NAILER WITH FASTENER SIZE LESS THAN .131"Ø x 2 1/2" IS USED. THE CONTRACTOR MUST CONTACT THE ENGINEER OF RECORD FOR AN EQUIVALENT NAIL SPACING.
5. FOR DIMENSION "a" MINIMUM EDGE DISTANCE REFER TO WIND DESIGN DATA.
6. AT UNSUPPORTED PANEL EDGES PROVIDE ADDITIONAL 2X BLOCKING AS REQUIRED.

AREA #1 — SEE NOTE #3 AND MAIN ROOF TYPE 1 NAILING PATTERN.

AREA #2 — SEE NOTE #3 AND MAIN ROOF AND OVERHANGS TYPE② NAILING PATTERN.

AREA #3 — SEE NOTE #3 AND MAIN ROOF AND OVERHANGS TYPE③ NAILING PATTERN.

ROOF SHEATHING FASTENING SCHEDULE

WIND VELOCITY (3-SECOND GUST)	PANEL LOCATION	ROOF FASTENING ZONE: MAIN ROOF ①	MAIN ROOF ②	MAIN ROOF ③	OVERHANG (EAVES) ②	OVERHANG (EAVES) ③
142 mph f,g	SUPPORTED PANEL END AND EDGES	6	6	6	6	6
	PANEL FIELD	12	6	4	6	4

HIP ROOF SHEATHING - FASTENING SCHEDULE

6-002

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N

0 4' 8' 16'

ROOF FRAMING PLAN
1/8" = 1'-0"

A5

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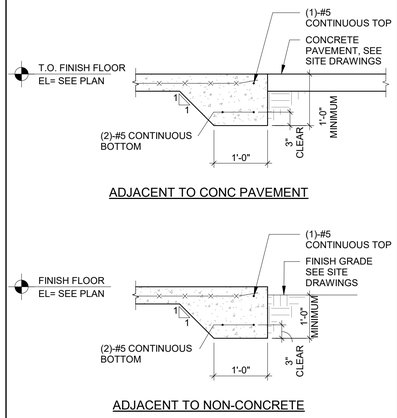
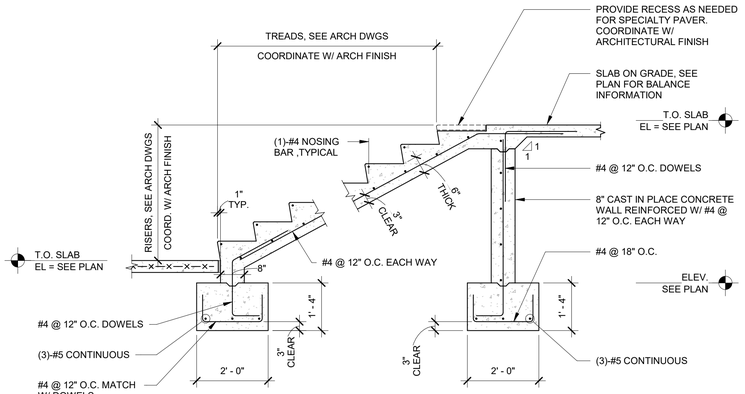
ROOF FRAMING PLAN

S2.3



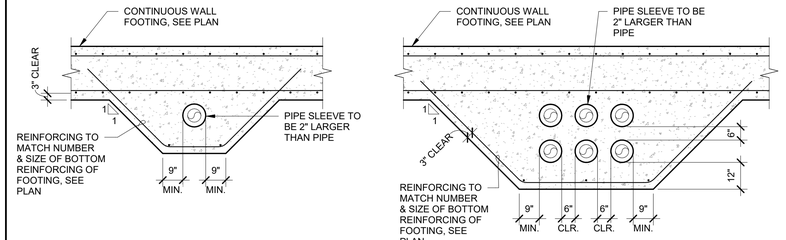
SLAB ON GRADE EDGE

3-007



CONCRETE STAIR SECTION

3-027

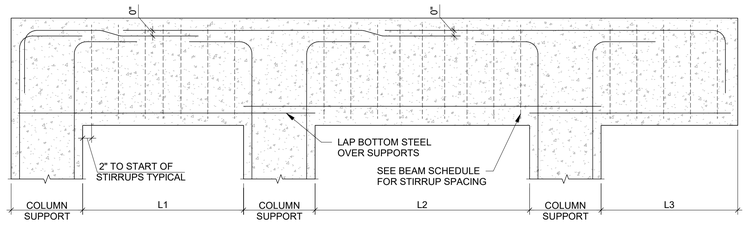


SINGLE PIPE DETAIL

BANK OF PIPES DETAIL

PIPE SLEEVE DETAIL AT FOUNDATION

3-054

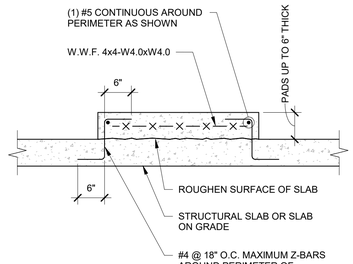


NOTE:

1. WHERE TOP & BOTTOM BARS ARE IN MULTIPLE LAYERS, PROVIDE 1" CLEAR BETWEEN LAYERS TYPICAL.
2. SEE TENSION AND COMPRESSION LAP SPLICE TABLES FOR PROPER LAP AND CONCRETE STRENGTH.
3. ALL BOTTOM LAYERS OF STEEL MUST BE LAPPED OVER CENTERLINE OF SUPPORT.
4. ALL TOP AND INTERMEDIATE LAYERS OF STEEL MUST BE LAPPED AT MID-SPAN OF BEAM.
5. SEE CONCRETE BEAM SCHEDULE FOR ALL BEAM REINFORCING AND SEE FRAMING PLANS FOR BEAM DESIGNATION AND PLACEMENT.

TYPICAL CONCRETE BEAM BAR PLACEMENT DIAGRAM

3-062



THE EXACT SIZE, SHAPE & LOCATION OF ALL EQUIPMENT (HOUSEKEEPING) PADS SHALL BE DETERMINED BY THE CONTRACTOR AFTER APPROVAL OF SHOP DRAWINGS FOR THE EQUIPMENT.

CONCRETE EQUIPMENT PAD DETAILS

3-040

f'c = 3000 PSI, NORMAL WEIGHT

BAR SIZE	LAP CLASS	TENSION LAP SPLICES: LAP LENGTH PER SPACING AND COVER CASE — CASE 1 TOP BARS	CASE 1 OTHER BARS	CASE 2 TOP BARS	CASE 2 OTHER BARS	COMPRESSION LAP SPLICES
#3	A	22	17	32	25	12
	B	28	22	42	32	
#4	A	29	22	43	33	15
	B	37	29	56	43	
#5	A	36	28	54	41	19
	B	47	36	70	54	
#6	A	43	33	64	50	23
	B	56	43	84	64	
#7	A	63	48	94	72	26
	B	81	63	122	94	
#8	A	72	55	107	82	30
	B	93	72	139	107	
#9	A	81	62	121	93	34
	B	105	81	157	121	
#10	A	91	70	136	105	38
	B	118	91	177	136	
#11	A	101	78	151	116	42
	B	131	101	196	151	

NOTES:

CASE 1

BEAMS AND COLUMNS:
CONCRETE COVER >/= TO BAR DIAMETER, C-C BAR SPACING >/= TO 2X BAR DIAMETER AND WITH STIRRUPS OR TIES THROUGHOUT TENSION LAP SPLICE LENGTH NOT LESS THAN THE CODE MINIMUM.

OTHER MEMBERS:
CONCRETE COVER >/= TO THE BAR DIAMETER AND C-C BAR SPACING >/= TO 3X BAR DIAMETER.

CASE 2

BEAMS AND COLUMNS:
CONCRETE COVER < BAR DIAMETER AND C-C BAR SPACING < 2X BAR DIAMETER.

OTHER MEMBERS:
CONCRETE COVER < BAR DIAMETER OR C-C BAR SPACING < 3X BAR DIAMETER.

* LAP CLASS "B" IS TO BE USED UNLESS OTHERWISE SPECIFIED IN THESE CONTRACT DOCUMENTS.

TENSION AND COMPRESSION LAP SPLICES WITH F'c = 3000 PSI

3-065

f'c = 4000 PSI, NORMAL WEIGHT

BAR SIZE	LAP CLASS	TENSION LAP SPLICES: LAP LENGTH PER SPACING AND COVER CASE — CASE 1 TOP BARS	CASE 1 OTHER BARS	CASE 2 TOP BARS	CASE 2 OTHER BARS	COMPRESSION LAP SPLICES
#3	A	19	15	28	22	12
	B	24	19	36	28	
#4	A	25	19	37	29	15
	B	32	25	48	37	
#5	A	31	24	47	36	19
	B	40	31	60	47	
#6	A	37	29	56	43	23
	B	48	37	72	56	
#7	A	54	42	81	63	26
	B	70	54	106	81	
#8	A	62	48	93	71	30
	B	80	62	121	93	
#9	A	70	54	105	81	34
	B	91	70	136	105	
#10	A	79	61	118	91	38
	B	102	79	153	118	
#11	A	87	67	131	101	42
	B	113	87	170	131	

NOTES:

CASE 1

BEAMS AND COLUMNS:
CONCRETE COVER >/= TO BAR DIAMETER, C-C BAR SPACING >/= TO 2X BAR DIAMETER AND WITH STIRRUPS OR TIES THROUGHOUT TENSION LAP SPLICE LENGTH NOT LESS THAN THE CODE MINIMUM.

OTHER MEMBERS:
CONCRETE COVER >/= TO THE BAR DIAMETER AND C-C BAR SPACING >/= TO 3X BAR DIAMETER.

CASE 2

BEAMS AND COLUMNS:
CONCRETE COVER < BAR DIAMETER AND C-C BAR SPACING < 2X BAR DIAMETER.

OTHER MEMBERS:
CONCRETE COVER < BAR DIAMETER OR C-C BAR SPACING < 3X BAR DIAMETER.

* LAP CLASS "B" IS TO BE USED UNLESS OTHERWISE SPECIFIED IN THESE CONTRACT DOCUMENTS.

TENSION AND COMPRESSION LAP SPLICES WITH F'c = 4000 PSI

3-066

THE MINIMUM CLEAR COVER FOR REINFORCEMENT BARS SHALL BE ONE BAR DIAMETER OR THE VALUES TABULATED BELOW, WHICHEVER IS THE GREATER.

SLABS (LT.WT. CONC. OR STONE CONC.)		1"
GIRDERS AND BEAMS (TO STIRRUPS)		1 1/2"
JOISTS (STONE OR LT.WT.) BOTTOM BARS		1 1/4"
TIED COLUMNS AND PIERS		
SURFACE EXPOSED TO EARTH AND WEATHER	(TO TIES)	2"
OTHER SURFACES	(TO TIES)	1 1/2"
FOUNDATION ELEMENTS		
FORMED SURFACES		2"
SURFACES PLACED AGAINST EARTH		3"
WALLS		
SURFACES EXPOSED TO EARTH		2"
SURFACES EXPOSED TO WEATHER		1 1/2"
OTHER SURFACES		1"

TYPICAL CONCRETE COVER FOR REINFORCING BARS

3-064

NOTE:
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CA: 8426 PROJ NO. 3099-047

HILLSBOROUGH COUNTY
BOARD OF COUNTY COMMISSIONERS
COUNTY CENTER
601 E KENNEDY BLVD
TAMPA, FL 33601

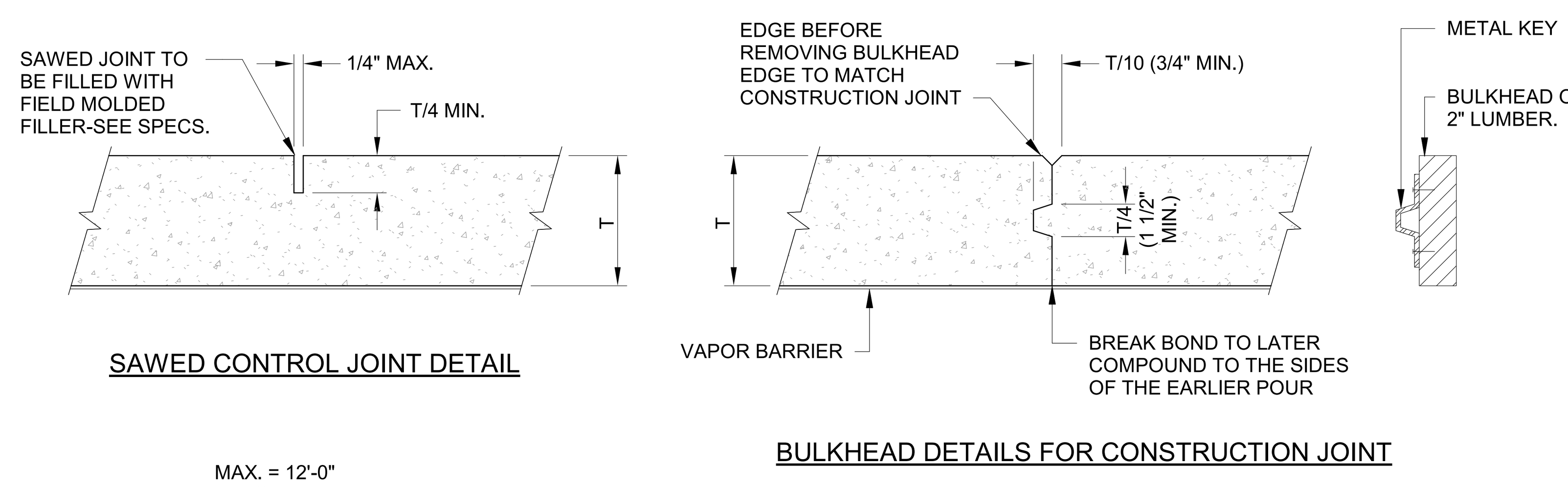
HILLSBOROUGH COUNTY
NORTHWEST AREA HEAD START

PROJECT #: 2010-00

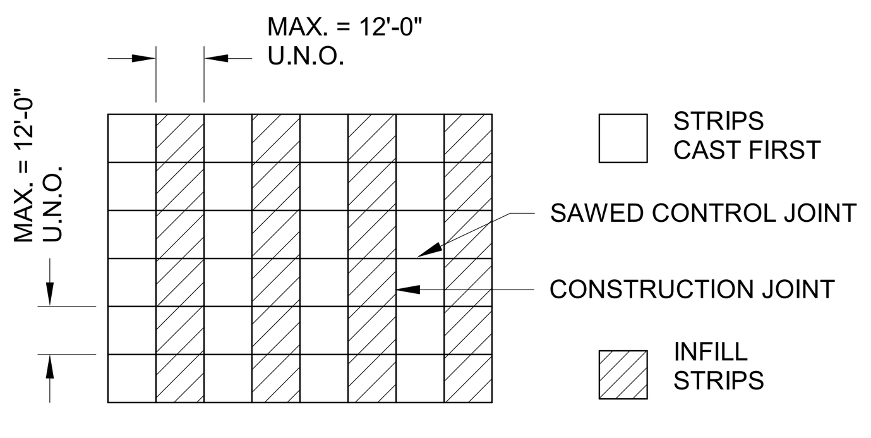
DISTRIBUTION	DATE
SCHEMATIC DESIGN	05.01.2020
DESIGN DEVELOPMENT	06.11.2020
90% CONST DOCS	08.19.2020
PERMIT SET	12.21.2020

TYPICAL DETAILS

S3.1



BULKHEAD DETAILS FOR CONSTRUCTION JOINT

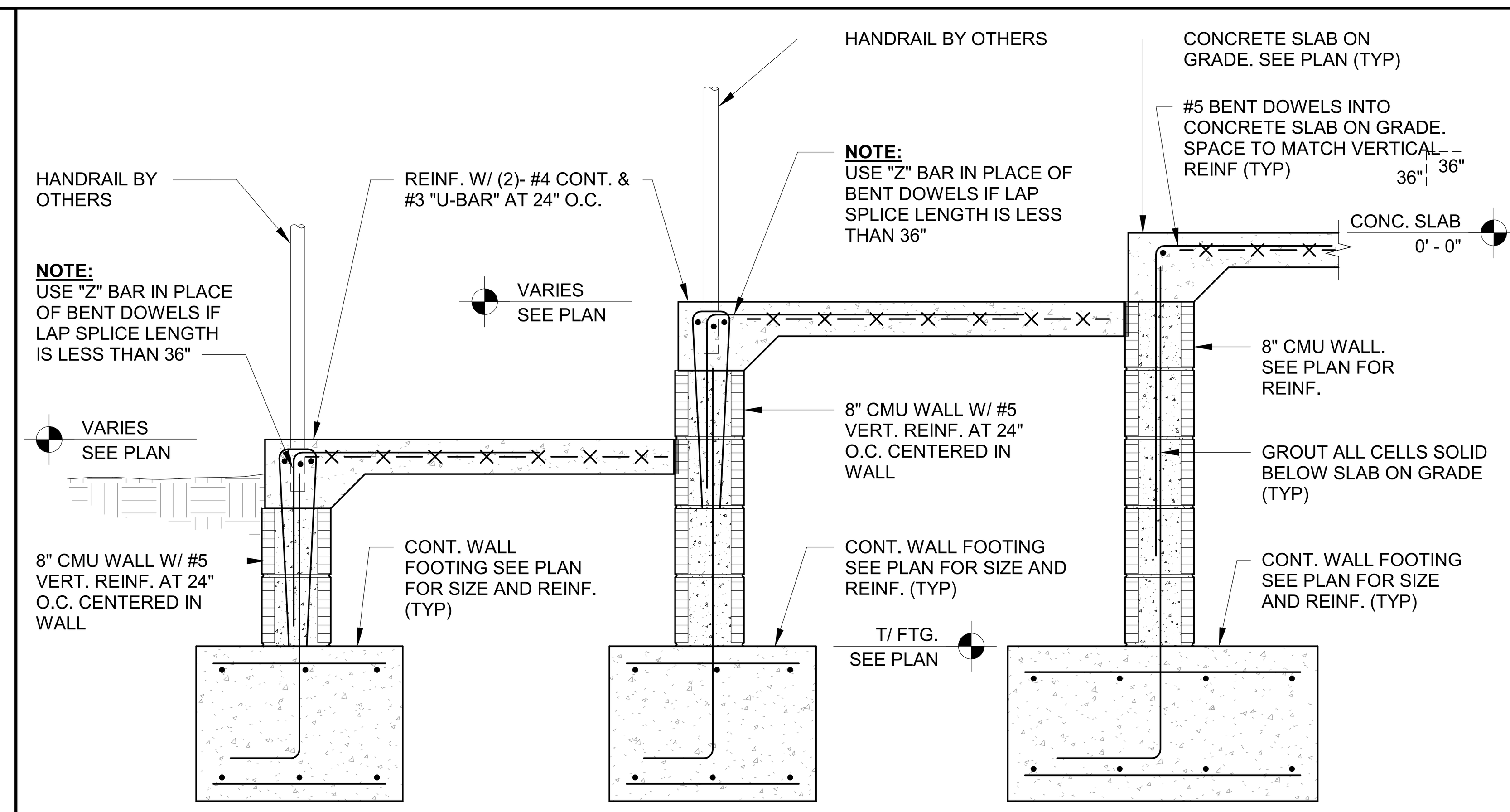


SLAB PLACEMENT SEQUENCE

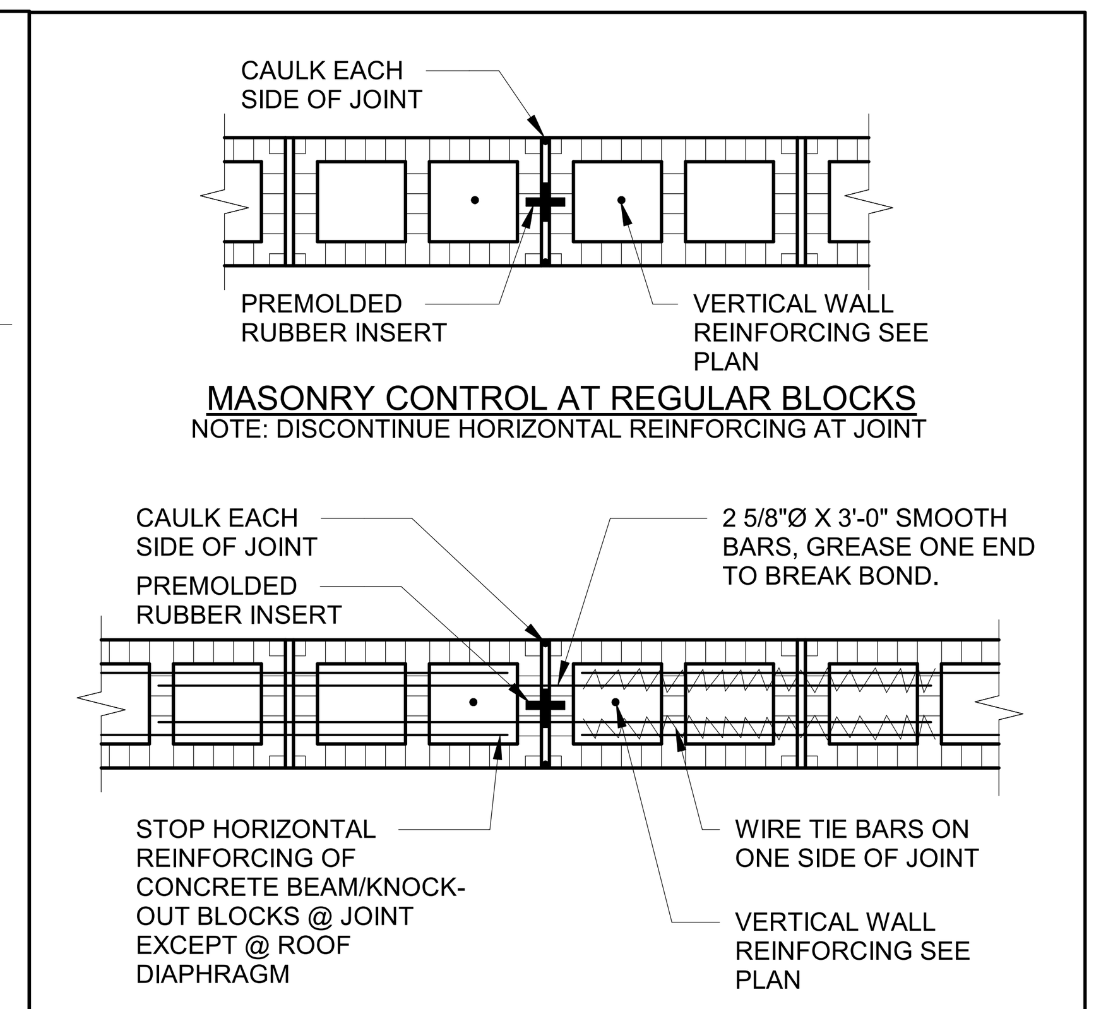
NOTES:

1. CONCRETE FOR SLAB ON GRADE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH AS INDICATED ON THE "CONCRETE AND REINFORCING" NOTES.
2. SUPERPLASTICIZER SHALL BE USED IN SLAB ON GRADE CONCRETE - SEE SPECIFICATIONS.
3. SLAB ON GRADE CONCRETE MIX SHALL HAVE A WATER-CEMENT RATIO AS INDICATED IN SPECS AND OR NOTES.
4. CONSTRUCTION JOINTS SHALL BE LOCATED A MINIMUM OF 5'-0" AWAY FROM ANY OTHER JOINTS TO WHICH THEY ARE PARALLEL.
5. SAW CUTTING SHALL BE DONE WITH A POWER SAW WITH A MASONRY CUTTING BLADE. CUTTING SHALL BE DONE AS SOON AS CONCRETE HARDENS ENOUGH SO THAT THE BLADE DOES NOT DISLODGE THE AGGREGATES.
6. WHERE SAWCUT IS DISCONTINUED AT A TRANSVERSE JOINT, STOP CUT 2" SHORT.
7. SLAB REINFORCING NOT SHOWN FOR CLARITY.

TYPICAL SLAB ON GRADE JOINT DETAILS — 3-201



TYPICAL CONCRETE RAMP WITHOUT CURBS — 3-602

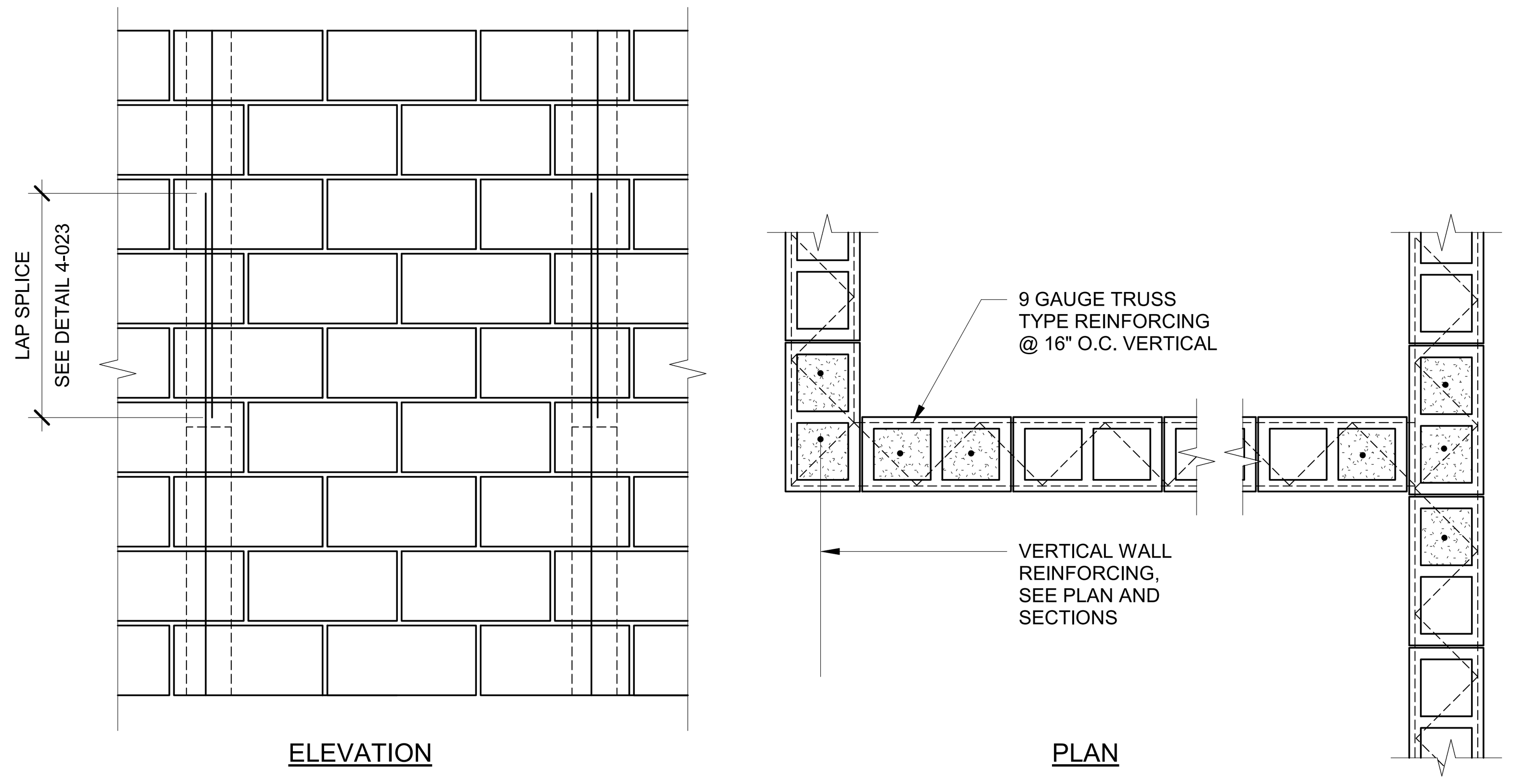


MASONRY CONTROL AT CONC. BEAM/KNOCK-OUT BLOCKS
NOTE: DISCONTINUE HORIZONTAL REINFORCING AT JOINT

NOTE:

1. MAXIMUM SPACING OF CONTROL JOINT EQUALS 24'-0" OR THREE TIMES WALL HEIGHT (WHICH EVER IS SMALLER)

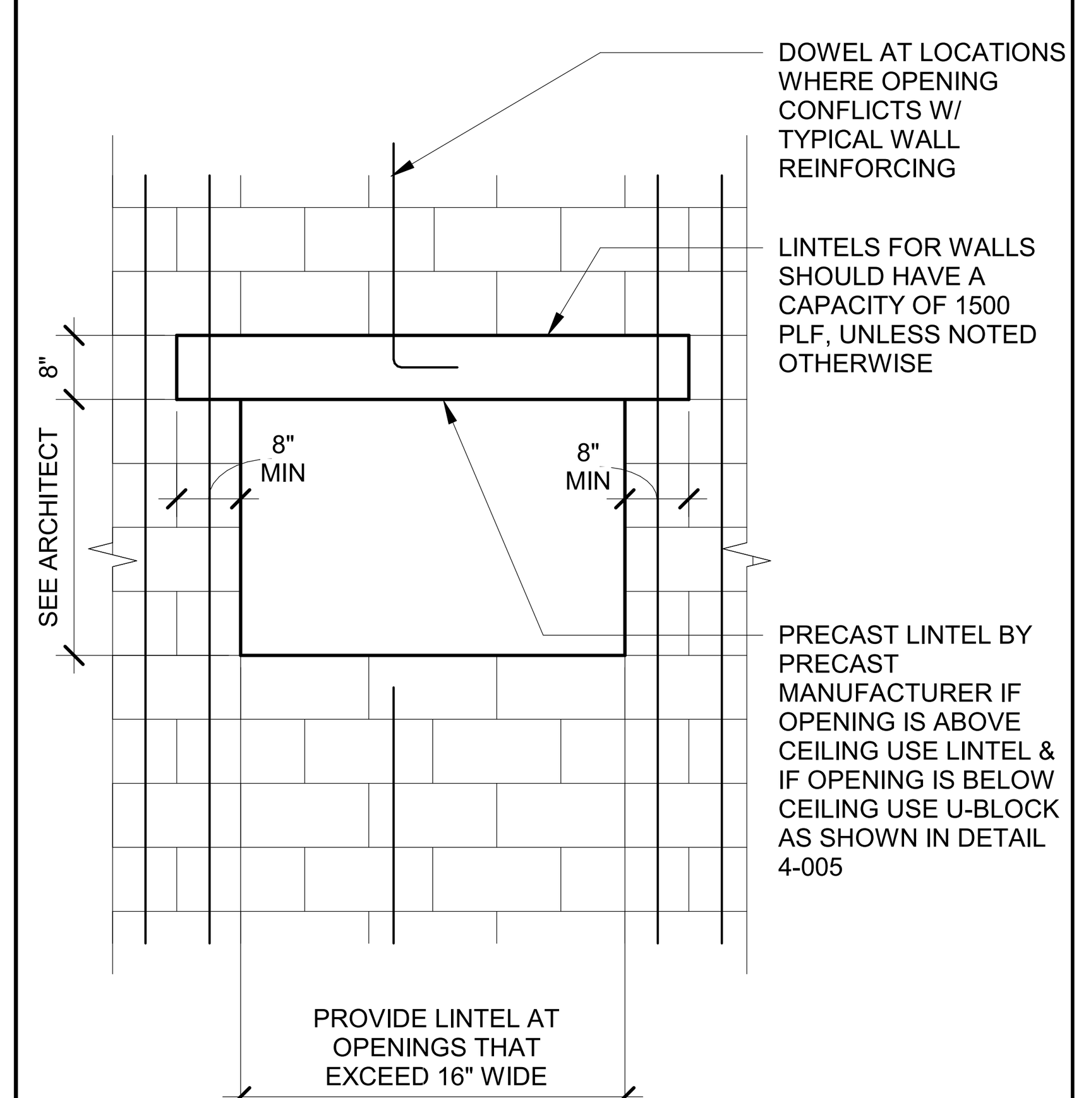
MASONRY CONTROL JOINT — 4-002



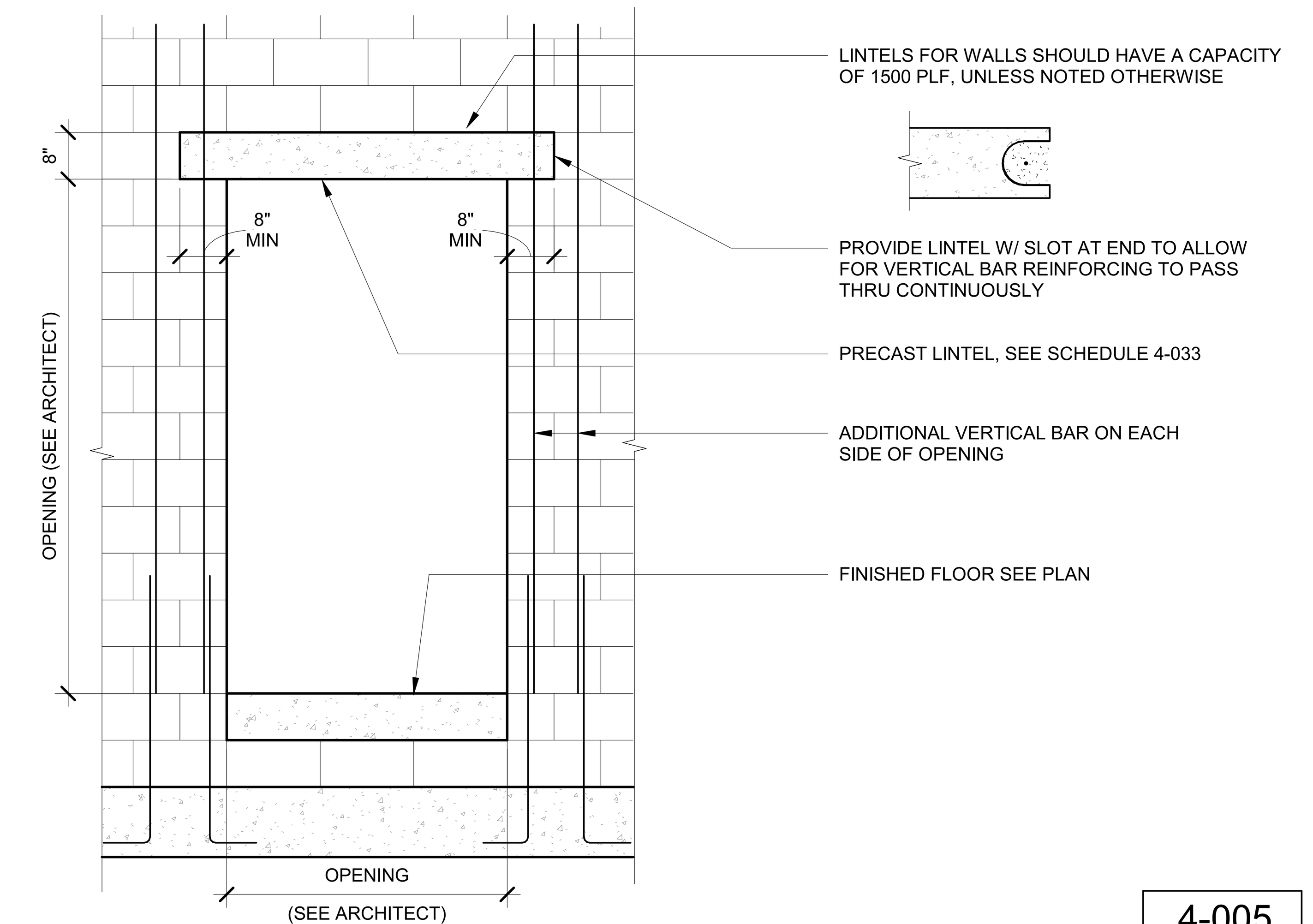
NOTE:

PROVIDE INSPECTION PORT AT BOTTOM OF LIFT GREATER THAN 4' - 0" IN HEIGHT.

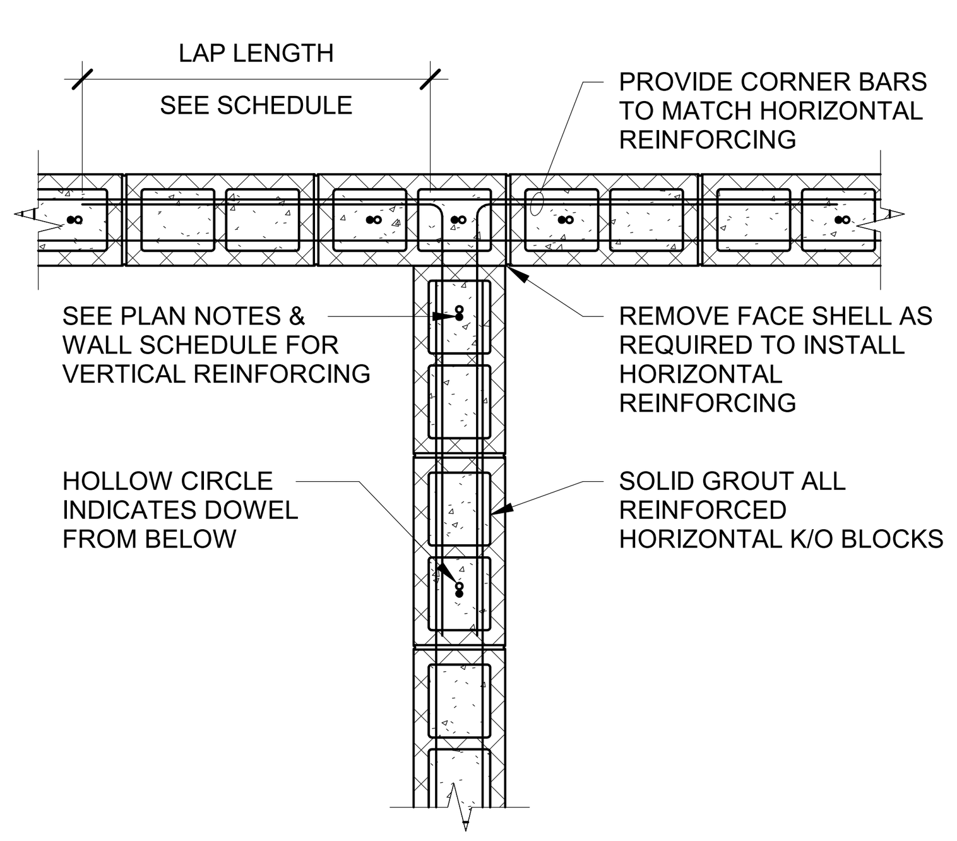
TYP MASONRY WALL DETAIL — 4-001



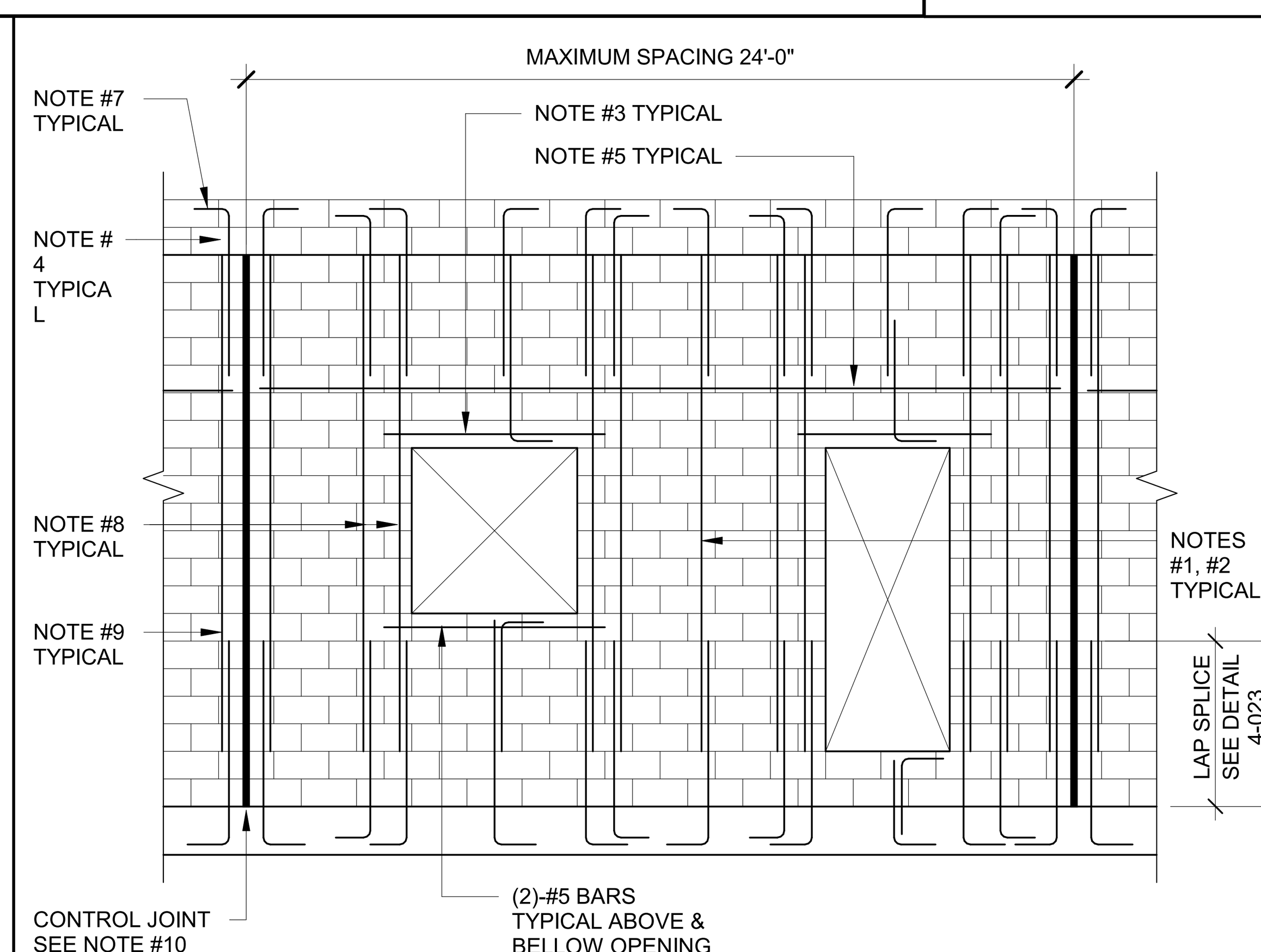
TYPICAL LINTEL OVER DUCT OPENING — 4-004



TYPICAL LINTEL OVER OPENING — 4-005



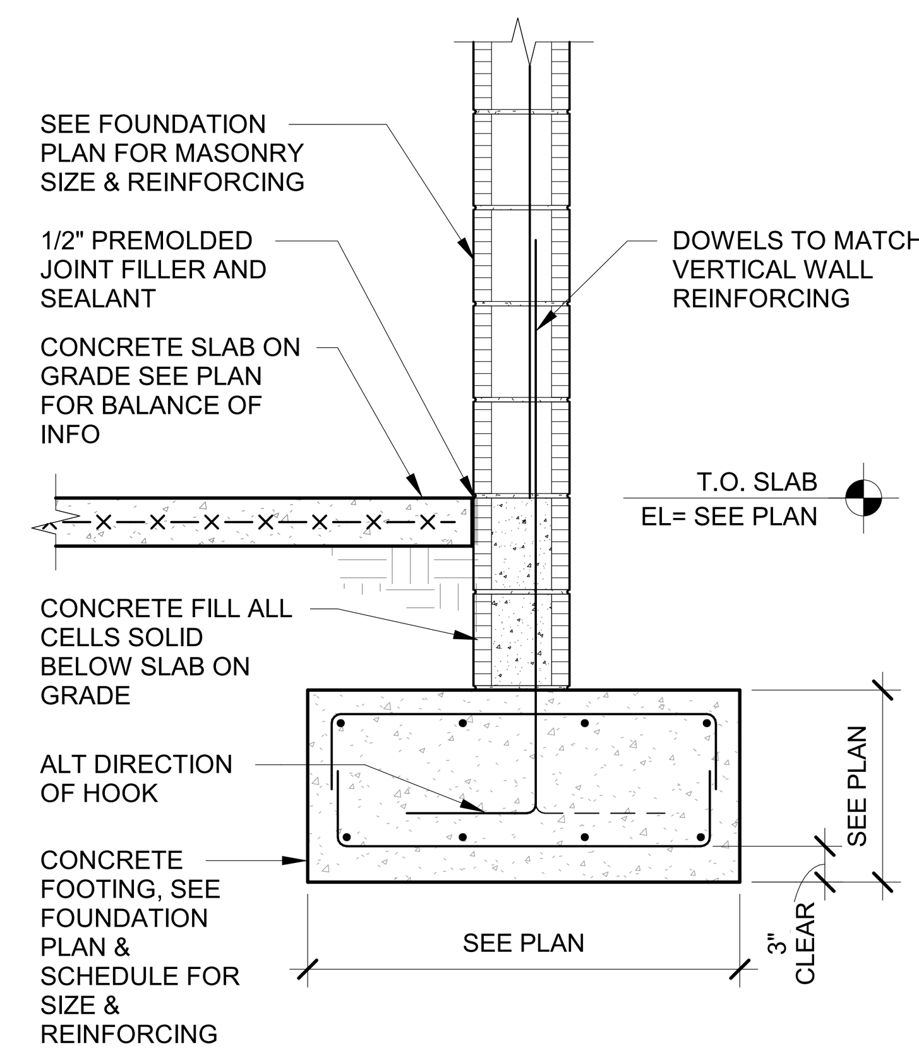
TYPICAL CMU K/O BLOCK REINFORCING LAYOUT — 4-008



NOTES:

1. VERTICAL WALL REINFORCING SHALL ALIGN WITH VERTICAL FOUNDATION DOWELS. DOWELS SHALL BE PLACED AS SHOWN ON DETAILS WITH STANDARD ACI HOOK DIRECTLY ON TOP OF BOTTOM LAYER OF FOOTING REINFORCING. REFER TO CMU WALL REINFORCING SCHEDULE ON PLAN FOR SIZE AND SPACING.
2. TYPICAL VERTICAL WALL REINFORCING TO BE PLACED AS SHOWN ON DETAILS. GROUT CELLS FULL THAT CONTAIN REINFORCEMENT.
3. REFER TO CMU LINTEL SCHEDULE FOR SIZE, LOCATION AND QUANTITY OF LINTEL REINFORCEMENT.
4. VERTICAL REINFORCING BARS MAY BE SPLICED IN 6'-0" TO 8'-0" LENGTHS.
5. HORIZONTAL WALL REINFORCING SHALL BE TRUSS TYPE AT 16" O.C. ABOVE GRADE AND 8" O.C. BELOW GRADE UNLESS OTHERWISE NOTED ON PLANS AND DETAILS. DISCONTINUE AT CONTROL JOINTS.
6. CONTRACTOR SHALL USE THE LOW LIFT METHOD OF GROUTED MASONRY CONSTRUCTION UNLESS CLEAN OUTS ARE PROVIDED AT EACH VERTICAL REINFORCING BAR.
7. REFER TO PLANS AND DETAILS FOR SIZE AND LOCATION OF BOND BEAMS AND QUANTITY OF REINFORCING. LAP REINFORCING 24" MINIMUM. DISCONTINUE BOND BEAMS AT CONTROL JOINTS.
8. REFER TO LINTEL SCHEDULE NOTES FOR VERTICAL BARS ADJACENT TO OPENING.
9. PROVIDE VERTICAL WALL REINFORCING IN FIRST CELL NEXT TO CONTROL JOINTS/CORNERS/OPENINGS, TYPICAL.
10. VERTICAL CONTROL JOINTS SHALL TERMINATE AT TOP OF FOOTING.
11. PROVIDE CORNER BARS TO MATCH TYPE AND QUANTITY OF HORIZONTAL WALL REINFORCING, TYPICAL.

CMU WALL REINFORCING LAYOUT — 4-009



PARTIAL CMU WALL SECTION — 4-012

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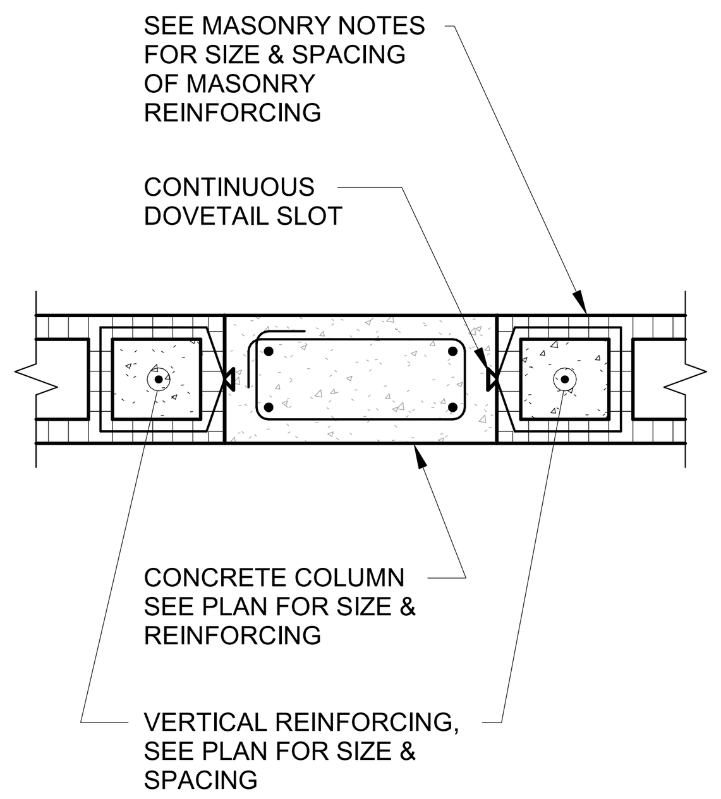
TYPICAL DETAILS

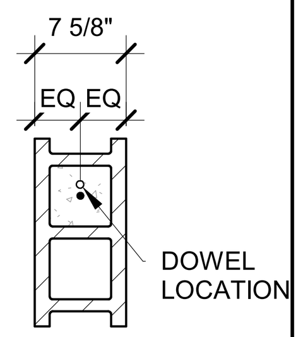
S3.2



CONCRETE COLUMN TO MASONRY CONNECTION

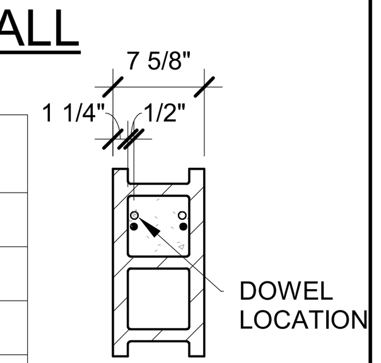
4-022

LAP SPLICE SCHEDULE FOR SINGLE REINFORCED 8" CMU WALL		
BAR SIZE	LAP SPLICE	REMARKS
#3	18"	
#4	24"	
#5	30"	
#6	36"	



LAP SPLICE SCHEDULE SINGLE REINFORCED 8" CMU WALL

LAP SPLICE SCHEDULE FOR DOUBLE REINFORCED 8" CMU WALL		
BAR SIZE	LAP SPLICE	REMARKS
#3	18"	
#4	24"	
#5	30"	
#6	36"	



LAP SPLICE SCHEDULE DOUBLE REINFORCED 8" CMU WALL

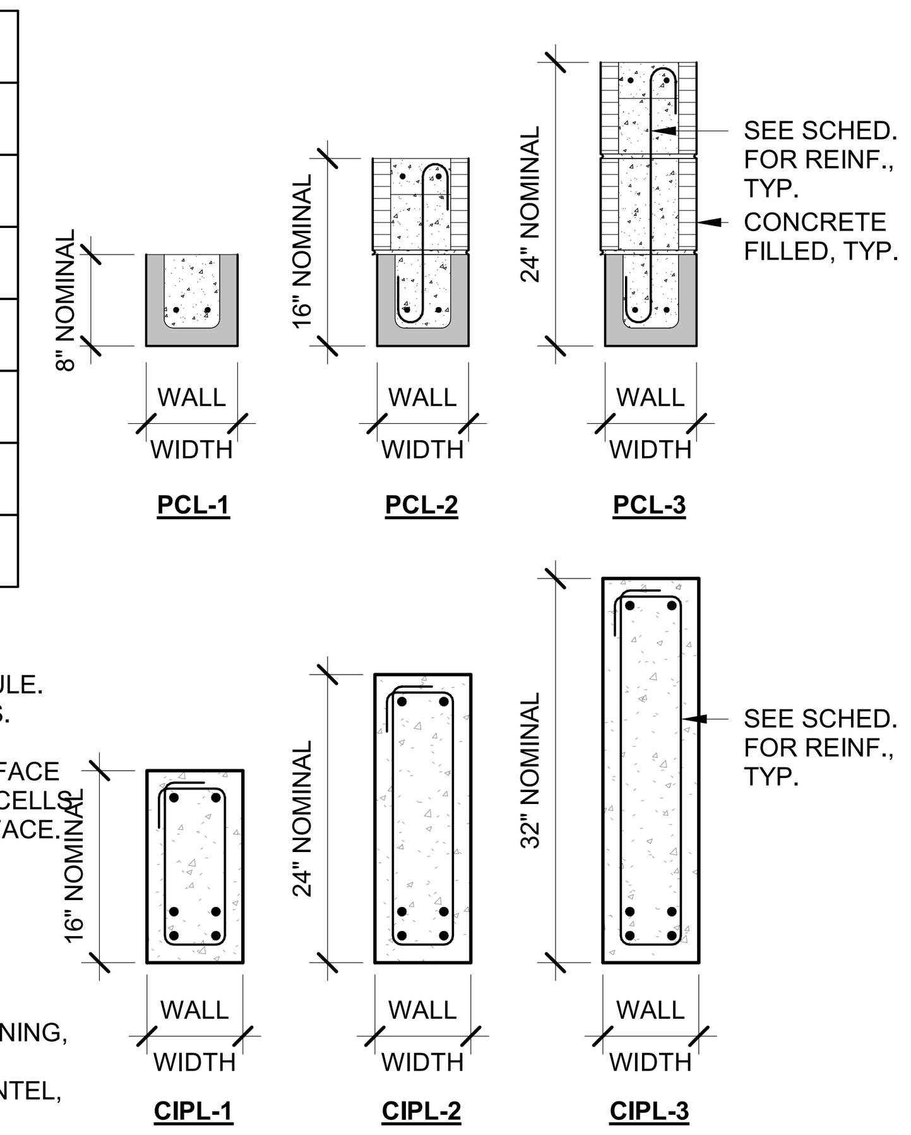
4-023

CMU LINTEL SCHEDULE					
WALL THICKNESS	LINTEL DEPTH	BOTTOM REINFORCING	TOP REINFORCING	STIRRUPS & SPACING	NOTES
PCL-1	8"	(2) #5	-	-	-
PCL-2	16"	-	-	-	-
PCL-3	24"	-	-	-	-
CIPL-1	16"	(2) #5	(2) #5	#3 @ 8"	-
CIPL-2	24"	-	-	-	-
CIPL-3	32"	-	-	-	-

NOTES:

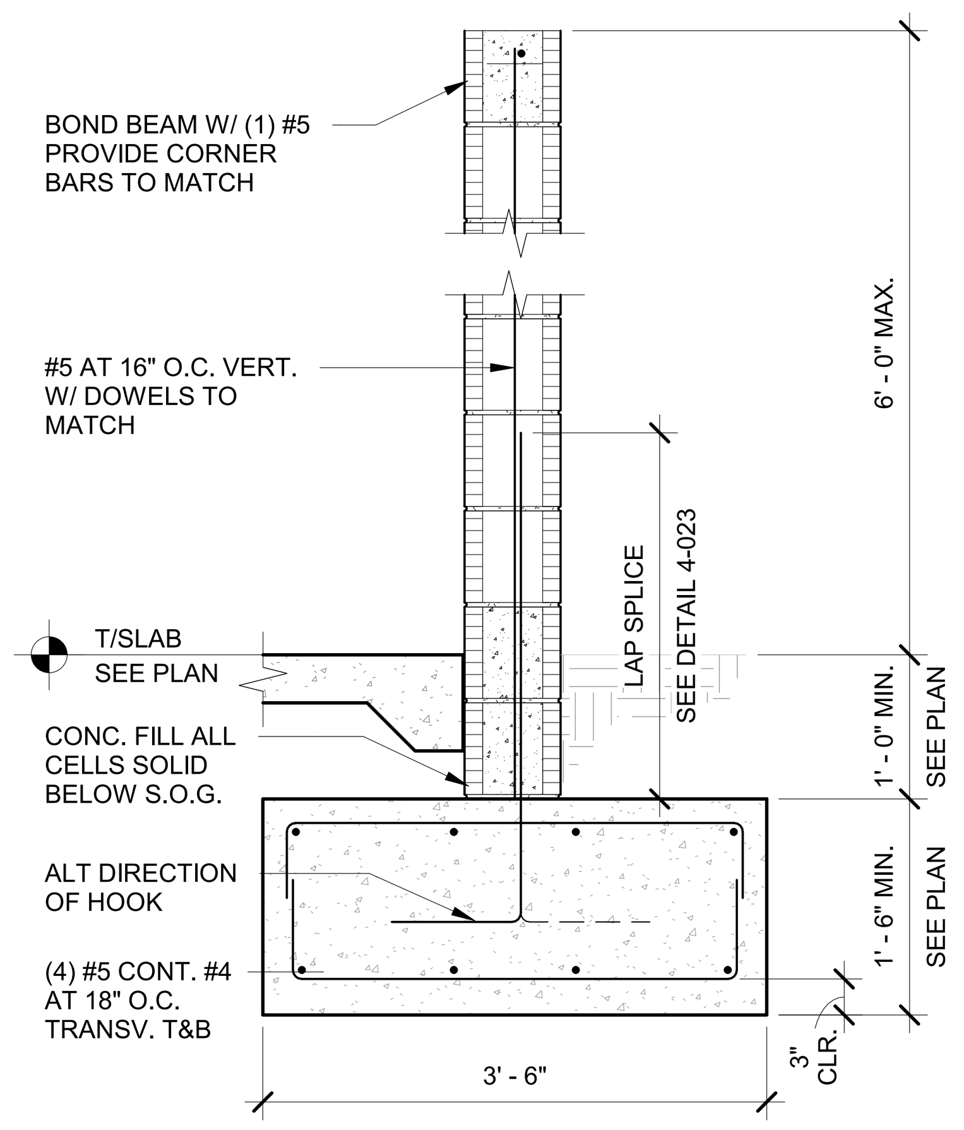
1. PRECAST CONCRETE LINTELS CAN BE INSTALLED AT ALL OPENINGS PER SCHEDULE. CAST IN PLACE CONCRETE LINTELS SHALL BE PLACED WHERE SHOWN ON PLANS. SUBSTITUTED UPON APPROVAL BY ENGINEER.
2. GROUTED LINTEL (THROUGH) BLOCKS SHALL EXTEND A MINIMUM OF 8" BEYOND FACE OF OPENING EACH SIDE UNLESS NOTED OTHERWISE. THE FIRST TWO VERTICAL CELLS EACH OF THE OPENING SHALL BE GROUTED AND CONTAIN 2-#5 VERTICAL EACH FACE.

   NOTE: THE FIRST CELL EACH SIDE OF THE OPENING SHALL BE GROUTED TO LINTEL LEVEL. SECOND CELL SHALL BE GROUTED TO ROOF LEVEL.
3. SEE SPECIFIC DETAIL FOR BRICK LEDGE SUPPORT ANGLE OF LOOSE LINTEL SCHEDULE.
4. CONSTRUCTION/CONTROL JOINT SHALL NOT BE LOCATED WITHIN WIDTH OF OPENING, NOR SHALL IT BE LOCATED WITHIN 24" OF THE OPENING ON EITHER SIDE.
5. CONCRETE LINTEL BEARING EACH SIDE OF LINTEL TO BE EQUAL TO DEPTH OF LINTEL, TYPICAL UNLESS NOTED OTHERWISE.



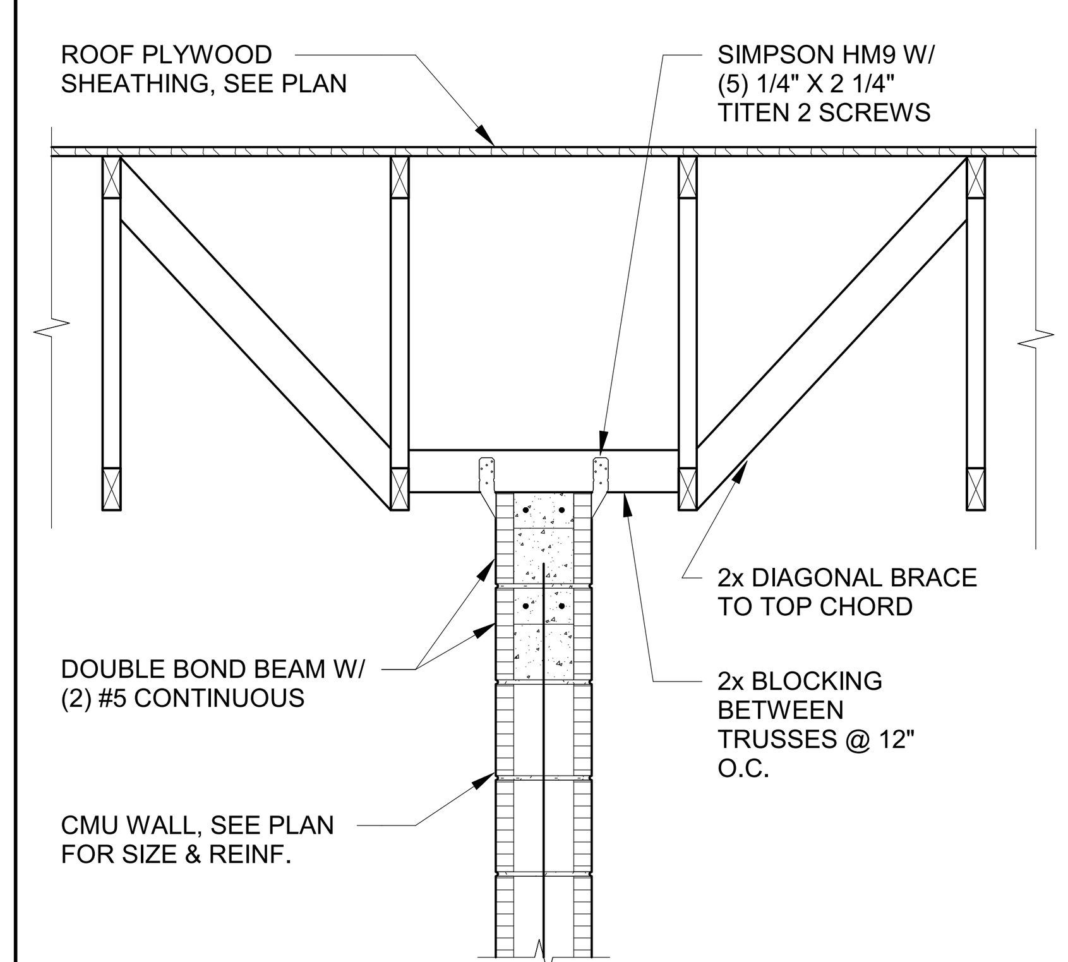
TYP. PRECAST/C.I.P. LINTEL DETAIL

4-033



CMU SCREEN WALL

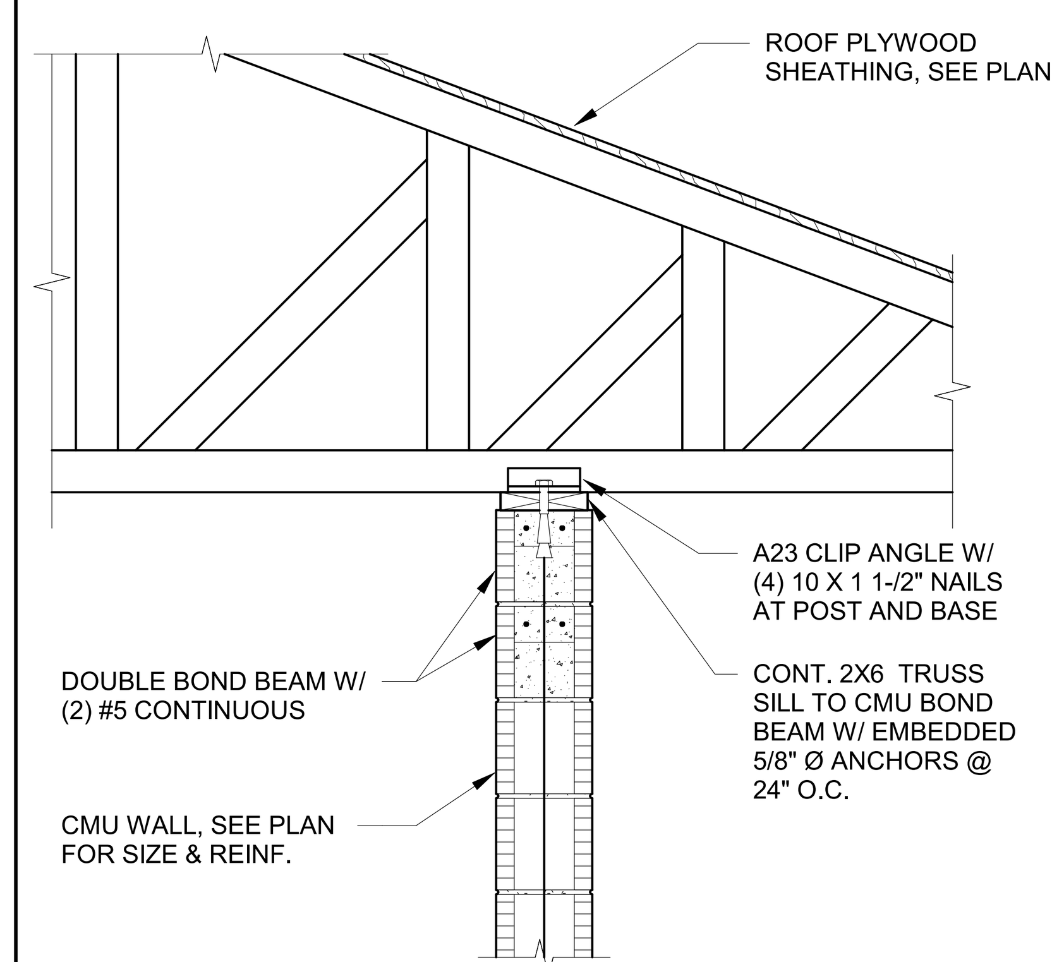
4-045



NOTE:
MAXIMUM SPACING OF WALL BRACING SHALL NOT EXCEED 1'-0" ON CENTER.

TYPICAL INTERIOR NON-BEARING WALL BRACE DETAIL

4-067



NOTE:
MAXIMUM SPACING OF WALL BRACING SHALL NOT EXCEED 2'-0" ON CENTER.

TYPICAL INTERIOR NON-BEARING WALL BRACE DETAIL

4-068

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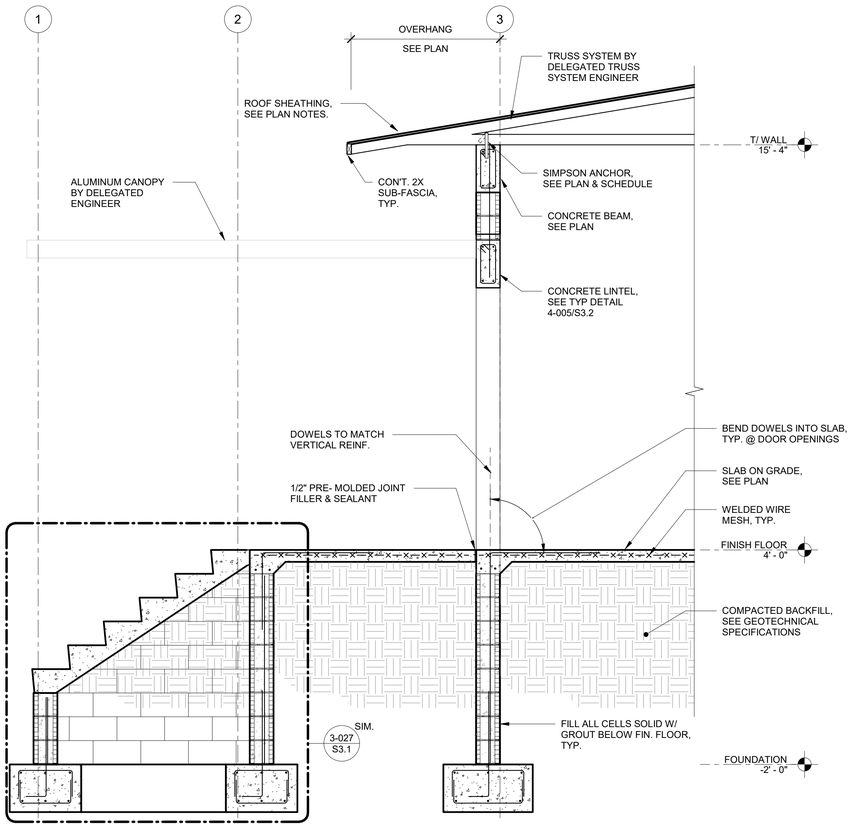
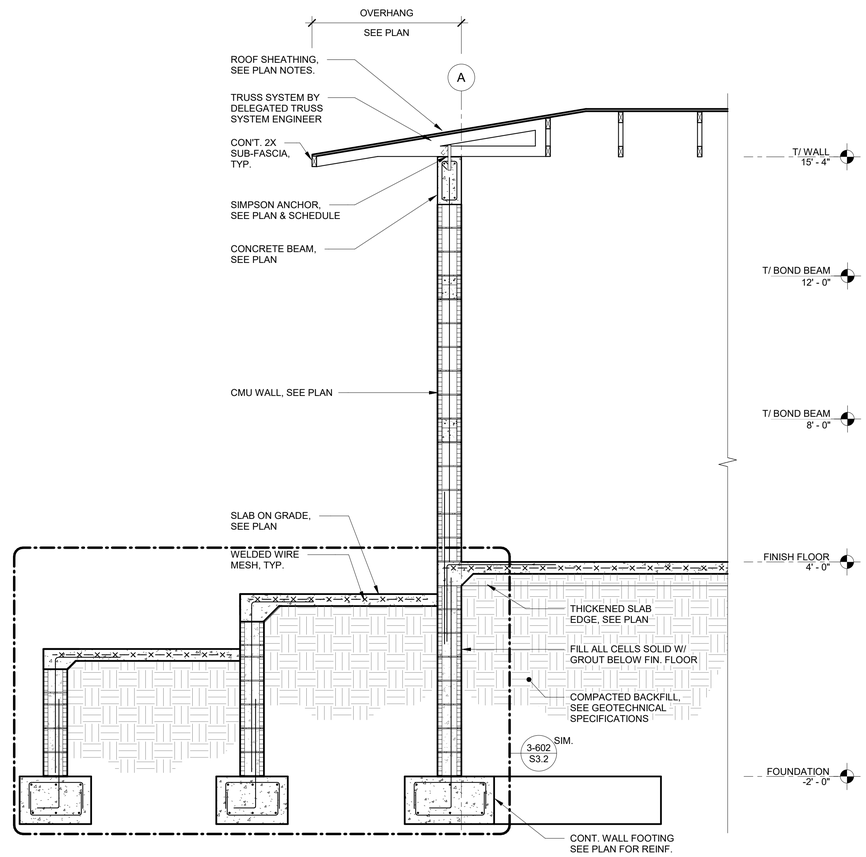
TYPICAL DETAILS

S3.3



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

S1



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

S2

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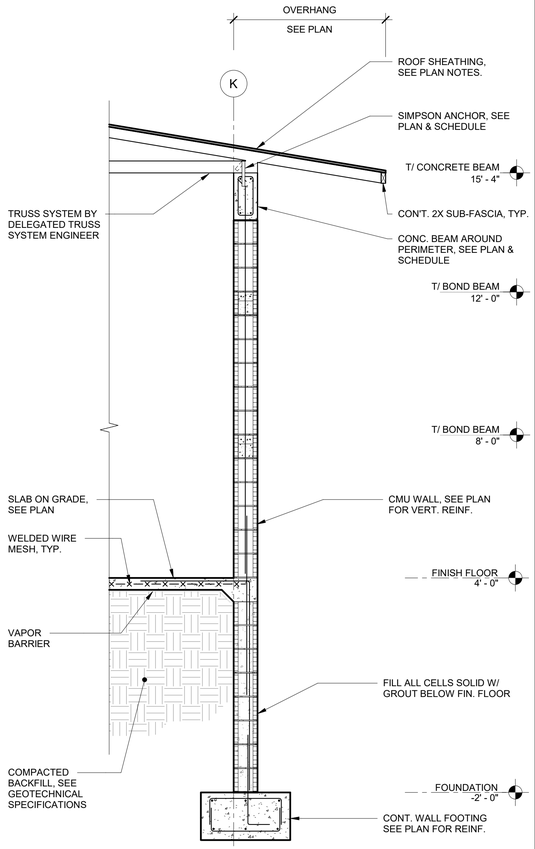
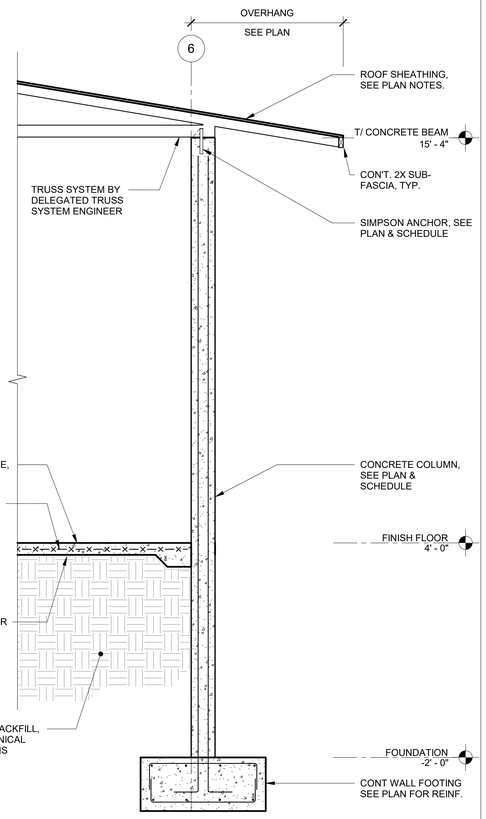
SECTIONS AND DETAILS

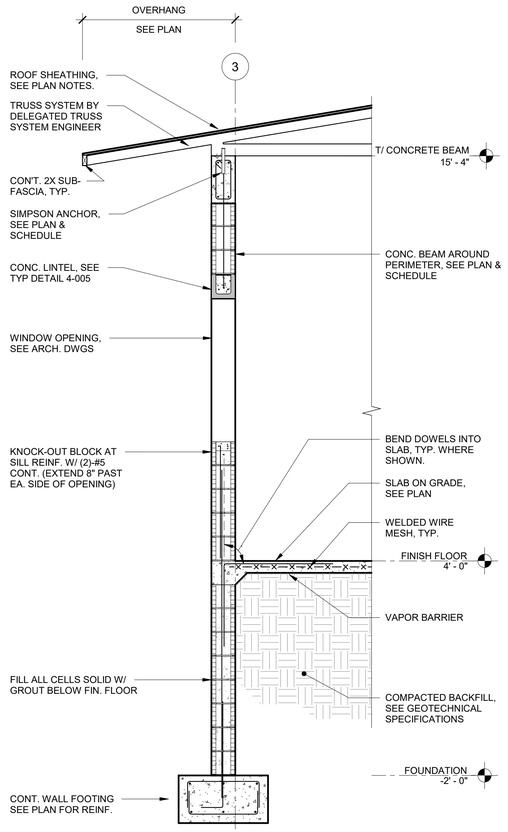
S4.1



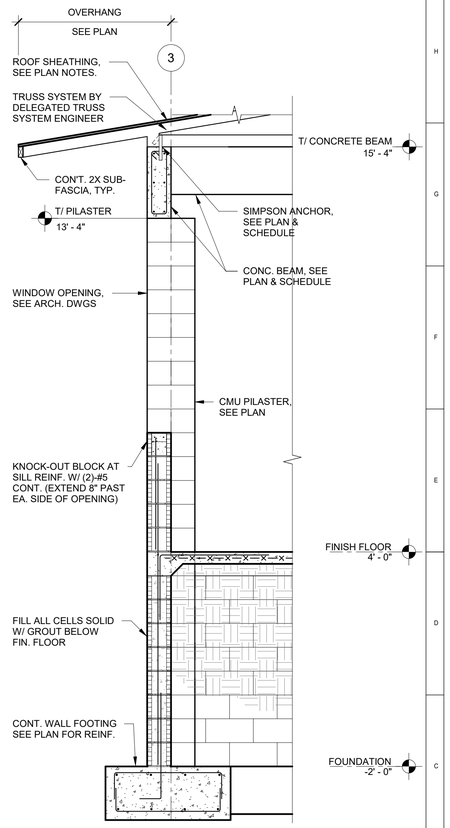
SECTION 3 1/2" = 1'-0" S3



SECTION 4 1/2" = 1'-0" S4



SECTION 5 1/2" = 1'-0" S5



SECTION 6 1/2" = 1'-0" S6

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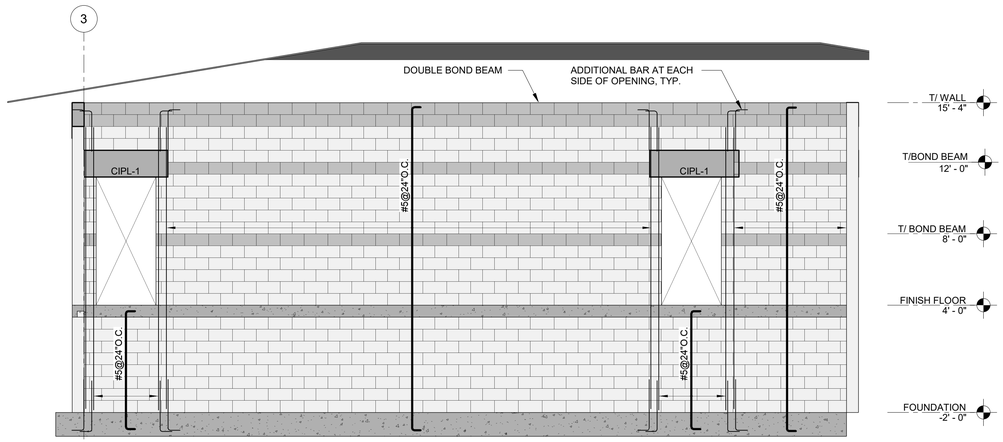
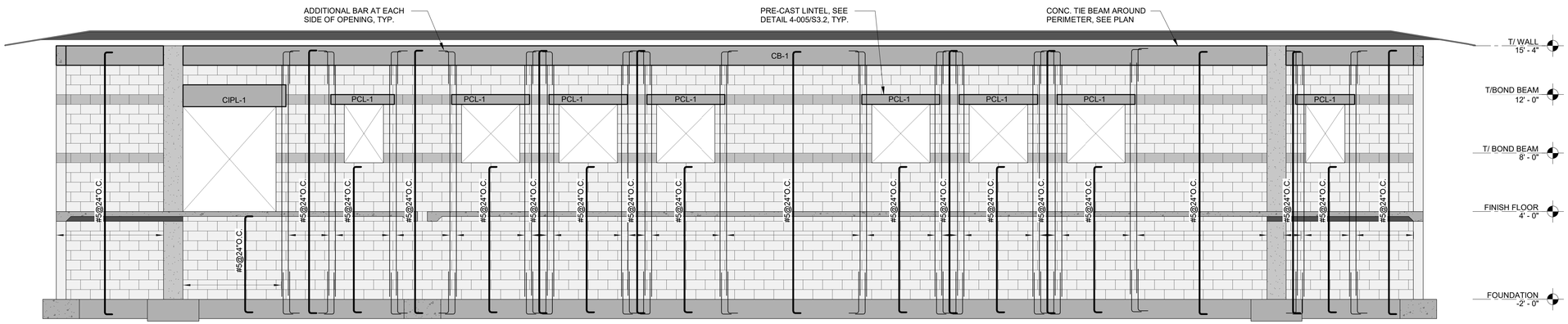
SECTIONS AND DETAILS

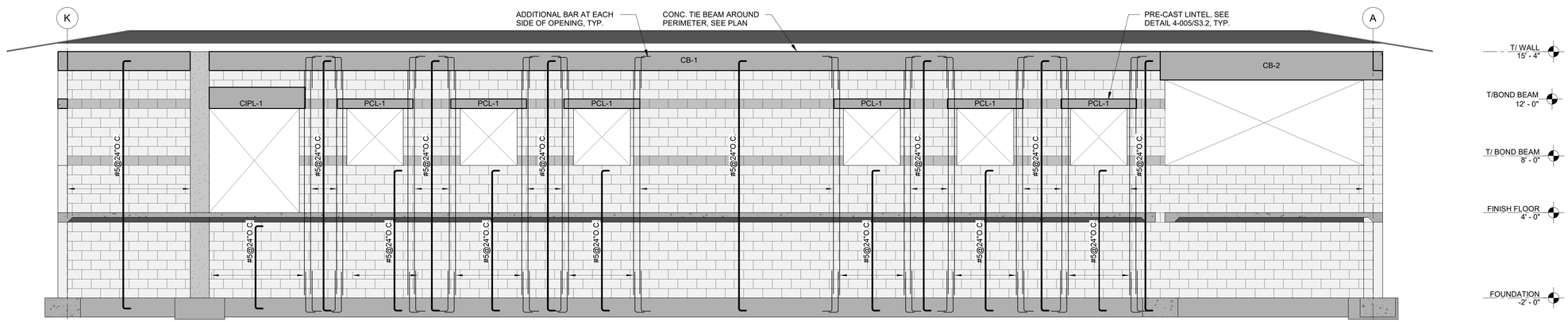
S4.2



ELEVATION 1 — 1/4" = 1'-0" — E1



ELEVATION 2 — 1/4" = 1'-0" — E2



ELEVATION 3 — 1/4" = 1'-0" — E3

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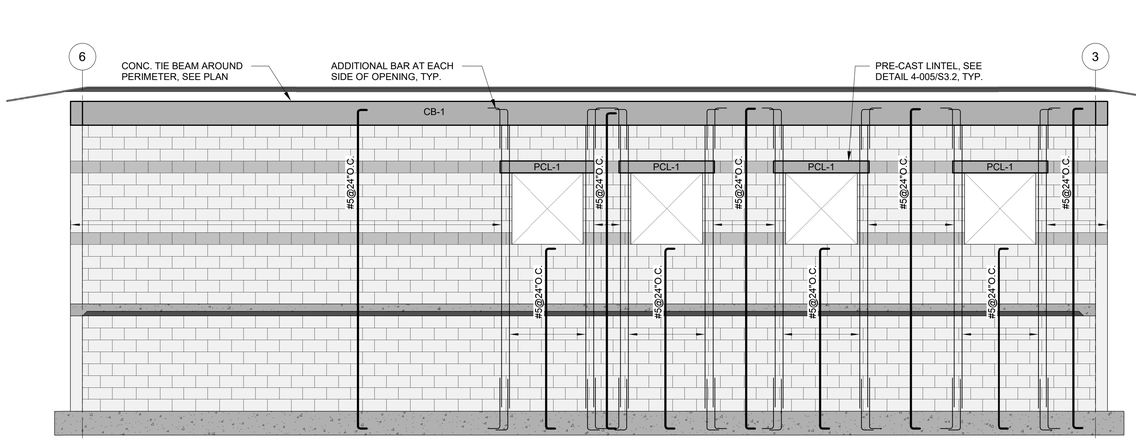
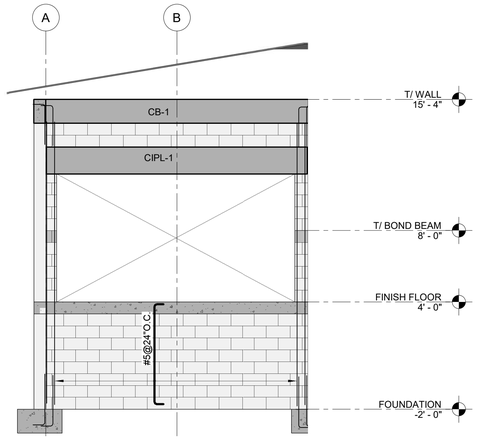
ELEVATIONS

S5.1



ELEVATION 4
1/4" = 1'-0"

E4



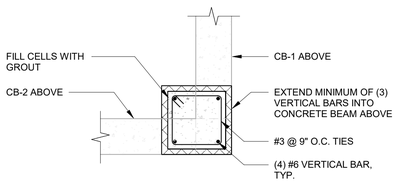
ELEVATION 5
1/4" = 1'-0"

E5

ROOF FRAMING							ROOF FRAMING
21' - 4"							21' - 4"
T/ WALL							T/ WALL
15' - 4"							15' - 4"
T/ BOND BEAM	16 x 16 CMU PILASTER	16 x 16 CMU PILASTER	16 x 16 CMU PILASTER	8 x 16 (4) #6 VERT. & #3 TIES @ 8" O.C.	8 x 16 (4) #6 VERT. & #3 TIES @ 8" O.C.	8 x 16 (4) #6 VERT. & #3 TIES @ 8" O.C.	T/ BOND BEAM
8' - 0"							8' - 0"
FINISH FLOOR							FINISH FLOOR
4' - 0"							4' - 0"
FOUNDATION							FOUNDATION
-2' - 0"	C1	C2	C3	C4	C7	C8	-2' - 0"
Column Locations	A-3	A-4	A-5	B-6	J-3	J-6	

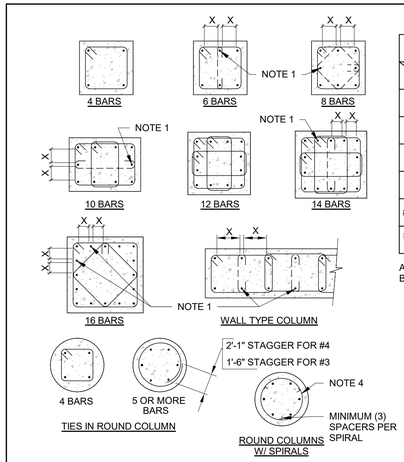
COLUMN SCHEDULE

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



16 x 16 CMU PILASTER DETAIL

SCALE: 3/4" = 1'-0"



SIZE AND SPACING OF COL. TIES									
A \ B	8"	10"	12"	14"	16"	18"	20"	22"	24" OR MORE
#5	#3@8	#3@10	#3@10	#3@10	#3@10	#3@10	#3@10	#3@10	#3@10
#6	#3@8	#3@10	#3@12	#3@12	#3@12	#3@12	#3@12	#3@12	#3@12
#7	#3@8	#3@10	#3@12	#3@14	#3@14	#3@14	#3@14	#3@14	#3@14
#8	#3@8	#3@10	#3@12	#3@14	#3@16	#3@16	#3@16	#3@16	#3@16
#9,#10	#3@8	#3@10	#3@12	#3@14	#3@16	#3@18	#3@18	#3@18	#3@18
#11#14 & #18	#4@8	#4@10	#4@12	#4@14	#4@16	#4@18	#4@20	#4@22	#4@22

A = SIZE OF VERTICAL REINFORCING
B = LEAST DIMENSION OF COLUMN

NOTES:

1. THESE BARS MUST BE TIED AS SHOWN BY DASHED LINES WHEN "X" DISTANCE IS OVER 6 INCHES AND NEED NOT BE TIED WHEN "X" IS 6" OR LESS.
2. MINIMUM CLEAR COVER 1 1/2" TO TIES (2" FOR EXPOSED CONDITION).
3. FOR VERTICAL COLUMN REINFORCING, SEE PLAN AND COLUMN SCHEDULE.
4. FOR SPIRAL SEE COLUMN SCHEDULE.

TYP. COLUMN SECTIONS & TIE SCHEDULE

3-061

TO THE BEST OF OUR KNOWLEDGE INFORMATION AND BELIEF, THESE STRUCTURAL PLANS CONFORM TO AND SATISFY, THE FLORIDA BUILDING CODE, SIXTH EDITION 2017, ACI 318-14 AND LOCAL CODES AS APPLICABLE

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HILLSBOROUGH COUNTY
BOARD OF COUNTY COMMISSIONERS
COUNTY CENTER
601 E KENNEDY BLVD
TAMPA, FL 33601

HILLSBOROUGH COUNTY
NORTHWEST AREA HEAD START

PROJECT #: 2010-00	
DISTRIBUTION	DATE
SCHEMATIC DESIGN	05.01.2020
DESIGN DEVELOPMENT	06.11.2020
90% CONST DOCS	08.19.2020
PERMIT SET	12.21.2020

ELEVATIONS

S5.2

GENERAL PLUMBING NOTES

1. ALL PLUMBING WORK SHALL MEET ALL OF THE REQUIREMENTS OF THE FOLLOWING:
   A. FLORIDA BUILDING CODE (FBC) 6TH EDITION (2017): THIS CODE INCLUDES THE 2017 FBC BUILDING, MECHANICAL, PLUMBING, ENERGY CONSERVATION, FUEL GAS, ACCESSIBILITY, AND TEST PROTOCOLS VOLUMES. FURTHER, SEE "REFERENCED STANDARDS" IN THE FBC BUILDING CHAPTER 35; FBC MECHANICAL CHAPTER 15; FBC PLUMBING CHAPTER 14; FBC ENERGY CONSERVATION CHAPTER 6; AND FBC FUEL GAS CHAPTER 8) (EFFECTIVE DECEMBER 31, 2017)
   B. 6TH EDITION OF THE FLORIDA FIRE PREVENTION CODE (FFPC): (THIS CODE ALSO INCLUDES THE FLORIDA VERSIONS OF NFPA 1 AND NFPA 101.) (EFFECTIVE DECEMBER 31, 2017)
   C. 2014 NATIONAL ELECTRIC CODE
2. PROVIDE COMPLETE PLUMBING SYSTEMS AS DETAILED. WORK CONSISTS OF FURNISHING ALL MATERIALS, EQUIPMENT, AND SERVICES REQUIRED FOR COMPLETE SYSTEMS.
3. IN GENERAL, PLANS ARE SCHEMATIC ONLY AND SHOULD NOT BE SCALED.
4. ALL FLOOR DRAINS IN MECHANICAL ROOMS/CLOSETS, SHALL BE FIELD VERIFIED AND COORDINATED WITH THE HVAC EQUIPMENT/PAD LOCATIONS.
5. CONDITIONS SHOWN AS EXISTING ARE BASED ON AVAILABLE DATA AND SHOULD BE INTERPRETED TO BE APPROXIMATE. VERIFY EXISTING CONDITIONS IN THE FIELD.
6. COORDINATE WITH OTHER TRADES TO AVOID CONFLICTS.
7. COORDINATE LOCATIONS OF FLOOR DRAINS, CLEAN OUTS AND FLOOR HYDRANTS WITH THE ARCHITECTURAL DRAWINGS.
8. UNLESS OTHERWISE NOTED, ALL PIPING SHALL BE RUN IN CONCEALED SPACES.
9. WATER PIPING SHALL BE HARD DRAWN COPPER TYPE L WITH WROUGHT COPPER FITTINGS AND 95-5 SOLDER.
10. ALL SOIL, WASTE, AND VENT PIPING SHALL BE SCHEDULE 40 PVC DWV.
11. VENT THROUGH ROOF TERMINALS SHALL BE LOCATED 10'-0" AWAY FROM ANY BUILDING INTAKE OPENINGS. COORDINATE WITH THE MECHANICAL CONTRACTOR.
12. GATE VALVES SHALL BE #125 BRONZE WITH UNION BONNET.
13. ALL FIRE STOPPING SHALL BE INSTALLED IN CONFORMANCE WITH THE MANUFACTURER'S U.L. DETAILS OF THE PRODUCTS USED SPECIFICALLY ON THIS PROJECT. APPLICABLE U.L. DETAILS SHALL BE SUBMITTED FOR THE ENGINEER'S REVIEW AND A COPY SHALL BE AVAILABLE ON SITE FOR USE BY THE AUTHORITY HAVING JURISDICTION.
14. UNLESS NOTED OTHERWISE, ALL PLUMBING EQUIPMENT, MATERIALS, AND WORKMANSHIP SHALL BE GUARANTEED FOR A ONE YEAR PERIOD FROM DATE OF ACCEPTANCE.
15. PROVIDE ALL CUTTING REQUIRED FOR THE INSTALLATION OF PLUMBING WORK. FINISH PATCHING SHALL BE COORDINATED WITH THE CONSTRUCTION MANAGER.
16. ALL SOIL AND WASTE PIPING 2-1/2" AND SMALLER SHALL BE SLOPED AT 1/4" PER FOOT. LARGER WASTE PIPING SHALL BE SLOPED AT 1/8" PER FOOT.
17. ALL WATER PIPING SHALL BE SUPPORTED RIGIDLY AND IN LINE FROM THE BUILDING STRUCTURE. OFFSET PIPING TO AVOID STRUCTURAL MEMBERS, CANTS, FLASHING, MECHANICAL AND ELECTRICAL EQUIPMENT, ETC.
18. PRIOR TO COMMENCING ANY PLUMBING ROUGH-IN, THE EXISTING SANITARY PIPING SHALL BE EXCAVATED, VERIFY THE EXACT SIZE, LOCATION, INVERT AND DIRECTION OF FLOW. NOTIFY THE ENGINEER IMMEDIATELY IF THE DRAIN IS SMALLER THAN INDICATED OR IF THE INVERT WILL NOT BE LOW ENOUGH FOR THE NEW PLUMBING ROUGH-IN.
19. VERIFY ALL SITE RELATED SANITARY & WATER CONNECTIONS PRIOR TO STARTING WORK. SHOULD DEPTHS BE DIFFERENT THAN THAT SHOWN HEREIN ADVISE ENGINEER IMMEDIATELY.
20. PRIOR TO SITE UTILITIES WORK, CALCULATE THE INVERTS FOR ALL SANITARY WASTE CONNECTIONS BASED ON ACTUAL CONDITIONS. COORDINATE SANITARY WASTE LOCATIONS AND INVERTS WITH SITE UTILITIES CONTRACTOR.
21. WASTE LINES RECEIVING BELOW AMBIENT TEMPERATURE CONDENSATE SHALL BE INSULATED WITH 1/2" FLEXIBLE UNICELLULAR FOAM (ARMAFLEX OR EQUIVALENT) INSULATION TO GRADE.
22. VALVES AND FITTINGS SHALL BE OF SAME SIZE OF LINE ON WHICH THEY ARE INDICATED.
23. INSTALL WATER HAMMER SHOCK ARRESTORS AT EACH FIXTURE OR BATTERY OF FIXTURES. ARRESTORS SHALL BE FACTORY FABRICATED. INSTALL ARRESTORS AND SIZE PER PLUMBING AND DRAINAGE INSTITUTE STANDARD P.D.I WH-201. AIR CHAMBERS SHALL NOT BE CONSIDERED EQUIVALENT TO WATER HAMMER SHOCK ARRESTORS.
24. PROVIDE TRAP PRIMERS WHERE REQUIRED BY CODE.
25. ALL FLOOR DRAINS SHALL BE PROVIDED WITH TRAP PRIMER VALVE AND FITTINGS.
26. ROUTE ALL PIPING CONCEALED ABOVE CEILINGS, WITHIN WALLS, OR IN CHASES EXCEPT WHERE SPECIFICALLY NOTED OR IN THE MECHANICAL ROOM. ANY PIPING EXPOSED TO VIEW SHALL BE RELOCATED AT NO ADDITIONAL COST TO THE OWNER IF DETERMINED BY THE OWNER TO BE OBJECTIONABLE.
27. PROVIDE ACCESS PANELS TO ALL VALVES WITHIN CHASES OR ABOVE NON- ACCESSIBLE CEILINGS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
28. PROVIDE DIELECTRIC ISOLATION/SEPARATION (I.E. UNIONS) AT CONNECTIONS OF DISSIMILAR METALS.
29. ROUGH-IN ALL WASTE AND SUPPLIES TO SPECIAL EQUIPMENT ACCORDING TO MANUFACTURE'S SHOP DRAWINGS AND MAKE FINAL CONNECTIONS TO RENDER EQUIPMENT FULLY OPERATIONAL. ALL SUPPLIES SHALL BE VALVED. PROVIDE VACUUM BREAKERS OR CHECK VALVES WHERE REQUIRED BY AUTHORITY HAVING JURISDICTION.
30. ALL EXPOSED PLUMBING PENETRATIONS SHALL HAVE ESCUTCHEON PLATES.
31. ANY PLUMBING ITEMS EXPOSED TO VIEW SHALL BE PLACED PER THE ARCHITECTURAL DRAWINGS.
32. PROVIDE A BLUE STICKER ON CEILING GRID TEE BELOW ANY WATER VALVE ABOVE CEILING FOR LOCATION FACILITATION.
33. SEE 8x11 SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

PLUMBING FIXTURE SCHEDULE

MARK	DESCRIPTION	SELECTION	W OR S	TRAP	VENT	HW	CW
P1 WATER CLOSET	HANDICAPPED ** BOWL: WHITE FLOOR MOUNTED WITH BOTTOM OUTLET, VITREOUS CHINA, SIPHON-JET, ELONGATED BOWL, 18" AFF TO RIM, BOLT CAPS WITH CAULK, LOW CONSUMPTION FLUSH (1.6 GPF). BOWL AND SEAT DIMENSIONS MUST MATCH WITHIN 1/4". SEAT: WHITE SOLID PLASTIC, HEAVY DUTY, ELONGATED, OPEN FRONT (WITHOUT COVER), STAINLESS STEEL SELF-SUSTAINING CHECK HINGES, INTEGRAL MOLDED BUMPERS. FLUSH VALVE ASSEMBLY: 1-1/2" HIGH ABOVE RIM, EXPOSED DIAPHRAGM VALVE (1.6 GALLON FLUSH), CHROME FINISH, ADA COMPLIANT NON-HOLD-OPEN HANDLE, 1" INLET, 1-1/2" OUTLET, INTEGRAL SCREWDRIVER ADJUSTABLE ANGLE STOP AND CHECK VALVE WITH COVER, VACUUM BREAKER, WALL AND SPUD FLANGES, SWEAT SOLDER ADAPTER KIT, SOLID RING PIPE SUPPORT. ROUGH-IN DIMENSION MUST ALLOW FOR FLUSH VALVE CLEARANCE OF HANDICAPPED GRAB BAR WHERE APPLICABLE, OR OFFSET FITTING MAY BE REQUIRED.	BRIGGS 7790 BENEKE 523-SS NCH SLOAN ROYAL 111-1.6-YB-YK	4"	INT.	2"	–	1"
P2 WATER CLOSET	HANDICAPPED **/NON-HANDICAPPED PRESCHOOL ONLY BOWL: WHITE FLOOR MOUNTED WITH BOTTOM OUTLET, VITREOUS CHINA, SIPHON-JET, ELONGATED BOWL, 10" AFF TO RIM, BOLT CAPS WITH CAULK, LOW CONSUMPTION FLUSH (1.6 GPF). BOWL AND SEAT DIMENSIONS MUST MATCH WITHIN 1/4". SEAT: WHITE SOLID PLASTIC, HEAVY DUTY, ELONGATED, OPEN FRONT (WITHOUT COVER), STAINLESS STEEL SELF-SUSTAINING CHECK HINGES, INTEGRAL MOLDED BUMPERS. FLUSH VALVE ASSEMBLY: 1-1/2" HIGH ABOVE RIM, EXPOSED DIAPHRAGM VALVE (1.6 GALLON FLUSH), CHROME FINISH, ADA COMPLIANT NON-HOLD-OPEN HANDLE, 1" INLET, 1-1/2" OUTLET, INTEGRAL SCREWDRIVER ADJUSTABLE ANGLE STOP AND CHECK VALVE WITH COVER, VACUUM BREAKER, WALL AND SPUD FLANGES, SWEAT SOLDER ADAPTER KIT, SOLID RING PIPE SUPPORT. ROUGH-IN DIMENSION MUST ALLOW FOR FLUSH VALVE CLEARANCE OF HANDICAPPED GRAB BAR WHERE APPLICABLE, OR OFFSET FITTING MAY BE REQUIRED.	ELJER 111-0335 BENEKE 523-SS NCH SLOAN ROYAL 111-1.6-YB-YK	4"	INT.	2"	–	1"
P3 LAVATORY	HANDICAPPED ** HOT/COLD WATER – K to ADULT BOWL: WHITE, WALL MOUNTED, ENAMELED CAST IRON, 20"x18", ADA COMPLIANT 4" CENTER FAUCET HOLE. PROVIDE FLOOR MOUNTED WALL CARRIER WITH CONCEALED CARRIER ARMS. MOUNT AS FOLLOWS: APPLICATION / APRON(MIN) / RIM(MAX) PRESCHOOL 22" 27" K – 7TH GRADE 26" 31" 8TH GRADE – ADULT 29" 34" FAUCET: CHROME FINISHED SELF-CLOSING MIXING FAUCET, METERING TYPE WITH ADJUSTABLE TIME CYCLE (0.35GPM/10 SECONDS MINIMUM), ADA COMPLIANT PUSH HANDLES, VANDAL RESISTANT AERATOR. DRAIN: FLAT GRID, CHROME FINISH, 1-1/4" OUTLET WITH ADA COMPLIANT OFFSET TAILPIECE. PROVIDE PROTECTIVE INSULATION AS REQUIRED BY ADA. P-TRAP: CHROME FINISHED WITH TWO UNIONS, 1-1/4" INLET AND 1-1/2" OUTLET, WITHOUT CLEANOUT, WALL ESCUTCHEON, WASTE LINE INSULATION. SUPPLY: TWO REQUIRED, CHROME PLATED, LOOSE KEY ANGLE VALVE, WALL ESCUTCHEON, FLEXIBLE TUBE RISER, 3/8" INLET AND OUTLET CONNECTIONS. PROVIDE PROTECTIVE INSULATION AS REQUIRED BY ADA**. MIXING VALVE: THERMOSTATICALLY CONTROLLED POINT OF USE MIXING VALVE. LEAD FREE. ASSE 1070 COMPLIANT. SET TEMPERATURE TO 85°F. RUN 3/8"TW TO FAUCET.	KOHLER 2867 WATTS TCA-411 CHICAGO 802A-665-E39VPJKCP MCGUIRE 155WC MCGUIRE 8902CNC PLUMBEREX "PRO-2000" MCGUIRE 2165CCLK MCGUIRE PW-2150WC W/155WC & 8902 SYMMONS 7-210-CK	2"	1-1/4"	1-1/4"	3/8"(1) – 3/8"TW 3/8" 3/8"TW OUT	1/2"(1) – 3/8" 3/8" OUT
P4 SINK	HANDICAPPED **/NON-HANDICAPPED HOT/ COLD WATER (SINGLE BOWL) – P through ADULT BOWL: SINGLE BOWL, STAINLESS STEEL, COUNTERTOP-MOUNTED 18 GAUGE-TYPE 302, SELF RIM, OVERFLOW, 19-1/2"x19"x6-1/2" OVERALL, ONE FAUCET HOLE IN CENTER OF SIDE LEDGE AS REQUIRED FOR ACCESSIBILITY, ADA COMPLIANT. FAUCET: 6" HIGH OUTLET, AERATOR (2 GPM), LEVER HANDLE, CHROME FINISHED, ADA COMPLIANT DRAIN: FLAT GRID STRAINER WITHOUT STOPPER, 1-1/2" OUTLET. P-TRAP: CHROME FINISHED WITH TWO UNIONS, 1-1/2" INLET AND OUTLET, WITHOUT CLEANOUT. SUPPLY: TWO REQUIRED, CHROME PLATED, LOOSE KEY ANGLE VALVES, WALL ESCUTCHEON, FLEXIBLE TUBE RISER, 3/8" INLET CONNECTIONS. MIXING VALVE: THERMOSTATICALLY CONTROLLED POINT OF USE MIXING VALVE. LEAD FREE. ASSE 1070 COMPLIANT. SET TEMPERATURE TO 105°F.	ELKAY LRAD 1919 (CUSTOM PUNCH) CHICAGO 50-GN2A-E3-369 ELKAY LK-18 MCGUIRE 8912CNC MCGUIRE 2165CCLK SYMMONS 7-225-CK	2"	2"	2"	1/2"	1/2"

MARK	DESCRIPTION	SELECTION	W OR S	TRAP	VENT	HW	CW
P5 TRIPLE BOWL SINK	HANDICAPPED ** /NON-HANDICAPPED HOT/ COLD WATER (TRIPLE BOWL) – P through ADULT BOWL: THREE COMPARTMENT, STAINLESS STEEL, 16 GAUGE-TYPE 302, 72.5"x25.75"x45" INCHES OVERALL, TWO FAUCET HOLES IN CENTER OF BACK LEDGE. FAUCET: 14 INCH L-TYPE SWING SPOUT, VANDAL PROOF LEVER HANDLES, CHROME FINISHED, ADA COMPLIANT. DRAIN: CONICAL STRAINER WITH STOPPER, 1-1/2 INCH OUTLET. DRAIN CONNECTION: BRASS CHROME PLATED, OUTLET SUPPLY: TWO REQUIRED, CHROME PLATED, LOOSE KEY ANGLE VALVES, WALL ESCUTCHEON, FLEXIBLE TUBE RISER, 3/8" INLET CONNECTIONS. MIXING VALVE: THERMOSTATICALLY CONTROLLED POINT OF USE MIXING VALVE. LEAD FREE. ASSE 1070 COMPLIANT. SET TEMPERATURE TO 105°F.	ELKAY 14-3C16X20-R-18X CHICAGO 540-LDL15E1WXFABCP ELKAY LK-35 MCGUIRE 165 SYMMONS 7-225-CK	2"	2"	2"	1/2"	1/2"
P6	HANDWASH SINK W/ HOT/COLD WATER CHILD CARE, BOWL: SINGLE BOWL, COUNTERTOP-MOUNTED STAINLESS STEEL, 18 GAUGE – TYPE 302, 15 X 15 X 6-1/2 INCHES OVERALL, ONE FAUCET IN CENTER OF BACK LEDGE (ONE HOLE PUNCH.) FAUCET: 6" HIGH OUTLET, AERATOR (2 GPM), LEVER HANDLES, CHROME FINISHED, ADA COMPLIANT DRAIN: FLAT GRID STRAINER WITHOUT STOPPER, 1-1/2 INCH OUTLET P-TRAP: CHROME FINISHED WITH TWO UNIONS, 1-1/2 INCH INLET AND OUTLET, WITHOUT CLEANOUT. SUPPLY: TWO REQUIRED, CHROME PLATED, LOOSE KEY ANGLE VALVES, WALL ESCUTCHEON, FLEXIBLE TUBE RISERS, 3/8" INLET CONNECTIONS MIXING VALVE: THERMOSTATICALLY CONTROLLED POINT OF USE MIXING VALVE. LEAD FREE. ASSE 1070 COMPLIANT. SET TEMPERATURE TO 105°F.	ELKAY BLR-15 CHICAGO 50-GN2A-E3-369 ELKAY LK-18 MCGUIRE 8912CNC SYMMONS 7-225-CK	2"	2"	2"	1/2"	1/2"
P7	NOT USED.	–	–	–	–	–	–
P8	HANDICAPPED** TWO LEVEL ELECTRIC WATER COOLER, WHEELCHAIR ACCESS, NON-RECESSED, STAINLESS STEEL TOP AND SIDES, WITH FRONT AND SIDE PRESSBARS, GRID STRAINER AND SAFETY BUBBLER. 4.4 GPH @ 30°F TEMPERATURE DIFFERENCE. 4.8AMPS @ 120V/1Ø/60HZ. 1-1/4" P-TRAP. CAST BRASS WITHOUT CLEAN OUT. 1/2" STOP. MOUNT WITH BUBBLER AT 30" & 36" AFF.	ELKAY EZSTL8C-SS MCGUIRE 8902CNC	2"	1-1/4"	1-1/4"	–	1/2"
P9	SERVICE SINK ONE-PIECE CONSTRUCTION, 24"x24"x10", FLOOR MOUNTED TYPE. FAUCET WITH PAIL HOOK AND HOSE END, VACUUM BREAKER, INTEGRAL STOPS, VANDAL PROOF HANDLE MOP HANGER, 24" X 3". 18 GA. STAINLESS STEEL BUMPER GUARD. 12 OZ. SILICONE SEALANT. 30" HOSE AND BRACKET COMBINATION.	FIAT MSB 2424 CHICAGO 305-VB-R-VPH FIAT 889-CC FIAT 833-AA FIAT 832-AA	2"	2"	2"	1/2"	1/2"
P10	RESIDENTIAL TYPE CLOTHES WASHING MACHINE ROUGH-IN AND MAKE ALL CONNECTIONS. 2" P.V.C. DRAIN COMPLETE WITH TWO 1/2" HOSE BIBBS AND 7-1/2" X 9" X 3-1/2" BOX. NOTE: PROVIDE 4" BOX IN STUD WALLS, 5-7/8" BOX IN CONCRETE BLOCK WALLS. PROVIDE WITH LINT TRAP.	APPLIANCE PROVIDED UNDER ANOTHER DIVISION WATER-TITE W4700TM	2"	2"	2"	1/2"	1/2"
P11	RESIDENTIAL TYPE VALVE BOX FOR RESIDENTIAL REFRIGERATOR AND DISHWASHER ROUGH-IN AND MAKE ALL CONNECTIONS. ONE 1/2" HOSE BIBB AND 7-1/2" X 9" X 3-1/2" BOX. NOTE: PROVIDE 4" BOX IN STUD WALLS.	WATER-TITE 9700	–	–	–	–	1/2"

** FIXTURE AND ALL ATTACHMENTS SHALL COMPLY WITH THE FBC/ACCESSIBILITY CODE AND THE AMERICANS WITH DISABILITIES ACT, ACCESSIBILITY GUIDELINES FOR BUILDINGS AND FACILITIES; CHILDREN'S FACILITIES. FIXTURE TO BE MOUNTED PER THIS SCHEDULE UNLESS NOTED OTHERWISE IN PLAN. FLUSH VALVE HANDLE IS TO BE ON THE SIDE TOWARDS THE ASSOCIATED LAVATORY WHERE APPLICABLE.

(1) BRANCH RUNOUT TO FIXTURE LINE SIZE. PROVIDE TEE IN CW LINE AFTER STOP TO RUN TO MIXING VALVE AND FAUCET. RUN HW TO MIXING VALVE.

PLUMBING EQUIPMENT SCHEDULE

MARK	DESCRIPTION	SELECTION	W OR S	TRAP	VENT	HW	CW
FD1	FLOOR DRAIN 3" FLOOR DRAIN WITH TRAP PRIMER CONNECTED TO DOMESTIC COLD WATER LINE AT LAVATORY. NICKEL BRONZE TOP. 6" ROUND. CAST IRON BODY WITH FLASHING COLLAR AND ADJUSTABLE STRAINER.	SMITH 2005-A-6"	3"	3"	1-1/2"	–	–
HB1	HOSE BIBB RECESSED WALL HYDRANT WITH LOOSE KEY HANDLE AND 3/4" HOSE THREADE OUTLET, INTEGRAL ANTI-SIPHON, VACUUM BREAKER. MOUNT 18" ABOVE GRADE. COORDINATE MTG. HEIGHT WITH GRADING PLAN.	ZURN Z-1330 WOODFORD B75 B75 B75-BR-MH	–	–	–	–	3/4"
WCO	CAST IRON TEE WALL CLEAN-OUT WITH BRONZE PLUG AND ROUND STAINLESS STEEL COVER PLATE. SIZE C.O. SAME AS LINE SIZE (2-1/2" MINIMUM). PROVIDE PVC TO NO-HUB ADAPTERS FOR PVC DWV APPLICATIONS.	SMITH 4351S-Y	2-1/2" MIN.	–	–	–	–
VTR	VENT THROUGH ROOF WITH VANDALPROOF VENT CAP SIZE AS INDICATED ON DRAWINGS.	WADE W-3680	–	–	–	–	–
TP	TRAP PRIMER TAILPIECE. GRAVITY FED DEVICE WITH NO MECHANICAL PARTS. 1-1/4" TAILPIECE WITH 1/2" NOMINAL ARM FOR CONNECTION TO FLOOR DRAIN. USE TRAP PRIMER TAILPIECE IN-LIEU OF STANDARD LAVATORY TAILPIECE WHERE SPECIFIED. ASSE 1044.	SIOUX CHIEF 213-092	–	–	–	–	–
EWH1	ELECTRIC WATER HEATER 6,000 WATTS, 208 VOLT, SINGLE PHASE, 30 GALLON ELECTRIC WATER HEATER.	RHEEM EGSP30	–	–	–	3/4"	3/4"
HWP	HOT WATER RECIRCULATOR PUMP WITH INTEGRAL TIMER & AQUASTAT. THREE SPEED, WET ROTOR, DIRECT DRIVE, CENTRIFUGAL PUMP. UL LISTED AND CSA APPROVED. 120V, 85 WATTS, 1/25 HP, CORD. ALL BRONZE CONSTRUCTION.	GRUNDFOS UP 15-18B7	– –	– –	– –	– –	– –
G	RESIDENTIAL GARBAGE DISPOSAL 1/2 HP, 120V, 1Ø WITH STAINLESS STEEL GRIND CHAMBER, CUTTING ELEMENTS AND TURNTABLE.	IN-SINK-ERATOR 333SS	–	–	–	–	–
AAV	VENT TERMINAL RELIEF LOCATE AIR ADMITTANCE VALVE JUST BELOW ROOF DECK. SIZE AS INDICATED ON DRAWINGS.	STUDOR	–	–	–	–	–
MV1	MIXING VALVE THERMOSTATIC CONTROLLED WITH REMOVABLE STRAINER, STAINLESS STEEL PISTON AND LIQUID FILL THERMAL MOTOR WITH BELLOWS MOUNTED OUT OF WATER. SET WATER TEMP. @105°F.	SYMMONS TEMPCONTROL 7-200	–	–	–	3/4"	3/4"

PLUMBING LEGEND

- VENT PIPING
- WASTE PIPING BELOW FLOOR OR GRADE (SAN)
- COLD WATER PIPING (CW)
- HOT WATER PIPING (HW)
- HOT WATER RETURN PIPING (HWR)
- PIPING UP
- PIPING DOWN
- HOT WATER BALANCING VALVE
- P# PLUMBING FIXTURE IDENTIFICATION. SEE PLUMBING FIXTURE SCHEDULE
- VTR VENT THROUGH ROOF
- ELEVATION

AFF ABOVE FINISHED FLOOR
BFF BELOW FINISHED FLOOR
S SANITARY
W WASTE
V VENT

COORDINATE AND VERIFY EXACT LOCATIONS OF ALL PLUMBING FIXTURES WITH ARCHITECTURAL DRAWINGS

REFER TO RISER ON DRAWING P2.1 FOR DOMESTIC WATER AND WASTE AND VENT LINE SIZING

PLUMBING DRAWING INDEX

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HARRY W. PORTELLOS, P.E. 61597

TO THE BEST OF MY KNOWLEDGE, THESE DRAWINGS AND THE PROJECT MANUAL ARE COMPLETE AND COMPLY WITH THE 2017 FLORIDA BUILDING CODE

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TAMPA, FL 33601

HILLSBOROUGH COUNTY
NORTHWEST AREA HEAD START

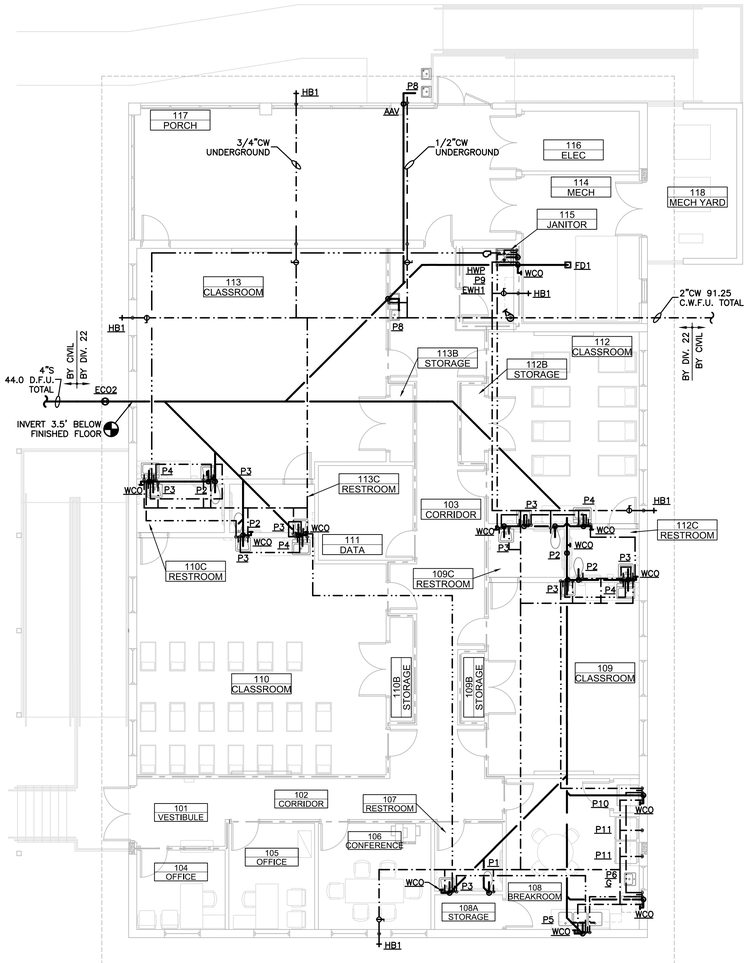
PROJECT #: 2010-00

DISTRIBUTION	DATE
DESIGN DEVELOPMENT	06.11.2020
90% CONST DOCS	08.19.2020
SITE PERMIT PACKAGE	09.11.2020
PERMIT SET	12.21.2020

PLUMBING

P0.1

Drawing File: I:\20xxx\20033.001\20033p01.dwg P01
Plotted by: Harry Dec 16, 2020 - 4:43pm



N

0 4' 8' 16'

PLUMBING PLAN
1/8" = 1'-0"

A1

1315 E. SEVENTH AVENUE
SUITE 106
TAMPA, FLORIDA 33605.3607

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AA26000655

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Florida Engineering Business Number 6093

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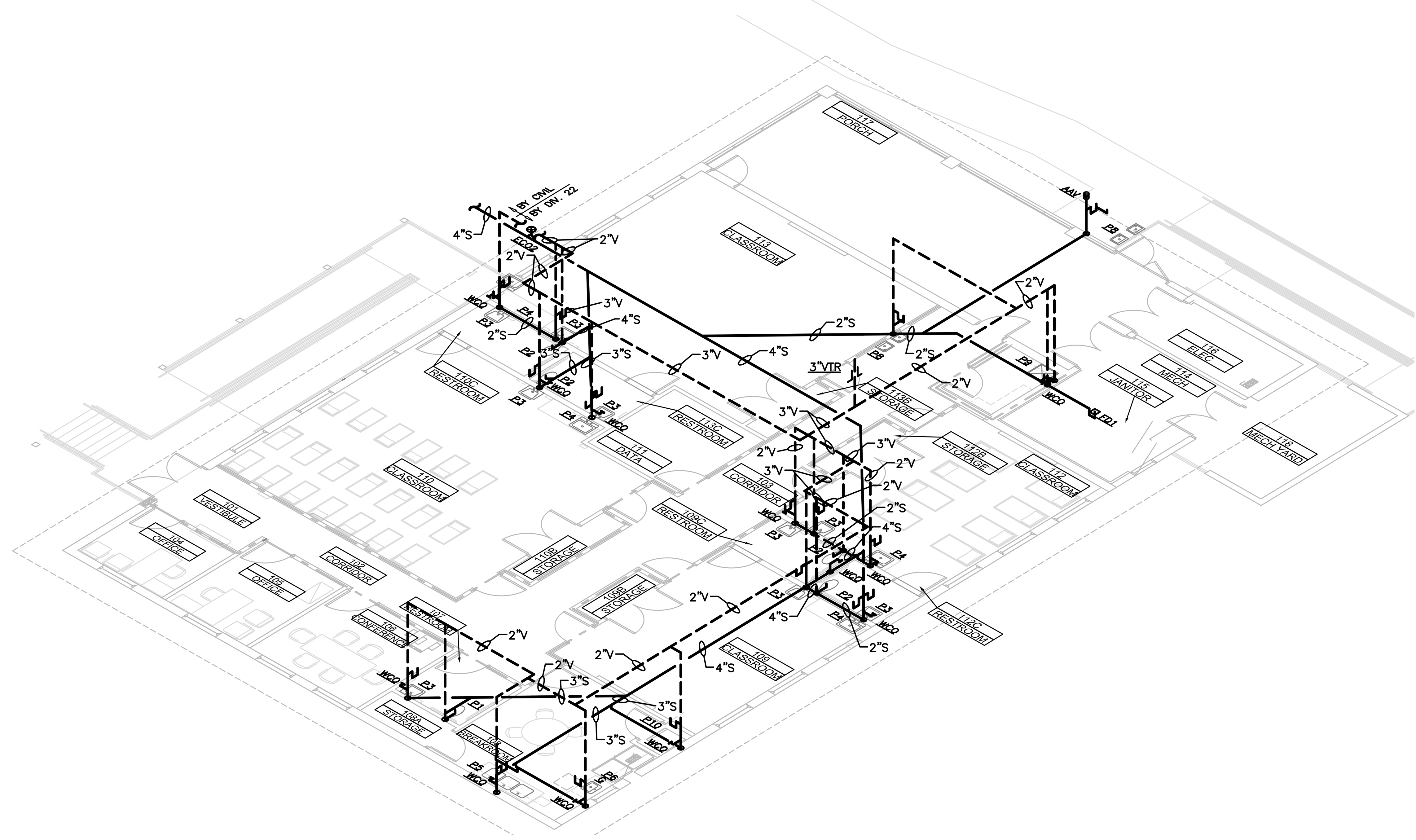
SITE PERMIT PACKAGE	09.11.2020
PERMIT SET	12.21.2020

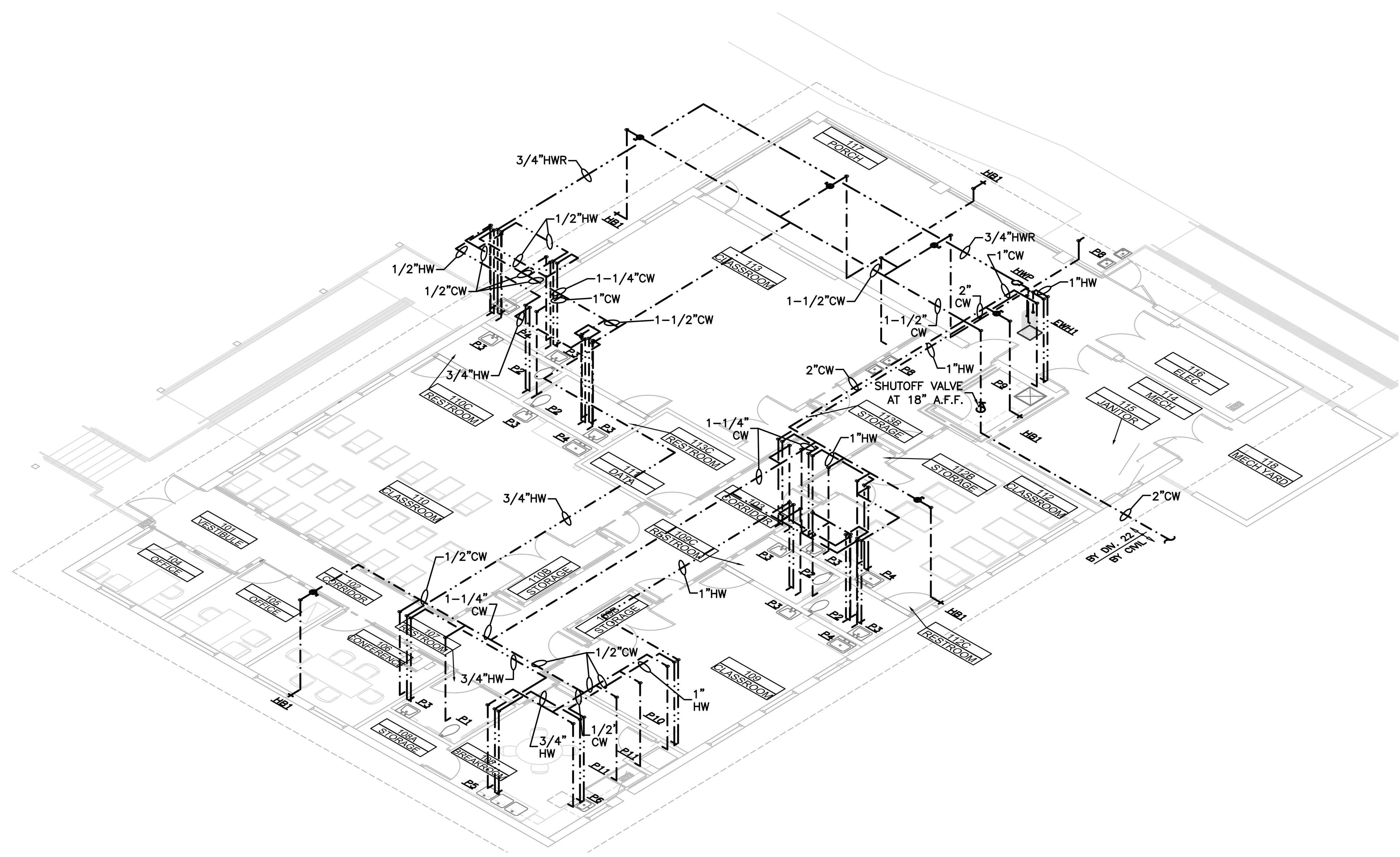
PLUMBING PLAN

P1.1

Drawing File: I:\20xxx\20033.001\20033p1x.dwg P11
Plotted by: Harry Dec 16, 2020 - 4:44pm



SANITARY ISOMETRIC
NOT TO SCALE
F1



DOMESTIC WATER ISOMETRIC
NOT TO SCALE
A1

Drawing File: I:\20xxx\20033.001\20033p1x.dwg P21
Plotted by: Harry Dec 16, 2020 – 4:44pm

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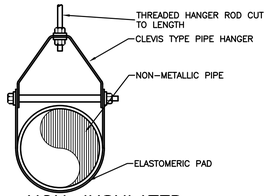
NORTHWEST AREA HEAD START

PROJECT #: 2010-00

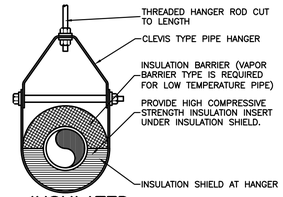
DISTRIBUTION	DATE
DESIGN DEVELOPMENT	06.11.2020
90% CONST DOCS	08.19.2020
SITE PERMIT PACKAGE	09.11.2020
PERMIT SET	12.21.2020

PLUMBING
ISOMETRICS

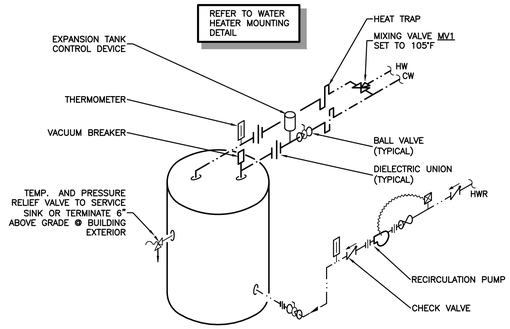
P3.1



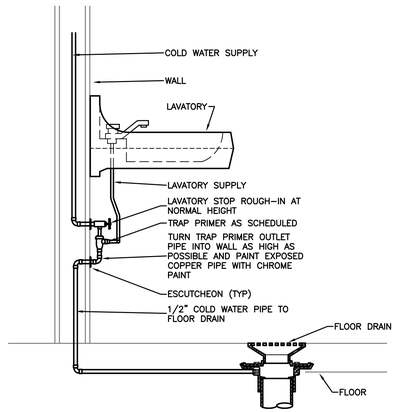
NON-INSULATED
PIPE HANGER SUPPORT
NOT TO SCALE



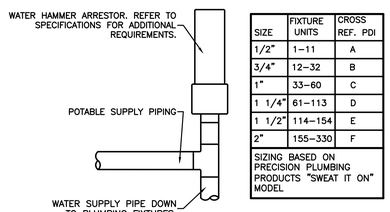
INSULATED
PIPE HANGER SUPPORT
NOT TO SCALE



ELECTRIC WATER HEATER
PIPING DETAIL WITH
RECIRCULATION PUMP
NOT TO SCALE

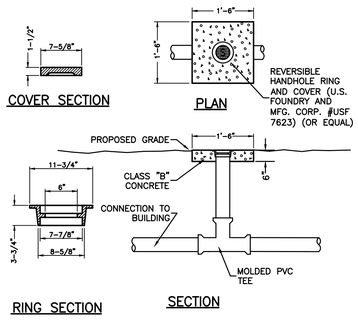


TRAP PRIMER DETAIL
NOT TO SCALE

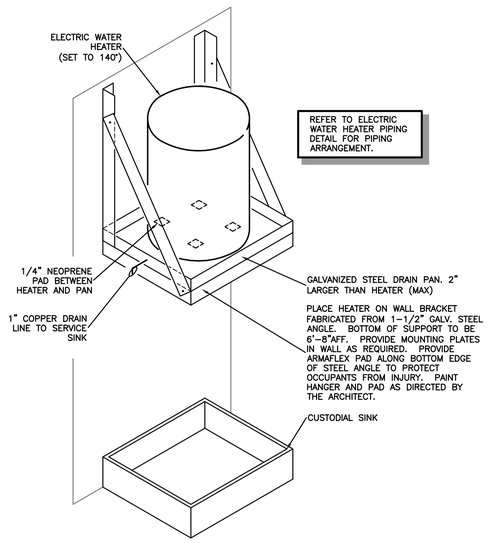


SIZE	FIXTURE UNITS	CROSS REF. PDI
1/2"	1-11	A
3/4"	12-32	B
1"	33-60	C
1 1/4"	61-113	D
1 1/2"	114-154	E
2"	155-330	F
SIZING BASED ON PRECISION PLUMBING PRODUCTS "SWEAT IT ON" MODEL		

WATER HAMMER ARRESTOR DETAIL
NOT TO SCALE



EXTERIOR CLEAN-OUT DETAIL (ECO2)
NOT TO SCALE



ELECTRIC WATER HEATER
WALL HUNG DETAIL
NOT TO SCALE

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NORTHWEST AREA HEAD START

PROJECT #: 2010-00	
DISTRIBUTION	DATE
DESIGN DEVELOPMENT	06.11.2020
90% CONST DOCS	08.19.2020
SITE PERMIT PACKAGE	09.11.2020
PERMIT SET	12.21.2020

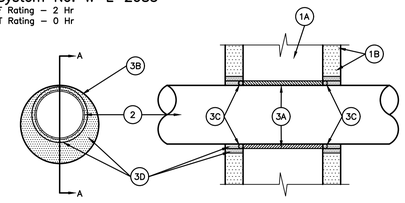
PLUMBING DETAILS

P3.1

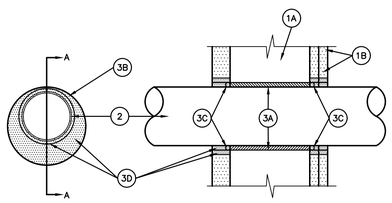
Drawing File: I:\20xxx\20033.001\20033s3x.dwg P31
Plotted by: Harry Dec 16, 2020 - 4:44pm

System No. W–L–2085

F Rating – 2 Hr
T Rating – 0 Hr



SECTION A–A



SECTION A–A

1. Wall Assembly – The fire–rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 2–1/2 in. wide and spaced max 24 in. OC.
   B. Wallboard, Gypsum* – Two layers of nom 5/8 in. thick gypsum wallboard as specified in the individual Wall and Partition Design. Max diam of opening is 6–7/8 in.

2. Through Penetrants – One nonmetallic pipe or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space shall be min 3/4 in. to max 1–5/8 in. Pipe to be rigidly supported on both sides of wall assembly. The following types and sizes of nonmetallic pipes or conduits may be used.
   A. Polyvinyl Chloride (PVC) Pipe–Nom 4 in. diam (or smaller) Schedule 40 solid–core PVC pipe for use in closed (process or supply) or vented (drain,waste or vent) piping system.
   B. Chlorinated Polyvinyl Chloride (CPCV) Pipe– Nom 4 in. diam (or smaller) SDR17 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
   C. Acrylonitrile Butadene Styrene (ABS) Pipe– Nom 4 in. diam (or smaller) Schedule 40 solid core ABS pipe for use in closed (process or supply) or vented (drain, waste, or vent) piping systems.
   D. Electrical Nonmetallic Tubing (ENT)+– Nom 2 in. diam (or smaller) corrugated wall electrical nonmetallic tubing (ENT) constructed of polyvinyl chloride (PVC).
   See Electrical Nonmetallic Conduit (FKHU), category in the Electrical Construction Materials Directory for names of manufactures.
   E. Flexible Nonmetallic Conduit, Liquid–Tight (FNMC)+– Nom 2 in– diam (or smaller) corrugated wall electrical nonmetallic tubing, liquid–tight (FNMC) constructed of polyvinyl chloride (PVC).
   See Flexible Nonmetallic Conduit, Liquid–Tight (DXOQ) category in the Electrical Construction Materials Directory for names of manufactures.

3. Firestop System – The firestop system shall consist of the following.
   A. Fill, Void or Cavity Material*–Wrap Strip–Nom 1/4 in. thick by 3 or 4 in. wide intumescent wrap strip, encapsulated and hermetically sealed in a metallized polyester foil. The width of the wrap strip and the number of wrap strip layers used is dependent on the diameter of pipe, as shown in the following table. The layers of the wrap strip are tightly wrapped around the pipe. Wrap strip is to be recessed within the steel sleeve (Item 3B) a max of 1–1/2 in. from both ends of steel sleeve of the 3 in. wide wrap strip and a max of 1 in. from both ends of steel sleeve for the 4 in wide wrap strip.

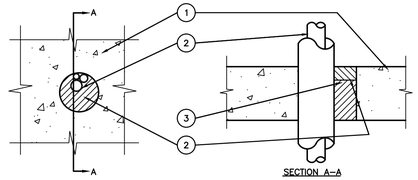
Nom Pipe Diam In.	Pipe Type	Min No. of Wrap Strip Layers	Wrap Strip Width In.
1/2 to 2–1/2	PVC,CPVC	1	3
1/2 to 2	ABS, ENT, FNMC	1	3
2–1/2 to 3	ABS	2	4
3	PVC,CPVC	2	4
3–1/2 to 4	ABS,PVC,CPVC	3	4

   INSTANT FIRESTOP MFG INC – HIS240
   B. Metallic Sleeve – Cylindrical sleeve fabricated from 0.018 in. thick (No. 28 gauge) galv sheet steel and having a min 1 in. lap along the longitudinal seam. Sleeve is secured to outer circumference of wrap strip(s) with two min No. 18 AWG. steel tie wires located 1 to 2 in. from each end of sleeve. The wrap strip/steel sleeve is slid into the through opening flush with both sides of the wall. The annular space between the steel sleeve and the periphery of the opening shall be a min 0 in. (point contact) to max 7/8 in.
   C. Packing Material– Polyethylene backer rod friction–fitted into annular space between the penetrating item and the sleeve on one or both sides of the wall and recessed a 1/4 to 3/8 in. from each end of sleeve.
   D. Fill, Void or Cavity Material*–Sealant– Min 1–1/4 in. thickness of fill material applied within the annular space between the steel sleeve and the periphery of the opening, flush with both surfaces of wall. A 1/4 to 3/8 in. thickness of fill material applied within the annular space between the steel sleeve and the pipe, flush with both surfaces of wall.
   INSTANT FIRESTOP MFG INC – 344–GG

*Bearing the UL Classification Marking

System No. C–AJ–1284

F Rating – 3 Hr
T Rating – 1/4 Hr & 1/2 Hr (See Item 2)



SECTION A–A

1. Floor or Wall Assembly – Min 4–1/2 in. thick lightweight or normal weight (100–150 pcf) concrete. Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 6 in.See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.

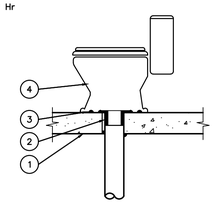
2. Through Penetrants – Aggregate cross–sectional area of penetrants in opening to be max 52 percent of the cross–sectional area of the opening in the floor or wall. Pipe, conduit, or tubing to be installed either concentrically or eccentrically within the firestop system. The space between penetrants shall be min 0 in. (point contact) to max 1–5/8 in. The annular space between penetrants and periphery of opening shall be min 0 in. (point contact) to max 1–5/8 in. Penetrants to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe – Nom 3 in. diam (or smaller) Schedule 40 (or heavier) steel pipe.
   B. Iron Pipe – Nom 3 in. diam (or smaller) cast or ductile iron pipe.
   C. Conduit – Nom 3 in. diam (or smaller) rigid steel conduit or steel electrical metallic tubing.
   D. Copper Tubing – Nom 2 in. diam (or smaller) Type L (or heavier) copper tube.
   E. Copper Pipe – Nom 2 in. diam (or smaller) Regular (or heavier) copper pipe.
   T rating is 1/2 hour for pipes/conduit A, B and C. T rating is 1/4 hour for tubing/pipes D and E.

3. Firestop System – The firestop system shall consist of the following:
   A. Packing Material – Min 4 in. or 4–1/4 in. thickness of min 4 pcf density mineral wool batt insulation for sealants B1 and B2, respectively, firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material (Item 3B).
   B1. Fill Void or Cavity Material* – Sealant – Min 1/2 in. thickness of fill material applied within annulus, flush with top surface of floor or both surfaces of wall. At the point contact locations between penetrant and periphery of opening, a min 1/2 in. diam bead of fill material shall be applied at the penetrant/concrete interface on the top surface of floor or on both surfaces of wall. Sealant to be forced into interstices of penetrants to max extent possible.
   Johns Manville International, Inc. – Firetemp CI
   B2. Fill Void or Cavity Material* – Sealant – Min 1/4 in. thickness of fill material applied within annulus, flush with top surface of floor or min 1/8 in. thickness of fill material applied within annulus, flush with both surfaces of wall. At point contact location between penetrant and periphery of opening a min 1/4 in. diam bead of fill material shall be applied at the concrete/penetrant interface on top surface of floor or both surfaces of wall assembly.
   Johns Manville International, Inc. – Firetemp SI, SE

*Bearing the UL Classification Marking

System No. F–A–2040

F Rating – 2 Hr
T Rating – 2 Hr



1. Floor Assembly – Min 4–1/2 in. thick lightweight or normal weight concrete (100–150 pcf). Max diam of opening is 6 in.

2. Nonmetallic Pipe – One nonmetallic drain pipe with max 4 in. diam toilet flange installed either concentrically or eccentrically within the firestop system. The annular space between drain pipe and periphery of opening shall be min 0 in. (point contact) to max 1–1/2 in. Pipe to be rigidly supported on lower side of floor assembly. The following types and sizes of nonmetallic pipes, fittings and flanges may be used:
   A. Polyvinyl Chloride (PVC) Pipe – Nom 4 in. diam (or smaller) Schedule 40 solid core or cellular core PVC pipe for use in vented (drain, waste or vent) piping system.
   B. Acrylonitrile Butadiene Styrene (ABS) Pipe – Nom 4 in. diam (or smaller) Schedule 40 cellular core or solid core ABS pipe for use in vented (drain, waste or vent) piping systems.

3. Fill, Void or Cavity Material* – Sealant – Min 1 in. thickness of fill material applied within the annulus, flush with bottom surface of floor. At point contact location between concrete and pipe, a min 1/2 in diam bead of fill material shall be applied at the pipe/concrete interface on bottom surface of floor assembly. A min 1/2 in. diam bead of fill material shall be applied around top edge of toilet flange. Prior to placement of water closet, a min 1/2 in. diam bead of fill material shall be applied to the bottom surface of the outer rim of the water closet.

Johns Manville International, Inc. – Firetemp CI

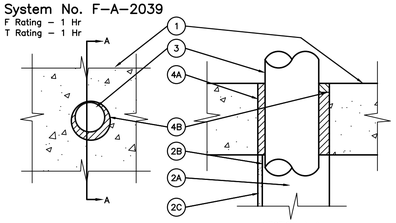
4. Water Closet – Floor mounted vitreous china water closet.

*Bearing the UL Classification Marking

THE DETAILS PRESENTED HERE REPRESENT THE INSTALLATION REQUIREMENTS FOR THE BASIS OF DESIGN PRODUCT'S U.L. LISTING. ALL FIRE STOPPING SHALL BE INSTALLED IN CONFORMANCE WITH THE MANUFACTURER'S DETAILS OF THE PRODUCTS USED SPECIFICALLY ON THIS PROJECT. APPLICABLE MANUFACTURER'S DETAILS OF THE U.L. LISTED PRODUCT SHALL BE SUBMITTED FOR THE ENGINEER'S REVIEW AND A COPY SHALL BE AVAILABLE ON SITE FOR USE BY THE AUTHORITY HAVING JURISDICTION.

System No. F–A–2039

F Rating – 1 Hr
T Rating – 1 Hr



SECTION A–A

1. Floor Assembly – Min 4–1/2 in. thick lightweight or normal weight (100–150 pcf) concrete. Max diam of opening is 6 in.

2. Chase Wall – The nonmetallic penetrants (Item 3) are routed through a 1 hr fire–rated single, double or staggered steel stud/gypsum wallboard chase wall constructed of the materials and in the manner specified in the individual U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs – Nom 2 by 6 in. or double 2 by 4 in. steel studs.
   B. Floor and Ceiling Runners – Nom 2 by 6 in. or parallel 2 by 4 in. steel floor/ceiling runners, tightly butted. Runners may be non–continuous over opening, terminating at both sides of periphery of opening. Max diam of opening is 6 in.
   C. Wallboard, Gypsum* – One layer of nom 5/8 in. thick gypsum wallboard, as specified in the individual Wall and Partition Design.

3. Nonmetallic Penetrants – One nonmetallic pipe or conduit to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe or conduit and periphery of opening shall be min 3/8 in. to max 1–1/8 in. Pipe or conduit to be rigidly supported on both sides of floor assembly. The following types and sizes of nonmetallic pipes or conduits may be used:
   A. Polyvinyl Chloride (PVC) Pipe – Nom 4 in. diam (or smaller) Schedule 40 solid core PVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping system.
   B. Chlorinated Polyvinyl Chloride (CPVC) Pipe – Nom 4 in. diam (or smaller) SDR17 CPVC pipe for use in closed (process or supply) or vented (drain, waste or vent) piping systems.
   C. Rigid Nonmetallic Conduit+ – Nom 4 in. diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA No. 70).

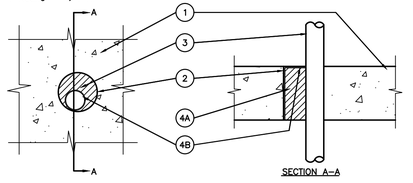
4. Firestop System – The firestop system shall consist of the following:
   A. Packing Material – Min 4 in. thickness of min 4 pcf mineral wool batt insulation firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor as required to accommodate the required thickness of fill material.
   B. Fill, Void or Cavity Material* – Sealant – Min 1/2 in. thickness of fill material applied within the annulus, flush with top surface of floor.

Johns Manville International, Inc. – Firetemp CI

+ Bearing the UL Listing Mark
*Bearing the UL Classification Marking

System No. C–AJ–1281

F Rating – 3 Hr
T Rating – 1/4 Hr



SECTION A–A

1. Floor or Wall Assembly – Min 4–1/2 in. thick lightweight or normal weight concrete (100–150 pcf). Wall may also be constructed of any UL Classified Concrete Blocks*. Max diam of opening is 8 in.
See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.

2. Metallic Sleeve – (Optional) – Sleeve to be cast or grouted into floor or wall assembly, flush with or max 2 in. above top surface of floor or both surfaces of wall assembly. The following metallic sleeves may be used within the firestop system:
   A. Nom 8 in. diam (or smaller) Schedule 40 (or heavier) steel sleeve.
   B. Nom 4 in. diam (or smaller) steel electrical metallic tubing (EMT) sleeve.

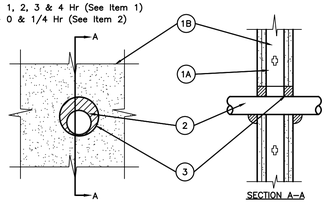
3. Through Penetrants – One metallic pipe, conduit or tubing to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and sleeve or periphery of opening shall be min 0 in. (point contact) to max 3–1/2 in. Pipe, conduit or tubing to be rigidly supported on both sides of floor or wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe – Nom 4 in. diam (or smaller) Schedule 40 (or heavier) steel pipe.
   B. Iron Pipe – Nom 4 in. diam (or smaller) cast or ductile iron pipe.
   C. Conduit – Nom 4 in. diam (or smaller) steel electrical metallic tubing or rigid steel conduit.
   D. Copper Tubing – Nom 3 in. diam (or smaller) Type L (or heavier) copper tube.
   E. Copper Pipe – Nom 3 in. diam (or smaller) Regular (or heavier) copper pipe.

4. Firestop System – The firestop system shall consist of the following:
   A. Packing Material – Min 4 in. or 4–1/4 in. thickness of min 4 pcf density mineral wool batt insulation for sealants B1 and B2, respectively, firmly packed into opening as a permanent form. Packing material to be recessed from top surface of floor or from both surfaces of wall as required to accommodate the required thickness of fill material (Item 4B).
   B1. Fill Void or Cavity Material* – Sealant – Min 1/2 in. thickness of fill material applied within annulus, flush with top surface of floor or both surfaces of wall. At point contact location between penetrant and sleeve or concrete, a 1/2 in.
   diam bead of fill material shall be applied at the sleeve or concrete/penetrant interface on the top surface of floor or both surfaces of wall.
   Johns Manville International, Inc. – Firetemp CI
   B2. Fill Void or Cavity Material* – Sealant – Min 1/4 in. thickness of fill material applied within annulus, flush with top surface of floor or min 1/8 in. thickness of fill material applied within annulus, flush with both surfaces of wall. At
   point contact location between penetrant and sleeve or concrete, a min 1/4 in. diam bead of fill material shall be applied at the sleeve or concrete/penetrant interface on the top surface of floor or both surfaces of wall.
   Johns Manville International, Inc. – Firetemp SI, SE

*Bearing the UL Classification Marking

System No. W–L–1154

F Rating – 1, 2, 3 & 4 Hr (See Item 1)
T Rating – 0 & 1/4 Hr (See Item 2)



SECTION A–A

1. Wall Assembly – The 1, 2, 3 or 4 hr fire–rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 3–5/8 in. wide and spaced max 24 in. OC.
   B. Wallboard, Gypsum* – Thickness, type, number of layers and fasteners as specified in the individual Wall and Partition Design. Max diam of opening is 25–3/8 in. The hourly F Rating of the firestop system is equal to the hourly fire rating of the wall assembly in which it is installed.

2. Through Penetrants – One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min 0 (point contact) in. to max 1–3/8 in. Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:
   A. Steel Pipe – The following types and sizes of steel pipes may be used:
      1A. Nom 4 in. diam (or smaller) Schedule 7 (or heavier) steel pipe.
      2A. Nom 8 in. diam (or smaller) Schedule 10 (or heavier) steel pipe.
      3A. Nom 10 in. diam (or smaller) Schedule 20 (or heavier) steel pipe.
      4A. Nom 24 in. diam (or smaller) Schedule 40 (or heavier) steel pipe.
   B. Iron Pipe – Nom 24 in– diam (or smaller) cast or ductile iron pipe. When iron pipe is used T Rating is 1/4 hr.
   When steel or iron pipe is used T Rating is 1/4 hr for nom 4 in, diam (or smaller) and 0 hr for steel or iron pipes greater than nom 4 in, diam.
   C. Conduit – Nom 4 in. diam (or smaller) steel electrical metallic tubing (EMT). When EMT is used T Rating is 1/4 hr.
   D. Conduit – Nom 6 in. diam (or smaller) steel conduit. When steel conduit is used T Rating is 1/4 hr.
   E. Copper Tubing – Nom 6 in. diam (or smaller) Type L (or heavier) copper tubing. When copper tube is used T Rating is 0 hr.
   F. Copper Pipe – Nom 6 in. diam (or smaller) Regular (or heavier) copper pipe. When copper pipe is used T Rating is 0 hr.

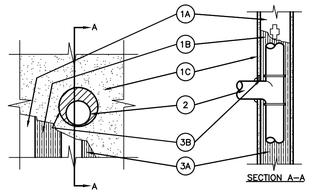
3. Fill, Void or Cavity Material* – Sealant – Min 5/8 in. thickness of fill material for 1 hr rated wall assemblies and 1 in. thickness of fill material for 2, 3 or 4 hr rated wall assemblies, applied within the annulus, flush with both surfaces of wall. At point contact location between penetrant and periphery of opening, a min 1/2 in. diam bead of fill material shall be installed at the wallboard/penetrant interface on both surfaces of wall.

Johns Manville International, Inc. – Firetemp CI

*Bearing the UL Classification Marking

System No. W–L–2179

F Rating – 1 Hr
T Rating – 1 Hr



SECTION A–A

1. Wall Assembly – The fire–rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced max 16 in. OC. Steel studs to be min 3–5/8 in. wide and spaced max 24 in. OC.
   B. Insulation, Glass Fiber – R–13 fiber glass insulation installed entirely within single stud cavity of nonmetallic pipe.
   C. Wallboard, Gypsum* – One layer of nom 5/8 in. thick gypsum wallboard, as specified in the individual Wall and Partition Design. Max diam of opening is 4–1/4 in.

2. Non–Metallic Pipe – Non–metallic pipe, installed within stud cavity and connected to non–metallic tee. Non–metallic pipe penetrating wall assembly on one side of wall to be installed either concentrically or eccentrically within the firestop system. The annular space between pipe and periphery of opening shall be min 0 in. (point contact) to max 3/8 in. Pipe to be rigidly supported on penetrating side of wall assembly. The following types of and sizes of non–metallic pipes and tees may be used:
   A. Polyvinyl Chloride (PVC) Pipe – Nom 2 in. diam (or smaller) Schedule 40 cellular core or solid core PVC pipe for use in vented (drain, waste, or vent) or closed (process and supply) piping system.
   B. Chlorinated Polyvinyl Chloride (CPVC) Pipe – Nom 2 in. diam (or smaller) SDR17 CPVC pipe for use in vented (drain, waste, or vent) or closed (process and supply) piping systems.
   C. Acrylonitrile Butadiene Styrene (ABS) Pipe – Nom 2 in. diam (or smaller) Schedule 40 cellular core or solid core ABS pipe for use in vented (drain, waste or vent) piping systems.
   D. Polyvinyl Chloride (PVC) Tee – Nom 2 in. diam (or smaller) Schedule 40 cellular core or solid core PVC tee.
   E. Chlorinated Polyvinyl Chloride (CPVC) Tee – Nom 2 in. diam (or smaller) SDR11 CPVC tee.
   F. Acrylonitrile Butadiene Styrene (ABS) Tee – Nom 2 in. diam (or smaller) Schedule 40 cellular core or solid core ABS tee.

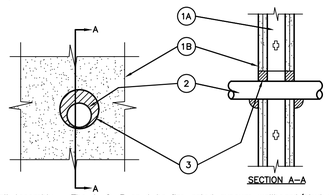
3. Fill, Void or Cavity Material* – Sealant – Min 5/8 in. thickness of fill material applied within the annulus, flush with surface of wall. At point contact location between wallboard and pipe, a min 1/2 in diam bead of fill material shall be applied at the pipe/wallboard interface.

Johns Manville International, Inc. – Firetemp CI

*Bearing the UL Classification Marking

System No. W–L–2169

F Rating – 1, 2, 3 & 4 Hr (See Item 1B)
T Rating – 1, 2, 3 & 4 Hr



SECTION A–A

1. Wall Assembly – The 1, 2, 3 or 4 hr fire–rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner specified in the individual U300 or U400 Series Wall and Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:
   A. Studs – Wall framing may consist of either wood studs or steel channel studs. Wood studs to consist of nom 2 by 4 in. lumber spaced 16 in. OC. Steel studs to be min 3–5/8 in. wide and spaced max 24 in. OC.
   B. Wallboard, Gypsum* – Thickness, type, number of layers and fasteners as specified in the individual Wall and Partition Design. Max diam of opening is 3–3/8 in.

2. Through Penetrants – One nonmetallic pipe or tubing installed either concentrically or eccentrically within the firestop system. Pipe or tubing to be rigidly supported on both sides of wall assembly. The annular space between penetrant and periphery of opening shall be min 0 in. (point contact) to max 1 in. The following types and sizes of nonmetallic pipes or tubing may be used:
   A. Chlorinated Polyvinyl Chloride (CPVC) Pipe – Nom 2 in. diam (or smaller) CPVC pipe for use in closed (process or supply) piping systems.
   B. Polyvinyl Chloride (PVC) Pipe – Nom 2 in. diam (or smaller) Schedule 40 solid core or cellular core PVC pipe for use in closed (process or supply) piping systems.
   C. Crosslinked Polyethylene (PEX) Tubing – Nom 1–1/2 in. diam (or smaller) SDR 9 PEX tubing for use in closed (process or supply) piping systems.
   D. Rigid Nonmetallic Conduit+ – Nom 2 in. diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA No. 70).

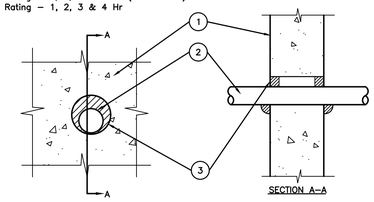
3. Fill, Void or Cavity Material* – Sealant – Min 5/8 in. thickness of fill material for 1 hr rated wall assemblies and min 1 in. thickness of fill material for 2, 3 or 4 hr rated wall assemblies, applied within the annulus, flush with both surfaces of wall. At point contact location between penetrant and periphery of opening, a min 1/2 in. diam bead of fill material shall be applied at the wallboard/penetrant interface on both sides of wall assembly.

Johns Manville International, Inc. – Firetemp CI

*Bearing the UL Classification Marking

System No. W–J–2049

F Rating – 1, 2, 3 & 4 Hr (See Item 1)
T Rating – 1, 2, 3 & 4 Hr



SECTION A–A

1. Wall Assembly – Min 4–7/8, 6–1/8, 7–3/8 or 8–5/8 in. thick lightweight or normal weight (100– 150 pcf) concrete for 1, 2, 3 or 4 hour rated wall assemblies, respectively. Wall may also be constructed of any UL Classified Concrete Blocks. Max diam of opening is 3–3/8 in.
See Concrete Blocks (CAZT) category in the Fire Resistance Directory for names of manufacturers.

2. Through Penetrants – One nonmetallic pipe or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe and periphery of opening shall be min 0 in. to max 1 in. Pipe or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of nonmetallic pipes or tubing may be used:
   A. Chlorinated Polyvinyl Chloride (CPVC) Pipe – Nom 2 in. diam (or smaller) SDR 11 CPVC pipe for use in closed (process or supply) piping systems.
   B. Polyvinyl Chloride (PVC) Pipe – Nom 2 in. diam (or smaller) Schedule 40 (or heavier) cellular or solid core PVC pipe for use in closed (process or supply) piping systems.
   C. Crosslinked Polyethylene (PEX) Tubing – Nom 1–1/2 in. diam (or smaller) SDR 9 PEX tubing for use in closed (process or supply) piping systems.
   D. Rigid Nonmetallic Conduit+ – Nom 2 in. diam (or smaller) Schedule 40 PVC conduit installed in accordance with Article 347 of the National Electrical Code (NFPA No. 70)

3. Fill, Void or Cavity Material* – Sealant – Min 5/8 in. thickness for 1 hr rated wall assemblies and 1 in. thickness of fill material for 2, 3 or 4 hr rated wall assemblies, respectively, applied within the annulus, flush with both surfaces of wall. At point contact location between penetrant and periphery of opening, a min 1/2 in. diam bead of fill material shall be applied at the concrete/penetrant interface on both surfaces of wall.

Johns Manville International, Inc. – Firetemp CI

*Bearing the UL Classification Marking

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Florida Engineering Business Number 6093

HARRY W. PORTELLOS, P.E. 61597
TO THE BEST OF MY KNOWLEDGE, THESE DRAWINGS AND THE PROJECT MANUAL ARE COMPLETE AND COMPLY WITH THE 2017 FLORIDA BUILDING CODE
THIS ITEM HAS BEEN ELECTRONICALLY SIGNED AND SEALED ON THE DATE/TIME STAMP SHOWN USING A DIGITAL SIGNATURE. PRINTED COPIES OF THIS DOCUMENT ARE NOT CONSIDERED SIGNED AND SEALED AND THE SIGNATURE MUST BE VERIFIED ON ANY ELECTRONIC COPIES.

HILLSBOROUGH COUNTY BOARD
OF COUNTY COMMISSIONERS
COUNTY CENTER
601 E KENNEDY BLVD
TAMPA, FL 33601

HILLSBOROUGH COUNTY
NORTHWEST AREA HEAD START

PROJECT #: 2010-00

DISTRIBUTION	DATE
DESIGN DEVELOPMENT	06.11.2020
90% CONST DOCS	08.19.2020
SITE PERMIT PACKAGE	09.11.2020
PERMIT SET	12.21.2020

PLUMBING DETAILS

P3.2

Drawing File: I:\2Drex\20033.001\20033x3x.dwg P32
Plotted by: Harry Dec 16, 2020 - 4:44pm

GENERAL MECHANICAL NOTES

1. ALL MECHANICAL WORK SHALL MEET ALL OF THE REQUIREMENTS OF THE FOLLOWING:
   A. FLORIDA BUILDING CODE (FBC) 6TH EDITION (2017): THIS CODE INCLUDES THE 2017 FBC BUILDING, MECHANICAL, PLUMBING, ENERGY CONSERVATION, FUEL GAS, ACCESSIBILITY, AND TEST PROTOCOLS VOLUMES. FURTHER, SEE "REFERENCED STANDARDS" IN THE FBC BUILDING CHAPTER 35; FBC MECHANICAL CHAPTER 15; FBC PLUMBING CHAPTER 14; FBC ENERGY CONSERVATION CHAPTER 6; AND FBC FUEL GAS CHAPTER 8) (EFFECTIVE DECEMBER 31, 2017).
   B. 6TH EDITION OF THE FLORIDA FIRE PREVENTION CODE (FFPC): (THIS CODE ALSO INCLUDES THE FLORIDA VERSIONS OF NFPA 1 AND NFPA 101.) (EFFECTIVE DECEMBER 31, 2017).
   C. 2014 NATIONAL ELECTRIC CODE.
2. VERIFY, BY VISITING THE SITE, THE LOCATION OF UTILITIES IN ALL AREAS BEFORE COMMENCING WORK.
3. COORDINATE ALL WORK WITH OTHER AFFECTED TRADES. THE MECHANICAL CONTRACTOR SHALL FORWARD TO THE ELECTRICAL CONTRACTOR AN APPROVED COPY OF ALL EQUIPMENT SHOP DRAWINGS FOR ELECTRICAL POWER/CONTROL INTERFACE.
4. COVER ALL ELECTRICAL AND MECHANICAL EQUIPMENT TO PROTECT THEM FROM DUST AND DAMAGE DURING CONSTRUCTION. RESTORE ALL FACTORY PAINTED SURFACES TO NEW CONDITION, REPAIR ALL SCRATCHES, DENTS AND ABRASIONS. THOROUGHLY CLEAN ALL SURFACES OF DUST DEBRIS, AND FOREIGN MATTER. THE EQUIPMENT, WHEN TURNED OVER TO THE OWNER, SHALL BE CLEAN AND FREE OF DEFECTS.
5. THE CONDENSATE DRAIN LINE SHALL HAVE A TRAP AT THE AIR HANDLING UNIT. TRAP SHALL BE FULL SIZE OF UNIT CONNECTION AND SHALL BE AS DETAILED. PROVIDE CLEAN OUTS IN ALL CHANGES OF DIRECTION. MINIMUM PITCH 1/8" PER FOOT. CONDENSATE DRAIN LINE SHALL RUN TO CONDENSATE DRAIN. INSULATE ALL INTERIOR CONDENSATE PIPING WITH FLEXIBLE UNICELLULAR FOAM (ARMAFLEX OR EQUIVALENT) INSULATION TO PREVENT SWEATING. CONDENSATE DRAIN LINES AND TRAPS IN MECHANICAL ROOMS SHALL BE INSULATED COPPER AND SHALL BE RIGIDLY SUPPORTED.
6. FLEXIBLE UNICELLULAR FOAM (ARMAFLEX OR EQUIVALENT) INSULATION SHALL BE 25/50 FLAME SPREAD/SMOKE DEVELOPED. REFRIGERANT PIPING SHALL BE INSULATED WITH FLEXIBLE UNICELLULAR FOAM INSULATION COMPLYING WITH ASTM C534, TYPE 1. PROVIDE ALUMINUM CLADDING FOR ALL INSULATION EXPOSED TO THE SUN AND WEATHER.
7. REFRIGERANT LINES SHALL BE SIZED AND REFRIGERANT SPECIALTIES SHALL BE PROVIDED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS FOR STATIC LIFTS AND TOTAL LENGTHS REQUIRED. INSTALL IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
8. AIR HANDLING UNITS SHALL HAVE AN AUXILIARY DRAIN PAN 3" LARGER THAN UNIT EACH WAY. DRAIN PAN SHALL HAVE A FLOAT SWITCH TO DE-ENERGIZE THE AHU IN EVENT OF A CONDENSATE OVERFLOW CONDITION.
9. AIR HANDLING UNITS SHALL BE PLACED ON A 1/4" NEOPRENE PAD WITHIN AN AUXILIARY DRAIN PAN.
10. AIR HANDLING UNITS SHALL BE PLACED ON A CONCRETE PAD 6" THICK BY 6" LARGER, EACH WAY, THAN UNIT.
11. AIR HANDLING UNITS SHALL BE PLACED A MINIMUM OF 24" AWAY FROM WALLS.
12. CONDENSING UNITS SHALL BE PLACED ON A CONCRETE PAD 6" THICK BY 6" LARGER, EACH WAY, THAN UNIT.
13. IN GENERAL, PLANS ARE SCHEMATIC ONLY AND SHOULD NOT BE SCALED.
14. ALL DUCTWORK SHALL MEET THE STANDARDS SET FORTH BY THE LATEST EDITION OF SMACNA "HVAC DUCT CONSTRUCTION STANDARDS". SUPPLY, RETURN, AND EXHAUST DUCTWORK SHALL BE FABRICATED FROM SHEET METAL. ALL ROUND DUCT SHALL BE SHEET METAL UNLESS OTHERWISE NOTED. PROVIDE TURNING VANES IN ALL 90° DUCT ELBOWS.
15. PROVIDE INSULATION FOR NEW DUCTWORK TO AND FROM THE UNIT WITH GLASS FIBER DUCT WRAP INSULATION. FACTORY APPLIED FOIL FACED VAPOR BARRIER, ASTM 518 AND ASTM E84 CERTIFIED TESTING PROCEDURES. JOINT TAPE SHALL BE MINIMUM 3" WIDE FOIL REINFORCED KRAFT TYPE. INSULATION THICKNESS SHALL BE A MINIMUM 2" THICK.
16. SUPPLY AIR DUCT FULL SIZE OF UNIT DISCHARGE. TRANSITION TO SIZE INDICATED ON DRAWINGS. RETURN AIR DUCT IS TO TRANSITION FROM SIZE INDICATED ON DRAWINGS TO FULL SIZE OF UNIT INLET.
17. ALL DUCT DIMENSIONS ARE CLEAR INSIDE DIMENSIONS (FREE AREA).
18. VERIFY ALL CLEARANCES AND DIMENSIONS BEFORE FABRICATION OF DUCTWORK AND PROVIDE ADDITIONAL OFFSETS TO MEET FIELD CONDITIONS, ADJUST LOCATIONS OF ALL EQUIPMENT AND DUCTWORK, AS NECESSARY TO AVOID INTERFERENCES WITH STRUCTURAL AND OTHER BUILDING COMPONENTS.
19. UNLESS NOTED OTHERWISE, INSTALL DUCTWORK AS HIGH AS POSSIBLE, TIGHT TO UNDERSIDE OF STRUCTURE. COORDINATE DUCT ELEVATION WITH WATER PIPING, DRAINS, AND MAJOR ELECTRICAL CONDUITS AND LIGHTS. PROVIDE OFFSETS AND TRANSITIONS AS REQUIRED TO KEEP DUCTWORK TIGHT TO THE STRUCTURE AND MAINTAIN CEILING ELEVATIONS AS INDICATED IN THE ARCHITECTURAL DRAWINGS. DUCTWORK MAY BE FLATTENED TO A 4:1 HEIGHT RATIO MAINTAINING THE DUCT FREE AREA SIZE AS INDICATED IN THE DRAWINGS. DUCTWORK SHAPE MAY HAVE TO BE ADJUSTED (I.E. ROUND TO RECTANGULAR) AS SPACE DICTATES. MULTIPLE SMALLER RUNS MAY BE REQUIRED IN PLACE OF A SINGLE RUN. DUCT RECONFIGURATION SHALL BE INDICATED IN THE DUCT FABRICATION DRAWINGS AND FIELD VERIFIED PRIOR TO SUBMITTAL FOR ENGINEER'S REVIEW.
20. DUCTWORK, DIFFUSERS, REGISTERS, GRILLES, AND OTHER ITEMS OF THE AIR HANDLING SYSTEM SHALL NOT BE SUPPORTED BY THE CEILING OR CEILING SUSPENSION SYSTEM.
21. ALL SUPPLY DUCTWORK BETWEEN THE DISCHARGE OF THE PRIMARY AIR HANDLER AND THE INLETS TO THE VAV BOXES SHALL BE 3" W.G. PRESSURE CLASS. ALL OTHER DUCTWORK SHALL BE 1" W.G. ALL SHEET METAL DUCTWORK SHALL HAVE A CLASS C SEAL.
22. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED TO INSTALL MECHANICAL EQUIPMENT AND MATERIALS.
23. REPLACE ANY CEILING TILES OR GRID, DAMAGED DURING CONSTRUCTION IN ANY AREAS WHERE THE CEILING IS REMOVED TO EXECUTE WORK. REPLACEMENT TILES AND TEES SHALL MATCH EXISTING.
24. MAINTAIN NEGATIVE PRESSURE IN ALL DESIGNATED CONSTRUCTION AREAS.
25. IN ADDITION TO THE REQUIREMENTS OF THE SPECIFICATIONS, THE AIR HANDLERS MAY ONLY BE STARTED IF THE FOLLOWING CONDITIONS ARE MET:
   A. ALL OPENINGS FROM THE CONDITIONED SPACE DIRECTLY TO THE OUTSIDE MUST BE CLOSED. TEMPORARY CLOSURE METHODS MAY BE USED SUCH AS THE UTILIZATION OF PLASTIC SHEETS AND DUCT TAPE.
   B. MOP CLEAN ALL CONSTRUCTION DEBRIS AND DUST FROM THE FLOOR. PROVIDE DOOR MATS AT ALL ENTRANCES INTO THE BUILDING.
   C. TEMPORARY BARRIERS ARE TO BE PROVIDED AROUND AREAS THAT WILL HAVE ANY CONCRETE GRINDING OPERATION, DRYWALL WORK, PAINTING OR ANY OTHER PARTICULATE PRODUCING PROCESSES. ALL AIR DISTRIBUTION DEVICES IN THESE AREAS OF CONTAINMENT ARE TO BE COVERED AND SEALED AIR TIGHT.
   D. ALL RETURN GRILLES SHALL HAVE MERV-8 FILTER MEDIA TAPED OVER THEM PRIOR TO AIR HANDLER STARTUP AND SHALL REMAIN IN PLACE UNTIL ALL DUST PRODUCING OPERATIONS HAVE BEEN COMPLETED AND PRIOR TO TEST AND BALANCE. CLEAN ALL TAPE RESIDUE FROM THE GRILLES.
   E. ONCE THE UNIT IS STARTED, FILTERS IN THE AIR HANDLERS ARE TO BE SHAKEN CLEAN DAILY.
29. ALL REQUIRED FIRE DAMPERS MAY NOT BE INDICATED HEREIN. PROVIDE FIRE DAMPERS AS REQUIRED AT RATED WALLS AND FLOORS PER FLORIDA BUILDING – MECHANICAL CODE. REFER TO ARCHITECTURAL DRAWINGS FOR RATED PARTITION LOCATIONS.
30. ALL REQUIRED BALANCING DAMPERS MAY NOT BE INDICATED HEREIN. ADDITIONAL BALANCING DAMPERS MAY BE REQUIRED BY THE TEST AND BALANCING AGENT. THE TEST AND BALANCE AGENT IS REQUIRED TO REVIEW THE PLANS WITHIN 30 DAYS OF RECEIPT OF CONTRACT AND IDENTIFY DISCREPANCIES AND WHERE ADDITIONAL DAMPERS MAY BE NEEDED. ADDED DAMPERS WILL BE AT NO ADDITIONAL COST TO THE OWNER.
31. PROVIDE ADDITIONAL VOLUME DAMPERS AS REQUIRED BY THE TEST AND BALANCE CONTRACTOR TO ACHIEVE AIRFLOWS INDICATED ON THE DRAWINGS.
32. ALL DUCT MOUNTED MANUAL BALANCING DAMPERS SHALL HAVE A TWO FOOT LONG, YELLOW STRIP OF PLASTIC MATERIAL ATTACHED TO THE DAMPER HANDLE FOR EASY VISUAL IDENTIFICATION.
33. OMIT INSULATION ON TRANSFER DUCT SYSTEM. TRANSFER DUCT SYSTEMS ARE CONNECTED TO "XG#" TYPE AIR DISTRIBUTION DEVICES.
34. SUBMIT DUCT FABRICATION DRAWINGS AND MECHANICAL ROOM LAYOUTS PER SPECIFICATIONS PRIOR TO ANY FRAMING WORK. ALL FLOOR DRAINS IN MECHANICAL ROOMS/CLOSETS, AND ELECTRICAL PANEL LOCATIONS SHALL BE FIELD VERIFIED, COORDINATED, AND INDICATED IN THE SUBMITTAL.
35. ALL FIRE STOPPING SHALL BE INSTALLED IN CONFORMANCE WITH THE MANUFACTURER'S U.L. DETAILS OF THE PRODUCTS USED SPECIFICALLY ON THIS PROJECT. APPLICABLE U.L. DETAILS SHALL BE SUBMITTED FOR THE ENGINEER'S REVIEW AND A COPY SHALL BE AVAILABLE ON SITE FOR USE BY THE AUTHORITY HAVING JURISDICTION.
36. CONTROLS CONDUITS SHALL CONFORM TO ALL REQUIREMENTS FOR DIVISION 26 CONDUITS. REFER TO DIVISION 26 SPECIFICATIONS AND DRAWINGS.
37. CONCRETE SLAB/PAD IS TO HAVE NO CONTACT WITH ANY METAL PORTION OF THE EQUIPMENT OR THAT EQUIPMENT'S SUPPORT. PROVIDE 1/4" THICK RED, OR BLACK, RUBBER PAD UNDER THE ENTIRE METAL SURFACE INTENDED TO REST ON THE CONCRETE PAD.
38. THE TEMPERATURE CONTROLS (INCLUDING GRAPHICS) SHALL BE IN OPERATION AND EXERCISED IN THE PRESENCE OF THE ENGINEER OF RECORD AT TIME OF SUBSTANTIAL COMPLETION. THE CONSTRUCTION MANAGER SHALL SCHEDULE A MEETING BETWEEN THE CONTROL'S CONTRACTOR AND THE ENGINEER ONE WEEK PRIOR. THIS SHALL OCCUR PRIOR TO OWNER TRAINING.
39. PROVIDE DIELECTRIC UNIONS/PROTECTION AT ALL POINTS OF CONNECTION BETWEEN DISSIMILAR METALS; PIPE, PIPE HANGERS, CONNECTIONS TO STRUCTURAL STEEL, ETC.
40. ROUND FLEX DUCT SHALL BE A MAXIMUM LENGTH OF 6 FEET. ALL RUNS OF FLEX DUCT ARE TO BE SUPPORTED WITH THE APPROPRIATE HANGERS. FLEX DUCT SHALL NOT SAG OR BE CRIMPED.
41. AIR CONDITIONING FILTERS ARE TO BE PROVIDED AND CHANGED BY THE CONTRACTOR UP TO AND ON THE DATE OF SUBSTANTIAL COMPLETION ACCEPTANCE. FROM THAT TIME ON, THE OWNER WILL RETAIN ALL RESPONSIBILITY FOR FILTER MAINTENANCE. FILTERS SHALL BE NEW AT THE TIME OF SUBSTANTIAL COMPLETION.
42. VAV TERMINAL BOXES SHALL BE MOUNTED WITH THE BOTTOM AT 8" ABOVE THE CEILING. THE CONTROL PANEL AND THE HEATER SERVICE PANEL SHALL BE UNOBSTRUCTED AS REQUIRED BY NEC AND AS RECOMMENDED BY THE TERMINAL MANUFACTURER. VAV BOXES ARE TO BE INSTALLED WITH A 4 FT. LONG STRAIGHT SECTION OF ROUND DUCT AT THE INLET AND SHALL BE THE SAME SIZE AS THE BOX CONNECTION. ALL DUCTWORK BETWEEN THE VAV INLET AND THE AIR HANDLER IS TO BE RIGID (NO FLEX).
43. LOCATE ALL AIR DISTRIBUTION DEVICES AND CEILING MOUNTED EQUIPMENT IN CONFORMANCE WITH THE REFLECTED CEILING PLANS INCLUDED IN THE ARCHITECTURAL DRAWINGS FOR THIS PROJECT. COORDINATE DUCTWORK TO ALLOW FOR LOCATIONS OF THESE ITEMS. PROVIDE REVISED DUCTWORK LAYOUT WHERE REQUIRED. ANY MECHANICAL ITEMS EXPOSED TO VIEW SHALL BE PLACED PER THE ARCHITECTURAL DRAWINGS.
44. ALL EXTERIOR FASTENERS, ANCHORS, SUPPORTS, AND MOUNTING HARDWARE SHALL BE HOT DIPPED GALVANIZED OR STAINLESS STEEL.
45. PRIOR TO SUBSTANTIAL COMPLETION, A COMPLETE CERTIFIED TEST AND BALANCE REPORT SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW. REFER TO THE SPECIFICATIONS FOR REQUIREMENTS.
46. DUCTS SHOWN PENETRATING SMOKE PARTITIONS SHALL BE SEALED AIR TIGHT BETWEEN THE DUCT OR ITS INSULATION AND THE WALL IT PENETRATES.
47. ALL THERMOSTAT/WALL SENSORS SHALL BE LABELED WITH THE UNIT MARK OF THE ITEM BEING CONTROLLED.
48. SEE 8x11 SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

HVAC LEGEND

UP / DOWN	SUPPLY AIR DUCT (UP & DOWN)
UP / DOWN	RETURN AIR DUCT (UP & DOWN)
UP / DOWN	EXHAUST AIR DUCT (UP & DOWN)
VD	VOLUME DAMPER
	FIRE DAMPER – REFER TO DETAIL
T	WALL MTD THERMOSTAT OR TEMPERATURE SENSOR
VD	BELLMOUTH "SPIN-IN" FITTING WITH LOCKING QUADRANT DAMPER
	FLEX DUCT
CD1 375 12x12/8"ø	AIR DEVICE MARK. TOP LINE INDICATES TYPE, REFER TO SCHEDULE. SECOND LINE INDICATES AIR QUANTITY CFM. THIRD LINE INDICATES NECK SIZE AND DUCT CONNECTION SIZE.
UC	UNDERCUT DOOR BY 3/4" AFF UNLESS OTHERWISE INDICATED COORDINATE WITH ARCHITECTURAL DRAWINGS.
SD	DUCT MOUNTED SMOKE DETECTOR
M	MOTORIZED DAMPER (24 VOLT UNLESS NOTED OTHERWISE)

OUTDOOR AIR VENTILATION RATES

Description of Area	Space Classification	People Outdoor Air Rate cfm / person	x	Occupants Each (Oz)	=	People (Rp x Pz) cfm	Area Outdoor Air Rate (Ra) cfm / Sq. Ft.	x	Total Sq. Ft. (Az)	=	Area (Ra x Az) cfm	People cfm + Area cfm = uncorrected OA cfm (Vbz)	Air Distribution Effectiveness	Required Outside Air (CFM)
AH1														
101 Vestibule	Corridor	5.0	x	0	=	0	0.06	x	75	=	5	5	1.0	5
122 Corridor	Corridor	5.0	x	0	=	0	0.06	x	142	=	9	9	1.0	9
104 Office	OFFICE: Office space	5.0	x	1	=	5	0.06	x	88	=	5	10	1.0	10
105 Office	OFFICE: Office space	5.0	x	1	=	5	0.06	x	114	=	7	12	1.0	12
125 Conference Room	GENERAL: Conference/meeting	5.0	x	6	=	30	0.06	x	149	=	9	39	1.0	39
108 Break Room	GENERAL: Break room	5.0	x	4	=	20	0.06	x	248	=	15	35	1.0	35
109 Classroom	EDUCATION: Daycare	10.0	x	9	=	90	0.18	x	363	=	65	155	1.0	155
110 Classroom	EDUCATION: Daycare	10.0	x	21	=	210	0.18	x	715	=	129	339	1.0	339
103 Corridor	Corridor	5.0	x	0	=	0	0.06	x	448	=	27	27	1.0	27
112 Classroom	EDUCATION: Daycare	10.0	x	9	=	90	0.18	x	363	=	65	155	1.0	155
113 Classroom	EDUCATION: Daycare	10.0	x	21	=	210	0.18	x	704	=	127	337	1.0	337
												Required Outside Air:		1,122
												Outside Air Provided:		1,580

BUILDING AIR BALANCE

OUTSIDE AIR INTO BUILDING		EXHAUST AIR OUT OF BUILDING		NET CFM
SOURCE	CFM	SOURCE	CFM	
AH1	1,580	RF1	1,200	
	1,580		1,200	380

ZONE PRESSURIZATION ((1,580 OA – 1,200 EXH) / 3,450 SA) x 100 = 11.01%

DESIGN CRITERIA

Location:	TAMPA
Latitude:	28.0°
Longitude:	82.0°
Elevation:	19 ft.
Barometric Pressure:	29.9 in. Hg

DESIGN TEMPERATURES:

Ambient Summer Design Dry Bulb:	91°F
Ambient Summer Design Wet Bulb:	80°F
Ambient Winter Design Dry Bulb:	39°F
Space Setpoint – cooling	76°F
Space Setpoint – heating	70°F
Space Setpoint – humidity	50% RH

HVAC DRAWING INDEX

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HARRY W. PORTELLOS, P.E. 61597

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HILLSBOROUGH COUNTY BOARD
OF COUNTY COMMISSIONERS
COUNTY CENTER
601 E KENNEDY BLVD
TAMPA, FL 33601

HILLSBOROUGH COUNTY
NORTHWEST AREA HEAD START

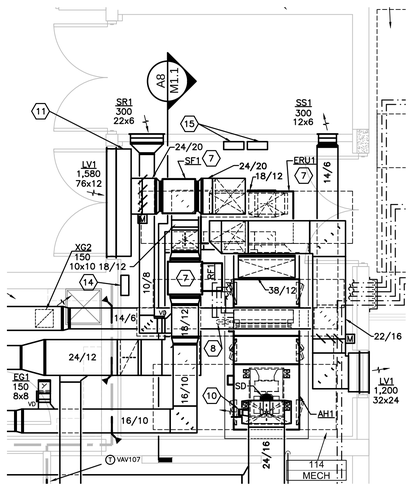
PROJECT #: 2010-00

DISTRIBUTION	DATE
DESIGN DEVELOPMENT	06.11.2020
90% CONST DOCS	08.19.2020
SITE PERMIT PACKAGE	09.11.2020
PERMIT SET	12.21.2020

HVAC GENERAL
NOTES AND LEGEND

M0.1

Drawing File: I:\20xxx\20033.001\20033m01.dwg M01
Plotted by: Harry Dec 16, 2020 - 4:47pm

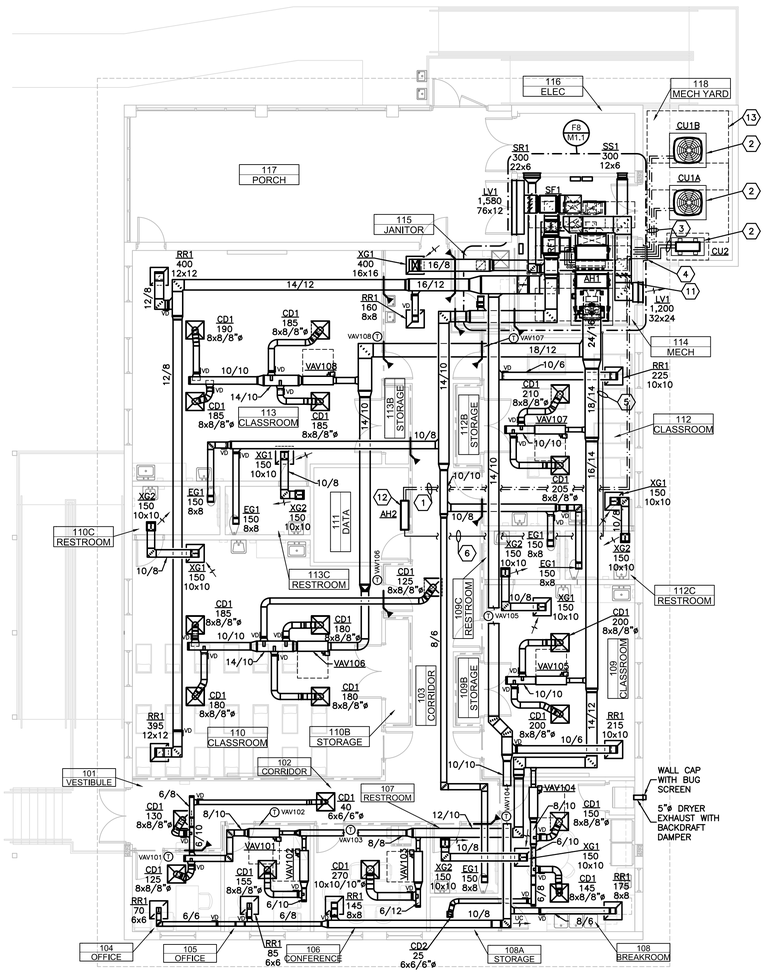


MECHANICAL ROOM HVAC PLAN
1/4" = 1'-0"

A8

MECHANICAL ROOM SECTION
1/4" = 1'-0"

A8



DRAWING NOTES:

1. REFRIGERANT LINES ABOVE CEILING.
2. PROVIDE 4" THICK CONCRETE PAD 6" LARGER THAN UNIT IN EACH DIMENSION. SECURE CONDENSING UNIT TO THE CONCRETE PAD WITH HOT-DIPPED GALVANIZED STEEL ANGLES AND ANCHORS. PROVIDE NEOPRENE PADS BETWEEN THE UNIT AND THE CONCRETE PAD.
3. RIGIDLY SUPPORT REFRIGERANT LINES OFF PAD AND GROUND. PROVIDE HOT DIPPED GALVANIZED SUPPORTS AND HARDWARE WHERE EXPOSED TO WEATHER. PROVIDE ALUMINUM JACKET ON UNICELLULAR FOAM INSULATED LINES THAT ARE SUPPORTED FROM THE PAD OR GROUND.
4. ROUTE REFRIGERANT LINES FROM SYSTEMS TO INSIDE FACE OF EXTERIOR WALL AND TURN DOWN TO ±20" AFF AND THEN TURN THROUGH EXTERIOR WALL. PROVIDE REFRIGERANT LINE COVER PER DETAIL. SUPPORT REFRIGERANT LINES FROM WALL/STRUCTURE AND ROUTE LINES THROUGH WALL TIGHT TO STRUCTURE ABOVE. SEAL WALL PENETRATION WEATHERTIGHT.
5. ROUTE CONDENSATE LINE TO FLOOR DRAIN IN MECHANICAL ROOM.
6. ROUTE CONDENSATE LINE ABOVE CELING.
7. HUNG FROM STRUCTURE.
8. PROVIDE CONDENSATE TRAP AS DETAILED AND ROUTE CONDENSATE DRAIN LINE TO CONDENSATE FLOOR DRAIN. PROVIDE AIR GAP BETWEEN DRAIN AND CONDENSATE LINE. COORDINATE LOCATION OF FLOOR DRAIN WITH PLUMBING DRAWINGS. SUPPORT DRAIN LINE FROM FLOOR. COORDINATE EQUIPMENT SUPPORT RAIL HEIGHT OF AIR HANDLER TO ALLOW FOR PROPER TRAP DEPTH. PROVIDE CLEAN OUTS IN ALL CHANGES OF DIRECTION. MINIMUM PITCH 1/8" PER FOOT. INSULATE ALL INTERIOR CONDENSATE PIPING WITH FLEXIBLE UNICELLULAR FOAM (ARMAFLEX OR EQUIVALENT) INSULATION TO PREVENT SWEATING. CONDENSATE DRAIN LINES AND TRAPS IN MECHANICAL ROOM SHALL BE SCHEDULE 40 PVC AND SHALL BE RIGIDLY SUPPORTED.
9. THE AIR HANDLER SHALL BE PLACED ON A 4" THICK, REINFORCED CONCRETE PAD (6" LARGER EACH WAY THAN THE UNIT) AND AUXILIARY DRAIN PAN WITH FLOAT SWITCH.
10. PROVIDE 4" SPIN-IN FITTING WITH VOLUME DAMPER AND BALANCE TO 50 CFM.
11. FABRICATE 10" DEEP PLENUM ON BACKSIDE OF LOUVER. ALL CORNERS OF PLENUM TO BE CONTINUOUSLY WELDED AND ENTIRE FABRICATION IS TO BE HOT DIPPED GALVANIZED. BOTTOM PANEL SHALL SLOPE 1"/FOOT BACK TO LOUVER SO COLLECTED WATER DRAINS BACK INTO LOUVER. PROVIDE WEATHERPROOF SEAL AT LOUVER/PLENUM CONNECTION.
12. SECURE DUCTLESS AIR HANDLER TO WALL WITH TOP 10" BELOW CEILING. ROUTE REFRIGERANT LINES FROM MINI-SPLIT SYSTEM UNIT TO INSIDE FACE OF EXTERIOR WALL AND TURN DOWN TO ±20" AFF AND THEN TURN THROUGH EXTERIOR WALL. SEAL WALL PENETRATIONS WEATHER-TIGHT.
13. MAINTAIN ALL REQUIRED MANUFACTURER'S CLEARANCES (TYP.).
14. LOCAL DDC CONTROL PANEL WITH CONTROLS TRANSFORMER. CONTROLS CONTRACTOR TO EXTEND 120V FROM THE NEARBY DEDICATED CIRCUIT AT J-BOX TO PANEL. REFER TO ELECTRICAL DRAWINGS. MTD @ 60"AFF. PROVIDE NETWORK FIBER CONNECTION FROM DATA ROOM. PROVIDE DDC CABINET AND TERMINATE FIBER IN CABINET WITH TRANSCEIVER. RUN DDC COMMUNICATION WIRE FROM CABINET TO DDC CONTROLLER IN MECHANICAL ROOM. MTD @ 60"AFF.
15. OUTSIDE AND RELIEF AIRFLOW MEASURING STATIONS. DIGITAL DISPLAY/CONTROLLER MTD @ 60"AFF.

HVAC PLAN
1/8" = 1'-0"

A1

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HVAC PLAN

M1.1

Drawing File: I:\20xxx\20033.001\20033m11.dwg M11
Plotted by: Harry Dec 16, 2020 - 4:47pm

MINI–SPLIT UNIT SCHEDULE

MARK		AH2/CU2
AREA SERVED	–	111 DATA
COOLING CAPACITY	BTUH	9,000
HEATING CAPACITY	BTUH	9,000
AIR QUANTITY (HIGH)	CFM	381
ENERGY EFFICIENCY	SEER	24.5
REFRIGERANT	–	R–410A
MANUFACTURER	–	DAIKIN
INDOOR MODEL	–	FTXS09LVJU
DIMENSIONS (HxWxD)	IN.	12x32x10
CU/HP MODEL	–	RXS09LVJU
DIMENSIONS (HxWxD)	IN.	22x32x12
REF. LINE LENGTH (APROX)	L.F.	39
ELECTRICAL	V/PH	208/1
MCA/MAX FUSE	AMP/AMP	8.0/15
NOTES		1,2,3,4,5,6,7

NOTES:

1. DUCTLESS SPLIT AIR CONDITIONING UNIT WITH REMOVABLE FRONT GRILLE, WASHABLE REUSABLE FILTERS, AUTO–RESTART. PROVIDE POWER SUPPLY CORD AND ACCESSORIES FOR WALL MOUNTING, WIRELESS REMOTE CONTROL WITH 24 HOUR TIMER, FOUR SPEED FAN CONTROL, AUTO–COOL–DRY–FAN MODE. UL LISTED.
2. ALL REFRIGERANT LINES SHALL BE RIGIDLY SUPPORTED. CONCEAL LINES AS MUCH AS POSSIBLE. THE CONTRACTOR SHALL OBTAIN OWNER APPROVAL FOR PIPING THAT IS PROPOSED TO BE RUN EXPOSED.
3. INSULATE ALL SUCTION LINES.
4. PROVIDE WITH INLINE CONDENSATE PUMP POWERED THROUGH THE AIR HANDLER.
5. PROVIDE PAD MOUNTING BRACKET.
6. THERMOSTAT ON UNIT SERVING MDF DATA ROOM SHALL BE SET AND LOCKED TO 76°F.
7. PROVIDE UNIT MANUFACTURER'S WALL MOUNTED THERMOSTAT WITH METAL LOCK BOX.

COMPONENTS FOR MINI–SPLIT SYSTEM INSTALLATION

1. INTERIOR LINESET COVER: ALL EXPOSED LINESETS, WHICH ARE INSTALLED INSIDE THE BUILDING, SHALL BE ENCLOSED IN AN EXTRUDED PVC LINESET COVER SYSTEM, WHICH SHALL CONSIST OF COMPONENTS THAT DISASSEMBLE EASILY TO PROVIDE RAPID INSTALLATION AND FACILITATE FUTURE ACCESS FOR TESTING AND/OR REPAIRS AND SHALL HAVE NO EXPOSED FIXINGS OR CLOSURE MECHANISMS. THEY SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. LINESET COVERS FABRICATED FROM FOLDED METAL OR FROM PLASTIC OR METAL DOWNSPOUTS ARE NOT ACCEPTABLE. ENCLOSURE SYSTEM SHALL BE SLIMDUCT MD SERIES OR EQUIVALENT WITH COMPATIBLE AND APPROPRIATE ELBOWS, COUPLERS, CEILING TRIM, WALL INLETS, AND END COVERS.
2. EXTERIOR LINESET COVER: ALL EXPOSED LINESETS, WHICH ARE INSTALLED OUTSIDE THE BUILDING, SHALL BE ENCLOSED IN AN EXTRUDED PVC LINESET ENCLOSURE SYSTEM, WHICH SHALL CONSIST OF COMPONENTS THAT DISASSEMBLE EASILY TO PROVIDE RAPID INSTALLATION AND FACILITATE FUTURE ACCESS FOR TESTING AND/OR REPAIRS. ALL CLOSURE SCREWS AND ANY EXPOSED FIXING HARDWARE SHALL BE STAINLESS STEEL. NO EXTERNAL FIXINGS SHALL BE VISIBLE EXCEPT IN THE CASE OF SPECIFIC COMPONENTS THAT CANNOT BE FIXED INTERNALLY. ALL LINESET COVERS SHALL BE CORRECTLY SIZED TO ACCOMMODATE THE LINESET ITSELF AND ANY DRAIN HOSE OR ELECTRICAL WIRING WHICH MAY ALSO BE ENCLOSED. LINESET COVERS SHALL BE APPROPRIATELY COLORED TO FIT IN WITH BUILDING ARCHITECTURE AND SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. LINESET COVERS FABRICATED FROM FOLDED METAL OR FROM PLASTIC OR METAL DOWNSPOUTS ARE NOT ACCEPTABLE LINESET COVERS SHALL BE SLIMDUCT SD SERIES OR EQUIVALENT WITH COMPATIBLE AND APPROPRIATE ELBOWS, COUPLERS, WALL INLETS, AND END COVERS. ALL ASSOCIATED ANCHORAGE AND CONNECTING HARDWARE SHALL BE EITHER STAINLESS STEEL OR HOT DIPPED GALVANIZED.
3. CONDENSATE DRAIN HOSE: CONDENSATE DRAIN HOSE SHALL BE ADEQUATELY SIZED AND INSTALLED WITH SUFFICIENT SLOPE TO ENSURE GRAVITY FLOW OF CONDENSATE WATER TO OUTSIDE THE BUILDING. WHERE GRAVITY FLOW IS NOT POSSIBLE, A SUITABLY SIZED PUMP SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS. DRAIN LINES SHALL BE INSTALLED WITHOUT KINKS OR RESTRICTIONS, WHICH COULD INHIBIT THE FREE FLOW OF CONDENSATE WATER. WHERE CONDENSATE DRAIN LINE IS RUN INSIDE AN INTERIOR LINESET COVER, THE LINE SHALL BE SLIMDUCT DRAIN HOSE MODEL DSH–14 OR EQUIVALENT. WHERE CONDENSATE DRAIN LINES ARE CONCEALED IN WALLS OR ABOVE CEILINGS, THE CONDENSATE DRAIN LINES SHALL BE TYPE L COPPER INSULATED WITH FLEXIBLE UNICELLULAR FOAM INSULATION.
4. CONDENSER MOUNTING BRACKETS: ALL MINISPLIT CONDENSERS SHALL BE FIRMLY MOUNTED IN AN AREA, WHICH IS EASILY ACCESSIBLE FOR PERIODIC MAINTENANCE AND/OR REPAIRS. CONDENSER BRACKETS SHALL BE PRESSED STEEL, GALVANIZED AND POWDER COATED. ALL BOLTS AND FIXINGS SHALL BE RUSTPROOF AND ALL BRACKETS SHALL BE FITTED WITH RUBBER ANTI VIBRATION MOUNTINGS UNDERNEATH THE CONDENSER. BRACKETS SHALL BE CORRECTLY SIZED FOR PHYSICAL DIMENSIONS OF CONDENSER AND WEIGHT CAPABILITY AND SHALL BE INSTALLED STRICTLY IN ACCORDANCE WITH MANUFACTURER'S INSTALLATION INSTRUCTIONS. SUITABILITY OF BOTH MOUNTING SURFACE AND FIXING BOLTS TO HANDLE COMBINED LOAD SHALL BE CONFIRMED BY THE CONTRACTOR PRIOR TO INSTALLATION.
   A. PAD MOUNTED: CONDENSERS INSTALLED DIRECTLY ONTO CONCRETE SLABS SHALL BE MOUNTED ON RISERS, EQUIVALENT TO SLIMDUCT PLAROCK MODEL PR–351N–I WITH PRC–351 END CAPS OR EQUIVALENT UTILIZING HOT DIPPED GALVANIZED BOLTS.
5. CONDENSATE PUMP: WHERE CONDENSATE DISCHARGE TERMINATES ABOVE AC UNIT ELEVATION, A CONDENSATE DRAIN PUMP EQUIVALENT TO 115 VOLT/60 HZ., 20 WATT EZ–TRAP/ASPEN PUMPS MODEL ASP–ML–115 WITH INSTALLATION KIT PROVIDED. THE INSTALLATION KIT SHALL INCLUDE PUMP/CABLE ASSEMBLY, PVC ELBOW AND LINESET COVER, CEILING FLASHING, INLET AND DISCHARGE HOSE, WALLPLUGS AND SCREWS.
   A. THE PUMP SHALL BE SELF PRIMING AND SELF LEVELING, OPERATES AUTOMATICALLY ON WATER RISE, HAS A CAPACITY OF 0.8 GPH. @ 26 FOOT HEAD, OPERATES EXTREMELY QUIETLY AT 23 DB(A) AND SHALL BE RATED FOR MINISPLITS UP TO 30,000 BTU/HR. THE PUMP SHALL BE THERMALLY PROTECTED, POTTED FOR WATER RESISTANCE, INCLUDES WATERPROOF TERMINATION OF ELECTRICAL AND ALARM WIRING AND IS UL LISTED. THE PUMP AND WATER LEVEL SENSOR SHALL BE CONSOLIDATED INTO ONE SINGLE UNIT IN WHICH THE PUMP IS MOUNTED DIRECTLY ABOVE THE SENSOR HOUSING/RESERVOIR WHICH IS TRANSPARENT TO FACILITATE INSPECTION. THE SENSOR HOUSING/RESERVOIR DISASSEMBLES EASILY FROM THE PUMP TO FACILITATE CLEANING AND MAINTENANCE AND INCLUDES A STAINLESS STEEL MESH FILTER WHICH EASILY REMOVABLE FOR CLEANING. IT ALSO INCLUDES VOLT FREE NO & NC CONTACTS RATED AT 5 AMP INDUCTIVE AND 8 AMP RESISTIVE AT LINE VOLTAGE. THESE CONTACTS WILL ENERGIZE THE PUMP ON RISE OF WATER LEVEL, HOWEVER, IF THE WATER LEVEL CONTINUES TO RISE BECAUSE WATER IS NOT BEING EVACUATED FOR ANY REASON, THEY WILL CUT POWER TO PUMP AND EVAPORATOR.
   B. THE PUMP SHALL BE LOCATED AT THE FIRST LINESET COVER ELBOW FROM THE AC UNIT. THE ELBOW AND LINESET COVER BOTH HAVE REMOVABLE COVERS WHICH PROVIDE EASY ACCESS FOR INSTALLATION, CHECKING AND MAINTENANCE OF THE PUMP UNIT AND/OR THE DRAIN HOSES, WIRING OR LINESETS.

MODULAR AIR HANDLER UNIT SCHEDULE

MARK			AH1
TOTAL SUPPLY AIR		CFM	3,220
TOTAL OF CONNECTED DEVICES DOWNSTREAM		CFM	3,450
RELIEF AIR		CFM	1,200
STATIC PRESSURE (EXT/TOTAL)		IN. H_2O	2.5/4.12
OUTSIDE AIR PATH	AIR QUANTITY	CFM	1,580
	ENTERING TEMPERATURE DB/WB	°F/°F	80.6/70.1
	COOLING COIL TOTAL CAPACITY (NET)	MBH	90.0
	COOLING COIL SENSIBLE CAPACITY (NET)	MBH	49.4
	COOLING COIL	ROWS/FPI	6/10.5
	COOLING COIL MAX AIR PRESS. DROP	IN. H_2O	0.511
	COOLING COIL MAX. FACE VELOCITY	°F	350
	SATURATED SUCTION TEMPERATURE	°F	47
	LEAVING TEMPERATURE COOLING DB/WB	°F/°F	52.0/51.4
	FILTERS	TYPE/EFF.	4 INCH MERV 14
RETURN/MAIN AIR PATH	AIR QUANTITY	CFM	1,640
	ENTERING TEMPERATURE DB/WB	°F/°F	74.0/61.6
	COOLING COIL TOTAL CAPACITY (NET)	MBH	47.8
	COOLING COIL SENSIBLE CAPACITY (NET)	MBH	39.0
	COOLING COIL	ROWS/FPI	4/10
	COOLING COIL MAX AIR PRESS. DROP	IN. H_2O	0.2
	COOLING COIL MAX. FACE VELOCITY	FPM	270
	SATURATED SUCTION TEMPERATURE	°F	47
	LEAVING TEMPERATURE COOLING DB/WB	°F/°F	52.0/51.4
	FILTERS	TYPE/EFF.	2 INCH MERV 8 / 4 INCH MERV 14
MIXED	AIR QUANTITY	CFM	1,640
	MIXED AIR TEMPERATURE DB/WB	°F/°F	52.0/51.4
MAX. FAN SPEED		RPM	1,800
FAN MOTOR		BHP/HP	3.63/5.0
ELECTRICAL CHARACTERISTICS		V/ø/Hz	208/3/60
FAN ARRANGEMENT/TYPE		–	DIRECT DRIVE PLENUM
UNIT ARRANGEMENT		–	HORIZONTAL UPBLAST
MINIMUM INVERT TO CONDENSATE CONNECTION ABOVE PAD		IN.	6
UNIT WEIGHT		LBS.	1,325
RADIATED SOUND POWER LEVELS (OCTAVES)		dB (63 thru 8000)	81/73/75/84/71/57/55/43
DISCHARGE SOUND POWER LEVELS (OCTAVES)		dB (63 thru 8000)	84/80/75/83/71/69/68/58
UNIT LOCATION		–	114 MECH.
MANUFACTURER		–	TRANE
MODEL NUMBER		–	CSAA004/006
NOTES		#	1 THROUGH 12

CONDENSING UNIT DATA			
MARK		CU1A–OA	CU1B–RA
NOMINAL TONS	TONS	7.5	4.0
OUTDOOR TEMP.	°F	95	95
REFRIGERANT	–	R410A	R410A
ELECTRICAL CHARACTERISTCS	V/ø/HZ	208/3/60	208/3/60
OUTDOOR FAN(S)	QTY/HP	1/0.5	1/0.2
OUTDOOR FAN RUN LOAD AND LOCKED ROTOR	AMPS	3.1/8.1	1.05/–
COMPRESSORS	QTY/HP	2/3.3	1/4.0
COMPRESSOR RLA AND LRA EACH	AMPS	2 @13.1/83.0	1 @13.8/83.0
MIN. CIRCUIT AMPS/RECOMMENDED FUSE (MOCP)	MCA/AMPS	33/45	18/30
SEER/EER/IPLV (MINIMUM)	–	12.8/12.9	14.0
UNIT WEIGHT	LBS.	384	190
UNIT DIMENSIONS (NOT INCLUDING SERVICE AREAS)	INxINxIN	28x36x41	37x34x29
MANUFACTURER	–	TRANE	TRANE
MODEL	–	TTA090D	4TTA4048
NOTES	#	1 THROUGH 10	1 THROUGH 10

NOTES:

1. PROVIDE POSITIVE SLOPED (IN MIN OF TWO PLANES) STAINLESS STEEL DRAIN PAN WITH DRAIN OUTLET IN BOTTOM OF PAN. DRAIN PAN SHALL EXTEND 8" BEYOND COOLING COIL OR FAN SECTIONS SHALL HAVE DRAIN PANS. COIL CASING, INCLUDING CROSS BRACING, SHALL BE STAINLESS STEEL CONSTRUCTION. PROVIDE RED BRASS (NON–FERROUS) COIL CONNECTIONS, VENTS AND DRAINS AND EXTEND THROUGH THE COIL CASING.
2. PROVIDE DOUBLE WALL UNIT, MINIMUM 2", THROUGHOUT UNIT (INCLUDING BELOW DRAIN PAN) WITH A SOLID INNER LINER. UNIT SHALL HAVE FACTORY FABRICATED DOUBLE WALL FILTER PLENUM MIXING BOX. PROVIDE FULL SIZED HINGED ACCESS DOORS AT PLENUM SECTION, FILTER SECTION, COIL SECTION(S), AND FAN SECTION. BOTH HEATING AND COOLING COILS SHALL BE ACCESSIBLE ON THE UPSTREAM AND DOWNSTREAM SIDE.
3. PROVIDE PREMIUM EFFICIENCY MOTORS. SEE SPECIFICATIONS.
4. UNITS SHALL HAVE INTERNAL VIBRATION ISOLATORS WITH 2" DEFLECTION. UNIT SHALL HAVE 1" NEOPRENE PADS BETWEEN THE BASE RAILS AND THE 4" HOUSEKEEPING PAD.
5. PROVIDE OVERSIZED FANS NOT TO EXCEED RADIATED SOUND POWER PER ASHRAE. PROVIDE REMOTE BEARING LUBRICATION LINES, EXTENDED TO JUST INSIDE THE ACCESS DOOR.
6. PROVIDE SINGLE HEADER ON AFTER FILTERS FOR EFFECTIVE SEALING.
7. PROVIDE MAGNAHELIC DIFFERENTIAL PRESSURE GAGE AT FILTER.
8. FAN RPM AND OUTLET VELOCITY ARE MAXIMUM. PROVIDE OVERSIZED FANS NOT TO EXCEED VALUES INDICATED.
9. PROVIDE ADJUSTABLE PITCH SHEAVE ON FAN MOTORS 10 HP AND LESS.
10. PROVIDE WITH VARIABLE FREQUENCY DRIVE FOR VAV SYSTEM FAN CONTROL.
11. PROVIDE UV LIGHT SYSTEM FOR OUTSIDE AIR AND RETURN AIR COOLING COILS.
12. PROVIDE FACTORY MOUNTED MARINE GRADE SERVICE LIGHT AND GFCI RECEPTACLE.

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HVAC SCHEDULES

M2.1

Drawing File: I:\20xxx\20033.001\20033m21.dwg M21
Plotted by: Harry Dec 16, 2020 - 9:07am

AIR DISTRIBUTION DEVICE SCHEDULE

MARK		CD1	CD2	RR1	EG1	XG1	XG2	SS1	SR1	LV1
NECK SIZE	INCH	–	–	22x22	–	22x22	–	–	–	ANSI/AMCA 540 & 550 LISTED AND FL PRODUCT APPROVAL
MODULE/FACE SIZE	INCH	24x24/24x24	–	24x24/23x23	–/–	24x24/23x23	–/–	–/–	–/–	
MANUFACTURER	–	J&J	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	TITUS	RUSKIN
MODEL NUMBER	–	AL1444–33–TR	301FL	PAR–AA	50F	PAR–AA	50F	300FS	350RL	EME6625D
CONSTRUCTION	–	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	ALUMINUM	STEEL	ALUMINUM
NOTES	–	1, 2, 4	1, 2, 4	1, 4, 6	1, 4, 6, 7	1, 4, 6	4, 6, 7	4	1, 4	3, 4, 5, 8

NOTES:

1. NECK SIZE OF DEVICE IS EQUAL TO THE DUCT SIZE INDICATED ON THE DRAWING.
2. PROVIDE WITH SQUARE TO ROUND ADAPTER. REFER TO PLANS FOR SIZE.
3. COORDINATE COLOR AND FINISH TEXTURE BY SAMPLE SUBMITTAL TO ARCHITECT.
4. SEE PLANS FOR SIZE.
5. PROVIDE TRANSOM MOUNTING FRAME AND INSECT SCREEN WHERE SHOWN OVER DOORS.
6. WHERE GRILLE IS INDICATED TO BE LOCATED IN LAY–IN CEILINGS, PROVIDE 24x24 LAY–IN PANEL BORDER, WHITE IN COLOR.
7. PAINT INSIDE OF DUCT & GRILLE FLAT BLACK WHEN CAN BE SEEN THROUGH FACE OF GRILLE.
8. LOUVER WIND–DRIVEN RAIN PERFORMANCE SHALL BE WITHOUT A DAMPER: 99.9% EFFECTIVE AT PREVENTING WATER PENETRATION THROUGH LOUVER WHEN AMCA–500L TESTED AT 50 MILES PER HOUR WIND WITH 8 INCHES PER HOUR RAINFALL AND 2,155 FEET PER MINUTE AIRFLOW THROUGH THE FREE AREA. PENETRATION CLASS A WITH DISCHARGE CLASS (INTAKE) 3 IN ACCORDANCE WITH AMCA 500–L WIND DRIVEN RAIN TEST. THE LOUVER SHALL BE ANSI/AMCA 540 AND ANSI/AMCA 550 LISTED AND SHALL A FLORIDA PRODUCT APPROVAL.

REMARKS:

A. REFER TO PLANS FOR EXACT LOCATIONS OF ALL DIFFUSERS, GRILLES AND REGISTERS.
B. COORDINATE FRAME STYLES WITH CEILING SYSTEM ACTUALLY FURNISHED.
C. NC VALUES FOR DIFFUSERS, GRILLES AND REGISTERS SHALL NOT EXCEED 35 WITH A ROOM ABSORPTION RATE OF 10db ie.. 10–12 WATTS.
D. REFER TO THE MECHANICAL LEGEND FOR A DESCRIPTION OF THE AIR DEVICE MARK.
E. WHERE THE CONNECTING DUCT OR PLENUM CAN BE OBSERVED THROUGH THE FACE OF THE GRILLE, THE VISIBLE DUCTWORK SHALL BE PAINTED FLAT BLACK.

FAN SCHEDULE

MARK	SERVES	AIRFLOW (CFM)	DRIVE	TIP SPEED (FT/MIN)	FAN SPEED (RPM)	STATIC EFF. (%)	INLET TEMP. (°F)	EXTERNAL S.P. (IN. H_2O)	ELECTRICAL VOLT/ø/Hz	MOTOR HP BHP/HP	SONES	MANUFACTURER	MODEL NUMBER	MOUNTING LOCATION	WEIGHT	INTERLOCK	NOTES
RF1	ERU1 RELIEF AIR	1,200	BELT	7,560	1,974	48	70	2.0	208/1/60	0.88 / 1.0	17.3	GREENHECK	BSQ–140–HP	INLINE	119	AH1	1 THROUGH 7
SF1	ERU1 SUPPLY AIR	1,580	DIRECT	6,148	1,613	48	70	1.5	208/1/60	0.77 / 1.0	14.4	GREENHECK	SQ–140–VG	INLINE	101	AH1	1 THROUGH 7

NOTES:

1. COORDINATE WITH ELECTRICAL DRAWINGS. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
2. PROVIDE WITH FACTORY DISCONNECT.
3. PROVIDE REQUIRED CONTACTS AND RELAYS FOR INTERLOCKING FAN AS SCHEDULED.
4. PROVIDE WITH ELECTRIC FAN SPEED CONTROL.
5. CONTROLLED BY DDC SYSTEM.
6. PROVIDE BACKDRAFT DAMPER.
7. PROVIDE WITH MOUNTING BRACKET AND INTEGRATED AIR PRESSURE SENSING SWITCH.

ENERGY RECOVERY UNIT SCHEDULE

MARK		ERU1
RELIEF AIR	CFM	1,200
INTERNAL STATIC PRESSURE (RA/SA)	IN. H_2O	1.0/1.25
OUTSIDE AIR QUANTITY	CFM	1,600
OUTSIDE ENTERING TEMPERATURE DB/WB	°F/°F	91.0 / 80.0
MANUFACTURER	–	CA–INDOOR
MODEL	–	CA3XIN
UNIT WEIGHT	LBS.	500
UNIT LOCATION	–	114 MECH.
SPACE SERVED	–	ENERGY RECOVERY
NOTES	–	1

NOTES:

1. PROVIDE QUARTER TURN FASTENERS FOR ACCESS PANELS.

VARIABLE AIR VOLUME BOX SCHEDULE WITH ELECTRIC HEAT

MARK	MAX. COOLING CFM	MIN. HEATING CFM	MIN. COOLING CFM	TERMINAL SIZE	SOUND (NC) DISCH	SOUND (NC) RAD	HEAT MBH	HEAT KW	HEAT STEPS	POWER	APD	MANUFACTURER	MODEL	NOTES
VAV101	295	95	95	5	21	20	4.2	1.0	SCR	120/1	0.07	TRANE	VCEF	1,2,3,4,5,6
VAV102	155	75	75	4	20	20	3.2	1.0	SCR	120/1	0.03	TRANE	VCEF	1,2,3,4,5,6
VAV103	270	75	75	5	20	20	3.2	1.0	SCR	120/1	0.06	TRANE	VCEF	1,2,3,4,5,6
VAV104	320	85	85	6	20	18	3.7	1.0	SCR	120/1	0.17	TRANE	VCEF	1,2,3,4,5,6
VAV105	400	195	195	6	22	23	8.4	2.5	SCR	120/1	0.20	TRANE	VCEF	1,2,3,4,5,6
VAV106	850	455	455	10	21	21	19.7	6.0	SCR	208/3	0.25	TRANE	VCEF	1,2,3,4,5,6
VAV107	415	195	195	6	22	24	8.4	2.5	SCR	120/1	0.21	TRANE	VCEF	1,2,3,4,5,6
VAV108	745	420	420	8	22	21	18.2	5.5	SCR	208/3	0.33	TRANE	VCEF	1,2,3,4,5,6
subtotal	3,450	1,595	1,595					20.5						

NOTES:

1. DDC CONTROLS BY CONTROLS CONTRACTOR.
2. PROVIDE REINFORCED NON–POROUS FOIL LAMINATE FOR MICROBIAL PROTECTION. LINER SHALL BE SECURED BY STEEL Z CLIPS OR OVERLAPPING PANEL CONSTRUCTION TO SEAL ALL EDGES. THE INSULATION SHALL BE RIGID COMPRESSED GLASS FIBERS, FOUR POUND DENSITY, WITH R3.5 R–VALUE, AND SHALL COMPLY WITH ASTM C665, UL 181, AND NFPA90A.
3. CONTRACTOR SHALL VERIFY PROPER CLEARANCES IN FRONT OF CONTROL HEATER PANELS. PROVIDE WITH INTEGRAL FACTORY MOUNTED SAFETY DISCONNECT, PRIMARY FUSING AND ALL REQUIRED CONTACTS AND RELAYS. COORDINATE WITH ELECTRICAL. PROVIDE FACTORY WIRED CONTROL TRANSFORMER. VAV TERMINAL SHALL HAVE SINGLE POINT POWER CONNECTION.
4. PROVIDE APPROPRIATE DIFFERENTIAL PRESSURE SWITCH TO PROPERLY CONTROL THE HEATER. THE EQUIPMENT SUPPLIER SHALL REVIEW THE DRAWINGS PRIOR TO ORDERING TO ASCERTAIN DUCT PRESSURES.
5. ALL PERFORMANCE DATA SHALL BE BASED ON TESTS CONDUCTED IN ACCORDANCE WITH ASHRAE 130–2008 AND AHRI 880–2008. ALL NC LEVELS DETERMINED USING AHRI 8855–2008, APPENDIX E RATED WITH 1" WG PRESSURE AT THE TERMINAL INLET.
6. PROVIDE MAGNETIC HEATER CONTACTORS.

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HARRY W. PORTELLOS, P.E. 61597

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HILLSBOROUGH COUNTY
NORTHWEST AREA HEAD START

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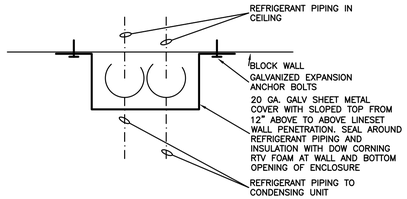
90% CONST DOCS	08.19.2020
SITE PERMIT PACKAGE	09.11.2020
PERMIT SET	12.21.2020

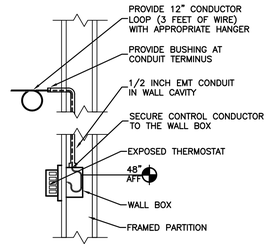
HVAC SCHEDULES

M2.2

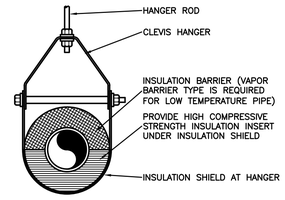
Drawing File: I:\20xxx\20033.001\20033m2f.dwg M22
Plotted by: Harry Dec 16, 2020 - 4:47pm



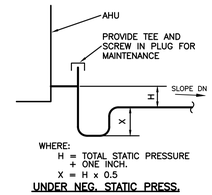
REFRIGERANT PIPING CHASE DETAIL
NOT TO SCALE



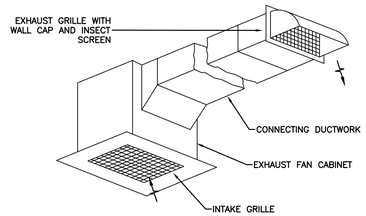
ROOM THERMOSTAT IN GYPBOARD WALL
NOT TO SCALE



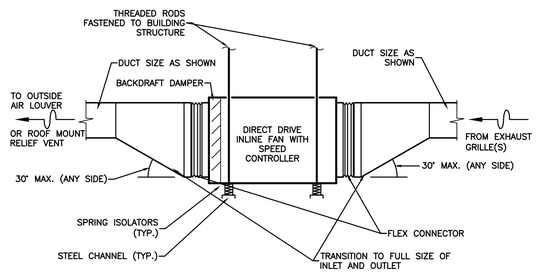
INSULATED PIPE HANGER SUPPORT
NOT TO SCALE



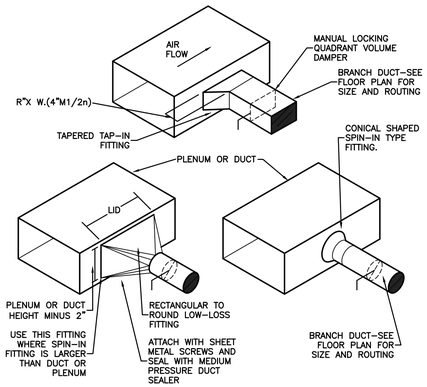
CONDENSATE DRAIN TRAP
NOT TO SCALE



CEILING EXHAUST FAN DETAIL
NOT TO SCALE

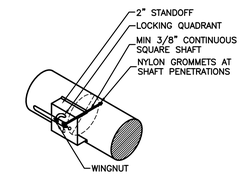


INLINE FAN DETAIL
NOT TO SCALE



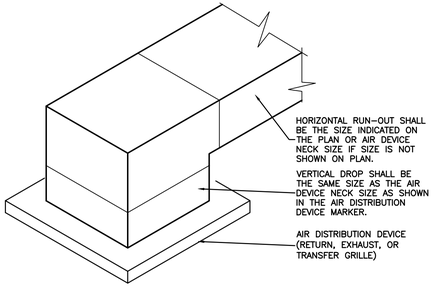
BRANCH DUCT TAKE–OFF DETAIL
NOT TO SCALE

NOTES:
1. PROVIDE FITTING WITH 1" WIDE FLANGE WITH GASKET.
2. MUST MEET SMACNA GUAGE STANDARDS AND 2"W.G. STATIC PRESSSURE.
3. CONTINUOUS WELD LONGITUDINAL SEAM FOR NO LEAKAGE AT 2" W.G. STATIC PRESSURE.



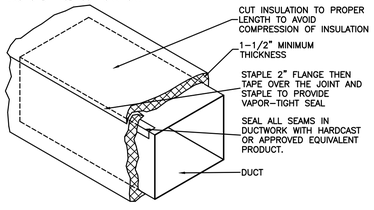
MANUAL LOCKING QUADRANT VOLUME DAMPER

NOTES:
1. WINGNUT ON SHAFT IS UNACCEPTABLE. WINGNUT MUST RIDE IN LOCKING QUADRANT.

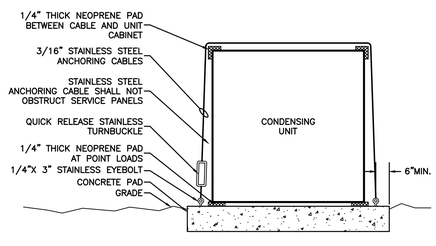


RETURN, EXHAUST, AND TRANSFER DUCT CONNECTIONS
NOT TO SCALE

NOTE: SECURE INSULATION WITH WELDED STICK PINS ON DUCTWORK 24" AND LARGER. ALL JOINTS SHALL BE FABRIC TAPED AND MASTIC COATED WITH #8 MASTIC BY RCD CORPORATION.

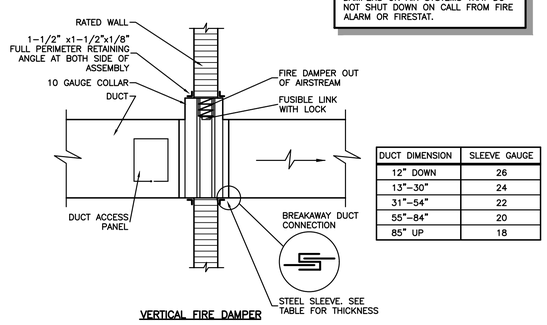


TYPICAL DUCT WRAPPING DETAIL
NOT TO SCALE



NOTE: PROVIDE A MINIMUM OF TWO CABLES WITH FOUR ANCHOR CONNECTIONS TO PAD.

CONDENSING UNIT TIE DOWN
NOT TO SCALE

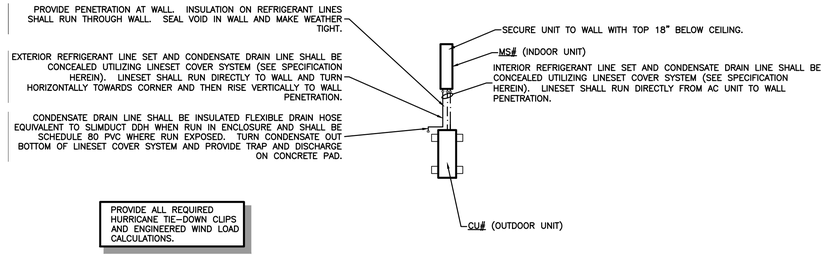


DUCT DIMENSION	SLEEVE GAUGE
12" DOWN	26
13"–30"	24
31"–54"	22
55"–84"	20
85" UP	18

VERTICAL FIRE DAMPER

NOTE: PROVIDE DYNAMIC TYPE FIRE DAMPERS ON AIR SYSTEMS THAT DO NOT SHUT DOWN ON CALL FROM FIRE ALARM OR FIRESTAT.

FIRE DAMPER DETAILS
NOT TO SCALE



MINI–SPLIT SYSTEM INSTALLATION
NOT TO SCALE

NOTE: REFER TO SCHEDULE FOR MOUNTING AND LINESET ACCESSORIES.

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HVAC DETAILS

M3.1

Drawing File: i:\20xxx\20033.001\20033sm31.dwg M31
Plotted by: Harry Dec 16, 2020 - 4:47pm

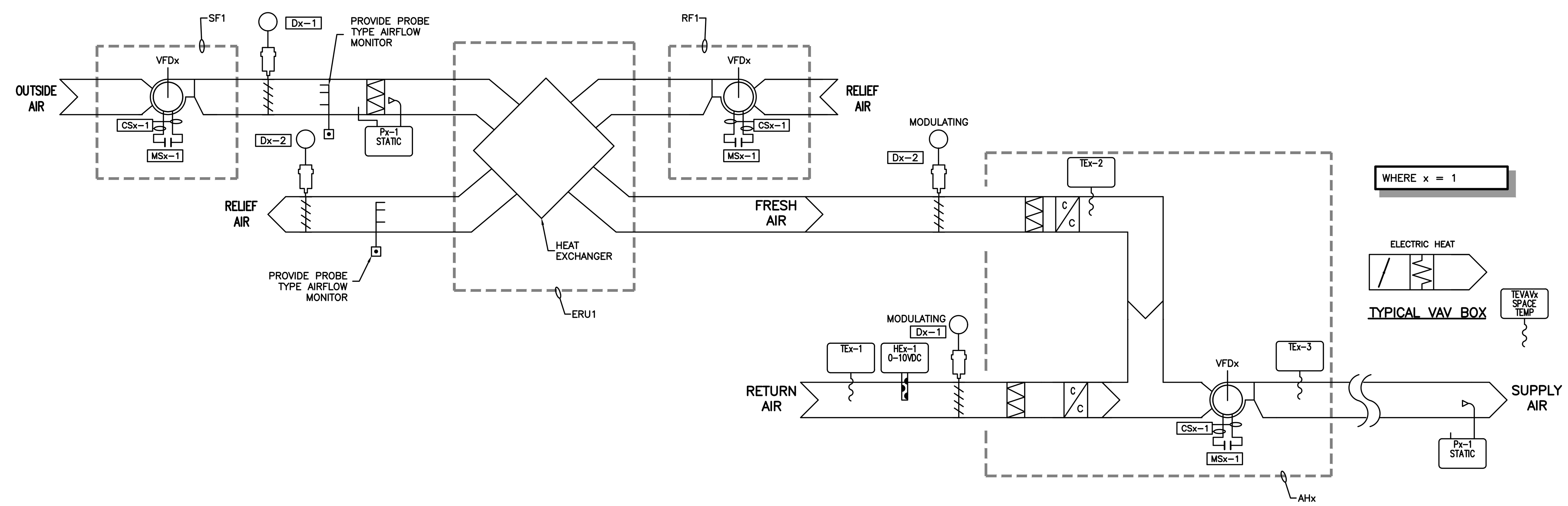
TEMPERATURE CONTROLS POINT SCHEDULE

	HARDWARE																					SOFTWARE																												
SYSTEM	OUTPUT								INPUT													ALARMS								EMCS FUNCTIONS																				
	DIGITAL				ANALOG				DIGITAL						ANALOG							DIGITAL				ANALOG																								
POINT DESCRIPTION	CONTROL RELAY	SOLENOID E/P	CONTACTOR (AS REQ'D.)	TRISTATE	PNEUMATIC TRANSDUCER	ELECTRICAL TRANSDUCER	4–20 mA MODULE	0–10 VDC	PRESSURE SWITCH STATUS	FLOW SWITCH	SWITCH CLOSURE	AUXILIARY CONTACT	KW	CURRENT RELAY	TEMPERATURE	RELATIVE HUMIDITY	PRESSURE SENSOR	POSITION	CO2	GPM	AIRFLOW	EQUIPMENT STATUS	MAINTENANCE	CO2 SENSOR		HIGH LIMIT	LOW LIMIT	RUN TIME		SCHEDULED START/STOP	OPTIMUM START/STOP	DUTY CYCLING	DEMAND LIMITING	DAY/NIGHT SETBACK	ECONOMIZER	VENTILATION/RECIRCULATION	TEMPERATURE CONTROL	ENTHALPY	HOT/COLD DECK RESET	REHEAT COIL RESET	STEAM BOILER OPTIMIZATION	HOT WATER BOILER OPTIMIZATION	HW OA RESET	CHILLER OPTIMIZATION	CHILLED WATER RESET	CONDENSER WATER RESET	CHILLER DEMAND LIMIT	VAV CONTROL	LIGHTING CONTROL	NOTES
VAV SYSTEM (AH1, x=1)																																																		
MAIN UNIT																																																		
AHx RETURN AIR TEMP (TEx–1)															X											X	X																							3
AHx RETURN HUMIDITY (HEx–1)																X										X																								
AHx CHILLED WATER VALVE (Vx–2)								X																																										
AHx FAN STATUS (CSx–1)														X								X																												
AHx START/STOP (MSx–1)	X																									X	X	X		X																				2
AHx FAN VARIABLE FREQUENCY DRIVE (AOx–1)							X																																											
AHx UNIT LVG COIL TEMP (TEx–3)															X											X	X																							
AHx DUCT STATIC PRESSURE (Px–1)																	X																																	
AHx RETURN AIR MODULATING DAMPER (Dx–1)				X		X																																												
OA PATH																																																		
AHx MODULATING DAMPER (Dx–2)				X		X																																												
AHx OA CHILLED WATER VALVE (Vx1)								X																																										
AHx OA LVG COIL TEMP (TEx–2)															X											X	X																							
SFx SUPPLY FAN (SF#)																																																		
SFx FAN STATUS (CSx–2)														X								X																												
SFx START/STOP (MSx–2)	X																									X	X	X		X																				2
RFx RELIEF FAN (RF#)																																																		
RFx FAN STATUS (CSx–2)														X								X																												
RFx START/STOP (MSx–2)	X																									X	X	X		X																				2
VAVx VAV ZONE TEMP SENSOR (# POINTS)															X																																			
VAVx VAV BOX DAMPER (# POINTS)						X																																												
VAVx VAV BOX HEATER (# POINTS)			X																																															

FOR EACH VAV BOX

NOTES:

1. PROVIDE STARTING RELAY AND CONTACTOR IN CONTROL PANEL RATED FOR MOTOR LOAD.
2. ROUTE CIRCUIT THROUGH THE MOTOR STARTER.
3. REMOTE BULB THERMOSTAT WITH BULB IN RA DUCT. THERMOSTAT LOCATION INDICATED ON PLANS.
4. REFER TO FAN SCHEDULE NOTE 2 TO IDENTIFY APPLICABLE POINTS.
5. PROVIDE OPEN PROTOCOL INTERFACE AND ALL HARDWARE TO ALLOW FULL USER INTERFACE BETWEEN DIGITAL CHILLER CONTROL PANEL AND EMCS.



VARIABLE AIR VOLUME, DUAL PATH AIR HANDLER FLOW DIAGRAM (AH1)

NOT TO SCALE

AIRSIDE TEMPERATURE CONTROL SEQUENCES

Variable Air Volume, dual path Air Handler with dehumidification (AHx)

A. The air handler shall be started and stopped by the DDC control system on a schedule as directed by the Owner. The EMS shall enable the air handler supply air fan. The outside air fan and zone relief fan shall be interlocked with the air handler so that the outside air fan will run and damper will open and the relief fan and will run and damper will open when the air handler is running after a 30 minute time delay for morning warm up/cool down cycle and will be disabled when the air handler is disabled.

B. Cooling mode: In the cooling mode, compressors shall modulate to maintain the supply air temperature set point indicated in the air handler schedule as sensed by the supply air temperature sensor. The outside air path shall be the first stage of cooling and the return air path shall be the second stage of cooling. On a further rise in return air temperature, the return air path cooling coil shall stage on and modulate. The variable frequency drive on the supply air fan shall modulate the supply air volume to maintain a constant pressure (resettable) at the duct static pressure sensors (two per system). The modulating dampers in the outside air duct and return air duct shall modulate to maintain a constant fresh air supply to the air handler as indicated in the air handler schedule.

C. Dehumidification mode: When the return air humidity exceeds 55% RH as sensed by the return air humidity sensor, outside air path coil shall stage on and modulate to the scheduled leaving air temperatures. The electric heaters in the VAV boxes shall stage on to maintain temperature setpoint in the zones. The VAV boxes shall modulate air flow when the space humidity is satisfied.

D. Heating mode: In the heating mode, the compressors shall stage off. The electric heaters in the VAV boxes shall stage on to maintain temperature setpoint in the zones.

Variable Air Volume Boxes

A. Each variable air volume box shall modulate from fully open at 76°F (adjustable) and to the minimum position at 74°F (adjustable) in the cooling mode. The electric heater shall stage in the heating mode at minimum (or heating) air volume as scheduled to maintain the space heating temperature at 70°F (adjustable). The EMS shall monitor air volume through the box and supply air temperature after the heating coil. The VAV boxes shall be continuously controlled and monitored from the EMS.

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PERMIT SET	12.21.2020

HVAC CONTROLS

M4.1

Drawing File: I:\20xxx\20033.001\20033m41.dwg M41
Plotted by: Harry Dec 16, 2020 – 4:47pm

LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	VOLTS	WATTS	LAMPS	BALLAST (IF APPLICABLE)	MOUNTING
A	2'x2' RECESSED LED LUMINAIRE. LOW PROFILE WITH CENTER BASKET CURVED SMOOTH ACRYLIC LENS, 0–10V DIMMING (DOWN TO 1%) AND VOLUMETRIC DISTRIBUTION. LITHONIA #2BLT2–33L–ADSM–EZ1–LP840, OR APPROVED EQUIVALENT	120	26	LED, 3300 LUMENS, 4000K	LED DRIVER, 0–10V DIMMING	RECESSED GRID
A1	SAME AS TYPE 'A' EXCEPT WITH EMERGENCY BATTERY PACK. LITHONIA #2BLT2–33L–ADSM–EZ1–LP840–EL14, OR APPROVED EQUIVALENT	120	26	LED, 3300 LUMENS, 4000K	LED DRIVER, 0–10V DIMMING	RECESSED GRID
B	2'x2' RECESSED LED LUMINAIRE. LOW PROFILE WITH CENTER BASKET CURVED SMOOTH ACRYLIC LENS, 0–10V DIMMING (DOWN TO 1%) AND VOLUMETRIC DISTRIBUTION. LITHONIA #2BLT2–40L–ADSM–EZ1–LP840, OR APPROVED EQUIVALENT	120	32	LED, 4000 LUMENS, 4000K	LED DRIVER, 0–10V DIMMING	RECESSED GRID
B1	SAME AS TYPE 'B' EXCEPT WITH EMERGENCY BATTERY PACK. LITHONIA #2BLT2–40L–ADSM–EZ1–LP840–EL14, OR APPROVED EQUIVALENT	120	32	LED, 4000 LUMENS, 4000K	LED DRIVER, 0–10V DIMMING	RECESSED GRID
C	2'x2' RECESSED LED LUMINAIRE. LOW PROFILE WITH CENTER BASKET CURVED SMOOTH ACRYLIC LENS, 0–10V DIMMING (DOWN TO 1%) AND VOLUMETRIC DISTRIBUTION. LITHONIA #2BLT2–48L–ADSM–EZ1–LP840, OR APPROVED EQUIVALENT	120	43	LED 4800 LUMENS, 4000K	LED DRIVER, 0–10V DIMMING	RECESSED GRID
C1	SAME AS TYPE 'C' EXCEPT WITH EMERGENCY BATTERY PACK. LITHONIA #2BLT2–48L–ADSM–EZ1–LP840–EL14, OR APPROVED EQUIVALENT	120	43	LED, 4800 LUMENS, 4000K	LED DRIVER, 0–10V DIMMING	RECESSED GRID
D	6" ROUND, OPEN LED DOWNLIGHT WITH SEMI–SPECULAR REFLECTOR, MEDIUM WIDE DISTRIBUTION, AND 0–10V DIMMING DRIVER. DAMP LOCATION LISTED. LITHONIA #LDN6–40–15–L06–AR–LSS–120–EZ10, OR APPROVED EQUIVALENT	120	18	LED, 1500 LUMEN, 4000K	LED DRIVER, 0–10V DIMMING	RECESSED FLANGE
D1	SAME AS TYPE 'D' EXCEPT WITH EMERGENCY BATTERY PACK. LITHONIA #LDN6–40–20–L06–AR–LSS–120–EZ10–EL, OR APPROVED EQUIVALENT	120	18	LED, 1500 LUMEN, 4000K	LED DRIVER, 0–10V DIMMING	RECESSED FLANGE
F	2'–0" LED VANITY LUMINAIRE. SURFACE MOUNT, 5" ROUNDED EXTRUDED ALUMINUM HOUSING WITH DIE CAST END CAPS AND HIGH IMPACT 0.156" THICK PRISMATIC INTERIOR, SMOOTH EXTERIOR POLYCARBONATE LENS. KENALL #MLHA5V–2–SP–MW–PP–25L40K, OR APPROVED EQUIVALENT.	120	25	LED, 2500 LUMEN, 4000K	LED DRIVER, 0–10V DIMMING	WALL MOUNT ABOVE MIRROR. COORDINATE EXACT HEIGHT WITH ARCHITECT
G	4'–0" LENSED LED STRIP TYPE LUMINAIRE. COLD–ROLLED STEEL HOUSING WITH SNAP ON/OFF FROSTED DIFFUSE LENS. PROVIDE CHAIN HANGER AS REQ'D. LITHONIA #CLX–L48–5000LM–SEF–FDL–MVOLT–GZ10–40K–80CRI–WH, OR APPROVED EQUIVALENT.	120	36	LED 5000 LUMENS, 4000K	LED DRIVER	SURFACE MOUNT OR CHAIN HUNG AT 8'–6" AFF
G1	SAME AS TYPE 'G' EXCEPT WITH EMERGENCY BATTERY PACK. LITHONIA #CLX–L48–5000LM–SEF–FDL–MVOLT–GZ10–40K–80CRI–WH–PS1050, OR APPROVED EQUIVALENT.	120	36	LED 5000 LUMENS, 4000K	LED DRIVER	SURFACE MOUNT GWB CEILING
H	6" ROUND, OPEN LED DOWNLIGHT WITH SEMI–SPECULAR REFLECTOR, MEDIUM WIDE DISTRIBUTION, AND 0–10V DIMMING DRIVER. WET LOCATION LISTED. LITHONIA #LDN6–40–20–L06–AR–LSS–120–EZ10–WL, OR APPROVED EQUIVALENT	120	23	LED, 2000 LUMEN, 4000K	LED DRIVER, 0–10V DIMMING	RECESSED FLANGE
K	EXTERIOR WALL SCONCE, HALF ROUND DIE CAST ALUMINUM HOUSING, WITH TYPE IV DISTRIBUTION. SUITABLE FOR WET LOCATIONS WITH LENS FACING DOWN. COLOR SELECTION BY ARCHITECT. LITHONIA #WSR–LED–P2–40K–SR4–MVOLT–SF, OR APPROVED EQUIVALENT.	120	29	LED 3000 LUMENS, 4000K	LED DRIVER	WALL MOUNTED, 10'–0" AFG OR AS NOTED
SA	POLE MOUNTED OUTDOOR HEAVY–DUTY EXTRUDED ALUMINUM HOUSING, SINGLE HEAD, FULL CUTOFF WITH TYPE III MEDIUM DISTRIBUTION, WITH HOUSE SHIELD. COLOR SELECTION BY ARCHITECT. LITHONIA D–SERIES #DSX0–LED–P2–40K–T3M–MVOLT–HS–xx, OR APPROVED EQUIVALENT.	120	49	LED, 4000K, 4,728 LUMENS	LED DRIVER	POLE MOUNT ON CONCRETE POLE 25'–0" TO BOTTOM. SEE DETAIL.
SB	POLE MOUNTED OUTDOOR HEAVY–DUTY EXTRUDED ALUMINUM HOUSING, SINGLE HEAD, FULL CUOTFF WITH TYPE IV MEDIUM DISTRIBUTION. COLOR SELECTION BY ARCHITECT. LITHONIA D–SERIES #DSX0–LED–P3–40K–T5M–MVOLT–xx, OR APPROVED EQUIVALENT.	120	71	LED, 4000K, 8,768 LUMENS	LED DRIVER	POLE MOUNT ON CONCRETE POLE 25'–0" TO BOTTOM. SEE DETAIL.
SC	POLE MOUNTED OUTDOOR HEAVY–DUTY EXTRUDED ALUMINUM HOUSING, SINGLE HEAD, FULL CUOTFF WITH TYPE IV MEDIUM DISTRIBUTION, WITH HOUSE SHIELD. COLOR SELECTION BY ARCHITECT. LITHONIA D–SERIES #DSX0–LED–P3–40K–T5M–MVOLT–HS–xx, OR APPROVED EQUIVALENT.	120	71	LED, 4000K 6,325 LUMENS	LED DRIVER	POLE MOUNT ON CONCRETE POLE 25'–0" TO BOTTOM. SEE DETAIL.
X	EXIT LIGHT, SINGLE OR TWIN FACED, UNIVERSAL ARROWS, UNIVERSAL MOUNTING, LED SOURCE, WHITE THERMOPLASTIC FACE WITH RED LETTERS, DUAL VOLTAGE, SELF DIAGNOSTIC WITH INTEGRAL BATTERY. LITHONIA #LQM–S–W–3–R–120/277–ELN, OR APPROVED EQUIVALENT	120	5	LED W/FIXT.	LED DRIVER	VARIES, SEE SPECS AND PLANS

NOTES:

1. ALL LUMINAIRES THAT ARE EQUIPPED WITH AN EMERGENCY BATTERY PACK SHALL HAVE TEST BUTTONS AND INDICATOR LIGHTS VISIBLE AND ACCESSIBLE FROM A FLOOR STANDING POSITION.
2. PROPOSED SUBSTITUTIONS SHALL BE SUBMITTED IN WRITING AND REVIEWED FOR PRIOR APPROVAL. ACCEPTABLE SUBSTITUTIONS SHALL BE ISSUED BY OFFICIAL ADDENDUM.

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION	MOUNTING
	BRANCH CIRCUIT CONDUIT AND WIRE CONCEALED ABOVE CEILING OR BEHIND FINISHED WALL	N/A
	BRANCH CIRCUIT CONDUIT AND WIRE CONCEALED BELOW FINISHED FLOOR OR UNDERGROUND.	N/A
	RACEWAY EXPOSED ON WALL OR CEILING	N/A
LA–1,3,5 EG IG	HOMERUN TO PANELBOARD – LETTER INDICATES PANEL, NUMBER INDICATES CIRCUIT, MINIMUM 3/4" CONDUIT. NOTE: ANY HOMERUN WITHOUT FURTHER DESIGNATION INDICATES TWO #12 AWG AND #12 AWG EQUIPMENT GROUND. PC OUTLET REQUIRES SEPARATE NEUTRAL, MIN. #10 AWG. DEDICATED CIRCUIT REQUIRES SEPARATE NEUTRAL	N/A
UP DOWN	RACEWAY RISER, UP OR DOWN AS NOTED	N/A
	CONDUIT CAPPED	N/A
X X	EXIT LIGHT, LETTER INDICATES TYPE SINGLE OR DUAL FACED AS INDICATED ON DRAWINGS	SEE FIXTURE SCHEDULE

VS OS	LOW VOLTAGE VACANCY/OCCUPANCY SENSOR. CEILING MOUNTED, DUAL TECHNOLOGY. SUBMIT SENSOR MANUFACTURER'S LAYOUT DRAWINGS FOR APPROVAL. SENSOR SWITCH #CM–PDT–9 (10'–0" RADIAL COVERAGE), #CM–PDT–10 (20'–0" RADIAL COVERAGE), OR APPROVED EQUIVALENT. PROVIDE WIDER RANGE DEVICES WHEN NECESSARY.
	VS = VACANCY MODE (MANUAL ON/AUTO OFF)
	OS = OCCUPANCY MODE (AUTO ON/AUTO OFF)
		CEILING

VS OS	LINE VOLTAGE VACANCY/OCCUPANCY SENSOR. CEILING MOUNTED, DUAL TECHNOLOGY. SUBMIT SENSOR MANUFACTURER'S LAYOUT DRAWINGS FOR APPROVAL. SENSOR SWITCH #CMR–PDT–9 (10'–0" RADIAL COVERAGE), #CMR–PDT–10 (20'–0" RADIAL COVERAGE), OR APPROVED EQUIVALENT. PROVIDE WIDER RANGE DEVICES WHEN NECESSARY.
	VS = VACANCY MODE (MANUAL ON/AUTO OFF)
	OS = OCCUPANCY MODE (AUTO ON/AUTO OFF)
		CEILING

$M	MOTOR/HP RATED TOGGLE SWITCH SIZED PER MOTOR MANUFACTURER'S RECOMMENDATION, MINIMUM 20 AMP.	SURFACE, ADJACENT TO OR ON MOTOR
a	LOW VOLTAGE LIGHTING CONTROL SWITCH WITH 0–10V DIMMING CONTROL. PUSH BUTTON, MANUAL ON/AUTO OFF (VACANCY MODE) OR AUTO ON/AUTO OFF (OCCUPANCY MODE). DIMMER SWITCH TO BE COMPATIBLE WITH LED DRIVE (0–10V DIMMING, ETC.). SENSOR SWITCH #SPODM–SA–D (MANUAL ON), #SENSOR SWITCH #SPODM–D (AUTO ON), OR APPROVED EQUIVALENT.	M.H. 48" AFF TO TOP
3	LOW VOLTAGE LIGHTING CONTROL SWITCH WITH 0–10V DIMMING CONTROL FOR THREE WAY APPLICATIONS. PUSH BUTTON, MANUAL ON/AUTO OFF (VACANCY MODE) OR AUTO ON/AUTO OFF (OCCUPANCY MODE). DIMMER SWITCH TO BE COMPATIBLE WITH LED DRIVE (0–10V DIMMING, ETC.). SENSOR SWITCH #SPODM–SA–3X–D (MANUAL ON), #SPODM–3X–D (AUTO ON), OR APPROVED EQUIVALENT.	M.H. 48" AFF TO TOP
$	SINGLE POLE SWITCH, 120–277 VOLT	M.H. 48" AFF TO TOP
$3	THREE WAY SWITCH, 120–277 VOLT	M.H. 48" AFF TO TOP
$T	DIGITAL TIME DELAY SWITCH (LIGHTS & EXH. FAN) WITH PRE–SET 10, 15 & 30 MINUTE OFF DELAY.	M.H. 48" AFF TO TOP
$OS	LINE VOLTAGE PUSH BUTTON WALL SWITCH/OCCUPANCY SENSOR. AUTO ON/AUTO OFF. SENSOR SWITCH #WSD–PDT, OR APPROVED EQUIVALENT.	M.H. 48" AFF TO TOP
a	LOW VOLTAGE LIGHTING CONTROL WALL SWITCH. PUSH BUTTON, MANUAL ON/AUTO OFF (VACANCY MODE) OR AUTO ON/AUTO OFF (OCCUPANCY MODE). LETTER INDICATES FIXTURE GROUPING BY SWITCH. SENSOR SWITCH #SPODM–SA (MANUAL ON), #SPODM (AUTO ON), OR APPROVED EQUIVALENT.	M.H. 48" AFF TO TOP
a 3	LOW VOLTAGE THREE WAY LIGHTING CONTROL WALL SWITCH. PUSH BUTTON MANUAL ON/AUTO OFF (VACANCY MODE) OR AUTO ON/AUTO OFF (OCCUPANCY MODE). LETTER INDICATES FIXTURE GROUPING BY SWITCH. SENSOR SWITCH #SPODM–SA–3X (MANUAL ON), #SPODM–3X (AUTO ON), OR APPROVED EQUIVALENT.	M.H. 48" AFF TO TOP
$VS	LINE VOLTAGE WALL SWITCH VACANCY SENSOR. PUSH BUTTON MANUAL ON/AUTO OFF. LETTER INDICATES FIXTURE GROUPING BY SWITCH. SENSOR SWITCH #WSD–PDT–SA, OR APPROVED EQUIVALENT.	M.H. 48" AFF TO TOP
	SINGLE RECEPTACLE – 120VAC	M.H. 16" AFF TO BOTTOM
WP GFI	DUPLEX RECEPTACLE – 120VAC, "WP" DENOTES WEATHERPROOF "GFI" DENOTES GROUND FAULT PROTECTION.	M.H. 16" AFF TO BOTTOM
	DUPLEX RECEPTACLE – 120VAC	M.H. 42" AFF TO BOTTOM OR AS NOTED
	DOUBLE DUPLEX RECEPTACLE – 120VAC	M.H. 16" AFF TO BOTTOM
	DOUBLE DUPLEX RECEPTACLE – 120VAC	M.H. 42" AFF TO BOTTOM OR AS NOTED
	30 AMP, 208 VOLT, SINGLE PHASE RECEPTACLE NEMA 6–30R, OR AS INDICATED.	M.H. 42" AFF TO BOTTOM
	SPECIAL RECEPTACLE, AMPERAGE, NEMA TYPE AS INDICATED.	M.H. 42" AFF TO BOTTOM
	COMBINATION COMMUNICATION/POWER FLOOR BOX. ROUND FULLY ADJUSTABLE, COORDINATE DEPTH WITH SLAB THICKNESS, TWO–GANG WITH BRASS FLANGE.	FLUSH MOUNTED IN FLOOR

THIS IS A STANDARD LEGEND. NOT ALL DEVICES SHOWN ARE USED IN THESE DOCUMENTS.

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION	MOUNTING
2 WA 1	COMMUNICATIONS OUTLET BOX, 4" SQUARE AND 1" CONDUIT (UON) WITH BUSHING STUBBED INTO CEILING SPACE. CABLING AND DATA JACKS BY OWNER. SEE SPECIFICATION FOR MORE REQUIREMENTS. PROVIDE BLANK COVERPLATE FOR UNUSED BOXES. "#" = PROPOSED NUMBER OF PORTS. "WA" DENOTES WIRELESS ACCESS POINT.	M.H. 16" AFF TO BOTTOM OR AS NOTED (VERIFY MOUNTING HEIGHTS WITH OWNER PRIOR TO ROUGH–IN AT ALL COUNTER LOCATIONS)
J	JUNCTION BOX OR OUTLET BOX, 4" SQUARE BOX UNLESS OTHERWISE NOTED	AS NOTED
J	JUNCTION BOX OR OUTLET BOX, 4" SQUARE BOX UNLESS OTHERWISE NOTED	WALL MOUNTED
J HD	JUNCTION BOX OR OUTLET BOX, 4" SQUARE BOX, FOR HAND DRYER ELECTRICAL CONNECTION.	M.H. 44" AFF TO CENTER
TV	TV OUTLET BOX WITH TV JACK, 3/4" CONDUIT W/BUSHING STUBBED INTO CEILING SPACE.	M.H. 60" AFF TO BOTTOM OR AS NOTED
	120/208V. PANELBOARD	M.H. 6'–0" TO TOP OR AS NOTED
	NON–FUSIBLE SAFETY SWITCH	M.H. 6'–0" TO TOP OR AS NOTED
	FUSIBLE SAFETY SWITCH	M.H. 6'–0" TO TOP OR ON EQUIPMENT
	MOTOR CONNECTION	AS NOTED
	ELECTRIC HEAT STRIP	IN VAV BOX INDICATED
	MOMENTARY SWITCH WITH RED 2" MUSHROOM HEAD BUTTON, WITH COVER, OR AS NOTED	M.H. 48" A.F.F. TO TOP OR AS NOTED
F	FIRE ALARM MANUAL PULL STATION	M.H. 48" AFF TO TOP
F RI	FIRE ALARM REMOTE INDICATOR	TOP 6" BELOW CEILING OR 80" A.F.F. WHICHEVER IS LOWER
F FS	FIRE ALARM FLOW SWITCH	AS NOTED
F TS	FIRE ALARM TAMPER SWITCH	AS NOTED
F D	FIRE ALARM MAGNETIC DOOR HOLDER COORDINATE MOUNTING HEIGHT WITH DOOR SUPPLIER	WALL MOUNTED
F S	FIRE ALARM SMOKE DETECTOR	CEILING MOUNTED
F H	FIRE ALARM HEAT DETECTOR	CEILING MOUNTED
F R	FIRE ALARM RELAY TO SHUT DOWN AIR HANDLER UNITS	SEE PLANS
F RT	FIRE ALARM DUCT DETECTOR REMOTE TEST STATION	M.H. 64" AFF TO BOTTOM
F SD	FIRE ALARM SMOKE DETECTOR IN A/C DUCT	DUCT MOUNTED (SEE MECH. DWGS.)
XX F	FIRE ALARM STROBE XX = CANDELA RATING, MINIMUM 75 CANDELA U.O.N.	TOP 6" BELOW CEILING OR 80" TO BOTTOM OF LENS A.F.F. WHICHEVER IS LOWER
XX S F	FIRE ALARM COMBINATION SPEAKER/STROBE, LETTER IN CIRCLE INDICATES TYPE: C=CHIME, B=BELL, H=HORN, S=SPEAKER XX = CANDELA RATING, MINIMUM 75 CANDELA U.O.N.	TOP 6" BELOW CEILING OR 80" TO BOTTOM OF LENS A.F.F. WHICHEVER IS LOWER
S F	FIRE ALARM HORN/SPEAKER, LETTER IN CIRCLE INDICATES TYPE: B=BELL, C=CHIME, H=HORN, S=SPEAKER WP=WEATHERPROOF TYPE	TOP 6" BELOW CEILING OR 80" TO CTR. A.F.F. WHICHEVER IS LOWER EXTERIOR HORNS MOUNTED AT 96" AFF
S yy	FIRE ALARM SPEAKER. RECESSED IN THE CEILING OR SURFACE MOUNTED WHEN INDICATED WITH (SUR) XX = CANDELA RATING, MINIMUM 75 CANDELA U.O.N. YY = SPEAKER WATTAGE, MINIMUM 1/2 WATT U.O.N.	CEILING MOUNTED U.O.N. WITH (SUR)
S xx yy	FIRE ALARM SPEAKER WITH STROBE. RECESSED IN THE CEILING OR SURFACE MOUNTED WHEN INDICATED WITH (SUR) XX = CANDELA RATING, MINIMUM 75 CANDELA U.O.N. YY = SPEAKER WATTAGE, MINIMUM 1/2 WATT U.O.N.	CEILING MOUNTED U.O.N. WITH (SUR)
T F	FIRE ALARM TROUBLE BELL (SEE F.A. ONE LINE DIAGRAM)	AS NOTED
FATC	FIRE ALARM TERMINAL CABINET	M.H. 6'–6" AFF TO TOP
FAA	FIRE ALARM ANNUNCIATOR PANEL	M.H. 4'–6" AFF TO TOP
FAVP	FIRE ALARM MAIN CONTROL PANEL WITH VOICE ANNUNCIATOR AND CONTROL	M.H. 6'–6" AFF TO TOP
	END OF LINE RESISTOR	SEE PLANS
C C	SECURITY CAMERA PROVIDE 4" SQUARE x 2–1/8" DEEP BOX AND 3/4" CONDUIT TO ACCESSIBLE CEILING SPACE. CABLING AND CAMERAS WILL BE PROVIDED AND INSTALLED BY OTHERS.	FLUSH IN WALL OR CEILING AT HEIGHT DETERMINED BY ARCHITECT/OWNER
A	ACCESS CONTROL CARD READER. PROVIDE 4" SQUARE x 2.5" DEEP BOX AND 3/4" CONDUIT TO ACCESSIBLE CEILING SPACE. CABLING AND READERS PROVIDED BY OWNER.	M.H. 48" AFF TO TOP

THIS IS A STANDARD LEGEND. NOT ALL DEVICES SHOWN ARE USED IN THESE DOCUMENTS.

ABBREVIATIONS:

AFF	ABOVE FINISHED FLOOR	INT	INTERCOM/PAGING CABINET
AFG	ABOVE FINISHED GRADE	MTG	MOUNTING
E	EXISTING	MTD	MOUNTED
ETR	EXISTING TO REMAIN	M.H.	MOUNTING HEIGHT
EWC	ELECTRIC WATER COOLER (PROVIDE GFI TYPE BREAKER)	N/A	NOT APPLICABLE
EWH	ELECTRIC WATER HEATER	OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
EG	EQUIPMENT GROUND	CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
EXP	EXPLOSION PROOF	OFOI	OWNER FURNISHED, OWNER INSTALLED
FACP	FIRE ALARM CONTROL PANEL	PROJ	PROJECTOR LOCATION
FATC	FIRE ALARM TERMINAL CABINET	UON	UNLESS OTHERWISE NOTED
GFI	GROUND FAULT PROTECTION	R	REMOVE
G, GND	GROUND	RL	RELOCATED
GWB	GYPSUM WALL BOARD	WP	WEATHER PROOF
HD	HAND DRYER		

ELECTRICAL GENERAL NOTES:

(THESE NOTES APPLY TO ALL SHEETS)

1. ALL ELECTRICAL WORK SHALL MEET ALL OF THE REQUIREMENTS OF THE FOLLOWING:
   A. FLORIDA BUILDING CODE (FBC) 6TH EDITION (2017): THIS CODE INCLUDES THE 2017 FBC BUILDING, MECHANICAL, PLUMBING, FUEL GAS AND ENERGY CONSERVATION VOLUMES. FURTHER, SEE "REFERENCED STANDARDS" IN THE FBC, BUILDING CHAPTER 35; FBC, PLUMBING CHAPTER 14; FBC, MECHANICAL CHAPTER 15; FBC, FUEL GAS CHAPTER 8, FBC, ENERGY CONSERVATION CHAPTER 5.) (EFFECTIVE DECEMBER 31, 2017)
   B. 6TH EDITION OF THE FLORIDA FIRE PREVENTION CODE (FFPC): (THIS CODE ALSO INCLUDES THE FLORIDA VERSIONS OF NFPA 1 AND NFPA 101.) (EFFECTIVE DECEMBER 31, 2017)
   C. 2014 NATIONAL ELECTRIC CODE
2. IT IS THE CONTRACTOR'S RESPONSIBILITY TO VISIT THE SITE AND VERIFY THE EXISTING CONDITIONS TO GAIN KNOWLEDGE OF THE SCOPE OF WORK INVOLVED.
3. "PROVIDE" SHALL MEAN "FURNISH AND INSTALL".
4. IN GENERAL, THESE DRAWINGS ARE SCHEMATIC IN NATURE AND SHOULD NOT BE SCALED. IT SHALL NOT BE THE INTENT OF THESE PLANS AND/OR SPECIFICATIONS TO SHOW EVERY MINOR DETAIL OF CONSTRUCTION. PROVIDE ALL ITEMS NECESSARY FOR A COMPLETE AND OPERATIONAL SYSTEM.
5. ELECTRICAL INSTALLATION SHALL BE CLOSELY COORDINATED WITH ALL OTHER TRADES. REVIEW THE ENTIRE SET OF DOCUMENTS FOR COORDINATION. NO COST SHALL BE ASSOCIATED WITH ILL–TIMED INSTALLATION INCLUDING ANY REPAIRS OR REPLACEMENTS.
6. ALL CONDUITS AND BOXES SHALL BE CONCEALED UNLESS OTHERWISE NOTED. ALL CONDUIT RUNS ARE SCHEMATIC IN NATURE. EXACT ROUTING TO BE DETERMINED IN THE FIELD UNLESS OTHERWISE NOTED.
7. APPLY A BITUMASTIC COATING FOR ALL CONDUITS PENETRATING FLOOR SLABS FROM BELOW GRADE.
8. PROVIDE ALL REQUIRED PULL BOXES, JUNCTION BOXES, ETC. FOR A COMPLETE INSTALLATION.
9. ALL CONDUCTORS SHALL BE STRANDED COPPER, THHN/THWN, MINIMUM #12 AWG. ALL CONDUCTORS SHALL BE IN CONDUIT. FLEXIBLE CONDUIT SHALL BE LIMITED TO A MAXIMUM OF 6'–0" IN LENGTH. SOLID CONDUCTORS ARE NOT ACCEPTABLE.
10. MC CABLE OR OTHER PREMANUFACTURED CABLING SHALL NOT BE USED UNLESS APPROVED BY THE OWNER AND ENGINEER.
11. ALL CIRCUITS SHALL CONTAIN A SEPARATE, GREEN, COPPER GROUNDING CONDUCTOR.
12. ALL RECEPTACLES SHALL HAVE A GROUND TERMINAL.
13. RECESSED LIGHTING FIXTURES SHALL BE SUPPORTED FROM THE STRUCTURE AT (4) POINTS. DO NOT SUPPORT FIXTURES FROM THE CEILING GRID, MECHANICAL PIPING, DUCTWORK, CONDUIT OR OTHER NON–STRUCTURAL BUILDING MEMBERS. PROVIDE SUPPLEMENTAL STEEL AS REQUIRED FOR INSTALLATION.
14. THE COLOR OF ALL RECEPTACLES, TOGGLE SWITCHES AND COVERPLATES SHALL BE VERIFIED WITH THE ARCHITECT PRIOR TO ORDERING.
15. PANELBOARDS SHALL BE ACCURATELY LABELED TO IDENTIFY FINAL CIRCUIT NUMBERS UTILIZED, THEIR LOAD AND LOCATION. PANELBOARD DIRECTORY CARDS SHALL BE TYPEWRITTEN, UPDATED AND ACCURATE.
16. PROVIDE FIRE RETARDANT U.L. APPROVED SEALANT ON ALL PENETRATIONS OF FIRE RATED PARTITIONS, WALLS AND STRUCTURAL SLABS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY, PRIOR TO SUBMITTING BID, LOCATIONS OF ALL SUCH FIRE RATED PARTITIONS, WALL AND STRUCTURAL SLABS. USE A U.L. APPROVED SYSTEM LISTED FOR THE ASSOCIATED INSTALLATION.
17. PROVIDE HANDLE TIES FOR 2 OR MORE SINGLE POLE WITH SHARED NEUTRALS TO COMPLY WITH NEC 210.4 (B).
18. ALL COMMUNICATION RACEWAY (DATA, VOICE, AV, SECURITY, ETC.) SHALL BE STUBBED INTO AN ACCESSIBLE CEILING SPACE. PROVIDE WITH PROTECTIVE BUSHINGS.
19. 120 VOLT CIRCUITS OVER 110 FEET SHALL BE #10 AWG MINIMUM, INCLUDING GROUND.
20. 277 VOLT CIRCUITS OVER 240 FEET SHALL BE #10 AWG. MINIMUM, INCLUDING GROUND.
21. SEE SPECIFICATIONS FOR MORE REQUIREMENTS.

ELECTRICAL DRAWING INDEX

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HILLSBOROUGH COUNTY BOARD
OF COUNTY COMMISSIONERS
COUNTY CENTER
601 E KENNEDY BLVD
TAMPA, FL 33601

HILLSBOROUGH COUNTY
NORTHWEST AREA HEAD START

PROJECT #: 2010-00

DISTRIBUTION	DATE
DESIGN DEVELOPMENT	06.11.2020
90% CONST DOCS	08.19.2020
SITE PERMIT PACKAGE	09.11.2020
PERMIT SET	12.21.2020

ELECTRICAL GENERAL NOTES AND SYMBOL LEGEND

E0.1

Drawing File: I:\20xxx\20033.001\20033e01.dwg E01
Plotted by: Andrew Dec 18, 2020 – 1:18pm

LUMINAIRE TYPES 'A, B & C'

LITHONIA LIGHTING®

Catalog Number	
Notes	
Type	

BLT Series LED

2BLT

2' x 2' LED

FEATURES & SPECIFICATIONS

INTENDED USE — The BLT Best-in-Value Low Profile LED luminaire features a popular center basket design that offers a clean, versatile style and volumetric distribution. High efficacy LED light engines deliver energy savings and low maintenance compared to traditional sources. An extensive selection of configurations and options make the BLT the perfect choice for many lighting applications including schools, offices and other commercial spaces, retail, hospitals and healthcare facilities. The low profile BLT design (2-3/8") also makes it an excellent choice for renovation projects.

CONSTRUCTION — BLT enclosure components are die-formed for dimensional consistency and painted after fabrication with a polyester powder paint for improved performance and protection.

The reflector is finished with a high reflective matte white powder paint for improved aesthetics and increased light diffusion.

End plates contain easy-to-position integral T-bar clips for securely attaching the luminaire to the T-grid. For additional T-grid security, optional screw on T-bar clips are available.

Diffusers are extruded from impact modified acrylic for increased durability.

LED boards and drivers are accessible from the plenum.

OPTICS — Volumetric illumination is achieved by creating an optimal mix of light to walls, partitions and vertical and horizontal work surfaces – rendering the interior space, objects and occupants in a more balanced, complimentary luminous environment. High performance extruded acrylic diffusers conceal LEDs and efficiently deliver light in a volumetric distribution. Four diffuser choices available - curved and square designs with linear prisms or a smooth frosted finish.

ELECTRICAL — Long-life LEDs, coupled with high-efficiency drivers, provide superior quantity and quality of illumination for extended service life. 80% LED lumen maintenance at 60,000 hours (L80/60,000). Color Variation within 3-step MacAdam ellipse (3SDCM).

Non-Configurable BLT: Generic 0-10 volt dimming driver. Dims to 10%

Configurable BLT: available in High Efficiency (HE) versions for applications where a lower wattage (over the standard product) is required. The High Efficiency versions deliver >130 LPW and can be specified via the Lumen Package designations in the Ordering Information below.

eldoLED driver options deliver choice of dimming range, and choices for control, while assuring flicker-free, low-current inrush, 89% efficiency and low EMI.

Optional integrated nLight®controls make each luminaire addressable - allowing them to digitally communicate with other nLight enabled controls such as dimmers, switches, occupancy sensors and photocontrols. Connection to nLight is simple. It can be accomplished with integrated nLight AIR wireless RIO, RES7 sensors, or through standard Cat-5 cabling. nLight offers unique plug-and-play convenience as devices and luminaires automatically discover each other and self-commission. nLight AIR is commissioned easily through an intuitive model app.

Lumen Management: Unique lumen management system (option N80) provides on board intelligence that actively manages the LED light source so that constant lumen output is maintained over the system life, preventing the energy waste created by the traditional practice of over-lighting.

Step-level dimming option allows system to be switched to 50% power for compliance with common energy codes while maintaining fixture appearance.

Driver disconnect provided where required to comply with US and Canadian codes.

SENSOR— Integrated sensor (individual control): Sensor Switch MSD7ADCX ((Passive infrared (PIR)) or MSDPDT7ADCX ((PIR/Microphonics Dual Tech (PDT)) integrated occupancy sensor/automatic dimming photocell allows the luminaire to power off when the space is unoccupied or enough ambient light is entering the space. See page 4 for more details on the integrated sensor.

Integrated Sensor (nLight Wired Networking): This sensor is nLight-enabled, meaning it has the ability to communicate over an nLight network. When wired, using CAT-5 cabling, with other nLight-enabled sensors, power packs, or WallPods, an nLight control zone is created. Once linked to a Gateway, directly or via a Bridge, the zone becomes capable of remote status monitoring and control via SensorView software. See page 4 for the nLight sensor options.

Integrated Smart Sensor (nLight Air Wireless Platform): The RES7 sensor is nLight AIR enabled, meaning it has the ability to communicate over the wireless nLight control platform. It is available with an automatic dimming photocell, and either a digital PIR or a microphonics (PDT) dual technology occupancy sensor. It pairs to other luminaires and wall switches through our mobile app, CLAIRITY, which allows for simple sensor adjustment. See page 4 for more details on the Integrated Smart Sensor.

INSTALLATION — The BLT's low profile design of only 2-3/8" provides increased installation flexibility especially in restrictive plenum applications. The BLT fits into standard 15/16" and narrow 9/16" T-grid ceiling systems.

Suitable for damp location.

For recessed mounting in hard ceiling applications, Drywall Grid Adapters (DGA) are available as an accessory. See Accessories section.

LISTINGS — CSA Certified to meet U.S. and Canadian standards. IC rated.

DesignLights Consortium® (DLC) Premium qualified product. Not all versions of this product may be DLC Premium qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

WARRANTY — 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

NOTE: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Specifications

Length: 23-3/4 (60.3)
Width: 23-3/4 (60.3)
Depth: 2-3/8 (6.0)
Depth with Air supply/return: 2-3/4 (6.9)

All dimensions are inches (centimeters) unless otherwise specified.

Multiple Diffuser Options

ADP Curved Ribbed · ADSM Curved Smooth · SDP Square Ribbed · SDSM Square Smooth

A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is part of an A+ Certified solution for nLight® control networks when ordered with drivers marked by a shaded background*
- This luminaire is part of an A+ Certified solution for nLight control networks, providing advanced control functionality at the luminaire level, when selection includes driver and control options marked by a shaded background*

To learn more about A+, visit www.acuitybrands.com/aplus.

*See ordering tree for details

LED 2BLT-2X2

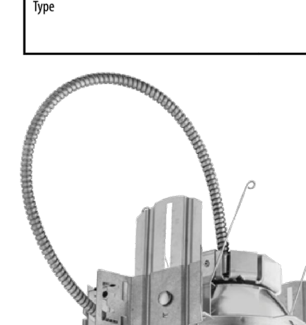
LUMINAIRE TYPES 'D & H'

LITHONIA LIGHTING®

Catalog Number	
Notes	
Type	

LDN6

6" OPEN and WALLWASH LED
Non-IC
New Construction Downlight



FEATURES & SPECIFICATIONS

INTENDED USE — Typical applications include corridors, lobbies, conference rooms and private offices.

CONSTRUCTION — Galvanized steel mounting/plaster frame; galvanized steel junction box with bottom-hinged access covers and spring latches. Reflectors are retained by torsion springs.

Vertically adjustable mounting brackets with commercial bar hangers provide 3-3/4" total adjustment.

Two combination ½"-3/4" and four ½" knockouts for straight-through conduit runs. Capacity: 8 (4 in, 4 out). No. 12 AWG conductors, rated for 90°C.

Accommodates 12"-24" joist spacing.

Passive cooling thermal management for 25°C standard; high ambient (40°C) option available. Light engine and drivers are accessible from above or below ceiling.

Max ceiling thickness 1-1/2".

OPTICS — LEDs are binned to a 3-step SDCM; 80 CRI minimum.

LED light source concealed with diffusing optical lens.

General illumination lighting with 1.0 S/MH and 55° cutoff to source and source image.

Self-flanged anodized reflectors in specular, semi-specular, or matte diffuse finishes. Also available in white and black painted reflectors.

ELECTRICAL — Multi-volt (120-277V, 50/60Hz) eldoLED 0-10V dimming drivers mounted to junction box, 10% or 1% minimum dimming level available.

0-10V dimming fixture requires two (2) additional low-voltage wires to be pulled.

70% lumen maintenance at 50,000 hours.

LISTINGS — Certified to US and Canadian safety standards. Damp location standard (wet location, covered ceiling optional). ENERGY STAR® certified product.

WARRANTY — 5-year limited warranty. Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Note: Actual performance may differ as a result of end-user environment and application.

All values are design or typical values, measured under laboratory conditions at 25 °C.

Specifications subject to change without notice.

A+ Capable options indicated by this color background.

ORDERING INFORMATION Lead times will vary depending on options selected. Consult with your sales representative. **Example:** LDN6 35/15 LO6AR LSS MVOLT EZ10

LDN6 Series	Color temperature	Lumens[1]		Aperture/Trim Color		Finish	Voltage
LDN6 6" round	27/ 2700K	05 500 lumens	25 2500 lumens	L06 Downlight	AR Clear	LSS Semi-specular	MVOLT Multi-volt
	30/ 3000K	10 1000 lumens	30 3000 lumens	LW6 Wallwash	WR[2] White	LD Matte diffuse	120 120V
	35/ 3500K	15 1500 lumens	40 4000 lumens		BR[2] Black	LS Specular	277 277V
	40/ 4000K	20 2000 lumens	50 5000 lumens				
	50/ 5000K						

Driver	Options			
EZ10 0-10V eldoLED driver with smooth and flicker-free deep dimming performance down to 10%	SF[3]	Single fuse	N80[7]	nLight™ Lumen Compensation
EZ1 0-10V eldoLED driver with smooth and flicker-free deep dimming performance down to 1%	TRW[4]	White painted flange	HAO[8]	High ambient option
	TRBL[4]	Black painted flange	WL	Wet Location
	EL[5]	Emergency battery pack with integral test switch, CEC compliant	RRL__	RELOC®-ready luminaire connectors enable a simple and consistent factory installed option across all ABL luminaire brands. Refer to RRL for complete nomenclature. Available only in RRLA, RRLB, RRLAE, and RRLC12S.
	ELR	Emergency battery pack with integral test switch, CEC compliant	USPOM	US point of manufacture
	NPS80EZ[6]	nLight® dimming pack controls 0-10V eldoLED drivers.		
	NPS80EZER[6]	nLight® dimming pack controls 0-10V eldoLED drivers. ER controls fixtures on emergency circuit.		

Accessories: *Order as separate catalog number.*

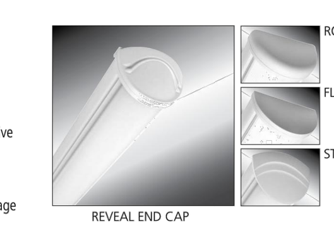
EAC ISSM 375	Compact interruptible emergency AC power system
EAC ISSM 125	Compact interruptible emergency AC power system
GRA68 JZ	Oversized trim ring with 8" outside diameter [1]
SCA6	Sloped ceiling adapter. Refer to TECH-SCA for more options.

Notes
1 Overall height varies based on lumen package; refer to dimensional chart on page 3.
2 Not available with finishes.
3 120V only.
4 Available with clear (AR) reflector only.
5 Add "SD" for self-diagnostic option (i.e. ELSD)
6 Must specify voltage 120V or 277V.
7 Fixture begins at 80% light level. Must be specified with NPS80EZ or NPS80EZ ER. Only available with EZ10 and EZ1 drivers.
8 Fixture height is 6.5" for all lumen packages with HAO.

DOWNLIGHTING LDN6

LUMINAIRE TYPE 'F'

MILLENIUM STRETCH™
MLHA5 SERIES – VANITY



ROUNDED END CAP · FLAT END CAP · STEPPED END CAP · REVEAL END CAP

PROJECT INFORMATION	
Job Name	
Fixture Type	
Catalog Number	
Approved by	

PRODUCT FEATURES:
» Surface mount – wall; 5"×24" and 48"
» Extruded aluminum housing with decorative end caps
» Low-profile –ADA compliant
» Peace of Mind Guarantee® against breakage

SPECIFICATIONS

HOUSING: Marine grade aluminum. Extruded body with die-cast end caps. Housing, with end caps, post assembly TGIC polyester powder coat finished – 5-step pre-treatment. See Ordering Information for standard, optional and custom finishes.

REFLECTOR: Full reflector/wire cover – 92% reflectivity.

LENS: UV-stabilized, high impact extruded pearlescent polycarbonate. Smooth exterior, linear prismatic interior. Nominal thickness .156". Lens securely positioned in body channels and end caps. Lens locked in place with tamper-resistant stainless steel Torx® with center pin fasteners and sealed with closed cell gaskets.

END CAPS: Marine grade die-cast aluminum. Four styles available: Flat, Rounded, Reveal and Stepped.

HARDWARE: Four stainless steel, tamper-resistant Torx® with center pin fasteners secure lens in housing body's lens channel.

ELECTRICAL: Available 3500K, 4000K and 5000K color temperatures, 82 CRI. 120-277VAC and 347VAC, 50/60Hz electrical input with serviceable high power factor electronic, constant-current driver (<20% THD, >0.95 PF). Standard 0-10V dimming with 1-100% range and dim-to-dark capabilities; maximum driver source of 165µA. Consult factory for flourescent options.

INSTALLATION: Standard two-point (24" housing) or four-point (48" housing) mounting required for Peace of Mind Guarantee®.

PHOTOMETRICS: Photometry tested to the IESNA LM-79-08 standard by an ILAC/ISO17025 accredited laboratory. For additional photometric data, please go to www.kenall.com.

WARRANTY: limited ten (10) year warranty for LED Lamps.

LISTINGS: Luminaire is certified to UL Standards by Intertek Testing Laboratory for Damp Location— horizontal and vertical wall mount. ADA compliant.

ORDERING INFORMATION (Ex: MLHA5V-48-F-MB-PP-45L40K-DCC-DV-FS)

Model	Length	End Cap	Finish	Lens	Lamp Type	Driver	Voltage	Options	Accessories
MLHA5V						DCC			

Length
24 2'
48 4'

End Caps
F Flat
R Rounded
RV Reveal
SP Stepped

Finish
MW Matte White
MB Matte Black
LG Light Gray
CC Custom Color (Consult Factory)

Lens
PP Pearlescent Polycarbonate

Lamp Type
2' Lengths
25L35K 25 Watt 3500K LED
25L40K 25 Watt 4000K LED
25L50K 25 Watt 5000K LED
4' Lengths
45L35K 45 Watt 3500K LED
45L40K 45 Watt 4000K LED
45L50K 45 Watt 5000K LED

Driver
DCC Dimming Constant Current

Voltage
120 120 Volts
277 277 Volts
347 347 Volts
DV 120-277 Volts

Options
LEL Integral 8.4W Emergency Battery Backup (45L only; 0°C minimum operating temperature; n/a with 347V)
CDF Captive Diffuser Fasteners
FS Single Fuse & Holder
NAT Natatorium Environment Option
PH Phillips Head Fasteners

Accessories
9500 Torx® Screwdriver
D-0552 Torx® Driver Bit (Required for CMB Option)

KENALL www.kenall.com | P: 800-4-Kenall | F: 262-891-9701 | 10200 55th Street Kenosha, Wisconsin 53144, USA A brand of legrand®

MLHA5V-021419

LUMINAIRE TYPE 'G'

LITHONIA LIGHTING®

Catalog Number	
Notes	
Type	

LED Linear

CLX

24", 36", 48" and 96" Lengths

FEATURES & SPECIFICATIONS

INTENDED USE — The CLX is a linear lighting solution that is available in multiple lengths, lumen packages and distributions. Designed for versatility, the CLX can address virtually any indoor lighting need. The CLX is also offered in standard and high efficacy configurations and capable of being continuous row mounted or installed as a stand-alone fixture. Ideal for uplight and downlight in commercial, retail, manufacturing, warehouse, and display applications. **Certain airborne contaminants can diminish the integrity of acrylic and/or polycarbonate.** Click here for Acrylic-Polycarbonate Compatibility table for suitable uses.

CONSTRUCTION — Channel and cover are formed from code-gauge cold-rolled steel. Housing and lens endcaps are injection molded plastic to provide a more architectural look and feel. The endcaps come standard with a 7/8" knock out for continuous mounting but can be ordered without.

Finish: Paint options include high-gloss, baked white polyester (WH), galvanized (GALV), matte black (MB) and smoke gray (SKGY). Five-stage iron phosphate pre-treatment ensures superior paint adhesion and rust resistance.

OPTICS — Offered with acrylic lens and less lens configurations. Provides a choice of optical distributions including, wide, narrow, and aisle.

ELECTRICAL — Utilizes high-output LEDs integrated on a two-layer circuit board, ensuring cool-running operation. Optional internal pluggable wiring harness for reduced labor cost in row mounting applications. (See PLR_ ordering information on page 15.) Electronic LED driver is multi-volt input and 0-10V dimming standard (see Operational Data on page 12 for actual wattage consumption). This fixture is designed to withstand a maximum line surge of 2.5kV at 0.75kA combination wave for indoor locations, for applications requiring higher level of protection additional surge protection must be provided.

L70>100,000 hours at 25°C.

LEDs provide nominal 80 CRI or 90CRI at 3000 K, 3500 K,4000 K, or 5000 K.

Lumen output up to 2,500 lumens per foot.

INSTALLATION — Fixture may be ceiling or wall mounted (with or without THCLX hanger or angle mounted with CLXANGBRT), pendant or stem mounted with appropriate mounting options.

WARNING — Removing the lens and opening the fixture during installation exposes the LEDs, putting them at risk for damage.

If you plan to surface mount the fixture, we recommend using the THCLX. This eliminates the need to open the fixture.

If you plan to continuous row mount, we recommend using the PLR wiring harness option. This eliminates the need to open the fixture.

Damage to the LEDs caused during installation will not be covered under the warranty.

LISTINGS — CSA certified to US and Canadian safety standards. For use in damp locations between -4°F (-20°C) and 104°F (40°C). Optional High Ambient (HA) ranging to 122°F(50°C) available on certain lumen packages (See ambient temperature chart for additional information).

DesignLights Consortium® (DLC) Premium qualified product and DLC qualified product. Not all versions of this product may be DLC Premium qualified or DLC qualified. Please check the DLC Qualified Products List at www.designlights.org/QPL to confirm which versions are qualified.

WARRANTY — 5-year limited warranty. Complete warranty terms located at: www.acuitybrands.com/resources/terms-and-conditions

Note: Actual performance may differ as a result of end-user environment and application. All values are design or typical values, measured under laboratory conditions at 25 °C. Specifications subject to change without notice.

Stock configurations are offered for shorter lead times:

Stock Part Number	UPC	DLC QPL Product ID	DLC Premium
CLX L48 3000LM SEF FDL MVOLT GZ10 40K 80CRI WH	00191723525816	PJANKZR4	Yes
CLX L48 3000LM SEF FDL MVOLT GZ10 50K 80CRI WH	00191723525885	PKW32VKL	Yes
CLX L48 5000LM SEF FDL MVOLT GZ10 40K 80CRI WH	00191723525939	P77I8Z20	Yes
CLX L48 5000LM SEF FDL MVOLT GZ10 50K 80CRI WH	00191723525908	P8A42C1H	Yes
CLX L96 6000LM SEF FDL MVOLT GZ10 40K 80CRI WH	00191723525861	PPFTGRBV	Yes
CLX L96 6000LM SEF FDL MVOLT GZ10 50K 80CRI WH	00191723525915	PW6250TE	Yes
CLX L96 10000LM SEF FDL MVOLT GZ10 40K 80CRI WH	00191723525922	PYKOC7EW	Yes
CLX L96 10000LM SEF FDL MVOLT GZ10 50K 80CRI WH	00191723525830	PKYPL35K	Yes
CLX L48 3000LM SEF RDL MVOLT GZ10 40K 80CRI WH	00191723525960	PJANKZR4	Yes
CLX L48 3000LM SEF RDL MVOLT GZ10 50K 80CRI WH	00191723525892	PKW32VKL	Yes
CLX L48 5000LM SEF RDL MVOLT GZ10 40K 80CRI WH	00191723525854	P77I8Z20	Yes
CLX L48 5000LM SEF RDL MVOLT GZ10 50K 80CRI WH	00191723525946	P8A42C1H	Yes
CLX L96 6000LM SEF RDL MVOLT GZ10 40K 80CRI WH	00191723525878	PPFTGRBV	Yes
CLX L96 6000LM SEF RDL MVOLT GZ10 50K 80CRI WH	00191723525823	PD0SSIAD	Yes
CLX L96 10000LM SEF RDL MVOLT GZ10 40K 80CR WH	00191723525953	PYKOC7EW	Yes
CLX L96 10000LM SEF RDL MVOLT GZ10 50K 80CRI WH	00191723525847	PKYPL35K	Yes

A+ Capable Luminaire

This item is an A+ capable luminaire, which has been designed and tested to provide consistent color appearance and out-of-the-box control compatibility with simple commissioning.

- All configurations of this luminaire meet the Acuity Brands' specification for chromatic consistency
- This luminaire is part of an A+ Certified solution for nLight® or XPoint™ Wireless control networks marked by a shaded background*

To learn more about A+, visit www.acuitybrands.com/aplus.

*See ordering tree for details

INDUSTRIAL CLX Page 1 of 14

LUMINAIRE TYPE 'K'

WSR LED
Architectural Wall Sconce

Inverted available with WLU option only.

Catalog Number	
Notes	
Type	

Hit the Tab key or mouse over the page to see all interactive elements.

Introduction

Classic Architectural Wall Sconce with the LED technology. Long-life, maintenance-free product with typical energy savings of 80% compared to metal halide versions. The integral battery backup option provides emergency egress lighting, without the use of a back-box or remote gear, so installations maintain their aesthetic integrity. The WSR LED is ideal for replacing existing 50 – 250W metal halide wall-mounted products. The expected service life is 20+ years of nighttime use.

Specifications

Luminaire
Height: 7-1/4" (18.4 cm)
Width: 18" (45.7 cm)
Depth: 9" (22.8 cm)
Weight: 17 lbs (7.7 kg)

Optional Back Box (BBW)
Height: 4" (10.2 cm)
Width: 5-1/2" (14.0 cm)
Depth: 1-1/2" (3.8 cm)

For 3/4" NPT side-entry conduit

Ordering Information

EXAMPLE: WSR LED P2 40K SR3 MVOLT DDBTXD

WSR LED Series	Performance Package	Color Temperature	Distribution	Voltage	Mounting	Options	Finish (required)
WSR LED	P1	30K	SR2 Type II	MVOLT[1]	Shipped included	Shipped installed	DDBXD Dark bronze
	P2	40K	SR3 Type III	120	(blank) Surface mount	PE Photoelectric cell, button type [2,3]	DBLXD Black
	P3	50K	SR4 Type IV	208	Shipped separately[2]	SF Single fuse (120, 277, 347V)[4]	DNAXD Natural aluminum
	P4			240	BBW Surface-mounted back box	DF Double fuse (208, 240, 480V)[4]	DWHXD White
				277		DMG 0-10v dimming wires pulled outside fixture (for use with an external control, ordered separately)	DSSXD Sandstone
				347		E20WC Emergency battery backup, (18W, -20°C), Certified in CA Title 20 MAEDBS[5]	DDBTXD Textured dark bronze
				480		E10WH Emergency battery backup, (10W, 5°C), Certified in CA Title 20 MAEDBS[5]	DBLBXD Textured black
						WLU Wet location door for up orientation[6]	DNATXD Textured natural aluminum
						PIR Motion/ambient light sensor[7]	DWHGXD Textured white
						DS Dual switching[8]	DSSTXD Textured sandstone
						SPD Separate Surge Protection[9]	
						Shipped separately	
						VG Vandal guard	
						WG Wire guard	

Emergency Battery Operation

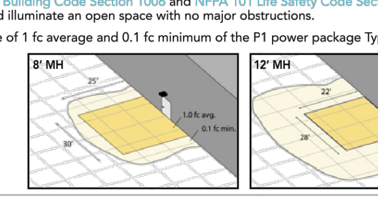
The emergency battery backup (E20WC & E10WH options) is integral to the luminaire - no external housing required! This design provides reliable emergency operation while maintaining the aesthetics of the product.

All E20WC and E10WH configurations include an independent secondary driver with an integral relay to immediately detect AC power loss.

The emergency battery will power the luminaire for a minimum duration of 90 minutes (maximum duration of three hours) from the time supply power is lost, per International Building Code Section 1006 and NFPA 101 Life Safety Code Section 7.9, provided luminaires are mounted at an appropriate height and illuminate an open space with no major obstructions.

The examples below show illuminance of 1 fc average and 0.1 fc minimum of the P1 power package Type IV product in emergency mode.

WSR P1 LED 40K SR4 MVOLT E20WC
10' x 10' Gridlines
8' and 12' Mounting Height



NOTES
1 MVOLT driver operates on any line voltage from 120-277V (50/60 Hz).
2 Not available with 480V option.
3 3 PE requires specified voltage.
4 Single fuse (SF) requires 120V, 277V or 347V options. Double fuse (DF) requires 208V, 240V or 480V options.
5 Not available with 347V or 480V. Not available with WLU.
6 WLU not available with PIR, E20WC or E10WH.
7 See PIR Table for default settings.
8 Only available with P3 & P4 packages. Provides 50/50 luminaire operation via two independent drivers and light engines on two separate circuits. Not available with E20WC, E10WH, WLU, SF, or DF. When ordered with photocell (PE) or motion sensor (PIR), only the primary power source leads will be controlled.
9 See electrical section on page 2 for more details.

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WSR-LED Rev. 03/06/19

LUMINAIRE TYPE 'SA, SB & SC'

D-Series Size 0
LED Area Luminaire

Catalog Number	
Notes	
Type	

Hit the Tab key or mouse over the page to see all interactive elements.

Introduction

The modern styling of the D-Series is striking yet unobtrusive - making a bold, progressive statement even as it blends seamlessly with its environment. The D-Series distills the benefits of the latest in LED technology into a high performance, high efficacy, long-life luminaire. The outstanding photometric performance results in sites with excellent uniformity, greater pole spacing and lower power density. It is ideal for replacing up to 400W metal halide with typical energy savings of 70% and expected service life of over 100,000 hours.

Specifications

EPA: 0.95 ft² (.09 m²)
Length: 26" (66.0 cm)
Width: 13" (33.0 cm)
Height₁: 3" (7.62 cm)
Height₂: 7" (17.8 cm)
Weight (max): 16 lbs (7.25 kg)

A+ Capable options indicated by this color background.

Ordering Information

EXAMPLE: DSX0 LED P6 40K T3M MVOLT SPA NLTAIR2 PIRHN DDBXD

DSX0 LED Series	LEDs	Color temperature	Distribution		Voltage	Mounting
DSX0 LED	Forward optics	30K 3000 K	T1S Type I short (Automotive)	T5S Type V short[2]	MVOLT[4,5]	Shipped included
	P1 P4 P7	40K 4000 K	T2S Type II short	T5M Type V medium[2]	120[5]	SPA Square pole mounting
	P2 P5	50K 5000 K	T2M Type II medium	T5W Type V wide[2]	208[5]	RPA Round pole mounting
	P3 P6		T3S Type III short	BLC Backlight control[3]	240[5]	WBA Wall bracket[2]
	Rotated optics		T3M Type III medium	LCCO Left corner cutoff[3]	277[5]	SPUMBA Square pole universal mounting adaptor[7]
	P10[1] P12[1]		T4M Type IV medium	RCCO Right corner cutoff[3]	347[5,6]	RPUMBA Round pole universal mounting adaptor[7]
	P11[1] P13[1]		TFTM Forward throw medium		480[5,6]	Shipped separately
			T5VS Type V very short[2]			KMA8 DDBXD U Mast arm mounting bracket adaptor (specify finish)[8]

Control options				Other options	Finish (required)
Shipped installed		PIR	High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 5fc[15,16]	Shipped installed	DDBXD Dark bronze
NLTAIR2	nLight AIR generation 2 enabled[9,10]	PIRH	High/low, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 5fc[15,16]	HS House-side shield[18]	DBLXD Black
PIRHN	Network, high/low motion/ambient sensor[11]	PIR1FC3V	High/low, motion/ambient sensor, 8-15' mounting height, ambient sensor enabled at 1fc[15,16]	SF Single fuse (120, 277, 347V)[5]	DNAXD Natural aluminum
PER	NEMA twist-lock receptacle only (control ordered separate)[12]	PIRH1FC3V	High/low, motion/ambient sensor, 15-30' mounting height, ambient sensor enabled at 1fc[15,16]	DF Double fuse (208, 240, 480V)[5]	DWHXD White
PER5	Five-pin receptacle only (control ordered separate)[12,13]	FAO	Field adjustable output[17]	L90 Left rotated optics[1]	DDBTXD Textured dark bronze
PER7	Seven-pin receptacle only (leads exit fixture) (control ordered separate)[12,13]			R90 Right rotated optics[1]	DBLBXD Textured black
DMG	0-10V dimming extend out back of housing for external control (control ordered separate)[14]			DDL Diffused drop lens[18]	DNATXD Textured natural aluminum
				Shipped separately	DWHGXD Textured white
				BS Bird spikes[19]	
				EGS External glare shield	

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DSX0-LED Rev. 02/05/20 Page 1 of 8

LUMINAIRE TYPE 'X'

LITHONIA LIGHTING®

Catalog Number	
Notes	
Type	

QUANTUM® Thermoplastic Exits

LQM

LED LAMPS

FEATURES & SPECIFICATIONS

INTENDED USE — Ideal for applications requiring attractive, quick-installation exit signs and low energy consumption.

CONSTRUCTION — Engineering-grade thermoplastic housing is impact-resistant, scratch-resistant, and corrosion-proof. UL94V-0 flame rating. UV-stable resin resists discoloration from natural and man-made light sources.

Rugged unibody housing snaps together with no additional mechanical fasteners. Faceplate and back cover are interchangeable on housing. Positive snap-fit tabs hold faceplate securely, yet easily removable for lamp compartment access.

Universal directional Chevron inserts are easily removed and reinserted. Uniform illumination without shadows or hot spots. Reinforced, impact-resistant color panels. Letters 6" high with 3/4" stroke, with 100 ft. viewing distance rating, based upon UL924 standards.

U.S. Patent No. 5,526,251; 5,611,163; 5,739,639; 5,954,423; 5,988,825; 6,152,581; D383,501 ; D495,751 and 6,502,044. Other patents pending.

OPTICS — LEDs mounted on printed circuit boards. Low energy consumption – less than one watt. LED lamp operates in normal (AC input) and emergency (DC input) modes.

The typical life of the exit LED lamp is 10 years.

ELECTRICAL — Low-voltage disconnect prevents excessively deep discharge that can permanently damage battery. Conveniently located test switch and LED provide visual and manual means of monitoring system.

Constant-current series charger minimizes energy consumption and provides low operating costs. Printed circuit boards are 100% quality tested during manufacturing. Current-limiting charger circuitry protects printed circuit boards from shorts.

AC/LV reset (line latch) allows battery connection before AC power is applied and aids in preventing battery damage from deep discharge.

Crystal oscillator timing system with watchdog protection for precision accuracy.

Brownout protection is automatically switched to emergency mode when supply voltage drops below 80% of nominal.

Battery: Sealed, maintenance-free nickel-cadmium battery delivers 90-minutes capacity to emergency lamps. Two-state constant-current charge maximizes battery life and automatically recharges after battery discharge.

Diagnostics: Single-point microcomputer control for all electronic features.

Single multi-chromatic LED indicator to display two-state charging, test activation and three-state diagnostic status.

Test switch provides manual activation of 30-second diagnostic testing for on-demand visual inspection. Self-diagnostic testing for five minutes every 30 days and 30 minutes every six months and 90 minutes annually with WRS.

Diagnostic evaluation of LED light source, AC to DC transfer, charging and battery condition. Continuously monitors AC functionality.

INSTALLATION — Universal (top-, end-, or back-) mounting. Easily removed mounting knockouts. J-box pattern on back panel. Housing snaps to canopy with four positive-locking tabs. Cam-locking pin tightly secures housing to canopy.

Ships standard with additional face plate.

LISTINGS — UL damp location listed 50°-104°F (10°-40°C) standard. NOM Certified (see options). Meets UL924, NFPA 101 (current Life Safety Code), NEC and OSHA illumination standards. NEMA Premium certified.

Meets all applicable FCC requirements.

Specifications
Length: 11-3/4 (29.8)
Depth: 2 (5.1)
Height: 7-5/8 (19.3)
Weight: 2.6 lbs (1.2 kg)

All dimensions are inches (centimeters) unless otherwise specified.

WARRANTY — 5-year limited warranty. (Battery is prorated.) Complete warranty terms located at www.acuitybrands.com/CustomerResources/Terms_and_conditions.aspx

Actual performance may differ as a result of end-user environment and application.

Note: Specifications subject to change without notice.

ORDERING INFORMATION For shortest lead times, configure product using **bolded options.** **Example:** LQM S W 3 R 120/277 EL N

LQM Family	Face type	Housing color	Number of faces	Letter color	Input voltage[2]	Operation	Options
LQM	S Stencil	(blank) Black	3 Single face with extra faceplate and color panel	R Red	120/277 Dual voltage	(blank) AC only	(blank) None
	P Panel[1]	W White		G Green		X2 Primary and secondary AC inputs provided[3]	NOM NOM certified for Mexico[4]
						EL N Nickel cadmium battery	SD Self-diagnostics[5]
							SDFIFA Self-diagnostics, fire alarm flashing interface and flashing emergency operation and intermittent audible alarm (one flash/one second)[5]

Accessories: Order as separate item.

ELA WG1	Back-mount wireguard[6]	ELA WGEXE	End-mount wireguard[6]
ELA WGEXT	Top-mount wireguard[6]	ELA LQMUS12	12" stem kit[7]

Notes
1 Only available in custom signage. See spec sheet, Custom-Signage.
2 Some special voltages available. Consult factory.
3 Must specify input voltage 120 or 277. Not available with other options.
4 Available with stencil or panel faces in white housing.
5 Only available with EL N operation.
6 See spec sheet ELA-WG.
7 See spec sheet ELA-Stemkits.

EMERGENCY LQM

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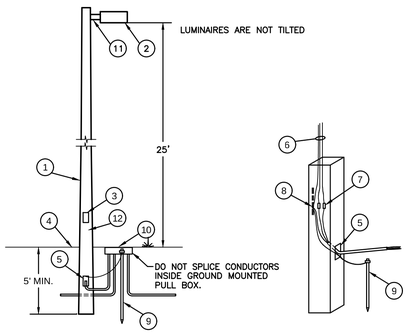
LUMINAIRE CUT SHEETS

E0.2

Drawing File: I:\20xxx\20033.001\20033e02.dwg E02
Plotted by: Andrew Dec 18, 2020 – 1:18pm

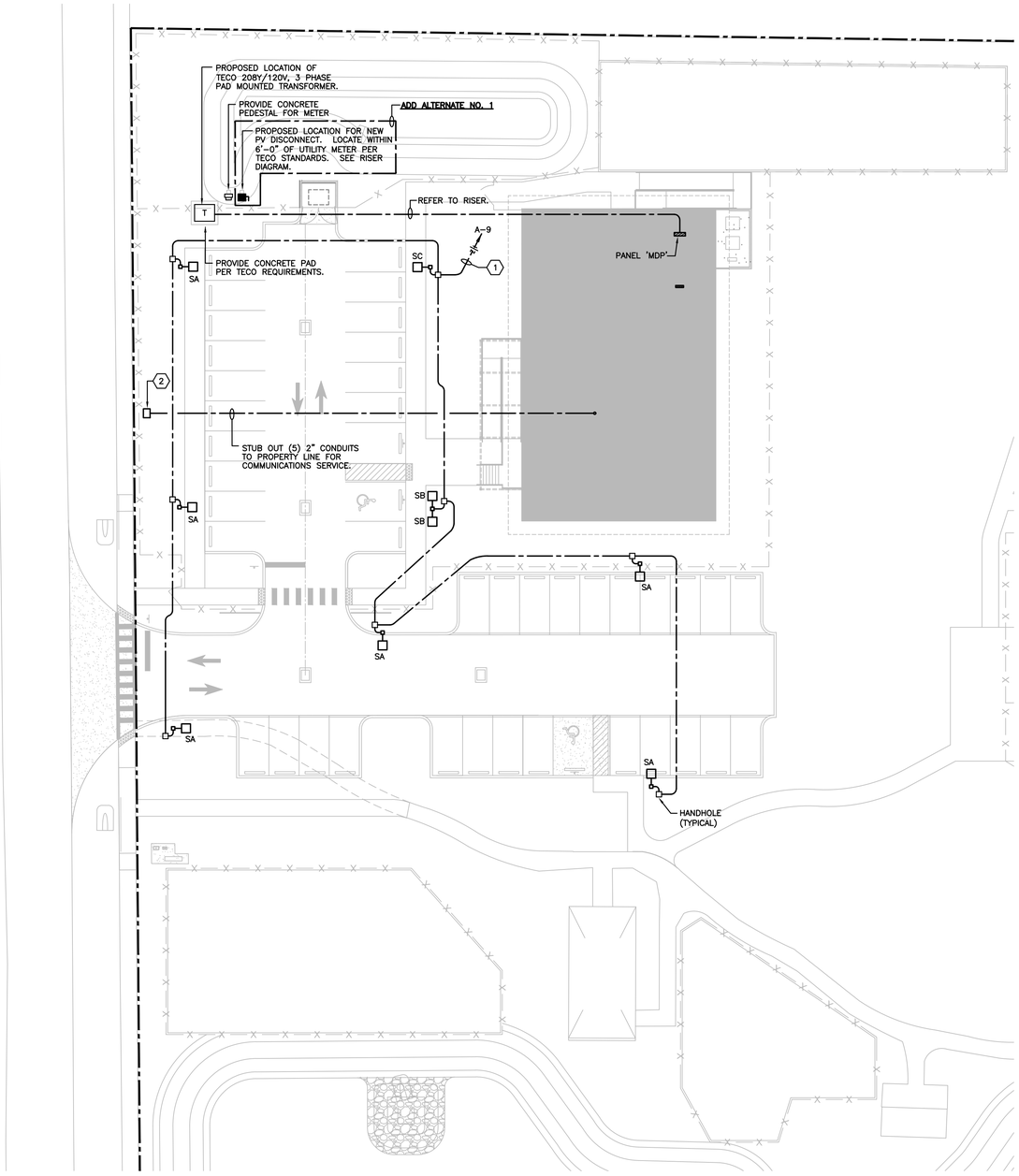


TYPICAL SITE LIGHTING LUMINAIRE CONCRETE DIRECT BURIAL POLE DETAIL

NOT TO SCALE

POLE DETAIL NOTES:

1. PROVIDE A MINIMUM 30' SQUARE TAPERED DIRECT BURIAL CONCRETE POLE THE POLE, COMPLETE WITH MOUNTING DEVICE AND LUMINARIES IN PLACE, SHALL BE CAPABLE OF WITHSTANDING THE FOLLOWING: ULTIMATE WIND SPEED AS SPECIFIED IN THE 2014 FLORIDA BUILDING CODE. FLORIDA BUILDING CODE.
2. PROVIDE REQUIRED BRACKET ARM AND MOUNTING ACCESSORIES COMPATIBLE WITH POLE DESIGN, WITH STRENGTH ADEQUATE FOR WIND SPEED AS SPECIFIED IN THE FLORIDA BUILDING CODE.
3. PROVIDE OVERSIZED HANDHOLE IN POLE WITH METAL COVER ATTACHED WITH STAINLESS STEEL MACHINE SCREWS, MINIMUM 4"x4"x2-1/8" DEEP. MAKE CIRCUIT SPLICES IN THIS HANDHOLE.
4. BACKFILL IN ACCORDANCE WITH STANDARD SPECIFICATIONS FOR FLORIDA DEPARTMENT OF TRANSPORTATION ROAD CONSTRUCTION, AS REQUIRED FOR THE WIND SPEED AS SPECIFIED IN THE FLORIDA BUILDING CODE.
5. WIRE ENTRY BELOW GRADE. NO SPLICES ALLOWED BELOW GRADE.
6. SEE SITE PLAN FOR CIRCUIT REQUIREMENTS.
7. 10 AMP FNQ SLOW BLOW FUSE.
8. POLE SHALL BE PROVIDED WITH FACTORY EQUIPPED GROUNDING STUD. BOND GROUND WIRES INSIDE HANDHOLE AND SECURELY BOND GROUND WIRES TO A CONTINUOUS STEEL BAR IN THE POLE VIA GROUNDING STUD.
9. PROVIDE 5/8" DIA. X 10'-0" COPPER GROUND ROD AT EACH POLE. PROVIDE #10 AWG, CU BARE GROUND WIRE FROM EACH LUMINAIRE AND BONDED TO GROUND ROD. (TYP.)
10. HAND HOLE AT GRADE WITH TRAFFIC RATED STEEL COVER (IF NECESSARY). PROVIDE HAND HOLE FOR EASE OF PULLING CONDUCTORS ONLY. HAND HOLE SHALL NOT BE USED FOR SPLICES. NO SPLICES ALLOWED AT OR BELOW GRADE.
11. PROVIDE GROUND WIRE ATTACHED TO GROUND LUG OR THROUGH BOLT ON BRACKET ARM, AND TO GROUND LUG ON LUMINAIRE.
12. PROVIDE STRUCTURAL ENGINEERING DRAWINGS CERTIFYING POLE AND POLE BASE COMPLIANCE WITH FLORIDA BUILDING CODE WIND LOAD REQUIREMENTS FOR THE ACTUAL SOIL CONDITIONS. DRAWING SHALL BE SIGNED AND SEALED BY A FLORIDA P.E..



GENERAL NOTES:

1. COORDINATE ALL SITE WORK WITH OWNER AND UTILITY COMPANIES.
2. ALL CONDUIT RUN BELOW BUILDINGS SHALL BE AT LEAST 24" BELOW GRADE. COORDINATE DEPTH WITH ALL OTHER UTILITIES.
3. ALL CONDUIT ROUTED UNDERGROUND SHALL BE A MINIMUM OF 3/4" AND SHALL BE BURIED A MINIMUM OF 24" B.F.G.
4. HAND DIG TRENCHES NEAR ANY EXISTING UTILITIES OR SYSTEMS (I.E. IRRIGATION, ETC.). DAMAGE TO ANY EXISTING UTILITIES OR SYSTEMS SHALL BE REPAIRED TO NEW CONDITION AT NO COST TO THE OWNER.
5. PROVIDE HANDHOLES AND PULLBOXES AS REQUIRED. ALL PULLBOXES SHALL BE POLYMER CONCRETE (QUASITE OR EQUAL), FULL TIER 22 TRAFFIC RATED BOX AND COVER. COVERS TO BE LIFT OUT, LOCKING TYPE WITH (2) HEX HEAD BOLTS. COVERS TO INDICATE "ELECTRICAL". PROVIDE GRAVEL (1FT.) IN BOTTOM OF PULLBOX.
6. DIRECTIONAL BORE WHERE POSSIBLE. DIRECTIONAL BORE UNDER ANY EXISTING SIDEWALKS OR PAVEMENT/DRIVES.
7. COMPACT AND FILL ALL TRENCHES AND RESTORE DAMAGED GRASS AREAS TO ORIGINAL CONDITION WITH SOD (NO SEED ALLOWED).

DRAWING NOTES:

1. 3/4"C WITH 2 #10, 1 #10 EG FOR ENTIRE CIRCUIT. ROUTE CIRCUIT VIA PHOTOCELL/TIMECLOCK. SEE DETAIL ON ELECTRICAL DETAILS SHEET.
2. PROVIDE HANDHOLE FOR TERMINATION POINT OF FIVE (5) 4" RACEWAYS FROM THE DATA ROOM. HANDHOLE SHALL BE POLYMER CONCRETE (QUASITE OR EQUAL), 24"X32" MINIMUM, FULL TIER 22 TRAFFIC RATED BOX AND COVER. SEE GENERAL NOTES FOR MORE INFORMATION.

N

ELECTRICAL SITE PLAN
1" = 20'-0"

A1

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ELECTRICAL SITE PLAN

E0.3

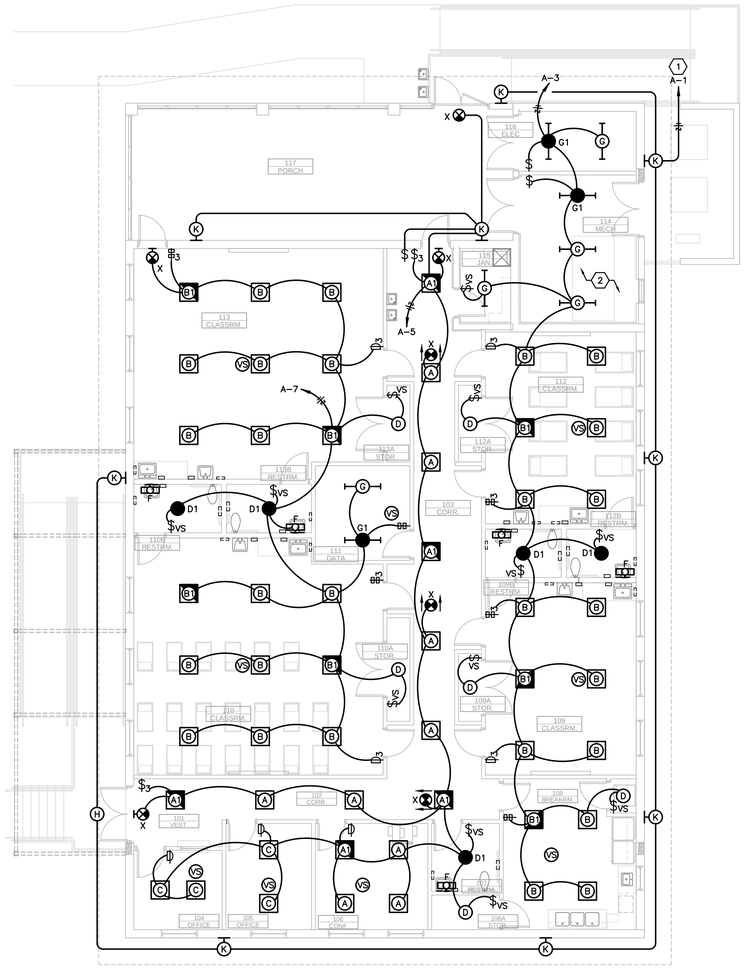
Drawing File: I:\20xxx\20033.001\20033e03.dwg E03
Plotted by: Andrew Dec 18, 2020 - 1:16pm

GENERAL NOTES:

1. CONNECT EXIT LUMINAIRES AND EMERGENCY BATTERY PACKS TO UNSWITCHED LEG OF LOCAL LIGHTING CIRCUIT.

DRAWING NOTES:

1. 3/4"C WITH 2 #10, 1 #10 EG FOR ENTIRE CIRCUIT. ROUTE CIRCUIT VIA PHOTOCELL/TIMECLOCK. SEE DETAIL ON ELECTRICAL DETAILS SHEET.
2. COORDINATE EXACT MOUNTING LOCATIONS OF LUMINAIRES WITH AIR HANDLER AND DUCTWORK.



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LIGHTING PLAN

E1.1

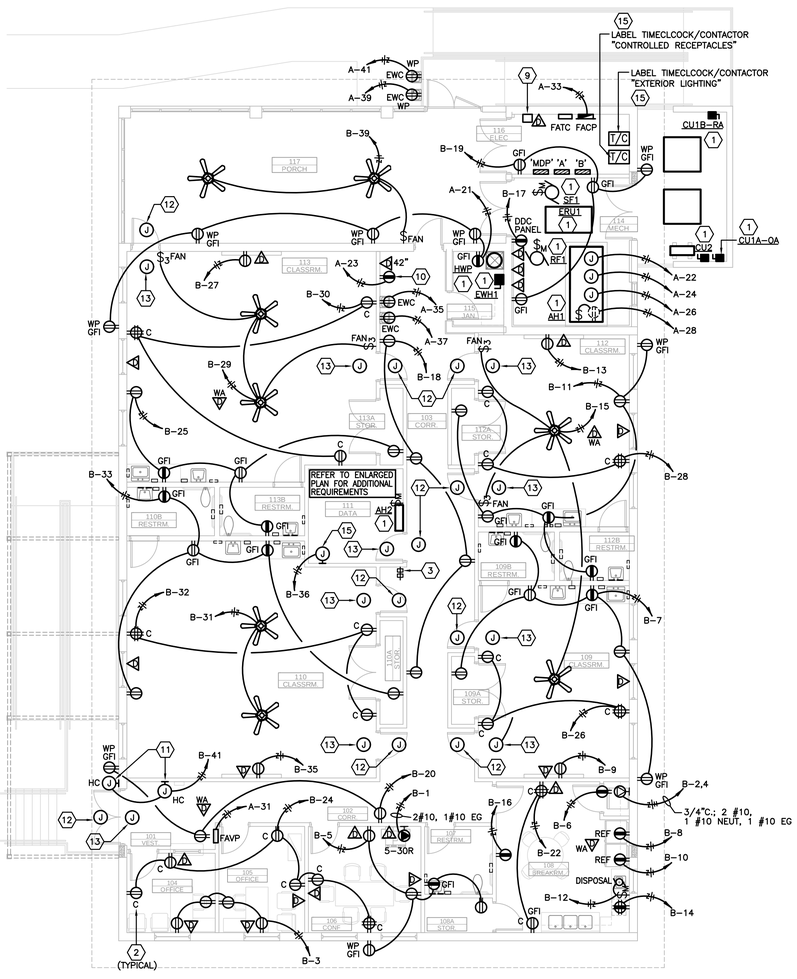
Drawing File: i:\20xxx\20033.001\20033e11.dwg E11
Plotted by: Andrew Dec 16, 2020 - 1:19pm

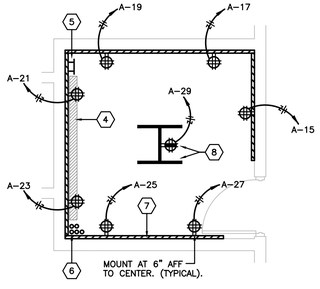
GENERAL NOTES:

1. VERIFY EXACT LOCATION AND MOUNTING HEIGHTS OF ALL ELECTRICAL DEVICES WITH ARCHITECTURAL PLANS AND ELEVATIONS PRIOR TO ROUGH-IN.
2. PROVIDE TAMPER-RESISTANT RECEPTACLES FOR ALL NON-LOCKING-TYPE 120 VOLT, 15 AND 20 AMP RECEPTACLES PER NEC 406.12 (C).

DRAWING NOTES:

1. REFER TO MECHANICAL EQUIPMENT ELECTRICAL CONNECTION SCHEDULE ON SHEET E5.1 FOR ELECTRICAL CONNECTION REQUIREMENTS OF MECHANICAL EQUIPMENT SHOWN ON THIS PLAN. COORDINATE WITH DIVISION 23 CONTRACTOR TO ENSURE ALL NEW EQUIPMENT DISCONNECTS, VFD'S, STARTERS, ETC. (INCLUDING DISCONNECTS BY DIVISION 23) ARE MOUNTED IN A MANNER TO PROVIDE THE PROPER NEC REQUIRED WORKING CLEARANCE IN FRONT OF EQUIPMENT. THIS AREA (INCLUDING FOOTSPACE) SHALL HAVE NO OBSTRUCTIONS FROM ANY HVAC UNITS, CONCRETE PADS, ASSOCIATED PIPING, STRUCTURAL MEMBERS, RACEWAYS, BOXES, ETC. ADVISE ENGINEER PRIOR TO ROUGH-IN OF EQUIPMENT OR INSTALLATION OF FEEDERS/BRANCH CIRCUITS IF A NEW LOCATION IS REQUIRED.
2. "C" DENOTES A "CONTROLLED" RECEPTACLE. ROUTE CIRCUIT VIA TIMECLOCK/CONTACTOR FOR AUTOMATIC TIME CONTROL OF RECEPTACLES. SEE RECEPTACLE TIME CONTROL DIAGRAM ON ELECTRICAL DETAILS SHEET. PROVIDE RECEPTACLE WITH PERMANENT MARKING BY MANUFACTURER INDICATION IT IS A "CONTROLLED" RECEPTACLE.
3. PROVIDE DIGITAL WALL TIMER WITH 2 HOUR ENERGY CODE PRESET FEATURE FOR OVERRIDE "ON" OF RECEPTACLES ON TIME CONTROL. TORK #SS423, OR APPROVED EQUIVALENT. SEE RECEPTACLE TIME CONTROL DIAGRAM ON ELECTRICAL DETAILS SHEET. PROVIDE LABEL ON TIMER TO READ "RECEPTACLES OVERRIDE". FIELD COORDINATE EXACT LOCATION WITH ARCHITECT PRIOR TO ROUGH-IN.
4. THIS AREA IS RESERVED FOR THE OWNER'S TELECOM EQUIPMENT, SECURITY EQUIPMENT, TELECOM UTILITY DEMARK, AND ASSOCIATED CONNECTIONS AND CABLING.
5. PROVIDE TELECOM GROUND BAR. 1/4" X 4" X 10" MINIMUM COPPER GROUND BAR ON 2" STAND-OFFS. MOUNT AT 16" AFF TO BOTTOM. BOND THE GROUND BAR TO THE NEW ELECTRICAL SERVICE ENTRANCE GROUNDING ELECTRODE SYSTEM VIA A NEW #1/0 AWG COPPER CONDUCTOR CONNECTED TO A NEW 10' X 3/4" COPPER CLAD STEEL GROUND ROD. BOND THIS NEW ROD TO THE ELECTRODE SYSTEM VIA #1/0 AWG. CONNECTIONS TO ALL GROUND RODS SHALL BE EXOTHERMIC WELD TYPE.
6. PROVIDE FIVE (5) 4" RACEWAYS FROM THE DATA ROOM TO HAND HOLE (MINIMUM 24"x32") AT PROPERTY LINE FOR TELECOM UTILITY SERVICE. RACEWAYS SHALL STUB-UP 6" AFF MINIMUM AND BE CAPPED. PROVIDE PULL CORD IN RACEWAYS. REFER TO SITE PLAN FOR MORE INFORMATION.
7. PROVIDE 3/4" FIRE RATED BACKBOARD ON ALL WALLS FROM THE FLOOR TO CEILING. USE TWO 4 FOOT WIDE BOARDS MOUNTED HORIZONTALLY ONE ON TOP OF THE OTHER AND CUT IN THE FIELD AS REQUIRED TO FILL THE WALLS. RECEPTACLES SHALL BE EXTENDED THROUGH THE PLYWOOD OR SURFACE MOUNTED.
8. FLOOR MOUNTED IT RACK BY OWNER. MOUNT RECEPTACLE DIRECTLY ON RACK. COORDINATE EXACT LOCATION WITH OWNER PRIOR TO ROUGH-IN.
9. **ADD ALTERNATE NO. 1**: PROPOSED LOCATION FOR 120/208, 3 PHASE INVERTER. SEE RISER DIAGRAM.
10. **ADD ALTERNATE NO. 1**: PROPOSED LOCATION FOR PV SOLAR SYSTEM DATA MONITOR (80" AFF). SEE PV SOLAR SYSTEM GENERAL NOTE #1 ON SHEET E4.1 FOR MORE INFORMATION.
11. PROVIDE JUNCTION BOX FOR ELECTRICAL CONNECTION TO MOTORIZED HANDICAP DOOR CONTROLLER. COORDINATE EXACT LOCATION AND ELECTRICAL REQUIREMENTS WITH DOOR HARDWARE PRIOR TO ROUGH-IN.
12. PROVIDE OUTLET BOX ABOVE CEILING FOR ELECTRICAL CONNECTIONS TO CARD READER DOOR CONTROLLERS. DOOR LOCKS SHALL RELEASE UPON ACTIVATION OF THE FIRE ALARM SYSTEM. CARD READERS TO BE INSTALLED BY OTHERS. SEE DETAIL ON ELECTRICAL DETAILS SHEET FOR MORE INFORMATION.
13. PROVIDE OUTLET BOX ABOVE CEILING FOR ELECTRICAL CONNECTIONS TO ELECTRIC DOOR STRIKE HARDWARE. DOOR HARDWARE TO BE INSTALLED BY OTHERS. SEE DETAIL ON ELECTRICAL DETAILS SHEET FOR MORE INFORMATION.
14. PROVIDE OUTLET BOX WITH 120 VOLT CIRCUIT AND MAKE CONNECTIONS AS REQUIRED PER DOOR CONTROLLER MANUFACTURER'S INSTALLATION INSTRUCTIONS (DOOR CONTROLLER PROVIDED BY OTHERS). SEE DETAIL ON ELECTRICAL DETAILS SHEET FOR MORE INFORMATION.
15. MOUNT TIMECLOCKS/CONTACTORS FOR CONTROL OF EXTERIOR LIGHTING AND CONTROLLED RECEPTACLE CIRCUITS ON WALL IN LOCATION TO MAINTAIN PROPER NEC CLEARANCES FOR ALL PANELS AND OTHER EQUIPMENT IN ROOM.





DATA ROOM - POWER AND COMMUNICATIONS PLAN
1/4" = 1'-0"
A10

POWER AND COMMUNICATIONS PLAN
1/8" = 1'-0"
A1

N

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POWER AND COMMUNICATIONS PLAN

E2.1

Drawing File: I:\20xxx\20033.001\20033e21.dwg E21
Plotted by: Andrew Dec 18, 2020 - 1:16pm

CONDUCTOR LEGEND

A – INITIATION DEVICE LOOP – MINIMUM #18 TWISTED SHIELDED PAIR.

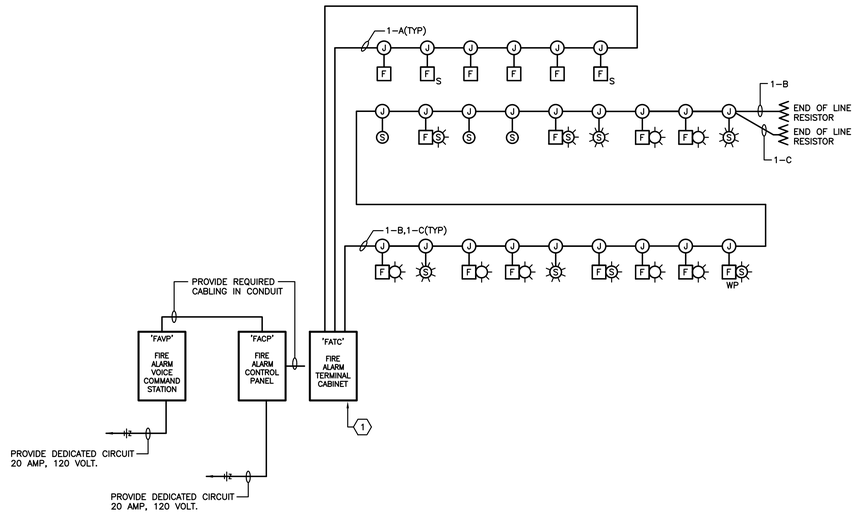
B – STROBE CIRCUIT – YELLOW & PURPLE CONDUCTORS THHN MINIMUM #14 AWG. PROVIDE #12 OR HIGHER WHERE REQUIRED FOR VOLTAGE DROP.

C – SPEAKER CIRCUIT – ORANGE & BROWN CONDUCTORS THHN MINIMUM #14 AWG. PROVIDE #12 OR HIGHER WHERE REQUIRED FOR VOLTAGE DROP.

D – AUXILIARY CONTROL CIRCUIT – BLACK & WHITE CONDUCTORS THHN MINIMUM #14 AWG. PROVIDE #12 OF HIGHER WHERE REQUIRED FOR VOLTAGE DROP. * QUANTITY OF AUXILIARY CONTROL CIRCUITS TO BE DETERMINED BASED UPON CONTROLS

FIRE ALARM GENERAL NOTES:

1. ALL FIRE ALARM CIRCUITS SHALL BE IN CONDUIT SIZED IN ACCORDANCE WITH NEC. ALL CONDUIT SHALL BE CONCEALED WHERE EVER POSSIBLE. PROVIDE SURFACE MOUNTED WIREMOLD WHERE RACEWAY IS REQUIRED TO BE SURFACE MOUNTED. CONDUIT SIZES SHOWN ARE MINIMUM. PROVIDE REQUIRED CONDUIT FOR NUMBER OF CONDUCTORS REQUIRED.
2. INDICATING APPLIANCE SIGNAL CIRCUITS SHALL BE A MINIMUM #12 AWG STRANDED COPPER, NPLFP TYPE, PER NEC. ALARM INITIATING CIRCUITS SHALL BE A MINIMUM #18 AWG STRANDED COPPER, NPLFP TYPE, PER NEC.
3. QUANTITIES OF CONDUCTORS AND CIRCUITING INDICATED IS BASED ON A SPECIFIC SYSTEM AND MAY BE DIFFERENT DEPENDING ON THE MANUFACTURER UTILIZED. CONTRACTOR IS TO PROVIDE ALL NECESSARY CIRCUITS, WIRE AND CONDUIT TO ACCOMPLISH THE FUNCTIONS INDICATED HERE, ON THE FLOOR PLANS AND IN THE SPECIFICATIONS.
4. SEE FLOOR PLANS FOR ADDITIONAL DEVICES REQUIRED WHICH MAY NOT BE INDICATED ON THE RISER DIAGRAM.
5. FIRE ALARM CIRCUITS SHALL NOT BE SPLICED INSIDE MANHOLES OR ANYWHERE BELOW GRADE.
6. ALL SPLICES OF HOME RUN CIRCUITING SHALL BE TERMINATED IN FIRE ALARM TERMINAL CABINETS. ALL LOW VOLTAGE SURGE SUPPRESSION DEVICES SHALL BE INSTALLED INSIDE FIRE ALARM TERMINAL CABINETS.
7. SEE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS

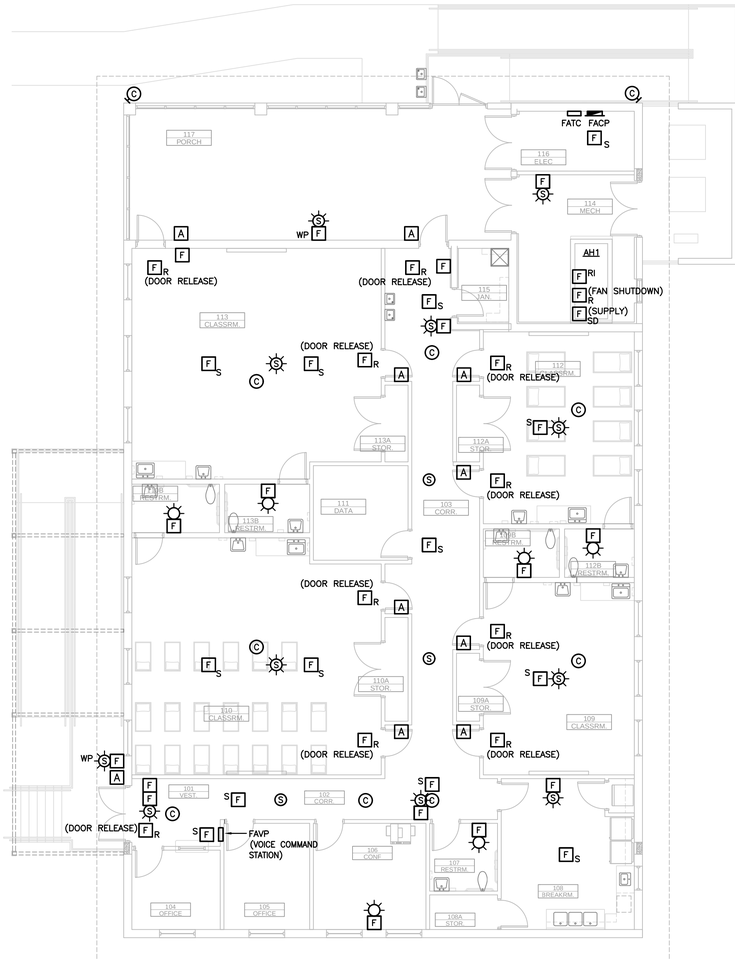


FIRE ALARM SYSTEM RISER DIAGRAM

NOT TO SCALE

DRAWING NOTES

1. PROVIDE LOW VOLTAGE SURGE SUPPRESSION DEVICES INSIDE FATC. ALL WIRING SHALL BE TERMINATED ON TERMINAL STRIP. NO WIRE NUTS INSIDE FATC.



FIRE ALARM RISER DIAGRAM — NOT TO SCALE — A8

FIRE ALARM AND SYSTEMS PLAN — 1/8" = 1'-0" — A1

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NORTHWEST AREA HEAD START

PROJECT #: 2010-00

DISTRIBUTION	DATE
DESIGN DEVELOPMENT	06.11.2020
90% CONST DOCS	08.19.2020
SITE PERMIT PACKAGE	09.11.2020
PERMIT SET	12.21.2020

FIRE ALARM AND SYSTEMS PLAN

E3.1

Drawing File: I:\20xxx\20033.001\20033e31.dwg E31
Plotted by: Andrew Dec 16, 2020 - 1:19pm

ADD ALTERNATE NO. 1

ENTIRE SHEET: ADD ALTERNATE NO. 1

GENERAL NOTES:

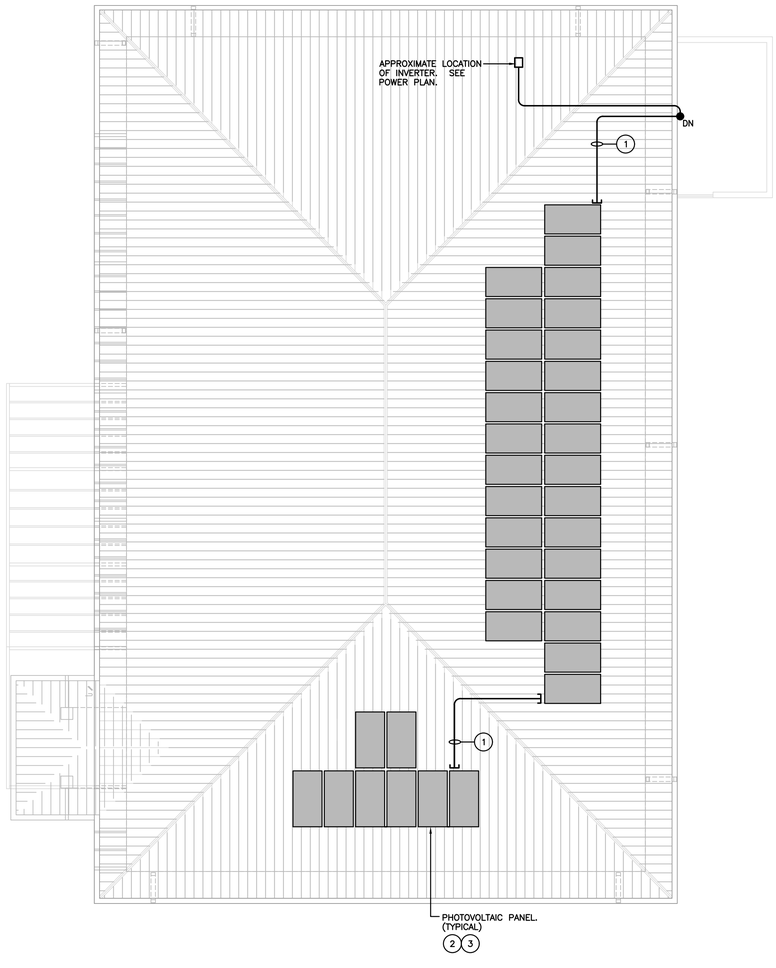
1. PROVIDE A 55" LED FLAT SCREEN MONITOR AND PROVIDE FOR THE DISPLAY OF THE SOLAR PV SYSTEM OPERATIONAL DATA, MOUNTED AT NOT LOWER THAN 5'-0" TO THE BOTTOM OF THE DISPLAY. REFER TO SPECIFICATIONS. PROVIDE REQUIRED MOUNTING BRACKET. PROVIDE 120 VOLT, 20 AMP, DUPLEX RECEPTACLE MOUNTED BEHIND THE DISPLAY. PROVIDE ALL REQUIRED COMMUNICATIONS CABLING, GATEWAY, AND OTHER NETWORK COMMUNICATIONS EQUIPMENT AND DEVICES. POWER AND COMMUNICATIONS CABLING SHALL BE INSTALLED IN SURFACE MOUNTED TWO COMPARTMENT RACEWAY, WIREMOLD OR EQUAL (NO EXPOSED EMT OR OTHER CONDUIT TYPE). SEE POWER PLAN ON THIS SHEET FOR PROPOSED LOCATION. FIELD VERIFY LOCATION WITH OWNER PRIOR TO ROUGH IN.

DRAWING NOTES:

(1) WIRING FROM THE MODULES TO THE INVERTER(S) SHALL BE INSTALLED IN RACEWAYS. PROVIDE RACEWAYS AS REQUIRED FOR FEEDERS TO INDIVIDUAL INVERTERS. RACEWAYS SHALL BE ROUTED ACROSS THE ROOF OR ROUTED DOWN TO GROUND LEVEL AND ROUTED UNDERGROUND. RACEWAY ROUTING ON THE ROOF, INCLUDING THE MEANS TO SUPPORT AND FASTEN, SHALL BE APPROVED BY THE ARCHITECT. ROUTING SHOWN ARE SUGGESTED POSSIBILITIES ONLY. IT IS THE CONTRACTORS RESPONSIBILITY TO REVIEW ROUTING AND DETERMINE THE FINAL EXACT ROUTE AND INCLUDE IN THE BID PRICING.

(2) REFER TO ARCHITECTURAL AND ROOFING DRAWINGS AND SPECIFICATIONS FOR ANY AND ALL ROOF WORK REQUIREMENTS. ENGINEERING SHOP DRAWINGS SHALL PROVIDE MOUNTING AND RACKING DETAILS INCLUDE TILT AND ORIENTATION INFORMATION. PROVIDE FOR ALL REQUIRED EXPANSION JOINT GAPS, SETBACKS, ACCESS, AND CLEARANCES.

(3) THE DESIGN CRITERIA BASIS IS A 340 WATT MODULE. OTHER MODULES ARE PERMITTED AS LONG AS THEY MEET THE REQUIREMENTS OF THE SPECIFICATIONS, FIT ON THE ROOF, AND PROVIDE THE REQUIRED KW POWER PRODUCTION.



PV SOLAR SYSTEM - ELECTRICAL ROOF PLAN
1/8" = 1'-0"

A1

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TO THE BEST OF MY KNOWLEDGE, THESE DRAWINGS AND THE PROJECT MANUAL ARE COMPLETE AND COMPLY WITH THE 2017 FLORIDA BUILDING CODE

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PV SOLAR SYSTEM
ELECTRICAL ROOF
PLAN

E4.1

Drawing File: I:\20xxx\20033.001\20033e41.dwg E41
Plotted by: Andrew Dec 16, 2020 - 1:19pm

PANEL: MDP
AIC RATING: 10000 AMPS
SERVICE: 120/208 V., 3PH,4W
MLO: 0 AMPS
MCB: 400 AMPS

DESCRIPTION	KVA	BKR	CKT	A	B	C	CKT	BKR	KVA	DESCRIPTION
SPACE	0	3P	1				2	20	1	HEAT; VAV01
SPACE	0	100	3				4	20	1	HEAT; VAV02
SPACE	0	"	5				6	20	1	HEAT; VAV03
SPACE	0	3P	7				8	20	1	HEAT; VAV04
SPACE	0	100	9				10	30	2.5	HEAT; VAV05
SPACE	0	"	11				12	30	2.5	HEAT; VAV07
PNL A	6.4	3P	13				14	–	0	SPACE
PNL A	6.6	200	15				16	–	0	SPACE
PNL A	7.1	"	17				18	3P	2	HEAT; VAV06
PNL B	11.4	3P	19				20	25	2	HEAT; VAV06
PNL B	10.2	150	21				22	"	2	HEAT; VAV06
PNL B	9.4	"	23				24	3P	1.8	HEAT; VAV08
A/C; AH1	1.9	3P	25				26	20	1.8	HEAT; VAV08
A/C; AH1	1.9	35	27				28	"	1.8	HEAT; VAV08
A/C; AH1	1.9	"	29				30	2P	0.9	EQ; RF1
A/C; CU1A–0A	3.2	3P	31				32	20	0.9	EQ; RF1
A/C; CU1A–0A	3.2	45	33				34	2P	0.9	EQ; SF1
A/C; CU1A–0A	3.2	"	35				36	20	0.9	EQ; SF1
A/C; CU1A–RA	2	3P	37				38	3P	0	SPD
A/C; CU1A–RA	2	35	39				40	30	0	SPD
A/C; CU1A–RA	2	"	41				42	"	0	SPD
	A PH = 31.60				B PH = 32.10			C PH = 32.70		

SERVES	CONN LOAD		FACTOR		FEED	DIVERSITY		KVAD	PANEL KVAD
LIGHTING	0.00	x	1.25	=	0.00	x		=	
RECEPT	0.00	x	*	=	0.00	x		=	
MISC EQUIP	3.60	x	1.00	=	3.60	x		=	
A/C	21.30	x	1.00	=	21.30	x		=	
HEATING	20.40	x	1.00	=	20.40	x		=	
LARGEST MOTOR	0.00	x	1.25	=	0.00	x		=	
OTHER MOTORS	0.00	x	1.00	=	0.00	x		=	
OTHER	51.10	x	1.00	=	51.10	x		=	
SPARE					47.54				
TOTALS	96.40 KVA				143.94 KVA				

* PER N.E.C. TABLE 220.44

PANEL: A
AIC RATING: 10000 AMPS
SERVICE: 120/208 V., 3PH,4W
MLO: 200 AMPS
MCB: 0 AMPS

DESCRIPTION	KVA	BKR	CKT	A	B	C	CKT	BKR	KVA	DESCRIPTION
LTG; EXTERIOR	0.2	20	1				2	20	0	SPARE
LTG; EAST CLASSRMS.,BREAK	0.8	20	3				4	20	0	SPARE
LTG; CORR,CONF,OFFICES	0.6	20	5				6	20	0	SPARE
LTG; WEST CLASSRMS.,DATA	0.7	20	7				8	20	0	SPARE
LTG; SITE LIGHTING	0	20	9				10	20	0	SPARE
SPACE	0	–	11				12	20	0	SPARE
SPACE	0	–	13				14	20	0	SPARE
REC; DATA RM QUAD	0.4	20	15				16	20	0	SPARE
REC; DATA RM QUAD	0.4	20	17				18	2P	0.7	EQ; AH2/CU2
REC; DATA RM QUAD	0.4	20	19				20	15	0.7	EQ; AH2/CU2
REC; DATA RM QUAD	0.4	20	21				22	20	1	EQ; AH1 UV LIGHTS
REC; DATA RM QUAD	0.4	20	23				24	20	1	EQ; AH1 UV LIGHTS
REC; DATA RM QUAD	0.4	20	25				26	20	1	EQ; AH1 UV LIGHTS
REC; DATA RM QUAD	0.4	20	27				28	20	0.6	EQ; AH1 LIGHTS/GFI
EQ; DATA RACK	1	20	29				30	20	0	EQ; HWP1
EQ; FAVP	0.5	20	31				32	3P	2	EQ; EWH1
EQ; FACP	0.5	20	33				34	35	2	EQ; EWH1
EQ; EWC	0.5	20	35				36	"	2	EQ; EWH1
EQ; EWC	0.5	20	37				38	3P	0	SPD
EQ; EWC	0.5	20	39				40	30	0	SPD
EQ; EWC	0.5	20	41				42	"	0	SPD
	A PH = 6.40				B PH = 6.60			C PH = 7.10		

SERVES	CONN LOAD		FACTOR		FEED	DIVERSITY		KVAD	PANEL KVAD
LIGHTING	2.30	x	1.25	=	2.88	x		=	
RECEPT	2.80	x	*	=	2.80	x		=	
MISC EQUIP	15.00	x	1.00	=	15.00	x		=	
A/C	0.00	x	1.00	=	0.00	x		=	
HEATING	0.00	x	1.00	=	0.00	x		=	
LARGEST MOTOR	0.00	x	1.25	=	0.00	x		=	
OTHER MOTORS	0.00	x	1.00	=	0.00	x		=	
OTHER	0.00	x	1.00	=	0.00	x		=	
SPARE					51.29				
TOTALS	20.10 KVA				71.97 KVA				

* PER N.E.C. TABLE 220.44

(1) PROVIDE GFCI TYPE CIRCUIT BREAKER PER MANUFACTURER'S INSTALLATION INSTRUCTIONS.

PANEL: B
AIC RATING: 10000 AMPS
SERVICE: 120/208 V., 3PH,4W
MLO: 150 AMPS
MCB: 0 AMPS

DESCRIPTION	KVA	BKR	CKT	A	B	C	CKT	BKR	KVA	DESCRIPTION
EQ; CONF. RICOH COPIER	1.8	30	1				2	2P	1.5	EQ; WASHER/DRYER
REC; OFFICES/EXTER.	0.9	20	3				4	30	1.5	EQ; WASHER/DRYER
REC; CONF/RESTRM/STOR	0.9	20	5				6	20	1	EQ; LAUNDRY
REC; CLASSRM 109	0.9	20	7				8	20	1	EQ; REFRIGERATOR
EQ; SMARTBOARD CR 109	1	20	9				10	20	1	EQ; REFRIGERATOR
REC; CLASSRM 112	0.9	20	11				12	20	0.5	EQ; DISPOSAL
EQ; SMARTBOARD CR 112	1	20	13				14	20	1.2	EQ; MICROWAVE
EQ; CLG FANS CR 109/112	0.5	20	15				16	20	1	EQ; PLATE WARMERS
EQ; DDC PANEL	0.4	20	17				18	20	0.7	REC; CORRIDOR
REC; ELEC/MECH/EXTER.	0.9	20	19				20	20	0.5	REC; CORRIDOR
REC; PORCH/JAN/EXTER.	0.9	20	21				22	20	0.5	REC; BREAKRM
REC; KRONOS TIME	0.4	20	23				24	20	1.1	REC; OFFICES/CONF
REC; CLASSRM 113	0.7	20	25				26	20	0.7	REC; CLASSRM 109
EQ; SMARTBOARD CR 113	1	20	27				28	20	0.7	REC; CLASSRM 112
EQ; CLG FANS CR 113	0.5	20	29				30	20	0.7	REC; CLASSRM 113
EQ; CLG FANS CR 110	0.5	20	31				32	20	0.7	REC; CLASSRM 110
REC; CLASSRM 110	0.7	20	33				34	–	0	SPACE
EQ; SMARTBOARD CR 110	1	20	35				36	20	0.8	EQ; DOOR CONTROLLER
SPACE	0	–	37				38	3P	0	SPD
EQ; CLG FANS PORCH	0.5	20	39				40	30	0	SPD
EQ; HANDICAP DOOR	0.5	20	41				42	"	0	SPD
	A PH = 11.40				B PH = 10.20			C PH = 9.40		

SERVES	CONN LOAD		FACTOR		FEED	DIVERSITY		KVAD	PANEL KVAD
LIGHTING	0.00	x	1.25	=	0.00	x		=	
RECEPT	12.80	x	*	=	11.40	x		=	
MISC EQUIP	18.20	x	1.00	=	18.20	x		=	
A/C	0.00	x	1.00	=	0.00	x		=	
HEATING	0.00	x	1.00	=	0.00	x		=	
LARGEST MOTOR	0.00	x	1.25	=	0.00	x		=	
OTHER MOTORS	0.00	x	1.00	=	0.00	x		=	
OTHER	0.00	x	1.00	=	0.00	x		=	
SPARE					24.38				
TOTALS	31.00 KVA				53.98 KVA				

* PER N.E.C. TABLE 220.44

ALL PANELBOARDS AND DIRECTORY CARDS SHALL BE ACCURATELY LABELED AND NUMBERED TO IDENTIFY FINAL CIRCUIT NUMBERS UTILIZED, THEIR LOAD AND LOCATION. DIRECTORY CARDS SHALL BE TYPEWRITTEN.

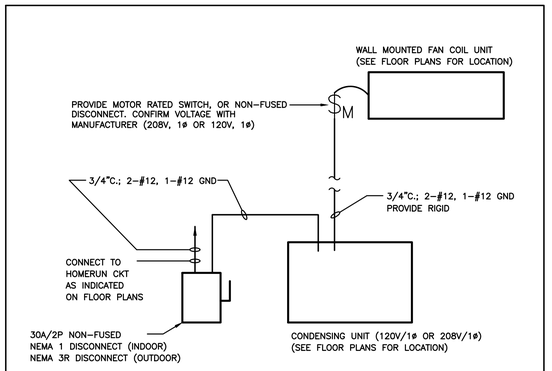
MECHANICAL EQUIPMENT CONNECTION SCHEDULE

MARK	VOLTAGE/PHASE	KW HEAT	HP	FLA	MCA	BREAKER	HOMERUN CIRCUIT	CONDUIT & CABLING	COMBINATION STARTER/DISCONNECT SWITCH					INTERLOCK/ REMARKS
									SIZE AMPS	POLES	FUSE	STARTER SIZE	NEMA RATING	
AIR HANDLERS														
AH1	208/3	–	5.0	15.7	19.6	35	MDP–25,27,29	3/4"C.; WITH 3–#8, 1–#10 EG	VFD	–	DIV23	–	–	NOTES #1
ERU1	NO ELEC													
CONDENSING UNITS														
CU1A–0A	208/3	–	–	26.4	33.0	45	MDP–31,33,35	3/4"C.; WITH 3–#6, 1–#10 EG	60	3	MFS	–	3R	NOTES #1
CU1B–RA	208/3	–	–	16.8	21.0	35	MDP–37,39,41	3/4"C.; WITH 3–#8, 1–#10 EG	60	3	MFS	–	3R	NOTES #1
MINI–SPLIT UNITS														
AH2/CU2	208/1	–	–	6.4	8.0	15	A–18,20	3/4"C; WITH 2–#10, 1–#10 EG	30	2	NF	N/A	3R	NOTES #1,2,3,4
VAV BOXES														
VAV01	120/1	1.0	–	8.3	10.4	20	MDP–2	3/4"C.; WITH 2–#12, 1–#12 EG	DIV23	–	DIV23	–	–	NOTES #1,2
VAV02	120/1	1.0	–	8.3	10.4	20	MDP–4	3/4"C.; WITH 2–#12, 1–#12 EG	DIV23	–	DIV23	–	–	NOTES #1,2
VAV03	120/1	1.0	–	8.3	10.4	20	MDP–6	3/4"C.; WITH 2–#12, 1–#12 EG	DIV23	–	DIV23	–	–	NOTES #1,2
VAV04	120/1	1.0	–	8.3	10.4	20	MDP–8	3/4"C.; WITH 2–#12, 1–#12 EG	DIV23	–	DIV23	–	–	NOTES #1,2
VAV05	120/1	2.5	–	20.8	26.1	30	MDP–10	3/4"C.; WITH 2–#10, 1–#10 EG	DIV23	–	DIV23	–	–	NOTES #1,2
VAV06	208/3	6.0	–	16.7	20.8	25	MDP–18,20,22	3/4"C.; WITH 3–#10, 1–#10 EG	DIV23	–	DIV23	–	–	NOTES #1,2
VAV07	120/1	2.5	–	20.8	26.1	30	MDP–12	3/4"C.; WITH 2–#10, 1–#10 EG	DIV23	–	DIV23	–	–	NOTES #1,2
VAV08	208/3	5.5	–	15.3	19.1	20	MDP–24,26,28	3/4"C.; WITH 3–#12, 1–#12 EG	DIV23	–	DIV23	–	–	NOTES #1,2
FANS														
SF1	208/1	–	1.0	8.8	11.0	20	MDP–34,36	3/4"C; WITH 2–#12, 1–#12 EG	20	2	–	–	–	20A–2P MRS
RF1	208/1	–	1.0	8.8	11.0	20	MDP–30,32	3/4"C; WITH 2–#12, 1–#12 EG	20	2	–	–	–	20A–2P MRS
ELECTRIC WATER HEATERS														
EWH1	208/3	6.0	–	25.0	31.3	35	A–32,34,36	3/4"C.; WITH 3–#8, 1–#10 EG	60	3	MFS	–	1	NOTES #1
HWP	120/1	–	1/25	0.1	0.2	20	A–30	3/4"C.; WITH 2–#12, 1–#12 EG	DIV23	DIV23	–	–	–	NOTES #1

MFS = MANUFACTURER'S RECOMMENDED FUSE SIZE
MRS = MOTOR RATED TOGGLE SWITCH BY DIVISION 26
VFD = VARIABLE FREQUENCY DRIVE (BY DIVISION 23) INSTALLED BY DIVISION 26
NF = NON–FUSED
DIV23 = DISCONNECTING MEANS PROVIDED BY THE MANUFACTURER OR DIVISION 23 CONTRACTOR

NOTES:

1. VERIFY MANUFACTURER'S RECOMMENDED OVERCURRENT PROTECTION DEVICE SIZE AND PROVIDE CIRCUIT AND BREAKER/FUSES SIZED ACCORDINGLY.
2. ELECTRICAL CONTRACTOR SHALL MAKE ELECTRICAL CONNECTIONS TO NEW VAV BOX AS NOTED. DIVISION 23 CONTRACTOR SHALL FURNISH AND INSTALL BOX WITH INTEGRAL DISCONNECT.
3. INDOOR UNIT IS POWERED FROM OUTDOOR UNIT. PROVIDE MOTOR RATED TOGGLE TYPE DISCONNECT AT INDOOR UNIT TO SERVE AS LOCAL DISCONNECT. SEE DETAIL ON THIS SHEET.
4. USE RIGID CONDUIT FOR PENETRATION OF EXTERIOR WALL AND CONNECTIONS FROM PANEL TO DISCONNECT AND DISCONNECT TO INTERIOR UNIT. PROVIDE SEPARATE PENETRATION OF WALL FOR ELECTRICAL CONDUITS. DO NOT USE SAME PENETRATION AS HVAC CONDENSATE LINES FOR ELECTRICAL CONDUITS.



TYPICAL WIRING DETAIL FOR DUCTLESS SPLIT SYSTEMS

NOT TO SCALE

GENERAL NOTE:

1. USE RIGID CONDUIT FOR PENETRATION OF EXTERIOR WALL AND CONNECTIONS FROM PANEL TO DISCONNECT AND DISCONNECT TO INTERIOR UNIT. PROVIDE SEPARATE PENETRATION OF WALL FOR ELECTRICAL CONDUITS. DO NOT USE SAME PENETRATION AS HVAC CONDENSATE LINES FOR ELECTRICAL CONDUITS.

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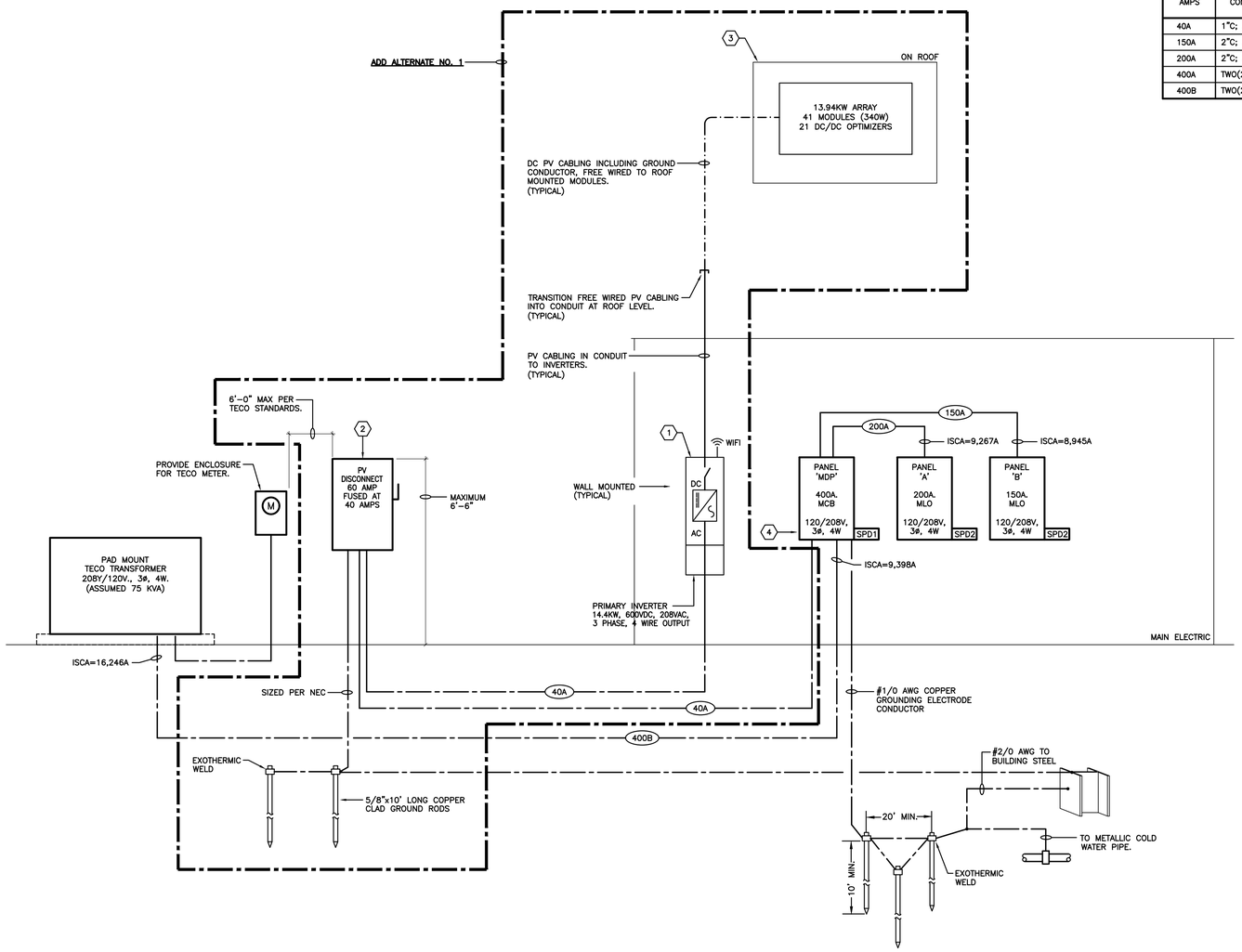
ELECTRICAL SCHEDULES

E5.1

Drawing File: I:\20xxx\20033.001\20033e51.dwg E51
Plotted by: Andrew Dec 18, 2020 - 1:19pm

FEEDER SCHEDULE

AMPS	CONDUIT & CABLING
40A	1"C; 3-#8, 1-#8 NEUTRAL, 1-#10 GROUND
150A	2"C; 3-#1/0, 1-#1/0 NEUTRAL, 1-#6 GROUND
200A	2"C; 3-#3/0, 1-#3/0 NEUTRAL, 1-#6 GROUND
400A	TWO(2) 2"C; EACH WITH 3-#3/0, 1-#3/0 NEUTRAL, 1-#3 GROUND
400B	TWO(2) 2"C; EACH WITH 3-#3/0, 1-#3/0 NEUTRAL



ELECTRICAL POWER RISER DIAGRAM
NOT TO SCALE

GENERAL NOTES:

1. FULLY ENGINEERED SHOP DRAWINGS SHALL INCLUDE MAXIMUM CIRCUIT CURRENT CALCULATIONS, AND ALL CIRCUIT CONDUCTOR (DC AND AC) AND RACEWAY SIZING.
2. FULLY ENGINEERED SHOP DRAWINGS SHALL INCLUDE VOLTAGE DROP CALCULATIONS AND FAULT CURRENT CALCULATIONS.
3. FULLY ENGINEERED SHOP DRAWINGS SHALL INCLUDE MODULE SPECIFICATIONS AND CALCULATIONS.
4. FULLY ENGINEERED SHOP DRAWINGS SHALL INCLUDE INVERTER SPECIFICATIONS AND CALCULATIONS TO INDICATE INVERTER INPUT AND OUTPUT CURRENT, KW, AND VOLTAGE RATINGS AND ACTUAL MAXIMUM POWER INPUT AND OUTPUT BASED UPON THE MODULES/OPTIMIZERS UTILIZED

DRAWING NOTES:

1. **ADD ALTERNATE NO. 1:** PROVIDE REQUIRED INVERTERS PER SPECIFICATIONS. PROVIDE A MINIMUM 13.94 KW, 208 VOLT OUTPUT, 40 AMP AC, 1000 VOLT DC RATED, WITH INTEGRAL DC DISCONNECT. PROVIDE AS PRIMARY/SECONDARY OR MASTER/SLAVE AS NECESSARY FOR THE RATED KW WITH SOLAR PV FACTORY/MANUFACTURER PROVIDED INTEGRAL CABLING. INVERTER SHALL BE PROVIDED WITH AUTOMATIC POWER SHUT-DOWN AND DISCONNECT FROM THE POWER GRID IN THE EVENT OF ANY UTILITY (TAMPA ELECTRIC) OUTAGE.
2. **ADD ALTERNATE NO. 1:** PROVIDE REQUIRED PV DISCONNECT PER NEC AND TAMPA ELECTRIC REQUIREMENTS. 600 VOLT RATED, 3 PHASE, 4 WIRE, WITH GROUND BAR, 600 AMP, FUSIBLE WITH 40 AMP FUSES (RK5 TYPE). PROVIDE SERVICE ENTRANCE RATED SWITCH AND BOND NEUTRAL AND GROUND BAR WITH REMOVABLE BONDING JUMPER. NEMA 3R WITH POSITIVE ON/OFF INDICATION VISIBLE ON THE OUTSIDE OF THE ENCLOSURE.
3. **ADD ALTERNATE NO. 1:** PROVIDE REQUIRED ROOF MOUNTED PV ARRAYS, MODULES, AND OPTIMIZERS PER SPECIFICATIONS IN ORDER TO PROVIDE FOR A MINIMUM OF 13.94 KW(AC).
4. **ADD ALTERNATE NO. 1:** PROVIDE 40 AMP, 3 POLE BREAKER FOR CONNECTION OF PV GENERATED POWER TO PANEL 'MDP'. BREAKER SHALL BE NOTED FOR REVERSE FEED (BACK-FEED) AND SHALL NOT BE LABELED "LINE" OR "LOAD". BREAKER SHALL BE LOCATED I PANEL AT COMPLETELY OPPOSITE END OF BUS FROM MAIN BREAKER.

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ROBERT C. ANSTON, P.E. 40858

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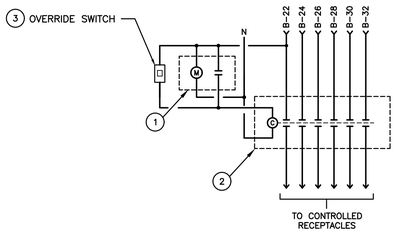
PROJECT #: 2010-00	
DISTRIBUTION	DATE
DESIGN DEVELOPMENT	06.11.2020
90% CONST DOCS	08.19.2020
SITE PERMIT PACKAGE	09.11.2020
PERMIT SET	12.21.2020

ELECTRICAL RISER DIAGRAM

E6.1

Drawing File: I:\20xxx\20033.001\20033e61.dwg E61
Plotted by: Andrew Dec 18, 2020 - 1:19pm

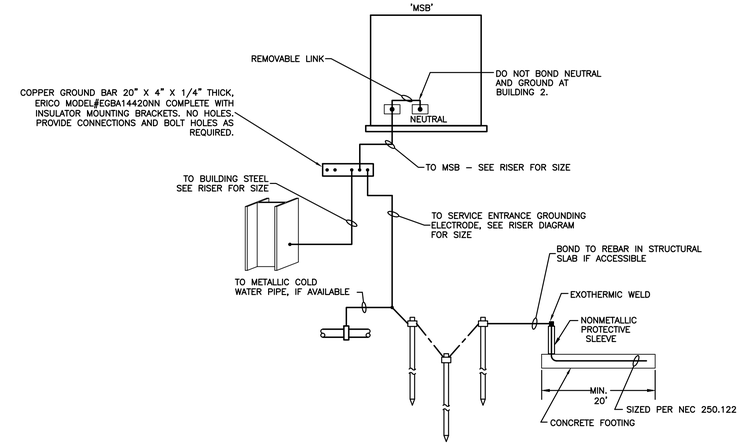


CONTROLLED RECEPTACLE CONTACTOR WIRING DIAGRAM

NOT TO SCALE

DIAGRAM NOTES:

1. 7-DAY, ASTRONOMICAL DIGITAL TIME CLOCK FOR EXTERIOR LIGHTING. 120V, SINGLE POLE, DOUBLE THROW WITH BATTERY BACKUP. TORK EWZ201 WITH MOMENTARY OPTION OR APPROVED EQUIVALENT. CIRCUIT TIME CLOCK MOTOR TO ON THE UNSWITCHED LEG OF THE LIGHTING CIRCUIT.
2. ELECTRICALLY OPERATED, MECHANICALLY HELD LIGHTING CONTACTOR FOR LIGHTING CONTROL, 20A, 240V. RATED CONTACTS, 6 POLE, WITH A 120V, COIL, NEMA 1 ENCLOSURE, WITH CONTROL MODULE FOR CONTROL FROM THE TIME CLOCK GE #CR360ML2 TYPE OR EQUAL.
3. THE "OVERRIDE" SWITCH WILL OVERRIDE THE TIMECLOCK AFTER HOURS AND ALLOW POWER TO CONTROLLED RECEPTACLES FOR A MAXIMUM PERIOD OF 2 HOURS. AFTER 2 HOURS, NORMAL OPERATION VIA TIMECLOCK SHALL RESUME UNLESS ANOTHER OPERATION OF THE OVERRIDE SWITCH OCCURS. TORK MODEL SS423 (WITH OPTIONAL BEEPER WARNING) OR APPROVED EQUAL.



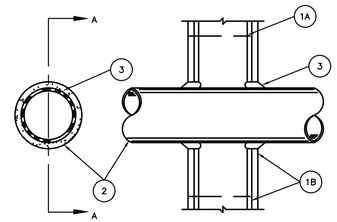
SERVICE ENTRANCE GROUNDING DETAIL

NOT TO SCALE

System No. W-L-1001

June 15, 2005

F Ratings 1, 2, 3 and 4 Hr (See Items 2 and 3)
T Ratings 0, 1, 2, 3, and 4 Hr (See Item 3)
L Rating At Ambient less than 1 CFM/sq ft
L Rating At 400 F less than 1 CFM/sq ft



SECTION A-A

FIRE-RATED WALL PENETRATION DETAIL FOR PIPE OR CONDUIT

NOT TO SCALE

1. Wall Assembly The 1, 2, 3 or 4 hr fire-rated gypsum wallboard/stud wall assembly shall be constructed of the materials and in the manner described in the individual U300 or U400 Series Wall or Partition Designs in the UL Fire Resistance Directory and shall include the following construction features:

   A. Studs Wall framing may consist of either wood studs (max 2 h fire rated assemblies) or steel channel studs. Wood studs to consist of nom 2 by 4 in. (51 by 102 mm) lumber spaced 16 in. (406 mm) OC with nom 2 by 4 in. (51 by 102 mm) lumber end plates and cross braces. Steel studs to be min 3-5/8 in. (92 mm) wide by 1-3/8 in. (35 mm) deep channels spaced max 24 in. (610 mm) OC.

   B. Gypsum Board* Nom 1/2 or 5/8 in. (13 or 16 mm) thick, 4 ft. (122 cm) wide with square or tapered edges. The gypsum wallboard type, thickness, number of layers, fastener type and sheet orientation shall be as specified in the individual U300 or U400 Series Design in the UL Fire Resistance Directory. Max diam of opening is 26 in. (660 mm).

2. Through-Penetrant One metallic pipe, conduit or tubing installed either concentrically or eccentrically within the firestop system. The annular space between pipe, conduit or tubing and periphery of opening shall be min of 0 in / (0 mm). (point contact) to max 2 in. (51 mm) Pipe, conduit or tubing to be rigidly supported on both sides of wall assembly. The following types and sizes of metallic pipes, conduits or tubing may be used:

   A. Steel Pipe Nom 24 in. (610 mm) diam (or smaller) Schedule 10 (or heavier) steel pipe.

   B. Iron Pipe Nom 24 in. (610 mm) diam (or smaller) service weight (or heavier) cast iron soil pipe, nom 12 in (305 mm) diam (or smaller) or Class 50 (or heavier) ductile iron pressure pipe.

   C. Conduit Nom 6 in. (152 mm) diam (or smaller) steel conduit or nom 4 in (102 mm) diam (or smaller) steel electrical metallic tubing

   D. Copper Tubing Nom 6 in. (152 mm) diam (or smaller) Type L (or heavier) copper tubing

   E. Copper Pipe Nom 6 in. (152 mm) diam (or smaller) Regular (or heavier) copper pipe.

   F. Through Penetrating Product* Flexible Metal Piping The following types of steel flexible metal gas piping may be used:

      1. Nom 2 in. (51 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

         OMEGA FLEX INC

      2. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

         GASTITE, DIV OF TITEFLEX

      3. Nom 1 in. (25 mm) diam (or smaller) steel flexible metal gas piping. Plastic covering on piping may or may not be removed on both sides of floor or wall assembly.

         WARD MFG L L C

3. Fill, Void or Cavity Material* Caulk or Sealant Min 5/8. , 1-1/4,1-7/8 and 2-1/2 in. (16, 32, 48 and 64 mm) thickness of caulk for 1, 2, 3 and 4 hr rated assemblies, respectively, applied within annulus, flush with both surfaces of wall. Min 1/4 in. (6 mm) diam bead of caulk applied to gypsum board/penetrant interface at point contact location on both sides of wall. The hourly F Rating of the firestop system is dependent upon the hourly fire rating of the wall assembly in which it is installed, as shown in the following table. The hourly T Rating of the firestop system is dependent upon the type or size of the pipe or conduit and the hourly fire rating of the wall assembly in which it is installed, as tabulated below:

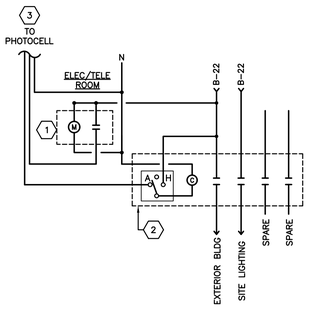
Max Pipe or Conduit Diam. In (mm)	F Rating Hr	T Rating Hr
1 (25)	1 or 2	0+, 1 or 2
1 (25)	3 or 4	3 or 4
4 (102)	1 or 2	0
6 (152)	3 or 4	0
12 (305)	1 or 2	0

+When copper pipe is used, T Rating is 0 h.

3M COMPANY CP 25WB+ or FB-3000 WT.

* Indicates such products shall bear the UL or cUL Certification Mark for jurisdictions employing the UL or cUL Certification (such as Canada), respectively.

Last Updated on 2005-06-15

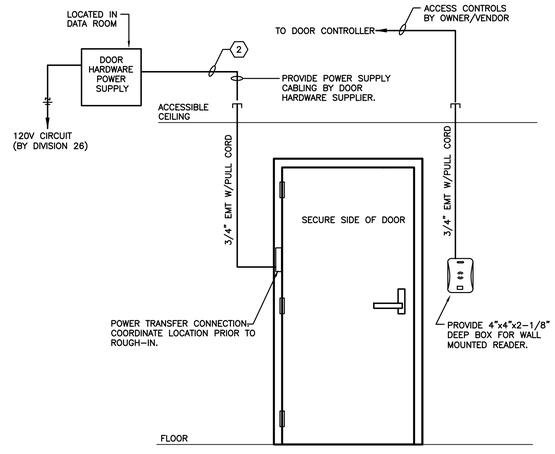


EXTERIOR LIGHTING CONTROL DIAGRAM

NOT TO SCALE

DIAGRAM NOTES:

1. 7-DAY, ASTRONOMICAL DIGITAL TIME CLOCK FOR EXTERIOR LIGHTING. 120V, SINGLE POLE, DOUBLE THROW WITH BATTERY CAPACITOR BACKUP. (INTERMATIC ET2800 SERIES), OR APPROVED EQUIVALENT. CIRCUIT TIME CLOCK MOTOR TO THE UNSWITCHED LEG OF THE LIGHTING CIRCUIT. LABEL TIMECLOCK "EXTERIOR LTG".
2. ELECTRICALLY OPERATED, ELECTRICALLY HELD LIGHTING CONTACTOR (SQUARE D #LG40) FOR LIGHTING CONTROL, 20A, 4 POLE, WITH A 120V, COIL, NEMA 1 ENCLOSURE, WITH CONTROL MODULE FOR CONTROL FROM THE TIME CLOCK.
3. PROVIDE 120 VOLT PHOTOCELL FOR OVERRIDE. MOUNT PHOTOELECTRIC CELL INCONSPICUOUSLY ON THE EXTERIOR WALL FACING NORTH. COORDINATE EXACT LOCATION AND MOUNTING IN THE FIELD FOR MAXIMUM PERFORMANCE.



TYPICAL DOOR DEVICE LAYOUT WITH WALL MOUNTED CARD READER

NOT TO SCALE

GENERAL NOTES:

1. ALL BOXES AND RACEWAYS SHALL BE CAST INTO ALL TILT-WALL WALLS WHERE A FURRED OUT CAVITY IS NOT AVAILABLE.
2. ALL CONDUIT AND JUNCTION BOXES SUPPLIED AND INSTALLED BY DIVISION 26. LOW VOLTAGE POWER SUPPLY WIRING AND COMMUNICATIONS CABLING WILL BE INSTALLED BY SIEMENS AND DOOR HARDWARE SUPPLIER.
3. COORDINATE ALL REQUIREMENTS WITH DOOR HARDWARE SUPPLIER AND CONTROLS COMPANY.

EXAMPLE

PANEL 'A'
208Y/120V, 3 , 4W.
FED FROM PANEL 'MDP'
CIR-1,3,5

EXAMPLE

AH1
120/208V, 3 , 4W.
FED FROM PANEL 'MDP'
CIR-25,27,29

TYPICAL NAMEPLATE DETAIL

NOT TO SCALE

NOTES:
PROVIDE NAMEPLATE LABELS ON ALL EQUIPMENT AND PANELBOARDS. EACH NAME PLATE SHALL HAVE THE FOLLOWING INFORMATION:

1. EQUIPMENT NAME.
2. VOLTAGE AND PHASE.
3. LOCATION FROM WHICH EQUIPMENT IS BEING FED FROM. INCLUDE CIRCUIT NUMBERS.

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Florida Engineering Business Number 6093

ROBERT C. ANSTON, P.E. 40858

TO THE BEST OF MY KNOWLEDGE, THESE DRAWINGS AND THE PROJECT MANUAL ARE COMPLETE AND COMPLY WITH THE 2017 FLORIDA BUILDING CODE

HILLSBOROUGH COUNTY BOARD
OF COUNTY COMMISSIONERS
COUNTY CENTER
601 E KENNEDY BLVD
TAMPA, FL 33601

HILLSBOROUGH COUNTY
NORTHWEST AREA HEAD START

PROJECT #: 2010-00	
DISTRIBUTION	DATE
DESIGN DEVELOPMENT	06.11.2020
90% CONST DOCS	08.19.2020
SITE PERMIT PACKAGE	09.11.2020
PERMIT SET	12.21.2020

ELECTRICAL DETAILS

E7.1

Drawing File: I:\20xxx\20033.001\20033e71.dwg E71
Plotted by: Andrew Dec 18, 2020 - 1:19pm