ILLUSTRATION. CONCEPT ONLY.
NOT FOR CONSTRUCTION.

SHARONVILLE FIRE STATION 87 RENOVATION

CITY OF SHARONVILLE

11210 READING RD
SHARONVILLE OH 45241

11/19/2019 12:53:14 PM

PROJECT DIRECTORY

OWNER

CITY OF SHARONVILLE
10900 READING ROAD
CINCINNATI, OH 45241

ARCHITECT AND STRUCTURAL ENGINEER

CT CONSULTANTS, INC.
INTEGRITY TOWER BUILDING
4420 COOPER ROAD
SUITE 200
CINCINNATI OH 45242
(p) 513.791.1700

MECHANICAL, ELECTRICAL, PLUMBING, FIRE PROTECTION, AND COMMUNICATION TECHNOLOGY ENGINEERING

KLH ENGINEERS
1538 ALEXANDRIA PIKE
FT. THOMAS, KY 41075
(p) 859.442.8050

VICINITY MAP

DRAWING INDEX

NEW OR REVISED ISSUE ●
PREVIOUS ISSUE ●
NON REVISED ISSUE

SHEET #	SHEET TITLE	0	1	2	3
G001	COVER SHEET	●			
S001	STRUCTURAL GENERAL NOTES	●			
S002	SPECIAL INSPECTIONS	●			
S101	FOUNDATION PLANS	●			
S201	FRAMING PLANS	●			
S501	TYPICAL CONCRETE DETAILS	●			
S601	TYPICAL MASONRY DETAILS	●			
S701	TYPICAL STEEL DETAILS	●			
S801	TYPICAL LIGHT GAUGE DETAILS	●			
A001	ABBREVIATIONS AND SYMBOLS	●			
A002	LIFE SAFETY PLANS	●			
A003	SIGNAGE	●			
A004	ARCHITECTURAL SITE AND SLAB DEMO PLANS	●			
A101	DEMOLITION PLANS AND SECTIONS	●			
A102	FIRST FLOOR PLAN	●			
A103	SECOND FLOOR PLAN	●			
A104	MEZZANINE FLOOR PLAN AND STAIR DETAILS	●			
A105	REFLECTED CEILING PLANS	●			
A106	ROOF PLAN AND MURAL WALL DETAILS	●			
A201	BUILDING ELEVATIONS	●			
A301	BUILDING SECTIONS	●			
A302	BUILDING AND WALL SECTIONS	●			
A303	WALL SECTIONS	●			
A401	ENLARGED RESTROOM PLANS AND DETAILS	●			
A402	ENLARGED RESTROOM PLANS AND DETAILS	●			
A403	INTERIOR ELEVATIONS AND TYPICAL DETAILS	●			
A404	INTERIOR ELEVATIONS	●			
A501	ROOM FINISH SCHEDULE AND WALL TYPES	●			
A601	DOOR SCHEDULE AND WINDOW DETAILS	●			
A602	DETAILS	●			
P001	PLUMBING COVER SHEET	●			
P101	PLUMBING DEMOLITION PLAN	●			
P102	PLUMBING WATER & GAS - FIRST FLOOR	●			
P103	PLUMBING WATER & GAS - SECOND FLOOR	●			
P104	PLUMBING PLAN - ROOF	●			
P105	PLUMBING SANITARY PLAN - FIRST FLOOR	●			
P106	PLUMBING SANITARY PLAN - SECOND FLOOR	●			
P501	PLUMBING - DETAILS	●			
P601	PLUMBING - SCHEDULES	●			
P901	PLUMBING -WATER & GAS ISOMETRIC	●			
P902	PLUMBING - SANITARY & VENT ISOMETRIC	●			
M001	MECHANICAL COVER SHEET	●			
M101	MECHANICAL DEMOLITION PLAN	●			
M102	MECHANICAL DUCTWORK - FIRST FLOOR	●			
M103	MECHANICAL DUCTWORK - SECOND FLOOR	●			
M104	MECHANICAL DUCTWORK PLAN - ROOF	●			
M105	MECHANICAL PIPING - FIRST FLOOR	●			
M106	MECHANICAL PIPING - SECOND FLOOR	●			
M501	MECHANICAL - DETAILS	●			
M502	MECHANICAL - DETAILS	●			
M503	MECHANICAL - DETAILS	●			
M504	MECHANICAL - DETAILS	●			
M505	MECHANICAL - DETAILS	●			
M506	MECHANICAL - DETAILS	●			
M601	MECHANICAL - SCHEDULES	●			
M602	MECHANICAL - SCHEDULES	●			
M701	MECHANICAL - ENERGY COMPLIANCE	●			
E001	ELECTRICAL COVER SHEET	●			
ES101	ELECTRIC SITE PLAN	●			
E101	ELECTRIC DEMOLITION PLAN	●			
EL102	ELECTRIC LIGHTING - FIRST FLOOR	●			
EL103	ELECTRIC LIGHTING - SECOND FLOOR	●			
EL601	ELECTRIC LIGHTING - LUMINAIRE SCHEDULE	●			
EP102	ELECTRIC POWER - FIRST FLOOR	●			
EP103	ELECTRIC POWER - SECOND FLOOR	●			
EP104	ELECTRIC POWER - ROOF	●			
EP501	ELECTRIC POWER - DETAILS	●			
EP502	ELECTRIC POWER - DETAILS	●			
EP601	ELECTRIC POWER - SINGLE LINE DIAGRAM	●			
EP602	ELECTRIC POWER - PANEL SCHEDULES	●			
EP603	ELECTRIC POWER - PANEL SCHEDULES	●			
EP604	ELECTRIC POWER - SCHEDULES	●			
T001	TECHNOLOGY COVER SHEET	●			
T101	TECHNOLOGY DEMOLITION PLAN	●			
T102	TECHNOLOGY PLAN - FIRST FLOOR	●			
T103	TECHNOLOGY PLAN - SECOND FLOOR	●			
T401	TECHNOLOGY PLAN - ENLARGED	●			
T501	TECHNOLOGY - DETAILS	●			
T511	TECHNOLOGY - DETAILS	●			
T512	TECHNOLOGY - DETAILS	●			
T701	TECHNOLOGY - ROUGH-IN	●			
T702	TECHNOLOGY - ROUGH-IN	●			

your trusted advisor consultants — engineers architects planners

REV	DESCRIPTION	BY	DATE
0	ISSUE FOR BIDDING AND PERMIT	MAND	11/20/2019

REVISIONS			
REV	ISSUE FOR BIDDING AND PERMIT	DATE	BY
0		11/20/2019	MAND

DATE: 11/20/2019
DRAWN BY: DVAUR
CHECKED BY: MAND
APPROVED BY:
F.B. NO.
P.O.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

COVER SHEET

SCALE: 12" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET G001

GENERAL

A. THESE GENERAL NOTES PRESENT AND/OR SUMMARIZE KEY PROJECT INFORMATION FOR THE READER'S CONVENIENCE. SEE ALSO INDIVIDUAL PLAN NOTES FOR FURTHER DETAILS AND REQUIREMENTS.
B. ALL REFERENCES TO REFERENCE STANDARDS HEREIN ARE TO THE MOST RECENT ISSUE IN EFFECT AS OF THE DATE OF THESE DOCUMENTS, UNLESS NOTED OTHERWISE ON THE PLANS.
C. ALL ELEVATIONS ARE REFERENCED TO FINISHED FLOOR EL. 100'-0". ALL ELEVATIONS SHOWN ON PLANS ARE REFERENCED TO THE SITE ELEVATION DATUM SHOWN ON FOUNDATION PLANS UNLESS NOTED OTHERWISE.
D. SUBMIT SHOP DRAWINGS, PROJECT DATA, AND SAMPLES FOR ITEMS ON THE PLANS.

1. IDENTIFY PROMINENTLY ON DRAWINGS EACH AND ALL RESUBMITTALS BY NUMBER.
2. IDENTIFY ANY CHANGES WHICH HAVE BEEN MADE OTHER THAN THOSE REQUESTED BY THE ENGINEER.
3. SUBMITTALS FAILING TO CONFORM TO THE ABOVE WILL BE RETURNED FOR RESUBMITTAL.

E. CONTRACTOR SHALL BRACE ENTIRE STRUCTURE(S) AS REQUIRED TO MAINTAIN STABILITY UNTIL COMPLETE AND FUNCTIONING AS THE DESIGN UNIT. IN ACCORDANCE WITH THE GENERALLY ACCEPTED CONSTRUCTION PRACTICES, THE CONTRACTOR WILL BE SOLELY AND COMPLETELY RESPONSIBLE FOR CONDITIONS OF THE JOB SITE INCLUDING SAFETY OF ALL PERSONS AND PROPERTY DURING PERFORMANCE OF THE WORK. THE REQUIREMENT WILL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS.
F. FIELD - VERIFY ALL EXISTING DIMENSIONS.
G. ORIGINAL BUILDING DRAWINGS ARE TITLED "CENTRAL FIRE STATION", DATED APRIL 7, 1969, BY KRAL, ZEPF, FREITAG & ASSOCIATES.

DESIGN CRITERIA

A. GOVERNING CODES, REQUIREMENTS, DESIGN STANDARDS AND SPECIFICATIONS:

DESIGN CODE: 2017 OHIO BUILDING CODE

DESIGN STANDARDS:

ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES

ACI 301 SPECIFICATIONS FOR STRUCTURAL CONCRETE

ACI 315 DETAILS AND DETAILING OF CONCRETE REINFORCEMENT

CRSI REINFORCING BAR DETAILING (MANUAL OF STANDARD PRACTICE)

ACI 318-14 BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY

AWC NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION

AWC SPECIAL DESIGN PROVISIONS FOR WIND AND SEISMIC

B. STRUCTURAL DESIGN LOADS

1. DEAD LOAD: SELF-WEIGHT
SUPERIMPOSED DEAD LOAD ON ROOF & FLOOR: 25 PSF

2. FLOOR LIVE LOAD:

AREAS NOT LISTED BELOW	150 PSF
MECHANICAL ROOM	125 PSF
SERVER ROOM	125 PSF
GEAR ROOM	125 PSF
WATER ROOM	125 PSF
LOBBIES, EXITS, CORRIDORS, BATHROOM	100 PSF
OFFICE	50 PSF
VEHICLE/APPARATUS BAYS (EXISTING SLAB)	VARIES

3. ROOF LIVE LOAD: 20 PSF

4. ROOF SNOW LOADS:

GROUND SNOW LOAD, Pg	20 PSF
SNOW EXPOSURE FACTOR, Ce	1.0
SNOW LOAD IMPORTANCE FACTOR, Is	1.2
THERMAL FACTOR, Ct (ROOFS OVER UNHEATED AREAS)	1.2
THERMAL FACTOR, Ct (ROOF OVER CONTINUOUSLY HEATED AREAS)	1.0

5. WIND LOADS:

BASIC WIND SPEED (3 SEC. GUST):	120 MPH
WIND EXPOSURE	C

6. EARTHQUAKE DESIGN DATA

BUILDING OCCUPANCY CATEGORY:	IV
SEISMIC IMPORTANCE FACTOR, Ie:	1.5
Ss:	0.142
S1:	0.074
SITE CLASS:	D
SEISMIC DESIGN CATEGORY:	C

EXISTING FIRE STATION
BASIC SEISMIC FORCE RESISTING SYSTEM:
ORDINARY REINFORCED CONCRETE SHEAR WALLS

RESPONSE MODIFICATION COEFFICIENT, R	4.00
SEISMIC COEFFICIENT, Cs =	0.053

FIRE TRAINING TOWER
BASIC SEISMIC FORCE RESISTING SYSTEM:
ORDINARY REINFORCED MASONRY SHEAR WALLS

RESPONSE MODIFICATION COEFFICIENT, R	2.0
SEISMIC COEFFICIENT, Cs =	0.114

MEZZANINE STRUCTURE
BASIC SEISMIC FORCE RESISTING SYSTEM:
LIGHT-FRAMED WALL SYSTEMS USING FLAT STRAP BRACING

RESPONSE MODIFICATION COEFFICIENT, R	4.0
SEISMIC COEFFICIENT, Cs =	0.057

FOUNDATIONS

FOUNDATIONS HAVE BEEN DESIGNED FOR MINIMUM ALLOWABLE SOIL BEARING PRESSURES OF 2500 PSF BELOW FOOTINGS. VERIFY WITH GEOTECHNICAL REPORT BY TERRACON, DATED OCTOBER 15, 2019.

FILL MATERIALS SHALL BE PLACED IN UNIFORM HORIZONTAL LAYERS OR LIFTS NOT EXCEEDING 8" IN LOOSE THICKNESS FOR MATERIALS BEING PLACED IN OPEN AREAS AND COMPACTED USING A HEAVY SMOOTH DRUM VIBRATORY ROLLER (FOR GRANULAR SOILS / AGGREGATE MATERIALS). FILL MATERIAL SHALL BE PLACED IN UNIFORM HORIZONTAL LAYERS OR LIFTS NOT EXCEEDING 6" IN LOOSE THICKNESS FOR MATERIALS BEING PLACED IN OPEN AREAS AND COMPACTED USING A WALK-BEHIND COMPACTORS (FOR GRANULAR SOILS / AGGREGATE MATERIALS). THE FILL SHALL BE COMPACTED TO ACHIEVE A DENSITY OF AT LEAST 98% OF THE MAXIMUM DRY DENSITY AS DETERMINED BY THE STANDARD PROCTOR COMPACTION TEST (ASTM D 698) IN THE ZONE OF INFLUENCE OF STRUCTURES. ALL FILL MATERIALS SHALL BE PLACED AND COMPACTED WITHIN 1.5% OF THE OPTIMUM MOISTURE CONTENT. FROZEN MATERIAL SHALL NOT BE USED AS FILL.

ALL SOIL BEARING SURFACES SHALL BE LEVEL (WITHIN 1/4" IN 12").

THE SURROUNDING GROUND SURFACE OUTSIDE THE EXCAVATIONS SHALL BE SLOPED AWAY FROM THE TOP OF EXCAVATION TO ALLOW FOR NATURAL DRAINAGE AWAY FROM CONSTRUCTION ACTIVITIES. EXCAVATIONS SHALL BE PERFORMED IN ACCORDANCE WITH OSHA 29 CFR, PART 1926, SUBPART P, "EXCAVATIONS" AND ITS APPENDICES.

THE BASE OF ALL FOUNDATION EXCAVATIONS SHALL BE FREE OF WATER AND LOOSE SOIL, PRIOR TO PLACING CONCRETE. EXCESSIVELY WET OR DRY MATERIAL OR ANY LOOSE/DISTURBED MATERIAL IN THE BOTTOM OF THE FOOTING EXCAVATIONS SHALL BE REMOVED/RECONDITIONED BEFORE FOUNDATION CONCRETE IS PLACED.

OVER-EXCAVATION SHALL BE BACKFILLED UP TO THE DESIGN FOOTING BASE ELEVATION WITH GRANULAR STRUCTURAL FILL (SUCH AS ODOT NO. 304). THE BACKFILL ABOVE THE TOP OF THE FOOTING SHALL CONSIST OF FLOWABLE FILL OF WELL COMPACTED LEAN CLAY.

A VAPOR RETARDER SHALL BE USED BENEATH CONCRETE SLABS ON GRADE.

SURFACE RUNOFF AND PRECIPITATION SHALL NOT BE PERMITTED TO COLLECT AND STAND IN EXCAVATIONS AS THE SOIL AND SHALE BEDROCK COULD ABSORB WATER AND SOFTEN OR LOOSEN. SOILS AND SHALE BEDROCK SOFTENED OR LOOSENED BY STANDING WATER OR DISTURBED BY CONSTRUCTION ACTIVITIES SHALL BE REMOVED FROM EXCAVATIONS BEFORE FOUNDATION CONCRETE IS PLACED.

FILL SHALL NOT BE PLACED IN A FROZEN CONDITION OR UPON A FROZEN SUBGRADE.

IN AREAS WHERE BACKFILL IS REQUIRED BEHIND BELOW-GRADE STRUCTURE WALLS (NOT DIRECTLY UNDER FOUNDATION FOOTPRINT), THE BACKFILL SHALL BE COMPACTED TO A DRY UNIT WEIGHT OF NO LESS THAN 98% STANDARD PROCTOR (BASED ON ASTM D698). OVER COMPACTION IN AREAS DIRECTLY BEHIND THE WALL SHALL BE AVOIDED AS THIS MIGHT CAUSE DAMAGE TO THE STRUCTURE.

LOW STRENGTH MORTAR BACKFILL

SELF-COMPACTING FLOWABLE, CONTROLLED LOW STRENGTH MORTAR BACKFILL SHALL BE USED FOR BACKFILL WHERE INDICATED. ONLY NATURAL AGGREGATE MAY BE USED.

REFER TO ODOT LS 613 FLOWABLE FILL LSM, WITH A MAXIMUM 28 DAY UNCONFINED COMPRESSIVE STRENGTH OF 100 PSI, SAMPLES SHALL BE FABRICATED AND TESTED IN ACCORDANCE WITH ASTM D 4832, AT 7 AND 28 DAYS.

TESTING AND INSPECTION

A. FOUNDATIONS AND EARTHWORK. GEOTECHNICAL ENGINEER/TESTING LABORATORY TO BE ENGAGED BY THE OWNER FOR QUALITY CONTROL AND VERIFICATION. ALL OPEN FOUNDATION EXCAVATIONS SHALL BE INSPECTED AND APPROVED BY A LICENSED GEOTECHNICAL ENGINEER PRIOR TO CONCRETE PLACEMENT.

B. MATERIALS AND PROCEDURES. TESTING LABORATORY TO BE ENGAGED FOR MATERIAL TESTING AS REQUIRED BY OBC CHAPTER 17. SEE SHEET S-002.

C. SPECIAL INSPECTOR. A SPECIAL INSPECTOR SHALL BE ENGAGED BY THE OWNER TO INSPECT ELEMENTS AS REQUIRED BY OBC CHAPTER 17.

STEEL

ALL STRUCTURAL STEEL FABRICATION AND ERECTION SHALL BE IN ACCORDANCE WITH THE CURRENT EDITION OF THE AISC SPECIFICATIONS FOR THE DESIGN, FABRICATION, AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS AND THE AISC CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES. SEE ALSO SPECIFICATIONS.

STRUCTURAL STEEL - W - ASTM A992; PLATES - ASTM A36; TUBE - ASTM A500, GRADE B Fy = 46 KSI; PIPE - ASTM A53, GRADE B Fy= 35 KSI.

ALL BOLTS, NUTS AND WASHERS SHALL BE ASTM A325-N UNLESS NOTED OTHERWISE.

SPLICING OF STRUCTURAL STEEL IS PROHIBITED EXCEPT AS DETAILED.

ENDS OF ALL COLUMNS SHALL HAVE THE BEARING SURFACE PREPARED TO COMMON PLANE BY MILLING.

WELDING ELECTRODES AWS. ASTM E-70XX.

ALL WELDING SHALL BE DONE BY A QUALIFIED WELDER IN ACCORDANCE WITH THE LATEST EDITION OF THE AMERICAN WELDING SOCIETY STRUCTURAL WELDING CODE.

ADHESIVE ANCHORS

1. ADHESIVE ANCHOR SYSTEMS SHALL BE HILTI HY-200, SIMPSON SET XP, OR APPROVED EQUAL. ANCHOR RODS FOR ADHESIVE ANCHORS SHALL HAVE 50 KSI MINIMUM SPECIFIED YIELD STRENGTH UNLESS OTHERWISE NOTED. SUBMITTAL OF ALL PROPOSED PRODUCTS, WITH TECHNICAL DATA AND CURRENT ICC-ES REPORTS, IS REQUIRED FOR REVIEW AND APPROVAL BY THE ENGINEER.
2. ANCHOR RODS SHALL BE GALVANIZED FOR FASTENING GALVANIZED STEEL TO CONCRETE/MASONRY, AND STAINLESS STEEL FOR FASTENING ALUMINUM OR STAINLESS STEEL TO CONCRETE/MASONRY, UNLESS OTHERWISE NOTED.
3. INSTALL PER MANUFACTURER'S RECOMMENDATIONS. HOLES SHALL BE DRILLED AND CLEANED IN STRICT ACCORDANCE WITH THE CURRENT MANUFACTURER'S PUBLISHED INSTALLATION INSTRUCTIONS (MPII) MANUFACTURER'S FIELD REPRESENTATIVE SHALL PROVIDE INSTALLATION TRAINING FOR ALL PRODUCTS TO BE USED, PRIOR TO COMMENCEMENT OF THE WORK.
4. INSTALLATION OF ADHESIVE ANCHORS SHALL BE PERFORMED BY PERSONNEL CERTIFIED IN THE ACI/CRSI ADHESIVE ANCHOR INSTALLATION PROGRAM. PROOF OF CURRENT CERTIFICATION SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PRIOR TO COMMENCEMENT OF THE INSTALLATION. A RECORD OF TRAINING SHALL BE KEPT ON SITE AND BE MADE AVAILABLE TO THE ENGINEER AS REQUESTED.
5. COMPLY WITH OSHA 1926.1153.
6. ADHESIVE ANCHORAGE INSTALLATION SHALL HAVE CONTINUOUS SPECIAL INSPECTION.

SAW CUTTING OPENINGS

1. SAW CUT ALL OPENINGS REQUIRED IN SLABS AND WALLS BUT DO NOT OVER CUT CORNERS. DRILL HOLES AT CORNERS TO NEATLY CREATE THE CORNERS AND GRIND OR HAND CHIP AS NEEDED.
2. AT THE ENDS OF ALL REBAR EXPOSED AFTER SAW CUTTING OR REMOVAL OF EXISTING CONCRETE, GRIND THE BAR AT LEAST 1" BELOW THE FINISHED SURFACE OF THE CONCRETE, COAT WITH BONDING AGENT AND FILL WITH AN APPROVED PATCHING MORTAR SUITABLE FOR BURIED OR SUBMERGED CONDITIONS.
3. COMPLY WITH OSHA 1926.1153.

MASONRY

MATERIALS:
MORTAR: ASTM 270 TYPE S
CONCRETE BLOCK: TYP. UNIT PER ASTM C90 GRADE N, TYPE NORMAL WEIGHT AGGR. PER ASTM C33
CONCRETE BLOCK UNITS: ASSEMBLY COMPRESSIVE STRENGTH (f'm) SHALL BE NO LESS THAN 1500 PSI. UNIT COMPRESSIVE STRENGTH SHALL BE NO LESS THAN 1900 PSI. SEE ALSO SPECIFICATIONS.
MASONRY GROUT: COMPRESSIVE STRENGTH (f'g) SHALL BE 2000 PSI MIN.

INSPECTION IS REQUIRED DURING PREPARATION AND TAKING OF ANY REQUIRED PRISM OR TEST SPECIMENS AND ON A PERIODIC BASIS DURING THE PLACING OF MASONRY UNITS. PLACEMENT OF REINFORCEMENT, INSPECTION OF GROUT SPACE IMMEDIATELY PRIOR TO CLOSING OF CLEANOUTS AND DURING GROUTING OPERATIONS

VERTICAL SINGLE REINFORCING TO BE LOCATED IN EXACT CENTER OF BLOCKS UNO. DOUBLE VERTICAL REINFORCEMENT SHALL BE OFFSET TOWARD CMU FACES. USE VERTICAL BAR POSITIONERS FOR PLACEMENT.

ALL VERTICAL WALL REINFORCEMENT TO HAVE CONTACT SPLICES - WIRED TOGETHER WITH LAP SPLICES OR FULL STRENGTH WELDS OR MECHANICALLY COUPLED. SEE ALSO MASONRY LAP SPLICE SCHEDULE.

PROVIDE GALV. DUR-O-WAL (OR APPROVED EQUAL) JOINT REINF. AT 16" O.C. MEASURED VERTICALLY IN ALL MASONRY WALLS UNLESS NOTED OTHERWISE ON DWGS. JOINT REINF. SHALL CROSS ALL WYTHES.

ALL MASONRY WALLS TO HAVE VERTICAL REINFORCEMENT #5 BARS @ 2'-8" O.C. (U.N.O.) CELLS WITH REINFORCING TO BE FULLY GROUTED.

VERTICAL #5 BARS SHALL ALSO BE PROVIDED AT CORNERS, WITHIN 8" OF EACH SIDE OF OPENINGS, WITHIN 8" OF EACH SIDE OF MOVEMENT JOINTS, AND WITHIN 8" OF THE ENDS OF WALLS.

ROUTE VERTICAL REINFORCING BARS AROUND BEARING PLATES WHERE NECESSARY FOR CONTINUITY OF REINFORCEMENT.

PROVIDE #5 VERTICAL BARS IN 2 CORES ADJACENT TO MASONRY OPENINGS WIDER THAN 10'.

PROVIDE SINGLE-COURSE BOND BEAMS AT BEAM BEARING LOCATIONS, AND AT TOPS OF WALLS.

SINGLE-COURSE BOND BEAMS SHALL HAVE (2) #5 CONTINUOUS, WITH CORNER BARS. SINGLE-COURSE BOND BEAMS CAN SPAN MASONRY OPENINGS UP TO 4'-8" WIDE.

MULTIPLE COURSE BOND BEAMS SHALL HAVE (2) #5 T&B CONTINUOUS. DOUBLE-COURSE BOND BEAMS CAN SPAN MASONRY OPENINGS UP TO 10' WIDE. TRIPLE-COURSE BOND BEAMS CAN SPAN MASONRY OPENINGS UP TO 14' WIDE.

DOWELS SHALL MATCH VERT REINF. SIZE AND SPACING.

AT BEAM BEARING LOCATIONS, EMBED 1/2"X6"X12" BEARING PLATES WITH (2) 5/8" Ø X 6"-LONG HEADED STUDS @ 8" O.C., AT THE CENTER OF THE WALL UNO. WELD BEAMS TO THE BEARING PLATES, MIN 3"-LONG FILLET EACH SIDE. GROUT SOLID UNDER THE BEARING PLATES, DOWN TO THE FOUNDATION.

FOR MASONRY OPENINGS WIDER THAN 10', AND WHERE INDICATED, USE GALV. STEEL SHELF ANGLES TO SUPPORT THE BRICK, GALV. L6X6X5/16 W/ 1/2" Ø ADHESIVE ANCHORS W/ 6" EMBED @ 16" O.C. (BUT MIN 2 ANCHORS PER ANGLE) & @ MIN 4" ABOVE BOTTOM OF BOND BEAM, UNO. AT WALLS WITHOUT INSULATION PLUS AIR GAP BETWEEN THE BRICK & CMU, SHELF ANGLES SHALL BE L6X4X5/16 LLV.

AT CMU INFILL WALLS, ANCHOR PROPOSED VERTICAL REINFORCEMENT 2" INTO EXISTING CONCRETE SLABS & BEAMS WITH ADHESIVE ANCHORAGE, AND ANCHOR PROPOSED JOINT REINFORCEMENT 1" INTO EXISTING CONCRETE & CMU WALLS WITH ADHESIVE ANCHORAGE.

CONCRETE

ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE LATEST SPECIFICATIONS OF THE AMERICAN CONCRETE INSTITUTE AND THE CONCRETE REINFORCING STEEL INSTITUTE. SEE ALSO SPECIFICATIONS

CONCRETE STRENGTHS AT 28 DAYS: 4500 PSI UNO, 4000 PSI FOR FOUNDATIONS.

CONCRETE SHALL BE NORMAL WEIGHT.

SLUMP SHALL BE 4" MAX. FOR FOOTINGS & SLABS, 5" MAX. FOR WALLS. DO NOT ADD WATER AT THE JOB SITE.

WATER/CEMENT RATIO SHALL BE 0.45 MAX FOR FOOTINGS, WALLS & SLABS, UNO.

CEMENT SHALL BE ASTM C150 PORTLAND CEMENT, TYPE I OR II.

USE BLANKETS AS REQUIRED FOR COLD WEATHER CONCRETING; DO NOT USE ACCELERATING ADMIXTURES.

AT CORNERS AND INTERSECTIONS OF FOOTINGS AND WALLS, PROVIDE BENT BARS OF EQUAL SIZE AND AT SAME SPACING AS TYPICAL REINFORCING AROUND CORNER AND/OR INTO ABUTTING WALL. BARS SHALL HAVE EMBEDMENT OF 18 DIAMETERS (12" MINIMUM) PAST INSIDE EDGE OF CORNER.

WHERE CONCRETE IS PLACED DIRECTLY ON GROUND, REINFORCING STEEL SHALL HAVE 3" OF CONCRETE COVER. AT ALL OTHER PLACES, CONCRETE COVER TO BE A MIN. OF 2" UNLESS NOTED OTHERWISE.

ALL FLOOR SLABS SHALL BE STEEL TROWEL FINISHED.

ALL CONCRETE EXPOSED TO WEATHER SHALL BE AIR ENTRAINED, 6 % ± 1 %

CURE CONCRETE FOR 7 DAYS

REINFORCING STEEL : ASTM A615 OR A616, GRADE 60. MINIMUM LAP LENGTH - SEE SCHEDULES ON THIS SHEET.

WHERE CUTTING HOLES IN EXISTING CONCRETE, DO NOT OVERCUT. DRILL AND/OR GRIND CONCRETE AT THE CORNERS OF THE HOLES, IN ORDER TO AVOID OVERCUTTING AT NEW OPENINGS IN HARDENED CONCRETE.

WHERE CUTTING HARDENED CONCRETE SURFACES WHICH WILL REMAIN EXPOSED, GRIND ALL EXPOSED REBAR DOWN MIN 1.5" BELOW THE CONCRETE SURFACE. DO NOT TORCH CUT. CLEAN, ROUGHEN, APPLY EPOXY BONDING AGENT, AND DRY-PACK PATCHING MORTAR SUITABLE FOR EXTERIOR/WET SERVICE. FOLLOW MANUFACTURERS' RECOMMENDATIONS.

CONCRETE ENCASEMENT FOR UNDERSLAB CONDUITS SHALL BE 12" MINIMUM CLEAR BELOW BOTTOM OF SLAB.

CONTRACTOR SHALL SUBMIT A COMPLETE & DIMENSIONED MASONRY DOWEL LAYOUT PLAN WITH THE FOUNDATION REBAR SHOP DRAWINGS.

CONTRACTOR SHALL SUBMIT A COMPLETE & DIMENSIONED PLAN WITH THE FOUNDATION REBAR SHOP DRAWINGS.

REINFORCED CONCRETE FOOTINGS AND WALLS ARE 12" THICK, UNO. REINFORCED CONCRETE SLABS AND WALLS ARE REINFORCED WITH #5 @ 12: O.C. EW EF, UNO.

WELDED WIRE REINFORCEMENT IN SLABS IS WWR 6X6-W2.1XW2.1 UNO.

THE EXISTING CONDITIONS OF THE STRUCTURE SHOWN ARE BASED ON THE EXISTING DRAWINGS BY KRAL, ZEPF, FREITAG & ASSOCIATES DATED APRIL 7, 1969. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS.

MINIMUM CONCRETE COVER FOR REINFORCEMENT

1. SLABS AND JOISTS:

TOP AND BOTTOM BARS FOR DRY CONDITIONS	1 1/2"
FORMED CONCRETE SURFACES EXPOSED TO EARTH, WATER, OR WEATHER, AND FOR BOTTOMS BEARING ON WORK MAT, OR SLABS SUPPORTING EARTH COVER:	2"

2. BEAMS AND COLUMNS:

STIRRUPS, SPIRALS, AND TIES	2"
PRINCIPAL	2 1/2"

3. WALLS: 2"

4. FOOTINGS AND BASE SLABS:

AT FORMED SURFACES AND BOTTOMS BEARING ON CONCRETE WORK MAT	2"
AT UNFORMED SURFACES AND BOTTOMS BEARING ON WITH EARTH	3"
TOP OF FOOTINGS - SAME AS SLABS OVER TOP OF PILES	2"

MINIMUM LAP SPLICE & ANCHORAGE DIMENSION TABLE FOR CAST IN PLACE CONCRETE REINFORCING

F'c=	4000 OR 4500 PSI		PER ACI 318-14		s = 4" MIN
BAR SIZE	TOP BARS		OTHER BARS		
	LAP	ANCHORAGE	LAP	ANCHORAGE	
#3	15	12	12	12	
#4	20	15	15	12	
#5	25	19	19	15	
#6	29	23	23	18	
#7	47	36	36	28	
#8	61	47	47	36	

ENGINEER/ARCHITECT SEAL/SIGNATURE

engineers architects planners
your trusted advisor consultants

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

DATE: 10/17/2019
DRAWN BY: AP
CHECKED BY: PCP
APPROVED BY:
F.B. NO.
PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

STRUCTURAL GENERAL NOTES

SCALE: 1/4" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET S001

11/19/2019 10:04:42 AM

SPECIAL INSPECTIONS

THE SPECIAL INSPECTOR SHALL BE A QUALIFIED PERSON WHO SHALL DEMONSTRATE COMPETENCE, TO THE SATISFACTION OF THE BUILDING OFFICIAL, FOR THE INSPECTION OF THE PARTICULAR TYPE OF CONSTRUCTION OR OPERATION REQUIRING SPECIAL INSPECTION. THE SPECIAL INSPECTOR SHALL PROVIDE WRITTEN DOCUMENTATION TO THE BUILDING OFFICIAL DEMONSTRATING HIS OR HER COMPETENCE AND RELEVANT EXPERIENCE OR TRAINING. EXPERIENCE OR TRAINING SHALL BE CONSIDERED RELEVANT WHEN THE DOCUMENTED EXPERIENCE OR TRAINING IS RELATED IN COMPLEXITY TO THE SAME TYPE OF SPECIAL INSPECTION ACTIVITIES FOR PROJECTS OF SIMILAR COMPLEXITY AND MATERIAL QUALITIES. THESE QUALIFICATIONS ARE IN ADDITION TO QUALIFICATIONS SPECIFIED IN OTHER SECTION OF THE OHIO & INTERNATIONAL BUILDING CODES.

SPECIAL INSPECTIONS ARE PROVIDED FOR CONTRACTOR'S INFORMATION. THE CITY WILL PAY FOR ALL SPECIAL INSPECTION REQUIRED. THE CONTRACTOR SHALL NOT INCLUDE ANY COST FOR THE INSPECTIONS IN THE BID.

SPECIAL INSPECTION REPORT REQUIREMENTS:

SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE PRIOR TO THE COMPLETION OF THAT PHASE OF WORK. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS AND CORRECTION OF ANY DISCREPANCIES NOTED IN THE INSPECTIONS SHALL BE SUBMITTED AT A POINT IN TIME AGREED UPON PRIOR TO THE START OF THE WORK BY THE APPLICANT AND THE BUILDING OFFICIAL.

BELOW IS A LIST OF THE SPECIAL INSPECTION REQUIREMENTS FOR THIS PROJECT :

CONCRETE:
- SEE "REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION TABLE" FOR CONCRETE ITEMS REQUIRING SPECIAL INSPECTION.

STEEL:
- WELDING INSPECTION SHALL BE IN ACCORDANCE WITH AWS D1.1.
- THE BASIS FOR WELDING INSPECTOR QUALIFICATION SHALL BE AWS D1.1
- SEE "REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION" TABLE FOR STEEL ITEMS REQUIRING SPECIAL INSPECTION.

MASONRY:
- SEE "TMS 402-13/ACI 530-13/ASCE-13 TABLE 3.1.2 - LEVEL B QUALITY ASSURANCE FOR MASONRY CONSTRUCTION"

SOILS:
- SEE "REQUIRED SPECIAL INSPECTIONS AND TESTS OF SOILS" TABLE

ALL MASONRY SHEAR WALLS AND X-BRACING SHOWN ON THE STRUCTURAL DRAWINGS ARE CONSIDERED MAIN-WIND-FORCE AND SEISMIC-FORCE RESISTING SYSTEMS.

REQUIRED SERVICES AND DUTIES FOR EACH PARTY (TESTING AGENCY, INSPECTION AGENCY AND CONTRACTOR) SHALL BE PER THE MOST RECENT EDITION OF ACI530.1/ASCE 6/TMS 602

PER IBC & OBC SECTION 1706:

EACH CONTRACTOR RESPONSIBLE FOR THE CONSTRUCTION OF A MAIN-WIND-FORCE OR SEISMIC-FORCE RESISTING SYSTEM LISTED IN THE STATEMENT OF SPECIAL INSPECTION SHALL SUBMIT A WRITTEN STATEMENT OF RESPONSIBILITY TO THE BUILDING OFFICIAL AND THE OWNER PRIOR TO THE COMMENCEMENT OF WORK ON THE SYSTEM OR COMPONENT. THE CONTRACTOR'S STATEMENT OF RESPONSIBILITY SHALL CONTAIN THE FOLLOWING:

1) ACKNOWLEDGMENT OF AWARENESS OF THE SPECIAL REQUIREMENTS CONTAINED IN THE STATEMENT OF SPECIAL INSPECTIONS
2) ACKNOWLEDGMENT THAT THE CONTROL WILL BE EXERCISED TO OBTAIN CONFORMANCE WITH THE CONSTRUCTION DOCUMENTS APPROVED BY THE BUILDING OFFICIAL
3) PROCEDURES FOR EXERCISING CONTROL WITHIN THE CONTRACTOR'S ORGANIZATION, THE METHOD AND FREQUENCY OF REPORTING AND THE DISTRIBUTION OF THE REPORTS
4) IDENTIFICATION AND QUALIFICATIONS OF THE PERSON(S) EXCERCISING SUCH CONTROL AND THEIR POSITION(S) IN THE ORGANIZATION

REQUIRED VERIFICATION AND INSPECTION OF WIND RESISTING COMPONENTS

ROOF CLADDING - PERIODIC INSPECTION
WALL CLADDING - PERIODIC INSPECTION

REFERENCED STANDARDS:

1) AISC 360 - 2010
2) AWS D1.4/D1.4M - 2011
3) ACI 318 - 2014
4) ASTM
5) IBC 2015
6) OBC 2017
7) SDI QA/AC - 2011

REQUIRED VERIFICATION AND INSPECTION OF STEEL CONSTRUCTION				
VERIFICATION AND INSPECTION	CONTINUOUS	PERIODIC	REFERENCED STANDARD	OBC & IBC REFERENCE
1. MATERIAL VERIFICATION OF HIGH-STRENGTH BOLTS, NUTS AND WASHERS:				
A. IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	X	AISC 360, SECTION A3.3 AND APPLICABLE ASTM MATERIAL STANDARDS	
B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.	-	X	-	-
2. INSPECTION OF HIGH-STRENGTH BOLTING:				
A. SNUG-TIGHT JOINTS.	-	X	AISC 360, N5.6-1	1705.2.1
B. PRETENSIONED JOINTS USING TURN-OF-NUT WITH MATCHMARKING, TWIST-OFF BOLT OR DIRECT TENSION INDICATOR METHODS OF INSTALLATION.	-	X	AISC 360, N5.6-2	
C. PRETENSIONED USING TURN-OF-NUT WITHOUT MATCHMARKING OR CALIBRATED WRENCH METHODS OF INSTALLATION.	X	-	AISC 360, N5.6-3	
3. MATERIAL VERIFICATION OF STRUCTURAL STEEL AND COLD-FORMED STEEL DECK:				
A. FOR STRUCTURAL STEEL, IDENTIFICATION MARKINGS TO CONFORM TO AISC 360.	-	X	SDI QA/QC	1705.2.1 & 1705.2.2
B. FOR OTHER STEEL, IDENTIFICATION MARKINGS TO CONFORM TO ASTM STANDARDS SPECIFIED IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	X		
C. MANUFACTURER'S CERTIFIED TEST REPORTS.	-	X		
4. MATERIAL VERIFICATION OF WELD FILLER MATERIALS:				
A. IDENTIFICATION MARKINGS TO CONFORM TO AWS SPECIFICATION IN THE APPROVED CONSTRUCTION DOCUMENTS.	-	X	AISC 360, SECTION A3.5 AND APPLICABLE AWS A5 DOCUMENTS	-
B. MANUFACTURER'S CERTIFICATE OF COMPLIANCE REQUIRED.	-	X	-	-
5. INSPECTION OF WELDING:				
A. STRUCTURAL STEEL AND COLD-FORMED STEEL DECK:				
1) COMPLETE AND PARTIAL JOINT PENETRATION GROOVE WELDS.	X	-	AWS D1.1	1704.3.1
2) MULTIPASS FILLET WELDS.	X	-		
3) SINGLE-PASS FILLET WELDS >5/16 "	X	-		
4) PLUG AND SLOT WELDS.	X	-		
5) SINGLE-PASS FILLET WELDS ≤5/16 "	-	X		
6) FLOOR AND ROOF DECK WELDS.	-	X	AWS D1.3	
B. REINFORCING STEEL:				-
1) SHEAR REINFORCEMENT.	X	-	AWS D1.4 ACI 318:SECTION3.5.2	
2) OTHER REINFORCING STEEL.	-	X		
6. INSPECTION OF STEEL FRAME JOINT DETAILS FOR COMPLIANCE:				
A. DETAILS SUCH AS BRACING AND STIFFENING.	-	X	-	1704.3.2
B. MEMBER LOCATIONS.	-	X		
C. APPLICATION OF JOINT DETAILS AT EACH CONNECTION.	-	X		

IBC & OBC TABLE 1705.6 REQUIRED SPECIAL INSPECTION AND TESTS OF SOILS		
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION
1. VERIFY MATERIALS BELOW SHALLOW FOUNDATIONS ARE ADEQUATE TO ACHIEVE THE DESIGN BEARING CAPACITY.	-	X
2. VERIFY EXCAVATIONS ARE EXTENDED TO PROPER DEPTH AND HAVE REACHED PROPER MATERIAL.	-	X
3. PERFORM CLASSIFICATION AND TESTING OF COMPACTED FILL MATERIALS.	-	X
4. VERIFY USE OF PROPER MATERIALS, DENSITIES AND LIFT THICKNESSES DURING PLACEMENT AND COMPACTION OF COMPACTED FILL.	X	-
5. PRIOR TO PLACEMENT OF COMPACTED FILL, INSPECT SUBGRADE AND VERIFY THAT SITE HAS BEEN PREPARED PROPERLY.	-	X

IBC & OBC TABLE 1705.3 REQUIRED VERIFICATION AND INSPECTION OF CONCRETE CONSTRUCTION				
TYPE	CONTINUOUS SPECIAL INSPECTION	PERIODIC SPECIAL INSPECTION	REFERENCED STANDARD	OBC & IBC REFERENCE
1. INSPECT REINFORCEMENT, INCLUDING PRESTRESSING TENDONS, AND VERIFY PLACEMENT.	—	X	ACI 318 Ch.20, 25.2, 25.3, 26.6.1-26.6.3	1908.4
2. REINFORCING BAR WELDING: A. VERIFY WELDABILITY OF REINFORCING BARS OTHER THAN ASTM A706; B. INPECT SINGLE-PASS FILLET WELDS, MAXIMUM 5/16"; AND C. INSPECT ALL OTHER WELDS.	—	X	AWS D1.4 ACI 318: 26.6.4	—
3. INSPECT ANCHORS CAST IN CONCRETE.	—	X	ACI 318: 17.8.2	—
4. INSPECT ANCHORS POST-INSTALLED IN HARDENED CONCRETE MEMBERS A. ADHESIVE ANCHORS B. MECHANICAL ANCHORS	X	X	ACI 318: 17.8.2.4 ACI 318: 17.8.2	—
5. VERIFY USE OF REQUIRED DESIGN MIX.	—	X	ACI 318: Ch. 19, 26.4.3, 26.4.4	1904.1, 1904.2 1908.2, 1908.3
6. PRIOR TO CONCRETE PLACEMENT FABRICATE SPECIMENS FOR STRENGTH TESTS, PERFORM SLUMP AND AIR CONTENT TESTS, AND DETERMINE THE TEMPERATURE OF THE CONCRETE.	X	—	ASTM C 172 ASTM C 31 ACI 318: 26.4, 26.12	1908.10
7. INSPECT OF CONCRETE PLACEMENT FOR PROPER APPLICATION TECHNIQUES.	X	—	ACI 318: 26.5	1908.6, 1908.7, 1908.8
8. VERIFY MAINTENANCE OF SPECIFIED CURING TEMPERATURE AND TECHNIQUES.	—	X	ACI 318: 26.5.3-26.5.5	1908.9
9. INSPECT ERECTION OF PRECAST CONCRETE MEMBERS.	—	X	ACI 318: Ch. 26.8	—
10. VERIFY IN-SITU CONCRETE STRENGTH, PRIOR TO REMOVAL OF SHORES AND FORMS FROM BEAMS AND STRUCTURAL SLABS.	—	X	ACI 318: 26.11.2	—
12. INSPECT FORMWORK FOR SHAPE, LOCATION AND DIMENSIONS OF THE CONCRETE MEMBER BEING FORMED.	—	X	ACI 318: 26.11.1.2(b)	—

TMS 402-13/ACI 530-13/ASCE-13 TABLE 3.1.2 - LEVEL B QUALITY ASSURANCE FOR MASONRY CONSTRUCTION				
INSPECTION TASK	CONTINUOUS	PERIODIC	REFERENCE FOR CRITERIA	
			TMS 402/ACI 530/ASCE 5	TMS 602/ACI 530.1/ASCE 6
1. COMPLIANCE WITH REQUIRED INSPECTION PROVISIONS OF THE CONSTRUCTION DOCUMENTS AND THE APPROVED SUBMITTALS.	-	X	-	1.5
2. VERIFICATION OF F'M PRIOR TO CONSTRUCTION AND FOR EVERY 5,000 SQUARE FEET DURING CONSTRUCTION.	-	X	-	1.4B
3. VERIFICATION OF PROPORTIONS OF MATERIALS IN PREMIXED OR PREBLENDED MORTAR AND GROUT AS DELIVERED TO THE SITE.	-	X	-	1.5B
4. VERIFICATION OF SLUMP FLOW AND VSI AS DELIVERED TO THE SITE FOR SELF-CONSOLIDATING GROUT.	X	-	-	1.5B.1.B.3
5. AS MASONRY CONSTRUCTION BEGINS, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
A. PROPORTIONS OF SITE-PREPARED MORTAR	-	X	-	2.1, 2.6A
B. CONSTRUCTION OF MORTAR JOINTS.	-	X	-	3.3B
C. LOCATION OF REINFORCEMENT AND CONNECTIONS	X	-	-	3.4, 3.6 A
6. PRIOR TO GROUTING, VERIFY THAT THE FOLLOWING ARE IN COMPLIANCE:				
A. GROUT SPACE	-	X	-	3.2 D, 3.2 F
B. GRADE, TYPE AND SIZE OF REINFORCEMENT AND ANCHOR BOLTS	-	X	6.1	2.4, 3.4
C. PLACEMENT OF REINFORCEMENT AND CONNECTORS	-	X	6.1, 6.2.1, 6.2.6, 6.2.7	3.2 E, 3.4, 3.6 A
D. PROPORTIONS OF SITE-PREPARED GROUT AND PRESTRESSING GROUT FOR BONDED TENDONS	-	X	-	26 B, 2.4 G.1.B
E. CONSTRUCTION OF MORTAR JOINTS	-	X	-	3.3 B
7. VERIFY DURING CONSTRUCTION:				
A. SIZE AND LOCATION OF STRUCTURAL ELEMENTS	-	X	-	3.3 F
B. TYPE, SIZE AND LOCATION OF ANCHORS, INCLUDING OTHER DETAILS OF ANCHORAGE OF MASONRY TO STRUCTURAL MEMBERS, FRAMES, OR OTHER CONSTRUCTION	-	X	1.2.1(e), 6.1.4.3, 6.2.1	-
C. PREPARATION, CONSTRUCTION, AND PROTECTION OF MASONRY DURING COLD WEATHER (TEMPERATURE BELOW 40°F) OR HOT WEATHER (TEMPERATURE ABOVE 90°F)	-	X	-	1.8 C, 1.8 D
D. PLACEMENT OF GROUT IS IN COMPLIANCE	X	-	-	3.5, 3.6 C
E. OBSERVE PREPARATION OF GROUT SPECIMENS, MORTAR SPECIMENS, AND/OR PRISMS	-	X	-	1.4 B.2.a.3, 1.4 B.2.b.3, 1.4 B.2.c.3, 1.4 B.3, 1.4 B.4

ENGINEER/ARCHITECT SEAL/SIGNATURE

engineers architects planners
your trusted advisor consultants

REV	DESCRIPTION	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

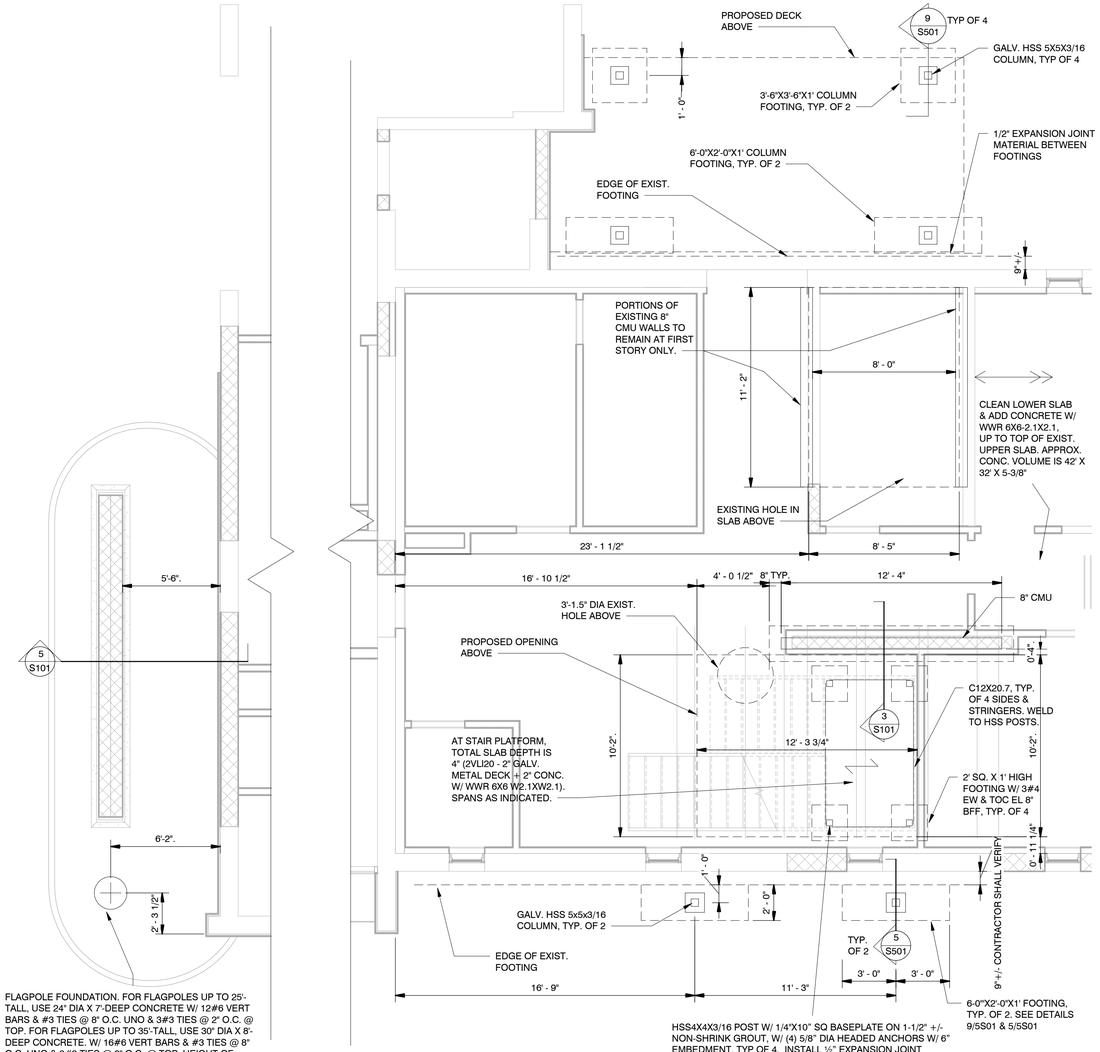
DATE: 10/17/2019
DRAWN BY: AP
CHECKED BY: POP
APPROVED BY:
F.S. NO.
PO. NO.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

SPECIAL INSPECTIONS

SCALE: 1/4" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET S002

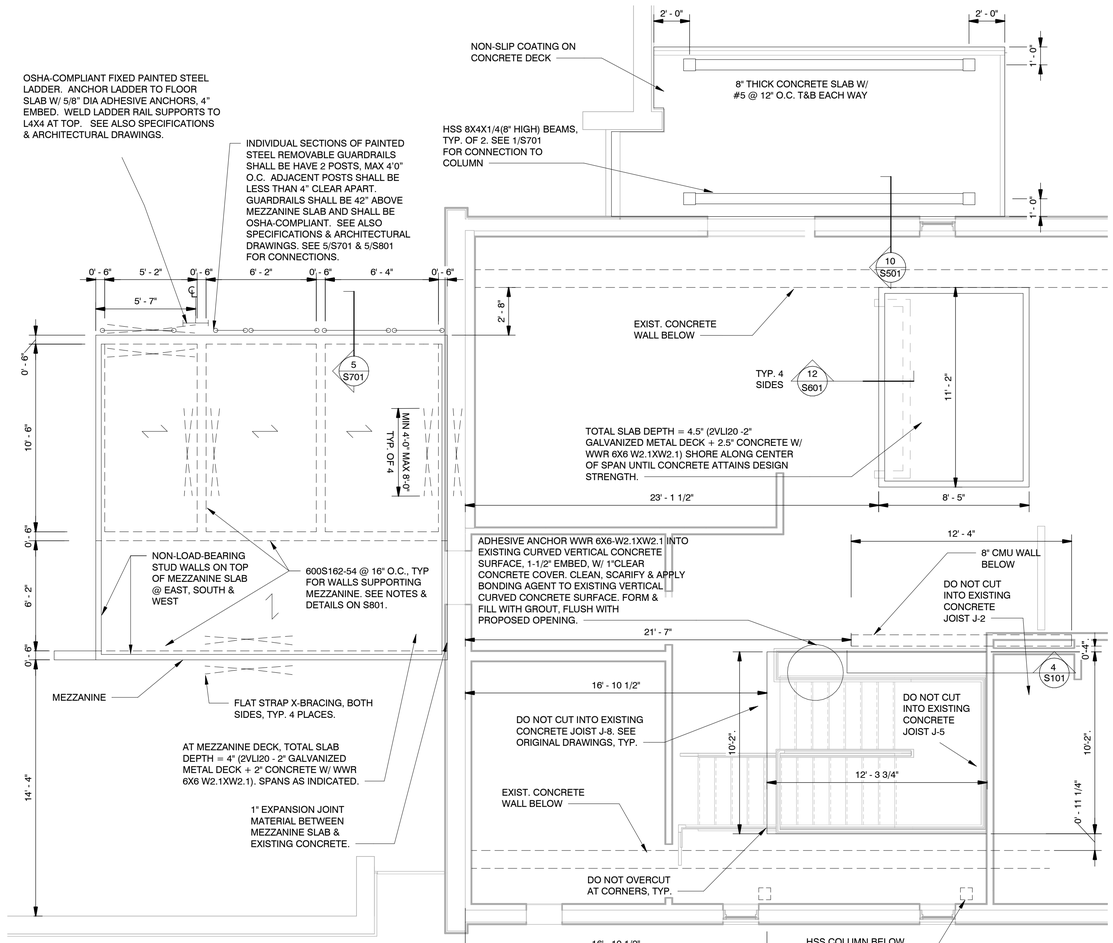
11/19/2019 10:04:43 AM



FLAGPOLE FOUNDATION. FOR FLAGPOLES UP TO 25'-TALL, USE 24" DIA X 7'-DEEP CONCRETE W/ 12#6 VERT BARS & #3 TIES @ 8" O.C. UNO & 3#3 TIES @ 2" O.C. @ TOP. FOR FLAGPOLES UP TO 35'-TALL, USE 30" DIA X 8'-DEEP CONCRETE. W/ 16#6 VERT BARS & #3 TIES @ 8" O.C. UNO & 3#3 TIES @ 2' O.C. @ TOP. HEIGHT OF CONCRETE ABOVE GRADE (MIN 6") DOES NOT COUNT FOR DEPTH. VERT REBAR SHALL BE MIN 3" & MAX 12" ABOVE BOTTOM OF CONCRETE. DO NOT DISTURB EXISTING FOOTINGS OR UTILITIES. ANCHOR FLAGPOLE BASE TO FOUNDATION PER MANUFACTURER'S REQUIREMENTS.

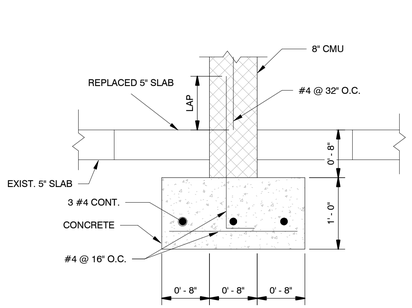
1 S101 PARTIAL FOUNDATION PLAN

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



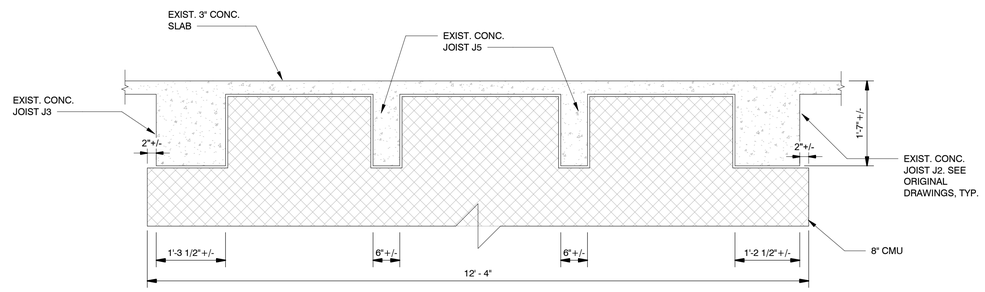
2 S101 PARTIAL SECOND FLOOR & MEZZANINE FRAMING PLAN

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



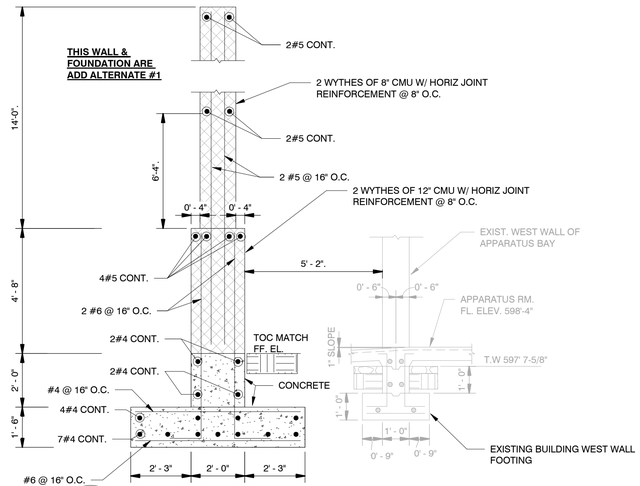
3 S101 8" CMU INTERIOR FOOTING

SCALE: 1" = 1'-0"



4 S101 EXIST. CONC. JOIST BEARING ON CMU

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



5 S101 OUTSIDE SIGNAGE WALL SECTION

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

11/19/2019 10:04:45 AM

ENGINEER/ARCHITECT SEAL/SIGNATURE

your trusted advisor consultants engineers architects planners

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

DATE: 10/17/2019
DRAWN BY: AP
CHECKED BY: POP
APPROVED BY:
F.B. NO. PG.

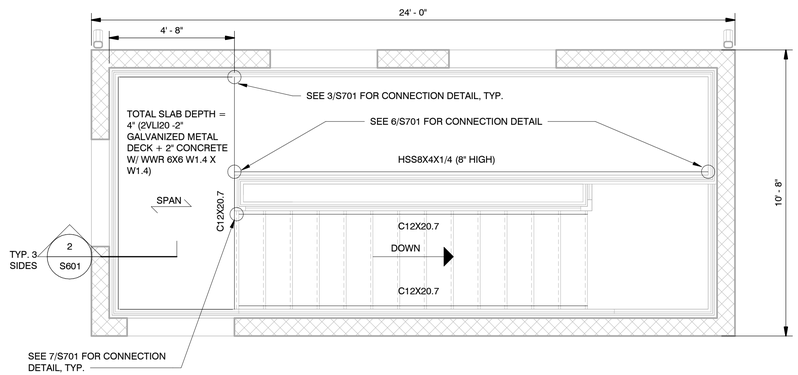
SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

FOUNDTION PLANS

SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET S101

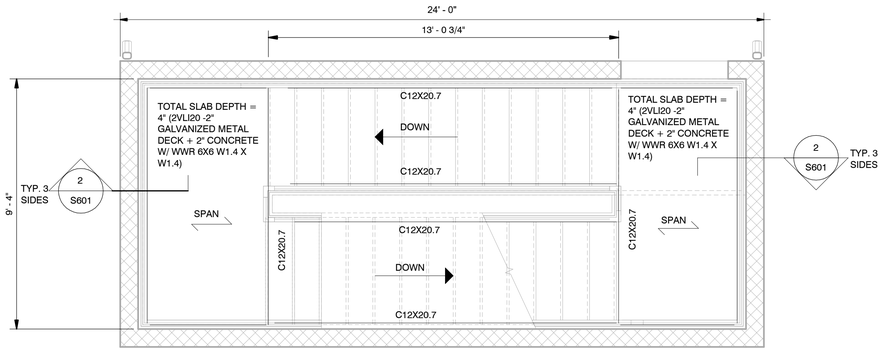
1 S201 ROOF FRAMING PLAN

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



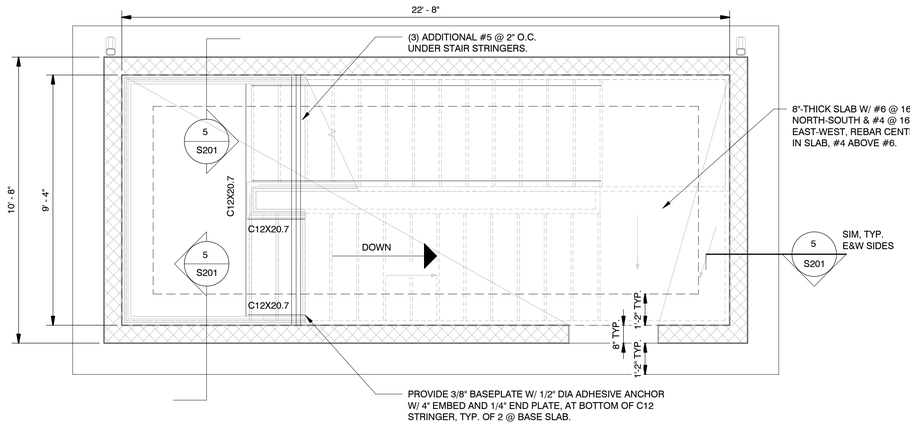
2 S201 THIRD FLOOR FRAMING PLAN

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



3 S201 SECOND FLOOR FRAMING PLAN

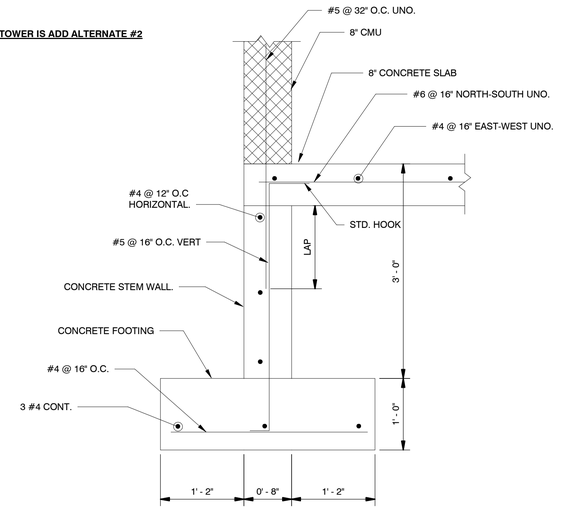
SCALE: 3/8" = 1'-0"



4 S201 FOUNDATION PLAN

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

THIS FIRE TRAINING TOWER IS ADD ALTERNATE #2



FIRE TRAINING TOWER FOUNDATION

5 S201 SCALE: 1" = 1'-0"

NOTE:

AT THE FIRE TRAINING TOWER FOUNDATIONS ONLY, OVEREXCAVATE DOWN TO 5'+/- BELOW EXISTING GRADE. REMOVE EXISTING FILL W/ DEBRIS.
IF OVEREXCAVATION IS FILLED WITH ODOT LOW STRENGTH MORTAR UP TO BOTTOM OF FOOTING, OVEREXCAVATION SHALL BE 3' WIDE.
IF OVEREXCAVATION IS FILLED WITH COMPACTED BACKFILL UP TO BOTTOM OF FOOTING, OVEREXCAVATION SHALL BE 6' WIDE, CENTERED ON THE FOOTING.

ENGINEER/ARCHITECT SEAL/SIGNATURE

your trusted advisor consultants engineers architects planners

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

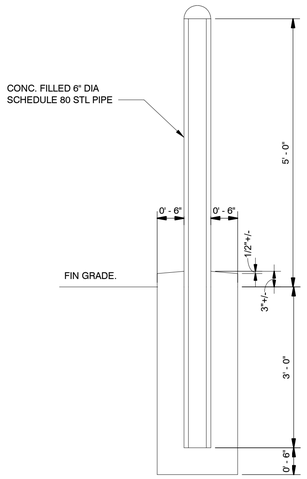
DATE: 10/17/2019
DRAWN BY: AP
CHECKED BY: PCP
APPROVED BY:
F.B. NO.
PG.

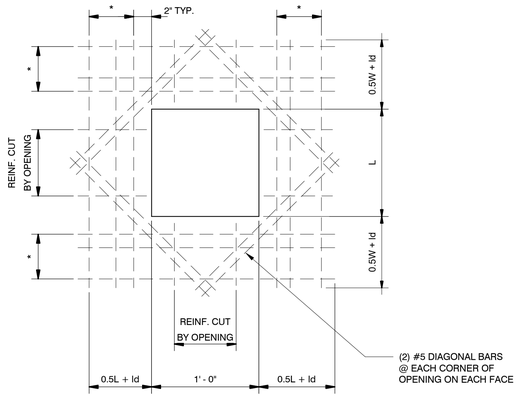
SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

FRAMING PLANS

SCALE: As Indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET S201

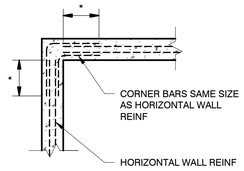
11/19/2019 10:04:47 AM



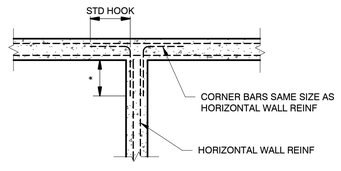


* ALL REINFORCING WHICH IS CUT BY THE OPENING SHALL BE ADDED EQUALLY TO EACH SIDE OF THE OPENING AND PLACED BETWEEN NORMAL REINFORCING @ 3" O/C.

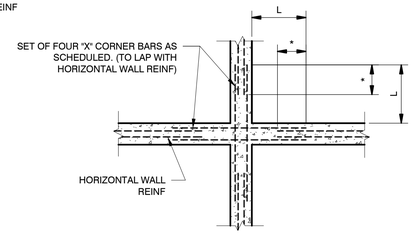
NOTE:
1. THIS DETAIL TO BE USED FOR ANY OPENING GREATER THAN 18" DIA OR 18" SQUARE IN WALLS OR SLABS UNLESS FRAMED BY BEAMS OR WALLS.
2. L = LAP SPLICE LENGTH AS GIVEN IN LAP SPLICE TABLE ON SHEET S001.
3. ld = ANCHORAGE LENGTH AS GIVEN IN TABLE ON SHEET XXXX



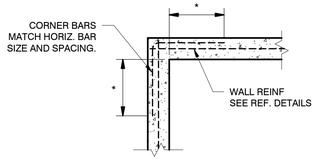
TYPICAL CORNER REINFORCING EACH FACE
(WHEN SCHEDULED OR SHOWN)



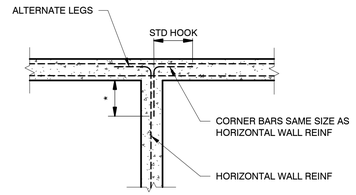
TYPICAL "T" CORNER REINFORCING EACH FACE
(WHEN SCHEDULED OR SHOWN)



TYPICAL "CROSS" CORNER REINFORCING EACH FACE
(WHERE NTOED OR SHOWN)



TYPICAL CORNER
(REQUIRED WHEN NOT OTHERWISE SHOWN OR SCHEDULED)

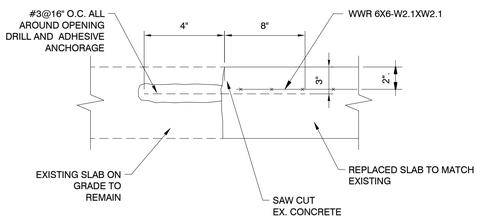


TYPICAL "T" CORNER
(UNLESS NOTED OTHERWISE)

NOTES:
1. VERTICAL REINFORCING NOT SHOWN
2. L = 4'-0" UNLESS NOTED OTHERWISE
3. * = LAP SPLICE LENGTH AS GIVEN IN "MINIMUM LAP SPLICE AND ANCHORAGE TABLE" ON SHEET 0S001.

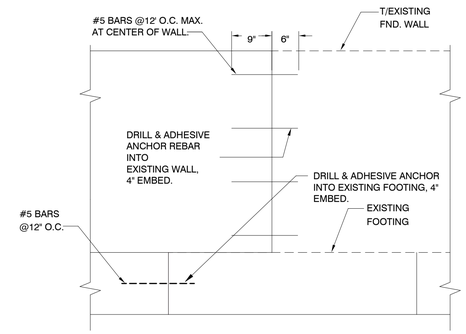
1 S501 TYP. POST EMBEDMENT

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



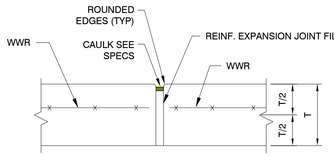
2 S501 TYP. OPENING REINFORCING

SCALE: N.T.S.



3 S501 TYP. HORIZONTAL CORNER CONCRETE REINFORCING DETAILS

SCALE: N.T.S.



T=SLAB THICKNESS AS NOTED

NOTE: REINFORCING SHALL NOT EXTEND THRU JOINT.

4 S501 REPLACED SLAB TO EXIST. SLAB

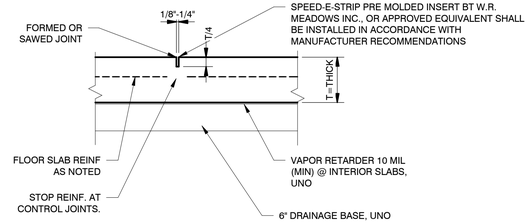
SCALE: N.T.S.

5 S501 EXIST. FOOTING TO PROPOSED FOOTING DETAIL

SCALE: N.T.S.

6 S501 TYP. EXPANSION JOINT DETAIL

SCALE: N.T.S.

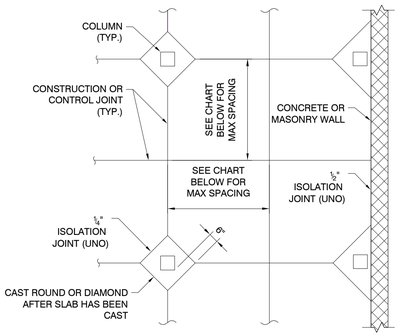


NOTES:

1. THE "SOFF-CUT" MACHINE BY SOFF-CUT INTERNATIONAL MAY BE USED TO CUT CONTROL JOINTS WITHIN APPROXIMATELY 2 HOURS AFTER FINAL FINISHING. THE DEPTH OF CUT SHALL BE AS RECOMMENDED BY THE MANUFACTURER.
2. IF CONTROL JOINTS ARE SAW CUT PER NOTE #1 THEY SHALL BE FLUSHED WITH CLEAN WATER, ALLOWED TO DRY AND THEN FILLED WITH A JOINT SEALANT.

7 S501 TYP. SLAB-ON-GRADE W/ CONTROL JOINT TYPE "CJ"

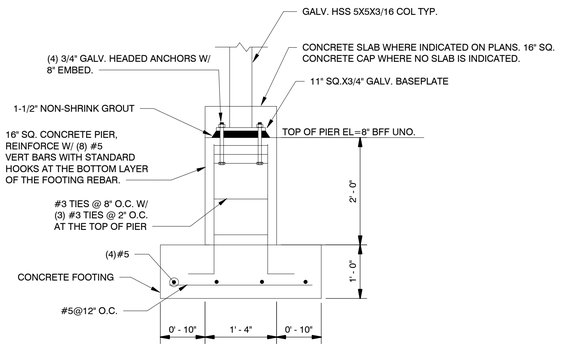
SCALE: N.T.S.



SLAB THICKNESS	MAX JOINT SPACING UNO
4"	8'
5"	10'
6"	15'
7"	18'
8"	20'

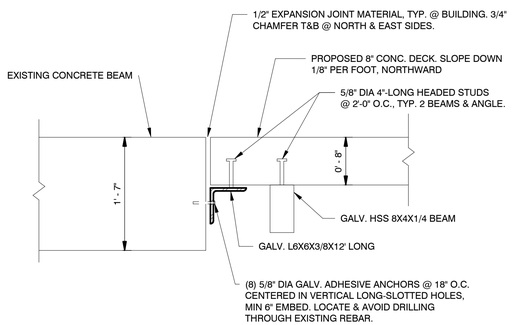
8 S501 TYP. CONTROL JOINT PATTERN

SCALE: N.T.S.



9 S501 TYP. COLUMN FOOTING DETAIL

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



10 S501 EDGE CONNECTION @ DECK

SCALE: 1" = 1'-0"

11/19/2019 10:04:49 AM

ENGINEER/ARCHITECT SEAL/SIGNATURE

your trusted advisor consultants engineers architects planners

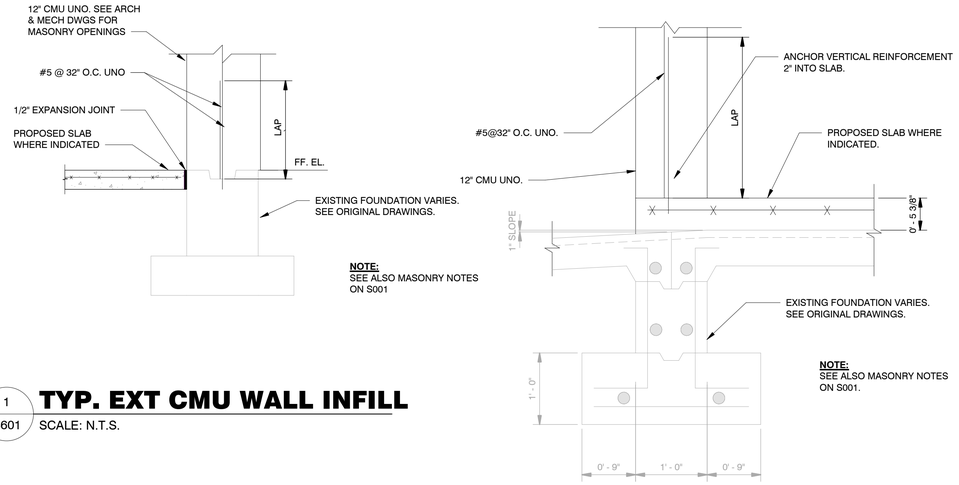
REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

DATE: 10/17/2019
DRAWN BY: AP
CHECKED BY: PCP
APPROVED BY:
F.B. NO. PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

TYPICAL CONCRETE DETAILS

SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET S501

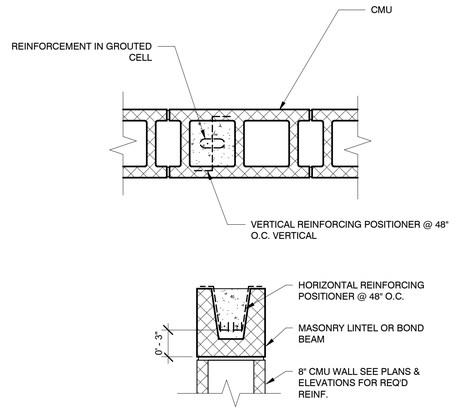


1 S601 TYP. EXT CMU WALL INFILL

SCALE: N.T.S.

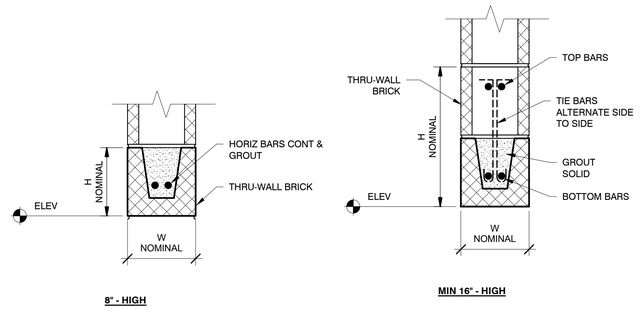
2 S601 TYP. CMU INFILL @ SLAB INFILL

SCALE: N.T.S.



3 S601 TYP. CMU REINFORCING POSITIONERS

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



4 S601 TYP. MASONRY LINTEL

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

NOTES:

1. WHEN THE BOND BEAM CONTAINS TWO REINFORCING BARS AT THE SAME ELEVATION, ONLY ONE NEEDS TO BE LAPPED AROUND THE CORNER.
2. AS AN ALTERNATIVE TO USING BOND BEAM UNITS AS SHOWN, STANDARD UNITS CAN BE SAW-CUT TO REMOVE PART OF THE CROSS-WEBS TO ACCOMMODATE THE HORIZONTAL REINFORCEMENT.

5 S601 BOND BEAM AT CORNER

SCALE: 1" = 1'-0"

LEGEND:
A = FULL UNIT
B = HALF UNIT

ELEVATION

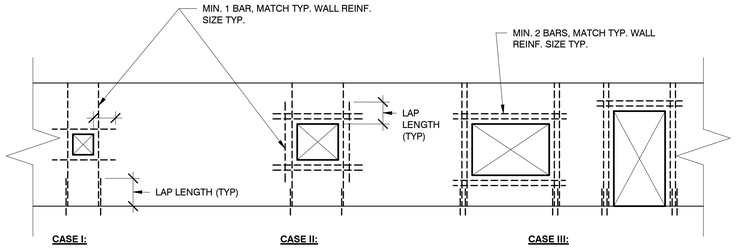
NOTES:

1. APPLICABLE TO THE CONSTRUCTION OF ALL CONTROL JOINTS IN C.M.U. WALLS.
2. SEE ARCH PLANS FOR C.M.U. CONSTRUCTION JOINT LOCATIONS.

PLAN

6 S601 VERTICAL CONSTRUCTION JOINT ISOMETRIC

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



CASE I:

APPLIES TO (1) ALL OPENINGS IN NON-BEARING CMU WALLS AND (2) ANY OPENING 2- FEET OR LESS BOTH WAYS IN LOAD BEARING OR EXTERIOR CMU WALLS.

CASE II:

APPLIES TO LOAD BEARING AND EXTERIOR CMU WALLS WHEN OPENING EXCEEDS 2-FEET BUT NOT MORE THAN 4-FEET IN EITHER DIRECTION.

CASE III:

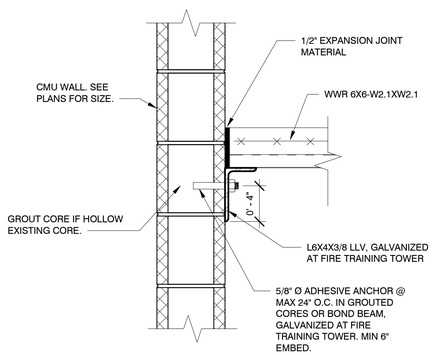
APPLIES TO LOAD BEARING AND EXTERIOR CMU WALLS WHEN OPENING EXCEEDS 4-FEET IN EITHER DIRECTION AND ALL OPENING IN CMU SHEAR WALLS.

NOTES:

1. VERTICAL REINFORCEMENT CONSISTING OF 2 BARS SHALL BE PLACED IN SEPARATE ADJACENT CELLS.
2. VERTICAL BARS SHALL BE OF THE SAME SIZE, EXTENT, AND ANCHORAGE AS THE TYPICAL REINFORCING IN THAT WALL UNLESS OTHERWISE INDICATED.
3. VERTICAL BARS CAN BE PART OF NORMAL REINFORCING IN THE WALL.
4. REINFORCEMENT AT TOP OF OPENING SHALL NOT BE LESS THAN THAT REQUIRED BY THE LINTEL SCHEDULE.
5. SEE SCHEDULES ON 0S001 FOR AND LAP LENGTHS REQUIRED FOR REINFORCEMENT IN CMU WALLS.

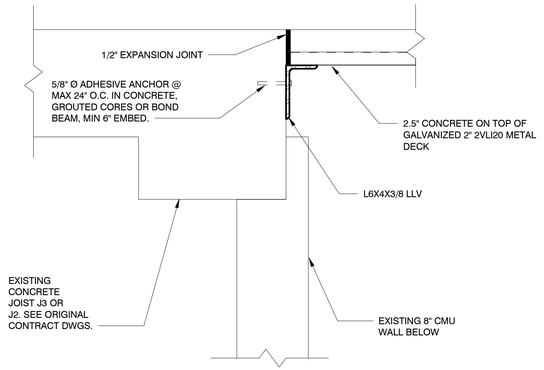
7 S601 REINFORCEMENT AROUND OPENING IN CMU

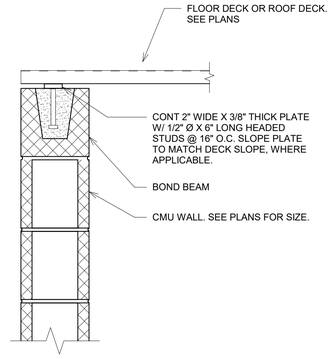
SCALE: N.T.S.



8 S601 TYP. ROOF DECK TO MASONRY WALL CONNECTION

SCALE: N.T.S.





9 S601 NOT USED

10 S601 NOT USED

11 S601 TYP. COMPOSITE DECK SUPPORT

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

12 S601 TYP. DECK EDGE SUPPORT @ SLAB

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

11/19/2019 10:04:50 AM

ENGINEER/ARCHITECT SEAL/SIGNATURE

your trusted advisor consultants engineers architects planners

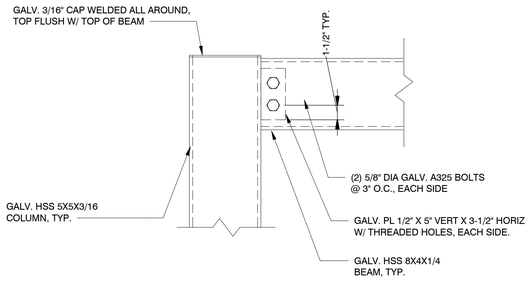
REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

DATE: 10/17/2019
DRAWN BY: AP
CHECKED BY: PCP
APPROVED BY:
F.B. NO.
PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

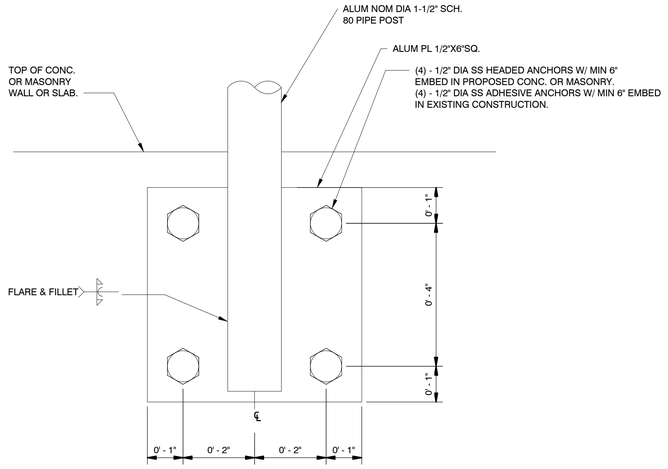
TYPICAL MASONRY DETAILS

SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET S601



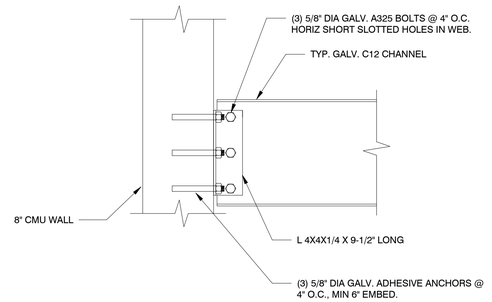
1 S701 TYP. HSS COL - HSS BEAM CONNECTION

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



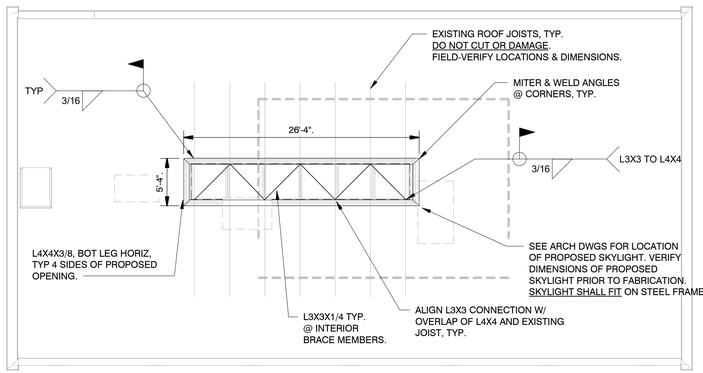
2 S701 SIDE MOUNTED EXTERIOR PIPE RAILING

SCALE: 6" = 1'-0"



3 S701 TYP. BEAM TO CMU WALL CONNECTION

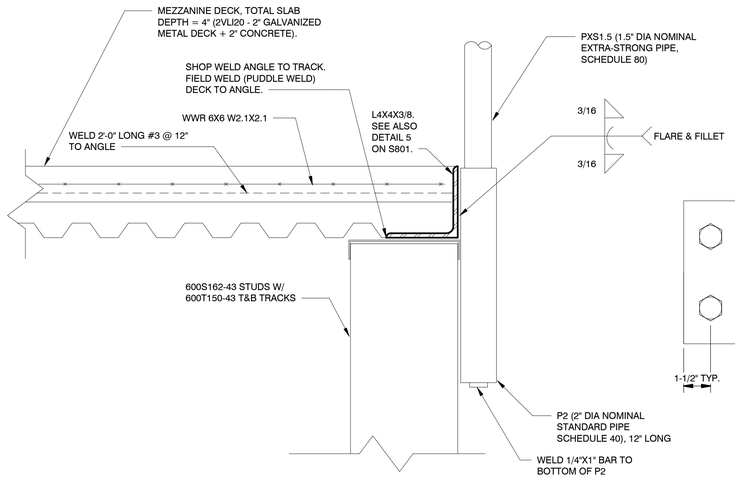
SCALE: 1 1/2" = 1'-0"



4 S701 PARTIAL ROOF FRAMING PLAN

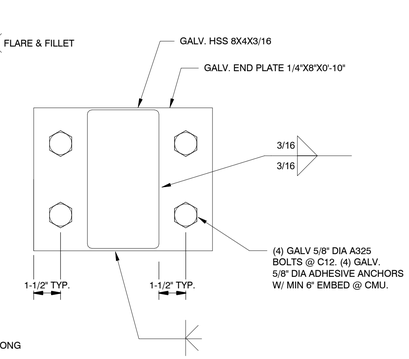
SCALE: 1/8" = 1'-0"

N



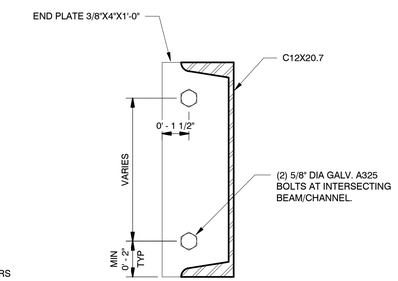
5 S701 REMOVABLE GUARDRAIL AT MEZZANINE

SCALE: 3" = 1'-0"



6 S701 HSS 8X4 CONNECTION DETAIL

SCALE: 3" = 1'-0"



7 S701 C12X20.7 CONNECTION DETAIL

SCALE: 3" = 1'-0"

ENGINEER/ARCHITECT SEAL/SIGNATURE

your trusted advisor consultants engineers architects planners

REV	ISSUE	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

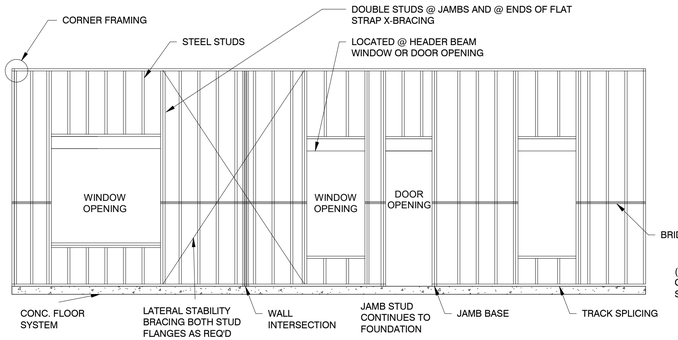
DATE: 10/17/2019
DRAWN BY: AP
CHECKED BY: PCP
APPROVED BY:
F.B. NO.
PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

TYPICAL STEEL DETAILS

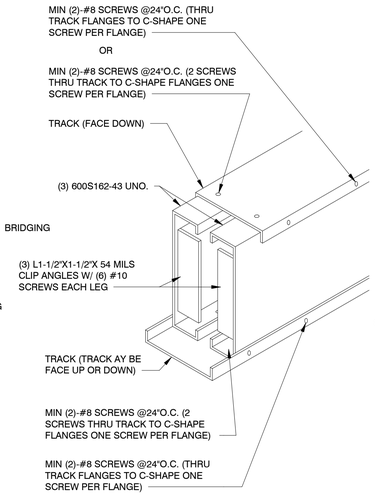
SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET S701

11/19/2019 10:04:52 AM

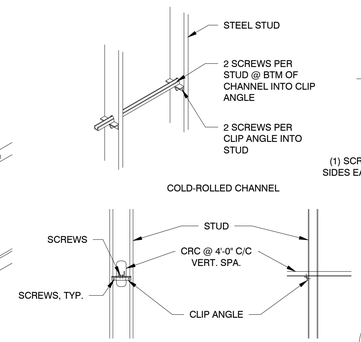


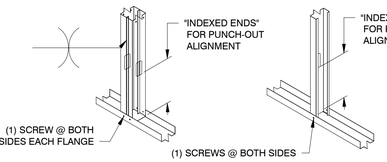
NOTES:
1. JAMB MEMBERS MUST BE CARRIED DOWN ALL WALLS TO CONCRETE FLOOR SLAB (TYP.).
2. HEADERS FOR OPENINGS MAY BE LOCATED DIRECTLY ABOVE OPENING OR AT JOIST BEARING. WHEN LOCATED AT WINDOW HEAD, CRIPPLE STUDS MUST BE TIGHTLY SEATED FOR FULL BEARING

1 S801 TYP. WALL FRAMING ELEVATION
SCALE: N.T.S.



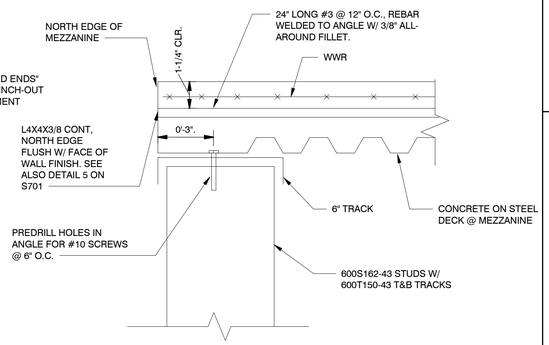
3 S801 BRIDGING DETAIL
SCALE: N.T.S.





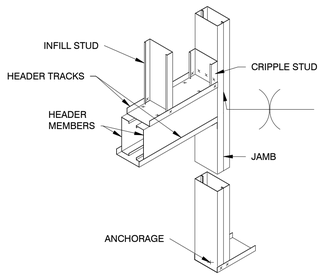
NOTE:
LOAD BEARING STUDS MUST BE SEATED TIGHT TO TRACK WEB (MAX. GAP OF 1/16")

4 S801 TYP. STUD TO TRACK CONNECTIONS
SCALE: N.T.S.

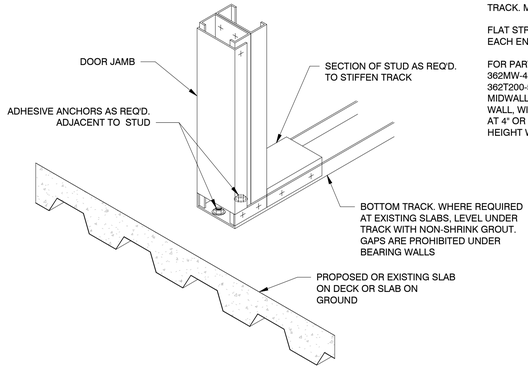


NOTE: USE COLD-FORMED STEEL POUR STOPS PER SDI AT SOUTH, EAST & WEST EDGES OF MEZZANINE SLAB.

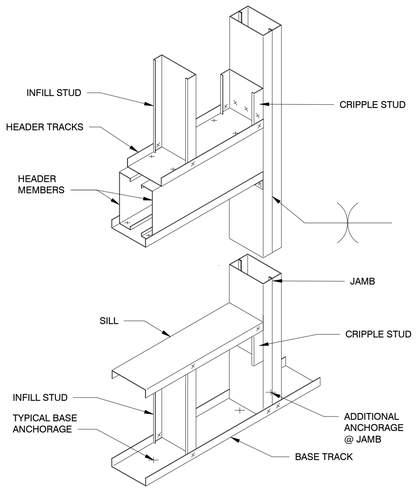
5 S801 NORTH EDGE OF MEZZANINE
SCALE: 3" = 1'-0"

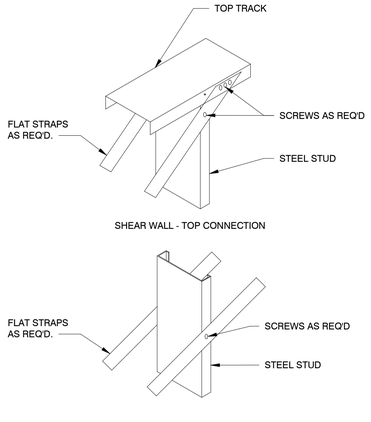


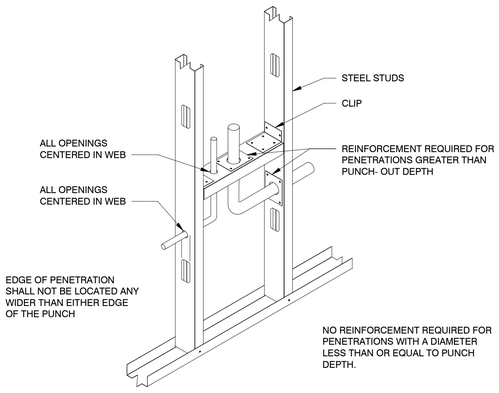
9 S801 FRAMING AT DOOR
SCALE: N.T.S.



2 S801 HEADER DETAIL
SCALE: N.T.S.

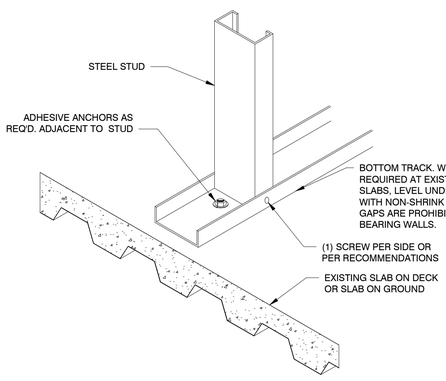




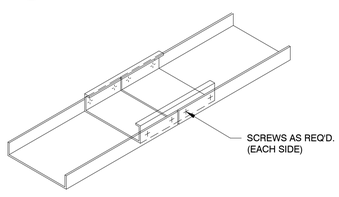


NOTES:
1. FLANGES SHALL NOT BE NOTCHED OR CUT.
2. CAPACITY VERIFICATION BY DESIGN IS REQ. FOR ANY OPENINGS LOCATED AT CONCENTRATED LOADS AND BEARING ENDS.
3. APPLICABLE TO TRACK, STUDS, JOISTS & RAFTERS

8 S801 STUD WEB PENETRATIONS
SCALE: N.T.S.

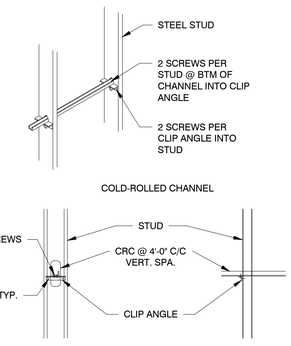


11 S801 WALL BASE TO FLOOR SLAB
SCALE: N.T.S.

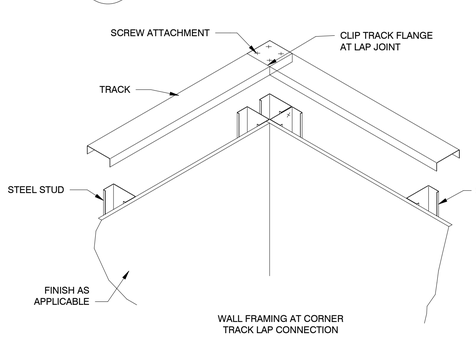


7 S801 BRACING DETAIL
SCALE: N.T.S.

12 S801 TOP AND BOTTOM TRACK SPLICE
SCALE: N.T.S.

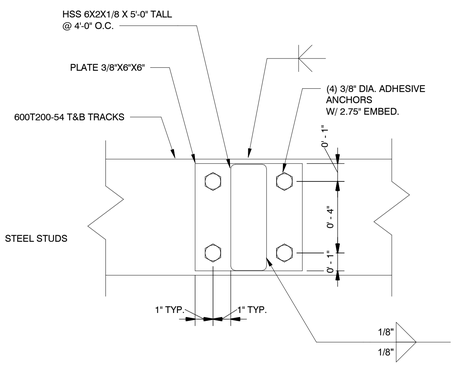


13 S801 DETAIL
SCALE: N.T.S.



WALL FRAMING AT CORNER
TRACK LAP CONNECTION

14 S801 TYP. CORNER FRAMING
SCALE: N.T.S.



15 S801 TYP. PARTIAL HEIGHT WALL ANCHOR
SCALE: 3" = 1'-0"

LIGHT GAUGE (COLD-FORMED) STEEL NOTES:

FOR MIL THICKNESSES OF 18 MILS TO 43 MILS (INCLUSIVE) THE MINIMUM STEEL YIELD STRESS IS 33 KSI. THICKNESSES OF 54 MILS AND GREATER ARE TO HAVE A MINIMUM YIELD STRESS OF 50 KSI, UNO.

ALL WELDING OF LIGHT GAUGE STEEL TO BE PERFORMED BY A WELDER QUALIFIED TO WELD LIGHT GAUGE STEEL.

FOR EXTERIOR STUD WALLS WITH MASONRY FACADES, WITH HEIGHTS UP TO 13'4" BETWEEN LATERAL SUPPORTS, EXTERIOR/PERIMETER STEEL STUD WALLS SHALL BE 600S162-43 @ 16" O.C., WITH 600T150-43 T&B, UNO.

FOR INTERIOR LOAD BEARING STUD WALLS, WITH UP TO 12'0" HEIGHTS BETWEEN LATERAL SUPPORTS, STEEL STUD WALLS SHALL BE 600S162-43 @ 16" O.C. (DOUBLE STUDS [] AT DOOR JAMBS AND @ ENDS OF FLAT STRAP X-BRACING), WITH 600T150-43 T&B, UNO.

DO NOT HANG SHELF ANGLES FOR MASONRY SUPPORT ON STEEL STUD WALLS.

ANCHORAGE OF BOTTOM TRACKS TO THE CONCRETE SHALL BE 3/8" Ø ADHESIVE ANCHORS SPACED AT MAX 4'0" O.C. AND WITHIN 12" OF EACH END OF EACH TRACK. MIN 2 ANCHORS PER LENGTH OF TRACK, 1-3/4" EMBED.

FLAT STRAP FOR X-BRACING SHALL BE 43 MILS X 2" WIDE WITH (3) #10 SCREWS @ EACH END & (1) #10 SCREW @ EACH STUD, UNO.

FOR PARTIAL-HEIGHT 3-5/8" STUD WALLS UP TO 4' HIGH, USE TSN MIDWALL 362MW-48 @ 32" O.C. WITH (2) 362MW-48 @ 16" O.C. AT EACH END OF WALL, WITH 362T200-54 T&B. FOR PARTIAL-HEIGHT 3-5/8" STUD WALLS UP TO 5' HIGH, USE TSN MIDWALL 362MW-48 @ MAX 16" O.C. WITH (2) 362MW-48 @ 8" O.C. AT EACH END OF WALL, WITH 362T200-54 T&B. USE ADHESIVE ANCHORAGE WITH 3-1/2" EMBEDMENT. AT 4" OR 5" SOG, THICKEN SOG TO 6" THICK X 3'-WIDE, CENTERED ON PARTIAL-HEIGHT WALL, WITH AN ADDITIONAL LAYER OF WWR.

ENGINEER/ARCHITECT SEAL/SIGNATURE

engineers architects planners
your trusted advisor consultants

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

DATE: 10/17/2019
DRAWN BY: AP
CHECKED BY: PCP
APPROVED BY:
F.B. NO.
PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

TYPICAL LIGHT GAUGE DETAILS

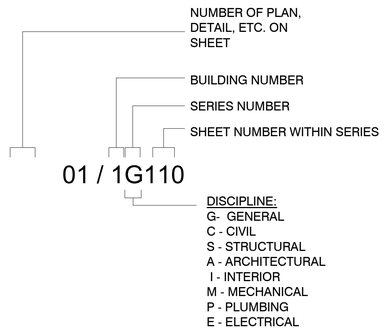
SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET S801

11/19/2019 10:04:53 AM

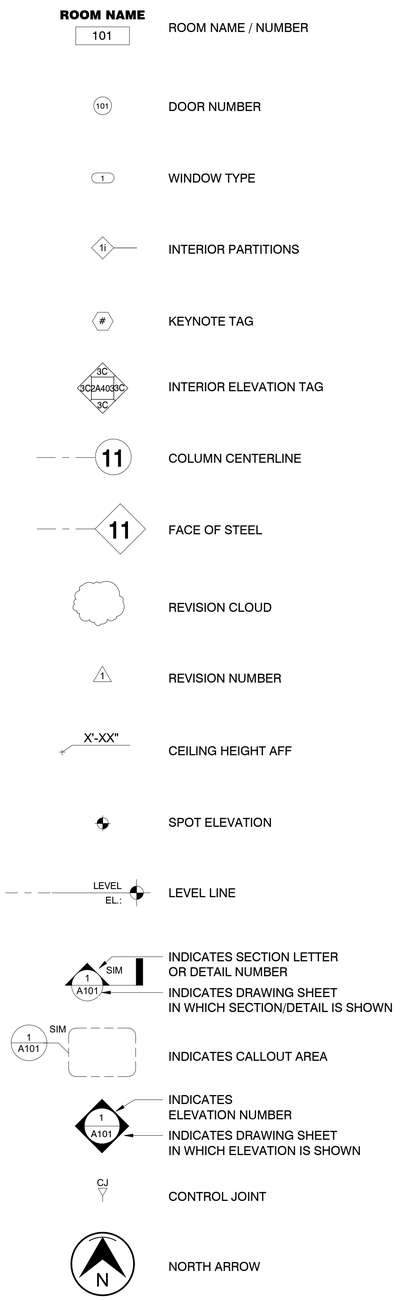
DRAWING ABBREVIATIONS

AB	ANCHOR BOLT
ABV	ABOVE
AC	ACOUSTICAL / AIR CONDITIONING
ACT	ACOUSTICAL CEILING TILE
AD	AREA DRAIN
ADA	AMERICANS WITH DISABILITIES ACT
ADDL	ADDITIONAL
ADJ	ADJUSTABLE
ADJT	ADJACENT
A/E	ARCHITECT/ENGINEER
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AFS	ABOVE FINISHED SLAB
AGG	AGGREGATE
AHU	AIR HANDLING UNIT
AIB	AIR INFILTRATION BARRIER
ALT	ALTERNATE
ALUM	ALUMINUM
ANOD	ANODIZE
APPROX	APPROXIMATE
ARCH	ARCHITECT
AUX	AUXILIARY
A/V	AUDIO / VISUAL
AVG	AVERAGE
B/	BOTTOM OF
B/B	BACK TO BACK
B/F	BOTTOM OF FOOTING
BD	BOARD
BDRY	BOUNDARY
BHMA	BUILDER'S HARDWARE MANUFACTURER'S ASSOCIATION
BLDG	BUILDING
BLKG	BLOCKING
BOS	BOTTOM OF STEEL
BOT	BOTTOM
BP	BASE PLATE
BRG	BEARING
BRK	BRICK
BRKT	BRACKET
BSMT	BASEMENT
BTWN	BETWEEN
BUR	BUILT-UP ROOFING
BW	BOTH WAYS
CAB	CABINET
CB	CATCH BASIN
CCTV	CLOSED CIRCUIT TV
CD	CONSTRUCTION DOCUMENTS
CDR	CARD READER
CEM	CEMENT
CER	CERAMIC
CF	CONTRACTOR FURNISHED
CF/CI	CONTRACTOR FURNISHED / CONTRACTOR INSTALLED
CFMF	COLD-FORMED METAL FRAMING
CG	CORNER GUARD
CIP	CAST-IN-PLACE
CJ	CONTROL JOINT
CL	CENTER LINE
CLG	CEILING
CLG HT	CEILING HEIGHT
CLO	CLOSET
CLR	COLOR, CLEARANCE
CLRM	CLASSROOM
CMU	CONCRETE MASONRY UNIT
CO	CLEANOUT
COL	COLUMN
COMB	COMBINATION
COMM	COMMUNICATION
CONC	CONCRETE
CONF	CONFERENCE
CONST	CONSTRUCTION
CONT	CONTINUOUS
CONTR	CONTRACTOR
COORD	COORDINATE
CORR	CORRIDOR, CORRUGATED
CPT	CARPET
CSWK	CASEWORK
CT	CERAMIC TILE
CTR	CENTER
CU FT	CUBIC FEET
D	DEPTH
DBL	DOUBLE
DEMO	DEMOLITION
DEPT	DEPARTMENT
DET	DETAIL
DF	DRINKING FOUNTAIN
DIA	DIAMETER
DIAG	DIAGONAL. DIAGRAM
DIM	DIMENSION
DIR	DIRECTION
DIST	DISTANCE
DL	DEAD LOAD
DN	DOWN
DOC	DOCUMENT
DR	DOOR
DS	DOWNSPOUT
DWG	DRAWING
EA	EACH
EF	EACH FACE
EIFS	EXTERIOR INSULATION AND FINISH SYSTEM
EB	EXPANSION BOLT
EJ	EXPANSION JOINT
ES	EACH SIDE
EL	ELEVATION
ELEC	ELECTRIC
ELEV	ELEVATOR
EMER	EMERGENCY
EPS	EXPANDED POLYSTYRENE BOARD (INSULATION)
EQ	EQUAL
EWC	ELECTRIC WATER COOLER
EXP	EXPOSED
EXT	EXTERIOR, EXTINGUISHER
F/	FACE OF
F/C	FACE OF CONCRETE
F/F	FACE TO FACE, FLOOR TO FLOOR
F/M	FACE OF MASONRY
F/S	FACE OF STUDS
FA	FIRE ALARM
FD	FLOOR DRAIN
FDN	FOUNDATION
FE	FIRE EXTINGUISHER
FEC	FIRE EXTINGUISHER CABINET
FF	FINISH FLOOR
FF&E	FIXTURE, FURNISHING & EQUIPMENT
FHC	FIRE HOSE CABINET
FHR	FIRE HOSE RACK
FIN	FINISH
FLR	FLOOR
FM	FACTORY MUTUAL
FP	FIRE PROOFING
FR	FRAME
FTG	FOOTING
FUR	FURRING
FUT	FUTURE
FVC	FIRE VALVE CABINET
GA	GAUGE
GAL	GALLON
GALV	GALVANIZED
GB	GRAB BAR
GC	GENERAL CONTRACTOR
GEN	GENERAL, GENERATOR
GL	GLASS
GR	GRADE
GR BM	GRADE BEAM
GRD	GROUND
GUT	GUTTER
GYP BD	GYPSUM BOARD
H	HIGH
HB	HOSE BIBB
HC	HANDICAPPED
HD	HEAVY DUTY
HDR	HEADER
HDW	HARDWARE
HM	HOLLOW METAL
HORIZ	HORIZONTAL
HP	HIGH POINT
HT	HEIGHT
HTR	HEATER
HVAC	HEATING, VENTILATING, & AIR CONDITIONING
HWD	HARDWOOD
IBC	INTERNATIONAL BUILDING CODE
ID	INSIDE DIAMETER
ILO	IN LIEU OF
IN	INCH
INFO	INFORMATION
INSUL	INSULATION
INT	INTERIOR
INV	INVERT
J	JOIST
JAN	JANITOR
JB	JUNCTION BOX
JT	JOINT
KD	KNOCK DOWN
KIP	KILO-POUND
KIT	KITCHEN
KO	KNOCKOUT
KPL	KICKPLATE
LAM	LAMINATE
LAV	LAVATORY
LBR	LUMBER
LB	POUND
LF	LINEAR FEET (FOOT)
LH	LEFT HAND
LIN	LINEAR
LKR	LOCKER
LL	LIVE LOAD
LLH	LONG LEG HORIZONTAL
LLV	LONG LEG VERTICAL
LLV	LONG LEG VERTICAL
LOC	LOCATION
LP	LOW POINT
LT	LIGHT
LTWT	LIGHT WEIGHT
LVR	LOUVER
MAINT	MAINTENANCE
MAS	MASONRY
MATL	MATERIAL
MAX	MAXIMUM
MECH	MECHANICAL
MEMB	MEMBRANE
MEZZ	MEZZANINE
MFR	MANUFACTURER
MIN	MINIMUM, MINUTE
MISC	MISCELLANEOUS
MM	MILLIMETER
MO	MASONRY OPENING
MOD	MODULAR, MODIFY
MOV	MOVABLE
MTD	MOUNTED
MTL	METAL
MULL	MULLION
NA	NOT APPLICABLE
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NIC	NOT IN CONTRACT
NO	NUMBER
NOM	NOMINAL
NRC	NOISE REDUCTION COEFFICIENT
NTS	NOT TO SCALE
OA	OVERALL
OC	ON CENTER
OD	OUTSIDE DIAMETER
OF	OUTSIDE FACE
OFD	OVERFLOW DRAIN
OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED OWNER INSTALLED
OPH	OPPOSITE HAND
OPNG	OPENING
OPP	OPPOSITE
OWSJ	OPEN WEB STEEL JOIST
OPR	OPERABLE
ORD	OVERFLOW ROOF DRAIN
ORIG	ORIGINAL
OZ	OUNCE
PA	PUBLIC ADDRESS
PAR	PARAPET
PAT	PATTERN
PB	PULL BOX
PBD	PARTICLEBOARD
PCF	POUNDS PER CUBIC FOOT
PCT	PERCENT
PERF	PERFORATED
PERIM	PERIMETER
PH	PHASE
PL	PROPERTY LINE
PLAM	PLASTIC LAMINATE
PLAS	PLASTER, PLASTIC
PLBG	PLUMBING
PLG	PILING
PLYWD	PLYWOOD
PNL	PANEL
PR	PAIR
PRCST	PRECAST
PRKG	PARKING
PROP	PROPERTY, PROPOSED
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PAINT, POINT, PRESSURE TREATED
PTN	PARTITION
PWR	POWER
QT	QUARRY TILE
QTY	QUANTITY
R	RADIUS, RISER
RB	RESILIENT BASE
RBM	REINFORCED BRICK MASONRY
RBR	RUBBER
RC	REINFORCED CONCRETE
RCP	REFLECTED CEILING PLAN
RD	ROOF DRAIN
RGD INS	RIGID INSULATION, SOLID
REC	RECESSED
REF	REFERENCE
REM	REMOVABLE
REP	REPAIR
REQ	REQUIRE
REQD	REQUIRED
RESIL	RESILIENT
REV	REVISED, REVISION
RFG	ROOFING
RH	RIGHT HAND
RHR	RIGHT HAND REVERSE
RL	ROOF LEADER
RLG	RAILING
RM	ROOM
RND	ROUND
RO	ROUGH OPENING
RVL	REVEAL
SAN	SANITARY
SB	SPLASH BLOCK
SCHED	SCHEDULE
SD	SMOKE DETECTOR
SF	SQUARE FOOT (FEET)
SGL	SINGLE
SH	SHOWER
SHT	SHEET
SHTHG	SHEATHING
SHV	SHELVING
SIM	SIMILAR
SJ	SCORED JOINT
SK	SINK
SLV	SLEEVE
SM	SHEET METAL
SPEC	SPECIFICATION
SQ	SQUARE
SQ IN	SQUARE INCH
SQ YD	SQUARE YARD
SST	STAINLESS STEEL
ST	STAIRS
STC	SOUND TRANSMISSION CLASS
STD	STANDARD
STL	STEEL
STOR	STORAGE
STR	STRUCTURAL
SUB FL	SUBFLOOR
SUPP	SUPPLEMENTAL
SW	SIDEWALK, SHORT WAY
SYM	SYMMETRICAL
SYS	SYSTEM
T	TREAD
T&B	TOP & BOTTOM
T&G	TONGUE & GROOVE
T/	TOP OF
T/BM	TOP OF BEAM
T/C	TOP OF CONCRETE, TOP OF CURB
T/COL	TOP OF COLUMN
T/FTG	TOP OF FOOTING
T/J	TOP OF JOIST
T/S	TOP OF STEEL
TB	TEST BORING
TD	TRENCH DRAIN
TEL	TELEPHONE
TEMP	TEMPORARY
TER	TERRAZZO
THK	THICK
TKBD	TACKBOARD
TOPO	TOPOGRAPHY
TV	TELEVISION
TYP	TYPICAL
UC	UNDERCUT
UG	UNDERGROUND
UH	UNIT HEATER
UL	UNDERWRITERS LABORATORY
UNF	UNFINISHED
UNO	UNLESS NOTED OTHERWISE
USGS	UNITED STATES GEOLOGICAL SURVEY
VAR	VARIES
VCT	VINYL COMPOSITION TILE
VERT	VERTICAL
VIF	VERIFY IN FIELD
VTR	VENT THRU ROOF
VWC	VINYL WALL COVERING
W	WIDE, WIDTH
W/	WITH
W/O	WITHOUT
WC	WATER CLOSET
WD	WOOD
WF	WIDE FLANGE
WH	WALL HYDRANT, WATER HEATER
WL	WIND LOAD
WP	WATERPROOFING, WORK POINT
WSCT	WAINSCOT
WT	WEIGHT
WWF	WELDED WIRE FABRIC
YD	YARD DRAIN

DRAWING REFERENCE



DRAWING SYMBOLS



your trusted advisor
engineers
architects
planners
consultants

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

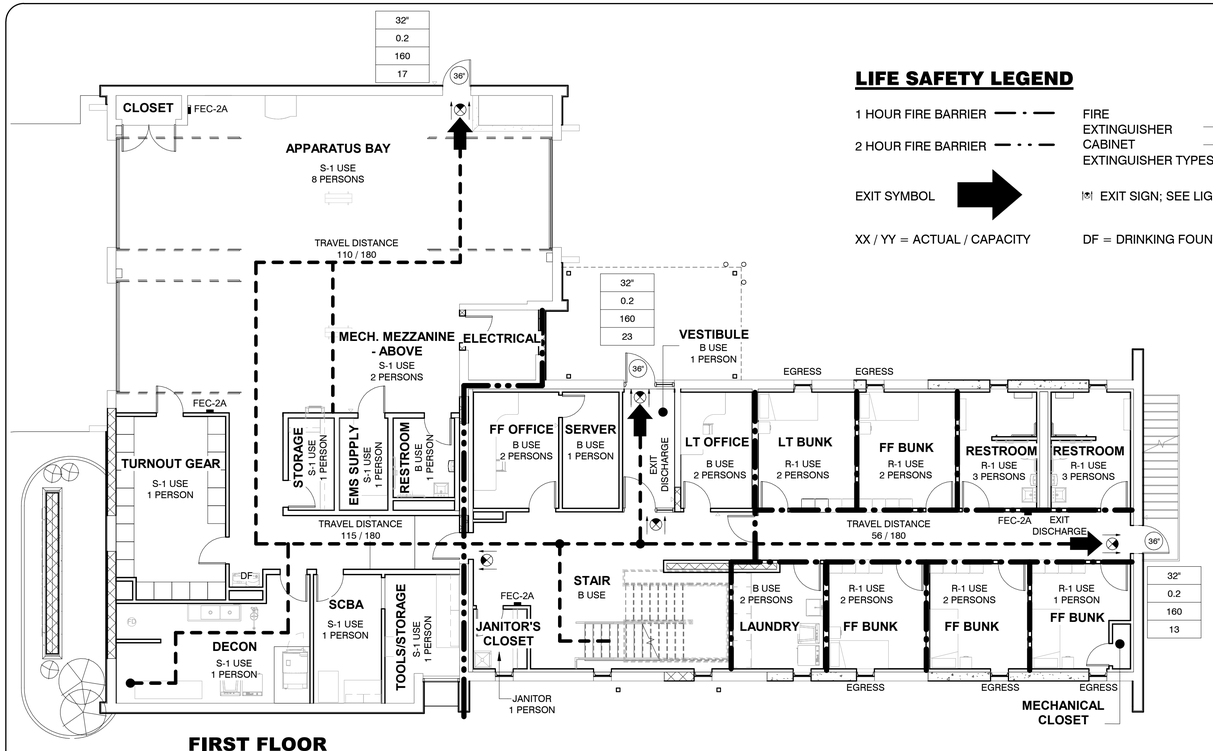
DATE:	11/20/2019
DRAWN BY:	DVUR
CHECKED BY:	MAND
APPROVED BY:	
F.B. NO.	
PG.	

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

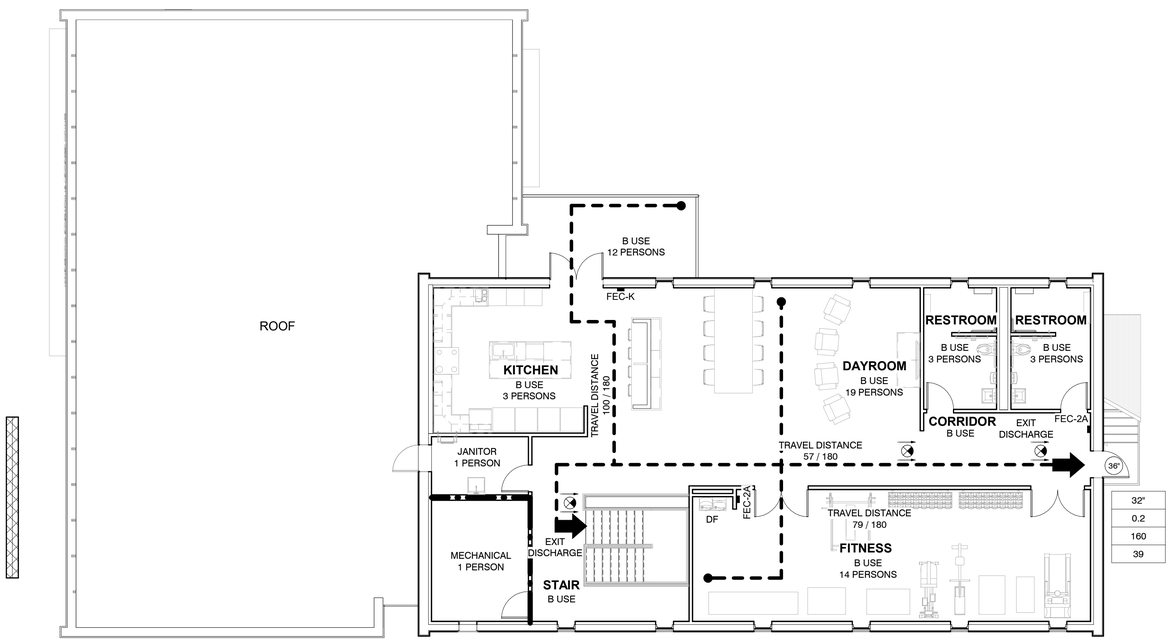
ABBREVIATIONS AND SYMBOLS

SCALE:	1/8" = 1'-0"
HORZ:	
VERT:	
CONTRACT NO:	170636
SHEET	A001

11/19/2019 12:52:09 PM



FIRST FLOOR
LIFE SAFETY PLAN
1 / A002 — 1/8" = 1'-0"



SECOND FLOOR
LIFE SAFETY PLAN
2 / A002 — 1/8" = 1'-0"

GRAPHIC SCALE
0 8 16 24 32

11/19/2019 12:52:12 PM

LIFE SAFETY LEGEND

1 HOUR FIRE BARRIER — · — · —
2 HOUR FIRE BARRIER — · — · —
EXIT SYMBOL
XX / YY = ACTUAL / CAPACITY

FIRE EXTINGUISHER CABINET — FEC
EXTINGUISHER TYPES: 2A, K
EXIT SIGN; SEE LIGHTING DWGS.
DF = DRINKING FOUNTAIN

EXIT CAPACITY (DOORS)

36"	WIDTH
0.2	WIDTH PER OCCUPANT PER NFPA 101 T 7.3.3.1
160	MAXIMUM OCCUPANT CAPACITY
8	ACTUAL OCCUPANT LOAD
36"	DOOR WIDTH

TABLE 3412.7
SUMMARY SHEET - BUILDING CODE

Existing occupancy: Primary "B" 1ST S-2, B 2ND B, R-1	Proposed occupancy: Primary "B" 1ST S-2, B, R-1, 2ND B, S-1 (ACCESSORY)
Year building was constructed: 1970	Number of stories: 2 Height in feet: 26'
Type of construction: III B	Area per floor: 1ST 5713 2ND 3015
Percentage of open perimeter increase: 1.5%	
Completely suppressed: Yes (No)	Corridor wall rating: 1 Hr.
	Type:
Compartmentation: (Yes)	Required door closers: (Yes) No
Fire-resistance rating of vertical opening enclosures: ϕ Hr.	
Type of HVAC system: A/C & Furnace	, serving number of floors: 2
Automatic fire detection: Yes No	Type and location:
Fire alarm system: (Yes) No	Type:
Smoke control: (Yes) No	Type:
Adequate exit routes: (Yes) No	Dead ends: Yes (No)
Maximum exit access travel distance: 115	Elevator controls: Yes (No)
Means of egress emergency lighting: (Yes) No	Mixed occupancies: (Yes) No
Standpipes: Yes (No)	Patient ability for self-preservation ϕ
Incidental use: Yes (No)	Patient concentration ϕ
Smoke compartmentation less than 22,500 sq. ft. (2092 m2): Yes (No)	Attendant-to-patient ratio ϕ

SAFETY PARAMETERS	FIRE SAFETY (FS)	MEANS OF EGRESS (ME)	GENERAL SAFETY (GS)
3412.6.1 Building Height 3412.6.2 Building Area 3412.6.3 Compartmentation	8 20 14	8 20 14	8 20 14
3412.6.4 Tenant and Dwelling Unit Separations 3412.6.5 Corridor Walls 3412.6.6 Vertical Openings	~~8~~ ~~8~~ 2	~~8~~ ~~8~~ 2	~~8~~ ~~8~~ 2
3412.6.7 HVAC Systems 3412.6.8 Automatic Fire Detection 3412.6.9 Fire Alarm Systems	~~0~~ ~~0~~ 5	~~0~~ ~~0~~ 5	~~0~~ ~~0~~ 5
3412.6.10 Smoke Control	***	ϕ	ϕ
3412.6.11 Means of Egress Capacity	***	ϕ	ϕ
3412.6.12 Dead Ends	***	2	2
3412.6.13 Maximum Exit Access Travel Distance	***	8	8
3412.6.14 Elevator Control		-2	-2
3412.6.15 Means of Egress Emergency Lighting	***	4	4
3412.6.16 Mixed Occupancies		***	ϕ
3412.6.17 Automatic Sprinklers		-3 ÷2 = -1.5	-3
3412.6.18 Standpipes		ϕ	ϕ
3412.6.19 Incidental Use		ϕ	ϕ
3412.6.20 Smoke compartmentation		ϕ	ϕ
3412.6.21.1 Patient ability for self-preservation	****	ϕ	ϕ
3412.6.21.2 Patient concentration	****	ϕ	ϕ
3412.6.21.3 Attendant-to-patient Ratio	****	ϕ	ϕ
Building score — total value	57	67.5	66
Mandatory Score	24	34	34

CODE COMPLIANCE SUMMARY

PROJECT DESCRIPTION:
EXISTING TWO-STORY FIRE STATION TO BE RENOVATED WITH THE CURRENT BUILDING USE AND FOOTPRINT TO REMAIN AS-IS. PROJECT SCOPE INCLUDES SELECTIVE DEMOLITION OF EXISTING INTERIOR NON-LOAD BEARING PARTITION WALLS, REPLACEMENT OF ALL EXTERIOR WINDOW AND DOOR UNITS. DEMOLITION INCLUDES REMOVAL OF CHANGED AND OBSOLETE INTERIOR AND EXTERIOR MECHANICAL, ELECTRICAL AND PLUMBING EQUIPMENT. NEW INTERIOR BUILDING SPACES ARE PLANNED. NEW INTERIOR WALLS, DOORS, WINDOWS, EXTERIOR SIDING, ROOF AND SITE ELEMENTS ARE ALSO PLANNED. IMPROVED BUILDING CIRCULATION AND MEANS OF EGRESS WILL BE ADA COMPLIANT.

EXISTING CONDITIONS INCLUDE:
THE EXISTING FIRE STATION, IS 8,728 TOTAL GSF, TYPE III-B CONSTRUCTION, NON-SEPARATED, NON-SPRINKLED MIXED-USE AND CLASSIFIED AS PRIMARY "B" OCCUPANCY WITH BUSINESS OFFICE, TRANSIENT RESIDENTIAL, ACCESSORY ASSEMBLY AND VEHICLE STORAGE (NOT USED FOR REPAIR) USES. THE BUILDING HAS A FIRE-SEPARATION DISTANCE OF GREATER THAN 30' PERIMETER OPEN SPACE ON ALL FOUR SIDES TO ADJACENT STRUCTURES. THE EXTERIOR ENVELOPE WALLS ARE PRECAST CONCRETE AND MULTI-WYTHE MASONRY CONSTRUCTION DESIGNED TO BE NON-COMBUSTIBLE, APPROXIMATELY 1'-4" THICK. THE EXISTING FLOOR/CEILING ASSEMBLY IS 8" CAST-IN-PLACE CONCRETE AND HAS AT LEAST A 2 HOUR FIRE RATING. THE EXISTING BUILDING ENTRY DOES NOT MEET ADAAG REQUIREMENTS FOR AN ACCESSIBLE ROUTE; THE UTILITY AND MECHANICAL ROOMS ROOM HAVE NOT BEEN UPGRADED AND BASED ON INTENDED USE BY ABLE-BODIED PERSONNEL ONLY. THE BUILDING HAS AN EXISTING FIRE ALARM SYSTEM WITH CALL CENTER NOTIFICATION AND AT LEAST ONE STAFF MEMBER IS ON-CALL AND AVAILABLE 24 HOURS/DAY. THE BUILDING ALSO HAS AN EXTERIOR STAIR SERVING SECOND FLOOR LEVEL FROM EXTERIOR DOOR EXITING TO A PUBLIC WAY.

NEW CONDITIONS INCLUDE:
NEW EXTERIOR METAL PANEL BUILDING SKIN, NEW INSULATED WINDOWS AND DOORS, NEW INSULATED EXTERIOR WALL FURRING, NEW ROOF INSULATION AND DECKING, A REDUCTION OF THE NUMBER OF APPARATUS BAYS FROM 4 TO 2, INFILLING WITH NEW EQUIPMENT STORAGE AND SERVICES. NEW FIRST FLOOR BUNKROOMS WILL BE ADA COMPLIANT AND HAVE TWO MEANS OF EGRESS WITH OPERABLE EGRESS WINDOWS AND ONE HOUR FIRE SEPARATION PARTITIONS BETWEEN EACH ROOM AND WITH THE CORRIDOR.

APPLICABLE BUILDING CODES
OHIO BUILDING CODE CHAPTER 34 – EXISTING BUILDINGS AND STRUCTURES
OHIO BUILDING CODE 2017 WITH AUGUST 2018 AMENDMENTS AND 02-08-2019 ERRATA
OHIO PLUMBING CODE 2017 WITH AUGUST 2018 AMENDMENTS
OHIO MECHANICAL CODE 2017 WITH AUGUST 2018 AMENDMENTS
NATIONAL ELECTRIC CODE 2017 - NFPA 70
OHIO FIRE CODE 2011
OHIO ENERGY CODE 2017 (INCLUDING ASHRAE 90.1 2010)
ICC ANSI A117.1-2009 (INCLUDING OHIO AMENDMENTS ADA STANDARDS FOR ACCESSIBLE DESIGN 2010

BASIC BUILDING DATA
USE GROUP CLASSIFICATION:
302.3 ASSEMBLY GROUP B (PRIMARY), S-1 & R-1 (SECONDARY)

CONSTRUCTION TYPE:
602.2 IIIB (UNPROTECTED; EXTERIOR WALLS NON-COMBUSTIBLE CONSTRUCTION, INTERIOR BUILDING ELEMENTS ANY MATERIAL)

BUILDING AREA:
AREA ALLOWABLE AREA PER OBC 506.2 = 19,000 SF
ACTUAL AREA OF FIRST FLOOR = 5,713 SF (GROSS)
ACTUAL AREA OF SECOND FLOOR = 3,015 SF (GROSS)
HEIGHTALLOWABLE HEIGHT = 3 STORIES
ACTUAL BUILDING HEIGHT = 2 STORIES (PARTIAL) / 26' HIGH

506.2.1 SINGLE-OCCUPANCY, MIXED-USE PARTIAL TWO STORY BUILDING, NON-SPRINKLED

FIRE RATING REQUIREMENTS (TABLE 601/602):

PRIMARY STRUCTURAL FRAME	0 HR
BEARING WALLS (EXTERIOR)	2 HR
BEARING WALLS (INTERIOR)	0 HR
NONBEARING WALLS (INTERIOR OR EXTERIOR > 10' TO PROP LINE)	0 HR
FLOOR CONSTRUCTION	0 HR
ROOF CONSTRUCTION	0 HR

INTERIOR FINISHES (TABLE 803.11)
A CLASS "A" FLAME SPREAD INDEX (0-25) WALLS AND CEILINGS, INTERIOR EXIT PASSAGEWAYS, CORRIDORS, EXIT ACCESS RAMPS.
C CLASS "C" FLAME SPREAD INDEX (26-75) ROOMS AND ENCLOSED SPACES
B CLASS "B" FLAME SPREAD INDEX (76-200) LOBBIES, INTERIOR EXIT PASSAGEWAYS, CORRIDORS, EXIT ACCESS RAMPS AND SPACES OPEN TO THEM.

FLOORS: NOT LESS THAN CLASS II, AND SHALL COMPLY WITH DOC FF-1 "PILL TEST".

FIRE PROTECTION REQUIREMENTS
903 GROUP B - AUTOMATIC SPRINKLER SYSTEM NOT REQUIRED / NOT PROVIDED
904.12 COMMERCIAL COOKING SYSTEM REQUIRED / PROVIDED (ANSUL) PER UL 300
906 PORTABLE FIRE EXTINGUISHERS REQUIRED / PROVIDED PER INTERNATIONAL FIRE CODE, 2011 OHIO FIRE CODE AND NFPA 10.
907.2.2 GROUP B - MANUAL FIRE ALARM SYSTEM NOT REQUIRED / PROVIDED
907.2.11 SINGLE AND MULTIPLE-STATION SMOKE ALARMS REQUIRED / PROVIDED

MEANS OF EGRESS REQUIREMENTS (Chapter 10)
TBL1006.2.1 GROUP B > 49 OCC, OR > 100' MAX COMMON PATH OF TRAVEL W/O SPRINKLER
1006.2 ROOMS, AREAS, OR SPACES WITH OCCUPANCY GREATER THAN 49 AND LESS THAN 500 SHALL HAVE TWO EXITS OR EXIT ACCESS DOORWAYS.
1010.1.2.1 DOORS SHALL SWING IN THE DIRECTION OF EGRESS WHERE SERVING AN OCCUPANT LOAD OF 50 OR MORE.
1010.1.1 DOOR WIDTH: .15" PER PERS., MIN. 32" CLEAR TO STOPS.
TBL. 1017.2 MAXIMUM EXIT ACCESS TRAVEL DISTANCE FOR "B" USE GROUPS: 200'-0".
1020.4 DEAD END CORRIDORS SHALL NOT EXCEED 20'-0".

OCCUPANCY CALCS. (TABLE 1004.1.2)	OCCUPANT LOAD BY USE	AREA	OCCUPANTS
TOILET ROOMS	50 SF/ OCC. GROSS	526 SF	13 OCC.
ACCESSORY STORAGE/MECHANICAL	300 SF/ OCC. GROSS	1319 SF	5 OCC.
APPARATUS BAY (PARKING GARAGE)	200 SF/ OCC. GROSS	1561 SF	8 OCC.
BUSINESS AREAS (1ST FLR. OFF./LAUND)	100 SF/ OCC. GROSS	414 SF	5 OCC.
FITNESS	50 SF/ OCC. GROSS	655 SF	14 OCC.
KITCHEN	200 SF/ OCC. GROSS	500 SF	3 OCC.
EDUCATIONAL CLASSROOM (DAYROOM)	20 SF/ OCC. GROSS	380 SF	19 OCC.
DECK	15 SF/ OCC. GROSS	170 SF	12 OCC.
BUNK ROOMS	120 SF/ OCC. GROSS	656 SF	9 OCC.

CALCULATED OCCUPANCY FOR ENTIRE BUILDING (B): TOTAL 88 OCC.

EXITING CALCS. (TBL. 1006.3.1)	AREA	OCCUPANCY	EXITS REQ'D	EXITS PROV'D
TOILET ROOMS	526 SF	11 OCC.	1	1
ACCESSORY STORAGE/MECHANICAL	1319 SF	5 OCC.	1	1
APPARATUS BAY (PARKING GARAGE)	1561 SF	8 OCC.	1	1
BUSINESS AREAS (1ST FLR. OFF./LAUND)	414 SF	5 OCC.	1	2
FITNESS	655 SF	14 OCC.	1	1
KITCHEN	500 SF	3 OCC.	1	2
EDUCATIONAL CLASSROOM (DAYROOM)	380 SF	19 OCC.	1	2
DECK	170 SF	12 OCC.	1	1
BUNK ROOMS	656 SF	9 OCC.	1	1

(BUILDING ENTRY DOORS REMAIN OPEN AT ALL TIMES)

ACCESSIBILITY
THIS BUILDING AND FACILITY HAS NEW ACCESSIBILITY FEATURES IN ACCORDANCE WITH IBC CHAPTER 11 ACCESSIBILITY AND ICC A117.1

PLUMBING FIXTURE REQUIREMENTS (TBL. 2902.1)
RESTROOM REQUIREMENTS FOR OVERALL BUILDING BASED ON CODE ALLOWABLE OCCUPANCY = 88 OCC./2 = 44 MALE AND 44 FEMALE:

WATER CLOSETS:
MALE: 1/125 1 REQ'D / 3 PROVIDED
FEMALE: 1/65 1 REQ'D / 2 PROVIDED

LAVATORIES:
MALE: 1/200 1 REQ'D / 3 PROVIDED
FEMALE: 1/200 1 REQUIRED / 2 PROVIDED

DRINKING FOUNTAINS:
1/500 OCC. 1 REQUIRED / 1 PROVIDED

SERVICE SINK: 1 REQUIRED / 2 PROVIDED

your trusted advisor
consultants
engineers
architects
planners

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

DATE: 11/20/2019
DRAWN BY: DVUR
CHECKED BY: MAND
APPROVED BY:
F.B. NO. PG.

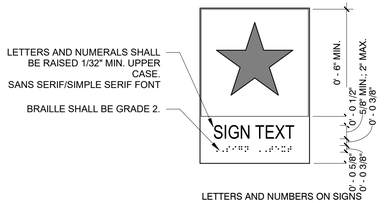
SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

LIFE SAFETY PLANS

SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET A002

GENERAL NOTES - SIGNAGE

A. TACTILE CHARACTERS ON SIGNS SHALL BE LOCATED 48 INCHES MINIMUM ABOVE THE FINISH FLOOR OR GROUND SURFACE, MEASURED FROM THE BASELINE OF THE LOWEST TACTILE CHARACTER AND 60 INCHES MAXIMUM ABOVE THE FINISH FLOOR OR GROUND SURFACE MEASURED FROM THE BASELINE OF THE HIGHEST TACTILE CHARACTER.
B. WHERE A TACTILE SIGN IS PROVIDED AT A DOOR, THE SIGN SHALL BE LOCATED ALONGSIDE THE DOOR AT THE LATCH SIDE.
C. WHERE A TACTILE SIGN IS PROVIDED AT DOUBLE DOORS WITH ONE ACTIVE LEAF, THE SIGN SHALL BE LOCATED ON THE INACTIVE LEAF.
D. WHERE A TACTILE SIGN IS PROVIDED AT DOUBLE DOORS WITH TWO ACTIVE LEAFS, THE SIGN SHALL BE LOCATED TO THE RIGHT OF THE RIGHT HAND DOOR.
E. WHERE THERE IS NO WALL SPACE AT THE LATCH SIDE OF THE DOOR OR THE RIGHT SIDE OF THE DOUBLE DOORS, SIGN SHALL BE LOCATED AT THE NEAREST ADJACENT WALL.
F. SIGNS CONTAINING TACTILE CHARACTERS SHALL BE LOCATED SO THAT A CLEAR FLOOR SPACE OF 18" MIN. BY 18 " MIN. CENTERED ON THE TACTILE CHARACTERS, IS PROVIDED BEYOND THE ARC OF ANY DOOR SWING BETWEEN THE CLOSED POSITION AND 45 DEGREE OPEN POSITION.
G. SIGN WITH TACTILE CHARACTERS SHALL BE PERMITTED ON THE PUSH SIDE OF DOORS WITH CLOSERS AND WITHOUT HOLD-OPEN DEVICES.



LETTERS AND NUMBERS ON SIGNS SHALL HAVE A WIDTH TO HEIGHT RATIO BETWEEN 3:5 AND 1:1.

LETTERS AND NUMBERS ON SIGNS SHALL HAVE A STROKE WIDTH TO HEIGHT RATIO BETWEEN 1:5 AND 1:10.

CHARACTERS AND SYMBOLS SHALL CONTRAST WTIH BACKGROUND (LIGHT ON DARK, OR DARK ON LIGHT)

1 / A003 **ADA SIGNAGE REQUIREMENTS**
3" = 1'-0"

SIGNAGE SCHEDULE

DOOR # / LOCATION	SIGN MESSAGE	SIGN TYPE
100	EXIT	C
106	RESTROOM	A
107	RESTROOM	A
123	RESTROOM	A
124	ELECTRICAL ROOM	B
125	EXIT	C
129	EXIT	C
202	EXIT	C
203	RESTROOM	A
204	RESTROOM	A
208	MECHANICAL ROOM	B

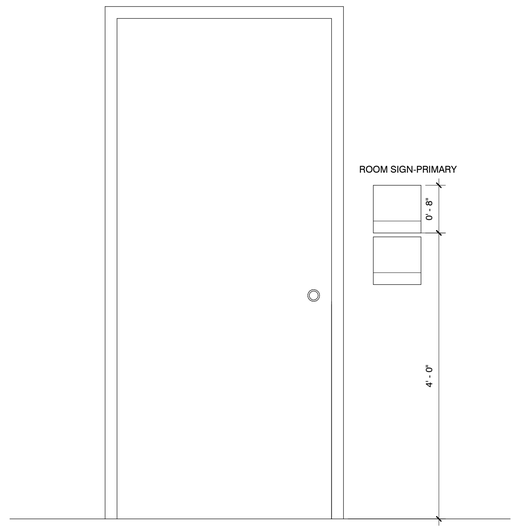
A

B

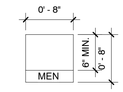
C

EXAMPLE SIGNAGE SHOWN FOR REFERENCE ONLY

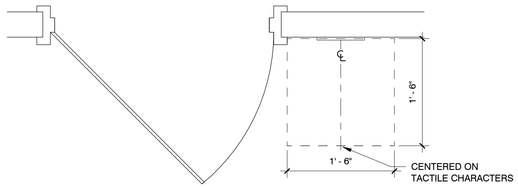
4 / A003 **ANSI STANDARD - ROOM SIGNAGE**
1" = 1'-0"



HEIGHT OF TACTILE CHARACTERS ABOVE FINISH FLOOR



TYPICAL ROOM SIGN



LOCATION OF TACTILE SIGNS AT DOORS

3 / A003 **TYPICAL SIGNAGE LOCATIONS**
1" = 1'-0"

11/19/2019 12:52:13 PM

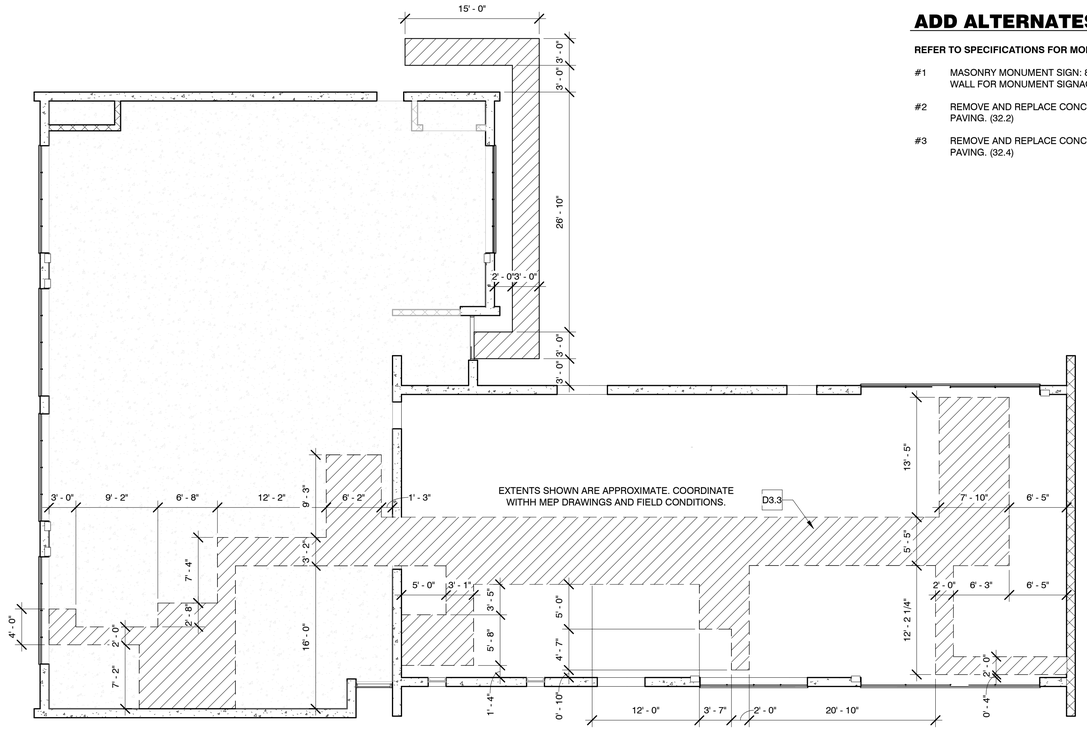
REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

DATE: 11/20/2019
DRAWN BY: DWJR
CHECKED BY: MAND
APPROVED BY:
F.B. NO. PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

SIGNAGE

SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET A003



2 A004 **FIRST FLOOR SLAB DEMOLITION PLAN** 1/8" = 1'-0"

ADD ALTERNATES

REFER TO SPECIFICATIONS FOR MORE INFORMATION

#1 MASONRY MONUMENT SIGN: 8" DOUBLE WYTHE CMU CANTILEVERED WALL FOR MONUMENT SIGNAGE. (4.5)

#2 REMOVE AND REPLACE CONCRETE PAVEMENT (WEST): NEW EXTERIOR PAVING. (32.2)

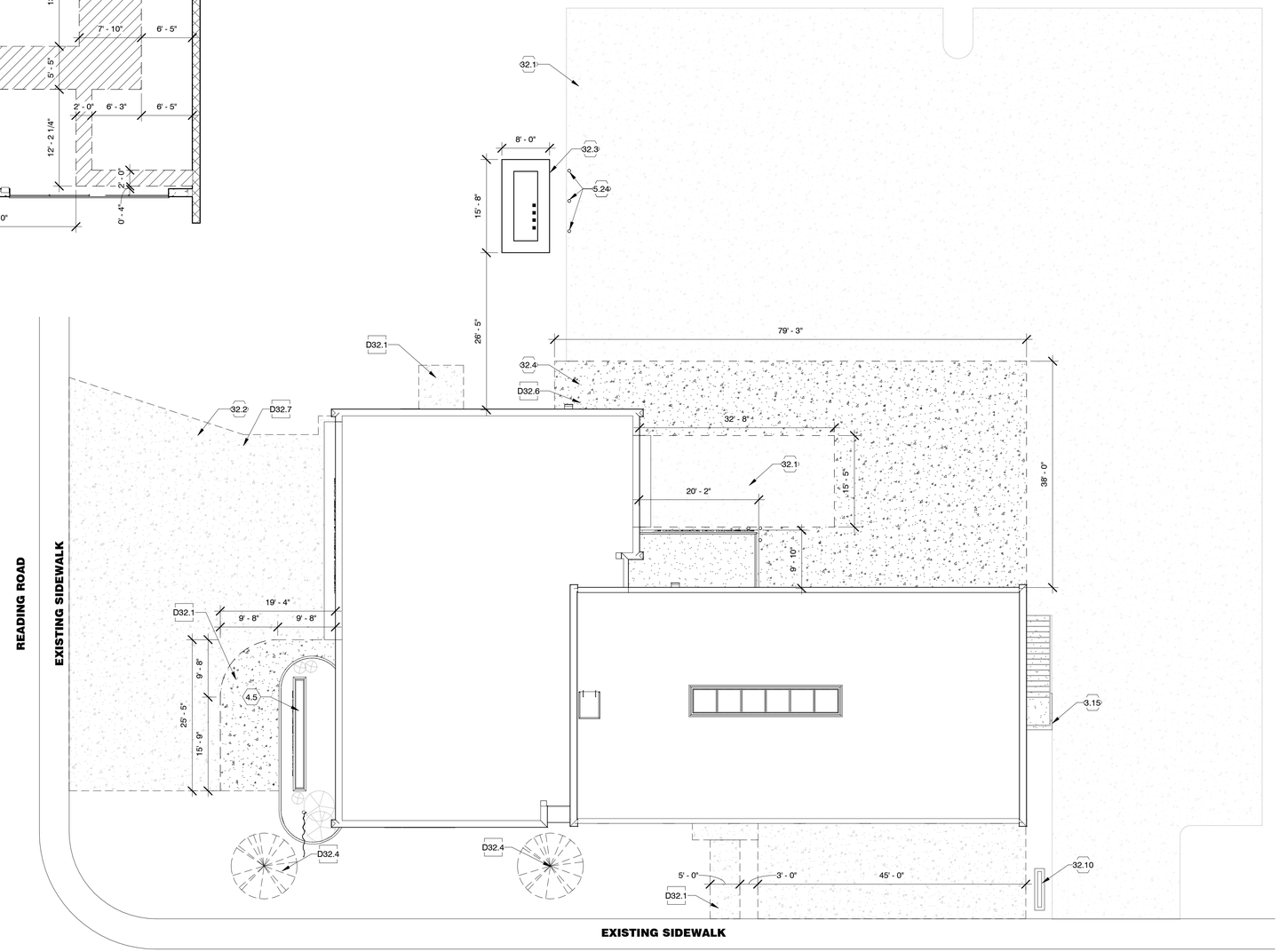
#3 REMOVE AND REPLACE CONCRETE PAVEMENT (NORTH): NEW EXTERIOR PAVING. (32.4)

GENERAL SITE NOTES

A. EACH CONTRACTOR SHALL VERIFY EXISTING CONDITIONS AS INDICATED ON THE DRAWINGS AND SHALL REPORT ANY DISCREPANCIES TO THE ARCHITECT.
B. EACH CONTRACTOR SHALL COORDINATE THE LOCATION OF HIS COMPONENTS AND EQUIPMENT SO AS NOT TO INTERFERE WITH OTHER INSTALLATIONS.
C. COORDINATE ALL SITE WORK WITH CIVIL ENGINEERING DRAWINGS. REFER TO CIVIL ENGINEERING DRAWINGS FOR SITE GEOMETRICS AND SITE WORK RESPONSIBILITIES.
D. THIS DRAWING IS FOR COORDINATION AND REFERENCE ONLY. REFER TO SUBCONTRACTOR DISCIPLINE SPECIFIC DRAWINGS FOR ACTUAL DIMENSIONS, SIZES, ETC.
E. ALL WORK SHALL CONFORM TO ALL GOVERNING CODES AND O.S.H.A. REQUIREMENTS.
F. FIELD VERIFY ALL DIMENSIONS.
G. FOR AREAS OF WORK, CONTRACTOR SHALL FAMILIARIZE HIMSELF WITH ALL EXISTING CONDITIONS PRIOR TO SUBMITTING A BID AND COVER ALL WORK TO BE PERFORMED AS REQUIRED FOR A COMPLETE JOB.
H. WHERE REQUIRED, CONCRETE WALKS, EXISTING PAVEMENT, ETC. SHALL BE NEATLY SAW CUT AND PATCHED TO BLEND IN WITH ADJACENT SURFACES.
I. VERIFY LOCATION OF UNDER GROUND UTILITIES, PLUMBING, ELECTRICAL, ETC. PRIOR TO ANY CUTTING, CORING, EXCAVATING, ETC. ALL UTILITY COMPANIES SHALL BE CONTACTED BY THE CONTRACTOR AND THEIR FACILITIES SHALL BE LOCATED PRIOR TO WORK IN ANY EASEMENT, RIGHT-OF-WAY, OR SUSPECTED UTILITY LOCATION.

KEYNOTES

3.15 NEW 5' WIDE SIDEWALK TO DRIVEWAY.
4.5 ADD ALTERNATE #1: 8" DOUBLE WYTHE CMU CANTILEVERED MURAL WALL FOR MONUMENT SIGNAGE.
5.24 6" DIA. BOLLARD, PAINTED.
32.1 EXISTING EXTERIOR PAVING TO REMAIN.
32.2 ADD ALTERNATE #2: NEW EXTERIOR PAVING.
32.3 NEW GENERATOR ENCLOSURE AND PAD. PROVIDE GRAVEL FRONT. REFER TO ELECTRICAL DRAWINGS AND SPECIFICATIONS FOR MORE INFORMATION.
32.4 ADD ALTERNATE #3: NEW EXTERIOR PAVING.
32.10 NEW MAIN ENTRY SIGNAGE. BY OTHERS.
D3.3 SAWCUT AND REMOVE STRUCTURAL FLOOR SLAB THIS AREA. REFER TO STRUCTURAL FLOOR PLANS FOR ADDITIONAL INFORMATION.
D32.1 EXISTING EXTERIOR CONCRETE TO BE REMOVED. TERMINATE AT EXISTING SIDEWALK. PROVIDE 4" OF TOPSOIL AND RE-SEED AS REQUIRED.
D32.4 EXISTING TREE TO BE REMOVED. GRIND STUMP, REMOVE TOP ROOTS AND RESEED AS REQUIRED.
D32.6 ADD-ALTERNATE #3: EXISTING EXTERIOR CONCRETE TO BE REMOVED. TERMINATE AT EXISTING SIDEWALK. PROVIDE 4" OF TOPSOIL AND RE-SEED AS REQUIRED.
D32.7 ADD-ALTERNATE #2: EXISTING EXTERIOR CONCRETE TO BE REMOVED. TERMINATE AT EXISTING SIDEWALK. PROVIDE 4" OF TOPSOIL AND RE-SEED AS REQUIRED.



1 A004 **ARCHITECTURAL SITE PLAN** 3/32" = 1'-0"

GRAPHIC SCALE
0 10 20 30 40

11/19/2019 12:52:16 PM

engineers architects planners
your trusted advisor consultants

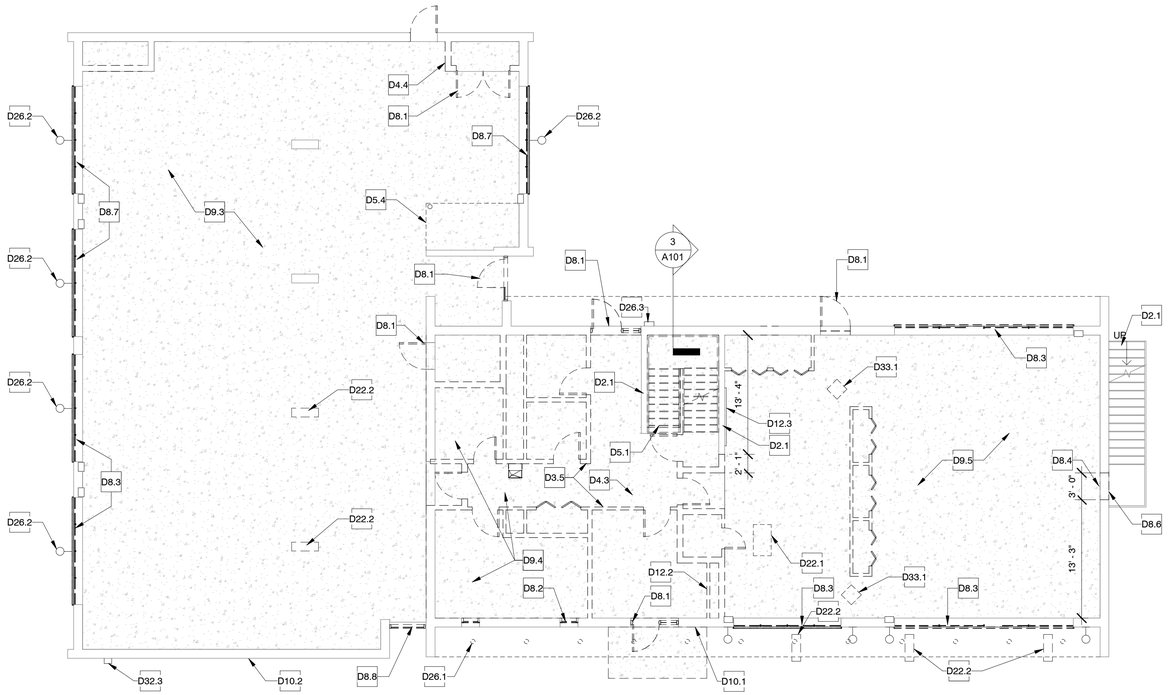
REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

DATE: 11/20/2019
DRAWN BY: DVUR
CHECKED BY: MAND
APPROVED BY:
F.B. NO. PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

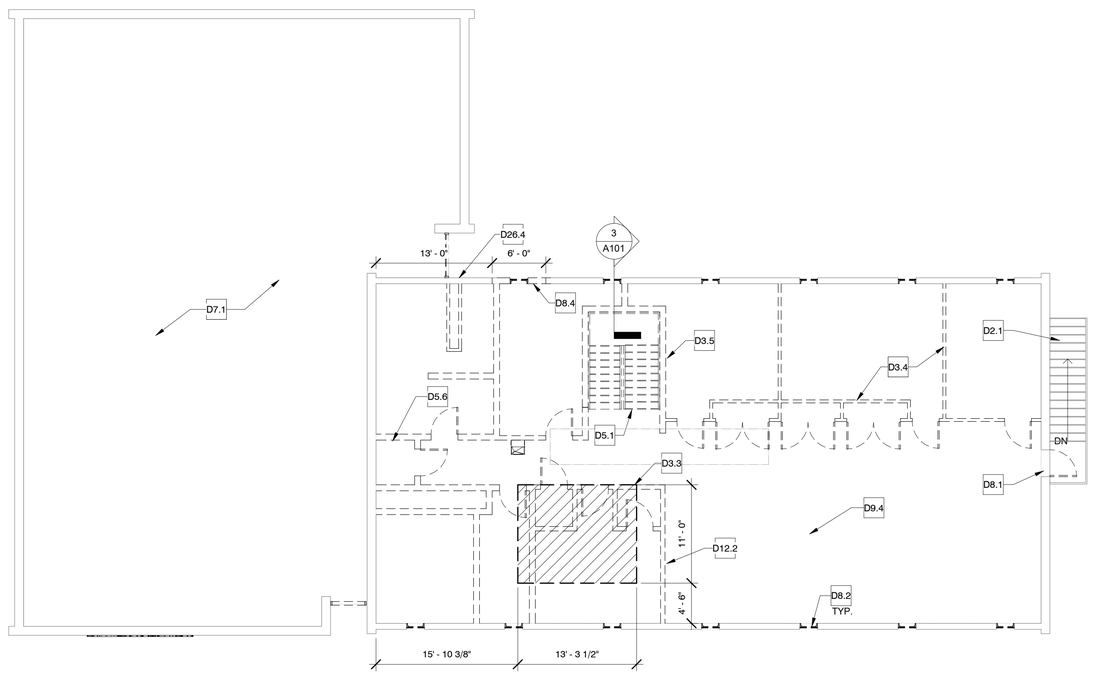
ARCHITECTURAL SITE AND SLAB DEMO PLANS

SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET A004



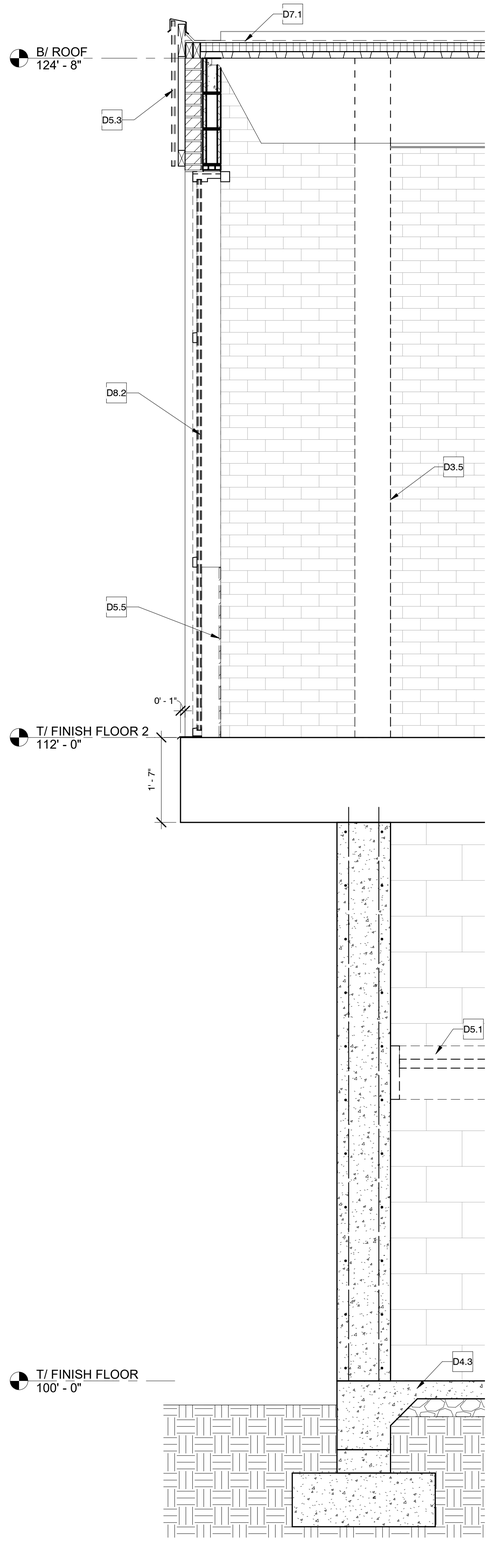
1 A101 FIRST FLOOR DEMOLITION PLAN

1/8" = 1'-0"



2 A101 SECOND FLOOR DEMOLITION PLAN

1/8" = 1'-0"



3 A101 DEMOLITION WALL SECTION

3/4" = 1'-0"

GENERAL DEMOLITION NOTES

A. VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.
B. WHERE REMOVING PORTIONS OF MASONRY OR CONCRETE, USE A SAW TO CUT CLEAN, SHARP LINES. REMOVE MASONRY AT NEAREST EXISTING MORTAR JOINT(S).
C. WHERE ADJACENT OR INTERSECTING CONSTRUCTION IS TO REMAIN, TRIM, GRIND, SCRAPE, OR SAND FACES OF DEMOLISHED ITEMS FLUSH WITH ADJACENT SURFACES TO REMAIN.
D. WHERE CREATING AN OPENING FOR A DOOR OR WINDOW, ONLY REMOVE AS MUCH OF THE EXISTING CONSTRUCTION AS REQUIRED. COORDINATE EXACT LOCATION WITH PROPOSED PLANS.
E. WHERE REMOVING MASONRY TO CREATE AN OPENING THAT WILL BE EXPOSED TO VIEW, REMOVE ADDITIONAL MASONRY REQUIRED TO "TOOTH-IN" JAMB PIECES TO MATCH EXISTING BOND PATTERN. MAKE PROVISIONS FOR LINTELS, INCLUDING MIN 8" BEARING AT EACH END. COORDINATE WITH STRUCTURAL DRAWINGS.
F. CONTRACTOR SHALL BE RESPONSIBLE FOR TEMPORARY SHORING AND BRACING.
G. COORDINATE WORK BETWEEN TRADES AND OTHER DISCIPLINES. ADDITIONAL ITEMS OF WORK MAY APPEAR ELSEWHERE IN THE CONSTRUCTION DOCUMENTS.
H. REMOVE ALL EXISTING INTERIOR WALLS, DOORS, WINDOWS AND CASEWORK. REFER TO MEP DRAWINGS FOR DEMOLITION OF MECHANICAL, ELECTRICAL AND PLUMBING.
I. EXISTING OFFICE EQUIPMENT AND FILING TO BE REMOVED BY OWNER PRIOR TO DEMOLITION.

KEYNOTES

D2.1 EXISTING WALL CONSTRUCTION TO REMAIN.
D3.3 SAWCUT AND REMOVE STRUCTURAL FLOOR SLAB THIS AREA. REFER TO STRUCTURAL FLOOR PLANS FOR ADDITIONAL INFORMATION.
D3.4 REMOVE EXISTING GYPSUM BOARD WALLS, TYP.
D3.5 DEMOLISH EXISTING CMU WALLS, TYP.
D4.3 EXISTING CONCRETE SLAB TO REMAIN.
D4.4 SAWCUT AND REMOVE EXISTING CMU WALLS THIS CLOSET. 4" CONCRETE CURB TO REMAIN.
D5.1 REMOVE EXISTING STAIR, RAILING AND STRUCTURE.
D5.3 REMOVE EXISTING METAL FASCIA AND BLOCKING TO MEMBRANE AND COPING.
D5.4 REMOVE FLOOR FRAMING ABOVE, RAILING AND STEEL TUBE SUPPORT. CMU WALL TO REMAIN.
D5.5 REMOVE METAL FRAMING AT BASE OF WINDOW.
D5.6 REMOVE LADDER UP TO ROOF HATCH. SALVAGE FOR REUSE.
D7.1 REMOVE EXISTING ROOF MEMBRANE. INSULATION TO REMAIN. PATCH AS REQUIRED AT VOIDS AND TERMINATION.
D8.1 REMOVE EXISTING DOOR ASSEMBLY.
D8.2 REMOVE EXISTING WINDOW AND METAL FRAMING BELOW, TYP.
D8.3 REMOVE EXISTING OVERHEAD DOOR, FRAMING AND OPERATORS. UNBOLT EXISTING WHEEL GUARDS AT DOORS TO BE TERMINATED.
D8.4 SAWCUT AND REMOVE EXISTING WALL CONSTRUCTION FOR NEW OPENING. REFER TO A201 FOR HEIGHT, ALIGNMENT WITH ADJACENT OPENINGS AND HEAD GROOVE.
D8.6 PATCH MASONRY ABOVE TO INFILL WHERE EXISTING EXHAUST FAN WAS REMOVED WITH METAL STUD FRAMING.
D8.7 REMOVE EXISTING OVERHEAD DOOR, FRAMING AND OPERATORS. UNBOLT EXISTING WHEEL GUARDS AT DOORS TO BE SALVAGED AND REUSED.
D8.8 REMOVE EXISTING STOREFRONT SYSTEM.
D9.3 REMOVE EXISTING CEILING GRID AND LIGHTING IN APPARATUS BAY.
D9.4 REMOVE EXISTING FLOORING. SMOOTH TO PREPARE FOR POLISHED CONCRETE.
D9.5 REMOVE EXISTING CEILING GRID AND LIGHTING, TYPICAL THIS FLOOR.
D10.1 REMOVE EXISTING PLAQUE AND RETURN TO OWNER.
D10.2 REMOVE EXISTING LETTERS AND SALVAGE FOR REUSE.
D12.2 REMOVE EXISTING TROPHY CASE AND SALVAGE. RETURN TO OWNER.
D12.3 REMOVE EXISTING NOTICE CASE. SALVAGE.
D22.1 EXISTING OIL SEPARATOR. PREPARE FOR FINAL CLEANING, CAP AND BACKFILL WITH PEAGRAVEL AS REQUIRED.
D22.2 REMOVE EXISTING TRENCH DRAIN GRATE. INFILL WITH FLOWABLE FILL.
D26.1 REMOVE EXISTING LIGHTING IN SOFFIT. TERMINATE WIRING AND PREPARE FOR NEW LIGHTING.
D26.2 REMOVE EXISTING LIGHT ABOVE. CAP AND PREPARE FOR NEW LIGHT ASSEMBLY.
D26.3 REMOVE AND TERMINATE EXISTING CALL BOX. REMOVE CONDUIT AND PATCH HOLES AS REQUIRED.
D26.4 REMOVE EXISTING UTILITY LINE THIS AREA. REFER TO MEP DRAWINGS FOR MORE INFORMATION.
D32.3 REMOVE EXISTING FLAG POLE ASSEMBLY THIS SIDE. PATCH MASONRY AS REQUIRED.
D33.1 REMOVE EXISTING GAS FIRED UNIT HEATERS. CAP.

your trusted advisor
consultants
engineers
architects
planners

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

DATE: 11/20/2019
DRAWN BY: DVUR
CHECKED BY: MAND
APPROVED BY:
F.B. NO. PG.

SHARONVILLE FIRE STATION 87 RENOVATION

CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

DEMOLITION PLANS AND SECTIONS

SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET A101

11/19/2019 12:52:17 PM

KEYNOTES

0.1 LINE OF NEW OPENING ABOVE.
2.1 EXISTING CONSTRUCTION TO REMAIN.
3.1 CMU WALL WITH STUCCO FINISH TO MATCH EXTERIOR FACE FLUSH WITH ADJACENT. ARCHITECT TO VERIFY TYPICAL MATCHING TEXTURE PRIOR TO PLACEMENT.
3.3 EXISTING CONCRETE STAIR. PRESSURE WASH AND SEAL TREADS AND RISERS.
3.5 NEW CONCRETE RAMP UP TO EXISTING STOOP. SAWCUT AND REMOVE EXISTING DRIVE TO INSTALL.
3.8 NEW CONCRETE RAMP UP TO EXISTING SLAB.
3.9 TOOTH IN PROPOSED MASONRY TO MATCH EXISTING.
3.12 NEW 4" CONCRETE SLAB.
3.13 NEW CONCRETE INFILL. SLOPE RAMP TO EXISTING.
3.14 NEW 5 3/8" CONCRETE FLOOR SLAB INFILL.
3.15 NEW 5' WIDE SIDEWALK TO DRIVEWAY.
4.16 8" CMU WALL. REFER TO STRUCTURAL DRAWINGS FOR MORE INFORMATION.
4.19 12" CMU.
5.2 HSS STEEL COLUMN. PAINTED (P1). REFER TO STRUCTURAL DRAWINGS FOR SIZES AND LOCATIONS.
5.9 COLD FORMED METAL FRAMED CANOPY WITH CORRUGATED METAL SIDING.
5.24 6" DIA. BOLLARD, PAINTED.
5.35 4' HIGH PERFORATED METAL SCREEN (RED).
8.1 NEW ALUMINUM FRAMED INSULATED GLASS WINDOW. SEE A601 FOR MORE INFORMATION.
9.10 FROSTED FILM INSIDE GLASS TO 7'-2" AFF.
9.11 ALIGN WALLS THIS SIDE.
10.1 SEMI-RECESSED FIRE EXTINGUISHER CABINET.
10.6 OWNER FURNISHED, OWNER INSTALLED.
11.3 WASHER. REFER TO PLUMBING DRAWINGS.
11.4 DRYER. REFER TO PLUMBING DRAWINGS.
12.1 PROVIDE AND INSTALL 98% BLACKOUT WINDOW SHADES AT WINDOW.
12.3 18"x18" LOCKABLE PLASTIC LAMINATE PASS-THRU LOCKERS. REFER TO 13/14/A404 FOR DIMENSIONS AND DETAILS.
22.1 FLOOR DRAIN. REFER TO PLUMBING DRAWINGS.
22.2 MOP BASIN. PROVIDE WALL GUARDS AND MOP HANGER BRACKET ABOVE. REFER TO PLUMBING DRAWINGS.
22.3 FREE STANDING UTILITY SINK. REFER TO PLUMBING DRAWINGS.
22.4 EXISTING TRENCH DRAIN. REFER TO PLUMBING DRAWINGS.
22.5 UTILITY SINK. REFER TO PLUMBING DRAWINGS.
22.6 EMERGENCY EYE WASH. REFER TO PLUMBING DRAWINGS.
26.2 CARD SWIPE READER.
32.7 KEEP COVERS CLEAR FOR BELOW GRADE ENCASEMENT WITH UNDERGROUND OIL/SILT SEPARATOR.
32.9 BACKFILL WITH BIG STONE.

GENERAL NOTES

A. FINISH FLOOR ELEVATION OF 100'-0" IS EQUAL TO USGS ELEVATION OF 598.78'.
B. VERIFY EXISTING CONDITIONS IN FIELD AND NOTIFY ARCHITECT OF ANY DISCREPANCIES.
C. EXTERIOR DIMENSIONS SHOWN ARE TO OUTSIDE FACE OF FOUNDATION WALL OR ROUGH OPENINGS. TYPICAL UNLESS NOTED OTHERWISE.
D. INTERIOR DIMENSIONS SHOWN ARE TO FACE OF PROPOSED STUDS, CMU, OR CONCRETE CONSTRUCTION. UNLESS NOTED OTHERWISE.
E. ALL DOORS INSTALLED IN GYPSUM BOARD PARTITIONS TO BE LOCATED 0'-4" FROM EDGE OF JAMB OF DOOR TO ADJACENT WALL. ALL DOORS INSTALLLED IN MASONRY PARTITIONS TO BE LOCATED 0'-8" FROM EDGE OF JAMB OF DOOR TO ADJACENT WALL. UNLESS NOTED OTHERWISE.
F. PROVIDE BULLNOSE CMU AT EXPOSED DOOR JAMBS.
G. VERIFY SIZE OF PRE-FABRICATED ITEMS SUCH AS FIRE EXTINGUISHER CABINETS, CABINET HEATERS, AND RESTROOM ACCESSORIES PRIOR TO INSTALLING ADJACENT FRAMING.
H. PROVIDE BLOCKING OR METAL STRAPS IN WALLS AS REQUIRED FOR ATTACHMENT OF SURFACE MOUNTED ITEMS SUCH AS RESTROOM ACCESSORIES, CASEWORK, AND FIRE EXTINGUISHERS.
I. PROVIDE SEALANT AT JOINTS BETWEEN ALL DISSIMILAR MATERIALS.
J. PROVIDE GYPSUM BOARD CONTROL JOINTS PER THE SPECIFICATIONS, BUT NOT TO EXCEED 30'-0" ALONG CONTINUOUS INTERIOR PARTITIONS.
K. PAINT ALL EXPOSED, UNFINISHED EXTERIOR STEEL (DOORS, FRAMES, LINTELS, BOLLARDS, ETC.).
L. COORDINATE WORK BETWEEN TRADES AND OTHER DISCIPLINES. ADDITIONAL ITEMS OF WORK MAY APPEAR ELSEWHERE IN THE CONSTRUCTION DOCUMENTS.
M. SEE DEMOLITION DRAWINGS FOR EXTENT OF CONCRETE WALKS AND APRONS.
N. PROVIDE MASONRY CONTROL JOINT (C.J.) AT EACH OPENING OF INTERIOR WALLS.
O. REFER TO OA001 FOR ABBREVIATIONS AND SYMBOLS.
P. ALL WALLS TO BE PAINTED P-1 UNLESS NOTED OTHERWISE.
Q. ALL FITNESS EQUIPMENT TO BE PROVIDED AND INSTALLED BY OWNER.

1 A102 **FIRST FLOOR PLAN** 1/4" = 1'-0"

GRAPHIC SCALE
0 4 8 12 16

11/19/2019 12:52:21 PM

REV	ISSUE FOR BIDDING AND PERMIT	DATE	BY
0		11/20/2019	MAND

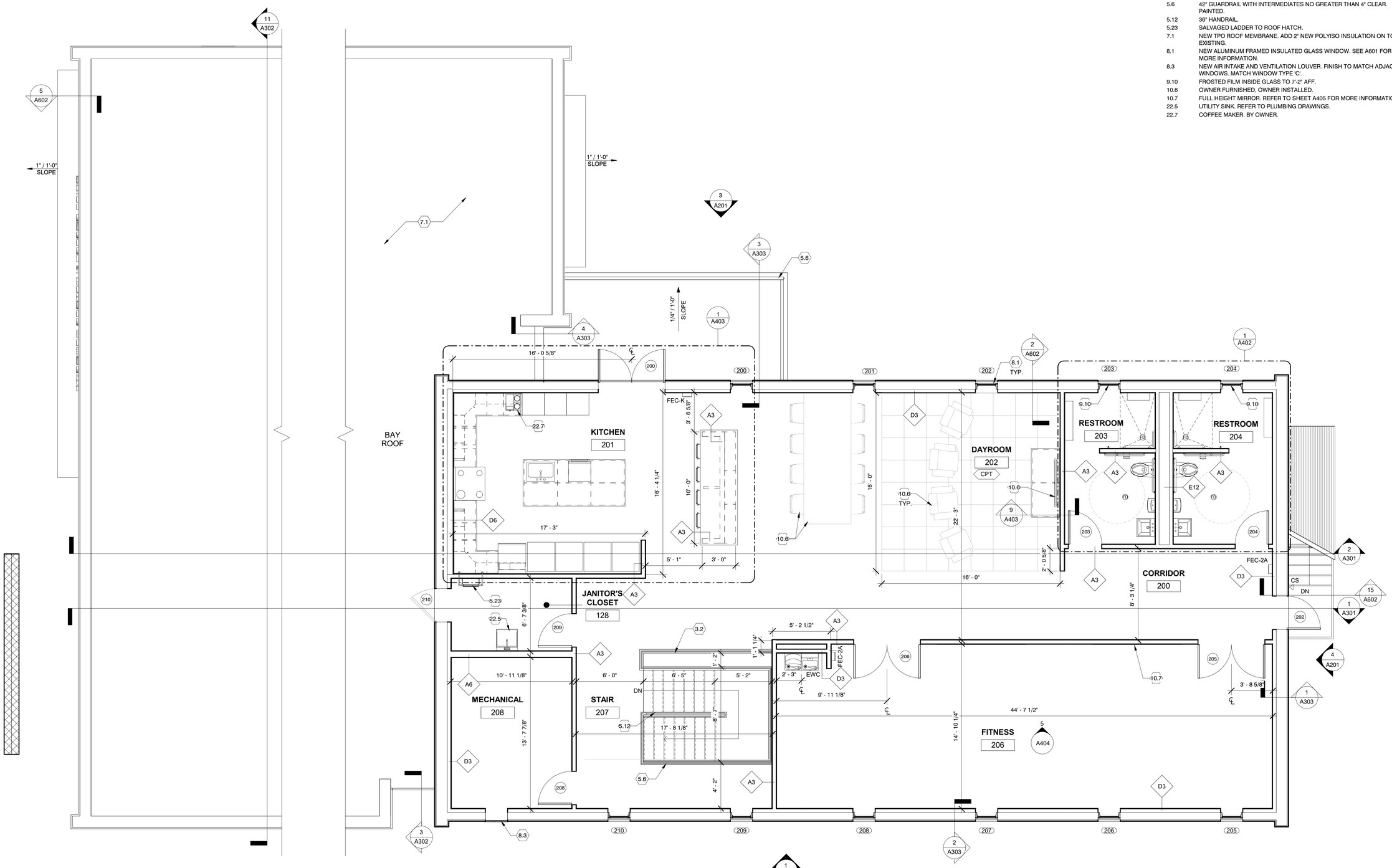
DATE: 11/20/2019
DRAWN BY: DVKUR
CHECKED BY: MAND
APPROVED BY:
F.B. NO. PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241
FIRST FLOOR PLAN

SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET A102

KEYNOTES

3.2	NEW OPENING IN SLAB.
5.6	42" GUARDRAIL WITH INTERMEDIATES NO GREATER THAN 4" CLEAR. PAINTED.
5.12	36" HANDRAIL.
5.23	SALVAGED LADDER TO ROOF HATCH.
7.1	NEW TPO ROOF MEMBRANE. ADD 2" NEW POLYISO INSULATION ON TOP OF EXISTING.
8.1	NEW ALUMINUM FRAMED INSULATED GLASS WINDOW. SEE A601 FOR MORE INFORMATION.
8.3	NEW AIR INTAKE AND VENTILATION LOUVER. FINISH TO MATCH ADJACENT WINDOWS. MATCH WINDOW TYPE 'C'.
9.10	FROSTED FILM INSIDE GLASS TO 7'-2" AFF.
10.6	OWNER FURNISHED, OWNER INSTALLED.
10.7	FULL HEIGHT MIRROR. REFER TO SHEET A405 FOR MORE INFORMATION.
22.5	UTILITY SINK. REFER TO PLUMBING DRAWINGS.
22.7	COFFEE MAKER. BY OWNER.



1 A103 **SECOND FLOOR PLAN** 1/4" = 1'-0"

GRAPHIC SCALE

0 4 8 12 16

11/19/2019 12:52:23 PM

your trusted advisor consultants — engineers architects planners

REV	ISSUE	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

DATE: 11/20/2019 | DRAWN BY: DWUR | CHECKED BY: MAND | APPROVED BY: | F.B. NO. | PG.

SHARONVILLE FIRE STATION 87 RENOVATION

CITY OF SHARONVILLE

11210 READING RD SHARONVILLE, OH 45241

SECOND FLOOR PLAN

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

HORZ:

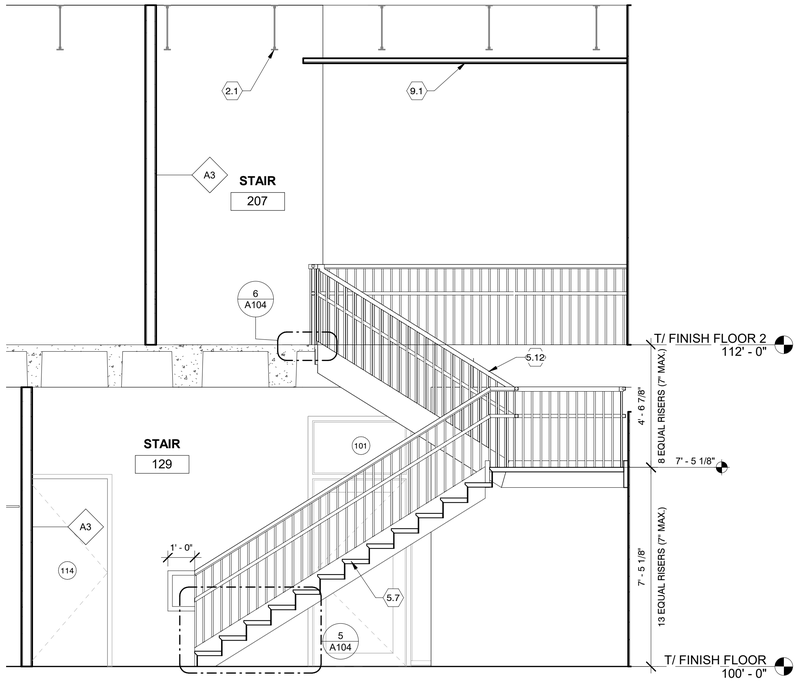
VERT:

CONTRACT NO: 170636

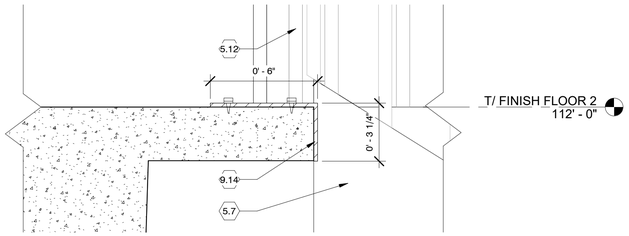
SHEET A103

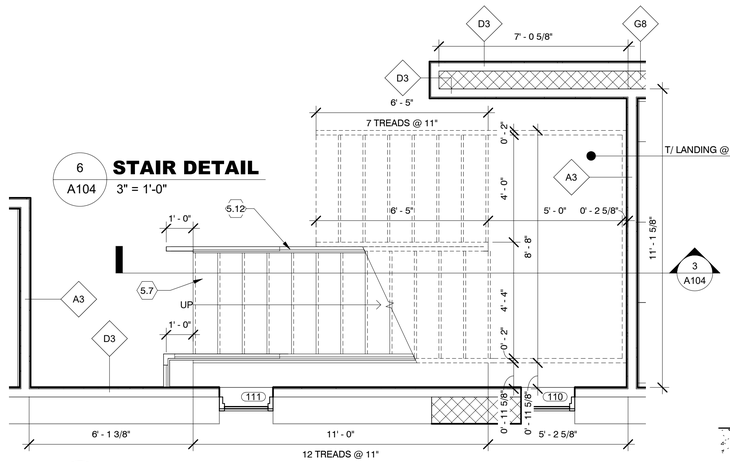
KEYNOTES

2.1	EXISTING CONSTRUCTION TO REMAIN.
5.1	42" GUARDRAIL WITH INTERMEDIATES NO GREATER THAN 36" APART. PAINTED YELLOW. MOUNT TO FACE OF WALL. REFER TO STRUCTURAL DRAWINGS.
5.7	METAL STAIRS.
5.12	36" HANDRAIL.
5.15	FIXED WALL MOUNTED LADDER WITH HANDRAIL AND REMOVABLE SAFETY GUARD. PAINT YELLOW.
5.18	STEEL ANGLE. WELD TO STRINGER AND EXPANSION BOLT TO CONCRETE SLAB.
5.19	1/8" STEEL RISER CLOSURE.
5.20	1/4" END PLATE.
5.34	RUBBER STAIR TREAD.
9.1	2'x2' SUSPENDED ACOUSTIC CEILING WITH AXIOM PERIMETER TRIM. REFER TO SHEET A105 FOR CEILING HEIGHTS.
9.14	WRAP EXPOSED EDGE OF SLAB WITH STEEL DECORATIVE CHECKER PLATE. FASTENERS @ 24" O.C. MITER CORNERS AND FILE NEATLY.
10.1	SEMI-RECESSED FIRE EXTINGUISHER CABINET.
26.2	CARD SWIPE READER.



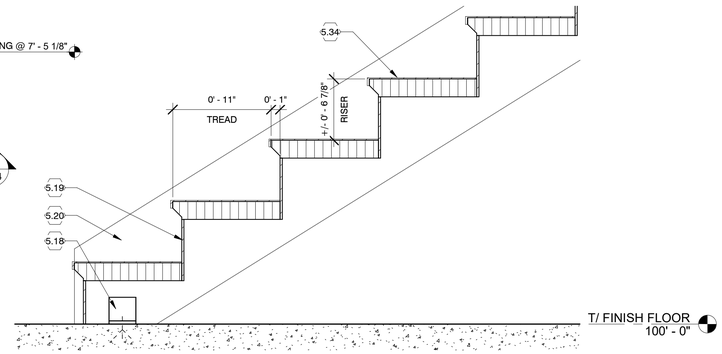
3 A104 STAIR SECTION
3/8" = 1'-0"



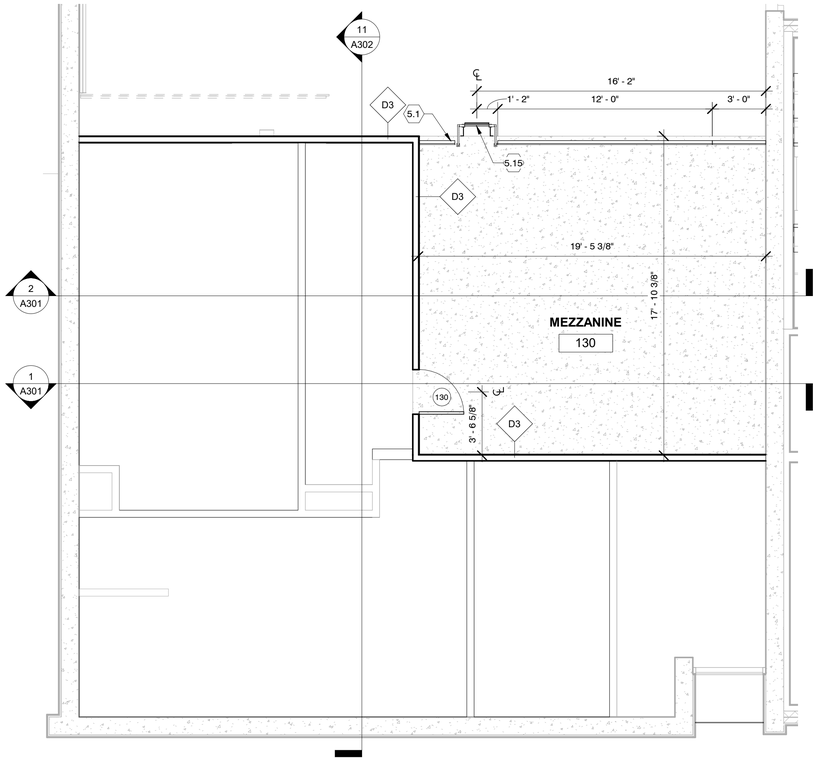


6 A104 STAIR DETAIL
3" = 1'-0"

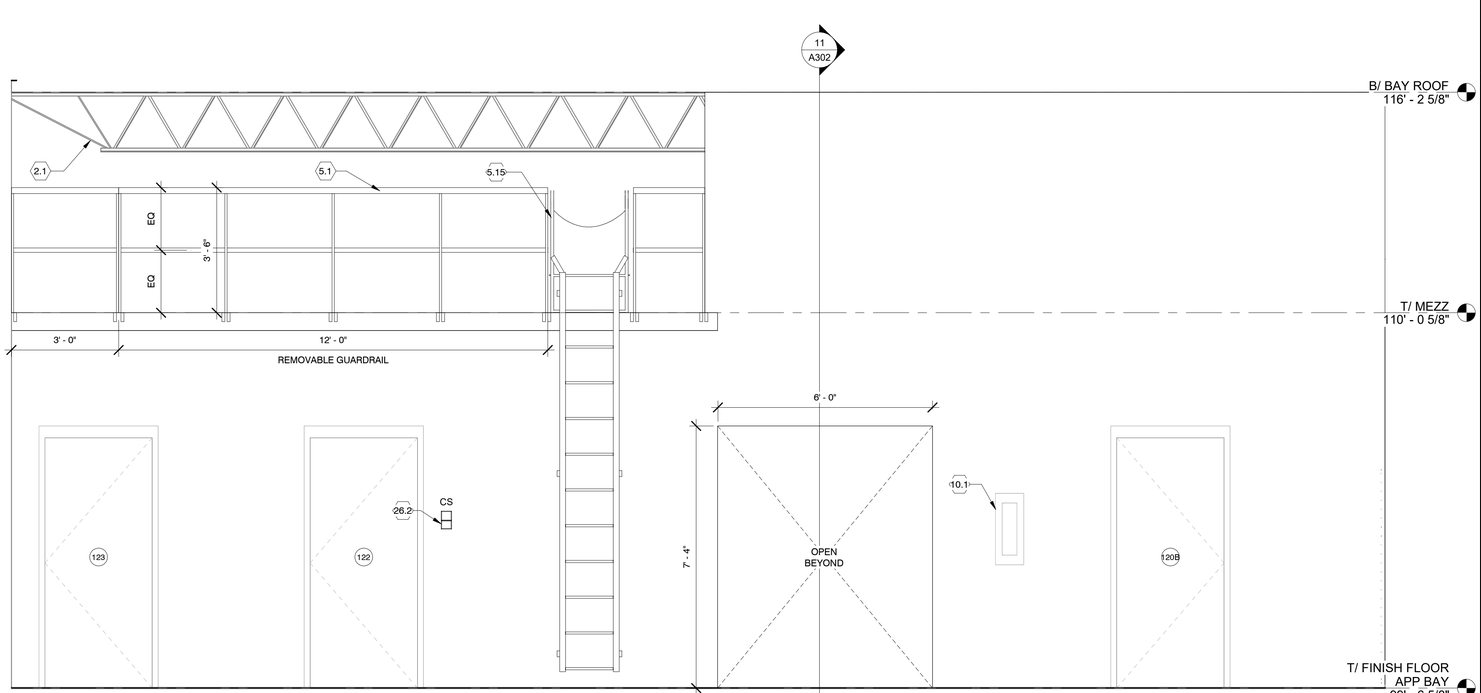
4 A104 ENLARGED PLAN AT FIRST FLOOR
3/8" = 1'-0"



5 A104 STAIR DETAIL
1 1/2" = 1'-0"



1 A104 ENLARGED MEZZANINE PLAN
1/4" = 1'-0"



2 A104 APPARATUS BAY ELEVATION
1/2" = 1'-0"

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

DATE: 11/20/2019
DRAWN BY: DVUR
CHECKED BY: MAND
APPROVED BY:
F.B. NO.
PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

MEZZANINE FLOOR PLAN AND STAIR DETAILS

SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET A104

11/19/2019 12:52:25 PM

GENERAL NOTES

A. UNLESS NOTED OTHERWISE, ACOUSTICAL TILE CEILING GRIDS TO BE CENTERED IN ROOM.
B. ACCESS PANEL LOCATIONS TO BE DETERMINED IN FIELD PER ACTUAL VALVE LOCATIONS AND MEP DRAWINGS.

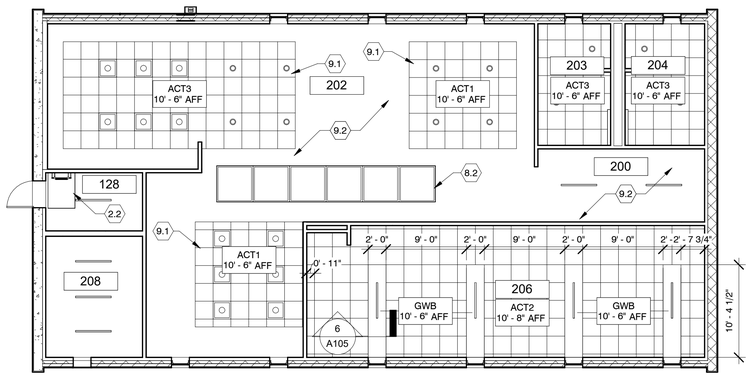
LEGEND

SEE MECHANICAL, ELECTRICAL, AND FIRE PROTECTION DRAWINGS FOR ADDITIONAL INFORMATION.

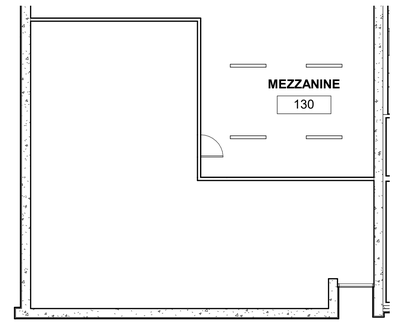
- 2'-0" x 2'-0" ACOUSTICAL CEILING TILE.
- GYPSUM BOARD CEILING, SOFFIT, OR BULKHEAD.
- RECESSED TROFFER OR DOWNLIGHT (CAN LIGHT).
- PENDANT FIXTURE.
- EXIT SIGN.
- SUPPLY AIR DIFFUSER.
- RETURN AIR DIFFUSER OR EXHAUST FAN.

KEYNOTES

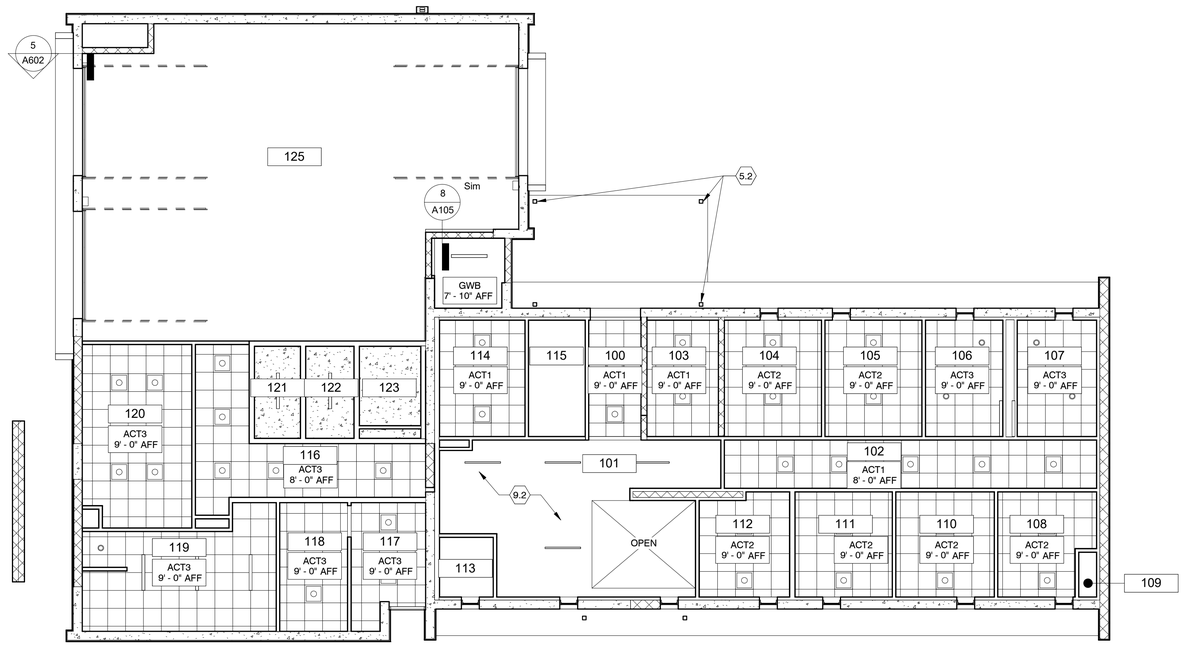
2.2	EXISTING ROOF HATCH BEYOND. PAINT WITH CEILING.
4.7	8" CMU.
4.17	CONTINUOUS BOND BEAM. GROUT SOLID. SEE STRUCTURAL DRAWINGS FOR REINFORCEMENT.
5.2	HSS STEEL COLUMN. PAINTED (P1). REFER TO STRUCTURAL DRAWINGS FOR SIZES AND LOCATIONS.
5.17	3-5/8" METAL STUD.
6.4	5/8" PLYWOOD SHEATHING.
6.5	1X6 WOOD FASCIA BOARD. PAINT P4.
8.2	NEW PREMANUFACTURED TANDEM INSULATED SKYLIGHT ASSEMBLY.
9.1	2'x2' SUSPENDED ACOUSTIC CEILING WITH AXIOM PERIMETER TRIM. REFER TO SHEET A105 FOR CEILING HEIGHTS.
9.2	OPEN TO STRUCTURE ABOVE. PAINT EXISTING EXPOSED STRUCTURE, WIRING, PIPING AND DUCTWORK DRYFALL BLACK, TYP.
9.8	2'x2' SUSPENDED ACOUSTIC CEILING SYSTEM. REFER TO A105 FOR CEILING HEIGHTS.



2 / A105 **SECOND FLOOR REFLECTED CEILING PLAN**
1/8" = 1'-0"

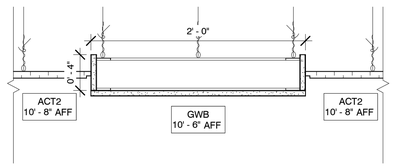


3 / A105 **MEZZANINE REFLECTED CEILING PLAN**
1/8" = 1'-0"

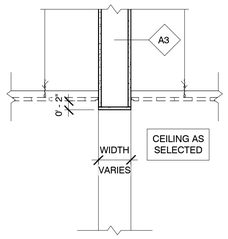


1 / A105 **FIRST FLOOR REFLECTED CEILING PLAN**
1/8" = 1'-0"

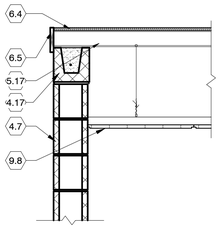
GRAPHIC SCALE
0 8 16 24 32



6 / A105 **CEILING DETAIL**
1 1/2" = 1'-0"



7 / A105 **BULKHEAD, TYP.**
3/4" = 1'-0"



8 / A105 **ROOM LID @ ELECTRICAL ROOM**
3/4" = 1'-0"

11/19/2019 12:52:28 PM

your trusted advisor
engineers
architects
planners
consultants

REV	DATE	BY
0	11/20/2019	MAND

REVISIONS
ISSUE FOR BIDDING AND PERMIT

DATE: 11/20/2019
DRAWN BY: DVUR
CHECKED BY: MAND
APPROVED BY:
F.B. NO. PG.

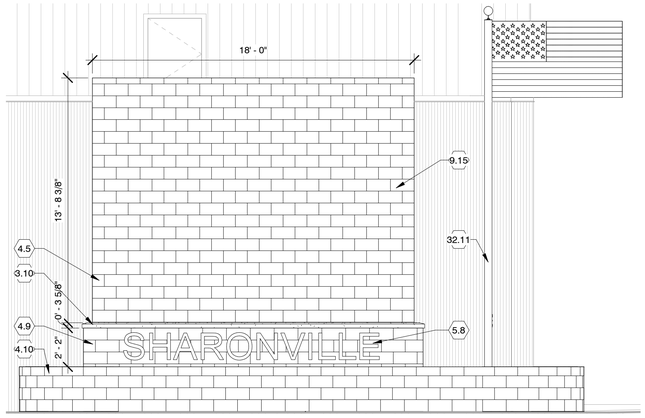
SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

REFLECTED CEILING PLANS

SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET A105

KEYNOTES

2.1	EXISTING CONSTRUCTION TO REMAIN.
3.10	PRECAST CONCRETE SILL CAP WITH DRIP EDGE. ROCKCAST PROFILE SL100.
4.5	ADD ALTERNATE #1: 8" DOUBLE WYTHE CMU CANTILEVERED MURAL WALL FOR MONUMENT SIGNAGE.
4.8	8" REINFORCED CMU.
4.9	12" DOUBLE WYTHE CMU WALL.
4.10	MODULAR BLOCK RETAINING WALL WITH CAP.
4.11	CONCRETE FOOTING. REFER TO STRUCTURAL DRAWINGS.
4.15	GROUT SOLID. PROVIDE GROUT WASH, TYP.
5.5	METAL PANEL CANOPY, WITH DELEGATED DESIGN BASED ON LOAD PARAMETERS INDICATED ON SHEET S001. REFER TO LEGEND FOR COLORS.
5.8	ALUMINUM LETTERS.
7.1	NEW TPO ROOF MEMBRANE. ADD 2" NEW POLYISO INSULATION ON TOP OF EXISTING.
7.15	SHEET WATER PROOFING.
8.2	NEW PREMANUFACTURED TANDEM INSULATED SKYLIGHT ASSEMBLY.
9.15	PRIME FOR ARTIST MURAL. ARTWORK BY MURALIST.
11.1	MECHANICAL EQUIPMENT. REFER TO MEP DRAWINGS.
26.1	LIGHT FIXTURE. REFER TO ELECTRICAL DRAWINGS.
32.5	VERIFY LANDSCAPING WITH ARCHITECT PRIOR TO INSTALLATION THIS AREA.
32.11	20' FLAGPOLE AND BASE. REFER TO 1/S101 FOR MORE INFORMATION.
D5.2	REMOVE EXISTING EQUIPMENT ENCLOSURE.
D11.1	REMOVE EXISTING ROOFTOP EQUIPMENT.



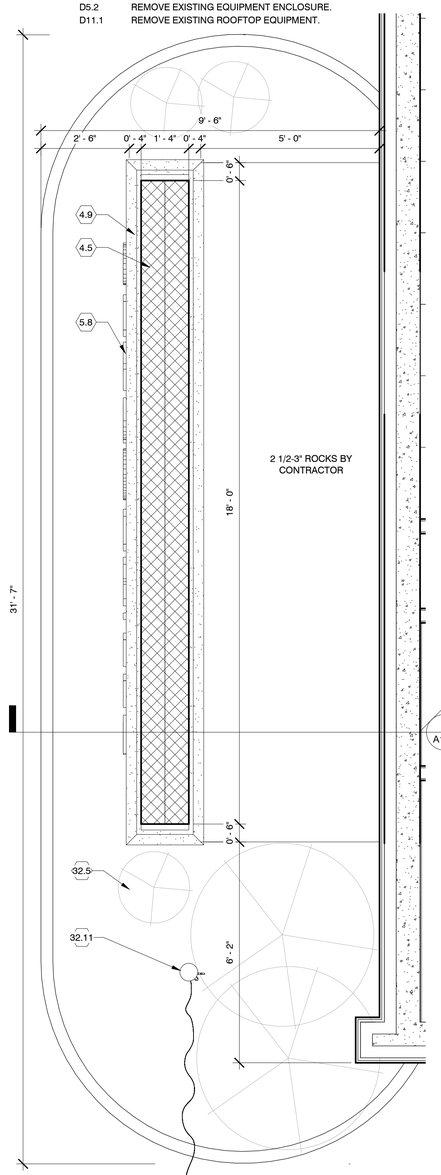
5 / A106 **MONUMENTAL MURAL WALL ELEVATION**
1/4" = 1'-0"

3 / A106 **WALL SECTION**
1/2" = 1'-0"

4 / A106 **PRECAST CAP DETAIL**
3" = 1'-0"

1 / A106 **ROOF PLAN**
3/16" = 1'-0"

N



2 / A106 **ENLARGED MURAL WALL PLAN**
1/2" = 1'-0"

your trusted advisor
consultants
engineers
architects
planners

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

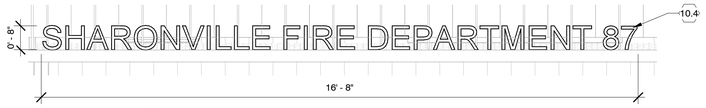
DATE: 11/20/2019
DRAWN BY: DVAR
CHECKED BY: MAND
APPROVED BY:
F.B. NO.
PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

ROOF PLAN AND MURAL WALL DETAILS

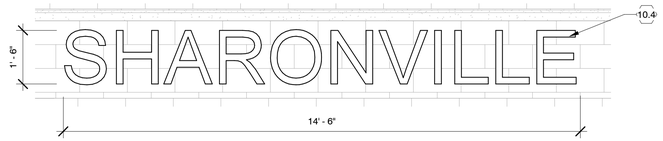
SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET A106

11/19/2019 12:52:32 PM

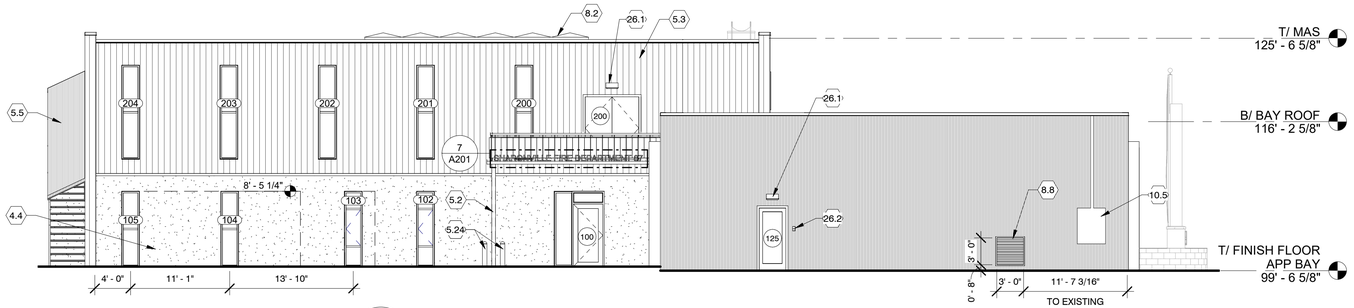


7 / A201 **SIGNAGE DISPLAY 1**
1/2" = 1'-0"

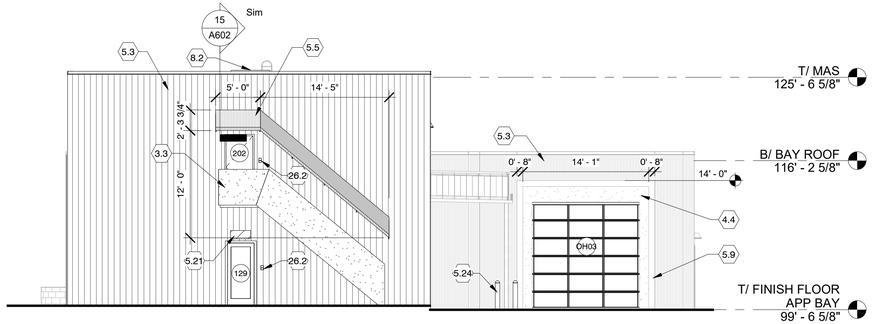
6 / A201 **SIGNAGE DISPLAY 2**
1/2" = 1'-0"



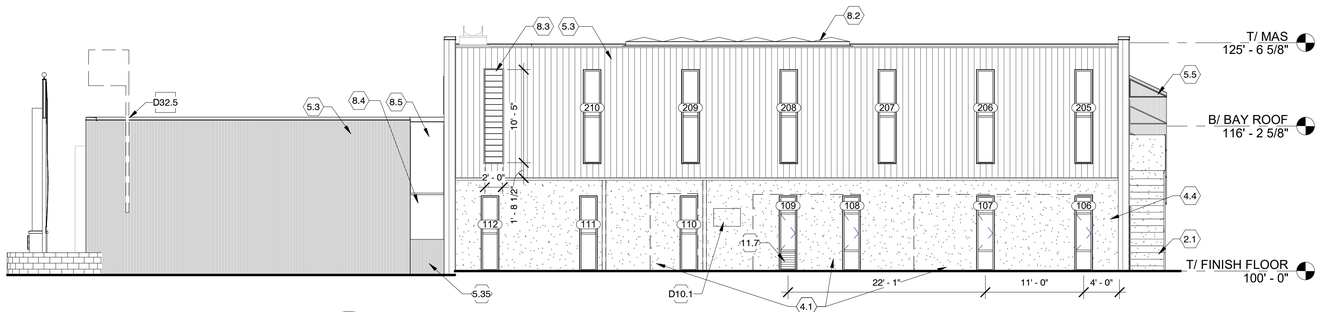
5 / A201 **SIGNAGE DISPLAY 3**
1/2" = 1'-0"



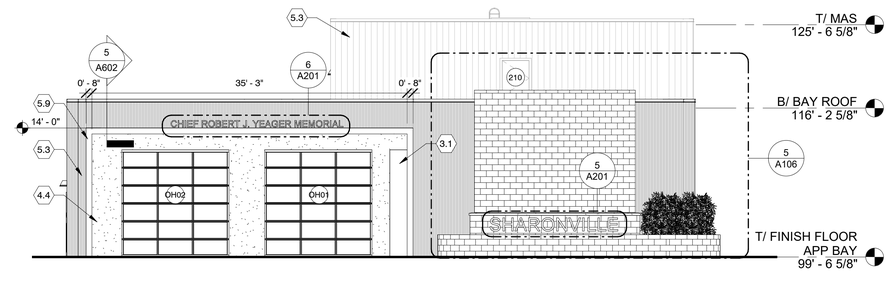
3 / A201 **NORTH ELEVATION**
1/8" = 1'-0"



4 / A201 **EAST ELEVATION**
1/8" = 1'-0"



1 / A201 **SOUTH ELEVATION**
1/8" = 1'-0"



2 / A201 **WEST ELEVATION**
1/8" = 1'-0"

METAL WALL PANEL COLOR LEGEND

RED METAL PANELS

WHITE METAL PANELS

KEYNOTES

2.1	EXISTING CONSTRUCTION TO REMAIN.
3.1	CMU WALL WITH STUCCO FINISH TO MATCH EXTERIOR FACE FLUSH WITH ADJACENT. ARCHITECT TO VERIFY TYPICAL MATCHING TEXTURE PRIOR TO PLACEMENT.
3.3	EXISTING CONCRETE STAIR. PRESSURE WASH AND SEAL TREADS AND RISERS.
4.1	INFILL WITH 12" CMU, ALIGNED TO ADJACENT INTERIOR WALLS.
4.4	PRESSURE WASH AND SEAL EXISTING EXPOSED CONCRETE.
5.2	HSS STEEL COLUMN, PAINTED (P1). REFER TO STRUCTURAL DRAWINGS FOR SIZES AND LOCATIONS.
5.3	SINGLE SKIN METAL VERTICAL WALL PANELS. REFER TO LEGEND FOR COLORS.
5.5	METAL PANEL CANOPY, WITH DELEGATED DESIGN BASED ON LOAD PARAMETERS INDICATED ON SHEET S001. REFER TO LEGEND FOR COLORS.
5.9	COLD FORMED METAL FRAMED CANOPY WITH CORRUGATED METAL SIDING.
5.21	PATCH BEYOND WITH METAL STUDS AS REQUIRED.
5.24	6" DIA. BOLLARD, PAINTED.
5.35	4' HIGH PERFORATED METAL SCREEN (RED).
8.2	NEW PREMANUFACTURED TANDEM INSULATED SKYLIGHT ASSEMBLY.
8.3	NEW AIR INTAKE AND VENTILATION LOUVER. FINISH TO MATCH ADJACENT WINDOWS. MATCH WINDOW TYPE 'C'.
8.4	STOREFRONT SYSTEM WITH TEMPERED GLASS.
8.5	STOREFRONT SYSTEM WITH SPANDREL GLASS.
8.8	NEW AIR INTAKE AND VENTILATION LOUVER. REFER TO MECHANICAL DRAWINGS FOR MORE INFORMATION.
10.3	MEMORIAL LETTERS SALVAGED FROM EXISTING BUILDING.
10.4	ALUMINUM LETTERING.
10.5	DO NOT DISTURB GOVERNMENT USGS FIELD EQUIPMENT. CONTACT TOM HARRIS AT 1 (816) 805-7194 OR THARRIS@USGS.GOV FOR REMOVAL PRIOR TO DEMOLITION.
11.7	DRYER EXHAUST VENT.
26.1	LIGHT FIXTURE. REFER TO ELECTRICAL DRAWINGS.
26.2	CARD SWIPE READER.
D10.1	REMOVE EXISTING PLAQUE AND RETURN TO OWNER.
D32.5	REMOVE EXISTING FLAGPOLE ASSEMBLY. PATCH MASONRY WITH GROUT, SOLID.

your trusted advisor consultants
engineers architects planners

REVISIONS

REV	ISSUE FOR BIDDING AND PERMIT	DATE	BY
0		11/20/2019	MAND

DATE: 11/20/2019
DRAWN BY: DVUR
CHECKED BY: MAND
APPROVED BY:
F.B. NO.
PG.

SHARONVILLE FIRE STATION 87 RENOVATION

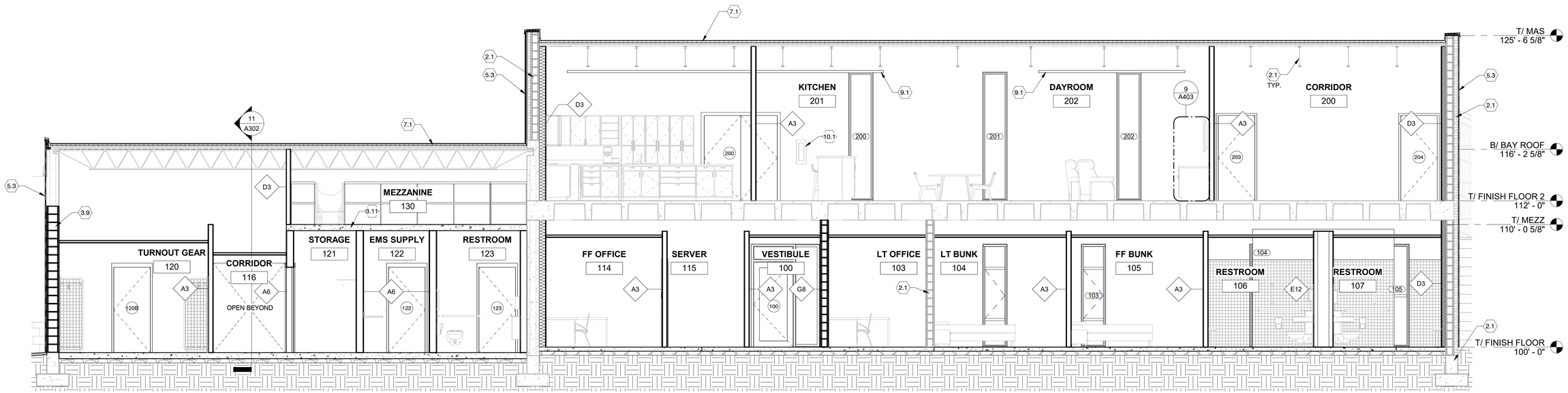
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

BUILDING ELEVATIONS

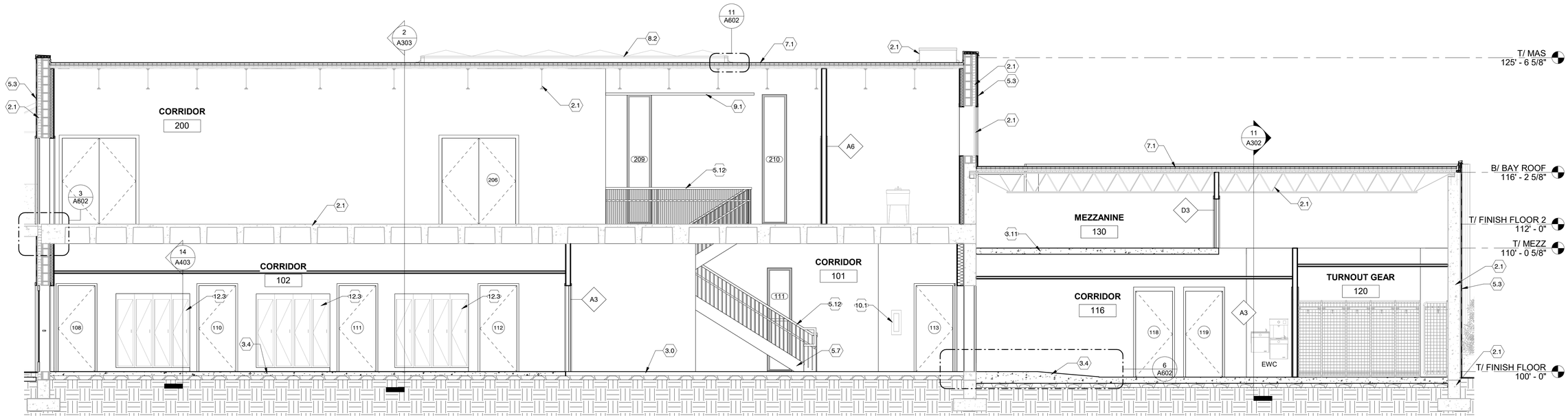
SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET A201

KEYNOTES

2.1	EXISTING CONSTRUCTION TO REMAIN.
3.0	EXISTING CONCRETE SLAB.
3.4	NEW CONCRETE SLAB. REFER TO STRUCTURAL DRAWINGS.
3.9	TOOTH IN PROPOSED MASONRY TO MATCH EXISTING.
3.11	4" METAL DECK WITH 2" CONCRETE.
5.3	SINGLE SKIN METAL VERTICAL WALL PANELS. REFER TO LEGEND FOR COLORS.
5.7	METAL STAIRS.
5.12	36" HANDRAIL.
7.1	NEW TPO ROOF MEMBRANE. ADD 2" NEW POLYISO INSULATION ON TOP OF EXISTING.
8.2	NEW PREMANUFACTURED TANDEM INSULATED SKYLIGHT ASSEMBLY.
9.1	2'x2' SUSPENDED ACOUSTIC CEILING WITH AXIOM PERIMETER TRIM. REFER TO SHEET A105 FOR CEILING HEIGHTS.
10.1	SEMI-RECESSED FIRE EXTINGUISHER CABINET.
12.3	18"x18" LOCKABLE PLASTIC LAMINATE PASS-THRU LOCKERS. REFER TO 13/14/A404 FOR DIMENSIONS AND DETAILS.



2 A301 **BUILDING SECTION**
1/4" = 1'-0"



1 A301 **BUILDING SECTION**
1/4" = 1'-0"

11/19/2019 12:52:42 PM

engineers architects planners
your trusted advisor consultants

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

DATE: 11/20/2019
DRAWN BY: DVUR
CHECKED BY: MAND
APPROVED BY:
F.B. NO. PG.

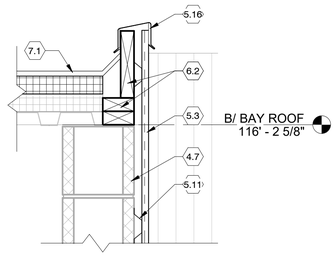
SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

BUILDING SECTIONS

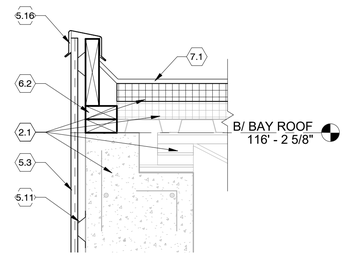
SCALE: 1/4" = 1'-0"
HORZ:
VERT:
CONTRACT NO:
170636
SHEET
A301

KEYNOTES

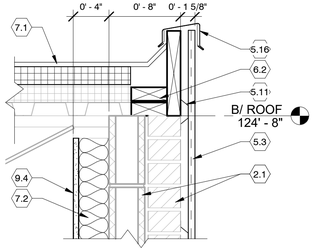
2.1	EXISTING CONSTRUCTION TO REMAIN.
3.1	CMU WALL WITH STUCCO FINISH TO MATCH EXTERIOR FACE FLUSH WITH ADJACENT. ARCHITECT TO VERIFY TYPICAL MATCHING TEXTURE PRIOR TO PLACEMENT.
4.7	8" CMU.
5.3	SINGLE SKIN METAL VERTICAL WALL PANELS. REFER TO LEGEND FOR COLORS.
5.11	7/8" HAT CHANNEL. GALVANIZED.
5.16	PREFINISHED METAL COPING.
6.2	CONTINUOUS PRESSURE TREATED WOOD BLOCKING.
7.1	NEW TPO ROOF MEMBRANE. ADD 2" NEW POLYISO INSULATION ON TOP OF EXISTING.
7.2	R-15 BATT INSULATION.
7.3	METAL FLASHING.
7.5	SEALANT.
8.4	STOREFRONT SYSTEM WITH TEMPERED GLASS.
8.5	STOREFRONT SYSTEM WITH SPANDREL GLASS.
9.4	5/8" TYPE X GYPSUM WALL BOARD.
9.8	2'x2' SUSPENDED ACOUSTIC CEILING SYSTEM. REFER TO A105 FOR CEILING HEIGHTS.
10.1	SEMI-RECESSED FIRE EXTINGUISHER CABINET.



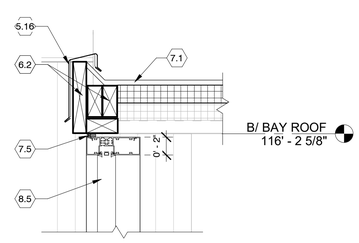
6 A302 **ROOF / WALL DETAIL**
1 1/2" = 1'-0"



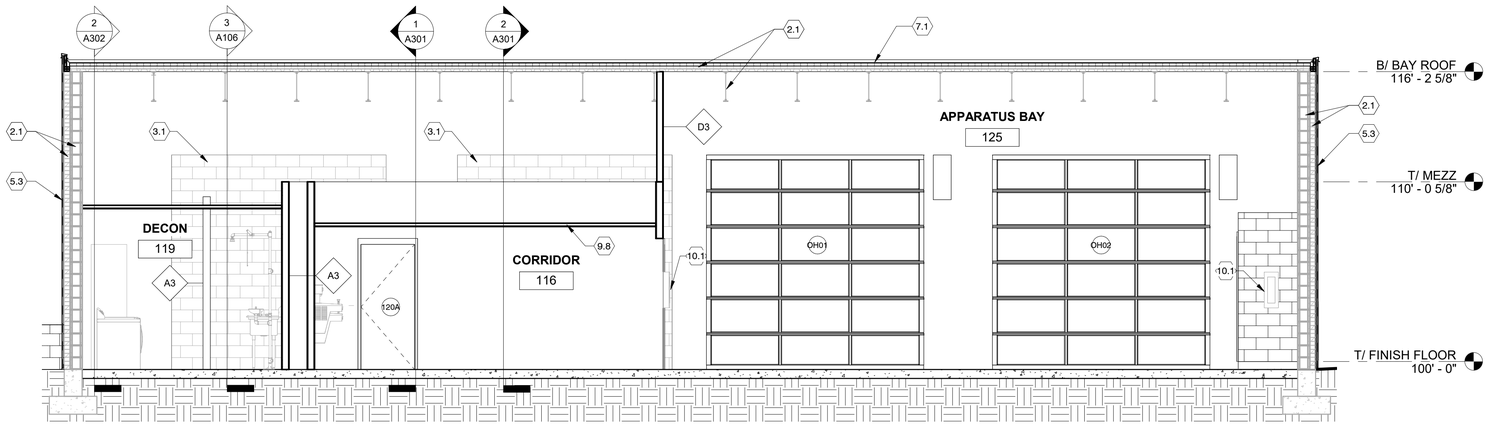
7 A302 **ROOF / WALL DETAIL**
1 1/2" = 1'-0"



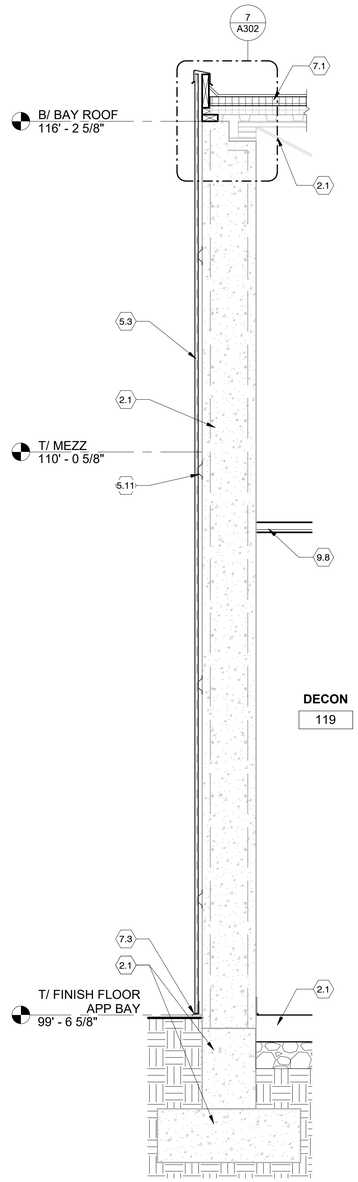
4 A302 **ROOF DETAIL**
1 1/2" = 1'-0"



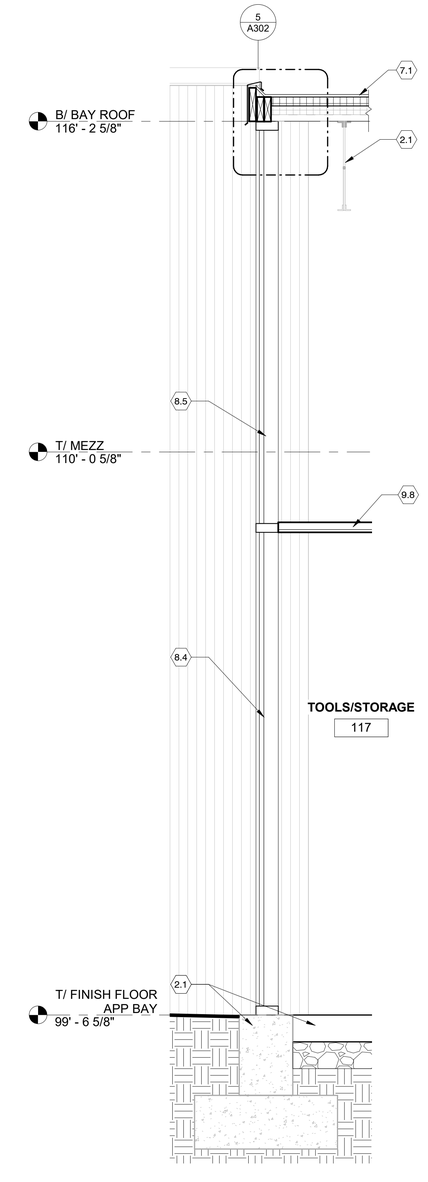
5 A302 **ROOF / WALL DETAIL**
1 1/2" = 1'-0"



11 A302 **BUILDING SECTION**
1/4" = 1'-0"



2 A302 **WALL SECTION**
3/4" = 1'-0"



3 A302 **WALL SECTION**
3/4" = 1'-0"

your trusted advisor
engineers
architects
planners
consultants

REVISIONS			
REV	ISSUE FOR BIDDING AND PERMIT	DATE	BY
0		11/20/2019	MAND

DATE:	11/20/2019	DRAWN BY:	DVKJR
CHECKED BY:	MAND	APPROVED BY:	
F.B. NO.		PG.	

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

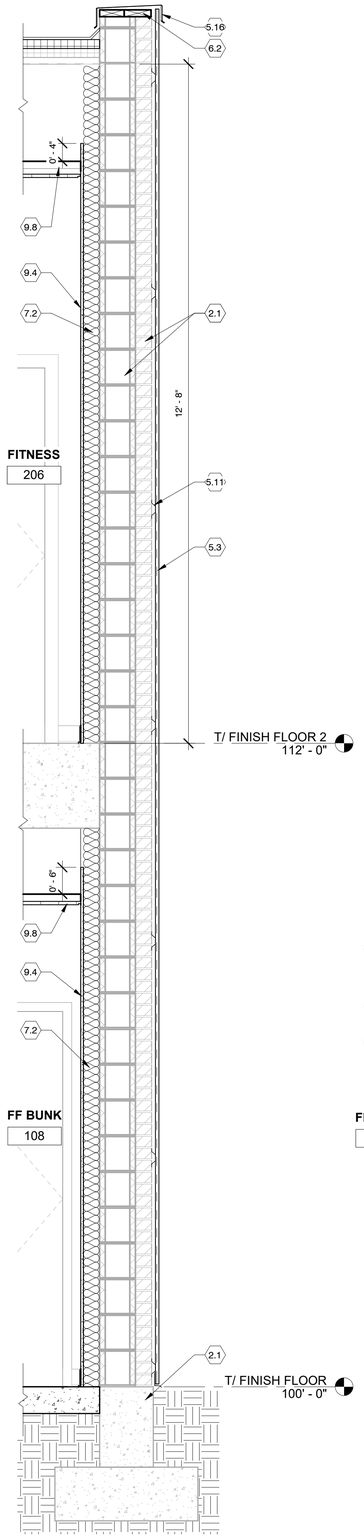
BUILDING AND WALL SECTIONS

SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET A302

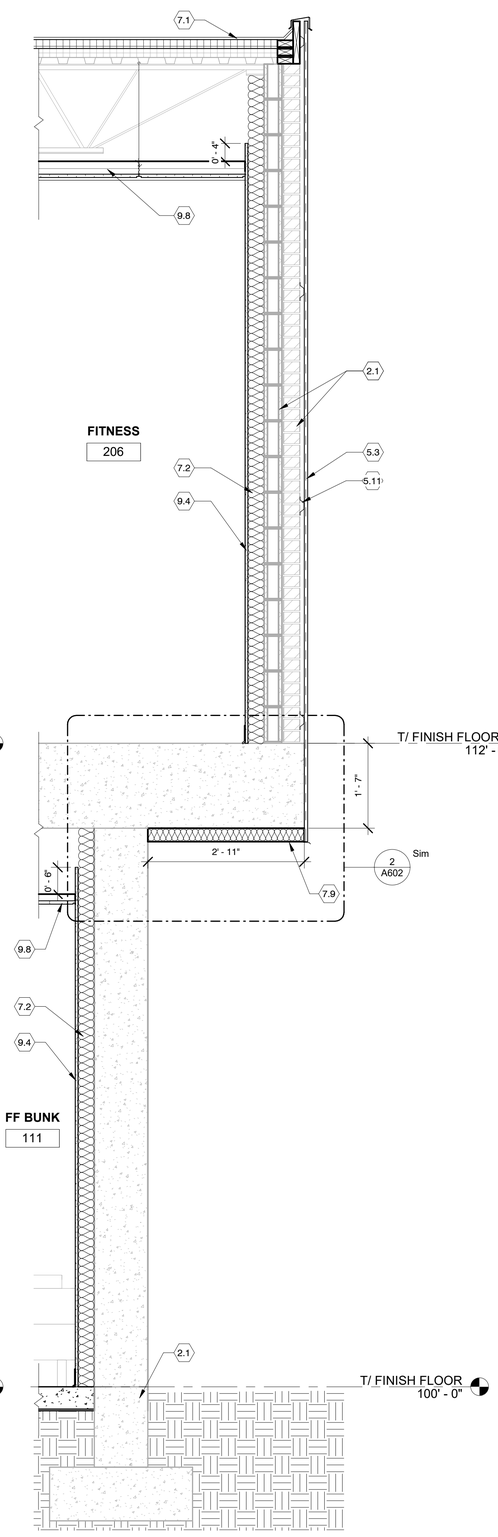
11/19/2019 12:52:45 PM

KEYNOTES

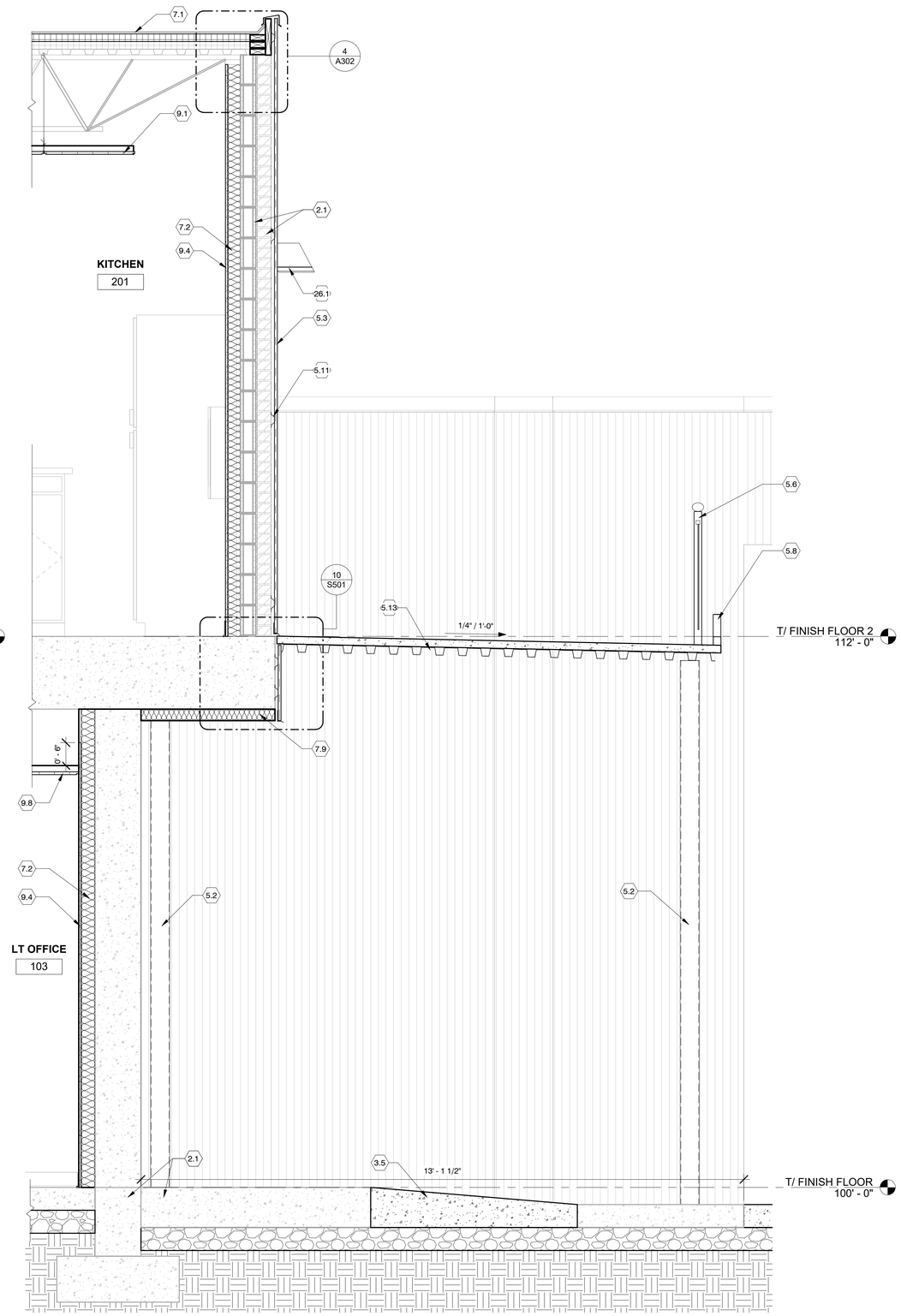
2.1	EXISTING CONSTRUCTION TO REMAIN.
3.5	NEW CONCRETE RAMP UP TO EXISTING STOOP. SAWCUT AND REMOVE EXISTING DRIVE TO INSTALL.
4.7	8" CMU.
5.2	HSS STEEL COLUMN. PAINTED (P1). REFER TO STRUCTURAL DRAWINGS FOR SIZES AND LOCATIONS.
5.3	SINGLE SKIN METAL VERTICAL WALL PANELS. REFER TO LEGEND FOR COLORS.
5.6	42" GUARDRAIL WITH INTERMEDIATES NO GREATER THAN 4" CLEAR. PAINTED.
5.8	ALUMINUM LETTERS.
5.11	7/8" HAT CHANNEL. GALVANIZED.
5.13	GALVANIZED METAL DECK.
5.16	PREFINISHED METAL COPING.
6.2	CONTINUOUS PRESSURE TREATED WOOD BLOCKING.
7.1	NEW TPO ROOF MEMBRANE. ADD 2" NEW POLYISO INSULATION ON TOP OF EXISTING.
7.2	R-15 BATT INSULATION.
7.3	METAL FLASHING.
7.9	3" INSULATED METAL SOFFIT PANEL.
9.1	2'x2' SUSPENDED ACOUSTIC CEILING WITH AXIOM PERIMETER TRIM. REFER TO SHEET A105 FOR CEILING HEIGHTS.
9.4	5/8" TYPE X GYPSUM WALL BOARD.
9.8	2'x2' SUSPENDED ACOUSTIC CEILING SYSTEM. REFER TO A105 FOR CEILING HEIGHTS.
9.9	GYPSUM WALL BOARD AND METAL STUD CEILING. REFER TO 8/A105.
26.1	LIGHT FIXTURE. REFER TO ELECTRICAL DRAWINGS.



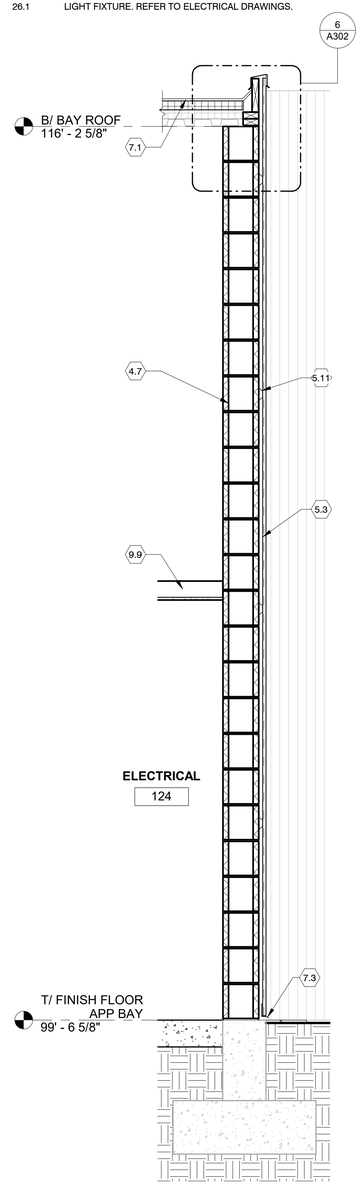
1 **WALL SECTION** A303 — 3/4" = 1'-0"



2 **WALL SECTION** A303 — 3/4" = 1'-0"



3 **WALL SECTION** A303 — 3/4" = 1'-0"



4 **WALL SECTION** A303 — 3/4" = 1'-0"

11/19/2019 12:52:47 PM

your trusted advisor
engineers
architects
planners
consultants

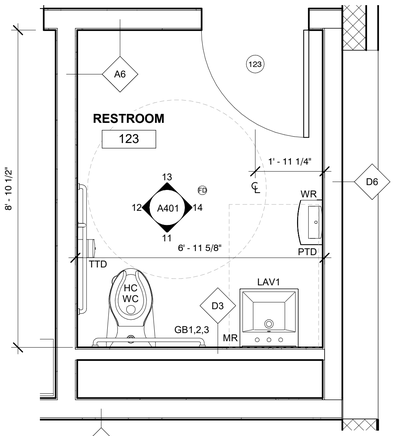
REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

DATE: 11/20/2019
DRAWN BY: DVAR
CHECKED BY: MAND
APPROVED BY:
F.B. NO.
PG.

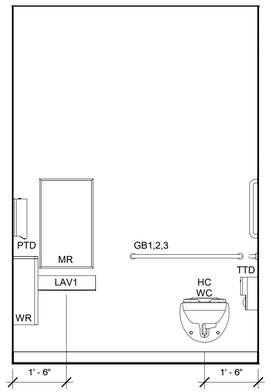
SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

WALL SECTIONS

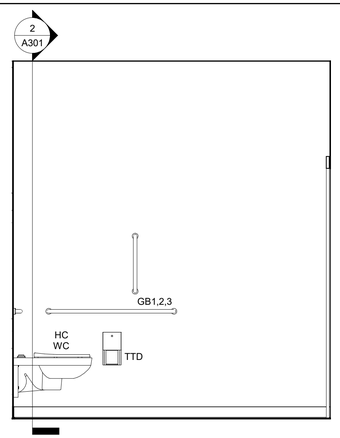
SCALE: 3/4" = 1'-0"
HORZ:
VERT:
CONTRACT NO:
170636
SHEET
A303



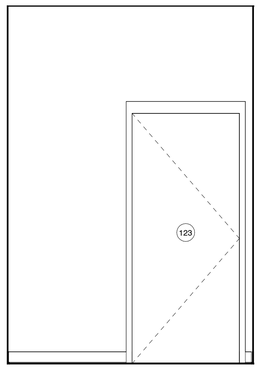
10 A401 **ENLARGED RESTROOM PLAN**
1/2" = 1'-0"



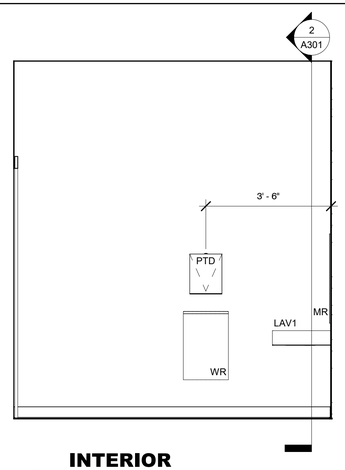
11 A401 **INTERIOR RESTROOM ELEVATION**
1/2" = 1'-0"



12 A401 **INTERIOR RESTROOM ELEVATION**
1/2" = 1'-0"



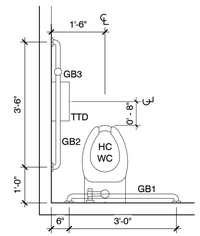
13 A401 **INTERIOR RESTROOM ELEVATION**
1/2" = 1'-0"



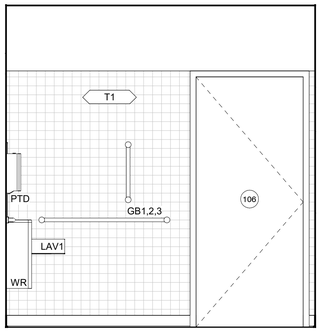
14 A401 **INTERIOR RESTROOM ELEVATION**
1/2" = 1'-0"

KEYNOTES

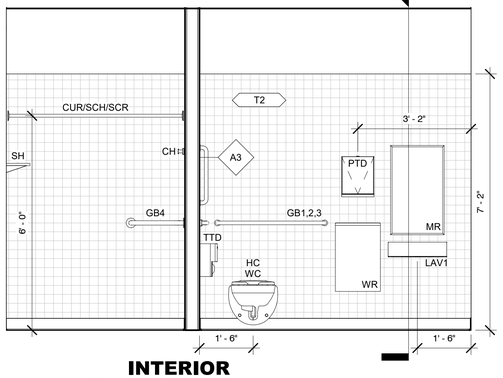
7.19 4" CURB.
9.10 FROSTED FILM INSIDE GLASS TO 7'-2" AFF.



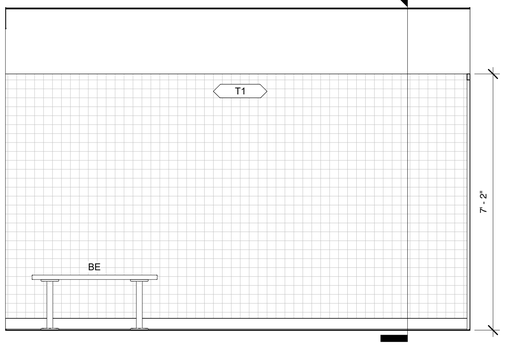
15 A401 **TYP. WATER CLOSET LAYOUT**
1/2" = 1'-0"



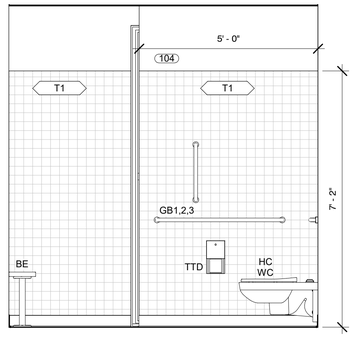
5 A401 **INTERIOR RESTROOM ELEVATION**
1/2" = 1'-0"



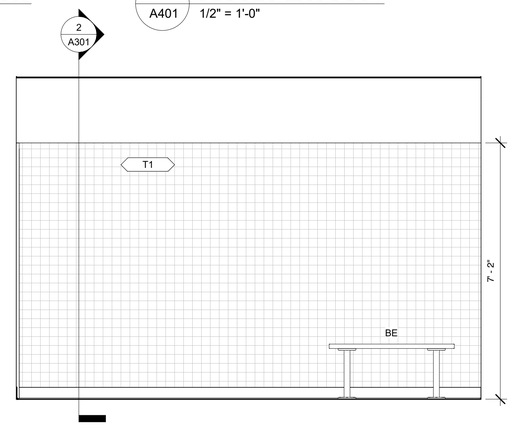
6 A401 **INTERIOR RESTROOM ELEVATION**
1/2" = 1'-0"



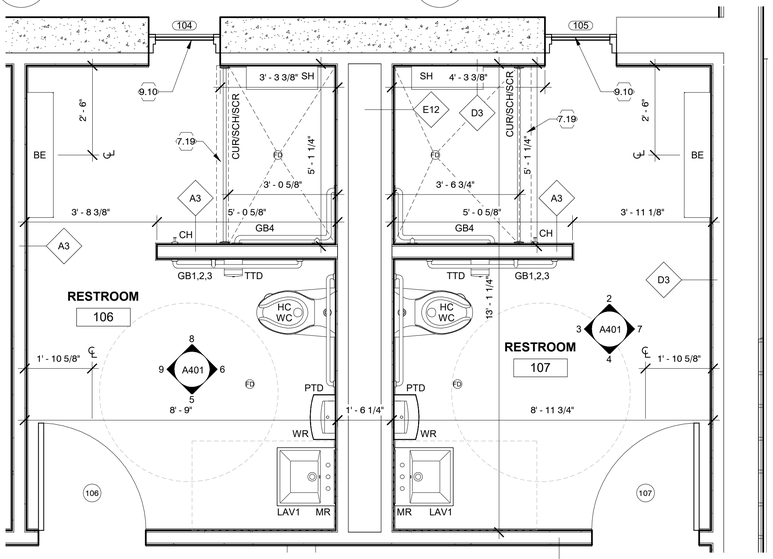
7 A401 **INTERIOR RESTROOM ELEVATION**
1/2" = 1'-0"



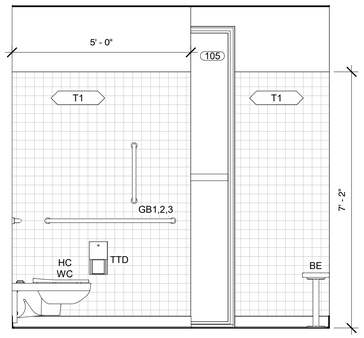
8 A401 **INTERIOR RESTROOM ELEVATION**
1/2" = 1'-0"



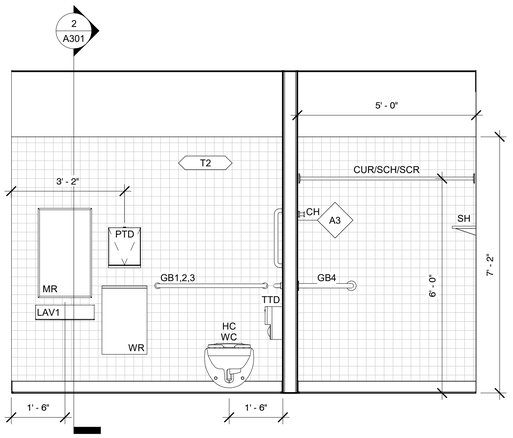
9 A401 **INTERIOR RESTROOM ELEVATION**
1/2" = 1'-0"



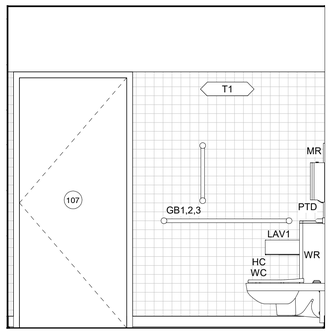
FIRST FLOOR ENLARGED RESTROOM PLAN
1/2" = 1'-0"



2 A401 **INTERIOR RESTROOM ELEVATION**
1/2" = 1'-0"



3 A401 **INTERIOR RESTROOM ELEVATION**
1/2" = 1'-0"



4 A401 **INTERIOR RESTROOM ELEVATION**
1/2" = 1'-0"

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

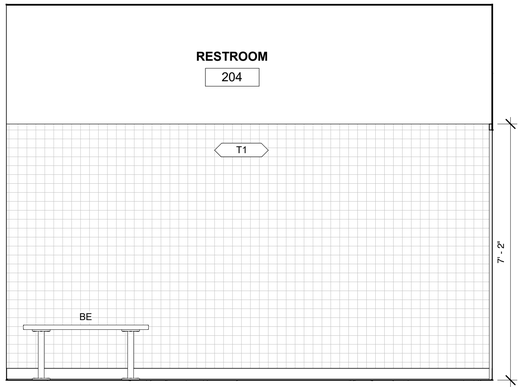
DATE: 11/20/2019
DRAWN BY: DVUR
CHECKED BY: MAND
APPROVED BY:
F.B. NO. PG.

SCALE: 1/2" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET A401

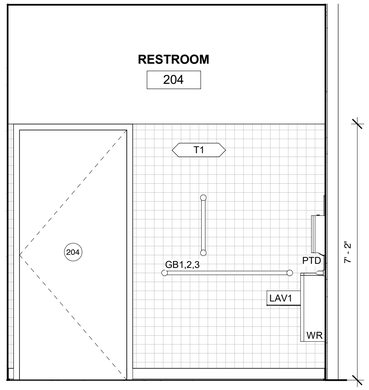
SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241
ENLARGED RESTROOM PLANS AND DETAILS

your trusted advisor consultants engineers architects planners

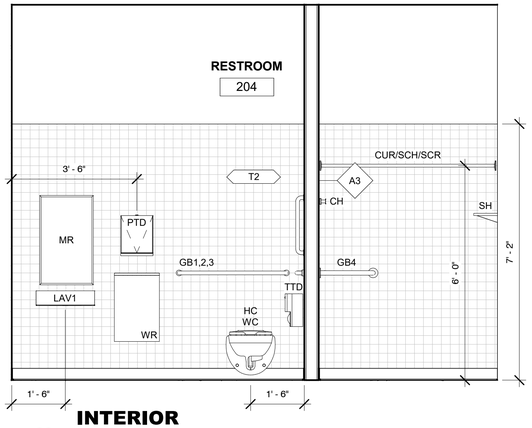
11/19/2019 12:52:51 PM



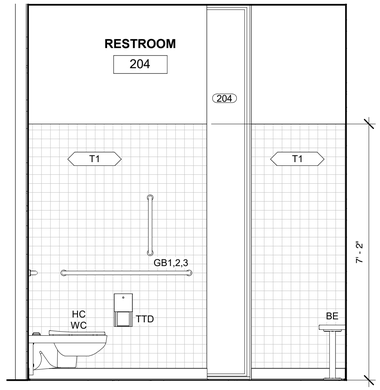
9 A402 **INTERIOR RESTROOM ELEVATION** 1/2" = 1'-0"



10 A402 **INTERIOR RESTROOM ELEVATION** 1/2" = 1'-0"



11 A402 **INTERIOR RESTROOM ELEVATION** 1/2" = 1'-0"

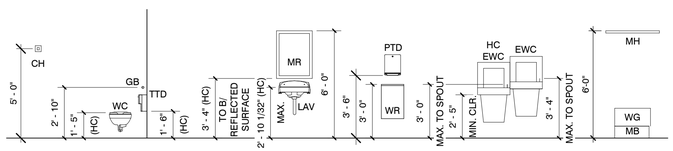


12 A402 **INTERIOR RESTROOM ELEVATION** 1/2" = 1'-0"

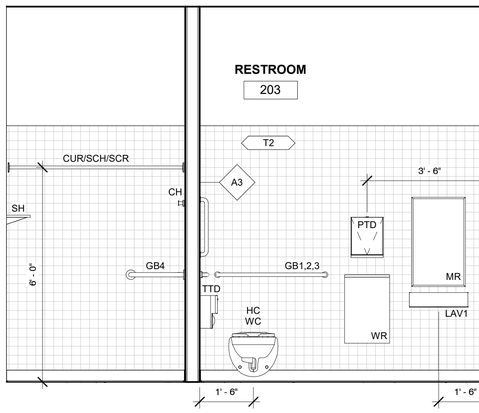
KEYNOTES

7.19 4" CURB.

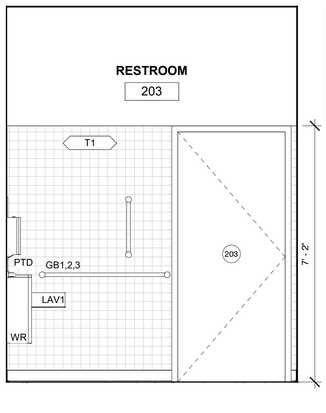
9.10 FROSTED FILM INSIDE GLASS TO 7'-2" AFF.



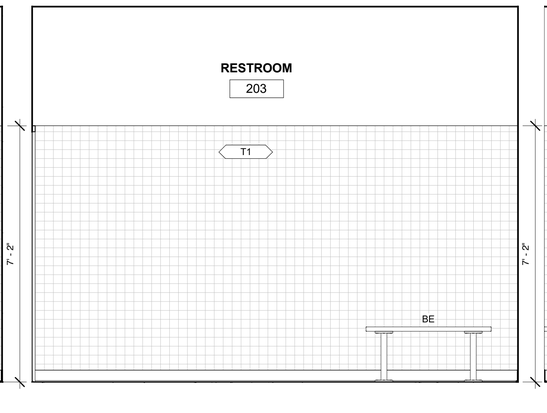
4 A402 **TYP. FIXTURE MOUNTING HEIGHTS** 1/4" = 1'-0"



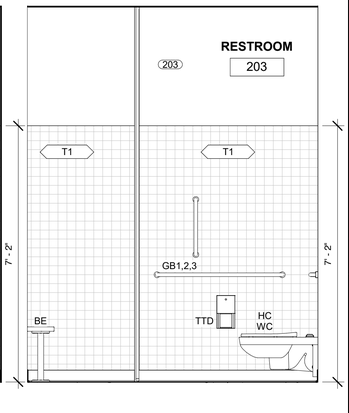
5 A402 **INTERIOR RESTROOM ELEVATION** 1/2" = 1'-0"



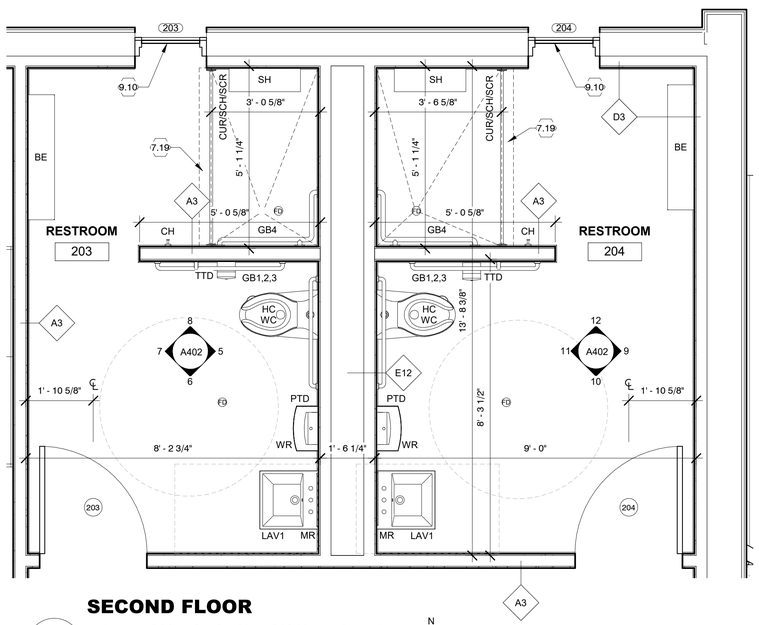
6 A402 **INTERIOR RESTROOM ELEVATION** 1/2" = 1'-0"



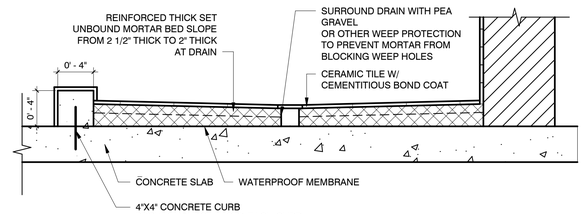
7 A402 **INTERIOR RESTROOM ELEVATION** 1/2" = 1'-0"



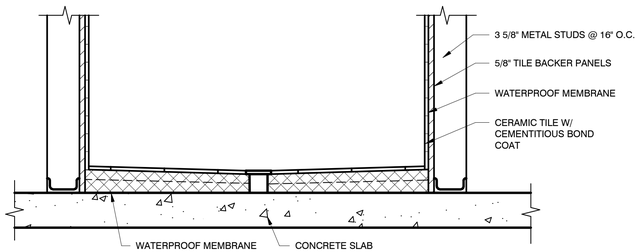
8 A402 **INTERIOR RESTROOM ELEVATION** 1/2" = 1'-0"



1 A402 **SECOND FLOOR ENLARGED RESTROOM PLAN** 1/2" = 1'-0"



3 A402 **SHOWER PAN DETAIL** 1 1/2" = 1'-0"



2 A402 **SHOWER PAN DETAIL** 1 1/2" = 1'-0"

ACCESSORIES SCHEDULE

ALL FIXTURES TO BE HANDICAPPED ACCESSIBLE (HC) SHALL BE INSTALLED AT HEIGHTS AND LOCATIONS THAT ARE ACCESSIBLE PER ADA GUIDELINES. ALL OTHER ACCESSORIES SHALL BE INSTALLED AT HEIGHTS RECOMMENDED BY MFR.

SEE PLANS FOR QUANTITY AND LOCATION OF ACCESSORIES, AND SEE SPECIFICATIONS FOR ADDITIONAL DESCRIPTIONS. PROVIDE BLOCKING FOR SURFACE MOUNTED ACCESSORIES (GRAB BARS, DISPENSERS, ETC...) AS REQUIRED

ABBREV.	ITEM	MFG. NO. / DESCRIPTION (BASIS OF DESIGN)
BE	BENCH (3'-6" LONG)	HARDWOOD BENCH WITH STEEL PEDESTALS.
CH	CLOTHES/TOWEL HOOK	BOBRICK MODEL B-6827.
CUR	SHOWER CURTAIN	BOBRICK MODEL 204-3.
EWC	ELECTRIC WATER COOLER WITH BOTTLE FILLING STATION (HC ACCESSIBLE AS INDICATED)	SEE PLUMBING DRAWINGS.
FD	FLOOR DRAIN	SEE PLUMBING DRAWINGS.
GB1	GRAB BAR 36"	BOBRICK MODEL B-6806 SERIES.
GB2	GRAB BAR 42"	BOBRICK MODEL B-6806 SERIES.
GB3	GRAB BAR 24" (VERTICAL)	BOBRICK MODEL B-6806 SERIES.
GB4	SHOWER GRAB BAR	BOBRICK MODEL B-6861.
LAV1	LAVATORY (STANDARD HC ACCESSIBLE HT.)	SEE PLUMBING DRAWINGS.
LAV2	LAVATORY (STANDARD HC ACCESSIBLE HT.)	SEE PLUMBING DRAWINGS.
L1	LOCKER	.
MB	MOP BASIN	SEE PLUMBING DRAWINGS.
MR	MIRROR 24" x 36"	BOBRICK MODEL B-290 2436.
PTD	SURFACE-MOUNTED PAPER TOWEL DISPENSER	BOBRICK MODEL B-4262.
SCH	SHOWER CURTAIN HOOKS	BOBRICK MODEL 204-1.
SCR	SHOWER CURTAIN ROD	BOBRICK MODEL B-6107.
SH	SHELF	BOBRICK MODEL B-295.
TTD	TOILET TISSUE DISPENSER	BOBRICK MODEL B-4288.
WC / HC WC	WATER CLOSET / STANDARD HC ACCESSIBLE HT. WATER CLOSET	SEE PLUMBING DRAWINGS.
WR	WASTE RECEPTACLE	BOBRICK MODEL B-277.

your trusted advisor consultants — engineers architects planners

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

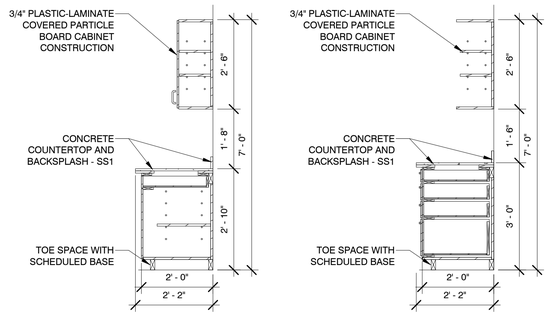
DATE: 11/20/2019
DRAWN BY: DVAUR
CHECKED BY: MAND
APPROVED BY:
F.B. NO. PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

ENLARGED RESTROOM PLANS AND DETAILS

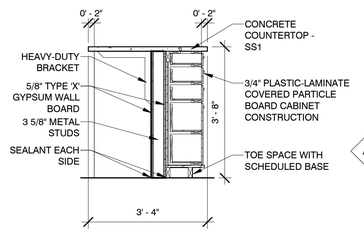
SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET A402

11/19/2019 12:52:54 PM



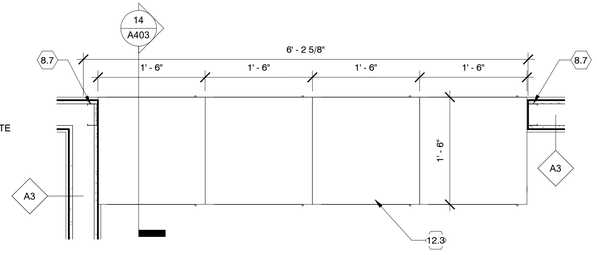
10 A403 TYPICAL CASEWORK SECTIONS

1/2" = 1'-0"



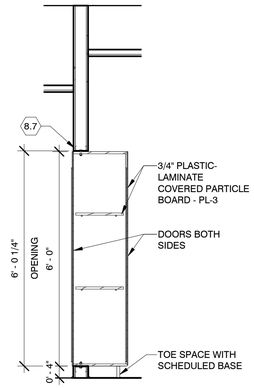
12 A403 SECTION DETAIL

1/2" = 1'-0"



13 A403 PASS-THRU LOCKERS AT BUNK ROOMS

1" = 1'-0"

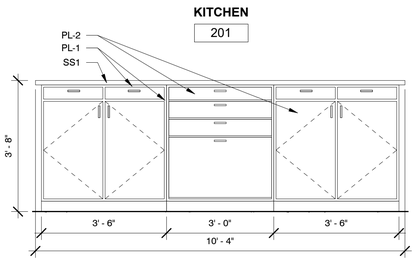


14 A403 PASS-THRU LOCKERS AT BUNK ROOMS

1/2" = 1'-0"

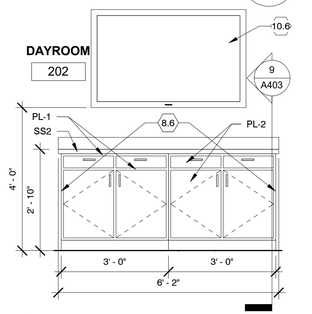
KEYNOTES

2.1	EXISTING CONSTRUCTION TO REMAIN.
8.6	4" FAN EXHAUST BOTH ENDS.
8.7	3 5/8" METAL STUD FRAMING AROUND OPENING.
9.1	2'x2' SUSPENDED ACOUSTIC CEILING WITH AXIOM PERIMETER TRIM. REFER TO SHEET A105 FOR CEILING HEIGHTS.
10.6	OWNER FURNISHED, OWNER INSTALLED.
10.8	OWNER FURNISHED, CONTRACTOR INSTALLED.
11.6	COMMERCIAL RANGE HOOD.
12.3	18"x18" LOCKABLE PLASTIC LAMINATE PASS-THRU LOCKERS. REFER TO 13/14/A404 FOR DIMENSIONS AND DETAILS.
12.4	LOCKABLE, FULL HEIGHT PLASTIC LAMINATE PANTRY.
22.7	COFFEE MAKER. BY OWNER.



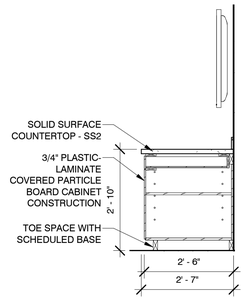
7 A403 INTERIOR ELEVATION

1/2" = 1'-0"



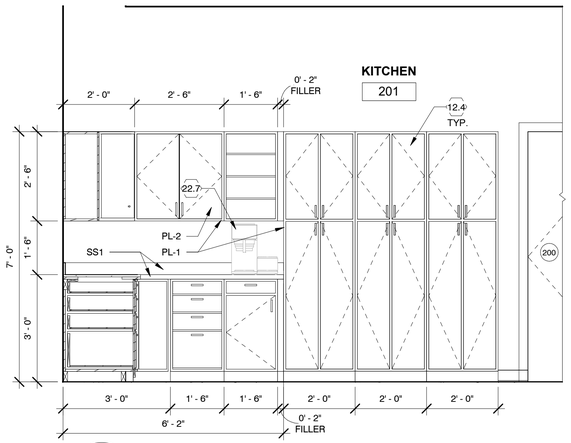
8 A403 CREDENZA ELEVATION

1/2" = 1'-0"



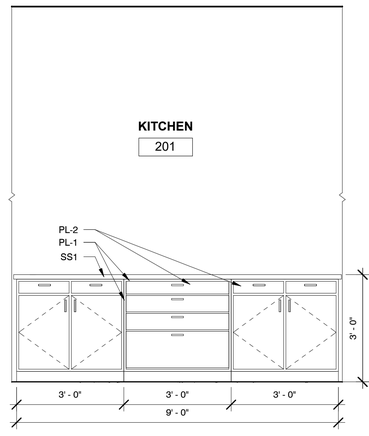
9 A403 CREDENZA SECTION

1/2" = 1'-0"



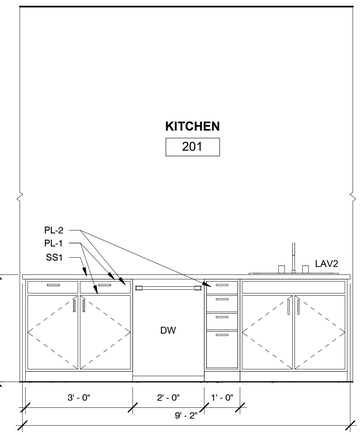
4 A403 INTERIOR ELEVATION

1/2" = 1'-0"



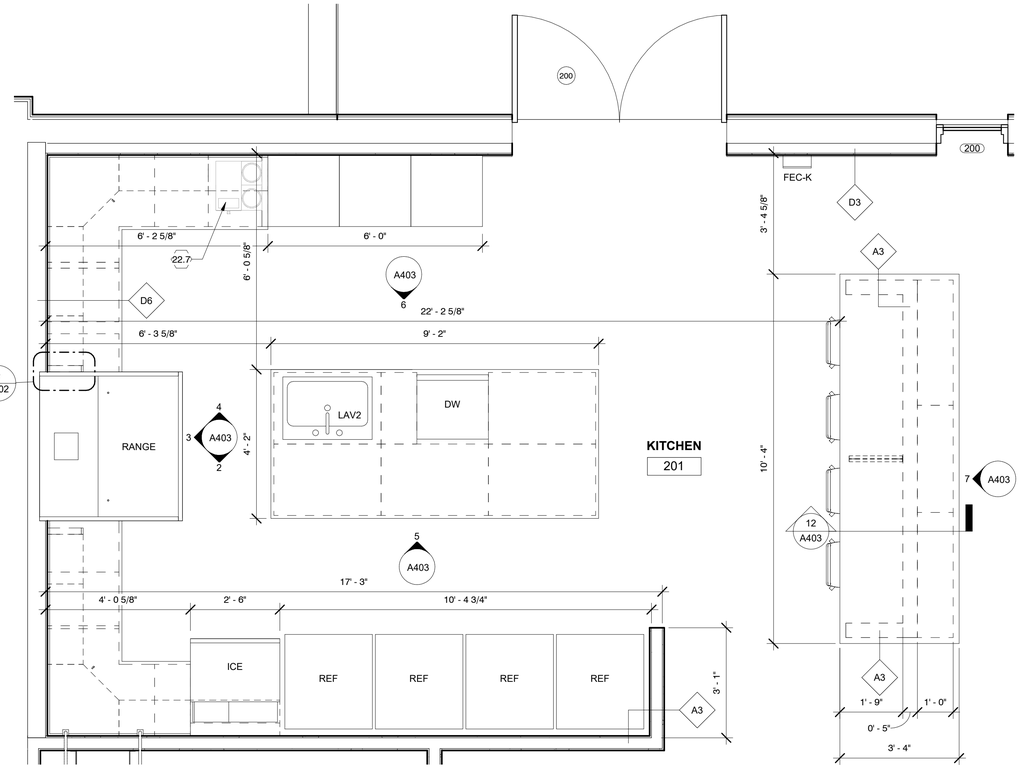
5 A403 INTERIOR ELEVATION

1/2" = 1'-0"



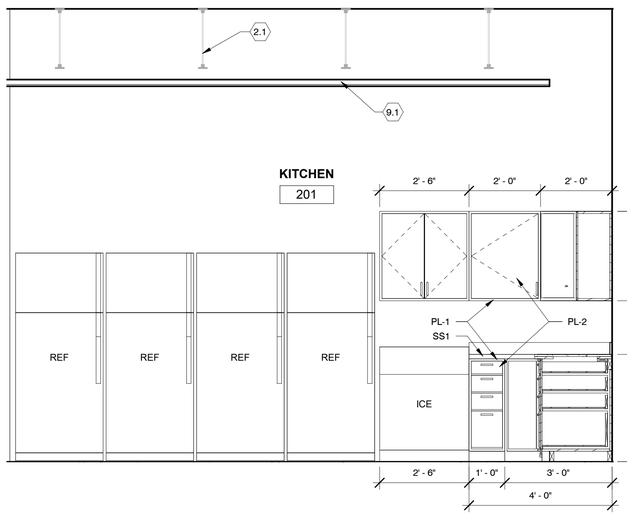
6 A403 INTERIOR ELEVATION

1/2" = 1'-0"



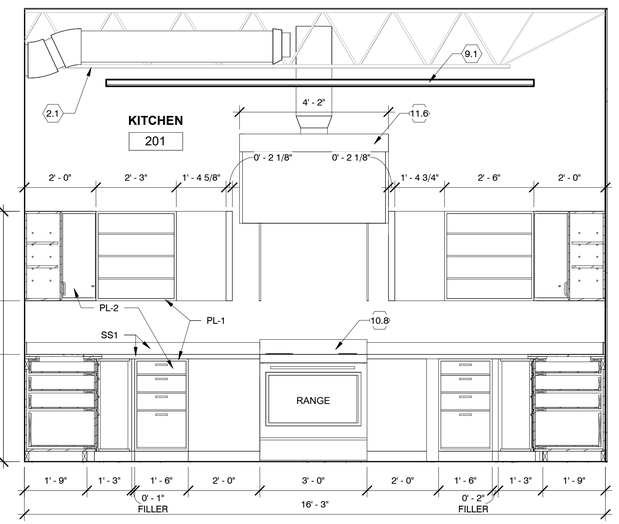
1 A403 ENLARGED KITCHEN FLOOR PLAN

1/2" = 1'-0"



2 A403 INTERIOR ELEVATION

1/2" = 1'-0"



3 A403 INTERIOR ELEVATION

1/2" = 1'-0"

11/19/2019 12:52:57 PM

REVISIONS			
REV	ISSUE FOR BIDDING AND PERMIT	DATE	BY
0		11/20/2019	MAND

DATE:	11/20/2019	CHECKED BY:	MAND
DRAWN BY:	DWJR	APPROVED BY:	PG.
		F.B. NO.	

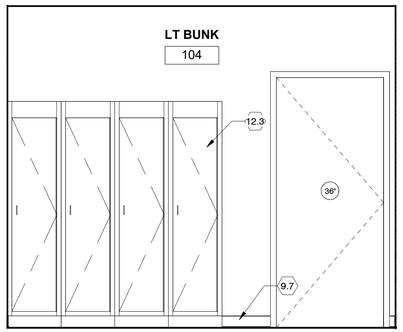
SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

INTERIOR ELEVATIONS AND TYPICAL DETAILS

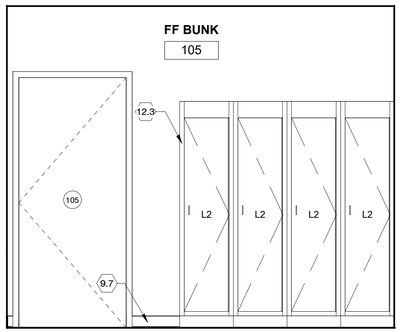
SCALE: As Indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET A403

KEYNOTES

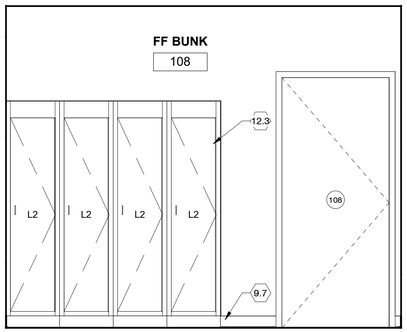
2.1	EXISTING CONSTRUCTION TO REMAIN.
4.1	INFILL WITH 12" CMU, ALIGNED TO ADJACENT INTERIOR WALLS.
9.7	4" RUBBER COVE BASE.
12.3	18"x18" LOCKABLE PLASTIC LAMINATE PASS-THRU LOCKERS. REFER TO 13/14/A404 FOR DIMENSIONS AND DETAILS.
12.5	FULL-HEIGHT MIRROR.



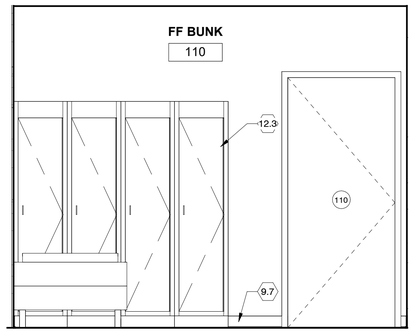
8 / A404 **105 - SOUTH** 1/2" = 1'-0"



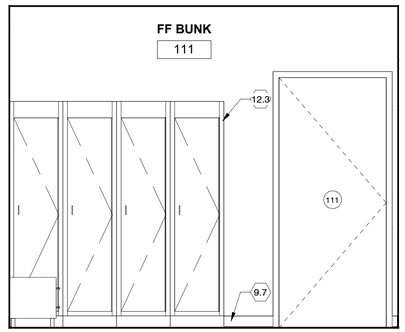
9 / A404 **106 - SOUTH** 1/2" = 1'-0"



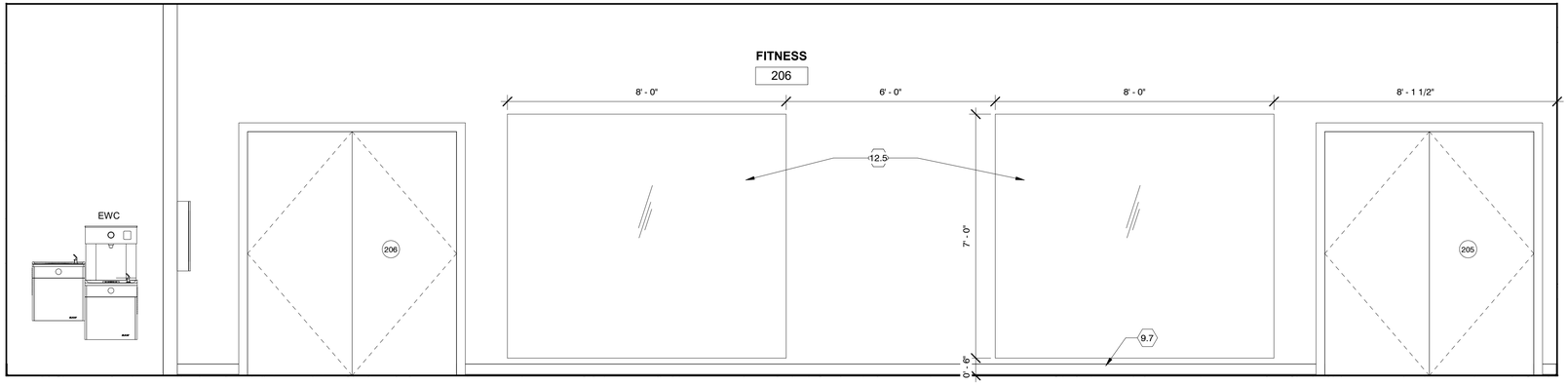
10 / A404 **109 - NORTH** 1/2" = 1'-0"



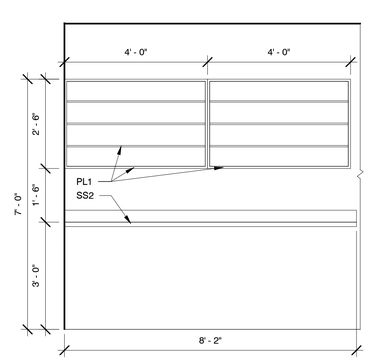
11 / A404 **110 - NORTH** 1/2" = 1'-0"



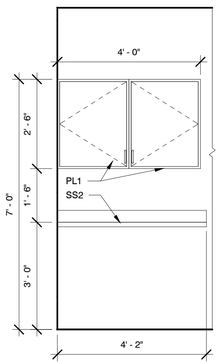
12 / A404 **111 - NORTH** 1/2" = 1'-0"



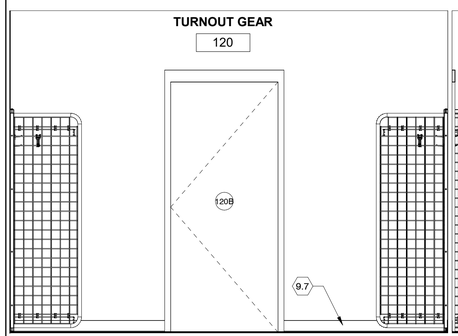
5 / A404 **206 - NORTH** 1/2" = 1'-0"



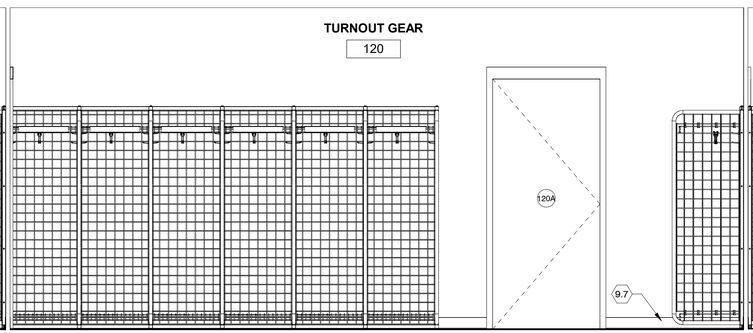
6 / A404 **117 EAST** 1/2" = 1'-0"



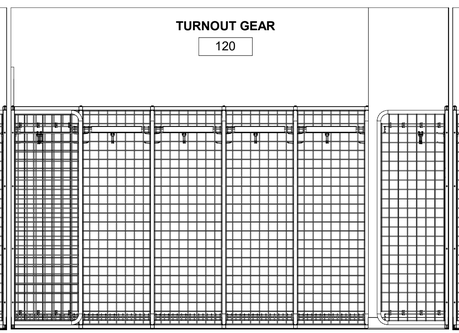
7 / A404 **118 SOUTH** 1/2" = 1'-0"



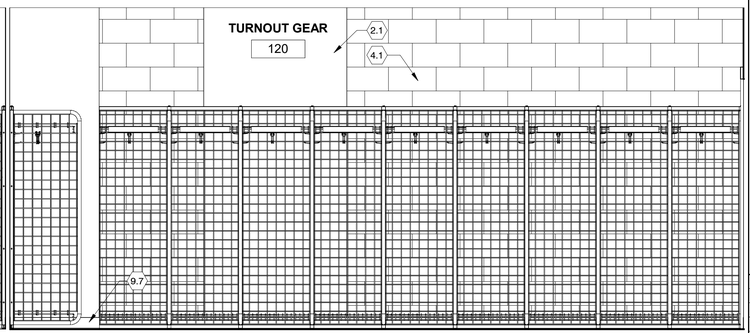
1 / A404 **120 - NORTH** 1/2" = 1'-0"



2 / A404 **120 - EAST** 1/2" = 1'-0"



3 / A404 **120 - SOUTH** 1/2" = 1'-0"



4 / A404 **120 - WEST** 1/2" = 1'-0"

11/19/2019 12:53:04 PM

engineers architects planners
your trusted advisor consultants

REV	ISSUE	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

DATE: 11/20/2019
DRAWN BY: DWUR
CHECKED BY: MAND
APPROVED BY:
F.B. NO. PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

INTERIOR ELEVATIONS

SCALE: 1/2" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET A404

ROOM FINISH SCHEDULE

ABBREVIATIONS

ACT	ACOUSTICAL CEILING TILE	P-CONC	POLISHED CONCRETE
CPT	CARPET	P-GB	PAINTED GYPSUM BOARD
CONC	SEALED CONCRETE	P-MAS	PAINTED MASONRY
CT	CERAMIC TILE	RB	RUBBER BASE
EXP.	EXPOSED		

REMARKS

1. SEE A402/A403 FOR LOCATION OF CERAMIC WALL TILE.

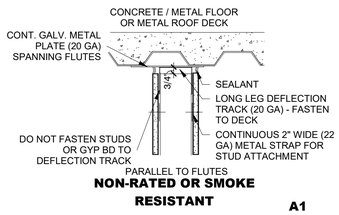
ROOM NO.	ROOM NAME	BASE	FLOOR	WALLS					CEILINGS		REMARKS
				NORTH	EAST	SOUTH	WEST	ALL	MAT.	HEIGHT	
100	VESTIBULE	RB	P-CONC	P-GB	P-MAS	P-GB	P-GB		ACT-1	9' - 0"	
101	CORRIDOR	RB	P-CONC	-	-	-	-	P-GB	EXP.	-	
102	CORRIDOR	RB	P-CONC	-	-	-	-	P-GB	ACT-2	9' - 0"	
103	LT OFFICE	RB	CPT	P-GB	P-MAS	P-GB	P-MAS		ACT-1	9' - 0"	
104	LT BUNK	RB	CPT	P-GB	P-GB	P-GB	P-MAS		ACT-2	9' - 0"	
105	FF BUNK	RB	CPT	-	-	-	-	P-GB	ACT-2	9' - 0"	
106	RESTROOM	RB	P-CONC	-	-	-	-	P-GB / CT	ACT-1	9' - 0"	1.
107	RESTROOM	RB	P-CONC	-	-	-	-	P-GB / CT	ACT-1	9' - 0"	1.
108	FF BUNK	RB	CPT	-	-	-	-	P-GB	ACT-2	9' - 0"	
109	MECHANICAL CLOSET	-	CONC					P-GB	EXP.	-	
110	FF BUNK	RB	CPT	-	-	-	-	P-GB	ACT-2	9' - 0"	
111	FF BUNK	RB	CPT	-	-	-	-	P-GB	ACT-2	9' - 0"	
112	LAUNDRY	RB	P-CONC	-	-	-	-	P-GB	ACT-2	9' - 0"	
113	JANITOR'S CLOSET	RB	CONC	-	-	-	-	P-GB	EXP.	9' - 0"	
114	FF OFFICE	RB	CPT	-	-	-	-	P-GB	ACT-1	9' - 0"	
115	SERVER	RB	CONC	-	-	-	-	P-GB	EXP.	-	
116	CORRIDOR	RB	CONC	P-GB	P-GB / P-MAS	P-GB	P-GB		ACT-3	9' - 0"	
117	TOOLS/STORAGE	RB	CONC	P-GB	P-MAS	P-MAS	P-GB		EXP.	9' - 0"	
118	SCBA	RB	CONC	P-GB	P-GB	P-MAS	P-GB		EXP.	9' - 0"	
119	DECON	RB	CONC	P-GB	P-GB	P-MAS	P-MAS		EXP.	9' - 0"	
120	TURNOUT GEAR	RB	CONC	P-GB	P-GB	P-GB	P-MAS		EXP.	9' - 0"	
121	STORAGE	RB	CONC	-	-	-	-	P-GB	EXP.	9' - 0"	
122	EMS SUPPLY	RB	CONC	-	-	-	-	P-GB	ACT-3	9' - 0"	
123	RESTROOM	RB	CONC	-	-	-	-	P-GB	ACT-3	9' - 0"	
124	ELECTRICAL	-	CONC	-	-	-	-	E-MAS	ACT-3	9' - 0"	
125	APPARATUS BAY	-	CONC	P-MAS	P-MAS	P-GB / P-MAS	P-MAS		EXP.	-	
126	CLOSET	-	CONC	-	-	-	-	E-MAS	EXP.	-	
127	HOSE STORAGE	-	CONC	P-MAS	P-MAS	-	-		EXP.	-	
128	JANITOR'S CLOSET	RB	CONC	-	-	-	-	P-GB	EXP.	-	
129	STAIR	-	CONC	-	P-GB	P-GB	P-GB		EXP.	-	
130	MEZZANINE	-	CONC	-	P-MAS	P-GB	P-GB		EXP.	-	
200	CORRIDOR	RB	P-CONC	-	-	-	-	P-GB	ACT-1 / EXP.	10' - 6"	
201	KITCHEN	RB	P-CONC	P-GB	-	P-GB	P-GB		ACT-1 / EXP.	10' - 6"	
202	DAYROOM	RB	CONC / CPT	P-GB	P-GB	-	-		ACT-1 / EXP.	10' - 6"	
203	RESTROOM	RB	P-CONC	-	-	-	-	P-GB / CT	ACT-1	10' - 6"	1.
204	RESTROOM	RB	P-CONC	-	-	-	-	P-GB / CT	ACT-1	10' - 6"	1.
206	FITNESS	RB	RAF	-	-	-	-	P-GB	ACT-2	10' - 6"	
207	STAIR	-	P-CONC	-	P-GB	P-GB	P-GB		ACT-1 / EXP.	10' - 6"	
208	MECHANICAL	-	CONC	-	-	-	-	P-GB	EXP.	10' - 6"	

MATERIAL SPECIFICATION

ABBR.	ITEM	
WALLS		
P1	PAINT	
	MANUF.	SHERWIN WILLIAMS
	COLOR:	ICICLE
	ITEM #:	SW6238
P2	PAINT	
	MANUF.	SHERWIN WILLIAMS
	COLOR:	EARL GREY
	ITEM #:	SW7660
P3	PAINT	
	MANUF.	SHERWIN WILLIAMS
	COLOR:	CYBERSPACE
	ITEM #:	SW7076
P4	PAINT	
	MANUF.	SHERWIN WILLIAMS
	COLOR:	RED BAY
	ITEM #:	SW6321
WP1	VERTICAL METAL WALL PANEL	
	MANUF.	METLSPAN
	COLOR:	BRITE RED
	ITEM #:	434R843
WP2	VERTICAL METAL WALL PANEL	
	MANUF.	METLSPAN
	COLOR:	SNOW WHITE
	ITEM #:	431R539
T1	CERAMIC TILE	
	MANUF.	DALTILE
	COLOR:	11% - BLACK D311 89% - BISCUIT D317
	ITEM #:	2x1 D00021WIND
T2	PORCELAIN TILE	
	MANUF.	DALTILE
	COLOR:	11% - RED D017 89% - PEPPER WHITE D037
	ITEM #:	2x1 D00021WIND
FLOORS		
SC	SEALED CONCRETE	
	MANUF.	-
	COLOR:	-
	ITEM #:	-
CPT	CARPET TILE	
	MANUF.	MILLIKEN
	COLOR:	CHROMA W/ SMOLDER
	ITEM #:	CUR109-119
RAF	RUBBERIZED ATHLETIC FLOORING	
	MANUF.	THOR PERFORMANCE PRODUCTS
	COLOR:	REGUPOL AKTIV - THUNDER GREY
	ITEM #:	AP95102

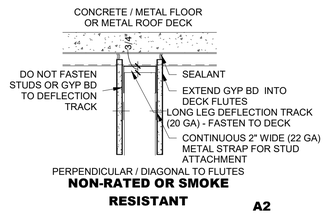
ABBR.	ITEM	
CEILINGS		
ACT1	ACOUSTIC CEILING TILE	
	MANUF.	ARMSTRONG CEILING SOLUTIONS
	TYPE:	SHASTA
	COLOR:	WHITE
	ITEM #:	-
ACT2	ACOUSTIC CEILING TILE	
	MANUF.	ARMSTRONG CEILING SOLUTIONS
	TYPE:	ULTIMA
	COLOR:	WHITE
	ITEM #:	1902
ACT3	ACOUSTIC CEILING TILE	
	MANUF.	ARMSTRONG CEILING SOLUTIONS
	TYPE:	KITCHEN ZONE
	COLOR:	WHITE
	ITEM #:	673
GWB	GYPSUM WALL BOARD	
	MANUF.	-
	COLOR:	-
	ITEM #:	-
MILLWORK		
SS1	POLISHED CONCRETE	
	MANUF.	-
	COLOR:	-
	ITEM #:	-
SS2	SOLID SURFACE	
	MANUF.	FORMICA
	COLOR:	WHITE SPEX
	ITEM #:	931
PL1	PLASTIC LAMINATE	
	MANUF.	ARBORITE
	COLOR:	CHARCOAL
	ITEM #:	S434CA
PL2	PLASTIC LAMINATE	
	MANUF.	ARBORITE
	COLOR:	BERGUNDY
	ITEM #:	S419CA
PL3	PLASTIC LAMINATE	
	MANUF.	ARBORITE
	COLOR:	DARK SUGAR CANE
	ITEM #:	W-434 RM
BASES		
RB	4" RUBBER COVE BASE	
	MANUF.	JOHNSONITE TARKETT
	COLOR:	TG4 - BLACK MAGIC
	ITEM #:	4" DURACOVE

PARTITION HEADS



NON-RATED OR SMOKE RESISTANT

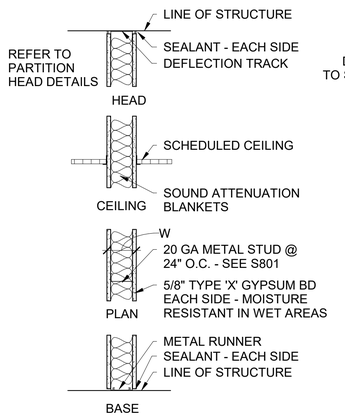
A1



NON-RATED OR SMOKE RESISTANT

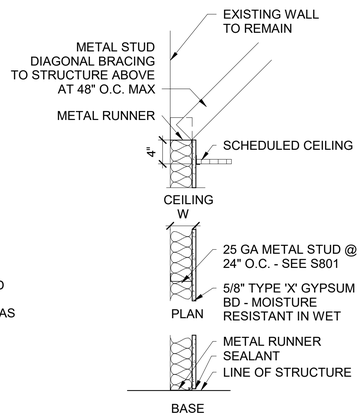
A2

WALL TYPES



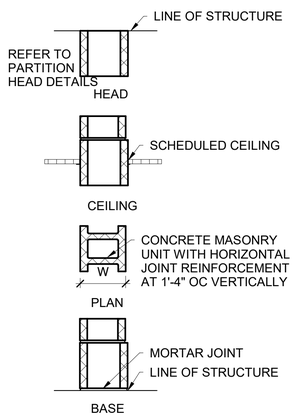
A3 W= 3 5/8" UL #U305
A6 W= 6"

A3, A6



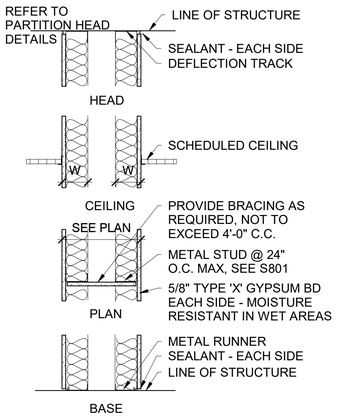
D3 W= 3 5/8"
D6 W= 6"

D3, D6



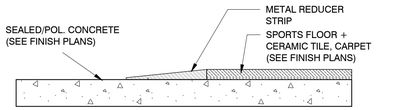
G8 W= 7 5/8"

G8



E3 W= 4 1/4"

E3



A CERAMIC/SPORTS/CARPET - SEALED/POLISHED CONCRETE

NOTES:
CHANGES IN LEVEL SHALL NOT EXCEED 1/4" OR 1/2" : 1 (2)

ALL METAL TRANSITIONS TO BE ANNO. ALUM OR STAINLESS STEEL FINISH.

FLOORING TRANSITION DETAIL

2 / A501 — 6" = 1'-0"

your trusted advisor
consultants
engineers
architects
planners

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

DATE:	11/20/2019
DRAWN BY:	DWJR
CHECKED BY:	MAND
APPROVED BY:	
F.B. NO.	PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

ROOM FINISH SCHEDULE AND WALL TYPES

SCALE:	As Indicated
HORZ:	
VERT:	
CONTRACT NO:	170636
SHEET	A501

11/19/2019 12:53:06 PM

OVERHEAD DOOR SCHEDULE

ABBREVIATIONS

DOOR FINISH:
AL ANODIZED ALUMINUM

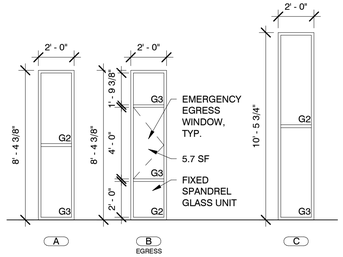
OPERATION

PB PUSH BUTTON SWITCH, MOTOR OPERATED.
CH CHAIN HOIST, MANUALLY OPERATED.

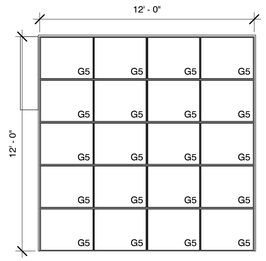
GENERAL NOTES

1. ALL FRAMES TO BE PAINTED P4.

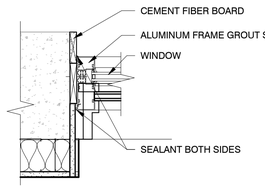
NUMBER	WIDTH	HEIGHT	RATING	FINISH	INTERIOR	EXTERIOR	EMERGENCY	LOCKING BAR	SENSOR EDGE	HEAD	JAMB	SILL	REMARKS
OH01	12' - 0"	12' - 0"		AL	PB	-	CH	Y	Y	H3	J3	S3	
OH02	12' - 0"	12' - 0"		AL	PB	-	CH	Y	Y	H3	J3	S3	
OH03	12' - 0"	12' - 0"		AL	PB	-	CH	Y	Y	H3	J3	S3	



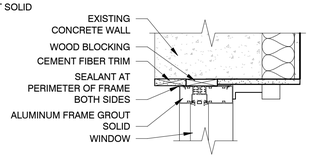
WINDOW TYPES



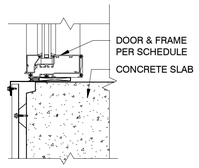
OH DOOR TYPE



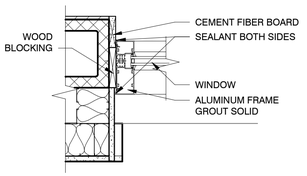
20 / A601 **WINDOW JAMB 1**
1 1/2" = 1'-0"



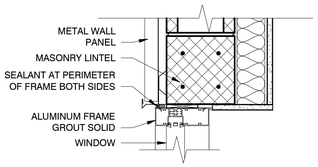
13 / A601 **WINDOW HEAD 1**
1 1/2" = 1'-0"



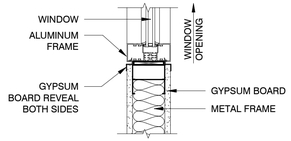
14 / A601 **WINDOW SILL 2**
1 1/2" = 1'-0"



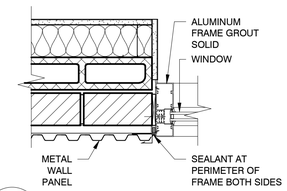
12 / A601 **WINDOW JAMB 2**
1 1/2" = 1'-0"



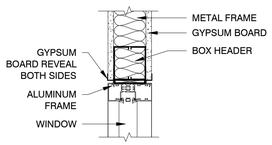
5 / A601 **WINDOW HEAD 2**
1 1/2" = 1'-0"



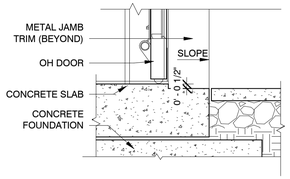
6 / A601 **WINDOW SILL 3**
1 1/2" = 1'-0"



4 / A601 **WINDOW JAMB 3**
1 1/2" = 1'-0"



2 / A601 **WINDOW HEAD 3**
1 1/2" = 1'-0"



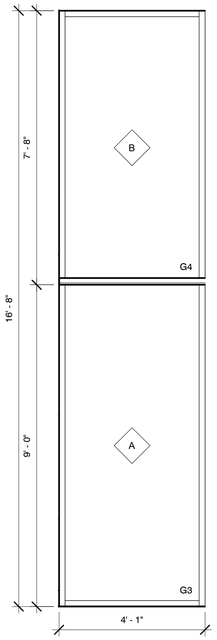
3 / A601 **OH DOOR SILL**
1 1/2" = 1'-0"

FIXED WINDOW SCHEDULE

NUMBER	W	H	TYPE	HEAD	JAMB	SILL	REMARKS
102	2' - 0"	8' - 4 1/4"	B	H1	J1	S1	
103	2' - 0"	8' - 4 1/4"	B	H1	J1, J2	S1	
104	2' - 0"	8' - 4 1/4"	A	H1	J1, J2	S1	
105	2' - 0"	8' - 4 1/4"	A	H1	J1, J2	S1	
106	2' - 0"	8' - 4 1/4"	B	H1	J1, J2	S1	
107	2' - 0"	8' - 4 1/4"	B	H1	J1, J2	S1	
108	2' - 0"	8' - 4 1/4"	B	H1	J1, J2	S1	
109	2' - 0"	8' - 4 1/4"	B	H1	J1, J2	S1	
110	2' - 0"	8' - 4 1/4"	A	H1	J1, J2	S1	
111	2' - 0"	8' - 4 1/4"	A	H1	J1	S1	
112	2' - 0"	8' - 4 1/4"	A	H1	J1	S1	
200	2' - 0"	10' - 5 5/8"	C	H2	J3	S2	
201	2' - 0"	10' - 5 5/8"	C	H2	J3	S2	
202	2' - 0"	10' - 5 5/8"	C	H2	J3	S2	
203	2' - 0"	10' - 5 5/8"	C	H2	J3	S2	
204	2' - 0"	10' - 5 5/8"	C	H2	J3	S2	
205	2' - 0"	10' - 5 5/8"	C	H2	J3	S2	
206	2' - 0"	10' - 5 5/8"	C	H2	J3	S2	
207	2' - 0"	10' - 5 5/8"	C	H2	J3	S2	
208	2' - 0"	10' - 5 5/8"	C	H2	J3	S2	
209	2' - 0"	10' - 5 5/8"	C	H2	J3	S2	
210	2' - 0"	10' - 5 5/8"	C	H2	J3	S2	

G1 1/4" CLEAR, TEMPERED GLASS.
G2 1" CLEAR INSULATING GLASS.
G3 1" CLEAR, TEMPERED INSULATING GLASS.
G4 1" TEMPERED INSULATING SPANDREL GLASS.
G5 1/4" CLEAR ACRYLIC.

GLAZING TYPES



15 / A601 **ELEVATION**
1/2" = 1'-0"

DOOR SCHEDULE

ABBREVIATIONS

AL ALUMINUM
AN CLEAR ANODIZED
EXT. EXTERIOR
FF FACTORY FINISHED
G# GLASS TYPE
HM HOLLOW METAL
PT PRIME AND FINISH PAINT
SCW SOLID CORE WOOD

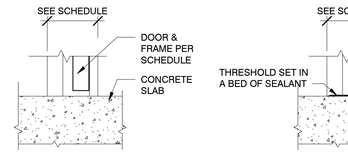
GENERAL NOTES

1. ALL INTERIOR DOOR FRAMES TO BE PAINTED P3 UNLESS OTHERWISE NOTED.

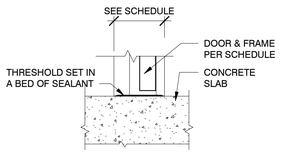
REMARKS

1. ACCESS DOOR.
2. EXISTING. PAINT TO MATCH NEW EXTERIOR DOORS.
3. ELECTRIFIED DOOR AND HARDWARE (ACCESS CONTROL).
4. ACOUSTICAL DOOR SEALS AND CLOSER. PROVIDE THRESHOLD.
5. VERIFY DIMENSIONS IN FIELD.
6. DOOR FRAME PAINTED P1.
7. DOOR FRAME PAINTED P4.

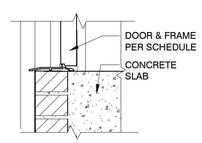
	DOORS								FRAME									
NUMBER	W	H	T	RATING	TYPE	GLAZING	MATERIAL	FINISH	FRAME TYPE	MATERIAL	FINISH	THROAT DEPTH	HEAD	JAMB	SILL	HARDWARE SET	KEYSIDE ROOM	REMARKS
100	3' - 3 1/2"	7' - 0"	0' - 1 3/4"	-	2	G3	AL	FF	D	AL	FF	0' - 5 3/4"	H3	J3	S3	2	EXT.	5.
101	3' - 6"	7' - 0"	0' - 1 3/4"	-	2	G1	AL	FF	C	AL	FF	0' - 4 7/8"	H1	J1	S1	11	100	3. 7.
102	3' - 0"	7' - 0"	0' - 1 3/4"	45	3	G1	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	13	101	
103	3' - 0"	7' - 0"	0' - 1 3/4"	-	4	G1	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	10	101	3.
104	3' - 0"	7' - 0"	0' - 1 3/4"	20	1	-	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	7	101	
105	3' - 0"	7' - 0"	0' - 1 3/4"	20	1	-	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	7	101	
106	3' - 0"	7' - 0"	0' - 1 3/4"	-	1	-	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	7	101	
107	3' - 0"	7' - 0"	0' - 1 3/4"	-	1	-	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	7	101	
108	3' - 0"	7' - 0"	0' - 1 3/4"	20	1	-	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	7	101	
109	2' - 6"	7' - 0"	0' - 1 3/4"	-	5	-	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	1	109	
110	3' - 0"	7' - 0"	0' - 1 3/4"	20	1	-	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	7	101	
111	3' - 0"	7' - 0"	0' - 1 3/4"	20	1	-	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	7	101	
112	3' - 0"	7' - 0"	0' - 1 3/4"	20	4	G1	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	8	101	4.
113	3' - 0"	7' - 0"	0' - 1 3/4"	-	3	G1	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	6	101	
114	3' - 0"	7' - 0"	0' - 1 3/4"	-	4	G1	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	5	101	
115	2' - 6"	7' - 0"	0' - 1 3/4"	-	1	-	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	10	103	3.
116	3' - 0"	7' - 0"	0' - 1 3/4"	90	1	G1	SCW	FF	A	HM	PT	0' - 5 3/4"	H2	J2	S2	12	116	
118	3' - 0"	7' - 0"	0' - 1 3/4"	-	3	G1	HM	PT	A	HM	PT	0' - 4 7/8"	H1	J1	S1	6	116	
119	3' - 0"	7' - 0"	0' - 1 3/4"	-	3	G1	HM	PT	A	HM	PT	0' - 4 7/8"	H1	J1	S1	6	116	
120A	3' - 0"	7' - 0"	0' - 1 3/4"	-	4	G1	HM	PT	A	HM	PT	0' - 4 7/8"	H1	J1	S1	16	116	
120B	3' - 0"	7' - 0"	0' - 1 3/4"	-	4	G1	HM	PT	A	HM	PT	0' - 4 7/8"	H1	J1	S1	16	125	
121	3' - 0"	7' - 0"	0' - 1 3/4"	-	1	-	HM	PT	A	HM	PT	0' - 4 7/8"	H1	J1	S1	6	116	
122	3' - 0"	7' - 0"	0' - 1 3/4"	-	1	-	HM	PT	A	HM	PT	0' - 4 7/8"	H1	J1	S1	9	125	3.
123	3' - 0"	7' - 0"	0' - 1 3/4"	-	1	-	HM	PT	A	HM	PT	0' - 4 7/8"	H1	J1	S1	4	125	
124	3' - 0"	7' - 0"	0' - 1 3/4"	-	1	-	HM	PT	B	HM	PT	0' - 5 3/4"	H2	J2	S2	5	125	
125	3' - 0"	7' - 0"	0' - 1 3/4"	-	2	G3	HM	PT	B	HM	PT	0' - 5 3/4"	H3	J3	S3	14	EXT.	3. 5. 6.
126	6' - 0"	7' - 0"	0' - 1 3/4"	-	1	-	HM	PT	B	HM	PT	0' - 5 3/4"	H2	J2	S2	17	125	
129	3' - 0"	7' - 0"	0' - 1 3/4"	-	2	G3	HM	PT	B	HM	PT	0' - 5 3/4"	H3	J3	S3	14	EXT.	3. 7.
130	2' - 6"	4' - 0"	0' - 1 3/4"	-	6	-	HM	PT	A	HM	PT	0' - 4 7/8"	H1	J1	S1	1	130	1.
200	6' - 0"	7' - 0"	0' - 1 3/4"	-	2	G3	HM	PT	B	HM	PT	0' - 5 3/4"	H3	J3	S3	3	EXT.	7.
202	3' - 0"	7' - 0"	0' - 1 3/4"	-	1	-	HM	PT	B	HM	PT	0' - 5 3/4"	H3	J3	S3	14	EXT.	3. 5. 7.
203	3' - 0"	7' - 0"	0' - 1 3/4"	-	1	-	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	4	205	
204	3' - 0"	7' - 0"	0' - 1 3/4"	-	1	-	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	4	205	
205	6' - 0"	7' - 0"	0' - 1 3/4"	-	2	G1	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	15	200	
206	6' - 0"	7' - 0"	0' - 1 3/4"	-	2	G1	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	15	200	
208	3' - 0"	7' - 0"	0' - 1 3/4"	-	1	-	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	5	207	
209	3' - 0"	7' - 0"	0' - 1 3/4"	-	1	-	SCW	FF	A	HM	PT	0' - 4 7/8"	H1	J1	S1	6	207	
210	3' - 0"	4' - 0"	0' - 1 3/4"	-	-	-	HM	PT	-	HM	PT	0' - 5 3/4"	H3	J3	S3	-	EXT.	2. 5. 7.



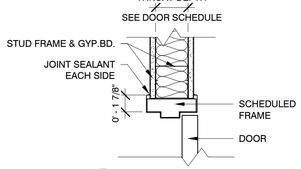
16 / A601 **SILL 1**
1 1/2" = 1'-0"



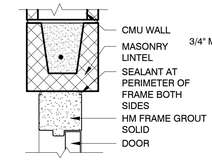
17 / A601 **SILL 2**
1 1/2" = 1'-0"



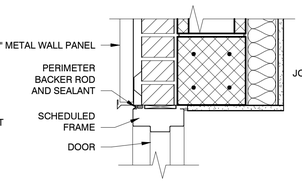
18 / A601 **SILL 3**
1 1/2" = 1'-0"



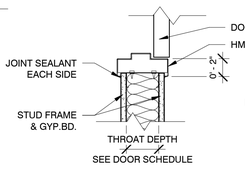
19 / A601 **HEAD 1**
1 1/2" = 1'-0"



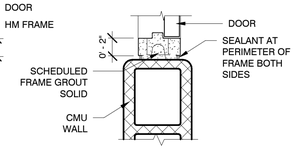
7 / A601 **HEAD 2**
1 1/2" = 1'-0"



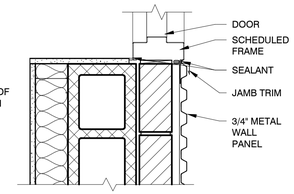
8 / A601 **HEAD 3**
1 1/2" = 1'-0"



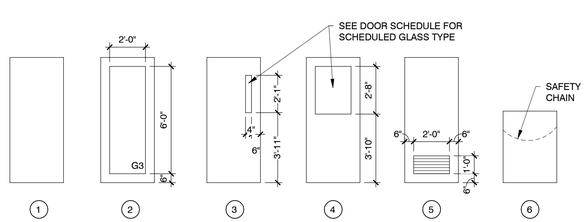
9 / A601 **JAMB 1**
1 1/2" = 1'-0"



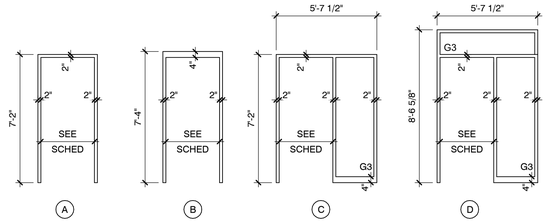
10 / A601 **JAMB 2**
1 1/2" = 1'-0"



11 / A601 **JAMB 3**
1 1/2" = 1'-0"



DOOR TYPES



DOOR FRAMES

engineers
architects
planners
your trusted advisor
consultants

REV	ISSUE FOR BIDDING AND PERMIT	DATE	BY
0		11/20/2019	MAND

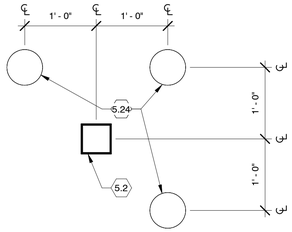
DATE: 11/20/2019
DRAWN BY: DWUR
CHECKED BY: MAND
APPROVED BY:
F.B. NO. PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

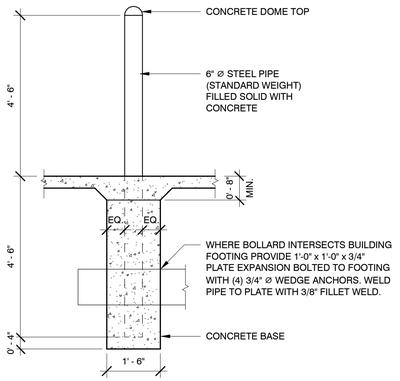
DOOR SCHEDULE AND WINDOW DETAILS

SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET A601

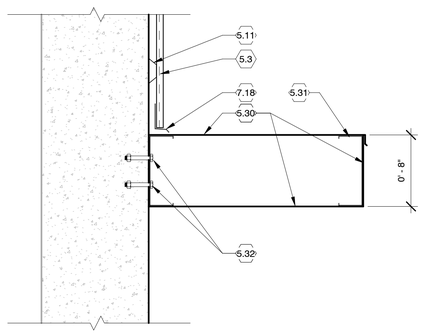
11/19/2019 12:53:10 PM



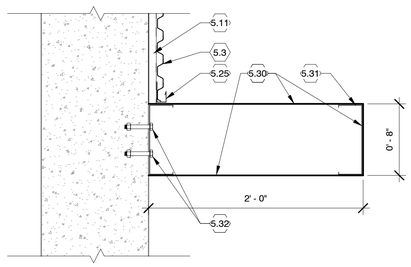
13 A602 **BOLLARD PLAN DETAIL**
1" = 1'-0"



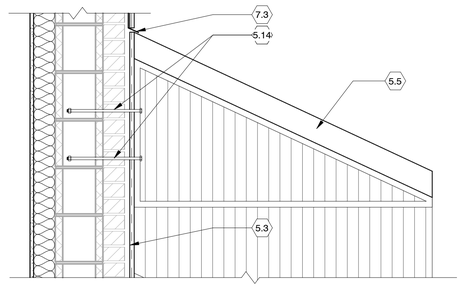
9 A602 **BOLLARD SECTION DETAIL**
1/2" = 1'-0"



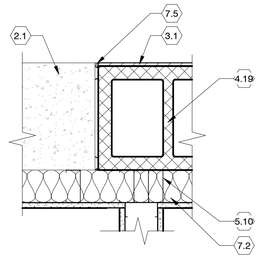
5 A602 **CANOPY SECTION DETAIL**
1 1/2" = 1'-0"



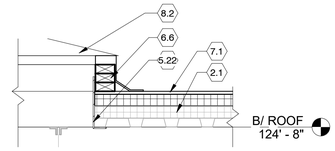
1 A602 **CANOPY PLAN DETAIL**
1 1/2" = 1'-0"



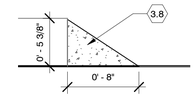
15 A602 **CANOPY DETAIL AT EAST STAIRWAY**
1" = 1'-0"



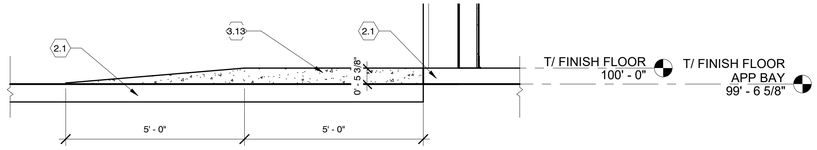
10 A602 **INFILL DETAIL**
1 1/2" = 1'-0"



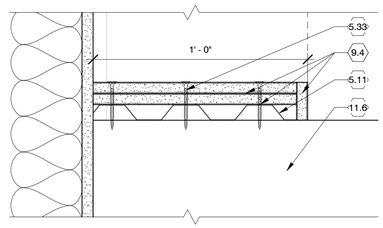
11 A602 **SKYLIGHT DETAIL**
1" = 1'-0"



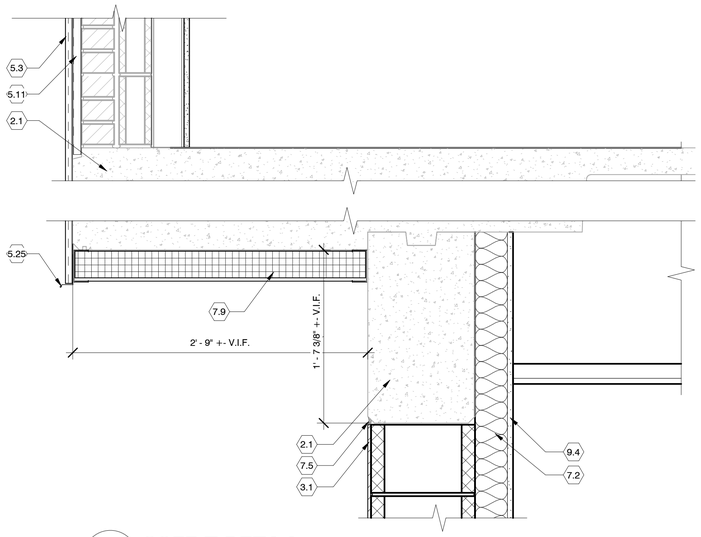
12 A602 **CONCRETE RAMP DETAIL**
1 1/2" = 1'-0"



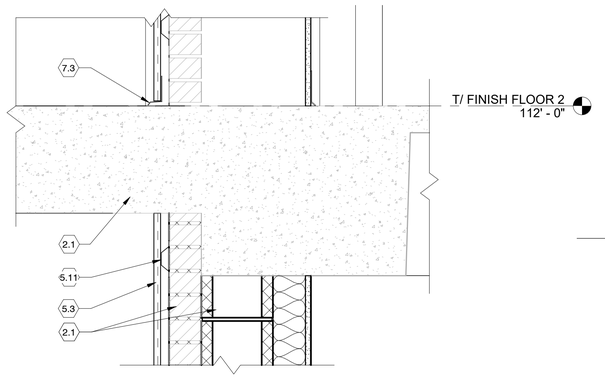
6 A602 **RAMP SECTION**
1/2" = 1'-0"



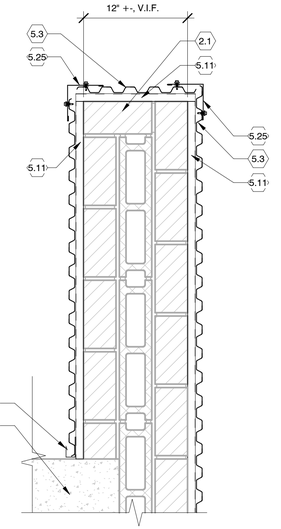
7 A602 **HOOD DETAIL**
3" = 1'-0"



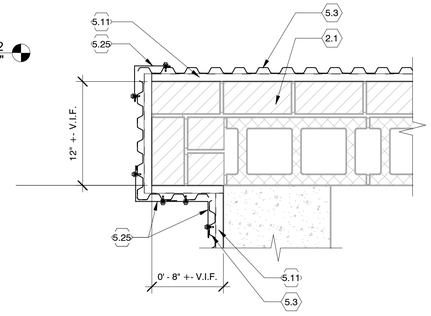
2 A602 **SOFFIT DETAIL**
1 1/2" = 1'-0"



3 A602 **EXTERIOR STAIR DETAIL**
1 1/2" = 1'-0"



8 A602 **PLAN DETAIL**
1 1/2" = 1'-0"



4 A602 **PLAN DETAIL**
1 1/2" = 1'-0"

KEYNOTES

2.1	EXISTING CONSTRUCTION TO REMAIN.
3.1	CMU WALL WITH STUCCO FINISH TO MATCH EXTERIOR FACE FLUSH WITH ADJACENT. ARCHITECT TO VERIFY TYPICAL MATCHING TEXTURE PRIOR TO PLACEMENT.
3.8	NEW CONCRETE RAMP UP TO EXISTING SLAB.
3.13	NEW CONCRETE INFILL. SLOPE RAMP TO EXISTING.
4.19	12" CMU.
5.2	HSS STEEL COLUMN. PAINTED (P1). REFER TO STRUCTURAL DRAWINGS FOR SIZES AND LOCATIONS.
5.3	SINGLE SKIN METAL VERTICAL WALL PANELS. REFER TO LEGEND FOR COLORS.
5.5	METAL PANEL CANOPY, WITH DELEGATED DESIGN BASED ON LOAD PARAMETERS INDICATED ON SHEET S001. REFER TO LEGEND FOR COLORS.
5.10	3 5/8" METAL STUDS.
5.11	7/8" HAT CHANNEL. GALVANIZED.
5.14	ADHESIVE ANCHORS DESIGNED BY CANOPY DESIGNER. GROUT SOLID CMU CORES AT ANCHORS. UNLESS OTHERWISE NOTED. ADHESIVE ANCHORS SHALL HAVE SCREEN TUBES FOR INSTALLATION IN BRICK AND/OR HOLLOW CMU. ANCHORAGE TO ONLY THE FACE BRICK IS UNACCEPTABLE.
5.22	BLACK BREAK METAL.
5.24	6" DIA. BOLLARD, PAINTED.
5.25	METAL WALL PANEL SYSTEM TRIM.
5.30	SINGLE SKIN FLAT METAL PANEL, WHITE.
5.31	8" METAL STUDS @ 24" O.C., TYP.
5.32	SCHEDULED FASTENERS. SEE STRUCTURAL GENERAL NOTES.
5.33	FASTENERS.
6.6	2x4 CONTINUOUS PRESSURE TREATED WOOD BLOCKING.
7.1	NEW TPO ROOF MEMBRANE. ADD 2" NEW POLYISO INSULATION ON TOP OF EXISTING.
7.2	R-15 BATT INSULATION.
7.3	METAL FLASHING.
7.5	SEALANT.
7.9	3" INSULATED METAL SOFFIT PANEL.
7.18	4" METAL BACK FLASHING.
8.2	NEW PREMANUFACTURED TANDEM INSULATED SKYLIGHT ASSEMBLY.
9.4	5/8" TYPE X GYPSUM WALL BOARD.
11.6	COMMERCIAL RANGE HOOD.

your trusted advisor
consultants
engineers
architects
planners

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	MAND

DATE: 11/20/2019
DRAWN BY: DWUR
CHECKED BY: MAND
APPROVED BY:
F.B. NO. PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD SHARONVILLE, OH 45241

DETAILS

SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET A602

11/19/2019 12:53:13 PM

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM

1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX

LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO
KRIS T. SCHNITGEN
77432
REGISTERED
PROFESSIONAL ENGINEER
11/04/19

your trusted advisor — engineers architects planners consultants

ESSENTIAL FACILITY SEISMIC REQUIREMENTS

SEISMIC BRACING FOR ALL NON-STRUCTURAL COMPONENTS INCLUDING BUT NOT LIMITED TO EQUIPMENT, PIPING, CONDUIT AND DUCTWORK IS REQUIRED FOR THIS PROJECT. THE DESIGN AND INSTALLATION OF THE SEISMIC RESTRAINT DEVICES IS DELEGATED TO THE CONTRACTOR. REFER TO SEISMIC CONTROLS SPECIFICATION FOR DELEGATED DESIGN SUBMITTAL REQUIREMENTS.

PLUMBING UTILITY CONTACT INFO

DOMESTIC WATER	
UTILITY COMPANY	GREATER CINCINNATI WATER WORKS
PHONE NUMBER	513-591-7700
SANITARY SEWER	
UTILITY COMPANY	METROPOLITAN SEWER DISTRICT OF GREATER CINCINNATI
PHONE NUMBER	513-557-3594
NATURAL GAS	
UTILITY COMPANY	DUKE ENERGY
UTILITY CONTACT	BRANDON PONDER
PHONE NUMBER	513-287-1464
EMAIL ADDRESS	BRANDON.PONDER@DUKE-ENERGY.COM
METER FURNISHED BY	DUKE ENERGY
METER INSTALLED BY	DUKE ENERGY
AVAILABLE PRESSURE AT MAIN	HIGH PRESSURE
REQUIRED BUILDING PRESSURE	2 PSI
HEALTH DEPARTMENT	
HEALTH DEPARTMENT	CITY OF CINCINNATI HEALTH DEPARTMENT
PHONE NUMBER	513-564-1751

PLUMBING LEGEND

SYMBOL	DESCRIPTION
PLUMBING ACCESSORIES	
	UNION
	PIPE CAP
	STRAINER
	PRESSURE GAUGE
	THERMOMETER
	FCO - FLOOR CLEANOUT, GCO - GRADE CLEANOUT
	CO - CLEANOUT, WCO - WALL CLEANOUT
	FLOOR DRAIN, AREA DRAIN
	TRENCH DRAIN
	ROOF DRAIN (PRIMARY), OVERFLOW DRAIN (SECONDARY)
	EXPANSION TANK
PIPE VALVES	
	SHUT-OFF VALVE
	CHECK VALVE
	BALANCING VALVE
	PRESSURE REGULATOR VALVE
	GAS PRESSURE REGULATOR
	PRESSURE AND TEMPERATURE RELIEF VALVE
	BACKFLOW PREVENTER
	DOUBLE CHECK VALVE BACKFLOW PREVENTER
	FROST PROOF WALL HYDRANT (EXTERIOR)
	HOSE BIBB (INTERIOR)
	TRAP PRIMER VALVE
PLUMBING SYMBOLS	
	PIPE UP
	PIPE DOWN
	PIPE TEE DOWN
	PIPE TEE UP
	CONNECT TO EXISTING (FIELD VERIFY EXISTING UTILITY SERVICE TYPE, PRIOR TO MAKING CONNECTION)
	VENT THROUGH ROOF

STANDARD PLUMBING ABBREVIATIONS

A/E	ARCHITECT / ENGINEER	INST	INSTALLED
AAV	AIR ADMITTANCE VALVE	KW	KILOWATT
AD	AREA DRAIN	KWH	KILOWATT HOUR
AFF	ABOVE FINISHED FLOOR	LPG	LIQUID PROPANE GAS
AFG	ABOVE FINISHED GRADE	LV	LAVATORY
ANSI	AMERICAN NATIONAL STANDARDS INSTITUTE	MAU	MAKE-UP AIR UNIT
APPROX	APPROXIMATE	MAX	MAXIMUM
ASPE	AMERICAN SOCIETY OF PLUMBING ENGINEERS	MBH	1000 BTUH
AV	ACID VENT	MH	MANHOLE
AW	ACID WASTE	MIN	MINIMUM
BAS	BUILDING AUTOMATION SYSTEM	MOCP	MAXIMUM OVERCURRENT PROTECTION
BFP	BACKFLOW PREVENTER	MS	MOP SINK
BT	BATHTUB	MV	MIXING VALVE
BTU	BRITISH THERMAL UNIT	N	NITROGEN
BTUH	BRITISH THERMAL UNIT PER HOUR	NC	NORMALLY CLOSED
BWV	BACK WATER VALVE	NG	NATURAL GAS
CA	COMPRESSED AIR	NIC	NOT IN CONTRACT
CB	CATCH BASIN	NO	NITROUS OXIDE
CFH	CUBIC FEET PER HOUR	NOM	NOMINAL
CFM	CUBIC FEET PER MINUTE	NTS	NOT TO SCALE
CI	CAST IRON	O	OXYGEN
CO	CLEAN OUT	OCP	OVER CURRENT PROTECTION
CO2	CARBON DIOXODE	OD	OVERFLOW DRAIN
COMP	COMPRESSOR UNIT	OI	OIL INTERCEPTOR
CP	CIRCULATION PUMP	PC	PLUMBING CONTRACTOR
CPVC	CHLORINATED POLYVINYL CHLORIDE	PPM	PARTS PER MILLION
CW	COLD WATER (POTABLE)	PRV	PRESSURE REGULATING VALVE
DF	DRINKING FOUNTAIN	PSI	POUNDS PER SQUARE INCH
DI	DEIONIZED WATER	PSIA	POUNDS PER SQUARE INCH – ABSOLUTE
DIA	DIAMETER	PSIG	POUNDS PER SQUARE INCH – GAGE
DN	DOWN	PVC	POLYVINYL CHLORIDE
DS	DOWNSPOUT	RD	ROOF DRAIN
EC	ELECTRICAL CONTRACTOR	RH	ROOF HYDRANT
ET	EXPANSION TANK	RO	REVERSE OSMOSIS
EWC	ELECTRIC WATER COOLER	RPZ	REDUCED PRESSURE ZONE VALVE
EWH	ELECTRIC WATER HEATER	RTU	ROOF TOP UNIT
EX	EXISTING	S	SANITARY
F	FAHRENHEIT	SI	SOLIDS INTERCEPTOR
FCO	FLOOR CLEAN OUT	SK	SINK
FD	FLOOR DRAIN	SOFT	SOFT WATER
FFE	FINISHED FLOOR ELEVATION	SPEC	SPECIFICATION
FLA	FULL LOAD AMPERES	SQ FT	SQUARE FOOT (FEET)
FS	FLOOR SINK	SS	STAINLESS STEEL
FT	FEET	ST	STORM PIPING
FW	FILTERED WATER	TD	TRENCH DRAIN
G	GAS	TDH	TOTAL DYNAMIC HEAD
GCO	GRADE CLEAN OUT	TEMP	TEMPERATURE
GWH	GAS FIRED WATER HEATER	TMV	THERMOSTATIC MIXING VALVE
GI	GREASE INTERCEPTOR	TP	TRAP PRIMER
GPD	GALLONS PER DAY	UH	UNIT HEATER
GPH	GALLONS PER HOUR	UN	UNION
GPM	GALLONS PER MINUTE	UR	URINAL
GPR	GAS PRESSURE REGULATOR	VAC	VACUUM
GW	GREASE WASTE	VFD	VARIABLE FREQUENCY DRIVE
H&CW	HOT & COLD WATER	VP	VACUUM PUMP
HB	HOSE BIBB	VTR	VENT THRU ROOF
HC	HVAC CONTRACTOR	WAGD	WASTE ANESTHESIA GAS
HD	HUB DRAIN	WB	WASHER BOX
HDPE	HIGH DENSITY POLYETHYLENE	WC	WATER CLOSET
HP	HORSEPOWER	WCO	WALL CLEAN OUT
HT	HOT TAP	WH	WALL HYDRANT
HW	HOT WATER	WF	WATER FILTER
HWR	HOT WATER RETURN	YH	YARD HYDRANT
IE	INVERT ELEVATION		
IN WC	INCH WATER COLUMN		

REV	DATE	BY
0	11/20/2019	CAM

REVISIONS
0 ISSUE FOR BIDDING AND PERMIT

DATE: 11/20/2019 | DRAWN BY: AMS | CHECKED BY: DJT | APPROVED BY: ____ | F.B. NO. ____ PG. ____

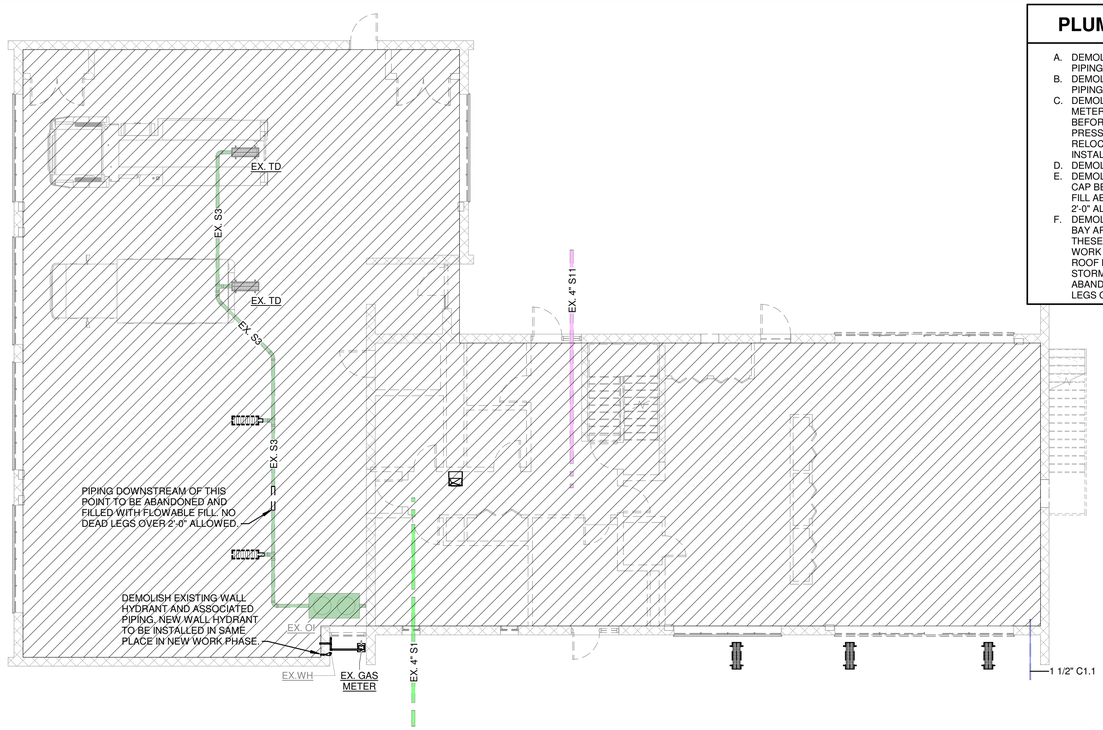
SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

PLUMBING COVER SHEET

SCALE: 1/8" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET P-001

11/14/2019 10:18:49 AM

KLH JOB#: 21459.00



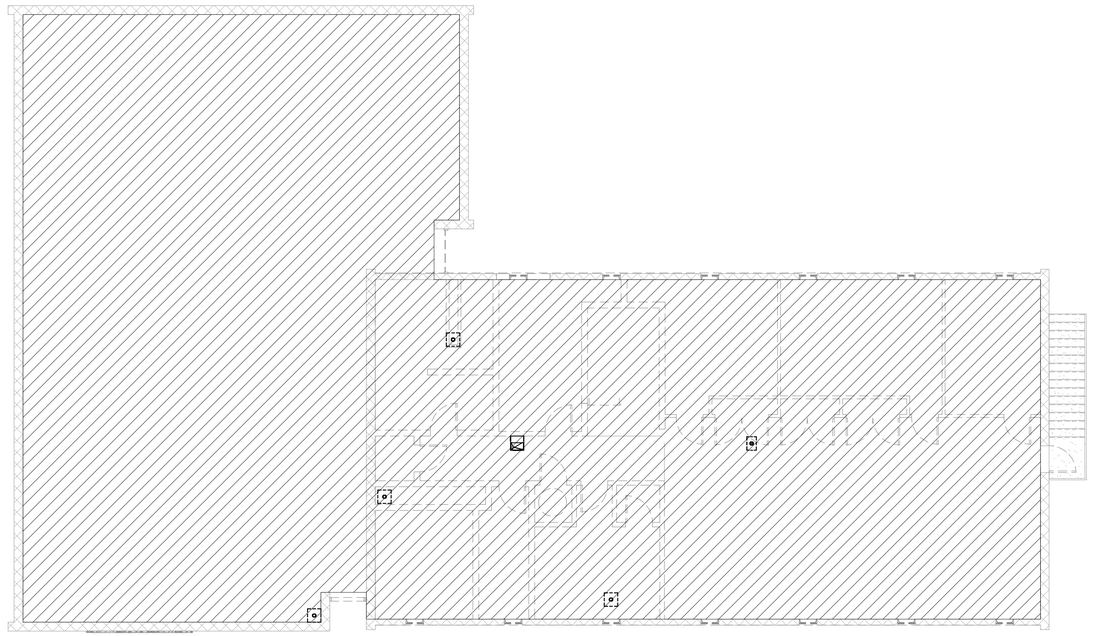
1 / P-101 **FIRST FLOOR PLUMBING DEMOLITION PLAN** 1/8" = 1'-0"

PLUMBING GENERAL DEMO NOTES

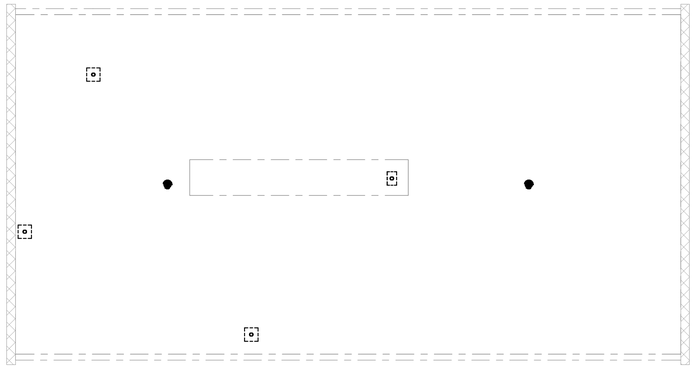
A. DEMOLISH ALL PLUMBING FIXTURES, EQUIPMENT AND ASSOCIATED PIPING UNLESS OTHERWISE NOTED.
B. DEMOLISH ALL ABOVE GROUND HOT WATER AND COLD WATER PIPING BACK TO WATER SERVICE ENTRANCE AND CAP.
C. DEMOLISH ALL GAS PIPING BACK TO GAS METER. EXISTING GAS METER TO REMAIN. COORDINATE REPLACING THE REGULATOR BEFORE THE GAS METER WITH DUKE ENERGY TO INCREASE THE PRESSURE AFTER THE METER TO 2 PSI. COORDINATE POSSIBLE RELOCATION AND RESETTING OF METER FOR BUILDING ENVELOPE INSTALLATION.
D. DEMOLISH ALL VENT PIPING AND VENTS THROUGH THE ROOF.
E. DEMOLISH ALL ABOVE GROUND SANITARY PIPING TO UNDERGROUND. CAP BELOW NEW WORK FINISHED FLOOR ELEVATION AND ABANDON. FILL ABANDONED PIPING WITH FLOWABLE FILL. NO DEAD LEGS OVER 2'-0" ALLOWED.
F. DEMOLISH ALL ROOF DRAINS. ABOVE GROUND STORM PIPING IN APP BAY AREA TO REMAIN. TEMPORARILY CAP PIPING BELOW ROOF IN THESE AREAS TO BE RECONNECTED TO NEW ROOF DRAINS IN NEW WORK PHASE. ABOVE GROUND STORM PIPING FROM THE UPPER ROOF BE DEMOLISHED TO UNDERGROUND. CAP UNDERGROUND STORM PIPING BELOW NEW WORK FINISHED FLOOR ELEVATION AND ABANDON. FILL ABANDONED PIPING WITH FLOWABLE FILL. NO DEAD LEGS OVER 2'-0" ALLOWED.

PLUMBING LEGEND

SYMBOL	DESCRIPTION
PLAN-VIEW LINE TYPES	
———	WORK SHOWN FADED INDICATES EXISTING WORK TO REMAIN OR NEW WORK BY OTHERS AS APPLICABLE
– – – –	WORK SHOWN BOLD-DASHED INDICATES SELECTIVE DEMOLITION WORK
———	WORK SHOWN BOLD-CONTINUOUS INDICATES NEW WORK
PIPING LINE TYPES	
S1	SANITARY WASTE PIPING
S3	OIL WASTE PIPING
S11	STORM PIPING (PRIMARY)
C1	DOMESTIC COLD WATER PIPING



3 / P-101 **SECOND FLOOR PLUMBING DEMOLITION PLAN** 1/8" = 1'-0"



5 / P-101 **ROOF PLUMBING DEMOLITION PLAN** 1/8" = 1'-0"

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRISTEN T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

engineers architects planners
your trusted advisor consultants

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 | DRAWN BY: AMS | CHECKED BY: DJT | APPROVED BY: | F.B. NO. | PG.

SHARONVILLE FIRE STATION 87 RENOVATION

CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

PLUMBING DEMOLITION PLAN

SCALE: 1/8" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET P-101

11/14/2019 10:18:57 AM

KLH JOB#: 21459.00

PLUMBING GENERAL NEW WORK NOTES

A. WHERE ABANDONED UNDERGROUND PIPING INTERFERES WITH NEW WORK, DEMOLISH ABANDONED PIPING AND CAP AS NECESSARY.
B. PROVIDE PIPE INSULATION JACKETING TO PROTECT ALL INSULATED PIPES IN APPARATUS BAY.

Plumbing Pipe Type Legend

Mark	Color	System Name	Pipe Material
C1.1		C1 - Domestic Cold Water	1 - Copper - Type L - ASTM B88
H1.1		H1 - Domestic Hot Water	1 - Copper - Type L - ASTM B88
G1.7		G1 - Natural Gas	7 - Black Steel - ASTM A53/A53M
HR1.1		HR1 - Hot Water Return	1 - Copper - Type L - ASTM B88
A1.7		A1 - Compressed Air	7 - Black Steel - ASTM A53/A53M

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects consultants

REV	DATE	BY
0	11/20/2019	CAM

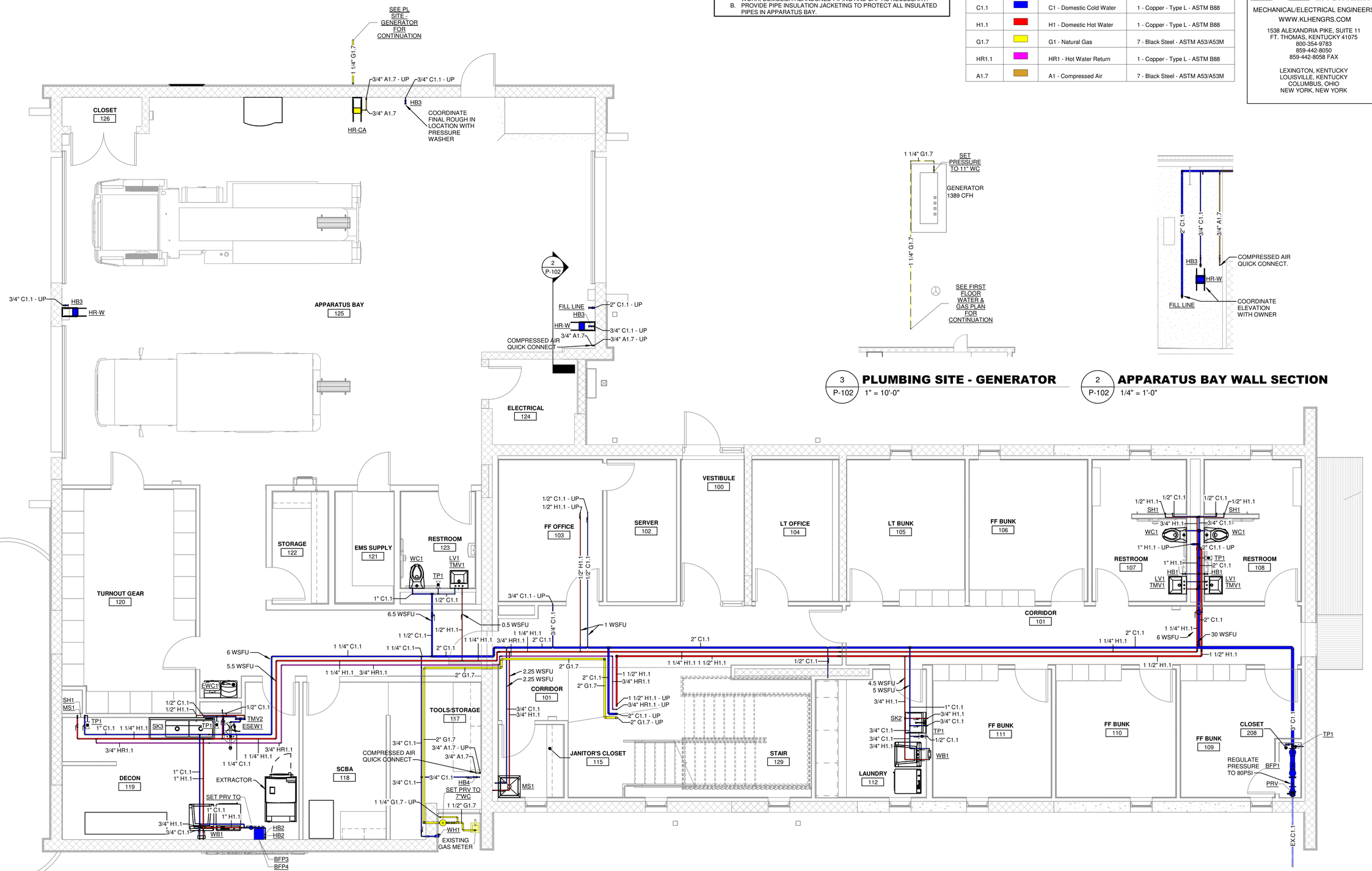
REVISIONS: 0 ISSUE FOR BIDDING AND PERMIT

DATE: 11/20/2019 | DRAWN BY: AMS | CHECKED BY: DJT | APPROVED BY: | F.B. NO. | PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

PLUMBING WATER & GAS - FIRST FLOOR

SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET: P-102



3 P-102 **PLUMBING SITE - GENERATOR** 1" = 10'-0"

2 P-102 **APPARATUS BAY WALL SECTION** 1/4" = 1'-0"

1 P-102 **PLUMBING WATER & GAS - FIRST FLOOR** 1/4" = 1'-0"

N

11/14/2019 10:19:13 AM

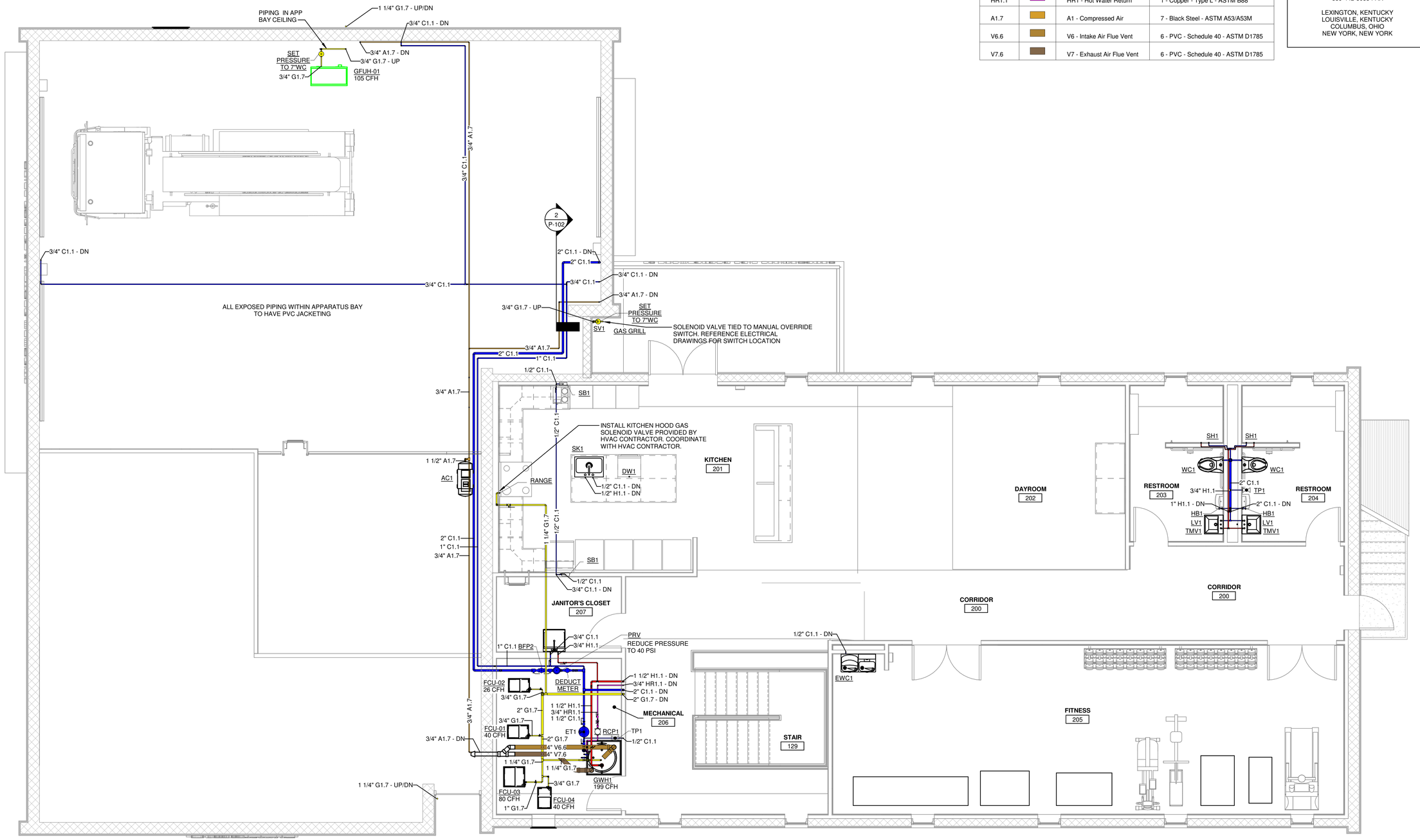
KLH JOB#: 21459.00

PLUMBING GENERAL NEW WORK NOTES

A. WHERE ABANDONED UNDERGROUND PIPING INTERFERES WITH NEW WORK, DEMOLISH ABANDONED PIPING AND CAP AS NECESSARY.
B. PROVIDE PIPE INSULATION JACKETING TO PROTECT ALL INSULATED PIPES IN APPARATUS BAY.

Plumbing Pipe Type Legend

Mark	Color	System Name	Pipe Material
C1.1		C1 - Domestic Cold Water	1 - Copper - Type L - ASTM B88
H1.1		H1 - Domestic Hot Water	1 - Copper - Type L - ASTM B88
G1.7		G1 - Natural Gas	7 - Black Steel - ASTM A53/A53M
HR1.1		HR1 - Hot Water Return	1 - Copper - Type L - ASTM B88
A1.7		A1 - Compressed Air	7 - Black Steel - ASTM A53/A53M
V6.6		V6 - Intake Air Flue Vent	6 - PVC - Schedule 40 - ASTM D1785
V7.6		V7 - Exhaust Air Flue Vent	6 - PVC - Schedule 40 - ASTM D1785



1 P-103 **PLUMBING WATER & GAS - SECOND FLOOR**
1/4" = 1'-0"

N

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners consultants

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 | DRAWN BY: AMS | CHECKED BY: DJT | APPROVED BY: | F.S. NO. | PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

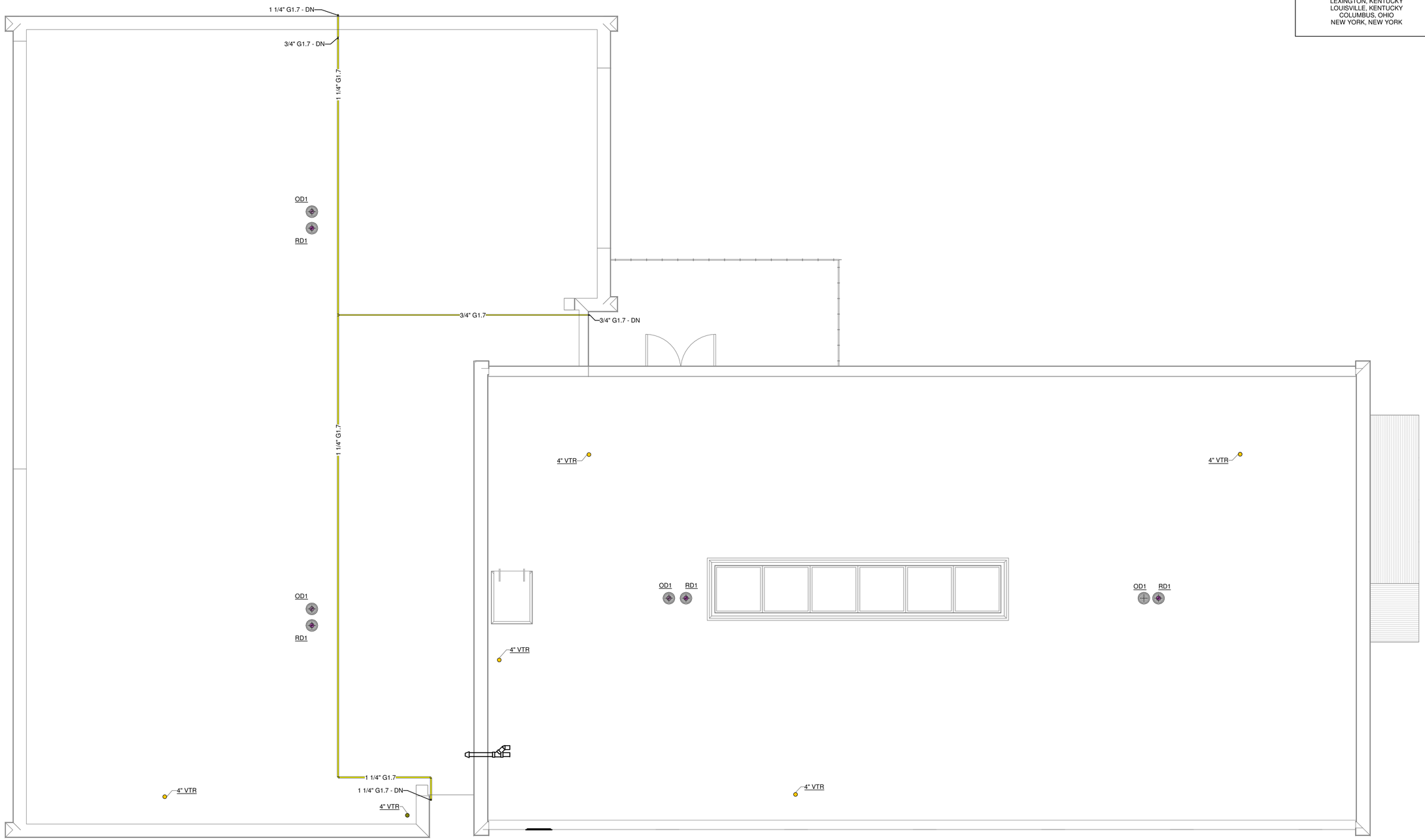
PLUMBING WATER & GAS - SECOND FLOOR

SCALE: 1/4" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET P-103

11/14/2019 10:26:31 AM

KLH JOB#: 21459.00

Plumbing Pipe Type Legend			
Mark	Color	System Name	Pipe Material
G1.7		G1 - Natural Gas	7 - Black Steel - ASTM A53/A53M
S11.4		S11 - Storm	4 - Cast Iron - Hubless - ASTM A888
S12.4		S12 - Storm Overflow	4 - Cast Iron - Hubless - ASTM A888
V6.6		V6 - Intake Air Flue Vent	6 - PVC - Schedule 40 - ASTM D1785



1 P-104 **PLUMBING PLAN - ROOF** 1/4" = 1'-0"

N

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX

LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO
KRIS T. SCHNITGEN
77432
REGISTERED
PROFESSIONAL ENGINEER
11/04/19

your trusted advisor consultants engineers architects planners

REVISIONS			
REV	ISSUE FOR BIDDING AND PERMIT	DATE	BY
0		11/20/2019	CAM

DATE: 11/20/2019 | DRAWN BY: AMS | CHECKED BY: DJT | APPROVED BY: | F.B. NO. | PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

PLUMBING PLAN - ROOF

SCALE: 1/4" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET P-104

11/14/2019 10:19:32 AM

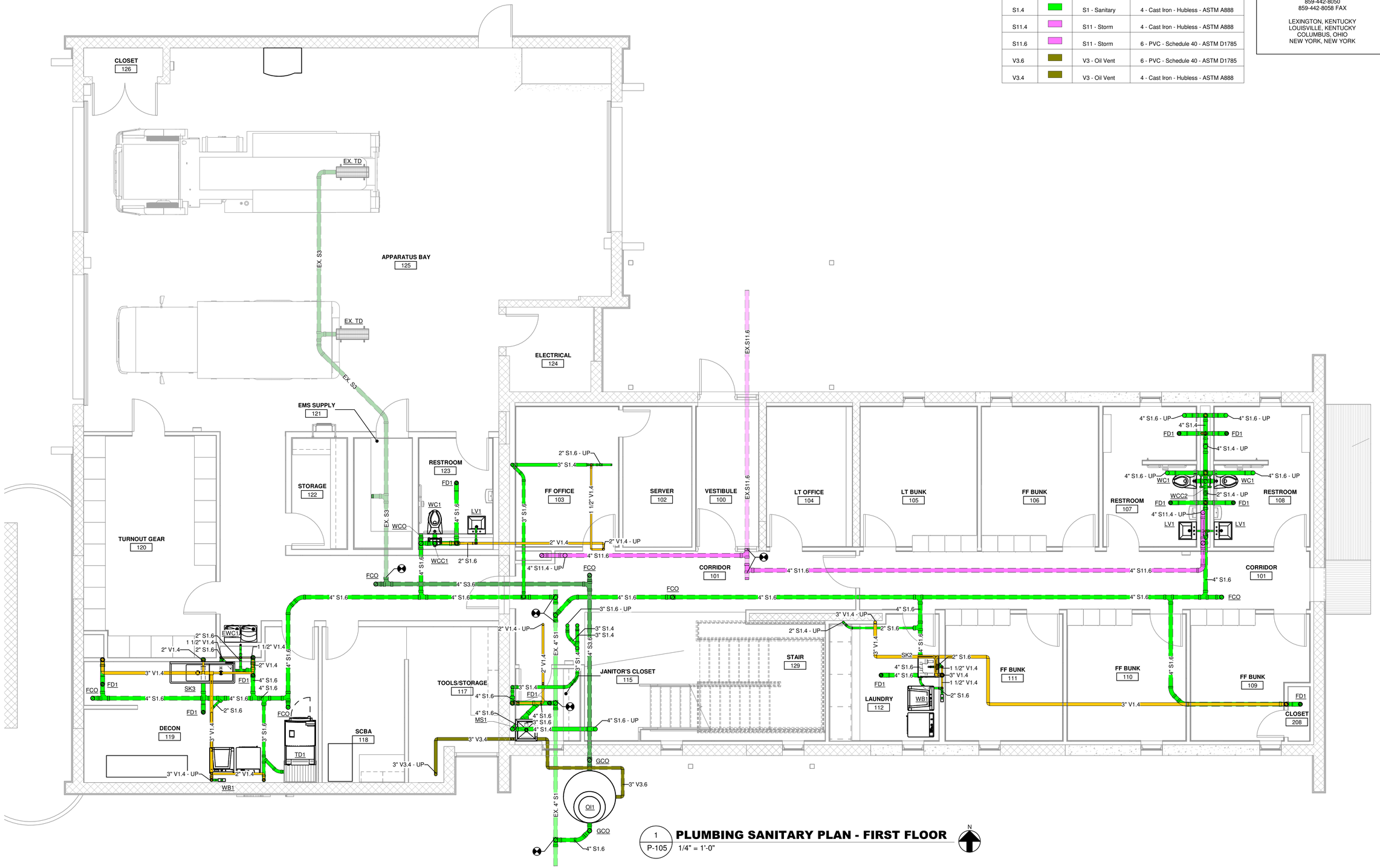
KLH JOB#: 21459.00

PLUMBING GENERAL NEW WORK NOTES

A. WHERE ABANDONED UNDERGROUND PIPING INTERFERES WITH NEW WORK, DEMOLISH ABANDONED PIPING AND CAP AS NECESSARY.
B. PROVIDE PIPE INSULATION JACKETING TO PROTECT ALL INSULATED PIPES IN APPARATUS BAY.

Plumbing Pipe Type Legend

Mark	Color	System Name	Pipe Material
S3.6		S3 - Oil Waste	6 - PVC - Schedule 40 - ASTM D1785
S1.6		S1 - Sanitary	6 - PVC - Schedule 40 - ASTM D1785
V1.4		V1 - Vent	4 - Cast Iron - Hubless - ASTM A888
S1.4		S1 - Sanitary	4 - Cast Iron - Hubless - ASTM A888
S11.4		S11 - Storm	4 - Cast Iron - Hubless - ASTM A888
S11.6		S11 - Storm	6 - PVC - Schedule 40 - ASTM D1785
V3.6		V3 - Oil Vent	6 - PVC - Schedule 40 - ASTM D1785
V3.4		V3 - Oil Vent	4 - Cast Iron - Hubless - ASTM A888



1 / P-105 **PLUMBING SANITARY PLAN - FIRST FLOOR**
1/4" = 1'-0"

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8056 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners consultants

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 | DRAWN BY: AMS | CHECKED BY: DJT | APPROVED BY: | F.B. NO. | PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241
PLUMBING SANITARY PLAN - FIRST FLOOR

SCALE: 1/4" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET P-105

11/14/2019 10:19:47 AM

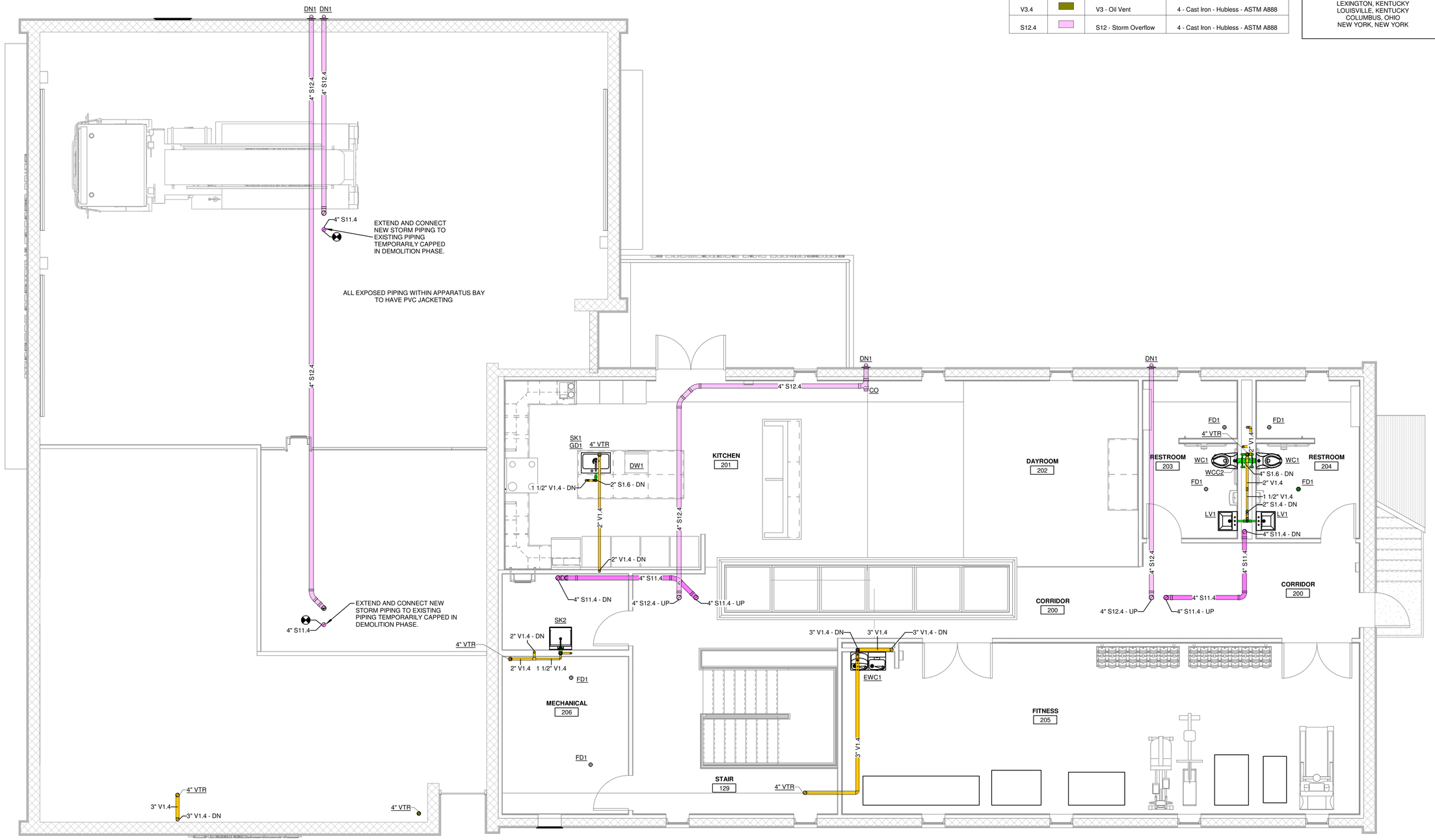
KLH JOB#: 21459.00

PLUMBING GENERAL NEW WORK NOTES

A. WHERE ABANDONED UNDERGROUND PIPING INTERFERES WITH NEW WORK, DEMOLISH ABANDONED PIPING AND CAP AS NECESSARY.
B. PROVIDE PIPE INSULATION JACKETING TO PROTECT ALL INSULATED PIPES IN APPARATUS BAY.

Plumbing Pipe Type Legend

Mark	Color	System Name	Pipe Material
S1.6		S1 - Sanitary	6 - PVC - Schedule 40 - ASTM D1785
S1.4		S1 - Sanitary	4 - Cast Iron - Hubless - ASTM A888
V1.4		V1 - Vent	4 - Cast Iron - Hubless - ASTM A888
S11.4		S11 - Storm	4 - Cast Iron - Hubless - ASTM A888
V3.4		V3 - Oil Vent	4 - Cast Iron - Hubless - ASTM A888
S12.4		S12 - Storm Overflow	4 - Cast Iron - Hubless - ASTM A888



1 / P-106 **PLUMBING SANITARY PLAN - SECOND FLOOR**
1/4" = 1'-0"

N

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners consultants

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 | DRAWN BY: AMS | CHECKED BY: DJT | APPROVED BY: | F.S. NO. | PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

PLUMBING SANITARY PLAN - SECOND FLOOR

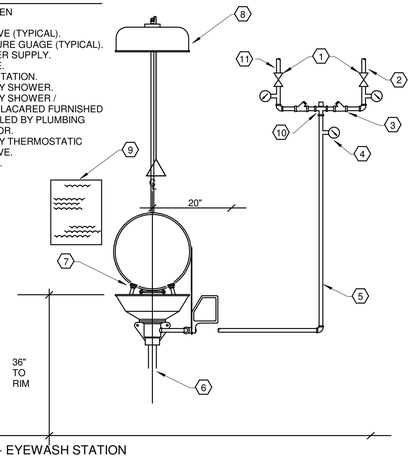
SCALE: 1/4" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET P-106

11/14/2019 10:26:39 AM

KLH JOB#: 21459.00

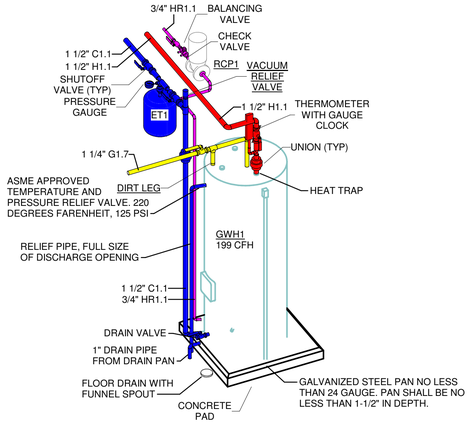
KEYED NOTES:

1. LOCKED OPEN
2. CW SUPPLY
3. CHECK VALVE (TYPICAL).
4. TEMPERATURE GUAGE (TYPICAL).
5. TEPID WATER SUPPLY.
6. WASTE PIPE.
7. EYEWASH STATION.
8. EMERGENCY SHOWER.
9. EMERGENCY SHOWER / EYEWASH PLACARED FURNISHED AND INSTALLED BY PLUMBING CONTRACTOR.
10. EMERGENCY THERMOSTATIC MIXING VALVE.
11. HW SUPPLY.



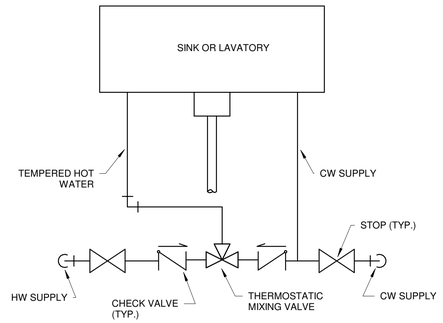
224000.00-44 - EYEWASH STATION

SCALE: NONE



WATER HEATER DETAIL

SCALE: NONE

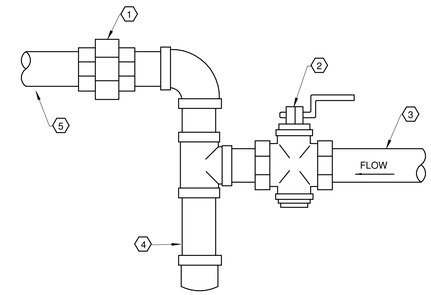


223001.00-01 - THERMOSTATIC MIXING VALVE TMV DETAIL

SCALE: NONE

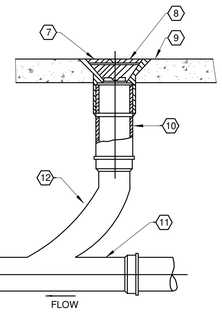
KEYED NOTES:

1. APPROVED UNION
2. APPROVED GAS SHUT OFF VALVE
3. FROM GAS SUPPLY
4. MINIMUM 6" LONG DIRT LEG WITH THREADED CAP
5. TO UNIT INLET CONNECTION

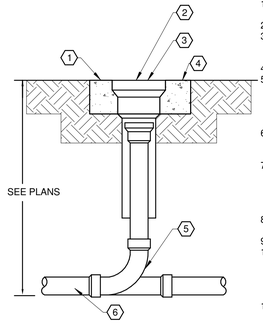


221613.00-11 - GAS CONNECTION TO EQUIPMENT

SCALE: NONE



INTERIOR FLOOR CLEANOUT



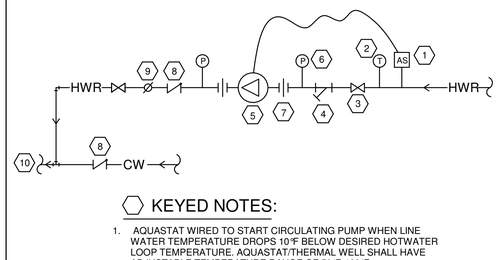
EXTERIOR CLEANOUT

KEYED NOTES:

1. 6" THICK BY 18" SQUARE CONCRETE PAD.
2. "CO" TO BE CAST IN COVER.
3. CAST IRON CLEANOUT WITH COVER FOR DUTY REQUIRED.
4. GRADE FOR PAVING.
5. CAST IRON LONG SWEEP 1/4 BEND OR CAST IRON COMB," Y 1/8" "& BEND. (USE REDUCING TYPE WHERE REQUIRED).
6. BUILDING DRAIN OR SEWER MATERIAL AND SIZE SPECIFIED.
7. CLEANOUT RATED FOR EXPECTED WHEEL LOADING REFER TO SPECIFICATIONS AND PLANS FOR TYPE AND LOCATIONS.
8. TOP FLUSH WITH FINISHED FLOOR.
9. FINISHED FLOOR LEVEL.
10. FULL PIPE SIZE EXTENSION UP TO 6" LENGTH AS REQUIRED, PROVIDE SAME SIZE AS LINE SERVED UP TO 6".
11. COMBINATION WYE AND 1/8" BEND OR AS CODE REQUIRED.
12. LONG SWEEP 1/4" BEND.

221313.00-01 - FLOOR CLEANOUTS

SCALE: NONE

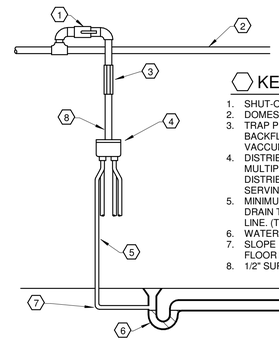


KEYED NOTES:

1. AQUASTAT WIRED TO START CIRCULATING PUMP WHEN LINE WATER TEMPERATURE DROPS 10°F BELOW DESIRED HOTWATER LOOP TEMPERATURE. AQUASTAT/THERMAL WELL SHALL HAVE ADJUSTABLE TEMPERATURE RANGE OF 50°F-160°F.
2. TEMPERATURE GAUGE AND SNUBBER. **CRITICAL TO INSTALLATION**.
3. BALL VALVE (TYPICAL).
4. WYE STRAINER
5. HOT WATER RECIRCULATION PUMP.
6. PRESSURE GAUGE AND SNUBBER (TYPICAL) **CRITICAL TO INSTALLATION**.
7. UNION (TYPICAL).
8. CHECK VALVE.
9. BALANCING VALVE.
10. RETURN LINE TO HOT WATER SUPPLY SYSTEM.

221123.00-01 - HOT WATER RECIRCULATION PUMP

SCALE: NONE



KEYED NOTES:

1. SHUT-OFF VALVE.
2. DOMESTIC COLD WATER LINE.
3. TRAP PRIMER VALVE WITH BACKFLOW PREVENTER AND VACCUM BREAK.
4. DISTRIBUTION UNIT FOR MULTIPLE FLOOR DRAINS. (OMIT DISTRIBUTION UNIT WHEN SERVING SINGLE DRAIN.)
5. MINIMUM 1/2" COPPER FLOOR DRAIN TRAP MAKE-UP WATER LINE. (TYPICAL)
6. WATER SEAL.
7. SLOPE PIPING BELOW SLAB TO FLOOR DRAIN.
8. 1/2" SUPPLY SIZE.

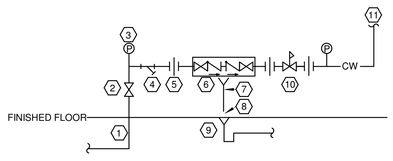
NOTE: TRAP PRIMER LINE SHALL NOT EXCEED 20 FT.

221119.00-34 - TRAP PRIMER DETAIL

SCALE: NONE

KEYED NOTES:

1. INCOMING WATER SERVICE UP THROUGH FINISHED FLOOR.
2. MAIN BUILDING SHUT-OFF
3. PRESSURE GAUGE AND SNUBBER(TYPICAL). **CRITICAL TO INSTALLATION.**
4. STRAINER.
5. UNION (TYPICAL).
6. REDUCED PRESSURE ZONE BACKFLOW PREVENTER. ASSE 1013 APPROVED (TYPICAL).
7. FUNNEL WITH AIR GAP. ROUTE PIPING TO FLOOR DRAIN.
8. PROVIDE AIR GAP.
9. FLOOR DRAIN.
10. PRESSURE REGULATING VALVE, AS REQUIRED.
11. DOMESTIC COLD WATER SUPPLY TO BUILDING.

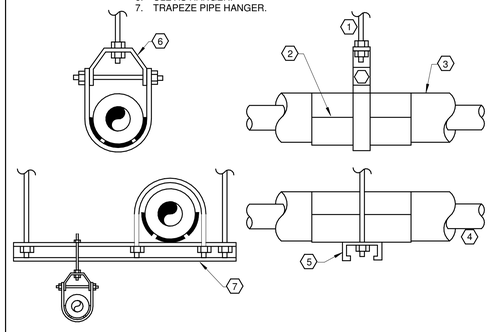


221113.00-01 - SINGLE BACKFLOW WATER SERVICE DETAIL

SCALE: NONE

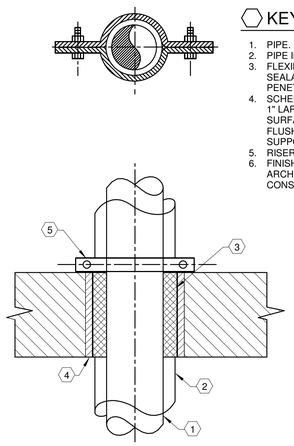
KEYED NOTES:

1. HANGER ROD.
2. PRE-GALVANIZED STEEL AND CALCIUM SILICATE INSULATION PIPE SHIELD.
3. PIPE INSULATION.
4. PIPE.
5. UNISTRUT CHANNEL.
6. CLEVIS HANGER.
7. TRAPEZE PIPE HANGER.



220529.00-01 - PLUMBING PIPE HANGER INSTALLATION

SCALE: NONE



KEYED NOTES:

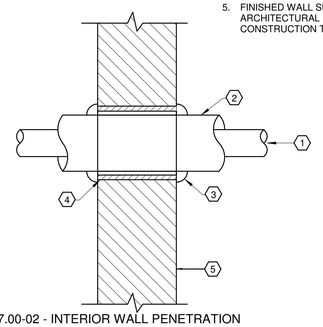
1. PIPE.
2. PIPE INSULATION.
3. FLEXIBLE SEALANT OR FIRE RATED SEALANT FOR FIRE RATED PENETRATIONS.
4. SCHEDULE 40 STEEL PIPE SLEEVE TO BE 1" LARGER THAN THE OUTSIDE SURFACE OF PIPE INSULATION AND FLUSH TO WALL SURFACE. DO NOT SUPPORT PIPING WITH SLEEVE.
5. RISER CLAMP.
6. FINISHED FLOOR. REFER TO ARCHITECTURAL PLANS FOR FLOOR CONSTRUCTION TYPE.

220517.00-04 - PIPE SLEEVE THROUGH EXPOSED FLOOR

SCALE: NONE

KEYED NOTES:

1. PIPE.
2. PIPE INSULATION TO BE CONTINUOUS THROUGH WALL.
3. FLEXIBLE SEALANT OR FIRE RATED SEALANT FOR FIRE RATED PENETRATIONS.
4. SCHEDULE 40 STEEL PIPE SLEEVE TO BE 1" LARGER THAN THE OUTSIDE SURFACE OF PIPE INSULATION AND FLUSH TO WALL SURFACE. DO NOT SUPPORT PIPING WITH SLEEVE.
5. FINISHED WALL SURFACE. REFER TO ARCHITECTURAL PLANS FOR WALL CONSTRUCTION TYPE.



220517.00-02 - INTERIOR WALL PENETRATION

SCALE: NONE

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners consultants

REV	DATE	BY
0	11/20/2019	CAM

REVISIONS: ISSUE FOR BIDDING AND PERMIT

DATE: 11/20/2019 — DRAWN BY: AMS — CHECKED BY: DJT — APPROVED BY: — F.B. NO. — PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

PLUMBING - DETAILS

SCALE: 1/8" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET: P-501

11/14/2019 10:20:05 AM

KLH JOB#: 21459.00

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM

1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX

LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects consultants

PLUMBING DRAIN SCHEDULE

MARK	DESCRIPTION	MANUFACTURER	MODEL	TRAP PRIMER	TRAP SIZE (in)	SAN SIZE (in)	VENT SIZE (in)
FD1	FLOOR DRAIN	ZURN	Z415B	YES	SEE DRAWINGS	SEE DRAWINGS	SEE DRAWINGS
OD1	OVERFLOW DRAIN	ZURN	Z100-W2	NO	4	---	---
RD1	ROOF DRAIN	ZURN	Z100	NO	4	---	---
TD1	DRAIN TROUGH	H-M COMPANY	DRAIN TROUGH	NO	---	3	---

PLUMBING ELECTRIC WATER COOLER SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

MARK	DESCRIPTION	MANUFACTURER	MODEL	WATTS	VOLTS	PHASE	FLA	AVAILABLE FAULT CURRENT	CW SIZE (IN)	SAN SIZE (IN)	VENT SIZE (IN)	TRAP SIZE (IN)	INT TRAP
EWC1	DOMESTIC ELECTRIC WATER COOLER	ELKAY	LZSTL8WSLK	370	120	1	5.0		1/2	1-1/2	1-1/2	---	NO

PLUMBING ELECTRICAL COORDINATON SCHEDULE

ABBREVIATIONS

DC	LOCAL DISCONNECT
MC	MOTOR CONTROL (POWER)
SD	DUCT SMOKE DETECTOR
CN	CONTROLS
TS	TOGGLE SWITCH
C/B	H.A.C.R. CIRCUIT BREAKER AT SOURCE PANELBOARD
FUSE	FUSE AT LOCAL DISCONNECT (VERIFY FIELD RATING)
FLA	OPERATING FULL LOAD AMPS
MCA	MINIMUM CIRCUIT AMPACITY
CP	CORD AND PLUG CONNECTION

CONTRACTOR TYPE

EC	ELECTRICAL CONTRACTOR
EX	EXISTING
FC	FIRE PROTECTION CONTRACTOR
GC	GENERAL CONTRACTOR
HC	HVAC CONTRACTOR
MFR	MANUFACTURER
PC	PLUMBING CONTRACTOR
OR	OWNER OR OTHERS

MOTOR CONTROL TYPE

CS	COMBINATION STARTER
MCC	MOTOR CONTROL STARTER
MG	MAGNETIC STARTER OR CONTACT
MS	MANUAL STARTER
VFD	VARIABLE FREQUENCY DRIVE
MSR	MANUAL STARTER W/ CONTROL RELAY
OV	OVERCURRENT PROTECTION

CONTROL TYPE

TC	TIMECLOCK
CPT	CONTROL POWER TRANSFORMER
BAS	BUILDING AUTOMATION SYSTEM
LOW	LOW VOLTAGE CONTROLS
LINE	LINE VOLTAGE CONTROLS
RLINE	REVERSE ACTING LINE VOLTAGE THERMOSTAT
MAN	MANUAL
FA	FIRE ALARM
CO	CARBON MONOXIDE SENSOR
INT	INTEGRAL TO EQUIPMENT

EQUIPMENT MARK	DESCRIPTION	VOLTS (V)	PHASE	EMERGENCY	BHP (HP)	HP (HP)	HTG KW (kW)	WATTS (W)	FLA (A)	MCA (A)	OCP (A)	DC TYPE	DC FURN	DC INST	DC WIRE	MC TYPE	MC FURN	MC INST	MC WIRE	CN TYPE	CN FURN	CN INST	CN WIRE	AVAILABLE FAULT CURRENT (A)
AC1	AIR COMPRESSOR	208	1										EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR	4141
EWC1	DOMESTIC ELECTRIC WATER COOLER	120	1					370	5.0			CP	EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR	
GD1	GARBAGE DISPOSAL	120	1						9.5			CP	EC	EC	EC	MG	MFR	MFR	MFR	MAN	EC	EC	EC	2697
GWH1	DOMESTIC GAS-FIRED TANK-TYPE WATER HEATER	120	1						5.0				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	5900
RCP1	HOT WATER RECIRCULATING PUMP	120	1			1/12		85	1.3				EC	EC	EC	MG	MFR	MFR	MFR	LINE	PC	PC	PC	5593

PLUMBING FIXTURE SCHEDULE

MARK	DESCRIPTION	LOCATION	MANUFACTURER	MODEL	VALVE/FAUCET MFGR	VALVE/FAUCET MODEL	CW SIZE (in)	HW SIZE (in)	SAN SIZE (in)	VENT SIZE (in)	TRAP SIZE (in)	INT TRAP	ACCESSORIES
BFP1	BACKFLOW PREVENTER	CLOSET 208	WATTS	LF009	---	---	2	---	---	---	---	---	
BFP2	BACKFLOW PREVENTER	MECHANICAL 206	WATTS	LF007	---	---	2	---	---	---	---	---	
BFP3	BACKFLOW PREVENTER	DECON 119	WATTS	LF007	---	---	1	---	---	---	---	---	
BFP4	BACKFLOW PREVENTER	DECON 119	WATTS	LF007	---	---	---	1	---	---	---	---	
DW1	DISHWASHER	KITCHEN 201	PROVIDED BY OTHERS	PROVIDED BY OTHERS	---	---	---	---	---	---	---	---	DISHWASHER SUPPLY AND DRAIN TO TIE INTO ADJACENT KITCHEN SINK.
ESEW1	EMERGENCY SHOWER EYEWASH STATION	DECON 119	BRADLEY	S19314FW	---	---	1/2	1/2	---	---	---	---	PROVIDE WITH TMV2, BARRIER FREE, ADA COMPLIANT.
ET1	EXPANSION TANK	MECHANICAL 206	AMTROL	ST-12	---	---	3/4	---	---	---	---	---	
EWC1	DOMESTIC ELECTRIC WATER COOLER		ELKAY	LZSTL8WSLK			1/2		1-1/2	1-1/2	---	NO	
FILL LINE	FDC APPARATUS BAY FILL LINE	APPARATUS BAY	---	---	---	---	2	---	---	---	---	---	FDC CONNECTION PER FIRE CHIEF SPECIFICATION, PROVIDE FED FROM ASSE 1015 DOUBLE CHECK VALVE LINE IN MECHANICAL ROOM.
HB1	HOSE BIBB	SEE PLANS	WOODFORD	MODEL B24	---	---	3/4	---	---	---	---	---	---
HB2	HOSE BIBB	DECON	WOODFORD	MODEL 24	---	---	3/4	---	---	---	---	---	PROVIDE INLINE ASSE 1015 DOUBLE CHECK VALVE AND PRESSURE REGULATING VALVE SET PER EXTRACTOR REQUIREMENTS.
HB3	HOSE BIBB	APPARATUS BAY	WOODFORD	MODEL 24	---	---	3/4	---	---	---	---	---	PROVIDE NIDEL MODEL 37HD1 ON OUTLET.
HB4	HOSE BIBB	TOOLS/STORAGE	WOODFORD	MODEL 24	---	---	3/4	---	---	---	---	---	---
HR-CA	COMPRESSED AIR HOSE REEL	APPARATUS BAY 125	REELCRAFT	82100 OLP-HTH	---	---	---	---	---	---	---	---	
HR-W	WATER HOSE REEL	APPARATUS BAY 125	REELCRAFT	83050 OLP-HTH	---	---	1/2	---	---	---	---	---	
LV1	LAVATORY	RESTROOMS	KOHLER	K-2054	KOHLER	K-15182-4RA	1/2	1/2	1-1/2	1-1/2	1-1/2	NO	ADA COMPLIANT, ASSE 1070, CARRIER.
MS1	MOP SINK	DECON SHOWER	FAUCET ONLY	FAUCET ONLY	CHICAGO FAUCETS	897-CP	3/4	3/4	---	---	---	---	INSTALL IN DECON SHOWER ON WALL, ARCHITECT TO CONFIRM LOCATION AND MOUNTING HEIGHT.
OI1	OIL /SAND SEPARATOR	EXTERIOR	E.C. BABBERT, INC.	O-4	---	---	---	---	4	3	---	---	
SB1	SUPPLY BOX	KITCHEN 201	GUY GRAY	MIB1	---	---	1/2	---	---	---	---	---	PROVIDE ACCESSIBLE ASSE 1022 BACKFLOW PROTECTION.
SH1	SHOWER	RESTROOMS	SEE ARCH PLANS	SEE ARCH PLANS	BRADLEY	WS-1X-HB	1/2	1/2	2	1-1/2	2	NO	ADA COMPLIANT.
SK1	KITCHEN SINK	KITCHEN 201	ELKAY	LRAD312265	KOHLER	K-596	1/2	1/2	1-1/2	1-1/2	1-1/2	NO	ADA COMPLIANT, ASSE 1070, FINISH AS SELECTED BY ARCHITECT.
SK2	LAUNDRY SINK	LAUNDRY 112	FIAT	SF-1-F	ZURN	Z831B4-XL	1/2	1/2	1-1/2	1-1/2	1-1/2	NO	---
SK3	DECON SINK	DECON 119	ADVANCED TABCO				1/2	1/2	1-1/2	1-1/2	1-1/2	NO	24" X CUSTOM LENGTH (SEE PLANS) DOUBLE BOWL SINK, STAND ALONE, SLOPED DRAIN BOARD, T&S BRASS B-0502-SL FOOT PEDALS.
SV1	SOLENOID VALVE		ASCO	2/2 SERIES 820	---	---	---	---	---	---	---	---	
TMV1	THERMOSTATIC MIXING VALVE		LEONARD	170-LF	---	---	1/2	1/2	---	---	---	---	
TMV2	THERMOSTATIC MIXING VALVE	DECON 119	BRADLEY	S19-2150	---	---	3/4	3/4	---	---	---	---	
TP1	TRAP PRIMER		PPP	P2-500	---	---	1/2	---	---	---	---	---	
WB1	WASHER BOX		GUY GRAY	T200	---	---	1/2	1/2	1-1/2	1-1/2	1-1/2	NO	PROVIDE WOOD STUD CONNECTION REQUIRED FOR SURFACE MOUNT TO BLOCK WALL.
WC1	FLUSH VALVE WATER CLOSET	RESTROOMS	KOHLER	K-4325	KOHLER	K-13517	1	---	4	2	---	YES	ADA COMPLIANT, PROVIDE WITH SPECIFIED CARRIER.
WCC1	WATER CLOSET CARRIER	RESTROOMS	WATTS	ISCA-151	---	---	---	---	4	2	---	---	
WCC2	WATER CLOSET CARRIER	RESTROOMS	WATTS	ISCA-151-D	---	---	---	---	4	2	---	---	
WH1	WALL HYDRANT	EXTERIOR	WOODFORD	MODEL 65	---	---	3/4	---	---	---	---	---	

PLUMBING GAS LOAD SCHEDULE

Total Equivalent Length of Pipe(Feet):	185	Pressure Drop (inches W.C):	56	Delivery Pressure After Meter & PRV (inches W.C.):	28	Gas Type	NATURAL GAS

MARK	HVACTYPE	DESCRIPTION	GAS HTG IN (CFH)	MIN GAS PRESSURE (IN WC)	MAX GAS PRESSURE (IN WC)
FCU-01	23 82 19.00.00	FANCOIL UNIT	40	4.5	13.6
FCU-02	23 82 19.00.00	FANCOIL UNIT	26	4.5	13.6
FCU-03	23 82 19.00.00	FANCOIL UNIT	80	4.5	13.6
FCU-04	23 82 19.00.00	FANCOIL UNIT	40	4.5	13.6
GAS GRILL		GAS GRILL	60		
GENERATOR		GENERATOR	1389	7	11
GFUH-01	23 55 33.00.00	GAS FIRED UNIT HEATER	105	5	14
GWH1	22 34 00.00.00	DOMESTIC GAS-FIRED TANK-TYPE WATER HEATER	199	3.5	14
RANGE			203		
		TOTAL GAS LOAD:	2142		

PLUMBING MISCELLANEOUS EQUIPMENT SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

MARK	DESCRIPTION	LOCATION	MANUFACTURER	MODEL	STORAGE (GAL)	FUEL	GAS HTG IN (MBH)	VOLTS	PHASE	FLA	AVAILABLE FAULT CURRENT	ACCESSORIES
AC1	AIR COMPRESSOR	MEZZ.	CHAMPION	VR5-8	80	ELECTRIC	0	208	1		4141	16.5 CFM @ 175 PSIG
GD1	GARBAGE DISPOSAL	KITCHEN 201	INSINKERATOR	BADGER 5XP	0	ELECTRIC	0	120	1	9.5	2697	3/4 HP

PLUMBING PUMP SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

MARK	DESCRIPTION	LOCATION	MANUFACTURER	MODEL	VOLTS	PHASE	WEIGHT (lbs)	FLOW (gpm)	HEAD (ft)	WATTS	RPM	FLA (amps)	AVAILABLE FAULT CURRENT	ACCESSORIES
RCP1	HOT WATER RECIRCULATING PUMP	MECHANICAL 206	BELL & GOSSETT	ECOCIRC XL 20-35	120	1	20	1	12	85	0	1.3	5593	

PLUMBING WATER HEATER SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

MARK	DESCRIPTION	LOCATION	MANUFACTURER	MODEL	EWT (DEG F)	LWT (DEG F)	GAS HTG IN (MBH)	STORAGE (GAL)	FUEL	MIN GAS PRESSURE (IN WC)	MAX GAS PRESSURE (IN WC)	VOLTS	PHASE	WEIGHT	FLA	ACCESS	AVAILABLE FAULT CURRENT
GWH1	DOMESTIC GAS-FIRED TANK-TYPE WATER HEATER	MECHANICAL 206	AO SMITH	BTH-199(A)	52	140	199	100	NATURAL GAS	3.5	14	120	1	523	5.0		5900

REV	ISSUE FOR BIDDING AND PERMIT
0	

DATE: 11/20/2019 — DRAWN BY: AMS — CHECKED BY: DJT — APPROVED BY: — P.E. NO. — PG. —

SHARONVILLE FIRE STATION 87 RENOVATION

CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

PLUMBING - SCHEDULES

SCALE:
HORZ:
VERT:
CONTRACT NO: 170636
SHEET P-601

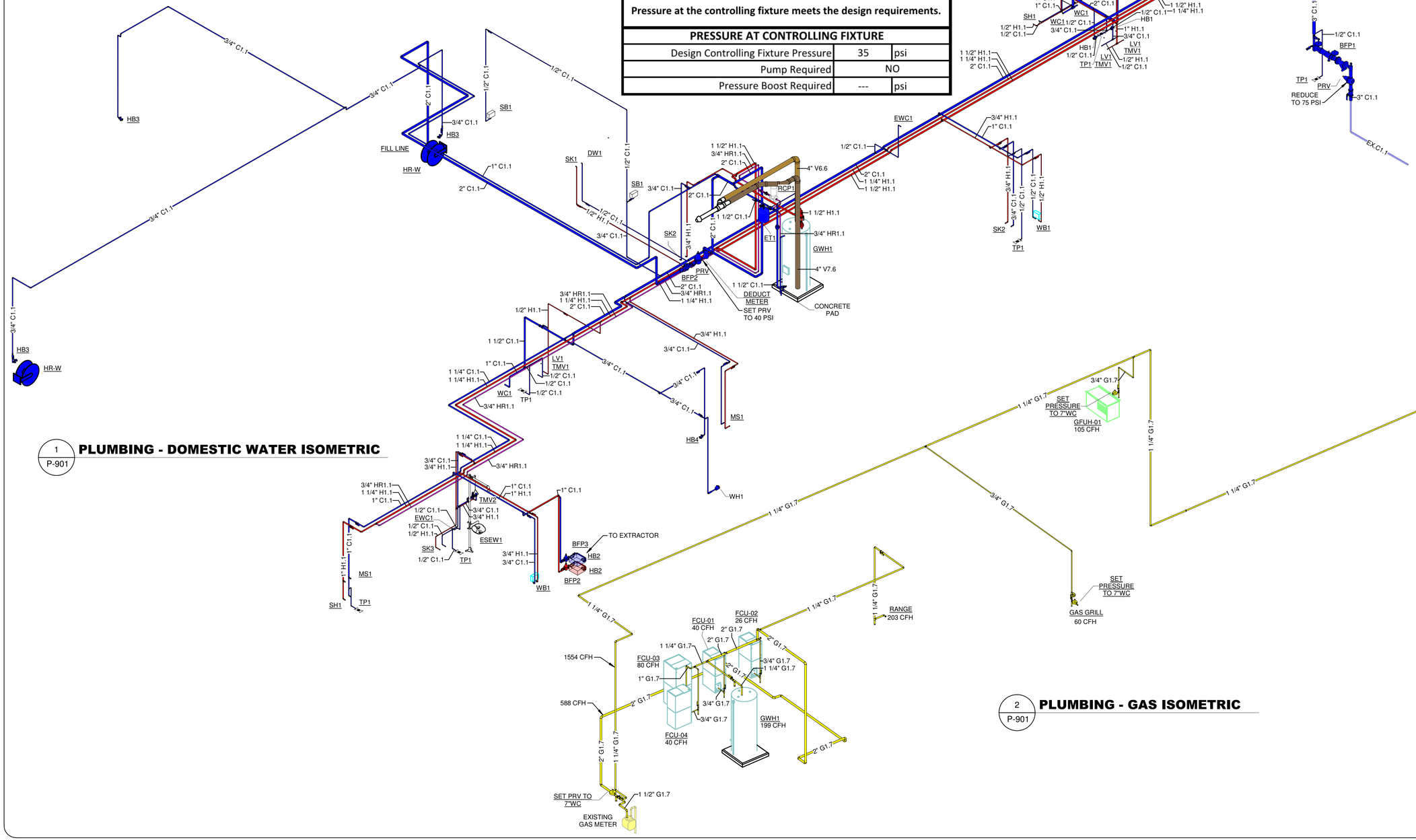
11/14/2019 10:20:14 AM

KLH JOB#: 21459.00

DOMESTIC WATER PRESSURE ANALYSIS REPORT		
Water Supply Fixture Units	95	WSFU
Additonal Non-WSFU Flow	0	gpm
Total Peak demand	66	gpm
PRESSURE LOSS ANALYSIS		
Flow test data was recorded for this project. Please contact engineer of record if further information is required.		
Design Flushing Type	Flush Valve	
Recorded Static Pressure	75	psi
Recorded Residual Pressure	75	psi
Pressure Losses in Piping	1	psi
Pressure Losses in Equipment	17	psi
Pressure Losses in Elevation	5	psi
Static Pressure at Controlling Fixture	58	psi
Residual Pressure at Controlling Fixture	52	psi
Pressure at the controlling fixture meets the design requirements.		
PRESSURE AT CONTROLLING FIXTURE		
Design Controlling Fixture Pressure	35	psi
Pump Required	NO	
Pressure Boost Required	---	psi

Plumbing Pipe Type Legend

Mark	Color	System Name	Pipe Material
C1.1		C1 - Domestic Cold Water	1 - Copper - Type L - ASTM B88
H1.1		H1 - Domestic Hot Water	1 - Copper - Type L - ASTM B88
HR1.1		HR1 - Hot Water Return	1 - Copper - Type L - ASTM B88
V6.6		V6 - Intake Air Flue Vent	6 - PVC - Schedule 40 - ASTM D1785
V7.6		V7 - Exhaust Air Flue Vent	6 - PVC - Schedule 40 - ASTM D1785
G1.7		G1 - Natural Gas	7 - Black Steel - ASTM A53/A53M



1 P-901 **PLUMBING - DOMESTIC WATER ISOMETRIC**

2 P-901 **PLUMBING - GAS ISOMETRIC**

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects consultants

REV	DATE	BY
0	11/20/2019	CAM

REVISIONS: ISSUE FOR BIDDING AND PERMIT

DATE: 11/20/2019 — DRAWN BY: AMS — CHECKED BY: DJT — APPROVED BY: — P.E. NO. — PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

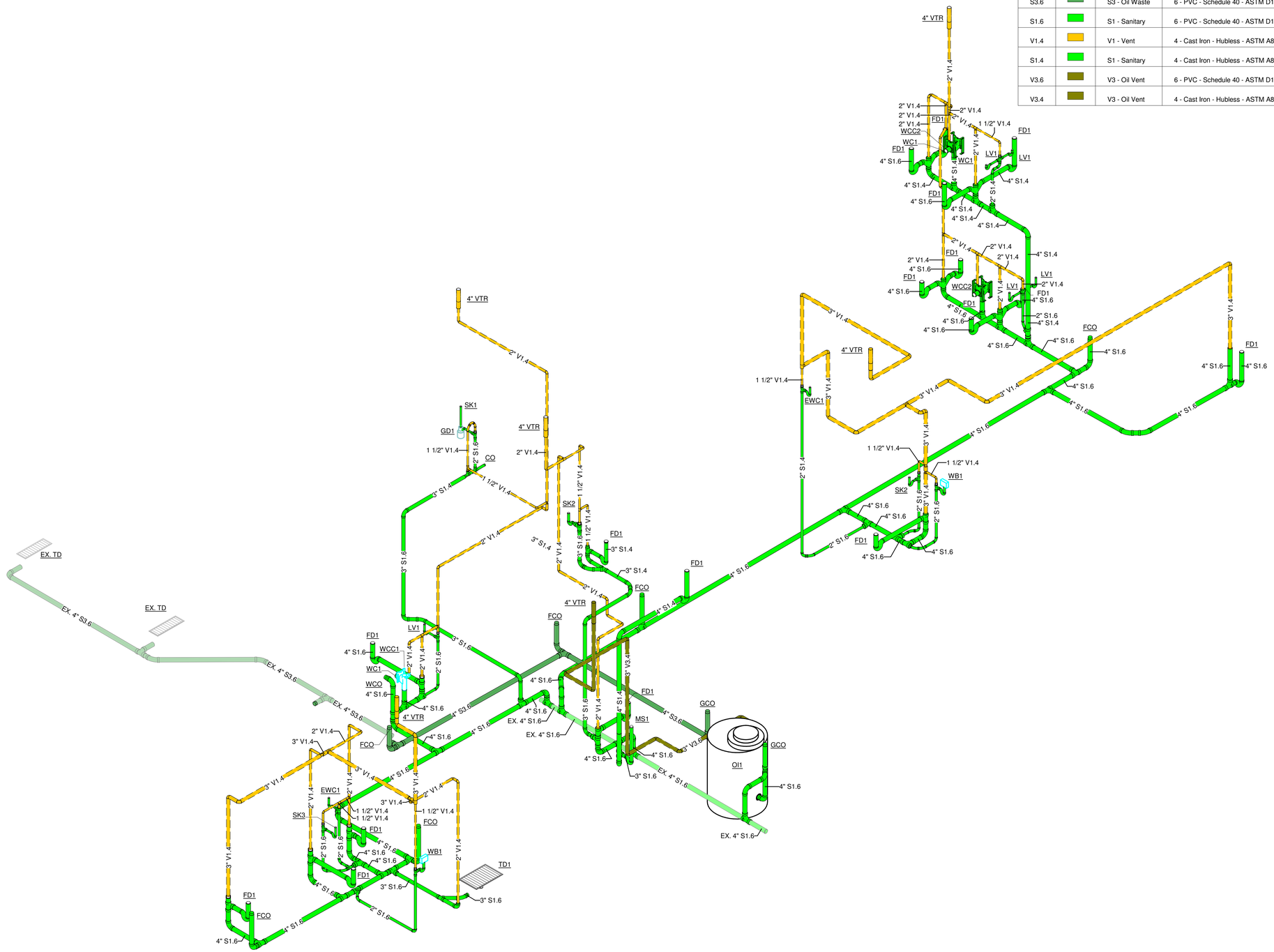
PLUMBING - WATER & GAS ISOMETRIC

SCALE:
HORZ:
VERT:
CONTRACT NO: 170636
SHEET: P-901

11/14/2019 10:20:30 AM

KLH JOB#: 21459.00

Plumbing Pipe Type Legend			
Mark	Color	System Name	Pipe Material
S3.6		S3 - Oil Waste	6 - PVC - Schedule 40 - ASTM D1785
S1.6		S1 - Sanitary	6 - PVC - Schedule 40 - ASTM D1785
V1.4		V1 - Vent	4 - Cast Iron - Hubless - ASTM A888
S1.4		S1 - Sanitary	4 - Cast Iron - Hubless - ASTM A888
V3.6		V3 - Oil Vent	6 - PVC - Schedule 40 - ASTM D1785
V3.4		V3 - Oil Vent	4 - Cast Iron - Hubless - ASTM A888



1 P-902 **PLUMBING - SANITARY & VENT ISOMETRIC**

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER
11/04/19

your trusted advisor — engineers architects planners consultants

REVISIONS			
REV	ISSUE FOR BIDDING AND PERMIT	DATE	BY
0		11/20/2019	CAM

DATE: 11/20/2019 | DRAWN BY: AMS | CHECKED BY: DJT | APPROVED BY: | F.B. NO. | PG.

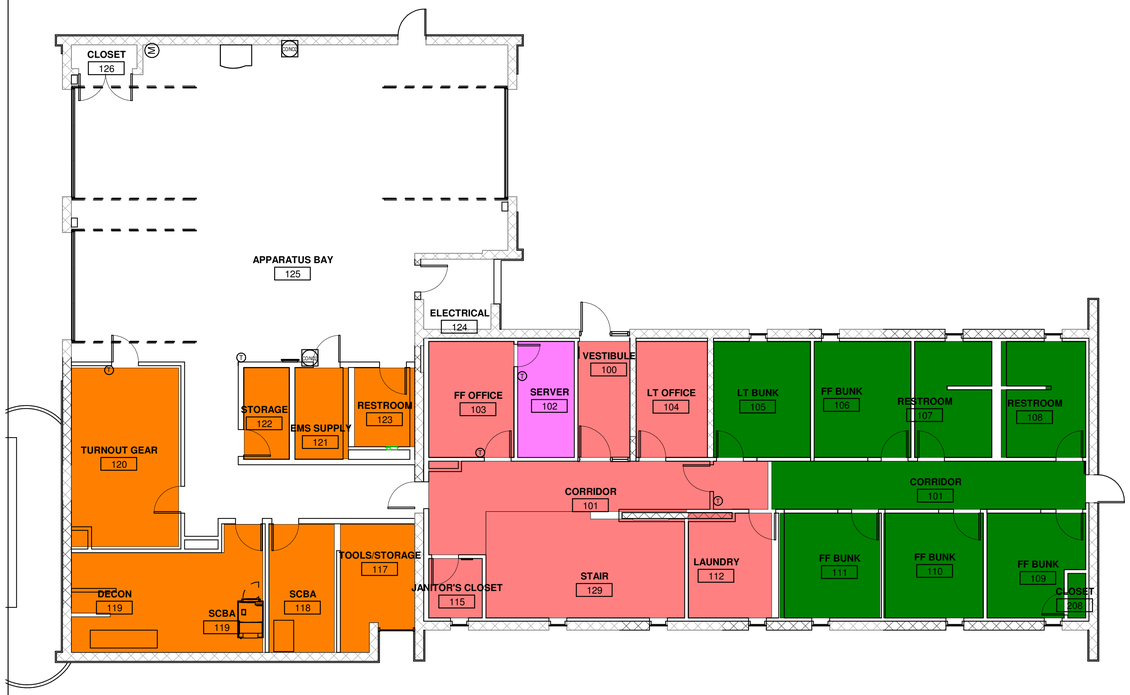
SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

PLUMBING - SANITARY & VENT ISOMETRIC

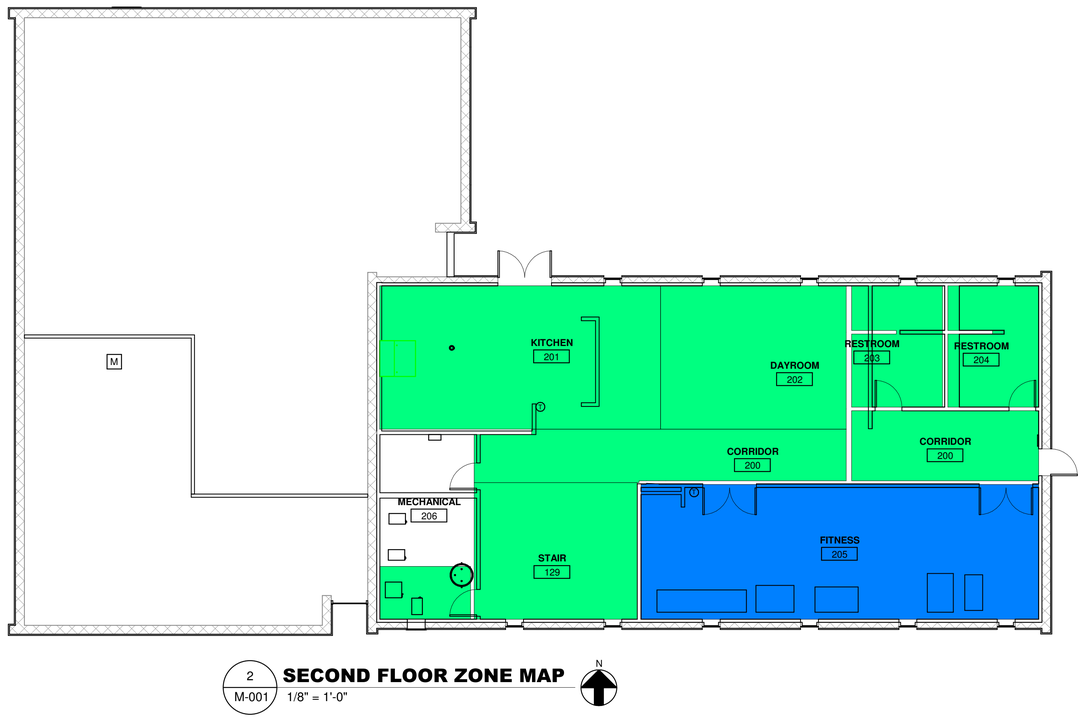
SCALE:
HORZ:
VERT:
CONTRACT NO: 170636
SHEET P-902

11/14/2019 10:20:46 AM

KLH JOB#: 21459.00



3 / M-001 **FIRST FLOOR ZONE MAP** 1/8" = 1'-0"



2 / M-001 **SECOND FLOOR ZONE MAP** 1/8" = 1'-0"

11/14/2019 10:16:51 AM

ESSENTIAL FACILITY SEISMIC REQUIREMENTS

SEISMIC BRACING FOR ALL NON-STRUCTURAL COMPONENTS INCLUDING BUT NOT LIMITED TO EQUIPMENT, PIPING, CONDUIT AND DUCTWORK IS REQUIRED FOR THIS PROJECT. THE DESIGN AND INSTALLATION OF THE SEISMIC RESTRAINT DEVICES IS DELEGATED TO THE CONTRACTOR. REFER TO SEISMIC CONTROLS SPECIFICATION FOR DELEGATED DESIGN SUBMITTAL REQUIREMENTS.

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX

LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects consultants

MECHANICAL LEGEND

SYMBOL	DESCRIPTION
PLAN-VIEW LINE TYPES	
———	WORK SHOWN BOLD-CONTINUOUS INDICATES NEW WORK
PIPING LINE TYPES	
RL	REFRIGERANT LIQUID
RS	REFRIGERANT SUCTION
CD	CONDENSATE DRAIN
MECHANICAL MISCELLANOUS	
PS	ANSUL PULL STATION
ECP	ENVIRONMENTAL CONTROL PANEL
UC 0'-1"	1" DOOR UNDERCUT
MECHANICAL STATS & SENSORS	
T	LOW VOLTAGE THERMOSTAT
L	LINE VOLTAGE THERMOSTAT
CO/NOX	COMBINATION CARBON MONOXIDE AND NITROGEN DIOXIDE SENOR
MECHANICAL DUCTWORK ACCESSORIES	
	ROUND ELBOW WITH TURNING VANES
	DUCT WITH MANUAL VOLUME DAMPER
	ELBOW WITH TURNING VANES
M	MOTOR OPERATED DAMPER - LINE VOLTAGE
M	MOTOR OPERATED DAMPER - LOW VOLTAGE
DSD	DUCT MOUNTED SMOKE DETECTOR (HARD WIRE INTERLOCK TO FAN MOTOR BY E.C.) FURNISHED BY E.C., INSTALLED BY M.C.
FD 1.5 HR	FIRE DAMPER - 1.5 HR
MECHANICAL AIR DEVICES	
SR	SUPPLY REGISTER
RR	RETURN REGISTER
ER	EXHAUST REGISTER
SG	SUPPLY GRILLE
RG	RETURN GRILLE
CD	CEILING DIFFUSER
CD-10"Ø	2'x2' SQUARE CEILING DIFFUSER WITH 10" NECK
MECHANICAL DUCTWORK	
UP	SUPPLY DUCT WITH ELBOW TURNED UP
DN	SUPPLY DUCT WITH ELBOW TURNED DOWN
UP	RETURN DUCT WITH ELBOW TURNED UP
DN	RETURN DUCT WITH ELBOW TURNED DOWN
UP	EXHAUST DUCT WITH ELBOW TURNED UP
DN	EXHAUST DUCT WITH ELBOW TURNED DOWN
24X12 SA	SUPPLY DUCT
24X12 RA	RETURN DUCT
24X12 EA	EXHAUST DUCT
24X12 OA	OUTSIDE AIR DUCT
	1" LINED DUCTWORK
	FLEXIBLE DUCTWORK CONNECTION
	BRANCH TAKEOFF
	REDUCER, CONCENTRIC
	REDUCER, NONCONCENTRIC
	DUCT FLEX CONNECTOR

STANDARD HVAC ABBREVIATIONS

AAV	AUTOMATIC AIR VENT
ACCESS	ACCESSORIES
AD	ACCESS DOOR
AFF	ABOVE FINISHED FLOOR
AMP	AMPERE
AP	ACCESS PANEL
APD	AIR PRESSURE DROP
ARI	AIR CONDITIONING AND REFRIGERATION INSTITUTE
ASME	AMERICAN SOCIETY OF MECHANICAL ENGINEERS
BAS	BUILDING AUTOMATION SYSTEM
BD	BACKDRAFT DAMPER
BHP	BRAKE HORSEPOWER
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
CD	CEILING DIFFUSER
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CI	CAST IRON
CLG	COOLING
CO	CARBON MONOXIDE
CO2	CARBON DIOXODE
COP	COEFFICIENT OF PERFORMANCE
CV	CONSTANT VOLUME
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
DB	DECIBELS
DB	DRY-BULB TEMPERATURE
DC	DISCONNECT
DDC	DIRECT DIGITAL CONTROLS
DEG	DEGREE DELTA(CHANGE IN TEMPERATURE)
DIA	DIAMETER
DIW	DEIONIZED WATER
DP	DEW POINT TEMPERATURE
DX	DIRECT EXPANSION
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EER	ENERGY EFFICIENCY RATIO
EG	EXHAUST GRILLE
EMERG	EMERGENCY POWER
ESP	EXTERNAL STATIC PRESSURE
EWT	ENTERING WATER TEMPERATURE
EX.	EXISTING
F	FAHRENHEIT
F&T	FLOAT AND THERMOSTATIC
FA	FREE AREA
FD	FIRE DAMPER
FLA	FULL LOAD AMPERES
FPM	FEET PER MINUTE
FPS	FEET PER SECOND
FT	FEET
FURN	FURNISHED
GA	GAUGE
GAL	GALLONS
GPM	GALLONS PER MINUTE
HD	HEAD
HOA	HAND/OFF/AUTOMATIC
HP	HORSEPOWER
HPR	HIGH PRESSURE RETURN (STEAM CONDENSATE)
HSTAT	HUMIDISTAT
HTG	HEATING
HWR	HEATING HOT WATER RETURN
HWS	HEATING HOT WATER SUPPLY
HZ	HERTZ
I/O	INPUT/OUTPUT
IAQ	INDOOR AIR QUALITY
IN HG	INCHES OF MERCURY
IN WC	INCH WATER COLUMN
IN WG	INCH WATER GAUGE
IPLV	INTERGRATED PART LOAD VALUE
INST	INSTALLED
KW	KILOWATT
KWH	KILOWATT HOUR
LAT	LEAVING AIR TEMPERATURE
LBS/HR	POUNDS PER HOUR
LF	LINEAR FOOT (FEET)
LPR	LOW PRESSURE RETURN (STEAM CONDENSATE)
LPS	LOW PRESSURE STEAM
LWT	LEAVING WATER TEMPERATURE
MAX	MAXIMUM
MBH	1000 BTUH
MCA	MINIMUM BRANCH CIRCUIT AMPACITY
MERV	MINIMUM EFFICIENCY REPORTING VALUE
MIN	MINIMUM
MOD	MOTOR OPERATED DAMPER
MPR	MEDIUM PRESSURE RETURN (STEAM CONDENSATE)
MPS	MEDIUM PRESSURE STEAM
MRI	MAGNETIC RESONANCE IMAGING
MVD	MANUAL VOLUME DAMPER
NA	NOT APPLICABLE
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OA	OUTSIDE AIR
OCP	OVER CURRENT PROTECTION
PD	PRESSURE DROP
PPM	PARTS PER MILLION
PRS	PRESSURE REGULATING (VALVE) STATION
PRV	PRESSURE REGULATING VALVE
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH – ABSOLUTE
PSIG	POUNDS PER SQUARE INCH – GAGE
RA	RETURN AIR
RAT	RETURN AIR TEMPERATURE
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID LINE
RLA	RUN LOAD AMPERE
RO	REVERSE OSMOSIS
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
SA	SUPPLY AIR
SAT	SUPPLY AIR TEMPERATURE
SC	SHADING COEFFICIENT
SCD	SMOKE CONTROL DAMPER
SD	SMOKE DETECTOR
SENS	SENSIBLE HEAT
SP	STATIC PRESSURE
TAB	TESTING, ADJUSTING, BALANCE
TDH	TOTAL DYNAMIC HEAD
TDS	TOTAL DISSOLVED SOLIDS
TSP	TOTAL STATIC PRESSURE
TSTAT	THERMOSTAT
UL	UNDERWRITERS LABORATORY
VAV	VARIABLE AIR VOLUME
VFD	VARIABLE FREQUENCY DRIVE
WB	WET-BULB (TEMPERATURE)
WG	WATER GAGE
WPD	WATER SIDE PRESSURE DROP
WIRE	WIRED

NEW WORK GENERAL NOTES

A. PROVIDE ALL LABOR, MATERIAL, AND EQUIPMENT NECESSARY TO COMPLETELY FURNISH, INSTALL, AND PLACE INTO OPERATION, ALL SYSTEMS SHOWN ON THE DRAWINGS AND DELINEATED IN THE SPECIFICATIONS IN ACCORDANCE WITH ALL STATE AND LOCAL CODES AND ORDINANCES. REPORT ANY KNOWN DISCREPANCIES TO THE ARCHITECT/ENGINEER PRIOR TO INSTALLATION.

B. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR EXACT LOCATIONS OF CEILING DIFFUSERS, REGISTERS AND GRILLES.

C. DO NOT SCALE DRAWINGS; REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONED LOCATIONS OF WALLS, DOORS, WINDOWS, AND CABINETRY.

D. COORDINATE WORK AND SPACE REQUIREMENTS IN CEILING SPACES WITH OTHER TRADES PRIOR TO INSTALLATION.

E. COORDINATE LOCATIONS AND ORIENTATION OF ROOF MOUNTED EQUIPMENT WITH ARCHITECTURAL AND STRUCTURAL DRAWINGS.

F. COORDINATE WALL LOUVERS WITH ARCHITECTURAL ELEVATIONS AND DETAILS.

G. PROVIDE VOLUME DAMPERS AT ALL SUPPLY, RETURN, AND EXHAUST DUCT BRANCH TAKE-OFFS.

H. PROVIDE TURNING VANES IN ALL 90 DEGREE MITERED ELBOWS. OMIT TURNING VANES IN ACOUSTIC LINED RETURN DUCT ELBOWS.

I. PROVIDE FLEXIBLE DUCT ON INLET TO EACH CEILING DIFFUSER. CUT FLEXIBLE DUCTS TO LENGTH NEEDED AND INSTALL WITHOUT KINKS OR SHARP BENDS (BENDS WITH CENTERLINE RADIUS LESS THAN DUCT DIAMETER). SUPPORT FLEXIBLE DUCTS WITH MINIMUM 1" WIDE METAL STRAPS OR SADDLES.

J. SIZES OF ACOUSTIC LINED DUCTS ARE NET INSIDE DIMENSION. INCREASE SHEET METAL SIZE ACCORDINGLY.

K. RUNOUTS TO CEILING DIFFUSERS ARE THE SAME SIZE AS THE DIFFUSER NECK UNLESS NOTED OTHERWISE.

L. INSTALL ALL EQUIPMENT WITH CODE REQUIRED AND MANUFACTURER RECOMMENDED MINIMUM CLEARANCES FOR SERVICE, ACCESS, AND FIRE PROTECTION.

M. MAINTAIN A MINIMUM OF 10 FEET BETWEEN ALL OUTSIDE AIR INTAKES AND ALL EXHAUST, VENT, AND FLUE OUTLETS.

N. ALL MATERIALS EXPOSED WITHIN PLENUMS SHALL BE NON-COMBUSTIBLE OR SHALL HAVE A FLAME SPREAD INDEX OF NOT MORE THAN 25 AND A SMOKE-DEVELOPED INDEX OF NOT MORE THAN 50 WHEN TESTED IN ACCORDANCE WITH ASTME E 84.

O. ALL FLOOR PENETRATIONS SHALL BE COORDINATED WITH THE CONCRETE RIBS IN THE FLOOR STRUCTURE.

P. MECHANICAL CONTROLS CONTRACTOR TO PROVIDE A LINK TO THE CONTROLS SHOP DRAWINGS INCLUDING SEQUENCE OF OPERATIONS ON THE HOME PAGE OF THE FRONT-END GRAPHICS.

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

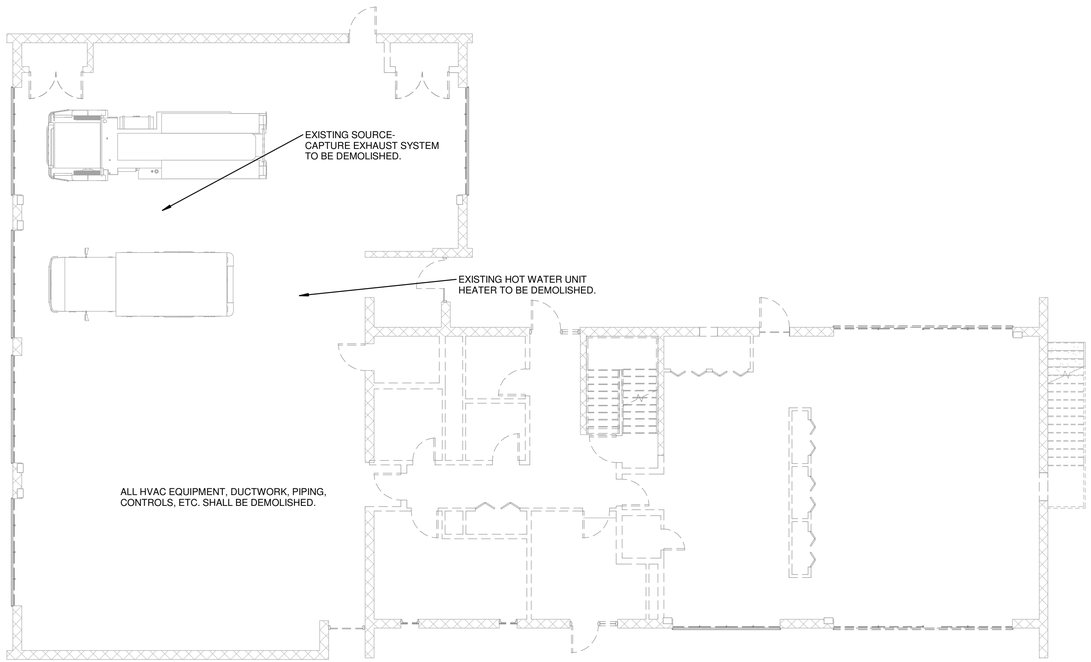
DATE: 11/20/2019 — DRAWN BY: DS — CHECKED BY: RAL — APPROVED BY: — F.B. NO. — PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

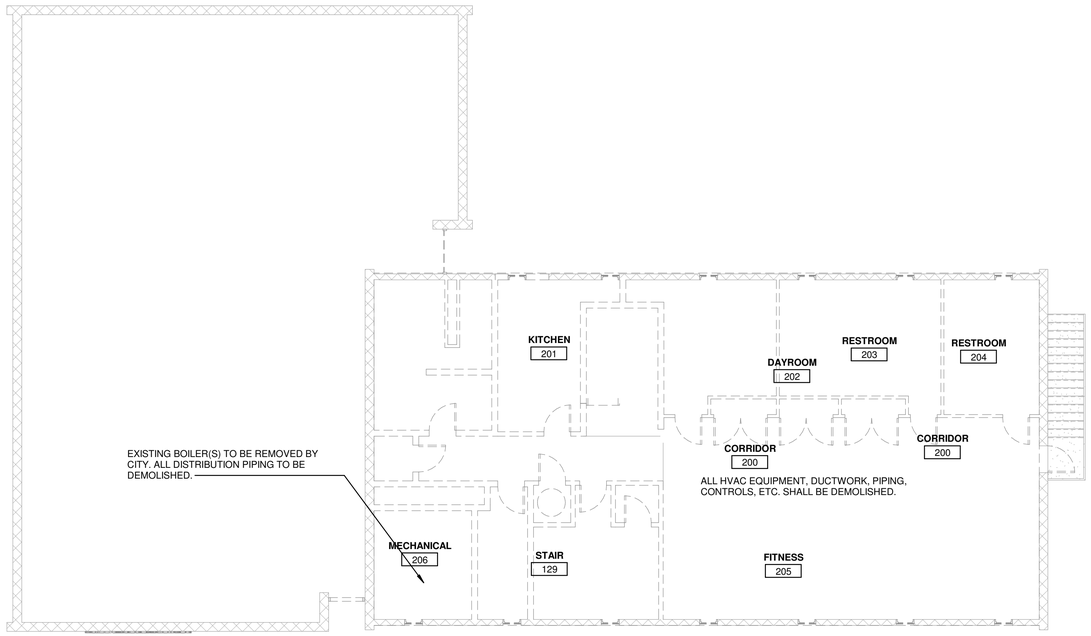
MECHANICAL COVER SHEET

SCALE: 1/8" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET M-001

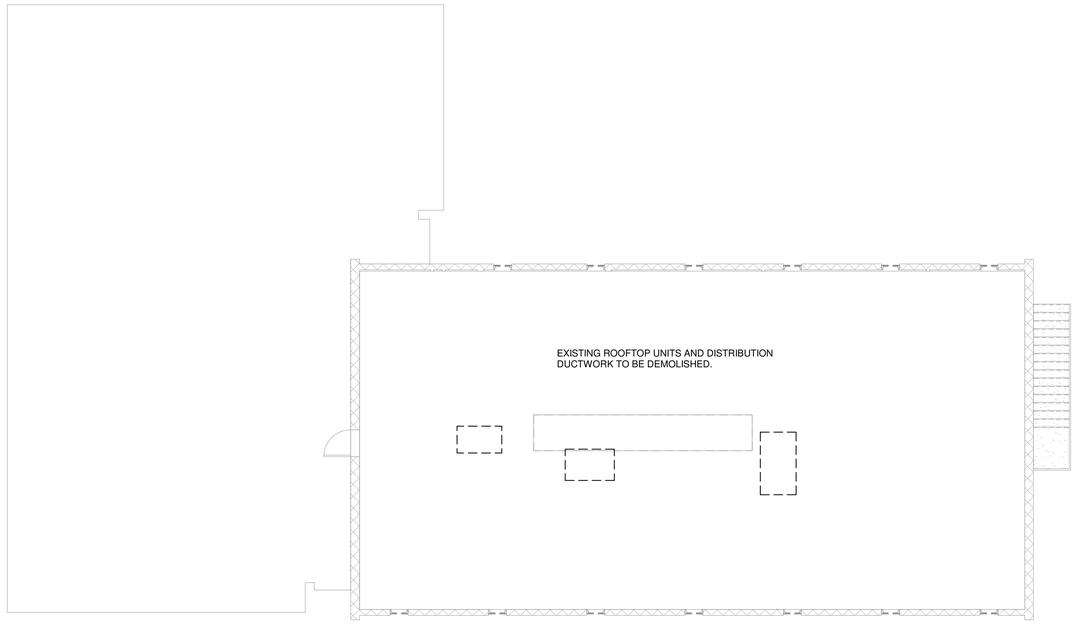
KLH JOB#: 21459.00



1 / M-101 **FIRST FLOOR MECHANICAL DEMOLITION PLAN**
1/8" = 1'-0"



2 / M-101 **SECOND FLOOR MECHANICAL DEMOLITION PLAN**
1/8" = 1'-0"



3 / M-101 **ROOF MECHANICAL DEMOLITION PLAN**
1/8" = 1'-0"

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER
11/04/19

your trusted advisor — engineers architects planners consultants

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 | DRAWN BY: DS | CHECKED BY: RAL | APPROVED BY: | F.B. NO. | PG.

SHARONVILLE FIRE STATION 87 RENOVATION

CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

MECHANICAL DEMOLITION PLAN

SCALE: 1/8" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET M-101

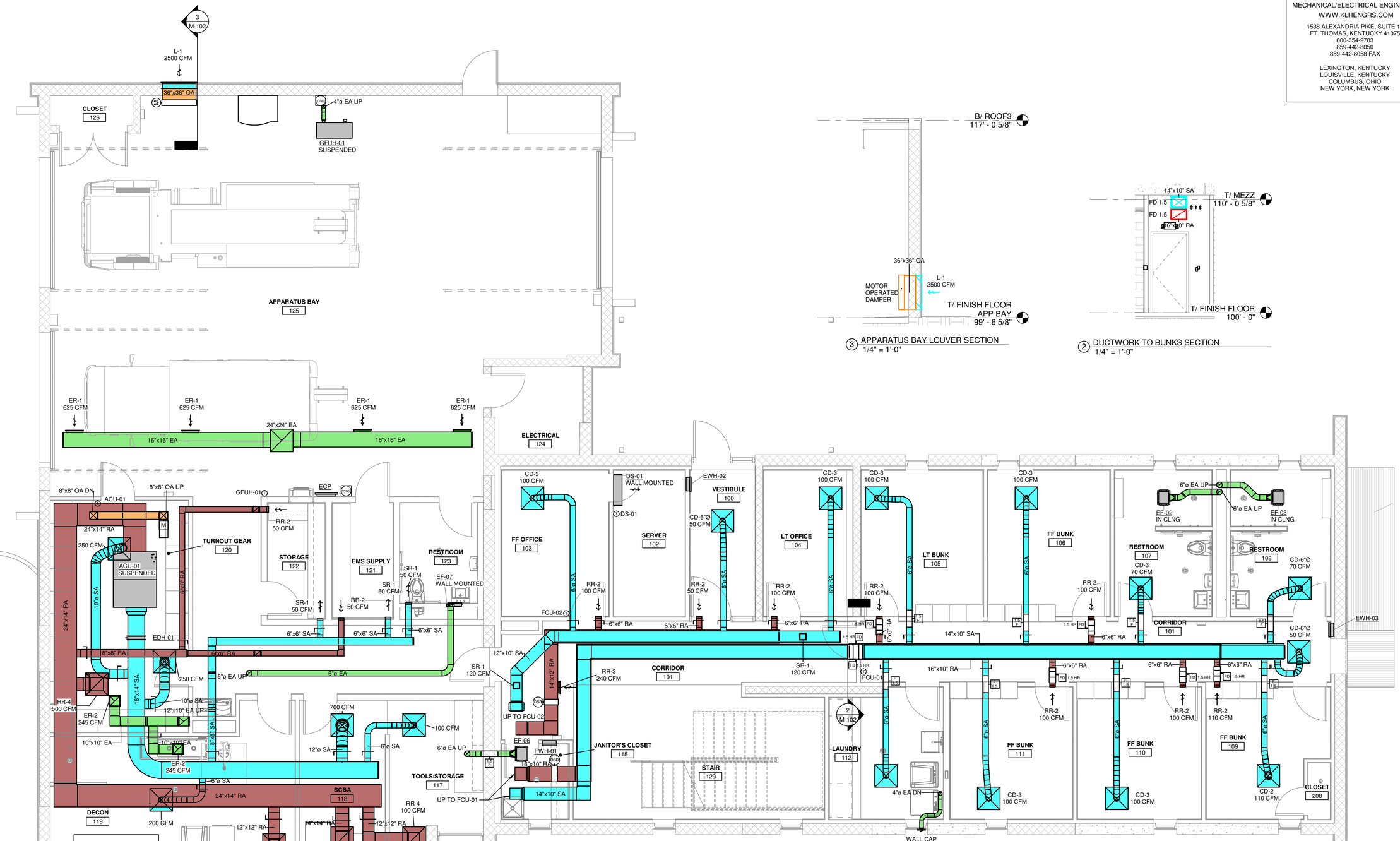
11/14/2019 10:16:58 AM

KLH JOB#: 21459.00

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners consultants



3 APPARATUS BAY LOUVER SECTION
1/4" = 1'-0"

2 DUCTWORK TO BUNKS SECTION
1/4" = 1'-0"

1 / M-102 **MECHANICAL DUCTWORK - FIRST FLOOR**
1/4" = 1'-0"

N

REV	ISSUE	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 — DRAWN BY: DS — CHECKED BY: RAL — APPROVED BY: — F.B. NO. — PG.

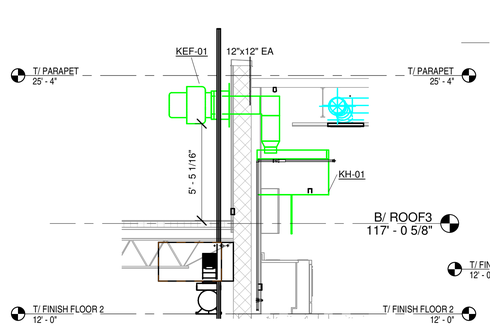
SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

MECHANICAL DUCTWORK - FIRST FLOOR

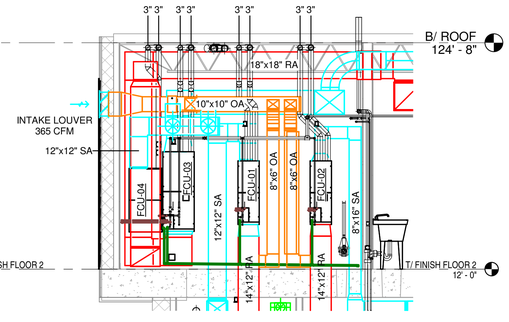
SCALE: 1/4" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET M-102

11/14/2019 10:17:10 AM

KLH JOB#: 21459.00



3 KITCHEN HOOD SECTION
1/4" = 1'-0"



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

1 M-103 **MECHANICAL DUCTWORK - SECOND FLOOR**
1/4" = 1'-0"

11/14/2019 10:17:20 AM

KLH JOB#: 21459.00

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners consultants

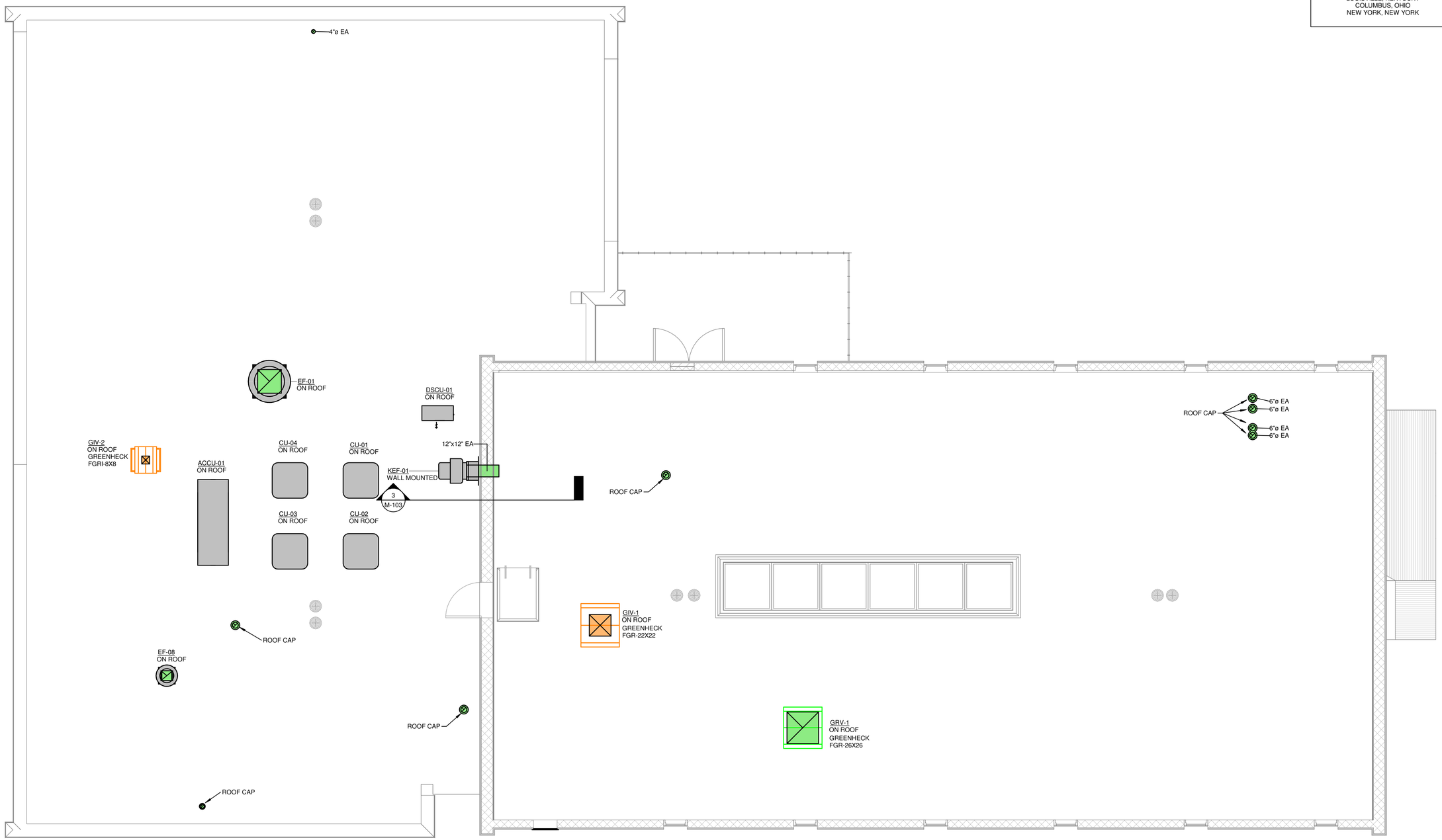
REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 | DRAWN BY: DS | CHECKED BY: RAL | APPROVED BY: | F.B. NO. | PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

MECHANICAL DUCTWORK - SECOND FLOOR

SCALE: 1/4" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET M-103



1 M-104 **MECHANICAL DUCTWORK PLAN - ROOF**

1/4" = 1'-0"

N

KLH ENGINEERS

MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM

1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX

LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO
KRIS T. SCHNITGEN 77432
REGISTERED PROFESSIONAL ENGINEER
11/04/19

your trusted advisor — engineers architects planners consultants

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 | DRAWN BY: DS | CHECKED BY: RAL | APPROVED BY: | F.B. NO. | PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

MECHANICAL DUCTWORK PLAN - ROOF

SCALE: 1/4" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET M-104

11/14/2019 10:17:27 AM

KLH JOB#: 21459.00

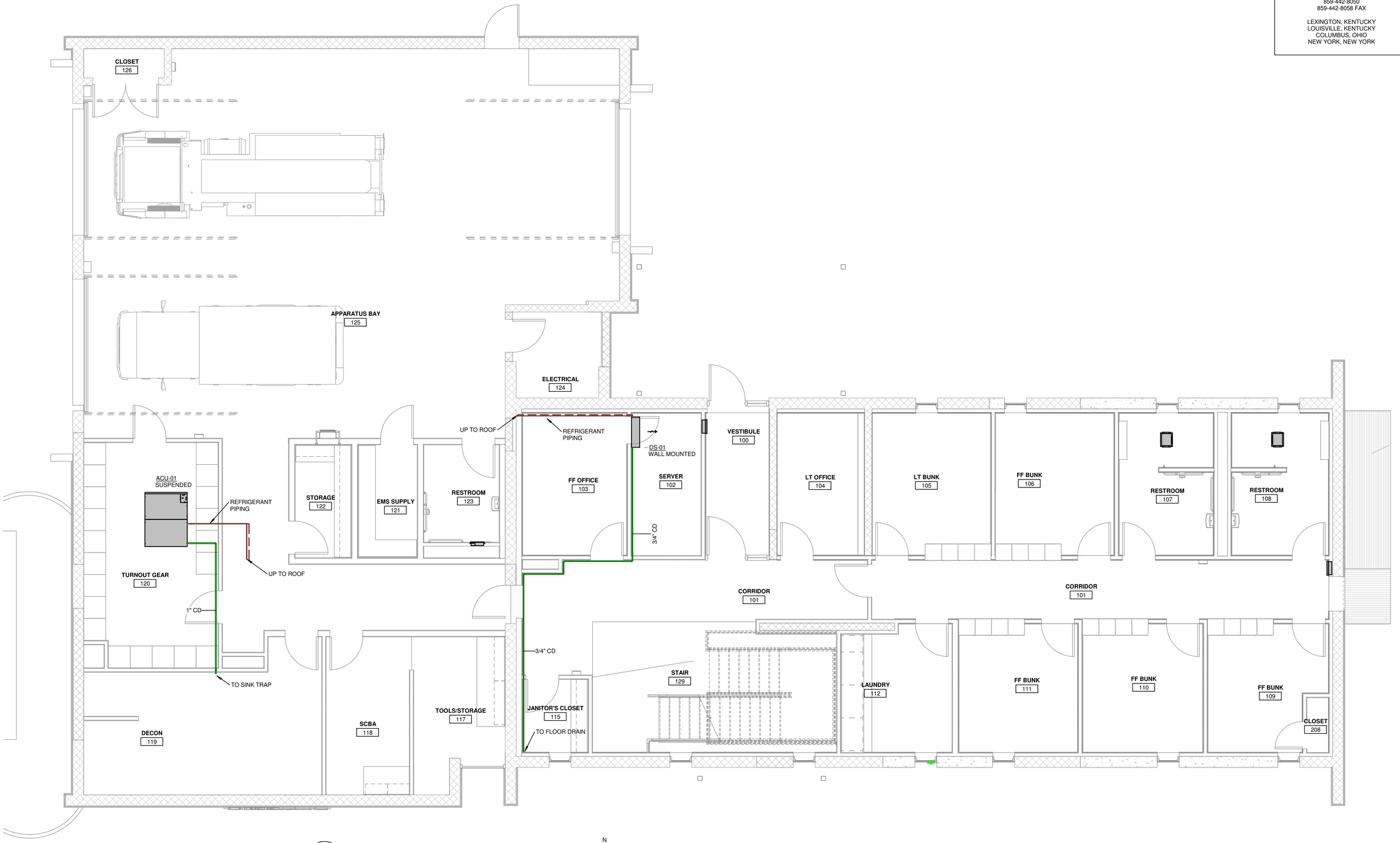
KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM

1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX

LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO
KRIS T. SCHNITGEN
77432
REGISTERED PROFESSIONAL ENGINEER
11/04/19

your trusted advisor — engineers architects planners consultants



1 / M-105 **MECHANICAL PIPING - FIRST FLOOR**
1/4" = 1'-0"

N

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019
DRAWN BY: DS
CHECKED BY: RAL
APPROVED BY:
F.B. NO. PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

MECHANICAL PIPING - FIRST FLOOR

SCALE: 1/4" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET M-105

11/14/2019 10:17:34 AM

KLH JOB#: 21459.00

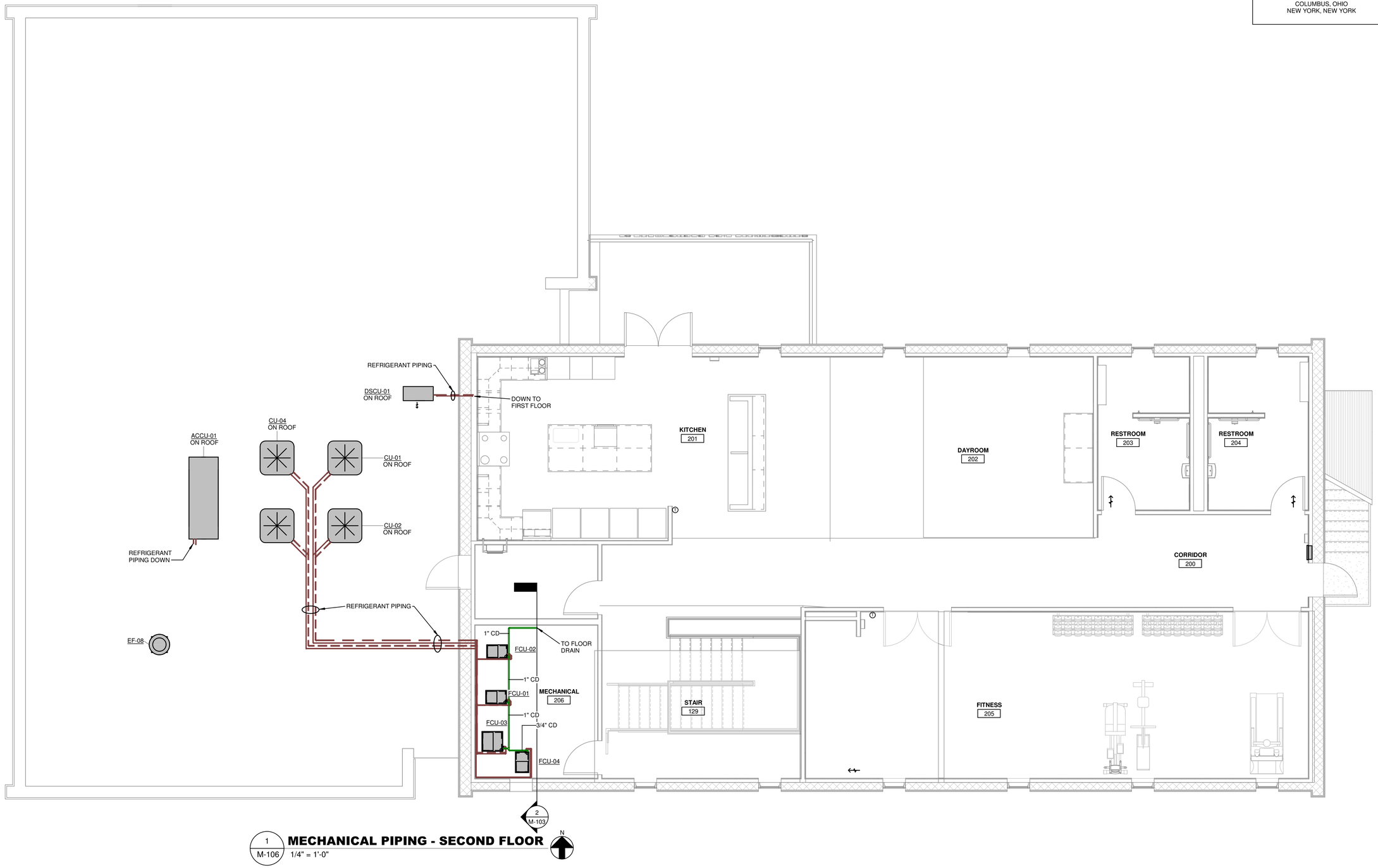
KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM

1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX

LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO
KRIS T. SCHNITGEN 77432
REGISTERED PROFESSIONAL ENGINEER
11/04/19

your trusted advisor — engineers architects planners consultants



1 / M-106 **MECHANICAL PIPING - SECOND FLOOR**
1/4" = 1'-0"

REV	DESCRIPTION	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE:	11/20/2019
DRAWN BY:	DS
CHECKED BY:	RAL
APPROVED BY:	
F.B. NO.	PG.

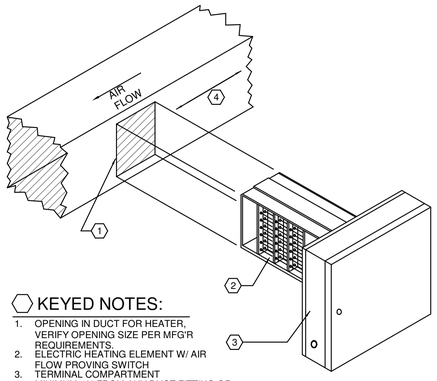
SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

MECHANICAL PIPING - SECOND FLOOR

SCALE:	1/4" = 1'-0"
HORZ:	
VERT:	
CONTRACT NO:	170636
SHEET	M-106

11/14/2019 10:17:40 AM

KLH JOB#: 21459.00

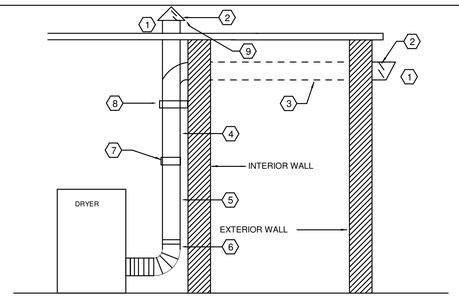


KEYED NOTES:

1. OPENING IN DUCT FOR HEATER, VERIFY OPENING SIZE PER MFG'R REQUIREMENTS
2. ELECTRIC HEATING ELEMENT W/ AIR FLOW PROVING SWITCH
3. TERMINAL COMPARTMENT
4. MINIMUM 48" FROM ANY DUCT FITTING OR FAN OUTLET

238216.00-01 - PACKAGED ELECTRIC DUCT HEATER

SCALE: NONE

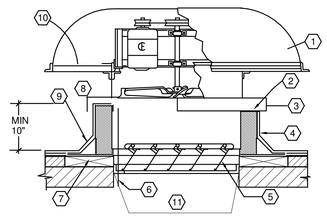


KEYED NOTES:

1. TERMINATE THROUGH ROOF OR WALL W/CAP AND 2" ELASTOMERIC INSULATION WITH 10' CLEAR FROM INTAKES OR BUILDING OPENINGS.
2. BACKDRAFT DAMPER
3. ALTERNATE ROUTE THROUGH SIDE WALL
4. 4" Ø INSULATED SHEETMETAL SMOOTH INTERIOR DUCT WITH JOINTS IN DIRECTION OF AIRFLOW & NO OBSTRUCTION TO AIRFLOW
5. MAXIMUM 25'-0" EQUIVALENT FEET FROM DRYER TO OUTLET TERMINAL
6. METALLIC FLEXIBLE DUCT CONNECTOR MAX. 6'-0" (NOT ALLOWED IN CONCEALED LOCATIONS)
7. PROVIDE CLEANOUT IN EACH VERTICAL RISER
8. SECURE ALONG WALL W/ STRAPS
9. PROVIDE SHEETMETAL RAIN CAP 24" MIN. ABOVE ROOF.

233500.00-01 - DRYER EXHAUST

SCALE: NONE



KEYED NOTES:

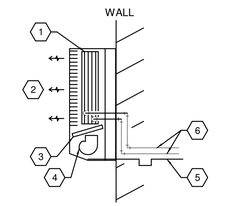
1. PROPELLER ROOF FAN
2. WOOD NAILER
3. ANCHOR ALL FOUR SIDES WITH SCREWS 12" O.C.
4. PREFABRICATED INSULATED CURB
5. MOTOR OPER. DAMPER INTERFACED WITH EXHAUST FAN WIRING/STARTER
6. CONDUIT HOLE
7. ANCHOR TO ROOF DECK AS REQUIRED
8. RUBBER GASKET APPLIED TO TOP OF CURB
9. ROOFING UP UNDER FLASHING. PROVIDE CURB TYPE AND FLASHING PER ROOFING MANUFACTURER'S REQUIREMENTS
10. BIRD SCREEN
11. CENTER TRANSITION TO DUCTWORK FROM DAMPER OR CURB. PROVIDE 3X DIAMETER STRAIGHT RUN MINIMUM.

GENERAL NOTES:

A. DELETE CANT FOR SINGLE MEMBRANE ROOFS.
B. TOP OF CURB MUST BE LEVEL. FABRICATE PITCH IN CURB IF NECESSARY
C. CONTRACTOR HAS THE OPTION TO INCREASE THE HEIGHT OF THE CURB OR ADD BLOCKING TO THE CURB. THE ADDITIONAL HEIGHT REQUIRED SHALL EQUAL THE ROOF ASSEMBLY THICKNESS. THE CURB INTAKE OPENING SHALL BE AT A MINIMUM 12" ABOVE FINISHED ROOF.
D. LOCATE A MINIMUM OF 10'-0" FROM EDGE OF ROOF, INTAKES, AND ROOF HATCH.

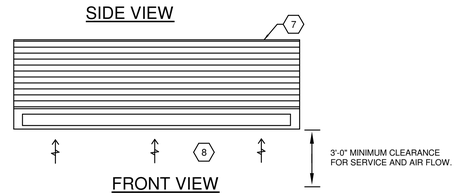
MECHANICAL - DETAILS

SCALE: NONE



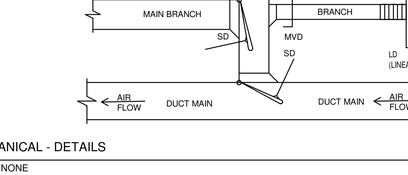
KEYED NOTES:

1. DX COOLING COIL
2. CONDITIONED OUTLET AIR
3. AIR FILTER
4. FAN MOTOR
5. 3/4" CONDENSATE DRAIN WITH TRAP
6. REFRIGERANT LINES (NOT TO BE EXPOSED TO OCCUPANT), MAXIMUM PIPING LENGTH EQUAL TO 100FT. MAXIMUM ELEVATION DIFFERENCE EQUAL TO 50 FT. INSULATE SUCTION AND LIQUID LINES.
7. OUTLET LOUVER
8. INLET AIR



MECHANICAL - DETAILS

SCALE: NONE



KEYED NOTES:

1. ANCHOR UNIT TO CURB
2. PRESSURE TREATED WOOD NAILER
3. VIBRATION ISOLATORS
4. ROOF DECK
5. PREFABRICATED EQUIPMENT SUPPORT
6. SINGLE MEMBREANE ROOFING, FLASH PER MFG'R RECOMMENDATIONS. FLASH UP AND OVER WOOD NAILER.
7. PREFABRICATED DOG HOUSE
8. SEAL AND FLASH OPENING

GENERAL NOTES:

A. ON PROJECTS WITH BUILT-UP ROOFS, ADD CANT ON EQUIPMENT SUPPORTS AND PREFABRICATE PIPING CHASE
B. PLACE EQUIPMENT ACROSS BAR JOIST OR ADD ADDITIONAL STRUCTURAL STRUCTURAL STEEL AS NECESSARY TO CARRY EQUIPMENT WEIGHT
C. LOCATE A MINIMUM OF 10'-0" FROM EDGE OF ROOF AND ROOF HATCH.

MECHANICAL - DETAILS

SCALE: NONE

KEYED NOTES:

1. VENT CAP
2. CURB AND FLASHING
3. ROOF THIMBLE
4. CLEAN OUT
5. DOUBLE WALL VENT PIPE
6. GALVANIZED HANGER RODS DOUBLE NUT
7. UNIT HEATER

MECHANICAL - DETAILS

SCALE: NONE

KEYED NOTES:

1. CANVAS FLEXIBLE CONNECTION
2. RETURN PLENUM, PROVIDE 1/2" ACOUSTIC LINING
3. 4" CONCRETE PAD
4. RETURN PLENUM UNDER UNIT FOR SUPPLY AIR FLOW GREATER THAN 1800 CFM. PROVIDE SUPPORT ANGLES IN CORNERS OF UNIT
5. COPPER CONDENSATE DRAIN, PIPE TO FLOOR DRAIN
6. UNION
7. GAS COCK (PLUG VALVES)
8. REFRIGERANT LINES, PROVIDE 3/4" ARAMAFLEX ON SUCTION LINE
9. VENT-PER MFG'R REQUIREMENTS
10. COMBUSTION INTAKE (IF REQ'D)
11. CONDENSING FURNACE CONDNESATE DRAIN, CPVC PIPING, PIPE TO FLOOR DRAIN
12. GAS FIRED FURNACE
13. EVAPORATOR COIL & INSULATED PLENUM
14. GAS PIPING, BLACK STEEL
15. CAP
16. FILTER AND RACK
17. FUNNEL DRAIN
18. HIGH WATER ALARM IN CONDENSATE DRAIN PAN. WIRE TO BREAK 24 VOLT CONTROL POWER IN THE CASE OF A HIGH WATER EVENT.

MECHANICAL - DETAILS

SCALE: NONE

KEYED NOTES:

1. EXTERIOR WALL MOUNTED LOUVER
2. MOTOR OPER. DAMPER
3. CAULKING
4. ANCHOR TO WALL AT 12" O/C
5. PROVIDE INSULATED SHEET METAL PLENUM, FULL SIZE OF LOUVER, (MIN 12" DEEP)
6. TRANSITION INSULATED DUCT CONNECTION WITH ANGLED FITTING TO PLENUM FOR UNIFORM AIR FLOW
7. 3/4" PIPING TO FLOOR DRAIN

GENERAL NOTES:

A. REFER TO ARCHITECTURAL DRAWINGS FOR SIZES AND LOCATIONS.

MECHANICAL - DETAILS

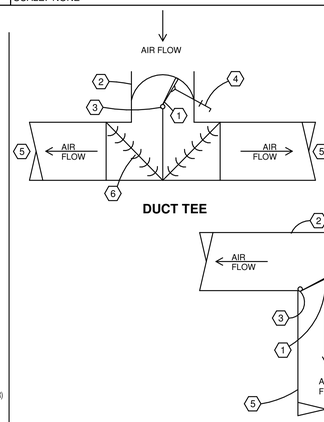
SCALE: NONE

GENERAL NOTES:

1. PROVIDE SPLITTER DAMPER (SD) AT ALL MAIN BRANCH TAKEOFFS
2. PROVIDE MANUAL VOLUME DAMPERS AT ALL BRANCH TAKEOFFS
3. PROVIDE MINIMUM 3 TIMES STRAIGHT INLET DIAMETER TO ALL VAV TERMINAL DEVICES
4. DAMPER NOT REQUIRED AT TERMINAL DEVICE TAKEOFF
5. ALL MANUAL DAMPERS SHALL BE LOCATED IN AN ACCESSIBLE CEILING. PROVIDE ACCESS PANEL AS REQUIRED

MECHANICAL - DETAILS

SCALE: NONE

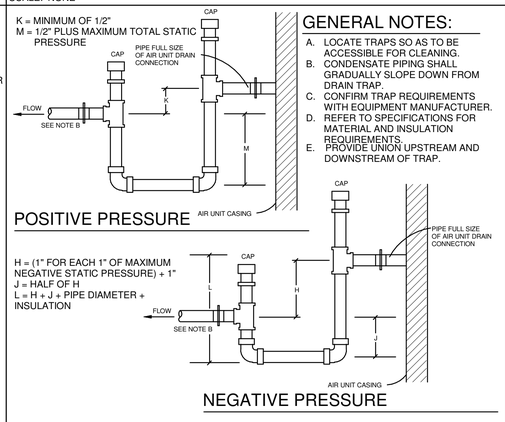


KEYED NOTES:

1. 20 GAUGE DOUBLE SHEET METAL AIR FOIL FULL DEPTH OF MAIN DUCT UP TO 12" WIDE BRANCHES 18 GAUGE ON WIDER BRANCHES
2. MAIN DUCT
3. GALVANIZED 3/16" ROD
4. VENTLOCK NO. 600-3 DAMPER BLADE, BRACKET & LOCKING BALL JOINT WITH 1/4Ø GALVANIZED OPERATOR PAD
5. BRANCH MAIN DUCT
6. DOUBLE THICKNESS TURNING VANES (TYPICAL)
7. 3" RADIUS MINIMUM

MECHANICAL - DETAILS

SCALE: NONE



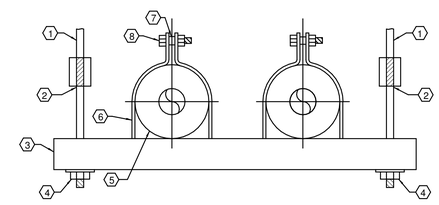
GENERAL NOTES:

A. LOCATE TRAPS SO AS TO BE ACCESSIBLE FOR CLEANING.
B. CONDENSATE PIPING SHALL GRADUALLY SLOPE DOWN FROM DRAIN TRAP.
C. CONFIRM TRAP REQUIREMENTS WITH EQUIPMENT MANUFACTURER.
D. REFER TO SPECIFICATIONS FOR MATERIAL AND INSULATION REQUIREMENTS.
E. PROVIDE UNION UPSTREAM AND DOWNSTREAM OF TRAP.

NOTE: OUTDOOR UNITS AND UNITS LOCATED IN UNCONDITIONED SPACES WHICH PROVIDE COOLING IN THE WINTER MUST HAVE HEAT TRACE ON THE CONDENSATE PIPING.

MECHANICAL - DETAILS

SCALE: NONE



KEYED NOTES:

1. CONNECT TO STRUCTURE (TYPICAL).
2. GALVANIZED THREADED HANGER RODS (TYPICAL), SEE SPECIFICATIONS.
3. UNISTRUT.
4. PLATED NUT & WASHER (TYPICAL).
5. CONTINUOUS INSULATION AS SPECIFIED, (TYPICAL).
6. CHANNEL MOUNTED CLAMPING SYSTEM (TYPICAL).
7. SPACER SIZED TO PREVENT COMPRESSION OF INSULATION.
8. PLATED DOUBLE NUT AND WASHER.

MECHANICAL - DETAILS

SCALE: NONE

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners consultants

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 — DRAWN BY: DS — CHECKED BY: RAL — APPROVED BY: — F.B. NO. — PG.

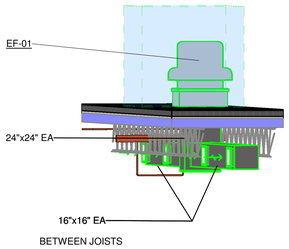
SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

MECHANICAL - DETAILS

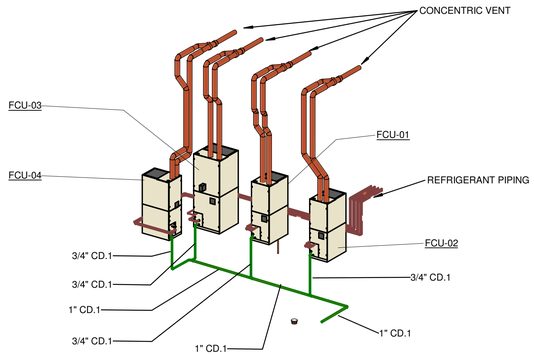
SCALE: 1/8" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET M-501

11/14/2019 10:17:47 AM

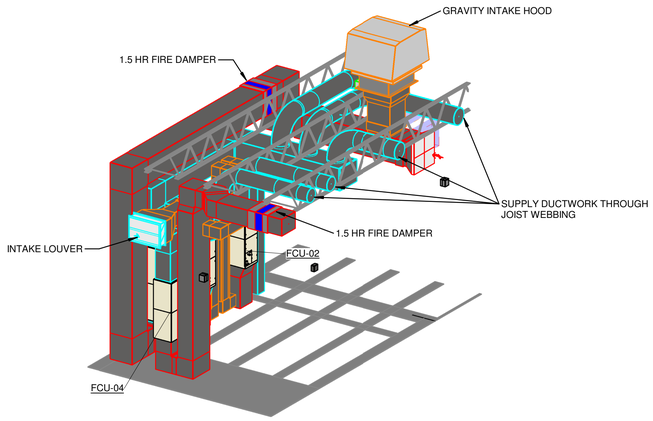
KLH JOB#: 21459.00



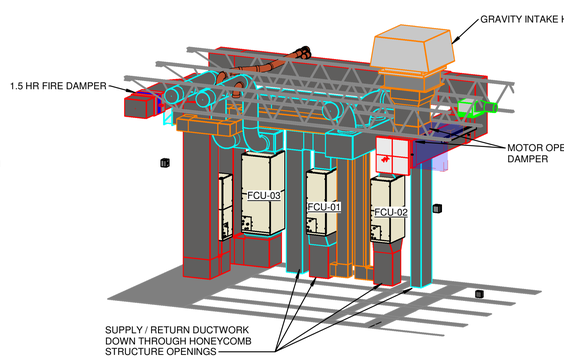
1 APPARATUS BAY EXHAUST ISOMETRIC



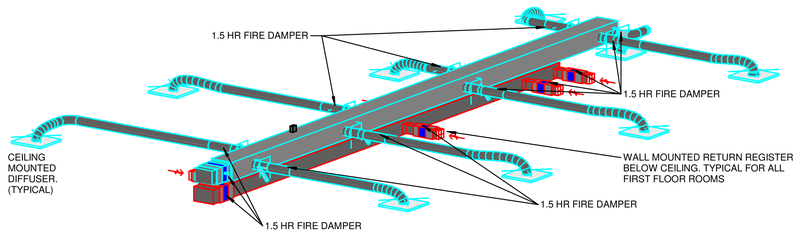
2 MECHANICAL ROOM PIPING ISOMETRIC



3 MECHANICAL ROOM DUCTWORK ISOMETRIC 1



4 MECHANICAL ROOM DUCTWORK ISOMETRIC 2



5 SLEEPING QUARTERS DUCTWORK ISOMETRIC

Sequence of Operations

Split System Furnace ACU (Gas-Fired/DX, with O.A.)

1. Startup
   a. The unit shall operate on an occupied/unoccupied cycle.
2. Supply Fan
   a. The supply fan speed shall be constant and balanced to the required CFM.
   b. The supply fan shall run continuously, be two stage and modulate up and down based on a call for heating or cooling.
3. Space Temperature Control
   a. Provide local wall mounted room temperature thermostat with digital display of room temperature and setpoint (+/- deg. F. adjustable) and override feature.
4. Minimum Outside Air Control
   a. During occupied mode the minimum outside air damper shall be open. Provide motorized outdoor air damper.
   b. During occupied mode, the minimum outside air damper shall be open to the scheduled minimum outdoor air flow and modulate proportionally with the supply fan speed to maintain the scheduled minimum outside airflow. When the supply fan speed is set to high, outside air damper shall be partially closed allowing minimum outside air flow as scheduled. As supply fan speed is set to low, damper shall fully open allowing minimum outside air flow as scheduled. Provide motor operated dampers.
5. Economizer Control (FCU-03 only)
   a. Provide dual enthalpy economizer control. Economizer control shall be enabled whenever the outside air enthalpy is lower than the return air enthalpy. Enthalpy shall be calculated from sensors which are tied to the same controller for accuracy. During economizer mode, the outside air damper shall modulate to 100% open. The economizer damper shall modulate open on a call for cooling and modulate closed on a call for heating. The return damper shall modulate inversely with the economizer damper.
6. Cooling Control
   a. Cooling shall be controlled to maintain space temperature setpoint. On a call for cooling the heating shall be off. On a further call for cooling the mechanical cooling shall be staged on. Provide Low Ambient Controls on condensing unit for operation down to -20 degrees F.
   b. (FCU-03 Only) Cooling shall be controlled to maintain space temperature setpoint. On a call for cooling, the heating shall be off and supply fan speed shall be low. On a further call for cooling, the economizer shall be enabled. On a further call for cooling, disable the economizer and energize first stage cooling on. On a further call for cooling, the supply fan speed shall be high and energized second stage of cooling.
7. Heating Control
   a. Heating shall be controlled to maintain space temperature setpoint. On a call for heating, the mechanical cooling shall be off. On a further call for heating the gas heating shall be staged on.
   b. (FCU-03 only) Heating shall be controlled to maintain space temperature setpoint. On a call for heating, the mechanical cooling shall be off. On a further call for heating, the economizer mode shall be disabled. On a further call for heating, the supply fan shall be set to low speed. On a further call for heating, the natural gas heat shall stage on. On a further call for heating, the supply fan shall be set to high speed.
8. Smoke Detector
   a. When the smoke detector is alarmed, the air handler shall fail safe with manual reset. Electrical contractor shall furnish, HVAC Contractor shall mount & Electrical contractor shall wire a UL listed photoelectric smoke detector per local code authority having jurisdiction.
9. Unoccupied Mode
   a. During the unoccupied mode of operation, the ACU shall go into night setback mode.
10. Night Setback/Shutdown
    a. At night setback/shutdown the ACU shall go to fail safe position. Fail safe position is defined by the following: The supply fan is off, the outdoor air intake damper is closed, the heating is off and the mechanical cooling is off. The supply fan shall cycle in conjunction with either the heating or cooling system to maintain a minimum/maximum space temperature depending on the season.

Split System ACU (Electric Heat/DX, with O.A.)

1. Startup
   a. The unit shall operate on an occupied/unoccupied cycle.
2. Supply Fan
   a. The supply fan speed shall be constant and balanced to the required CFM.
3. Space Temperature Control
   a. Provide local wall mounted room temperature thermostat with digital display of room temperature and setpoint (+/- deg. F. adjustable) and override feature.
4. Minimum Outside Air Control
   a. During occupied mode the minimum outside air damper shall be open. Provide motorized outdoor air damper.
5. Cooling Control
   a. Cooling shall be controlled to maintain space temperature setpoint. On a call for cooling the SCR electric heater shall be off. On a further call for cooling the mechanical cooling shall be staged on. Provide Low Ambient Controls on condensing unit for operation down to -20 degrees F.
6. Heating Control
   Heating shall be controlled to maintain space temperature setpoint. On a call for heating, the mechanical cooling shall be off. On a further call for heating the SCR electric heating shall be modulate.
7. Unoccupied Mode
   a. During the unoccupied mode of operation, the ACU shall go into night setback mode.
8. Night Setback/Shutdown
   a. At night setback/shutdown the ACU shall go to fail safe position. Fail safe position is defined by the following: The supply fan is off, the outdoor air intake damper is closed, the heating is off and the mechanical cooling is off. The supply fan shall cycle in conjunction with either the heating or cooling system to maintain a minimum/maximum space temperature depending on the season.

DUCTLESS SPLIT SYSTEM ACU – DATA CLOSET

A. The unit shall operate to maintain space temperature set point. The fan shall cycle in sequence with the heating/cooling coils to maintain space temperature setpoint. On a call for cooling, the evaporator fan shall start and run continuously and mechanical cooling shall stage on. All a call for heating, the evaporator fan and mechanical cooling shall shut down.
B. Provide Low Ambient Controls on condensing unit for operation down to -20 degrees F.

CONDENSING UNITS

A. All safeties interlocks associated with the condensing unit shall be hard wired. Software interlocks are acceptable as secondary additional safeties.
B. Unit shall have self-contained controls by unit manufacturer. Provide Low Ambient Controls on condensing unit for operation down to -20 degrees F.
C. On a call for cooling, with all safety devices satisfied, the first stage compressor contactor and condenser fan contactor energize causing the compressor and condenser fan motor to operate (the indoor fan contactor shall be wired to start at the same time as the compressor). A liquid line solenoid valve will open when the first stage compressor starts.
D. On a further call for cooling, the second stage compressor contactor and condenser fan contactor energize causing the second stage compressor and condenser fan motor to operate. A liquid line solenoid valve will open when the second stage compressor starts.
E. As cooling demand decreases, the second stage compressor contactor and condenser fan contactor de-energize causing the second stage compressor and condenser fan motor to shut down. A corresponding liquid line solenoid valve will close when the second stage compressor is off preventing refrigerant migration back to the compressor during the off cycle.-

EXHAUST FANS

A. General
   1. Provide high limit pressure switch on the suction side of all constant volume fans greater than 3 HP to disable the fan upon exceeding static pressure setpoint. Provide manual reset.
B. Toilet Exhaust Fans (Manual)
   1. Exhaust fans shall be controlled by local manual switch furnished, installed and wired by electrical contractor. When activated, exhaust fan motor damper shall open and fan shall start.
C. Janitor Closet Exhaust Fans (Timeclock)
   1. Exhaust fans shall be tied to timeclock, which shall be furnished, installed and wired by electrical contractor. When activated, exhaust fan motor damper shall open and fan shall start.
D. Kitchen Hood Exhaust Fan (Type I)
   1. The Kitchen Hood exhaust system shall be initiated by a manual switch/8-hour wind-up timer located on the face of the kitchen hood with indicator light. At startup, energize exhaust fan motor.
   2. The exhaust fan shall run continuously at constant speed. Provide a current transducer to prove fan operation. At shutdown, the exhaust fan shall stop.
   3. Provide all controls and wiring for complete interlock and operation of Kitchen Hood, exhaust fan, and all associated motor dampers.

Apparatus Bay Exhaust Fans
1. Multiple space carbon monoxide (CO) and nitrogen dioxide (NO2) sensors located in various spots in the apparatus bay shall control the exhaust system. Provide interface from the vehicle exhaust gas detection control panel so that on alarm of carbon monoxide (>35 ppm, adjustable) or on alarm of high nitrogen dioxide (>2 ppm, adjustable), and the motorized exhaust fan dampers and outside air damper intake shall open and fans shall start. Fan speed shall be set to balance to airflow as noted.
2. Provide all controls for complete interlock and operation of Apparatus Bay Gas Detection System, exhaust fan and all associated motor dampers. Provide BACnet interface to be monitored by the BAS.
3. Provide a manual over-ride in the apparatus bay to activate the system for a maximum of 30 minutes (adjustable). (SEE MIAMI TWP 81)
4. Option: Provide door switches and interface to exhaust system so that when doors are opened, fans shall start and dampers shall open, and system shall run for [15] min. adj. This shall not disable the carbon monoxide and nitrogen dioxide control or manual override of the system.
5. Option: Provide option to interlock exhaust system enable with the building's Locution system and the apparatus bay door switches. Apparatus bay exhaust system shall activate and run for 5 minutes upon any door opening conjunction with a tone drop. Exhaust system shall be deactivated if a door is opened and no tone drop is present.
6. Provide indicator light adjacent to main control panel to illuminate when the exhaust system is activated.

Electric Wall Heater/ Unit Heater
1. Provide integral thermostat with adjustable setpoint. On a call for heating, fan shall start and coil shall activate to maintain room temperature setpoint.

SPECIALTY CONTROLS AND MONITORING
Data Closets
Provide temperature sensor in each data closet that will alarm if temperature rises above setpoint.

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners consultants

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 | DRAWN BY: DS | CHECKED BY: RAL | APPROVED BY: | F.B. NO. | PG.

SCALE:
HORZ:
VERT:
CONTRACT NO: 170636
SHEET: M-502

SHARONVILLE FIRE STATION 87 RENOVATION

CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

MECHANICAL - DETAILS

11/14/2019 11:55:19 AM

KLH JOB#: 21459.00

HOOD INFORMATION

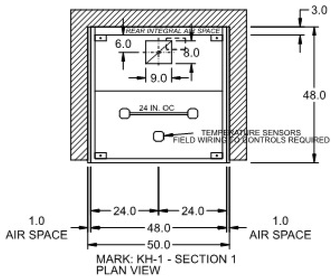
HOOD NO.	MARK	MODEL	HOOD DIMENSIONS (IN.)			HOOD CONSTR.	COOKING LOAD / DUTY RATING	EXHAUST						SUPPLY		TOTAL WEIGHT LBS.	SECTION LOCATION
			LENGTH	WIDTH	HEIGHT			TOTAL CFM	COLLAR(S)					MUA CFM	AC CFM		
									WIDTH	LENGTH	DIA.	CFM	S.P.				
1	KH-1	XBEW-48-S	48	48	24	430 SS WHERE EXPOSED	HEAVY	788	8	9		788	0.396			140	SINGLE

HOOD INFORMATION

HOOD NO.	MARK	LIGHTING DETAILS			GREASE FILTRATION DETAILS				UTILITY CABINET(S)				
		FIXTURE TYPE BULB / LAMP INFO	QTY	FOOT CANDLES	TYPE / MODEL MATERIAL	QTY	SIZE (IN.)		LOCATION	FIRE SYSTEM		CONTROLS	
							L	H		TYPE	SIZE	MODEL	INTERFACE
1	KH-1	INCANDESCENT (GLOBE) 100W A19 (BULBS NOT INCL.)	2	39.86	BAFFLE STAINLESS STEEL	3	16	20					
						0	20						

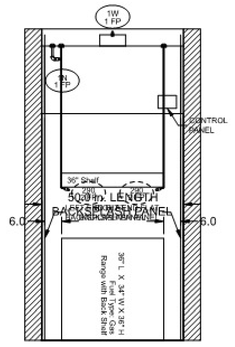
HOOD OPTIONS

- UL 710 LISTED W/ OUT EXHAUST FIRE DAMPER - UL #R25625
- HOOD TOP INSULATED FOR ZERO CLEARANCE TO COMBUSTIBLES
- BACK INTEGRAL AIR SPACE - 3 IN WIDE - ZERO CLEARANCE
- LEFT NON-INTEGRAL AIR SPACE - 1 IN THICK - ZERO CLEARANCE
- RIGHT NON-INTEGRAL AIR SPACE - 1 IN THICK - ZERO CLEARANCE
- 6 IN HIGH CEILING ENCLOSURES - FRONT LEFT RIGHT - FIELD INSTALLED
- FACTORY MOUNTED EXHAUST COLLAR(S)
- BACKSPLASH 80.00 IN HIGH 50.00 IN LONG
- LEFT SIDESPLASH 108.00 IN HIGH 18.00 IN LONG
- RIGHT SIDESPLASH 108.00 IN HIGH 18.00 IN LONG
- PERFORMANCE ENHANCING LIP (PEL) TECHNOLOGY
- STANDING SEAM CONSTRUCTION FOR SUPERIOR STRENGTH

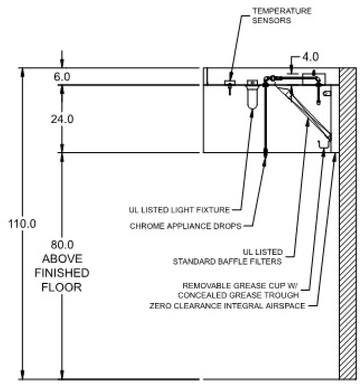


MARK: KH-1 - SECTION 1
PLAN VIEW

ANSUL R102
FIRE SYSTEM MARK: Fire Suppression
PIPE & CONDUIT
BY ANSUL DISTRIBUTOR

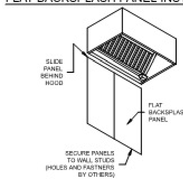


MARK: KH-1 - SECTION 1
ELEVATION VIEW

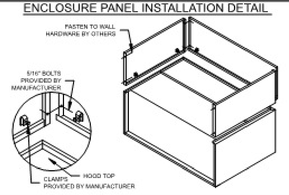


MARK: KH-1
SECTION VIEW

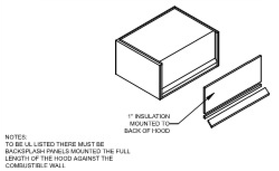
FLAT BACKSPLASH PANEL INST. DETAIL



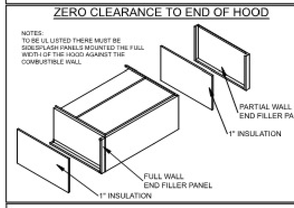
ENCLOSURE PANEL INSTALLATION DETAIL



ZERO CLEARANCE TO BACK OF HOOD



ZERO CLEARANCE TO END OF HOOD

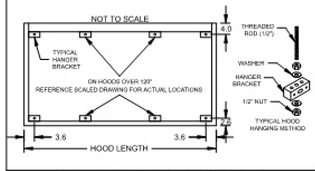


HOOD HANGING HEIGHT FOR FIRE SYSTEMS

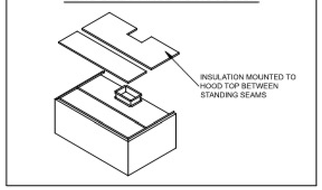
VERIFICATION OF HOOD HANGING HEIGHT ABOVE FINISHED FLOOR (A.F.F.) IS REQUIRED FOR CORRECT PLACEMENT OF FIRE SYSTEM NOZZLES.

- ☐ RECOMMENDED HANGING HEIGHT = 80" FROM FINISHED FLOOR TO LOWER FRONT EDGE OF HOOD.
- ☐ OTHER HANGING HEIGHT = _____" FROM FINISHED FLOOR TO LOWER EDGE OF HOOD.

HOOD HANGER BRACKET DETAIL



ZERO CLEARANCE TO HOOD TOP



KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners — consultants

PROJECT 8/29/2019 — SHARONVILLE FIRE STATION — KH-1

MARK

ACCUREX SOUTH OH KY IN
BRYAN OSBORN
BRYAN.OSBORN@ACCUREX.COM
(513)550-5511

ACCUREX

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 — DRAWN BY: DS — CHECKED BY: RAL — APPROVED BY: — F.B. NO. — PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

MECHANICAL - DETAILS

SCALE:
HORZ:
VERT:
CONTRACT NO: 170636
SHEET M-503

11/14/2019 10:18:07 AM

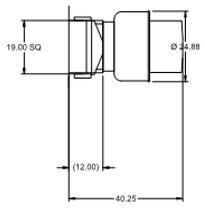
KLH JOB#: 21459.00

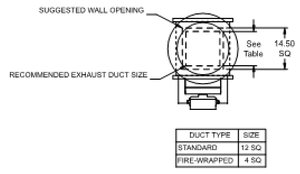
Direct Drive Upblast Centrifugal Roof Exhaust Fan

MARK INFORMATION		FAN INFORMATION						MOTOR INFORMATION					
QTY	MARK	MODEL	VOLUME (CFM)	TOTAL EXTERNAL SP (IN WG)	FAN RPM	OPERATING POWER (HP)	WEIGHT (LB.)	SIZE (HP)	V/C/P	ENCLOSURE	MOTOR RPM	WINDINGS	NEC FLA*
1	KEF-1	XRUD-099-VG	788	0.962	1,725	0.24	69	0.25	115/60/1	OP	1725	1	5.8

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

KEF-1 : SELECTED OPTIONS AND ACCESSORIES
Sidewall Mounting - Fan Configured for Wall-Mounted Applications
UL/cUL 762 Listed - "Power Ventilators for Rest. Exh. Appliances"
Switch, NEMA-3R, Toggle, Shipped with Unit
Hinged Bracket (PN: 877580)
Hinge Latch (PN: 879145)
High Temp Curb Seal Rated for Continuous Duty at 2000 F (Attached)
Grease Pan Kit - Containment Configured for Wall-Mounted Applications (PN:879136)
Grease Trap (PN:475538)



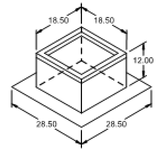


DUCT TYPE	SIZE
STANDARD	12 SQ
FIRE-WRAPPED	4 SQ

NOTE: SUGGESTED WALL OPENING WITH ROOF CURB - 19

DUCT DIMENSIONS ARE LARGEST POSSIBLE DUCT TO FIT THROUGH CURB. CONSULT SYSTEM DESIGN ENGINEER FOR RECOMMENDED DUCT SIZE.

OVERALL HEIGHT MAY BE GREATER DEPENDING ON MOTOR.



KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX

LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners consultants

PROJECT 8/29/2019 — SHARONVILLE FIRE STATION — MARK — KEF-1

ACCUREX SOUTH OH KY IN
BRYAN OSBORN
BRYAN.OSBORN@ACCUREX.COM
(513)550-5511

ACCUREX

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 — DRAWN BY: DS — CHECKED BY: RAL — APPROVED BY: — F.B. NO. — PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

MECHANICAL - DETAILS

SCALE:
HORZ:
VERT:
CONTRACT NO: 170636
SHEET M-504

11/14/2019 10:18:12 AM

KLH JOB#: 21459.00

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners consultants

CONTROL INFORMATION

MARK	ELECTRICAL CONTROL PACKAGE		USER INTERFACE	
	MODEL	LOCATION	TYPE	LOCATION
CONTROLS	XFCC	SHIP LOOSE	SWITCHES	HOOD – FACE MOUNT RIGHT END OF KH-1

FANS CONTROLLED				
MARK	TYPE	VOLT	PHASE	HP
KEF-1	EXHAUST	115	1	1/4

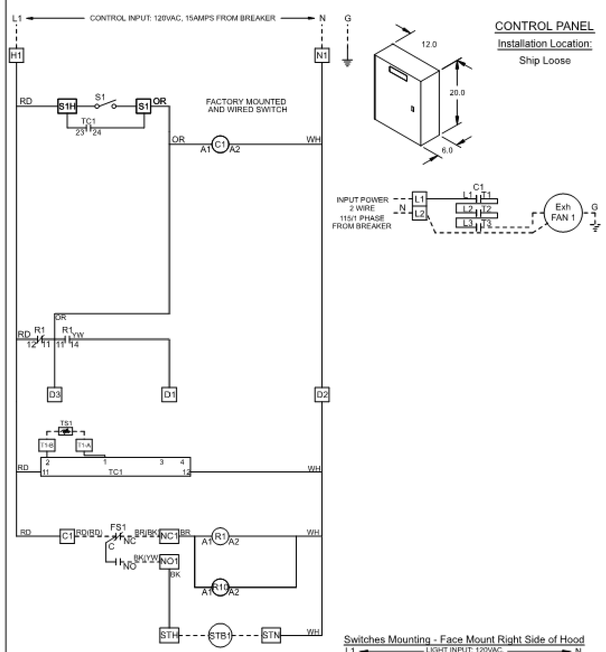
CONTROL FEATURES

CONTROL PANEL ENCLOSURE - 16 GA 300 SERIES STAINLESS STEEL ENCLOSURE (NEMA-1) - DIMENSIONS 12 X 20 X 6
STARTERS PROVIDED IN CONTROL PANEL - QTY 1
2 POSITION LIGHT SWITCH - QTY 1
2 POSITION FAN SWITCH - QTY 1
-FACTORY MOUNTED EXHAUST TEMPERATURE SENSORS - QTY 1
TURN ON EXHAUST IN FIRE
LIGHTS OUT IN FIRE
POWER FOR SHUNT TRIP

Kitchen Fan Control Center (XFCC)
Electrical Prewire Package
Sharonville Fire Station

SYSTEM DRAWING NOTE
These drawings shall not be removed from this equipment.
For additional information call ACCUREX at 1-800-371-6858

ACCUREX



CONTROL PANEL
Installation Location:
Ship Loose

Panel Mark:	Controls							
Hood Mark(s):	KH-1							
Serial Number:	WOSNs#							
Model:	XFCC							
Motor	Fan Mark	HP	Volt	PH	FLA	Wire	Breaker	
F1-E	KEF-1	0.25	115	1	5.8	14 ga	15 amp	

1	Qty. Fan Switches (0-3)	X	Exhaust in Fire
1	Qty. Light Switches (0-3)		MUA Interface
0	Qty. Temp. Switches (0-1)	X	Lights Out in Fire
	Time Switch for L & F	X	Fire Relay (#1)
X	Digital Temperature Interlock		Extra Fire Relay (#2)
	Mounted Sensors - Factory		Extra Fire Relay (#3)
0	Mounted Sensors - Field		DPDT Relay w/SF
	Heat Switch/Tempering SW		SPDT Relay w/EF
	Cool Switch/		Off Delay Relay
	AD Switch		SF Failure Light
X	Hood Switches		EF Failure Light
	Audible Alarm		Fan Failure Light (Appl.)
	Gas Reset/Gas Off w/Fans		Aux. Supply Contact
	Power for Gas Solenoid		Tie in WWCP
X	Power for Shunt Trip		

Spare Fire Switch Contact (dry contacts for building alarm)
Ansul / Amerex

Spare Relay Contacts (activated by FS1)
(can be used for shunt trip, alarms, etc.)

TORQUE:
TERMINAL BLOCKS = 8 LB.IN
GROUNDING BLOCKS = 8 LB.IN

FIELD WIRING:
USE MINIMUM
60° Copper Wire

LABEL DESCRIPTION

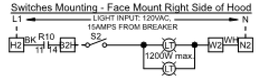
EF	Exhaust Fan	———	FACTORY WIRING
SF	Supply Fan	- - -	FIELD WIRING
ST	Starter		
OL	OverLoad	ALL WIRING #12 C. 14 GA. UNLESS SPECIFIED	
C	Contactor		
G	Ground		
S	Switch	WIRE COLOR	
LT	Light		
FS	Fire Switch	BK - black	
R	Relay	BL - blue	
AF	Air Flow Switch	BR - brown	
SV	Gas Solenoid	OR - orange	
STB	Shunt Trip Breaker	PR - purple	
D	Damper	RD - red	
PB	Push/Button	YW - yellow	
EC	Evap Cooler	WH - white	
TS	Temperature Sensor		
TC	Temperature Controller		

NOTES:
DRAWING SHOWN DE-ENERGIZED AT L1 (TERM. #H1), W/ FIRE SYSTEM ARMED (NON-FIRE MODE). (NORMAL OPERATION, R1 & R2 ARE ENERGIZED) IF WALL MOUNTED PREWIRE, OR FIELD INSTALLED FIRE SYSTEM, THE FIRE SYSTEM MICROSWITCHES MUST BE FIELD WIRED.

LISTED 43849 — COMMERCIAL APPLIANCE OUTLET CENTER
ELECTRICAL RATINGS: 120V, 1PHASE, 60HZ, 15A
FILE #E313357

Wiring Diagram Code:
DOC NUMBER: ---- REV: ----

Switches Mounting - Face Mount Right Side of Hood



TEMPERATURE INTERLOCK CALIBRATION

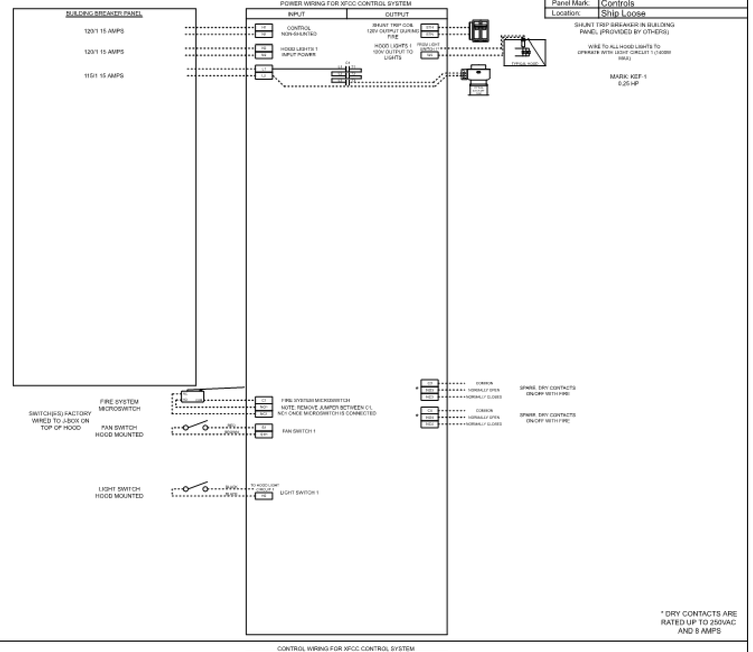
1. PRESS SET BUTTON. 'SI1' WILL APPEAR.
2. PRESS UP OR DOWN BUTTON TO NAVIGATE TO SET POINT THAT YOU WISH TO ADJUST ('SI1', 'SI2', OR 'SI3').
3. PRESS SET BUTTON TO VIEW CURRENT SET POINT. PRESS UP OR DOWN BUTTON TO ADJUST AND PRESS SET BUTTON TO STORE VALUE.
4. PRESS SET + DOWN BUTTONS TOGETHER TO EXIT OR WAIT 1 MINUTE.
5. CHECK SYSTEM OPERATION BEFORE MAKING ADDITIONAL ADJUSTMENTS.

Kitchen Fan Control Center (XFCC)
Electrical - Field Wiring Schematic
Sharonville Fire Station

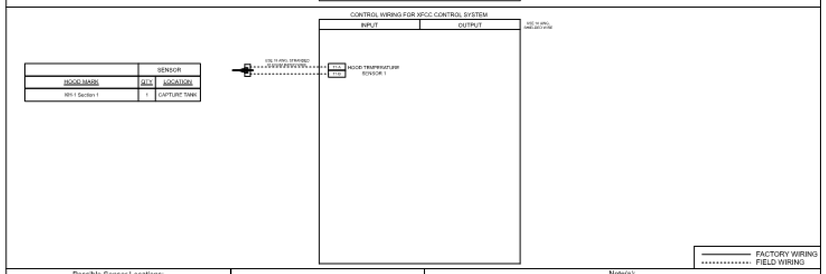
ACCUREX

Wiring Diagram Code:
DOC NUMBER: ---- REV: ----

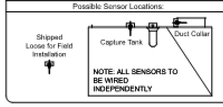
Panel Mark:	Controls
Location:	Ship Loose



* DRY CONTACTS ARE RATED UP TO 250VAC AND 8 AMPS



Possible Sensor Locations:



Note(s):
1. All wiring to be done by certified and qualified persons and must be wired to all local & national codes.
2. Exhaust and supply fan(s) shown as typical for representation of the fan. For exhaust or supply fan detail see fan submittals.
3. Exhaust and/or supply fans may be shown more than once for purpose of separating power versus control wiring.
4. Power wiring is the responsibility of the electrician. Control wiring is the responsibility of controls contractor. If there is no controls contractor, both power and control wiring is the responsibility of the electrician.
5. All ground wiring not shown on above diagram for clarity.
6. For further instructions please see the XFCC Installation and Operations Manual that was shipped with panel, or contact ACCUREX's Kitchen Ventilation team at 1-800-371-6858

ACCUREX

ACCUREX SOUTH OH KY IN
BRYAN OSBORN
BRYAN.OSBORN@ACCUREX.COM
(513)550-5511

PROJECT
8/29/2019

MARK

CONTROLS

REVISIONS

REV	ISSUE FOR BIDDING AND PERMIT	DATE	BY
0		11/20/2019	CAM

DATE: 11/20/2019
DRAWN BY: DS
CHECKED BY: RAL
APPROVED BY:
F.B. NO. PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

MECHANICAL - DETAILS

SCALE:
HORZ:
VERT:
CONTRACT NO:
170636
SHEET
M-505

11/14/2019 10:18:17 AM

KLH JOB#: 21459.00

FIRE SYSTEM INFORMATION

MARK	MODEL	LOCATION	FLOW POINTS		SUPPLY LINE	DETECTION	MARK(S) PROTECTED BY FIRE SYSTEM
			HOODS	PCU			
FIRE SUPPRESSION	ANSUL R-102 WET CHEMICAL	REMOTE MOUNTED	6 UTILIZED 11 AVAILABLE		CONTINUOUS	FUSIBLE LINK	KH-1 SECTION 1

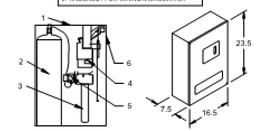
FIRE SYSTEM OPTIONS AND ACCESSORIES

FULL INSTALLATION (INCLUDES PRE-PIPED HOOD(S) WITH DETECTION AND FACTORY COORDINATED INSTALL)
CHROME SLEEVES FOR FACTORY PROVIDED APPLIANCES DROPS - INCLUDED
METAL BLOW-OFF CAPS - INCLUDED
STAMPED DRAWINGS - INCLUDED
GAS VALVE - INCLUDED - MECHANICAL SHUTOFF VALVE, 2", (ANSUL) - PART# ANSULMECHSHUTOFFVALVE200
HOOD SUPPRESSION AGENT - INCLUDED - 3 GAL. - [(1) 3.0 TANK(S)]
REMOTE PULL STATION - STANDARD - INSTALLATION AT SINGLE POINT OF EGRESS

ANSUL R102 (WET CHEMICAL) FIRE PROTECTION SYSTEM - MODEL FSSC

CONTROL PANEL

1. STAINLESS STEEL ENCLOSURE
2. AGENT STORAGE TANK
3. EXPELLENT GAS CARTRIDGE
4. ANSUL AUTOMAN RELEASE
5. REGULATOR
6. KNOCKOUT FOR WIRING MICROSWITCH



NOT TO SCALE

NOTES:

WET CHEMICAL FIRE PROTECTION SYSTEM TO BE ANSUL R-102, DESIGNED IN COMPLIANCE WITH UL 300 REQUIREMENTS.
-VERIFICATION OF ALL COOKING EQUIPMENT MAKE, MODEL AND LOCATION REQUIRED FOR ALL FIRE PROTECTION SYSTEMS.
-ALL FIRE SYSTEM PIPING IS STANDARDLY TO THE RIGHT END OF THE HOOD UNLESS A WALL IS LOCATED ON THE RIGHT END.
-ANSUL AUTOMAN RELEASE TO BE LOCATED WITHIN 65" OF HOOD.

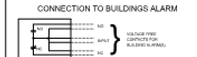
THE BASIC FIRE SYSTEM WILL INCLUDE THE FOLLOWING:
-GAS SHUT-OFF VALVE, IF REQUIRED, TO BE SUPPLIED BY MANUFACTURER (UP TO 2" DIAMETER AS STANDARD), AND INSTALLED BY A LICENSED PLUMBER.
-MICRO SWITCH TO BE SUPPLIED BY MANUFACTURER FOR CONNECTION TO, BUT NOT LIMITED TO, BUILDING ALARM SYSTEM(S), EXHAUST AND SUPPLY FANS AND ELECTRICAL POWER SHUT DOWN. FIELD WIRING AND CONNECTIONS TO BE PERFORMED BY A LICENSED ELECTRICIAN.

THE BASIC FIRE SYSTEM DOES NOT INCLUDE THE FOLLOWING:
-FULL DUMP TEST OTHER THAN WHT IS SPECIFIED PER THE INSTALLATION MANUAL, OR TO SATISFY A STATE OR LOCAL CODE. PERMIT AND TESTING FEES ARE NOT INCLUDED UNLESS NOTED UNDER THE EQUIPMENT SCHEDULE FOR THE FIRE SYSTEM.
-MORE THEN TWO TRIPS TO THE JOBSITE OR SPECIAL TRANSPORTATION, OR OVERNIGHT LODGING REQUIREMENTS IN REMOTE AREAS. NORMAL TRAVEL DISTANCE IS FIRST 50 MI. (80.5 KM) FROM OFFICE.
- SPECIAL CLASSES OR ADDITIONAL LABOR FOR ACCESS TO SECURITY SENSITIVE AREAS.
-INSTALLATION OF GAS SHUT-OFF VALVE.
-SPECIAL DRAWINGS REQUIRED TO SATISFY STATE OR LOCAL CODE. PLAN EXAMINATION FEES, PE OR FS APPROVAL STAMP.
-UNION LABOR, GOVERNMENT LABOR, OR PREVAILING WAGES REQUIRED FOR FINAL FIELD HOOK-UP.
-ANY AND ALL ELECTRICAL COMPONENTS/CONNECTIONS REQUIRED TO SHUT DOWN FANS, SHUT OFF DEVICE FOR ELECTRIC COOKING EQUIPMENT (SHUNT TRIP BREAKER), OR ACTUATE AN ALARM SYSTEM, ETC.
-ANY DISMANTLING OR REASSEMBLY REQUIRED TO GAIN ACCESS TO THE FIRE SUPPRESSION PIPING LOCATED ON THE TOP OF THE HOOD.
-ROUGH-IN HIDDEN CONDUIT FOR REMOTE PULL STATION OR GAS VALVE (FLUSH MOUNTED PULL STATION).
-INSTALLATION OF MORE THAN (1) REMOTE PULL STATIONS OR DISTANCES GREATER THAN 20 FT (6.1M.)
-PARTS OR LABOR REQUIRED TO CORRECT PIPING DUE TO COOKING EQUIPMENT CHANGES OR DEVIATION FROM PLANS, OR ANY CHARGES FOR MISSING OR ADDITIONAL PARTS OTHER THEN THOSE INDICATED ON THE FIRE SUPPRESSION DETAIL.

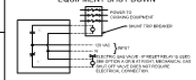
WIRING DIAGRAMS W/DPDT MICRO SWITCH

DPDT SWITCHES PROVIDED BY MANUFACTURER MAY BE WIRED PER TYPICAL EXAMPLES SHOWN. VERIFY WITH LOCAL CODES AND EQUIPMENT SUPPLIED AS THE CONNECTION NEEDED FOR YOUR INSTALLATION.

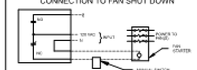
CONNECTION TO BUILDINGS ALARM



CONNECTION TO COOKING EQUIPMENT SHUT DOWN



CONNECTION TO FAN SHUT DOWN



DO NOT SHUT DOWN EXHAUST FANS WITH GAS METHOD OF WIRING, IF PROHIBITED BY LOCAL CODES.

NOTES:
1. ———— DENOTES FIELD INSTALLATION.
2. ———— DENOTES FACTORY INSTALLATION.
3. DO NOT USE BLACK WIRE ON SNAP-ACTION SWITCH IN NORMAL INSTALLATION. BLACK WIRE TO BE USED ONLY FOR EXTRANEOUS ALARM, LIGHT CIRCUITS, ETC.

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners — consultants

PROJECT 8/29/2019 — SHARONVILLE FIRE STATION — FIRE SUPPRESSION — MARK

ACCUREX SOUTH OH KY IN
BRYAN OSBORN
BRYAN.OSBORN@ACCUREX.COM
(513)550-5511

ACCUREX

REV	ISSUE FOR BIDDING AND PERMIT	DATE	BY
0		11/20/2019	CAM

DATE: 11/20/2019 — DRAWN BY: DS — CHECKED BY: RAL — APPROVED BY: ____ — F.B. NO. ____ PG. ____

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

MECHANICAL - DETAILS

SCALE:
HORZ:
VERT:
CONTRACT NO: 170636
SHEET M-506

11/14/2019 10:18:22 AM

KLH JOB#: 21459.00

HVAC AIR COOLED CONDENSING UNIT SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

Equipment Mark	DESCRIPTION	LOCATION	STATUS	FED FROM	WEIGHT (lbs)	MANUFACTURER	MODEL	EER	SEER	EMERGENCY	VOLTS	PHASE	NOMINAL TONS	MAT CLG DB (Deg F)	CLG MBH (mbh)	CLG SENS (mbh)	FLA (amps)	MCA (amps)	OCP (amps)	AVAILABLE FAULT CURRENT	SHEET NUMBER
CU-01	AIR COOLED CONDENSING UNIT				119	CARRIER	24ACC424	15.0 SEER			208	1	2	79	21	17		14.1	20	2315	
CU-02	AIR COOLED CONDENSING UNIT				123	CARRIER	24ACC418	15.0 SEER			208	1	1.5	79	18	15		11.7	20	2824	
CU-03	AIR COOLED CONDENSING UNIT				197	CARRIER	24ACC460	14.0 SEER			208	1	4	77	48	43		27.5	40	5127	
CU-04	AIR COOLED CONDENSING UNIT				119	CARRIER	24ACC424	15.0 SEER			208	1	2	79	24	20		14.1	20	1906	

HVAC AIR COOLED REFRIGERANT CONDENSER SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	LOCATION	STATUS	FED FROM	REFRIGERANT TYPE	WEIGHT (lbs)	MANUFACTURER	MODEL	SEER	EER	EMERGENCY	VOLTS	PHASE	MIN IEER (IEER)	NOMINAL TONS	AMBIENT CLG DB (Deg F)	MAT CLG DB (Deg F)	CLG MBH (mbh)	CLG SENS (mbh)	FLA (amps)	MCA (amps)	OCP (amps)	AVAILABLE FAULT CURRENT	SHEET NUMBER
ACCU-01	AIR COOLED REFRIGERANT CONDENSERS					253	DESERT AIRE	RCS5039C				208	1		3.5		78	42	38	4.5	7		1711	

HVAC COMMERICAL KITCHEN HOODS SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	HVACTYPE	DESCRIPTION	LOCATION	STATUS	FED FROM	MAX HEIGHT (ft)	MAX LENGTH (ft)	MAX WIDTH (ft)	WEIGHT (lbs)	MANUFACTURER	MODEL	EMERGENCY	VOLTS	PHASE	WATTS (Watts)	CFM (cfm)	ESP (in WC)	FLA (amps)	MCA (amps)	OCP (amps)	AVAILABLE FAULT CURRENT	SHEET NUMBER
KH-01	23 38 13.00.00	COMMERCIAL KITCHEN HOOD AND DUCTWORK							140	ACCUREX	XBEW-48-S		0	0		0	0					

HVAC DUCTLESS SPLIT SYSTEMS SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	FED FROM	WEIGHT (lbs)	MANUFACTURER	MODEL	EMERGENCY	VOLTS	PHASE	WATTS (Watts)	CFM (cfm)	ESP (in WC)	OACFM (cfm)	NOMINAL TONS	MAT CLG DB (Deg F)	MAT CLG WB (Deg F)	CLG MBH (mbh)	CLG SENS (mbh)	LAT CLG DB (Deg F)	LAT CLG WB (Deg F)	HTG MBH (mbh)	LAT HTG (Deg F)	MCA (amps)	OCP (amps)	AVAILABLE FAULT CURRENT	SHEET NUMBER
DS-01	DUCTLESS SPLIT HIGH WALL UNIT	DSCU-01		CARRIER	40MAQB18B--3		208	1		1040	0.75	0	1.5	76	65	22	22	55	54	0	74				
DSCU-01	DUCTLESS SPLIT OUTDOOR CONDENSING UNIT			CARRIER	38MAQB18R--3		208	1		1040	0.75	0	1.5	76	65	22	22	55	54	0	74	18	25	3234	

HVAC FAN COIL UNITS SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	WEIGHT (lbs)	MANUFACTURER	MODEL	EMERGENCY	VOLTS	PHASE	CFM (cfm)	ESP (in WC)	HP (hp)	OACFM (cfm)	NOMINAL TONS	MAT CLG DB (Deg F)	MAT CLG WB (Deg F)	CLG MBH (mbh)	CLG SENS (mbh)	LAT CLG DB (Deg F)	LAT CLG WB (Deg F)	HTG MBH (mbh)	LAT HTG (Deg F)	Access	FLA (amps)	MCA (amps)	OCP (amps)	AVAILABLE FAULT CURRENT	SHEET NUMBER
ACU-01	DEHUMIDIFICATION UNIT	800	DESERT AIRE	LW03		208	1	1650	0.5		165	3.5	78	66	42	38	55	54	37	88			32	50	7026	
FCU-01	FANCOIL UNIT	152	CARRIER	59SP2A040		120	1	650	0.75		99	2	79	67	18	15	55	54	20	92	EVAPORATOR COIL CNPVP2417ALA		7	15	4911	
FCU-02	FANCOIL UNIT	148	CARRIER	59SP2A026		120	1	700	0.75		112	2	79	67	21	17	55	54	19	88	EVAPORATOR COIL CNPVP1814ALA	5.1	15	15	5035	
FCU-03	FANCOIL UNIT	252	CARRIER	59MN7A080		120	1	1940	0.5		155	4	77	66	48	43	55	54	29	82	EVAPORATOR COIL CNPVP6124ALA	14.8	20	20	3860	
FCU-04	FANCOIL UNIT	152	CARRIER	59SP2A040		120	1	800	0.75		152	2	79	67	24	20	55	54	24	89	EVAPORATOR COIL CNPVP2417ALA		7	15	3906	

HVAC FANS SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	STATUS	WEIGHT (lbs)	MANUFACTURER	MODEL	EMERGENCY	VOLTS	PHASE	WATTS (Watts)	CFM (cfm)	ESP (in WC)	FAN RPM (rpm)	BHP (hp)	HP (hp)	FLA (amps)	MCA (amps)	OCP (amps)	AVAILABLE FAULT CURRENT	SHEET NUMBER
CF-01	CEILING FAN		12	GLOBAL INDUSTRIES	246496 (56")		120	1		6500	0	0		1/16					
CF-02	CEILING FAN		12	GLOBAL INDUSTRIES	246496 (56")		120	1		6500	0	0		1/16					
EF-01	CENTRIFUGAL ROOF VENTILATOR			GREENHECK	GB-220		208	1		2500	0.25	444		.25	3.2			1793	
EF-02	CEILING MOUNTED VENTILATOR		17	GREENHECK	SP-A110		120	1		80	0.25	0			0.58			1872	
EF-03	CEILING MOUNTED VENTILATOR		17	GREENHECK	SP-A110		120	1		80	0.25	0			0.58			1495	
EF-04	CEILING MOUNTED VENTILATOR		17	GREENHECK	SP-A110		120	1		80	0.25	0			0.58			1062	
EF-05	CEILING MOUNTED VENTILATOR		17	GREENHECK	SP-A110		120	1		80	0.25	0			0.58			915	
EF-06	CEILING MOUNTED VENTILATOR		17	GREENHECK	SP-A70		120	1		50	0.2	0			0.27			1680	
EF-07	CEILING MOUNTED VENTILATOR		17	GREENHECK	SP-A90		120	1		50	0.2	0			0.34			1973	
EF-08	CENTRIFUGAL ROOF VENTILATOR			GREENHECK	G-090-VG		120	1		500	0.2	1280		1/10	2.6			1377	
EF-09	CEILING MOUNTED VENTILATOR		17	GREENHECK	SP-A90		120	1		50	0.2	0			0.34			1680	
KEF-01	CENTRIFUGAL WALL VENTILATOR		69	ACCUREX	XRUD-099-VG		120	1		788	0.962	1725		.25	5.8			1800	

HVAC LOUVER SCHEDULE

TAG	DESCRIPTION	MANUFACTURER	MODEL	FACE SIZE	FREE AREA	AIRFLOW	MAX PRESSURE DROP (in. w.g.)	MATERIAL	FINISH	FURNISHED BY	INSTALLED BY	SHEET NUMBER
L-1	INTAKE LOUVER	GREENHECK	ESD-635	36"x36"	9.40 SF	2500 CFM	0.05	ALUMINUM	BLACK FINISH G.C. TO FIELD PAINT TO MATCH CEILING OR WALLS	HC	HC	
L-2	INTAKE LOUVER	GREENHECK	ESD-635	24"x16"	0.90 SF	365 CFM	0.05	ALUMINUM	BLACK FINISH G.C. TO FIELD PAINT TO MATCH CEILING OR WALLS	HC	HC	

HVAC DIFFUSERS AND REGISTERS SCHEDULE

TAG	MANUFACTURER	MODEL	FACE	MOUNTING	MATERIAL	FINISH	DAMPER TYPE	BORDER STYLE
CD-1	PRICE	SPD	24"x24"	CEILING	STEEL	STANDARD WHITE	OPPOSED BLADE	LAY IN MOUNTING
CD-2	PRICE	SPD	24"x24"	CEILING	STEEL	STANDARD WHITE	OPPOSED BLADE	LAY IN MOUNTING
CD-3	PRICE	SPD	24"x24"	CEILING	STEEL	STANDARD WHITE	OPPOSED BLADE	LAY IN MOUNTING
ER-1	PRICE	80	18"x12"	DUCT	STEEL	BLACK FINISH G.C. TO FIELD PAINT TO MATCH CEILING OR WALLS	OPPOSED BLADE	SURFACE MOUNT
ER-2			12"x12"	(none)	(none)	(none)	(none)	(none)
RG-1	PRICE	500	24"x24"	CEILING	STEEL	STANDARD WHITE	(none)	LAY IN MOUNTING
RR-1	PRICE	500	24"x24"	CEILING	STEEL	STANDARD WHITE	OPPOSED BLADE	SURFACE MOUNT
RR-2	PRICE	500	6"x6"	SIDEWALL	STEEL	STANDARD WHITE	OPPOSED BLADE	SURFACE MOUNT
RR-3	PRICE	500	12"x6"	DUCT	STEEL	STANDARD WHITE	OPPOSED BLADE	SURFACE MOUNT
RR-4	PRICE	500	24"x24"	CEILING	STEEL	STANDARD WHITE	(none)	LAY IN MOUNTING
SR-1	PRICE	22	6"x6"			STANDARD WHITE	OPPOSED BLADE	SURFACE MOUNT

HVAC UNIT HEATERS SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	MANUFACTURER	MODEL	EMERGENCY	VOLTS	PHASE	HTG KW (kW)	FLA (amps)	AVAILABLE FAULT CURRENT	SHEET NUMBER
EWH-01	WALL AND CEILING HEATER	QMARK	AWH3150F		120	1	1.5	12.5	1438	
EWH-02	WALL AND CEILING HEATER	QMARK	AWH3150F		120	1	1.5	12.5	2389	
EWH-03	WALL AND CEILING HEATER	QMARK	AWH3150F		120	1	1.5	12.5	795	
EWH-04	WALL AND CEILING HEATER	QMARK	AWH3150F		120	1	1.5	12.5	875	
GFUH-01	GAS FIRED UNIT HEATER	REZNOR	UDAP-100		120	1		3.9	1327	

HVAC DUCT HEATER SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	MANUFACTURER	MODEL	EMERGENCY	VOLTS	PHASE	HTG KW	AVAILABLE FAULT CURRENT	SHEET NUMBER
EDH-01	ELECTRIC FURNACE	INDEECO	QUZ		208	3	18	5698	

HVAC CONTROL PANELS SCHEDULE

Equipment shall be braced and labeled by the equipment manufacturer to withstand the minimum scheduled available fault current value for listed equipment.

EQUIPMENT MARK	DESCRIPTION	EMERGENCY	VOLTS	PHASE	AVAILABLE FAULT CURRENT	SHEET NUMBER
ECP	ENVIRONMENTAL CONTROL PANEL		120	1		

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners consultants

REV	ISSUE FOR BIDDING AND PERMIT	DATE	BY
0		11/20/2019	CAM

DATE: 11/20/2019 — DRAWN BY: DS — CHECKED BY: RAL — APPROVED BY: — F.B. NO. — PG. —

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

MECHANICAL - SCHEDULES

SCALE:
HORZ:
VERT:
CONTRACT NO: 170636
SHEET: M-601

11/14/2019 10:18:31 AM

KLH JOB#: 21459.00

HVAC VENTILATION SCHEDULE

NUMBER	NAME	AREA	LEVEL	CEILING HEIGHT	AIR CHGS	OA CHGS	PEOPLE RED	OA PER PERSON	OA PER SQ FT.	REQ SUP	ACT SUP	REQ OA	ACT OA	ACT RET	ACT EXH	CRIT OA	PRESSURE	PCT OPERABLE	NATURAL VENTILATION
100	VESTIBULE	76 SF	T/ FINISH FLOOR	9' - 0"	0	0	0	0	0	47	50	7	8	50	0	0	E	0	
101	CORRIDOR	202 SF	T/ FINISH FLOOR	12' - 0"	0	0	0	0	0.06	60	60	9	9	60	0	0.3166	E	0	
101	CORRIDOR	225 SF	T/ FINISH FLOOR	8' - 0"	0	0	0	0	0.06	50	50	8	8	50	0	0.28	E	0	
102	SERVER	82 SF	T/ FINISH FLOOR	12' - 0"	0	0	0	0	0	0	1040	0	0	1040	0	0	E	0	
103	FF OFFICE	124 SF	T/ FINISH FLOOR	9' - 0"	0	0	1	5	0.06	100	100	15	15	100	0	0.15	E	0	
104	LT OFFICE	104 SF	T/ FINISH FLOOR	9' - 0"	0	0	1	5	0.06	100	100	15	15	100	0	0.14	E	0	
105	LT BUNK	141 SF	T/ FINISH FLOOR	8' - 11 31/32"	0	0	1	5	0.06	94	100	15	16	100	0	0.16	E	0	
106	FF BUNK	141 SF	T/ FINISH FLOOR	8' - 11 31/32"	0	0	1	5	0.06	94	100	15	16	100	0	0.16	E	0	
107	RESTROOM	110 SF	T/ FINISH FLOOR	9' - 0"	0	0	0	0	0	69	70	11	11	0	70	0	E	0	
108	RESTROOM	113 SF	T/ FINISH FLOOR	9' - 0"	0	0	0	0	0	69	70	11	11	0	70	0	E	0	
109	FF BUNK	117 SF	T/ FINISH FLOOR	8' - 11 31/32"	0	0	1	5	0.06	106	110	17	18	110	0	0.1363	E	0	
110	FF BUNK	129 SF	T/ FINISH FLOOR	8' - 11 31/32"	0	0	1	5	0.06	94	100	15	16	100	0	0.16	E	0	
111	FF BUNK	128 SF	T/ FINISH FLOOR	8' - 11 31/32"	0	0	1	5	0.06	94	100	15	16	100	0	0.16	E	0	
112	LAUNDRY	114 SF	T/ FINISH FLOOR	8' - 11 31/32"	0	0	0	5	0.06	88	90	14	14	90	0	0.1	E	0	
115	JANITOR'S CLOSET	40 SF	T/ FINISH FLOOR	12' - 0"	0	0	0	0	0	80	80	12	12	80	20	0	N	0	
116	CORRIDOR	Not Placed	Not Placed				1			0	0	0	0	0	0	0	E	0	
117	TOOLS/STORAGE	107 SF	T/ FINISH FLOOR	8' - 7 3/16"	0	0	0	5	0.12	0	100	0	0	100	0	0	E	0	
118	SCBA	110 SF	T/ FINISH FLOOR	8' - 6 27/32"	0	0	0	5	0.12	0	700	0	0	700	0	0	E	0	
119	DECON	256 SF	T/ FINISH FLOOR	8' - 6 5/8"	0	0	0	5	0.12	0	200	0	0	200	0	0	E	0	
119	SCBA	Redundant Space	T/ FINISH FLOOR				0			0	0	0	0	0	0	0	E	0	
120	TURNOUT GEAR	246 SF	T/ FINISH FLOOR	8' - 6 5/8"	0	0	0	5	0.12	0	500	0	0	500	0	0	E	0	
121	EMS SUPPLY	56 SF	T/ FINISH FLOOR	12' - 0"	0	0	0	5	0.12	0	50	0	0	50	0	0	E	0	
122	STORAGE	53 SF	T/ FINISH FLOOR	12' - 0"	0	0	0	5	0.12	0	50	0	0	50	0	0	E	0	
123	RESTROOM	61 SF	T/ FINISH FLOOR	12' - 0"	0	0	0	0	0	0	50	0	0	0	50	0	E	0	
124	ELECTRICAL	62 SF	T/ FINISH FLOOR	7' - 4 11/16"	0	0	0	0	0	0	30	0	0	30	0	0	E	0	
125	APPARATUS BAY	1783 SF	T/ FINISH FLOOR	11' - 5 5/32"	0	0	0	0	0	0	1030	0	0	1030	0	0	E	0	
126	CLOSET	20 SF	T/ FINISH FLOOR	12' - 0"	0	0	0	0	0	0	20	0	0	20	0	0	E	0	
129	STAIR	257 SF	T/ FINISH FLOOR	12' - 0"	0	0	0	0	0.06	173	180	26	27	180	0	0.1055	E	0	
129	STAIR	269 SF	T/ FINISH FLOOR 2	11' - 6 1/4"	0	0	0	0	0.06	88	90	7	7	90	0	0.2222	E	0	
200	CORRIDOR	Redundant Space	T/ FINISH FLOOR 2		0	0	0	0	0.06	38	40	3	3	40	0	0.275	E	0	
200	CORRIDOR	414 SF	T/ FINISH FLOOR 2	12' - 8"	0	0	0	0	0.06	50	60	4	5	60	0	0.3166	E	0	
201	KITCHEN	494 SF	T/ FINISH FLOOR 2	11' - 3 31/32"	0	0	0	2	0	0	1138	1250	91	100	1250	0	0	E	0
202	DAYROOM	374 SF	T/ FINISH FLOOR 2	11' - 10"	0	0	0	4	5	0.06	312	340	25	27	340	0	0.1529	E	0
203	RESTROOM	108 SF	T/ FINISH FLOOR 2	10' - 6"	0	0	0	0	0	0	50	60	4	5	0	70	0	N	0
204	RESTROOM	119 SF	T/ FINISH FLOOR 2	10' - 6"	0	0	0	0	0	0	62	70	5	6	0	70	0	E	0
205	FITNESS	652 SF	T/ FINISH FLOOR 2	10' - 7 23/32"	0	0	0	4	20	0.06	789	800	150	152	800	0	0.1875	E	0
206	MECHANICAL	147 SF	T/ FINISH FLOOR 2	12' - 8"	0	0	0	0	0	0	0	110	0	0	110	0	0	E	0
207	JANITOR'S CLOSET	70 SF	T/ FINISH FLOOR 2	12' - 0"	0	0	0	0	0	0	0	0	0	0	0	0	E		
208	CLOSET	10 SF	T/ FINISH FLOOR	11' - 11 31/32"	0	0	0	0	0	0	0	0	0	0	0	0	E		
TOTAL		7511 SF																	

HVAC ELECTRICAL COORDINATION SCHEDULE

ABBREVIATIONS

DC	LOCAL DISCONNECT
MC	MOTOR CONTROL (POWER)
SD	DUCT SMOKE DETECTOR
CN	CONTROLS
TS	TOGGLE SWITCH
C/B	H.A.C.R. CIRCUIT BREAKER AT SOURCE PANELBOARD
FUSE	FUSE AT LOCAL DISCONNECT (VERIFY FIELD RATING)
FLA	OPERATING FULL LOAD AMPS
MCA	MINIMUM CIRCUIT AMPACITY
CP	CORD AND PLUG CONNECTION

CONTRACTOR TYPE

EC	ELECTRICAL CONTRACTOR
EX	EXISTING
FC	FIRE PROTECTION CONTRACTOR
GC	GENERAL CONTRACTOR
HC	HVAC CONTRACTOR
MFR	MANUFACTURER
PC	PLUMBING CONTRACTOR
OR	OWNER OR OTHERS

MOTOR CONTROL TYPE

CS	COMBINATION STARTER
MCC	MOTOR CONTROL STARTER
MG	MAGNETIC STARTER OR CONTACT
MS	MANUAL STARTER
VFD	VARIABLE FREQUENCY DRIVE
MSR	MANUAL STARTER W/ CONTROL RELAY
OV	OVERCURRENT PROTECTION

CONTROL TYPE

TC	TIMECLOCK
CPT	CONTROL POWER TRANSFORMER
BAS	BUILDING AUTOMATION SYSTEM
LOW	LOW VOLTAGE CONTROLS
LINE	LINE VOLTAGE CONTROLS
RLINE	REVERSE ACTING LINE VOLTAGE THERMOSTAT
MAN	MANUAL
FA	FIRE ALARM
CO	CARBON MONOXIDE SENSOR
INT	INTEGRAL TO EQUIPMENT

EQUIPMENT MARK	DESCRIPTION	VOLTS (V)	PHASE	EMERGENCY	BHP (HP)	HP (HP)	HTG (kW)	WATTS	Fed From	FLA (A)	MCA (A)	OCP (A)	DC TYPE	DC FURN	DC INST	DC WIRE	MC TYPE	MC FURN	MC INST	MC WIRE	CN TYPE	CN FURN	CN INST	CN WIRE	SD TYPE	AVAILABLE FAULT CURRENT (A)
ACCU-01	AIR COOLED REFRIGERANT CONDENSERS	208	1							4.5	7			EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC		1711
ACU-01	DEHUMIDIFICATION UNIT	208	1								32	50		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	DUCT SMOKE	7026
CF-01	CEILING FAN	120	1			1/16								EC	EC	EC	VFD	MFR	MFR	MFR	LINE	EC	EC	EC		
CF-02	CEILING FAN	120	1			1/16								EC	EC	EC	VFD	MFR	MFR	MFR	LINE	EC	EC	EC		
CU-01	AIR COOLED CONDENSING UNIT	208	1								14.1	20		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC		2315
CU-02	AIR COOLED CONDENSING UNIT	208	1								11.7	20		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC		2824
CU-03	AIR COOLED CONDENSING UNIT	208	1								27.5	40		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC		5127
CU-04	AIR COOLED CONDENSING UNIT	208	1								14.1	20		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC		1906
DS-01	DUCTLESS SPLIT HIGH WALL UNIT	208	1						DSCU-01					EC	EC	EC	MG	MFR	MFR	MFR	LOW	MFR	MFR	MFR		
DSCU-01	DUCTLESS SPLIT OUTDOOR CONDENSING UNIT	208	1								18	25		EC	EC	EC	MG	MFR	MFR	MFR	LOW	MFR	MFR	MFR		3234
ECP	ENVIRONMENTAL CONTROL PANEL	120	1											EC	EC	EC	---	---	---	---	BAS	HC	HC	HC		
EDH-01	ELECTRIC FURNACE	208	3				18							EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC		5698
EF-01	CENTRIFUGAL ROOF VENTILATOR	208	1			.25				3.2				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC		1793
EF-02	CEILING MOUNTED VENTILATOR	120	1							0.58				EC	EC	EC	MG	MFR	MFR	MFR	OCC	EC	EC	EC		1872
EF-03	CEILING MOUNTED VENTILATOR	120	1							0.58				EC	EC	EC	MG	MFR	MFR	MFR	OCC	EC	EC	EC		1495
EF-04	CEILING MOUNTED VENTILATOR	120	1							0.58				EC	EC	EC	MG	MFR	MFR	MFR	OCC	EC	EC	EC		1062
EF-05	CEILING MOUNTED VENTILATOR	120	1							0.58				EC	EC	EC	MG	MFR	MFR	MFR	OCC	EC	EC	EC		915
EF-06	CEILING MOUNTED VENTILATOR	120	1							0.27				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC		1680
EF-07	CEILING MOUNTED VENTILATOR	120	1							0.34				EC	EC	EC	MG	MFR	MFR	MFR	OCC	EC	EC	EC		1973
EF-08	CENTRIFUGAL ROOF VENTILATOR	120	1			1/10				2.6				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC		1377
EF-09	CEILING MOUNTED VENTILATOR	120	1							0.34				EC	EC	EC	MG	MFR	MFR	MFR	OCC	EC	EC	EC		1680
EWH-01	WALL AND CEILING HEATER	120	1				1.5			12.5				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR		1438
EWH-02	WALL AND CEILING HEATER	120	1				1.5			12.5				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR		2389
EWH-03	WALL AND CEILING HEATER	120	1				1.5			12.5				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR		795
EWH-04	WALL AND CEILING HEATER	120	1				1.5			12.5				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR		875
FCU-01	FANCOIL UNIT	120	1								7	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	DUCT SMOKE	4911
FCU-02	FANCOIL UNIT	120	1								5.1	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	DUCT SMOKE	5035
FCU-03	FANCOIL UNIT	120	1								14.8	20		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	DUCT SMOKE	3860
FCU-04	FANCOIL UNIT	120	1								7	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	DUCT SMOKE	3906
GFUH-01	GAS FIRED UNIT HEATER	120	1							3.9				EC	EC	EC	MG	MFR	MFR	MFR	LINE	HC	EC	EC		1327
KEF-01	CENTRIFUGAL WALL VENTILATOR	120	1			.25				5.8				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC		1800
MOD		120																								

HVAC ACCESSORIES

ACCESSORIES:

1. MOTOR DAMPER
2. ECONOMIZER
3. ROOF CURB
4. HAIL GUARDS
5. INTAKE HOOD
6. VIBRATION ISOLATION
7. FLAT FILTER
8. FILTER/MIXING BOX
9. ACCESS DOOR
10. FLEX CONNECTIONS
11. MOUNTING COLLAR
12. HOT GAS BYPASS
13. FACE/BYPASS DAMPER
14. CONDENSATE PUMP
15. MOTOR GUARD
16. GREASE TRAP
17. DUCT FLANGES
18. BASE RAIL
19. HUMIDIFIER
20. CO2 SENSORS
21. ECON POWERED EXHAUST
22. ECON BAROMETRIC RELIEF
23. HOT GAS REHEAT COIL
24. SHAFT GROUNDING BRUSHES

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners — consultants

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 — DRAWN BY: DS — CHECKED BY: RAL — APPROVED BY: — F.B. NO. — PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

MECHANICAL - SCHEDULES

SCALE:
HORZ:
VERT:
CONTRACT NO: 170636
SHEET: M-602

11/14/2019 10:18:37 AM

KLH JOB#: 21459.00

COMcheck Software Version 4.1.1.0

Mechanical Compliance Certificate

Project Information

Energy Code:	2012 IECC
Project Title:	
Location:	Sharonville, Ohio
Climate Zone:	4a
Project Type:	New Construction

Construction Site: Owner/Agent: Designer/Contractor:

Additional Efficiency Package(s)

Unspecified

Mechanical Systems List

Quantity	System Type & Description
1	CU-01 / FCU-01 (Single Zone): Heating: 1 each - Central Furnace, Gas, Capacity = 40 kBtu/h Proposed Efficiency = 92.00% Et, Required Efficiency: 80.00 % Et (or 78% AFUE) Cooling: 1 each - Split System, Capacity = 24 kBtu/h, Air-Cooled Condenser, No Economizer, Economizer exception: None Proposed Efficiency = 15.00 SEER, Required Efficiency: 13.00 SEER Fan System: FAN SYSTEM 1 -- Compliance (Motor nameplate HP method) : Passes Fans: FAN 1 Supply, Constant Volume, 570 CFM, 0.3 motor nameplate hp
1	CU-02 / FCU-02 (Single Zone): Heating: 1 each - Central Furnace, Gas, Capacity = 26 kBtu/h Proposed Efficiency = 96.00% Et, Required Efficiency: 80.00 % Et (or 78% AFUE) Cooling: 1 each - Split System, Capacity = 18 kBtu/h, Air-Cooled Condenser, No Economizer, Economizer exception: None Proposed Efficiency = 15.00 SEER, Required Efficiency: 13.00 SEER Fan System: FAN SYSTEM 2 -- Compliance (Motor nameplate HP method) : Passes Fans: FAN 2 Supply, Constant Volume, 790 CFM, 0.3 motor nameplate hp
1	CU-03 / FCU-03 (Single Zone): Heating: 1 each - Central Furnace, Gas, Capacity = 80 kBtu/h Proposed Efficiency = 97.00% Et, Required Efficiency: 80.00 % Et (or 78% AFUE) Cooling: 1 each - Split System, Capacity = 36 kBtu/h, Air-Cooled Condenser, Air Economizer Proposed Efficiency = 14.00 SEER, Required Efficiency: 13.00 SEER Fan System: FAN SYSTEM 3 -- Compliance (Motor nameplate HP method) : Passes Fans: FAN 3 Supply, Constant Volume, 1910 CFM, 1.0 motor nameplate hp
1	CU-04 / FCU-04 (Single Zone): Heating: 1 each - Central Furnace, Gas, Capacity = 40 kBtu/h Proposed Efficiency = 92.00% Et, Required Efficiency: 80.00 % Et (or 78% AFUE) Cooling: 1 each - Split System, Capacity = 24 kBtu/h, Air-Cooled Condenser, No Economizer, Economizer exception: None Proposed Efficiency = 15.00 SEER, Required Efficiency: 13.00 SEER Fan System: FAN SYSTEM 4 -- Compliance (Motor nameplate HP method) : Passes Fans: FAN 4 Supply, Constant Volume, 800 CFM, 0.3 motor nameplate hp

Quantity	System Type & Description
1	DSCU-01 / DS-01 (Single Zone): Split System Heat Pump Heating Mode: Capacity = 18 kBtu/h, Proposed Efficiency = 10.30 HSPF, Required Efficiency = 7.70 HSPF Cooling Mode: Capacity = 18 kBtu/h, Proposed Efficiency = 20.00 SEER, Required Efficiency: 13.00 SEER Fan System: None

Mechanical Compliance Statement

Compliance Statement: The proposed mechanical design represented in this document is consistent with the building plans, specifications, and other calculations submitted with this permit application. The proposed mechanical systems have been designed to meet the 2012 IECC requirements in COM*check* Version 4.1.1.0 and to comply with any applicable mandatory requirements listed in the Inspection Checklist.

Kris T. Schnitgen, P.E. [signature]

Name - Title Signature Date

COMcheck Software Version 4.1.1.0

Inspection Checklist

Energy Code: 2012 IECC

Requirements: 91.0% were addressed directly in the COM*check* software

Text in the "Comments/Assumptions" column is provided by the user in the COMcheck Requirements screen. For each requirement, the user certifies that a code requirement will be met and how that is documented, or that an exception is being claimed. Where compliance is itemized in a separate table, a reference to that table is provided.

Section # & Req.ID	Plan Review	Complies?	Comments/Assumptions
C103.2 [PR2][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the mechanical systems and equipment and document where exceptions to the standard are claimed. Load calculations per acceptable engineering standards and handbooks.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C406 [PR9][1]	Plans, specifications, and/or calculations provide all information with which compliance can be determined for the additional energy efficiency package options.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	

Additional Comments/Assumptions:

1 High Impact (Tier 1)	2 Medium Impact (Tier 2)	3 Low Impact (Tier 3)

Section # & Req.ID	Footing / Foundation Inspection	Complies?	Comments/Assumptions
C403.2.4.5 [FO9][3]	Freeze protection and snow/ice melting system sensors for future connection to controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1)	2 Medium Impact (Tier 2)	3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.2.3 [ME55][2]	HVAC equipment efficiency verified.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	*See the Mechanical Systems list for values.*
C403.2.5.1 [ME59][1]	Demand control ventilation provided for spaces >500 sq.ft. and >25 people/1000 sq.ft. occupant density and served by systems with air side economizer, auto modulating outside air damper control, or design airflow >3,000 cfm.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.7 [ME60][2]	HVAC ducts and plenums insulated. Where ducts or plenums are installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8 [ME61][2]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8 [ME61][2]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8 [ME61][2]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8 [ME61][2]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8 [ME61][2]	HVAC piping insulation thickness. Where piping is installed in or under a slab, verification may need to occur during Foundation Inspection.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8.1 [ME7][3]	Piping Insulation exposed to weather is protected from damage (due to sun, moisture, wind, etc.).	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.8 [ME41][3]	Thermally ineffective panel surfaces of sensible heating panels have insulation >= R-3.5.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.3.1.a [NA][0]	Total cooling capacity without economizers must be less than %varMaxKBtuPerH%.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.7 [ME10][2]	Ducts and plenums sealed based on static pressure and location.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

1 High Impact (Tier 1)	2 Medium Impact (Tier 2)	3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.2.7.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.7.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.7.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.7.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.7.1.3 [ME11][3]	Ductwork operating >3 in. water column requires air leakage testing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C403.3.1, C403.3.1.1 [ME62][1]	Air economizers provided where required, meet the requirements for design capacity, control signal, ventilation controls, high-limit shut-off, integrated economizer control, and provide a means to relieve excess outside air during operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.2.1 [ME53][3]	Air outlets and zone terminal devices have means for air balancing.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.4.2 [ME66][2]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.4.2 [ME66][2]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.4.2 [ME66][2]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.4.2 [ME66][2]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.4.2 [ME66][2]	VAV fan motors >=7.5 hp to be driven by variable speed drive, have a vane-axial fan with variable pitch blades, or have controls to limit fan motor demand.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

1 High Impact (Tier 1)	2 Medium Impact (Tier 2)	3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C403.2.4.1 [FI47][3]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1 [FI47][3]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1 [FI47][3]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1 [FI47][3]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1 [FI47][3]	Heating and cooling to each zone is controlled by a thermostat control. Minimum one humidity control device per installed humidification/dehumidification system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.2 [FI38][3]	Thermostatic controls have a 5 °F deadband.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.2 [FI20][3]	Temperature controls have setpoint overlap restrictions.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.3 [FI39][3]	Each zone equipped with setback controls using automatic time clock or programmable control system.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.3 [FI40][3]	Automatic Controls: Setback to 55°F (heat) and 85°F (cool); 7-day clock, 2-hour occupant override, 10-hour backup	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.3.3 [FI41][3]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.3.3 [FI41][3]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.3.3 [FI41][3]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

1 High Impact (Tier 1)	2 Medium Impact (Tier 2)	3 Low Impact (Tier 3)

Section # & Req.ID	Final Inspection	Complies?	Comments/Assumptions
C403.2.4.3.3 [FI41][3]	Systems include optimum start controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.4.1.1 [FI42][3]	Heat pump controls prevent supplemental electric resistance heat from coming on when not needed.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5.1 [FI7][3]	Furnished HVAC as-built drawings submitted within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C303.3, C408.2.5.3 [FI8][3]	Furnished O&M manuals for HVAC systems within 90 days of system acceptance.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.5.3 [FI43][1]	An air and/or hydronic system balancing report is provided for HVAC systems.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.3.2 [FI10][1]	HVAC control systems have been tested to ensure proper operation, calibration and adjustment of controls.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C403.2.2 [FI27][3]	HVAC systems and equipment capacity does not exceed calculated loads.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.1 [FI28][1]	Commissioning plan developed by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.4 [FI29][1]	Preliminary commissioning report completed and certified by registered design professional or approved agency.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.5.4 [FI30][1]	Final commissioning report due to building owner within 90 days of receipt of certificate of occupancy.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	
C408.2.3.1 [FI31][1]	HVAC equipment has been tested to ensure proper operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.
C408.2.3.3 [FI32][1]	Economizers have been tested to ensure proper operation.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	Requirement will be met.

Additional Comments/Assumptions:

1 High Impact (Tier 1)	2 Medium Impact (Tier 2)	3 Low Impact (Tier 3)

Section # & Req.ID	Mechanical Rough-In Inspection	Complies?	Comments/Assumptions
C403.2.6 [ME57][1]	Exhaust air energy recovery on systems meeting Table C403.2.6	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.
C403.2.11 [ME71][2]	Unenclosed spaces that are heated use only radiant heat.	☐Complies ☐Does Not ☐Not Observable ☐Not Applicable	**Exception:** Requirement does not apply.

Additional Comments/Assumptions:

1 High Impact (Tier 1)	2 Medium Impact (Tier 2)	3 Low Impact (Tier 3)

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — KRIS T. SCHNITGEN — 77432 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — consultants — engineers architects planners

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 DRAWN BY: DS CHECKED BY: RAL APPROVED BY: F.B. NO. PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

MECHANICAL - ENERGY COMPLIANCE

SCALE:
HORZ:
VERT:
CONTRACT NO: 170636
SHEET M-701

KLH JOB#: 21459.00

11/14/2019 10:18:43 AM

ELECTRIC LEGEND

SYMBOL	DESCRIPTION
LIGHTING AND LIGHTING CONTROLS	
	LUMINAIRE (REFER TO THE LUMINAIRE SCHEDULE) NOTE THAT OTHER SHAPES MAY ALSO BE USED TO REPRESENT LUMINAIRES
	SHADED LUMINAIRES DENOTE THOSE CONNECTED TO EMERGENCY OR STANDBY POWER AS APPLICABLE (UNSWITCHED LUMINAIRES ARE EGRESS LIGHTS AND/OR NIGHT-LIGHTS THAT OPERATE 24/7)
	TRACK LIGHTING IN LENGTH SHOWN AND WITH NUMBER OF LUMINAIRE HEADS AS INDICATED PROVIDE ALL REQUIRED ACCESSORIES (FITTINGS, END CAPS, POWER FEEDS, ETC.)
WALL MOUNT	SINGLE / DOUBLE SIDED EXIT SIGN CONNECT AHEAD OF SWITCHING & CONFIGURE ARROWS TO INDICATE DIRECTION OF EGRESS TRAVEL
	EMERGENCY LIGHTING UNIT WITH 90-MINUTE BATTERY BACKUP AND ASSOCIATED REMOTE HEADS WHERE APPLICABLE. CONNECT TO LOCAL LIGHTING CIRCUIT AHEAD OF SWITCHING
	OUTDOOR AREA SITE LIGHTING STANDARD NUMBER OF LUMINAIRE HEADS AS INDICATED ON DRAWINGS.
A a NL EL	A = LUMINAIRE TYPE, NL = NIGHT-LIGHT (UNSWITCHED), a = SWITCHING DESIGNATION, EL = EGRESS LUMINAIRE (ILLUMINATES PATH OF EGRESS, ON ALL TIMES SPACE IS OCCUPIED)
$	LIGHTING SWITCH (KEYS: 2 = 2-POLE, 3 = 3-WAY, 4 = 4-WAY, D=DIMMER, K=KEYED, LV = LOW VOLTAGE M = MOMENTARY-CONTACT 1PDT W/CENTER-REST, P = SWITCH W/PILOT LIGHT, T = TIMER SWITCH)
TYPE	CEILING-MOUNTED OCCUPANCY SENSOR. DUAL TECHNOLOGY UNLESS OTHERWISE NOTED BY TYPE. TYPE "IR" = INFRARED, TYPE "US" = ULTRASONIC
TYPE#	WALL-MOUNTED OCCUPANCY SENSOR SWITCH. DUAL TECHNOLOGY UNLESS OTHERWISE NOTED BY TYPE. TYPE "IR"=INFRARED, TYPE "US"=ULTRASONIC, "V"=VACANCY SENSOR, "#" = CONTROLLED CIRCUITS.
PC	PHOTOCELL / LIGHT-SENSOR / PHOTO-SENSOR
RECEPTACLES AND MISCELLANEOUS OUTLETS	
	SINGLE ("SIMPLEX"), DUPLEX, AND DOUBLE DUPLEX ("QUAD") RECEPTACLE RESPECTIVELY
	RECEPTACLES ON EMERGENCY OR STANDBY POWER CIRCUIT DIAMOND OUTLINE MAY BE APPLIED TO ANY SPECIALTY RECEPTACLE SYMBOL
	GFI / GFCI RECEPTACLES
	RECEPTACLES WITH USB OUTLETS
	SPECIAL PURPOSE RECEPTACLE
	CEILING DUPLEX RECEPTACLE WITH ADJACENT REEL-MOUNTED DROP CORD.
H C T 42" W SW L	RECEPTACLE ATTRIBUTES 42" = MOUNT RECEPTACLE AT THIS HEIGHT ABOVE GRADE / FINISHED FLOOR C = INSTALL ABOVE COUNTER AND BACKSPLASH H = INSTALL RECEPTACLE HORIZONTALLY L = LIT (PROVIDE ILLUMINATED FACE OR INDICATOR LIGHT TO INDICATE THERE IS POWER TO RECEPTACLE) SW = SPLIT WIRED T = TAMPER-RESISTANT W = WEATHER PROOF WHILE IN USE COVER AND WEATHER RESISTANT RECEPTACLE
DOOR OPERATORS/DEVICES	
SJ	SECURITY JUNCTION BOX - WALL-MOUNT ABOVE ACCESSIBLE CEILING ON SECURE SIDE OF DOOR
FIRE ALARM DEVICES	
	FIRE ALARM SYSTEM MANUAL PULL STATION
WALL MOUNT S L M MC	FIRE ALARM SYSTEM SMOKE DETECTOR - PHOTOELECTRIC TYPE UNLESS OTHERWISE NOTED L = LASER TYPE, S = PROVIDE SOUNDER BASE FIRE ALARM SMOKE ALARM UNIT - M = SINGLE/MULTI-STATION SMOKE ALARM UNIT, MC = SINGLE/MULTI-STATION COMBINATION SMOKE/CARBON MONOXIDE ALARM UNIT
DSD	FIRE ALARM SYSTEM DUCT SMOKE DETECTOR AND SAMPLING TUBE
CM MM	FIRE ALARM SYSTEM CONTROL / RELAY MODULE (LEFT) FIRE ALARM SYSTEM MONITOR MODULE (RIGHT)
cd	FIRE ALARM SYSTEM STROBE-ONLY DEVICE (PROVIDE CANDELA (cd) RATING FOR STROBE AS INDICATED ON DRAWINGS)
cd	FIRE ALARM SYSTEM HORN / STROBE DEVICE (PROVIDE CANDELA (cd) RATING FOR STROBE AS INDICATED ON DRAWINGS)
FACP FARP FAVE FSCP FASP FARA	FIRE ALARM PANELS - (DIMENSIONS MAY VARY / FLUSH OR SURFACE MOUNTED AS INDICATED) FACP - FIRE ALARM CONTROL PANEL FARP - FIRE ALARM REMOTE BATTERY PANEL / CABINET FAVE - FIRE ALARM VOICE EVACUATION PANEL FSCP - FIREFIGHTER'S SMOKE CONTROL PANEL FASP - FIRE ALARM SPRINKLER MONITOR PANEL FARA - FIRE ALARM REMOTE ANNUNCIATOR
ENVIRONMENTAL CONTROLS AND ALARMS	
VOC	VOLATILE ORGANIC COMPOUNDS (VOC) SENSOR (MONITORED BY ENVIRONMENTAL CONTROL PANEL)
MISCELLANEOUS	
■	INDICATES DIRECT CONNECTION TO EQUIPMENT
$ $MS $MSR	MOTOR RATED TOGGLE SWITCH, MANUAL STARTER WITH PILOT LIGHT, AND MANUAL STARTER WITH PILOT LIGHT WITH EXTERNAL RELAY FOR CONTROL OR MONITORING RESPECTIVELY - ALL MAY BE KEYED "K"
	HEAVY DUTY DISCONNECT SWITCH (NON-FUSED) (LEFT) HEAVY DUTY DISCONNECT SWITCH (FUSED) (RIGHT)
	MOTOR
VFD	VARIABLE FREQUENCY DRIVE / VARIABLE SPEED DRIVE
M	LINE VOLTAGE MOTOR OPERATED DAMPER
	EMERGENCY-POWER-OFF (EPO) PUSHBUTTON STATION WITH DESCRIPTIVE ENGRAVED PLATE AND MEANS TO PREVENT ACCIDENTAL ACTIVATION
	CONTROL STATION WITH DESCRIPTIVE ENGRAVED PLATE
	CONTACTOR
	PLYWOOD EQUIPMENT BOARD
	ELECTRICAL PANELBOARD OR DISTRIBUTION BOARD (DIMENSIONS MAY VARY / FLUSH OR SURFACE MOUNTED AS INDICATED)
PAD POLE	OIL FILLED TRANSFORMER

ELECTRIC LEGEND

SYMBOL	DESCRIPTION
SINGLE LINE DIAGRAM	
	ELECTRIC UTILITY COMPANY METER AND ASSOCIATED CURRENT TRANSFORMERS
HD	CUSTOMER ELECTRIC METER AND ASSOCIATED CURRENT TRANSFORMERS HD = HIGH DENSITY METERING CABINET/BANK MOUNTED TO TIGHTLY GROUP ALL METERS TOGETHER
	GROUNDING ELECTRODE PER NFPA 70 ARTICLE 250 MINIMUM
	ELECTRICAL PANELBOARD OR DISTRIBUTION BOARD
	AUTOMATIC TRANSFER SWITCH
	SURGE PROTECTIVE DEVICE
WIRE / CABLE / RACEWAY	
LPA-1,3	BRANCH CIRCUIT HOME RUN WITH PANEL NAME AND CIRCUIT NUMBER(S)
	CABLING / RACEWAY INSTALLED CONCEALED IN WALLS OR ABOVE CEILING
	CABLING / RACEWAY INSTALLED BELOW FLOOR OR GRADE
	CABLE TRAY
	FEEDER DUCT / BUS DUCT
	JUNCTION BOX ABOVE ACCESSIBLE CEILING JUNCTION BOX AT OVERHEAD STRUCTURE IN AREAS WITH NO CEILING
J	FLUSH MOUNTED JUNCTION BOX OR PULL BOX AS APPLICABLE FOR APPLICATION
P	FLUSH MOUNTED PULL BOX
	UTILITY POLE
UP DN	CONDUIT UP OR DOWN

ABBREVIATIONS

(R)	RELOCATE FIXTURE, EQUIPMENT OR DEVICE	IG	ISOLATED GROUND
42"	DISTANCE ABOVE FINISHED FLOOR / GRADE / PAVEMENT	LR	LEGALLY REQUIRED STANDBY
AF	AMP FRAME OF FUSED SWITCH OR CIRCUIT BREAKER	LI	LONG - INSTANTANEOUS
		LSI	LONG - SHORT - INSTANTANEOUS
AFCI	ARC-FAULT CIRCUIT INTERRUPTER	LSIG	LONG - SHORT - INSTANTANEOUS - GROUND FAULT
AIC	AMPS INTERRUPTING CURRENT		
AT	AMP TRIP OF FUSED SWITCH OR CIRCUIT BREAKER	MCB	MAIN CIRCUIT BREAKER
		MFR	MANUFACTURER
ATS	AUTOMATIC TRANSFER SWITCH	MLO	MAIN LUGS ONLY
		MTS	MANUAL TRANSFER SWITCH
BAS	BUILDING AUTOMATION SYSTEM	MW	MICROWAVE OVEN
C.T.C.	WORK UNDER DIVISION 27 OR 28 AS APPLICABLE	NIC	NOT IN CONTRACT (SHOWN FOR REFERENCE ONLY)
C/B	CIRCUIT BREAKER	NTS	NOT TO SCALE
CH	COUNTER HEIGHT OR SPECIAL HEIGHT DEVICE		
DW	DISHWASHER	OFE	OWNER-FURNISHED EQUIPMENT - INSTALLED AND WIRED BY E.C.
E	EMERGENCY	OS	OPTIONAL STANDBY
E.C.	WORK UNDER DIVISION 26		
EMS	ENERGY MANAGEMENT SYSTEM	P.C.	WORK UNDER DIVISION 22
EPO	EMERGENCY POWER OFF		
ER	EQUIPMENT ROOM	(R)	RELOCATED
ERM	ENERGY REDUCTION MAINTENANCE SWITCH		
ESP	EMERGENCY STANDBY RATING	S.C.	WORK UNDER DIVISION 21
ETR	EXISTING TO REMAIN	SCCR	SHORT CIRCUIT CURRENT RATING
EWC	ELECTRIC WATER COOLER	SPD	SURGE PROTECTIVE DEVICE
EX.	EXISTING	ST	SHUNT TRIP
FBO	FURNISHED BY OTHERS - INSTALLED AND WIRED BY E.C.	TAAC	TO ABOVE ACCESSIBLE CEILING
		TR	TAMPER RESISTANT
FIBO	FURNISHED AND INSTALLED BY OTHERS - WIRED BY E.C.	TTB	TELEPHONE TERMINAL BOARD
		TYP	TYPICAL
FP	RECEPTACLE TO BE USED FOR A FLAT PANEL DISPLAY.	UCR	UNDER COUNTER REFRIGERATOR
FWE	FURNISHED WITH EQUIPMENT BY OTHERS - INSTALLED AND WIRED BY E.C.	UL	UNDERWRITER'S LABORATORY
		U.L.S.E.	LISTED FOR SERVICE ENTRANCE
		UNO	UNLESS NOTED OR INDICATED OTHERWISE ON DRAWINGS OR IN SPECIFICATIONS
GD	GARBAGE DISPOSAL		
GFEP	GROUND FAULT EQUIPMENT PROTECTION		
GFI / GFCI	GROUND FAULT CIRCUIT INTERRUPTER DEVICE	VFD / VSD	VARIABLE FREQUENCY / SPEED DRIVE
GND	GROUND	VIF	VERIFY IN FIELD
		VM	VENDING MACHINE
H.C.	WORK UNDER DIVISION 23	VP	VANDAL PROOF
H.O.A.	"HAND - OFF - AUTO" SWITCH		
		W / WP	WEATHERPROOF
		WG	WIRE GUARD
		WR	WEATHER RESISTANT

PLAN-VIEW AND GRAPHIC LINE TYPES

WORK SHOWN BOLD-CONTINUOUS INDICATES NEW WORK
(UNLESS OTHERWISE INDICATED)

WORK SHOWN FADED INDICATES EXISTING WORK TO REMAIN OR NEW WORK BY OTHERS AS APPLICABLE
(UNLESS OTHERWISE INDICATED)

WORK SHOWN BOLD-DASHED INDICATES SELECTIVE DEMOLITION WORK
(UNLESS OTHERWISE INDICATED)

ELECTRIC DESIGN CRITERIA

APPLICABLE BUILDING CODES

2017 OHIO BUILDING CODE (BASED ON THE INTERNATIONAL BUILDING CODE)
2017 NFPA 70 - NATIONAL ELECTRICAL CODE
2017 OHIO FIRE CODE (BASED ON NATIONAL FIRE ALARM AND SIGNALING CODE)
2015 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)

TESTING/COMMISSIONING FOR LIGHTING CONTROLS

LIGHTING CONTROL DEVICES AND SYSTEMS SHALL BE TESTED TO ENSURE THE HARDWARE AND SOFTWARE IS CALIBRATED, PROGRAMMED, AND IN PROPER WORKING ORDER. INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR ALL REQUIRED INSTALLATION CERTIFICATES AND SHALL PROVIDE MANUALS FOR LIGHTING CONTROL DEVICES TO OWNER PRIOR TO PROJECT CLOSE-OUT. INSTALLING CONTRACTOR SHALL BE RESPONSIBLE FOR CONTRACTING WITH APPROPRIATE PARTIES TO ARRANGE FOR TESTING/COMMISSIONING OF THE LIGHTING CONTROL SYSTEMS AND SHALL BE RESPONSIBLE FOR ENSURING ALL REQUIRED FUNCTIONAL TESTING FORMS ARE COMPLETED AND SUBMITTED TO THE OWNER AND LOCAL AHJ PRIOR TO PROJECT CLOSE-OUT.

DWELLING UNITS

THE FOLLOWING SPACES ARE CONSIDERED DWELLING AREAS AND SHALL BE COMPLIANT WITH REQUIREMENTS SET FORTH IN NEC 210.52:
- SLEEPING ROOMS
- SHOWER ROOMS IN LIVING QUARTERS
- KITCHEN AND DAYROOM

UTILITY COORDINATION

COORDINATE UTILITY SERVICE WORK CONTAINED WITHIN THIS DRAWING SET WITH RESPECTIVE LOCAL UTILITY COMPANY. KLH HAS STARTED THIS COORDINATION PROCESS WITH UTILITY COMPANY REPRESENTATIVE LISTED BELOW AS PART OF THE DESIGN PHASE. CONTINUE THIS COORDINATION PROCESS PRIOR TO STARTING ANY WORK AND CONTINUE THROUGHOUT CONSTRUCTION PHASE.

OBTAIN AND COMPLY WITH UTILITY INSTALLATION DETAILS AND STANDARDS.

CONTACT 811 "CALL BEFORE YOU DIG" SERVICE PRIOR TO COMMENCING ANY UNDERGROUND WORK.

ELECTRIC SERVICE	
UTILITY COMPANY	DUKE ENERGY
UTILITY CONTACT	CHARLIE NORDIN
PHONE NUMBER	513-287-1194
EMAIL ADDRESS	Charles.Nordin@duke-energy.com
DATE(S) CONTACTED	10/25/2019
KLH CONTACT	KELLY HUSTON

ELECTRICAL SECONDARY SERVICE (OWNER-PURCHASED SECONDARY)		
TRANSFORMER		
OWNERSHIP	UTILITY	
NEW OR EXISTING	EXISTING	
SECONDARY VOLTAGE (V)	208Y/120V	
MAX NUMBER OF CONDUITS IN SECONDARY COMPARTMENT	8	
AVAILABLE FAULT CURRENT AT SECONDARY LUGS (A)	55,600A	
METERING		
CURRENT TRANSFORMER (CT) LOCATION	CT CABINET	
RESPONSIBILITY MATRIX (X = FURNISH AND INSTALL)	**UTILITY**	**DIVISION 26 CONTRACTOR**
TRANSFORMER	EXISTING	
PRIMARY CABLE	EXISTING	
SECONDARY CONDUIT		X
SECONDARY CONDUCTORS		X
TERMINATE SECONDARY CONDUCTORS, 1) AT UTILITY END	X	
2) AT SERVICE DISTRIBUTION EQUIPMENT		X
METER SOCKET		X
CT CABINET		X

ELECTRIC CONDUIT AND WIRE MATERIAL SCHEDULE

MC - METAL CLAD CABLE
MI - MINERAL INSULATED CABLE
USE - UNDERGROUND SERVICE ENTRANCE CABLE
SE - SERVICE ENTRANCE CABLE
UF - UNDERGROUND FEEDER
NM - NON-METALLIC SHEATHED CABLE
RMC - RIGID METAL CONDUIT
RNC - RIGID NON-METALLIC CONDUIT
RTRC - REINFORCED THERMOSETTING RESIN CONDUIT
SCH 80 PVC - SCHEDULE 80 POLYVINYL CHLORIDE CONDUIT

ARC - ALUMINUM RIGID CONDUIT
EMT - ELECTRIC METALLIC TUBING
ENT - ELECTRIC NON-METALLIC TUBING
FMC - FLEXIBLE METALLIC CONDUIT
GRG - GALVANIZED RIGID STEEL CONDUIT
HDPE - HIGH DENSITY POLYETHYLENE CONDUIT
IMC - INTERMEDIATE METAL CONDUIT
LFMC - LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT
LFNC - LIQUIT-TIGHT FLEXIBLE NON-METALLIC CONDUIT
SCH 40 PVC - SCHEDULE 40 POLYVINYL CHLORIDE CONDUIT

CONDUIT APPLICATION	CONDUCTOR TYPE	RACEWAY TYPE	RACEWAY AND CONDUCTOR NOTES
---FIRE ALARM---			
EXISTING HOLLOW PARTITIONS	PLENUM OR NON-PLENUM RATED	EMT	
CONCEALED	PLENUM OR NON-PLENUM RATED	EMT	
EXPOSED, WALL	PLENUM OR NON-PLENUM RATED	EMT	
CONCEALED, ABOVE ACCESSIBLE CEILINGS	PLENUM OR NON-PLENUM RATED	J-HOOKS	
CONCEALED, ABOVE INACCESSIBLE CEILINGS	PLENUM OR NON-PLENUM RATED	EMT	
EXPOSED, OVERHEAD	PLENUM OR NON-PLENUM RATED	EMT	
BELOW GRADE OR CONCRETE SLAB	PLENUM OR NON-PLENUM RATED	RNC (SCH 40 PVC)	
---POWER - INDOOR---			
EXISTING HOLLOW PARTITIONS	THHN	MC OR FMC	
CONCEALED	THHN	MC	
CONCEALED, DAMP LOCATIONS	XHHW-2	LFMC	
CONCEALED, MASONRY	THHN	EMT	
VERTICAL RISERS FROM BELOW GRADE INCLUDING ELBOW	THHN	RMC (GRC)	
BELOW GRADE OR CONCRETE SLAB	THHN	RNC (SCH 40 PVC)	
LUMINAIRE WHIPS IN ACCESSIBLE CEILING, 72" MAX	THHN	MC	
CONNECTION TO VIBRATING EQUIPMENT, 72" MAX	THHN	LFMC	
EXPOSED	THHN	EMT	
UNDERGROUND	XHHW-2	RNC (SCH 40 PVC)	
---POWER - OUTDOOR---			
EXPOSED	XHHW-2	RMC (GRC)	
CONCEALED	XHHW-2	EMT	
UNDERGROUND	XHHW-2	RNC (SCH 40 PVC)	
CONNECTION TO VIBRATING EQUIPMENT, 72" MAX	XHHW-2	LFMC	
EXPOSED TO DIRECT SUNLIGHT, ROOF	XHHW-2	RMC (GRC)	

GENERAL ELECTRICAL INSTALLATION NOTES

A. CODE COMPLIANCE: PROVIDE ALL ELECTRICAL WORK COMPLIANT WITH ALL PREVAILING CODES.
B. LISTINGS: PROVIDE MATERIALS, COMPONENTS AND ASSEMBLED COMPONENTS WITH LISTINGS AND LABELS FROM A NATIONALLY RECOGNIZED TESTING LABORATORY (NRTL), MANUFACTURED, LISTED AND LABELED FOR THEIR INTENDED USE.
C. RATED BUILDING SURFACES: SEPARATE DEVICE BOXES BY A MINIMUM OF 6 INCHES WHERE INSTALLED BACK-TO-BACK WITHIN DEMISING WALLS TO MAINTAIN REQUIRED FIRE AND SOUND RATING (TYPICAL OF ALL DEVICE BOXES INSTALLED ON DEMISING WALLS). PROVIDE LISTED FIRE-RATED WRAPS AROUND ALL RECESSED OUTLET, DEVICE AND EQUIPMENT BOXES IN FIRE/SMOKE RATED WALLS, CEILINGS AND FLOORS TO MEET OR EXCEED THE RESPECTIVE FIRE/SMOKE RATING OF THE SURFACE.
D. RATED PENETRATIONS: SEAL ALL PENETRATIONS THROUGH FIRE-RATED AND/OR SMOKE-RATED MEMBRANES (FLOORS, WALLS, CEILINGS, ETC.) USING SEALANT PRODUCTS THAT MEET OR EXCEED THE RATING OF THE RESPECTIVE MEMBRANE.
E. GANGED DEVICES: INSTALL WIRING DEVICES GANGED WHEREVER POSSIBLE FOR INSTANCES WHERE THEY ARE SHOWN TOGETHER. THIS INCLUDES LOCATIONS ABOVE COUNTERS AND WORK SURFACES WHERE APPLICABLE.
F. OUTLET BOXES NEAR CORNERS: INSTALL WALL-MOUNTED SWITCHES, CONTROLS, RECEPTACLES, OUTLETS, ETC. AT LEAST 6 INCHES FROM WALL CORNERS.
G. CONCEALMENTS: CONCEAL ALL CONDUIT DROPS AND RISES WITHIN WALLS, AND PROVIDE FLUSH-MOUNTED WALL OUTLET BOXES UNLESS OTHERWISE INDICATED.
H. DOCUMENTS OF OTHER TRADES: REVIEW DOCUMENTS OF OTHER TRADES, INCLUDING ARCHITECTURAL, PRIOR TO SUBMITTING A BID. PROVIDE ELECTRICAL WORK FOR EQUIPMENT, DEVICES, ETC. OF OTHER TRADES AS REQUIRED TO RENDER THEM FULLY OPERATIONAL. REFER TO ARCHITECTURAL ELEVATIONS FOR INTENDED LOCATIONS AND MOUNTING HEIGHTS FOR EQUIPMENT AND OUTLETS, ETC. PRIOR TO COMMENCING WITH ANY RELATED ROUGH-IN WORK.
I. SCHEMATIC REPRESENTATIONS: CIRCUITING WORK SHOWN ON DRAWINGS IS FOR SCHEMATIC GENERAL GRAPHIC REPRESENTATION ONLY. DETERMINE SPECIFICS IN FIELD (POINT-TO-POINT ROUTING, HOME-RUN LOCATIONS, METHODS OF CONCEALMENT, ETC.) LOCATIONS AND ROUTING INDICATED ON PLANS ARE SCHEMATIC AND DIAGRAMMATIC IN NATURE. LAYOUT AND INSTALL ALL ELECTRICAL WORK IN STRICT COMPLIANCE WITH CHAPTER 1, PART II, ARTICLE 110.26 OF THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70).
J. HOME-RUN DESIGNATIONS: HOME-RUN DESIGNATIONS INDICATED ON PLANS ARE SCHEMATIC DESIGNATIONS ONLY. DETERMINE EXACT CIRCUIT ASSIGNMENTS IN FIELD BASED ON FIELD CONDITIONS. PROVIDE COLOR-CODED CONDUCTOR INSULATION ACCORDINGLY, CODED PROPERLY DEPENDING ON SYSTEM, PHASE, NEUTRAL, ETC. PROVIDE EQUIPMENT AND PANELBOARD SCHEDULES THAT ACCURATELY INDICATE INSTALLED CONDITIONS.
K. LOCAL DISCONNECTS AND CONTROLS AT EQUIPMENT: LOCAL DISCONNECTS AND LOCAL CONTROLS SHOWN AT OR ON EQUIPMENT IN PLAN-VIEW ARE SHOWN FOR SCHEMATIC ASSOCIATIONS ONLY. AVOID INSTALLING DISCONNECTS OR CONTROLS ON EQUIPMENT ENCLOSURES. INSTALL ON ADJACENT WALLS OR BUILDING STRUCTURE, OR PROVIDE FIELD-FABRICATED UNISTRUT OR EQUIVALENT ASSEMBLIES AS NEEDED. PROVIDE FIELD COORDINATION WITH SITE CONDITIONS AND OTHER TRADES, AND PROVIDE ALL RELATED WORK IN STRICT COMPLIANCE WITH NFPA 70, INCLUDING ARTICLE 110.26.
L. EQUIPMENT & LOAD COORDINATION: REFER TO AND COORDINATE WITH POWER FLOOR PLANS, EQUIPMENT SCHEDULES (INCLUDING EQUIPMENT COORDINATION SCHEDULES), DRAWINGS OF ALL TRADES, ALL DIVISIONS AND SECTIONS OF SPECIFICATIONS AND INSTALLERS OF ALL TRADES. BASED ON ACTUAL EQUIPMENT BEING PROVIDED, DETERMINE AND PROVIDE APPROPRIATE BREAKERS, FUSES, CONDUCTORS, CONTROLS, POWER DISTRIBUTION EQUIPMENT, ETC. PERFORM THESE SERVICES PRIOR TO FURNISHING POWER DISTRIBUTION EQUIPMENT SUBMITTALS.
M. EXTERIOR ELECTRICAL WORK AND WORK SUBJECT TO MOISTURE: EXTERIOR ELECTRICAL WORK SHALL BE WEATHERPROOF AND WATER-TIGHT, AND SHALL BE RUST-RESISTANT. PROVIDE XHHW-2 CONDUCTORS FOR ALL APPLICATIONS THAT ARE BELOW GRADE OR SUBJECT TO MOISTURE. PROVIDE MINIMUM NEMA 3R ENCLOSURES FOR ALL OUTDOOR EQUIPMENT AND ALL INDOOR EQUIPMENT THAT IS SUBJECT TO MOISTURE. PROVIDE NEMA 1 ENCLOSURES FOR ALL OTHER INDOOR EQUIPMENT.
N. EQUIPMENT GROUNDING CONDUCTORS: PROVIDE EQUIPMENT GROUNDING CONDUCTORS IN STRICT COMPLIANCE WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70), INCLUDING ARTICLE 250 AND TABLE 250.122. THESE CONDUCTORS MAY OR MAY NOT BE INDICATED ON SINGLE-LINE DIAGRAMS OR ELSEWHERE, BUT SHALL BE PROVIDED UNDER BASE BID NEVERTHELESS.
O. OVERHEAD WORK: HOLD ALL NEW OVERHEAD ELECTRICAL WORK AS TIGHTLY AS POSSIBLE TO THE BOTTOM OF THE OVERHEAD STRUCTURE. DO NOT INSTALL ANY ELECTRICAL WORK WITHIN SIX INCHES OF ROOF DECKING.
P. COORDINATION DRAWINGS: LAYOUT ALL PROPOSED RACEWAY ROUTING, ELEVATIONS, INSTALLATION METHODS, ETC. ON COORDINATION DRAWINGS AND COORDINATE ALL PROPOSED RACEWAY ROUTING WITH ALL AFFECTED TRADES PRIOR TO COMMENCING WITH WORK. IN ADDITION, REVIEW THE INFORMATION WITH ARCHITECT, ENGINEER AND OWNER FOR ALL AREAS WHERE THE RACEWAYS WILL BE VISIBLE AFTER COMPLETION OF CONSTRUCTION.
Q. JUNCTION AND PULL BOXES: LOCATE JUNCTION AND PULL BOXES SO THAT THEY REMAIN ACCESSIBLE AFTER ALL CONSTRUCTION WORK IS COMPLETE. COORDINATE ALL WORK WITH ALL OTHER TRADES PRIOR TO COMMENCEMENT OF THE WORK. LOCATE BOXES IN A MANNER THAT AVOIDS HAVING TO USE ACCESS PANELS. IF ACCESS PANELS ARE INEVITABLE, PROVIDE THEM RATED TO MEET OR EXCEED THE FIRE AND/OR SMOKE RATINGS OF THE RESPECTIVE CEILING OR WALL, AND OBTAIN APPROVAL OF DESIGN PROFESSIONALS FOR EACH LOCATION.
R. CONDUCTOR TERMINATIONS: IN CASES WHERE CONDUCTOR SIZES ARE TOO LARGE TO FIT INTO LUGS/TERMINALS, PROVIDE APPROPRIATE FACTORY LUG KITS FOR AFFECTED EQUIPMENT IF AVAILABLE. ELSEWHERE, PROVIDE INSULATED BUTT-SPLICES OR EQUIVALENT METHOD, WITH TAILS SIZED TO FIT LUGS/TERMINALS. PROVIDE SPLICES IN SEPARATE BOXES IF REQUIRED BASED ON FIELD CONDITIONS, BOX SIZE LIMITATIONS, ETC. CONCEAL BOXES IN ACCESSIBLE OVERHEAD JOIST SPACES IN FINISHED REGULARLY OCCUPIED AREAS.

ESSENTIAL FACILITY SEISMIC REQUIREMENTS

SEISMIC BRACING FOR ALL NON-STRUCTURAL COMPONENTS INCLUDING BUT NOT LIMITED TO EQUIPMENT, PIPING, CONDUIT AND DUCTWORK IS REQUIRED FOR THIS PROJECT. THE DESIGN AND INSTALLATION OF THE SEISMIC RESTRAINT DEVICES IS DELEGATED TO THE CONTRACTOR. REFER TO SEISMIC CONTROLS SPECIFICATION FOR DELEGATED DESIGN SUBMITTAL REQUIREMENTS.

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — STEPHEN N. FEDERLE — E-76032 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — consultants — engineers architects planners

REV	DESCRIPTION	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 — DRAWN BY: KH — CHECKED BY: PM — APPROVED BY: — F.B. NO. — PG. —

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

ELECTRIC COVER SHEET

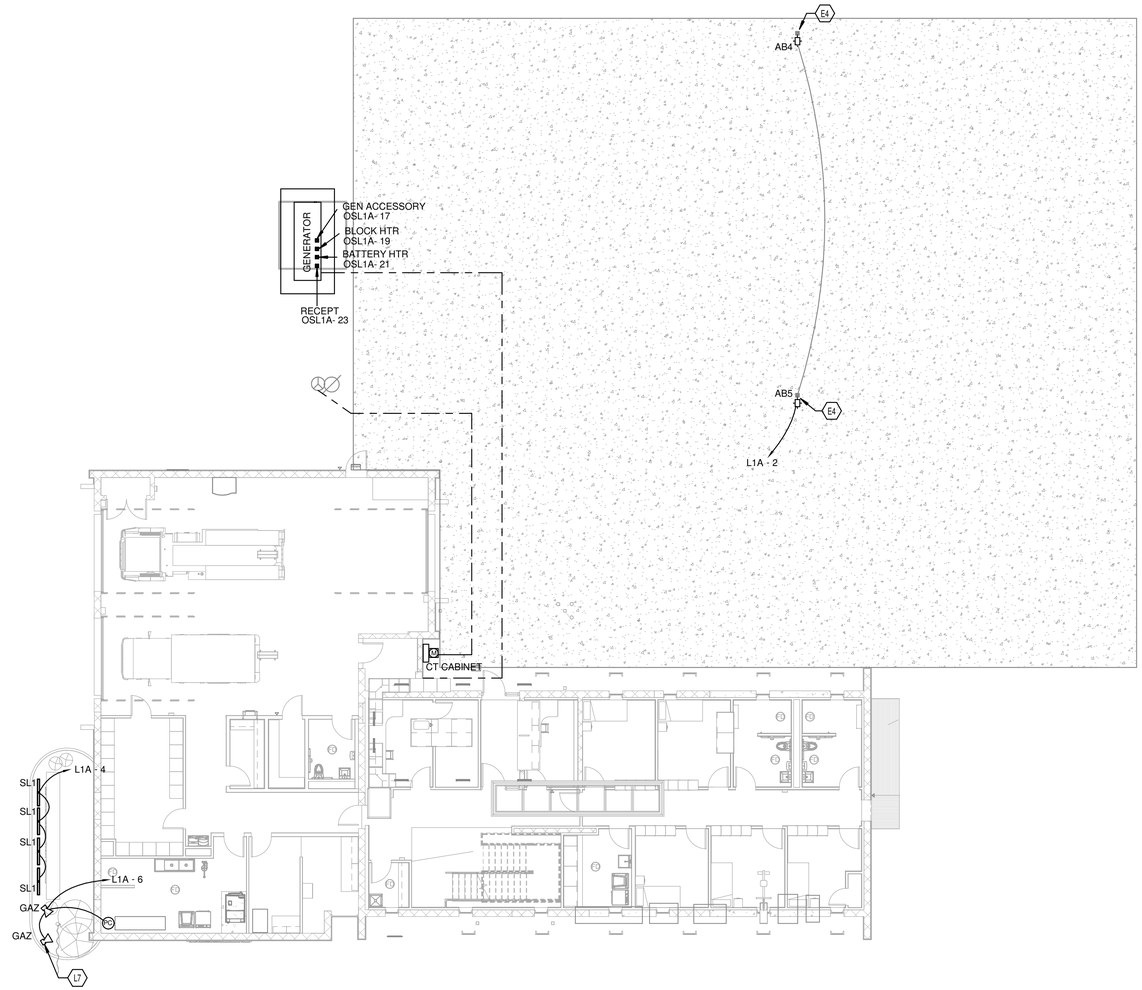
SCALE: 1/8" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET E-001

11/14/2019 10:20:54 AM

KLH JOB#: 21459.00

KEYED NOTES

E4	EXISTING LIGHT POLE TO REMAIN. REPLACE EXISTING HEAD WITH TYPE SHOWN. ALL UNDERGROUND WIRING IS EXISTING TO REMAIN. RELOCATE CIRCUIT TO NEW PANEL AS INDICATED.
L7	PROVIDE PHOTOCELL FOR CONTROL OF FLAG POLE LIGHTING. LIGHTING SHOULD TURN ON AT DUSK, OFF AT DAWN.



1 ES101 **ELECTRIC SITE PLAN**
3/32" = 1'-0"

N

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM

1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX

LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO
STEPHEN N. FEDERLE
E-76032
REGISTERED
PROFESSIONAL ENGINEER
11/04/19

your trusted advisor — consultants — engineers architects planners

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019
DRAWN BY: KH
CHECKED BY: PM
APPROVED BY:
F.B. NO. PG.

SHARONVILLE FIRE STATION 87 RENOVATION

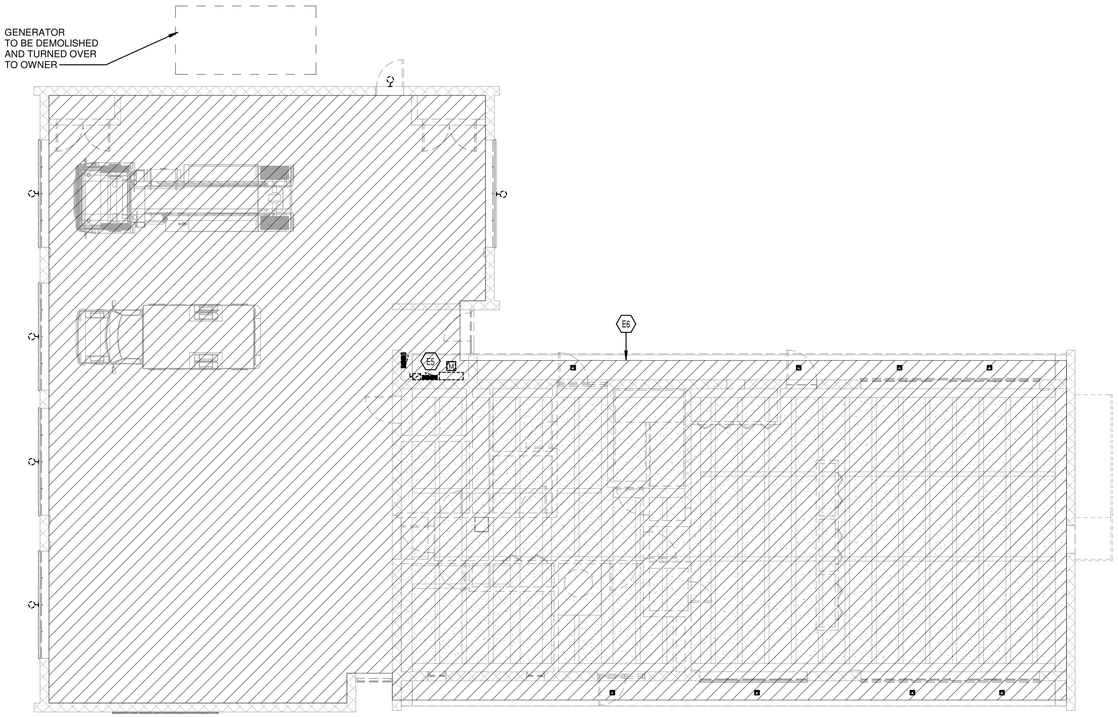
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

ELECTRIC SITE PLAN

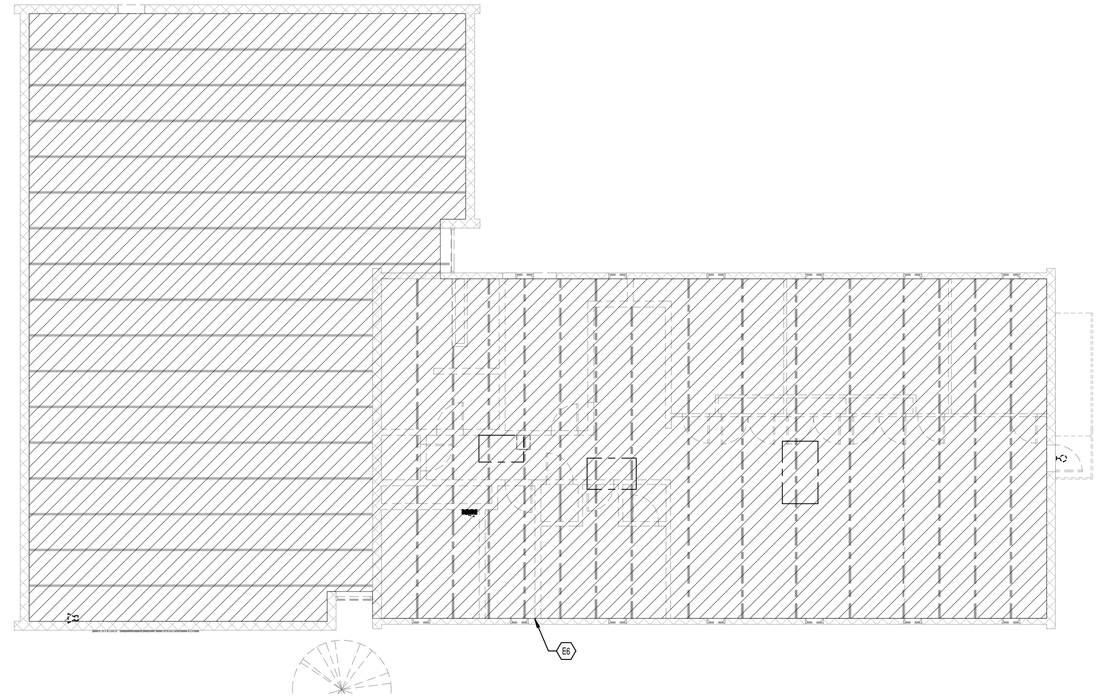
SCALE: 3/32" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET ES101

11/14/2019 10:23:11 AM

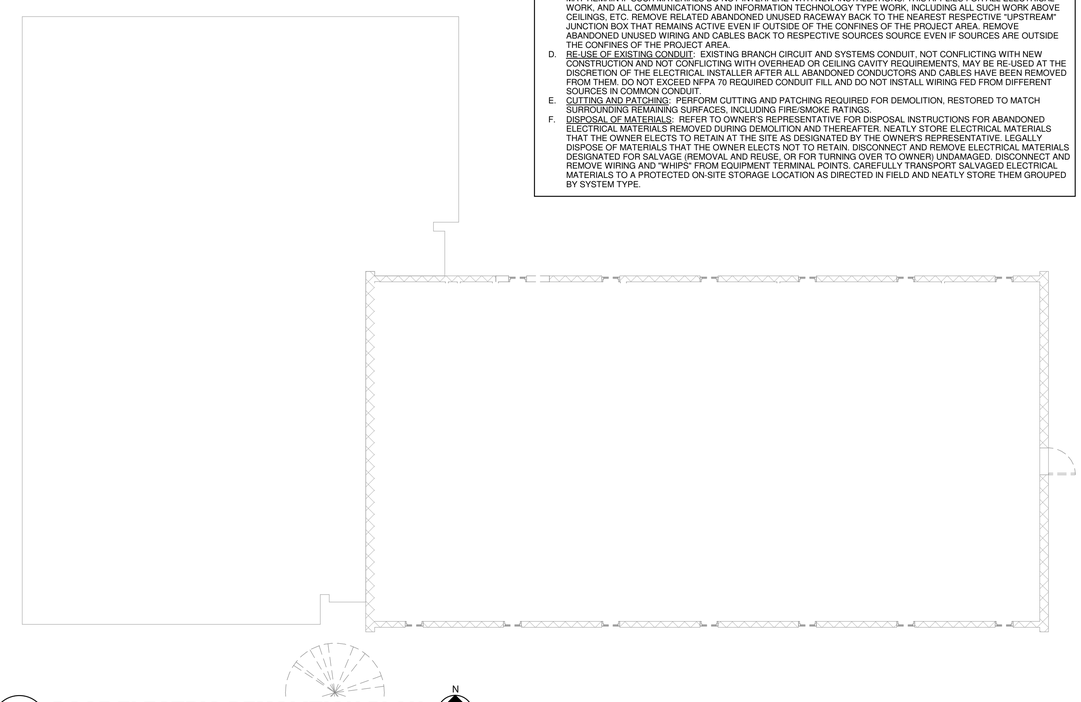
KLH JOB#: 21459.00



1 / E-101 **FIRST FLOOR ELECTRIC DEMOLITION PLAN**
1/8" = 1'-0"



2 / E-101 **SECOND FLOOR ELECTRIC DEMOLITION PLAN**
1/8" = 1'-0"



3 / E-101 **ROOF ELECTRIC DEMOLITION PLAN**
1/8" = 1'-0"

KEYED NOTES

E5 DEMOLISH ELECTRICAL DISTRIBUTION EQUIPMENT AND SERVICE BACK TO TRANSFORMER. REFER TO NEW POWER PLAN AND SINGLE-LINE DIAGRAM FOR NEW SERVICE ENTRANCE REQUIREMENTS AND LOCATION.

E6 UNLESS NOTED OTHERWISE, DEMOLISH EXISTING LIGHTING AND POWER IN THIS AREA. REMOVE ALL BRANCH WIRING AND ACCESSIBLE CONDUIT BACK TO SOURCE.

EXISTING CONDITIONS - GENERAL NOTES

A. INTENT OF DOCUMENTS: IT IS NOT THE INTENT OF ELECTRICAL DOCUMENTS THAT EXISTING CONDITIONS BE ACCURATELY SHOWN. EXISTING ELECTRICAL WORK IS SHOWN TO A VERY LIMITED EXTENT ON DRAWINGS AND IS SHOWN FOR GENERAL PLANNING REFERENCE ONLY. LOCATIONS AND INFORMATION WERE DERIVED FROM CURSORY VISUAL OBSERVATIONS OR FROM PORTIONS OF DOCUMENTS THAT WERE PREPARED FOR PREVIOUSLY INSTALLED WORK (NOT FROM RECORD DRAWINGS OR "AS-BUILTS").

B. PRE-BID SURVEY: PERFORM A DETAILED PRE-BID WALK-THROUGH FIELD INSPECTION AND SURVEY TO REVIEW THE EXISTING STRUCTURES AND PREMISES, TO ACCURATELY DETERMINE EXISTING CONDITIONS, AND TO DETERMINE SCOPE OF REQUIRED ELECTRICALLY RELATED WORK. INCLUDE APPLICABLE ACCESSIBLE CEILING CAVITY AREAS IN THIS INSPECTION.

C. RISK MITIGATION: MINIMIZE RISKS TO INDIVIDUALS AND PROPERTY THROUGHOUT THE DURATION OF THE PROJECT. COORDINATE WITH, AND OBTAIN APPROVAL FROM, THE OWNER AND DESIGN PROFESSIONAL FOR ALL MATERIALS, METHODS, STEPS, LOCATIONS, INSTALLATIONS, ETC. PRIOR TO COMMENCEMENT OF WORK. DETERMINE AND EMPLOY MEANS AND METHODS AS REQUIRED TO SAFELY AND SECURELY IMPLEMENT ALL RELATED WORK.

D. REUSE OF REMOVED MATERIALS: DO NOT REUSE REMOVED ELECTRICAL MATERIALS UNLESS SPECIFICALLY INDICATED IN PROJECT DOCUMENTS. EXISTING WIRING SYSTEMS MAY BE UTILIZED ONLY TO THE EXTENT INDICATED IN PROJECT DOCUMENTS, OR AS DIRECTED BY OWNER'S REPRESENTATIVE IN FIELD.

E. REASSIGNMENT OF EXISTING CIRCUITS: IN CASES WHERE EXISTING CIRCUITS ARE REUSED (BASED ON INFORMATION SHOWN ON DRAWINGS OR BASED ON FIELD CONDITIONS) BUT MUST BE CONNECTED TO BREAKERS OTHER THAN THEIR ORIGINAL BREAKER, MODIFY COLOR-CODING AS REQUIRED IF THE NEW BREAKER ASSIGNMENT IS CONNECTED TO A DIFFERENT LINE/PHASE THAN THE ORIGINAL ONE. USE MEANS AND METHODS COMPLIANT WITH NFPA 70 AND WITH AUTHORITIES HAVING JURISDICTION.

F. PROTECTIVE BARRIERS: PROVIDE AND MAINTAIN TEMPORARY PARTITIONS AND DUST BARRIERS ADEQUATE TO PREVENT THE SPREAD OF DUST AND DIRT TO ADJACENT FINISHED AREAS AND OTHER SYSTEM COMPONENTS. PROTECT ADJACENT INSTALLATIONS DURING CUTTING AND PATCHING OPERATIONS. REMOVE PROTECTION AND BARRIERS AFTER DEMOLITION OPERATIONS ARE COMPLETE. PREVENT AIRBORNE DUST AND PARTICULATE MATTER RESULTING FROM ELECTRICAL WORK FROM ENTERING OCCUPIED SPACES, AND FROM ENTERING AIR INTAKES TO OPERATING HVAC SYSTEMS. MEET WITH OWNER AND HVAC INSTALLER TO DETERMINE SPECIAL INDOOR AIR QUALITY (IAQ) REQUIREMENTS RELATED TO ELECTRICAL THAT MAY APPLY TO THIS PROJECT. COOPERATE FULLY WITH HVAC IAQ REQUIREMENTS THAT AFFECT ELECTRICAL WORK AND ARE AFFECTED BY ELECTRICAL WORK.

G. PENETRATIONS: MAKE REQUIRED ELECTRICAL OPENINGS THROUGH WALLS, FLOORS, ETC. IMMEDIATELY PRIOR TO INSTALLATION OF WORK. PROPERLY AND PERMANENTLY SEAL ELECTRICAL OPENINGS IMMEDIATELY AFTER INSTALLATION OF WORK. PROVIDE TEMPORARY SEALS FOR APPLICATIONS WHERE PENETRATIONS ARE MADE BUT CANNOT BE PERMANENTLY SEALED WITHIN FOUR HOURS.

H. TEMPORARY LIGHTING AND POWER: COMPLY WITH NFPA 70 (INCLUDING ARTICLE 590), NFPA 70E AND ALL OTHER PREVAILING CODES. PROVIDE SUFFICIENT LIGHTING AND POWER CENTERS THROUGHOUT INTERIOR OF NEW WORK OR RENOVATION SCOPE. PROVIDE GFCI PROTECTION FOR ALL WORK. COORDINATE WITH GENERAL CONTRACTOR AND OTHER TRADES, AND PROVIDE ANY ADDITIONAL TEMPORARY ELECTRICAL NEEDS THAT ARE REQUIRED. FULLY DEMOLISH TEMPORARY ELECTRIC BY END OF PROJECT. PROVIDE OVERCURRENT PROTECTION, DISCONNECTS, CABLES, CONDUCTORS, RACEWAY, ETC. ACCORDINGLY. PROVIDE TEMPORARY SERVICE FROM UTILITY; ARRANGE WITH LOCAL UTILITY FOR TEMPORARY SERVICE AND PAY ASSOCIATED FEES FOR INSPECTIONS, CONNECTIONS, ETC., AND PAY FOR UTILITY ELECTRIC USAGE/CONSUMPTION COSTS. RESTORE ASSOCIATED SITE AND BUILDING MATERIALS TO THEIR PRE-CONSTRUCTION STATE AND CONDITION AFTER TEMPORARY LIGHTING AND POWER IS NO LONGER NEEDED.

EXISTING CONDITIONS - DEMOLITION NOTES

A. DEFINITION OF DEMOLITION: WHERE THE TERM "DEMOLITION" IS USED IN ELECTRICAL DOCUMENTS, INTERPRET IT TO MEAN "DEMOLITION" OR "SELECTIVE DEMOLITION" AS APPLICABLE FOR THE RESPECTIVE SCOPE OF WORK. WHERE THE TERM "DEMOLISH", "REMOVE" OR SIMILAR TERMS ARE USED IN ELECTRICAL DOCUMENTS, INTERPRET TO MEAN "DISCONNECT, REMOVE, DISPOSE OF, AND REMOVE ALL RELATED ELECTRICAL CONDUIT, RACEWAYS, WIRING, CABLES, BOXES, SUPPORTS, ETC.".

B. GENERAL ACCOMMODATIONS: PROVIDE ELECTRICAL DEMOLITION WORK AS REQUIRED TO ACCOMMODATE PROJECT DEMOLITION AND AS REQUIRED TO ACCOMMODATE NEW CONSTRUCTION. DISCONNECT AND REMOVE WORK TO BE ABANDONED, AND AS REQUIRED TO ACCOMMODATE WORK OF OTHER TRADES, IN AREAS AFFECTED BY THIS PROJECT UNLESS SPECIFICALLY NOTED OTHERWISE ON PLANS OR DETERMINED OTHERWISE DURING PRE-DEMOLITION SURVEY. COORDINATE WORK CAREFULLY WITH OWNER PRIOR TO BEGINNING ELECTRICAL DEMOLITION WORK.

C. REMOVAL OF ABANDONED WORK: REMOVE ACCESSIBLE ABANDONED, INACTIVE AND OBSOLETE RACEWAY SYSTEMS. REMOVE ABANDONED, INACTIVE AND OBSOLETE EQUIPMENT, LUMINAIRES, DEVICES, CONDUIT, RACEWAYS, WIRING, CABLES, BOXES, SUPPORTS, CONTROLS, ETC. ABANDONED RACEWAYS EMBEDDED IN FLOORS, WALLS, AND CEILINGS MAY REMAIN IF SUCH MATERIALS DO NOT INTERFERE WITH NEW INSTALLATIONS. THIS APPLIES FOR ALL ELECTRICAL WORK, AND ALL COMMUNICATIONS AND INFORMATION TECHNOLOGY TYPE WORK, INCLUDING ALL SUCH WORK ABOVE CEILINGS, ETC. REMOVE RELATED ABANDONED UNUSED RACEWAY BACK TO THE NEAREST RESPECTIVE "UPSTREAM" JUNCTION BOX THAT REMAINS ACTIVE EVEN IF OUTSIDE OF THE CONFINES OF THE PROJECT AREA. REMOVE ABANDONED UNUSED WIRING AND CABLES BACK TO RESPECTIVE SOURCES SOURCE EVEN IF SOURCES ARE OUTSIDE THE CONFINES OF THE PROJECT AREA.

D. RE-USE OF EXISTING CONDUIT: EXISTING BRANCH CIRCUIT AND SYSTEMS CONDUIT, NOT CONFLICTING WITH NEW CONSTRUCTION AND NOT CONFLICTING WITH OVERHEAD OR CEILING CAVITY REQUIREMENTS, MAY BE RE-USED AT THE DISCRETION OF THE ELECTRICAL INSTALLER AFTER ALL ABANDONED CONDUCTORS AND CABLES HAVE BEEN REMOVED FROM THEM. DO NOT EXCEED NFPA 70 REQUIRED CONDUIT FILL AND DO NOT INSTALL WIRING FED FROM DIFFERENT SOURCES IN COMMON CONDUIT.

E. CUTTING AND PATCHING: PERFORM CUTTING AND PATCHING REQUIRED FOR DEMOLITION, RESTORED TO MATCH SURROUNDING REMAINING SURFACES, INCLUDING FIRE/SMOKE RATINGS.

F. DISPOSAL OF MATERIALS: REFER TO OWNER'S REPRESENTATIVE FOR DISPOSAL INSTRUCTIONS FOR ABANDONED ELECTRICAL MATERIALS REMOVED DURING DEMOLITION AND THEREAFTER. NEATLY STORE ELECTRICAL MATERIALS THAT THE OWNER ELECTS TO RETAIN AT THE SITE AS DESIGNATED BY THE OWNER'S REPRESENTATIVE. LEGALLY DISPOSE OF MATERIALS THAT THE OWNER ELECTS NOT TO RETAIN. DISCONNECT AND REMOVE ELECTRICAL MATERIALS DESIGNATED FOR SALVAGE (REMOVAL AND REUSE, OR FOR TURNING OVER TO OWNER) UNDAMAGED. DISCONNECT AND REMOVE WIRING AND "WHIPS" FROM EQUIPMENT TERMINAL POINTS. CAREFULLY TRANSPORT SALVAGED ELECTRICAL MATERIALS TO A PROTECTED ON-SITE STORAGE LOCATION AS DIRECTED IN FIELD AND NEATLY STORE THEM GROUPED BY SYSTEM TYPE.

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — STEPHEN N. FEDERLE — E-76032 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — consultants — engineers architects planners

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 — DRAWN BY: KH — CHECKED BY: PM — APPROVED BY: — F.B. NO. — PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241
ELECTRIC DEMOLITION PLAN

SCALE: 1/8" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET: E-101

11/14/2019 10:21:01 AM

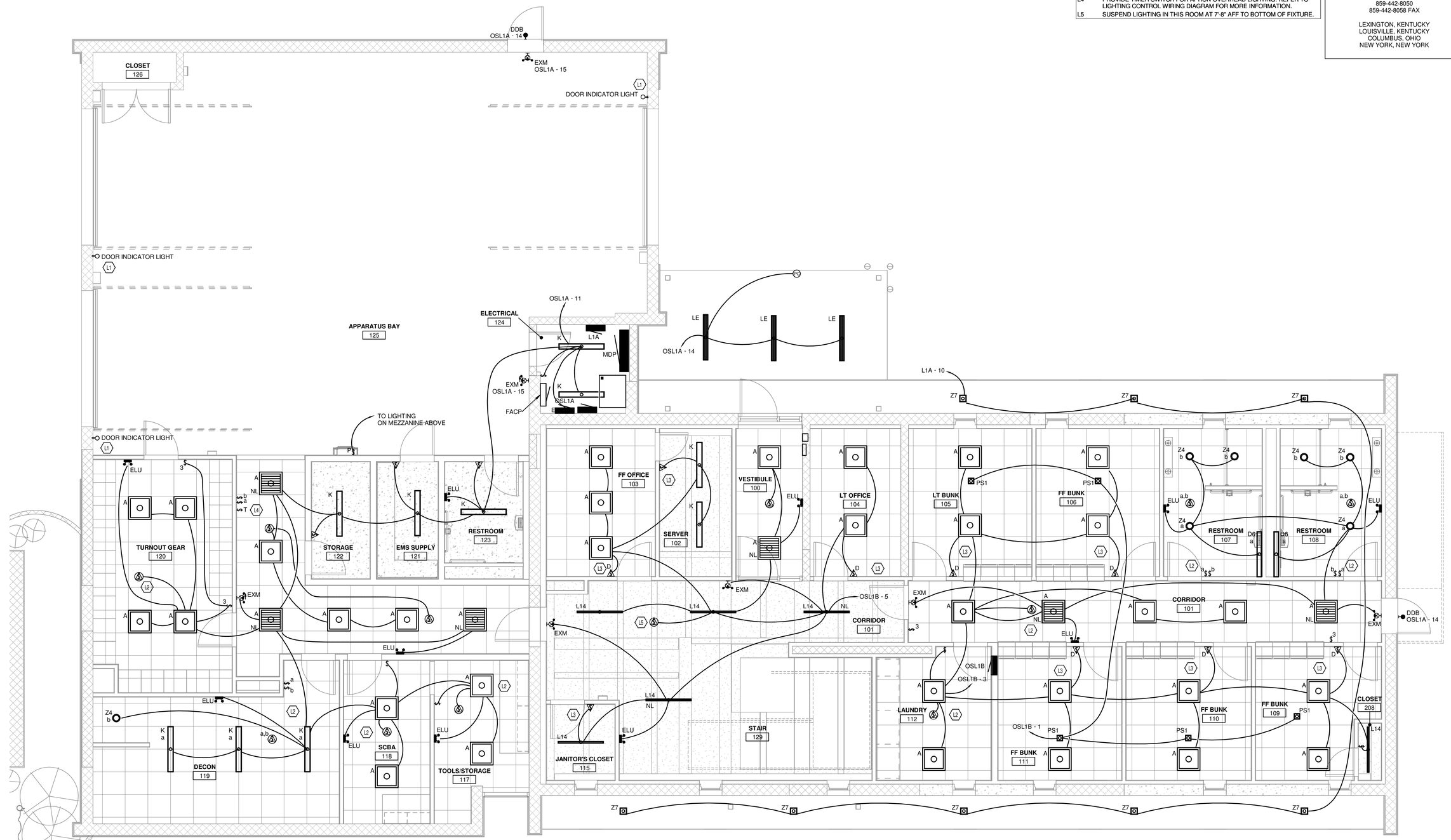
KLH JOB#: 21459.00

GENERAL LIGHTING PLAN NOTES

A. EXIT SIGN CONNECTIONS: CONNECT ALL EXIT SIGNAGE AHEAD OF ANY SWITCHING.
B. INDOOR EGRESS LIGHTING: CONNECT ALL INDOOR EGRESS LIGHTING, DESIGNATED "EL", AHEAD OF ANY SWITCHING, UNLESS CONTROL METHODS ARE INDICATED OTHERWISE FOR A GIVEN AREA.
C. OUTDOOR EGRESS LIGHTING: CONNECT ALL OUTDOOR EGRESS LIGHTING AHEAD OF ANY SWITCHING ASIDE FROM PHOTOCELL CONTROL.

KEYED NOTES

L1 PROVIDE DOOR POSITION INDICATOR LIGHT. PROVIDE POWER FROM DOOR OPERATOR CONTROL CIRCUIT.
L2 CONTROL LIGHTING IN THIS ROOM WITH MANUAL-ON VIA WALL SWITCH, AUTO-OFF VIA CEILING-MOUNTED SENSOR. ADJUST SENSOR SO THAT LIGHTING TURNS OFF WITHIN 30 MINUTES OF ROOM VACANCY.
L3 CONTROL LIGHTING IN THIS ROOM WITH MANUAL-ON, AUTO-OFF VIA WALL-MOUNTED SENSOR. ADJUST SENSOR SO THAT LIGHTING TURNS OFF WITHIN 30 MINUTES OF ROOM VACANCY.
L4 PROVIDE TIMER SWITCH FOR APRON OVERHEAD LIGHTING. REFER TO LIGHTING CONTROL WIRING DIAGRAM FOR MORE INFORMATION.
L5 SUSPEND LIGHTING IN THIS ROOM AT 7'-8" AFF TO BOTTOM OF FIXTURE.



1 EL102 **ELECTRIC LIGHTING - FIRST FLOOR**
1/4" = 1'-0"

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — STEPHEN N. FEDERLE — E-76032 — REGISTERED — PROFESSIONAL ENGINEER
11/04/19

your trusted advisor — engineers architects planners — consultants

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 | DRAWN BY: KH | CHECKED BY: PM | APPROVED BY: | F.B. NO.: | PG.:

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241
ELECTRIC LIGHTING - FIRST FLOOR

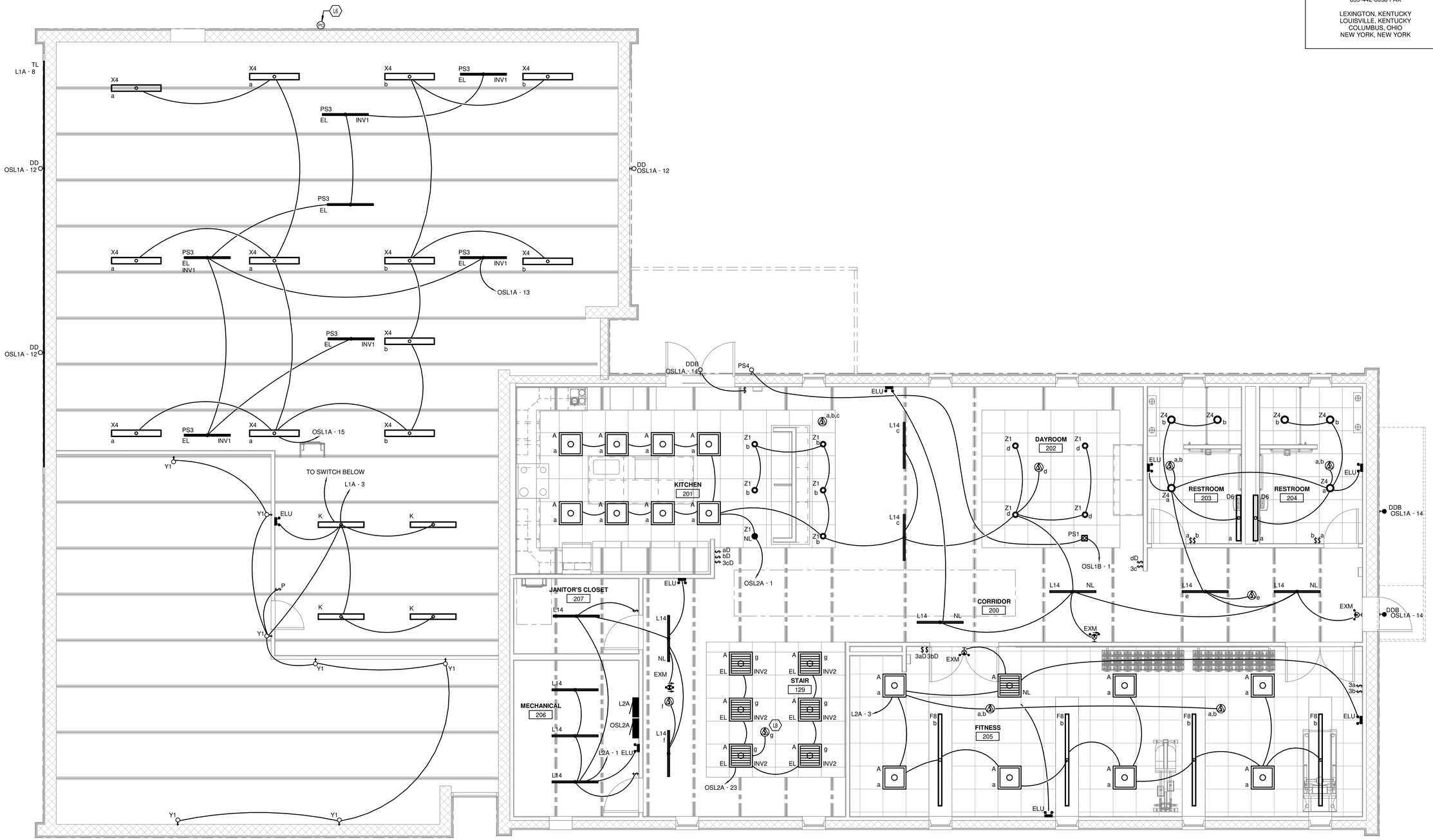
SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET: EL102

11/14/2019 10:21:11 AM

KLH JOB#: 21459.00

KEYED NOTES

L6	PROVIDE PHOTOCELL FOR CONTROL OF EXTERIOR LIGHTING. REFER TO EXTERIOR LIGHTING WIRING DIAGRAM FOR ADDITIONAL INFORMATION.
L8	CONTROL STAIRWAY LIGHTING TO BE AUTO-ON, AUTO-DIM TO 50% OF FULL OUTPUT AFTER 15 MINUTES OF INACTIVITY.



1 / EL103 **ELECTRIC LIGHTING - SECOND FLOOR**
1/4" = 1'-0"

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM

1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX

LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — STEPHEN N. FEDERLE — E-76032 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — consultants — engineers architects planners

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 — DRAWN BY: KH — CHECKED BY: PM — APPROVED BY: — F.B. NO. — PG.

SHARONVILLE FIRE STATION 87 RENOVATION

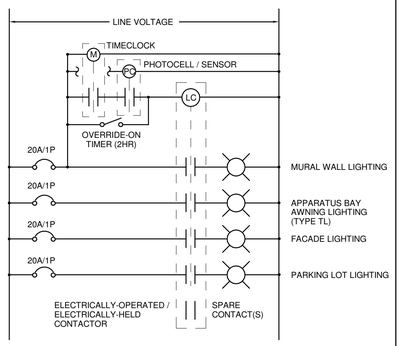
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

ELECTRIC LIGHTING - SECOND FLOOR

SCALE: 1/4" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET: EL103

11/14/2019 10:21:53 AM

KLH JOB#: 21459.00

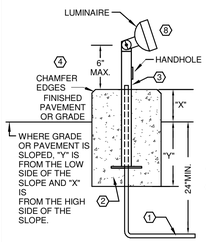


265100.00-05 - EXTERIOR LIGHTING CONTROL WIRING DIAGRAM

SCALE: NONE

KEYED NOTES:

1. PROVIDE 1" MINIMUM SCHEDULE 40 ELECTRICAL PVC CONDUIT. BACKFILL WITH EXCAVATED OR BORROWED MATERIAL. MATERIAL SHALL BE FREE OF ROCKS 1" DIAMETER AND LARGER. COMPACT TO 90% IN MAX 8" LIFTS OF LOOSE SOIL.
2. PROVIDE 3000# CONCRETE BASE (CLASS A FORMED SURFACE WHERE EXPOSED).
3. INSTALL ACCORDING TO LUMINAIRE MANUFACTURER'S INSTRUCTIONS. PROVIDE STANCHION THAT IS SUITABLE FOR INSTALLATION IN CONCRETE AND EMBED IN CONCRETE BASE. IF SURFACE STANCHION IS UTILIZED, IT SHALL BE VERY SHORT SO THAT MAXIMUM HEIGHT INDICATED IS NOT EXCEEDED. PROVIDE FINISHED STANCHION THAT MATCHES LUMINAIRE FINISH. PROVIDE STAINLESS STEEL HARDWARE AND WATER-TIGHT GASKETED COVERS/SEALS.
4. FOR BASES FLUSH WITH PAVEMENT, DO NOT PROVIDE CHAMFER. SEAL THE PERIMETER OF THE BASE TOP INSTEAD.
5. PROVIDE 24" MINIMUM RADIUS. PROVIDE NUMBER OF CONDUITS AS NEEDED, PROVIDE CONDUIT(S) SIZED SO THAT THEY FIT EASILY WITHIN THE STANCHION. ONE HALF INCH CONDUIT MAY BE USED WITHIN STANCHION IF NEEDED TOENSURE PROPER FIT.
6. PROVIDE CYLINDRICAL MESH CAGE STARTING AT 3" FROM BOTTOM OF BASE AND ENDING 3" FROM TOP OF BASE.
7. PROVIDE ROUND CONCRETE BASE.
8. PROVIDE FINAL AIMING AT NIGHT IN PRESENCE OF OWNER'S REPRESENTATIVE.



BASE DIMENSIONS		
LUMINAIRE TYPE	"X"	"Y"
GAZ	0"	18"

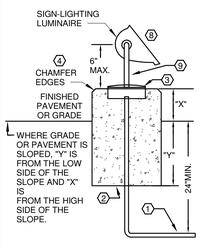
SECTION VIEW PLAN VIEW

265100.00-02 - ABOVE GRADE LIGHTING - POINT SOURCE

SCALE: NONE

KEYED NOTES:

1. PROVIDE 1" MINIMUM SCHEDULE 40 ELECTRICAL PVC CONDUIT. BACKFILL WITH EXCAVATED OR BORROWED MATERIAL. MATERIAL SHALL BE FREE OF ROCKS 1" DIAMETER AND LARGER. COMPACT TO 90% IN MAX 8" LIFTS OF LOOSE SOIL.
2. PROVIDE 3000# CONCRETE BASE (CLASS A FORMED SURFACE WHERE EXPOSED).
3. INSTALL ACCORDING TO LUMINAIRE MANUFACTURER'S INSTRUCTIONS. IF SURFACE OUTLET BOX IS UTILIZED, PROVIDE FINISHED COMPONENTS THAT MATCH PENDANT AND LUMINAIRE FINISH, AND THAT ARE SUITABLE FOR EXTERIOR FACE-UP INSTALLATION DIRECTLY ON CONCRETE. IF RECESSED OUTLET BOX IS UTILIZED, PROVIDE MATERIALS SUITABLE FOR BEING EMBEDDED IN CONCRETE. PROVIDE STAINLESS STEEL HARDWARE AND WATER-TIGHT GASKETED COVERS/SEALS.
4. FOR BASES FLUSH WITH PAVEMENT, DO NOT PROVIDE CHAMFER. SEAL THE PERIMETER OF THE BASE TOP INSTEAD.
5. PROVIDE 24" MINIMUM RADIUS. PROVIDE NUMBER OF CONDUITS AS NEEDED, 1" MINIMUM.
6. PROVIDE CYLINDRICAL MESH CAGE STARTING AT 3" FROM BOTTOM OF BASE AND ENDING 3" FROM TOP OF BASE.
7. PROVIDE ROUND CONCRETE BASE. PROVIDE ONE BASE FOR EACH LUMINAIRE HUB SUPPORT, REGARDLESS OF POWER FEED LOCATION. CONDUIT IS NOT REQUIRED FOR BASES THAT ARE PROVIDED FOR SUPPORT ONLY.
8. PROVIDE FINAL AIMING AT NIGHT IN PRESENCE OF OWNER'S REPRESENTATIVE.
9. PEDESTAL MOUNT.



BASE DIMENSIONS		
LUMINAIRE TYPE	"X"	"Y"
SL1	0"	18"

SECTION VIEW PLAN VIEW

265100.00-01 - SIGN LIGHTING - LINEAR SOURCE

SCALE: NONE

ELECTRIC LUMINAIRE SCHEDULE

TYPE	DESCRIPTION	MANUFACTURER / SERIES	SIZE	HOUSING / MOUNTING	MATERIAL	LENS DESCRIPTION	LAMP QTY	LAMP TYPE	LAMP BASE	BALLAST / DRIVER QTY	BALLAST / DRIVER	FINISH	COMMENTS	FIXTURE LOAD	VOLTAGE
A	LED FLAT PANEL	LITHONIA EPANL DAY-BRITE 2FXP COLUMBIA CFP22 METALUX 22FP	2'x2'x2"	RECESSED	STEEL	SATIN WHITE FLAT LUMINOUS ACRYLIC LENS	1	LED, 3500K, 80 CRI	3400 NOMINAL LUMENS	1	ELECTRONIC DRIVER, 120V-277V, 0-10V DIMMING	WHITE		33 VA	120 V
AB4	AREA LIGHTING LUMINAIRE	LITHONIA RADPT LED OR APPROVED EQUAL	24" DIAx26"	EXISTING POLE, ADJUSTABLE TENON SUPPTTER	ALUMINUM	TYPE IV WIDE OPTIC	1	LED, 4000K, 70 CRI	11000 NOMINAL LUMENS	1	ELECTRONIC DRIVER	SILVER, MATCH EXISTING	WET LISTED; VERIFY OUTSIDE DIMENSION OF TOP OF POLE IN FIELD, PROVIDE ADAPTER TO MATCH	86 VA	120 V
AB5	AREA LIGHTING LUMINAIRE	LITHONIA RADPT LED OR APPROVED EQUAL	24" DIAx26"	EXISTING POLE, ADJUSTABLE TENON SUPPTTER	ALUMINUM	TYPE V WIDE OPTIC	1	LED, 4000K, 70 CRI	11000 NOMINAL LUMENS	1	ELECTRONIC DRIVER	SILVER, MATCH EXISTING	WET LISTED; VERIFY OUTSIDE DIMENSION OF TOP OF POLE IN FIELD, PROVIDE ADAPTER TO MATCH	86 VA	120 V
D6	LED PERFORATED FRONT WALL BRACKET	FINELITE S17LED VCF PRUDENTIAL WAL14-LED H.E. WILLIAMS WMALID LITECONTROL 67L-W-D AXIS PWWLED	5"x4'x4"	SURFACE WALL	STEEL	PERFORATED METAL DIFFUSER, TOP AND BOTTOM FROSTED ACRYLIC DIFFUSER	1	LED, 3500K, 80 CRI	3000 NOMINAL LUMENS	1	ELECTRONIC DRIVER	WHITE		36 VA	120 V
DD	LED WALL MOUNT CUTOFF	GARDCO 101L LITHONIA WST H.E. WILLIAMS WPTZ HUBBELL TRP MCGRAW-EDISON IST	16-3/8"x9"x-7-1/4"	SURFACE	ALUMINUM	CLEAR FLAT TEMPERED GLASS LENS, MEDIUM THROW OPTIC	1	LED, 4000K, 70 CRI	6000 NOMINAL LUMENS	1	ELECTRONIC INTEGRAL DRIVER, 120V-277V	WHITE	WET LISTED, PROVIDE FIXTURE WITH INTEGRAL PHOTOCELL CONTROL	50 VA	120 V
DDB	LED WALL MOUNT CUTOFF - BATTERY	GARDCO 101L LITHONIA WST H.E. WILLIAMS WPTZ HUBBELL TRP MCGRAW-EDISON IST	16-3/8"x9"x-7-1/4"	SURFACE WALL	ALUMINUM	CLEAR FLAT TEMPERED GLASS LENS, MEDIUM THROW OPTIC	1	LED, 4000K, 70 CRI	2700 NOMINAL LUMENS	1	ELECTRONIC INTEGRAL DRIVER, 120V-277V	WHITE	WET LISTED, PROVIDE FIXTURE WITH INTEGRAL PHOTOCELL CONTROL, INTEGRAL 1100 LUMEN EMERGENCY BATTERY PACK RATED FOR 2 HOUR OPERATION	28 VA	120 V
ELU	EMERGENCY LIGHTING UNIT - THERMOPLASTIC	LITHONIA ELM6 LED EMERGI-LITE EL2 DUAL-LITE EV SURE-LITES LEM2	11-3/4"x7-1/2"x4"	WALL	THERMOPLASTIC		2	3W LED, WITH UNIT, 270 NOMINAL LUMENS		0	NO BALLAST	WHITE	6V UNIT, SEALED LEAD ACID BATTERY OPERATION, 9W OUTPUT REMOTE CAPABILITY, UL924 COMPLIANT	6 VA	120 V
EXM	EXIT/EMERGENCY LIGHTING UNIT COMBO	LITHONIA LHQM LED DUAL-LITE EVC SURELITES APC7	21"x10"x4"	UNIVERSAL	THERMOPLASTIC	STENCIL FACE	2	1.5W LED, WITH UNIT		0	NO BALLAST	WHITE	EXIT SIGNAGE COLOR TO BE BASED ON OWNER PREFERENCE OR EXISTING CONDITIONS, 6V UNIT, 3W OUTPUT LEAD CALCIUM BATTERY OPERATION	3 VA	120 V
F8	RECESSED LED LINEAR	LITECONTROL 4L-R-D NULITE RS4 FINELITE HP-4	4"x8'x4"	RECESSED, GYP. BD. CEILING	STEEL	SATIN WHITE FLAT LUMINOUS ACRYLIC LENS	1	LED, 3500K, 80 CRI, 3.4W/FT	3200 NOMINAL LUMENS	1	ELECTRONIC DRIVER, 120V-277V, 0-10V DIMMING	WHITE		29 VA	120 V
GAZ	ARCHITECTURAL LED FLAG POLE SPOT LIGHT	FC LIGHTING FCF1105 OR APPROVED EQUAL	5-1/2" x5" x 8-1/2" x 12" OAH	HEAVY DUTY GROUND STAKE, REFER TO MOUNTING DETAIL	ALUMINUM	CLEAR TEMPERED GLASS LENS, 15° SPOT OPTIC	1	LED, 4000K	2000 NOMINAL LUMENS	1	ELECTRONIC DRIVER	BRONZE	WET LISTED, PROVIDE UPPER VISOR, SINGLE-FUSE, PROVIDED WITH 1/2" NPT MOUNTING STEM	21 VA	120 V
K	LED ENCLOSED NON-METALLIC INDUSTRIAL	LITHONIA FEM COLUMBIA LXEM DAY-BRITE DWA METALUX VT2	6"x4'x4-1/8"	SURFACE OR CHAIN	FIBERGLASS	GASKETED ACRYLIC LINEAL FROSTED DIFFUSER	1	LED, 3500K, 80 CRI	4000 NOMINAL LUMENS	1	ELECTRONIC DRIVER	WHITE	IP67 RATING	31 VA	120 V
L14	LED SPECIFICATION STRIP	LITHONIA ZL1D DAY-BRITE FSS COLUMBIA MPS METALUX SNLED	2"x4'x2-7/8"	SURFACE OR CHAIN	STEEL	ACRYLIC DIFFUSE LENS	1	LED, 3500K, 80 CRI	3000 NOMINAL LUMENS	1	ELECTRONIC DRIVER, 120V-277V, 0-10V DIMMING	WHITE		20 VA	120 V
LE	EXTERIOR LED STRIP	A-LIGHTS G3 OR APPROVED EQUAL	5"x4'x5"	SURFACE, CANOPY	STEEL	ACRYLIC DIFFUSE LENS, SYMMETRIC DISTRIBUTION	1	LED, 4000K, 80 CRI	1700 NOMINAL LUMENS	1	ELECTRONIC DRIVER	WHITE	WET LISTED, PROVIDE INTEGRAL EMERGENCY BATTERY BACKUP	20 VA	120 V
PS1	RED LED NOTIFICATION LIGHT	LUMENPULSE LMDM BRUCK 135341 PHOENIX CL	6-3/4"x-7-1/4"	SURFACE	ALUMINUM	FLAT POLYCARBONATE LENS	1	LED, STATIC RED LED	1000 NOMINAL LUMENS	1	ELECTRONIC, REMOTE DRIVER TO BE ABOVE ACCESSIBLE CEILING	WHITE	FIELD REPLACABLE LED MODULE AND DRIVER	14 VA	120 V
PS3	RED LED STRIP	SSL CVLWET LUMENPULSE LOGP CAU ALS450T	2"x4'x3"	SUSPENDED	STEEL	POLYCARBONATE DIFFUSE LENS, MEDIUM DISTRIBUTION	1	LED, STATIC RED	1600 NOMINAL LUMENS	1	ELECTRONIC INTEGRAL DRIVER, 120V-277V	WHITE	MOUNTING AS INDICATED ON PLANS, IP66 RATING, PROVIDE LUMINAIRE SAFETY CABLE, WET LISTED	22 VA	120 V
PS4	RED LED NOTIFICATION LIGHT	LUMENPULSE LMDM BRUCK 135341 PHOENIX CL	6-3/4"x-7-1/4"	SURFACE WALL, AT 8'-0" A.F.G.	ALUMINUM	FLAT POLYCARBONATE LENS	1	LED, STATIC RED LED	100 NOMINAL LUMENS	1	ELECTRONIC, REMOTE DRIVER TO BE ABOVE ACCESSIBLE CEILING	WHITE	WET LISTED	14 VA	120 V
SL1	LINEAR LED SIGN LIGHT	LUMENPULSE LOG HO OR APPROVED EQUAL	3"x4'x4"	UNIVERSAL ADJUSTABLE MOUNT, REFER TO DETAIL	ALUMINUM	CLEAR ACRYLIC LENS, ANODIZED ALUMINUM REFLECTOR, 30x60 DEGREE OPTIC	1	LED, 4000K, 80 CRI	3800 NOMINAL LUMENS	1	ELECTRONIC DRIVER	BRONZE	WET LISTED	61 VA	120 V
TL	EXTERIOR LED TAPE LIGHT	ACOLYTE RB OR APPROVED EQUAL	3/4"X LENGTH AS SHOWN ON PLAN	SURFACE	EXTRUDED ALUMINUM CHANNEL	CLEAR ACRYLIC LENS	1	LED, 4000K, 80 CRI, 300 LUMENS PER FOOT	125 LUMENS PER FOOT	0	PER MANUFACTURER'S RECOMMENDATIONS	WHITE	IP68, PROVIDE ALL REQUIRED CORDS, TERMINATIONS, AND ACCESSORIES REQUIRED FOR A FULLY FUNCTIONAL INSTALLATION; VERIFY LENGTH AND INSTALLATION WITH ARHITECTURAL DRAWINGS	35 VA	120 V
X4	ENCLOSED AND GASKETED LED - APPARATUS BAY	LITHONIA FEM4 COLUMBIA LXEM4 METALUX 4VT2 LED DAYBRITE V3W4	7"x52"x6"	SUSPENDED	FIBERGLASS	CLEAR SPECULAR REFLECTOR, MEDIUM DISTRIBUTION, NO UPLIGHT, FROSTED ACYRLIC LENS		LED, 3500K, 80 CRI	10000 NOMINAL LUMENS	1	ELECTRONIC INTEGRAL DRIVER, 120V-277V	WHITE	PROVIDE LUMINAIRE SAFETY CABLE, WET LISTED, IP66 AND IP67 RATING	92 VA	120 V
Y1	ENCLOSED GLOBE & GUARD - LED	LITHONIA OLVTWM HUBBELL WWGL-1 CANLET LEDVP	4-9/16"x7-7/16"x11-5/16"	SURFACE WALL	ALUMINUM	ENCLOSED TEMPERED FROSTED GLASS GLOBE, CAST ALUMINUM HOOD & GUARD	1	LED, 4000K, 74 CRI	600 NOMINAL LUMEN	1	ELECTRONIC DRIVER	GRAY	WET LISTED	15 VA	120 V
Z1	LED DOWNLIGHT	LITHONIA WF4 OR APPROVED EQUAL	4" DIAx1"x5-1/2"	RECESSED	ALUMINUM	POLYCARBONATE LENS, MEDIUM DOWNLIGHT OPTIC	1	LED, 3500K, 80 CRI	675 NOMINAL LUMENS	1	ELECTRONIC DRIVER, 120V-277V, 0-10V DIMMING	MATTE WHITE		9 VA	120 V
Z4	LED SHOWER LIGHT	GOTHAM EVO HALO COMMERCIAL HC6 LIGHTOLIER C6R PRESCOLITE LF6	6" DIAx14-1/2"x5-5/8"	RECESSED	STEEL	FLAT CLEAR POLYMER LENS, WHITE SPLAY	1	LED, 3500K, 80 CRI	1000 NOMINAL LUMENS	1	ELECTRONIC DRIVER	WHITE POLYCARBONATE NON-CONDUCTIVE TRIM	WET LISTED	12 VA	120 V
Z7	SQUARE LED DOWNLIGHT	JUNO IC1JB JSFSQ OR APPROVED EQUAL	7"x7"x3/4"	SURFACE JUNCTION BOX, IC RATED	ALUMINUM	SEMI-SPECULAR REFLECTOR, MEDIUM DOWNLIGHT OPTIC	1	LED, 4000K, 80 CRI	1000 NOMINAL LUMENS	1	ELECTRONIC DRIVER	WHITE	WET LISTED; FIELD REPLACABLE LED, MODULE, AND DRIVER	13 VA	120 V

Interior Lighting Compliance Certificate

2012 IECC

Section 1: Project Information

Project Type: Alterations

Section 2: Interior Lighting and Power Calculation

Floor Area (sq. ft.)	Watts per sq. ft.	Allowed Watts	Proposed Watts	Complies
8440 sq. ft.	0.8 (Fire Station)	6752 W	See Below	Yes

Section 3: Interior Lighting Fixture Schedule

TYPE	LAMP TYPE	BALLAST / DRIVER	LAMP QTY	COUNT	LOAD	TOTAL LOAD
A	LED, 3500K, 80 CRI	ELECTRONIC DRIVER, 120V-277V, 0-10V DIMMING	1	60	33 VA	1980 VA
D6	LED, 3500K, 80 CRI	ELECTRONIC DRIVER	1	4	36 VA	144 VA
F8	LED, 3500K, 80 CRI, 3.4W/FT	ELECTRONIC DRIVER, 120V-277V, 0-10V DIMMING	1	4	29 VA	116 VA
K	LED, 3500K, 80 CRI	ELECTRONIC DRIVER	1	14	31 VA	434 VA
L14	LED, 3500K, 80 CRI	ELECTRONIC DRIVER, 120V-277V, 0-10V DIMMING	1	18	20 VA	360 VA
PS3	LED, STATIC RED	ELECTRONIC INTEGRAL DRIVER, 120V-277V	1	7	22 VA	154 VA
X4	LED, 3500K, 80 CRI	ELECTRONIC INTEGRAL DRIVER, 120V-277V		13	92 VA	1196 VA
Y1	LED, 4000K, 74 CRI	ELECTRONIC DRIVER	1	10	15 VA	150 VA
Z1	LED, 3500K, 80 CRI	ELECTRONIC DRIVER, 120V-277V, 0-10V DIMMING	1	10	9 VA	90 VA
Z4	LED, 3500K, 80 CRI	ELECTRONIC DRIVER	1	13	12 VA	156 VA
Z7	LED, 4000K, 80 CRI	ELECTRONIC DRIVER	1	8	13 VA	104 VA
						4884 VA

Exterior Lighting Compliance Certificate

2012 IECC

Section 1: Project Information

Project Type: Alterations
Exterior Lighting Zone: Neighborhood Business District

Section 2: Exterior Lighting Area/Surface Power Calculation

Exterior Area/Surface	Quantity	Allowed Watts / Unit	Tradable Watts	Allowed Supplemental Watts	Proposed Watts	Complies
Parking Area	11,000 SF	0.06 W/SF	Yes	660 W	See Below	Yes
Front Apron	1,500 SF	0.06 W/SF	Yes	90 W		
Entry Canopy	250 SF	0.25 W/SF	Yes	62.5 W		
				812 W		

Section 3: Exterior Lighting Fixture Schedule

TYPE	LAMP TYPE	BALLAST / DRIVER	LAMP QTY	COUNT	LOAD	TOTAL LOAD
AB4	LED, 4000K, 70 CRI	ELECTRONIC DRIVER	1	1	86 VA	86 VA
AB5	LED, 4000K, 70 CRI	ELECTRONIC DRIVER	1	1	86 VA	86 VA
DD	LED, 4000K, 70 CRI	ELECTRONIC INTEGRAL DRIVER, 120V-277V	1	3	50 VA	150 VA
DDB	LED, 4000K, 70 CRI	ELECTRONIC INTEGRAL DRIVER, 120V-277V	1	3	28 VA	84 VA
GAZ	LED, 4000K	ELECTRONIC DRIVER	1	2	21 VA	42 VA
LE	LED, 4000K, 80 CRI	ELECTRONIC DRIVER	1	3	20 VA	60 VA
SL1	LED, 4000K, 80 CRI	ELECTRONIC DRIVER	1	4	61 VA	244 VA
TL	LED, 4000K, 80 CRI, 300 LUMENS PER FOOT	PER MANUFACTURER'S RECOMMENDATIONS	1	1	35 VA	35 VA
						787 VA

GENERAL NOTES

A. REFER TO DRAWINGS FOR MOUNTING TYPE, NUMBER OF FACES AND ARROWS OF EXIT SIGNS. VERIFY IN FIELD PRIOR TO INSTALLATION.
B. VERIFY COMPATIBILITY WITH VOLTAGE, CONTROLS, ETC. FOR ALL LUMINAIRE COMPONENTS
C. COORDINATE EACH LUMINAIRE LOCATION WITH THE ARCHITECTURAL REFLECTED CEILING PLANS, CEILING INSTALLERS, ETC. AND PROVIDE APPROPRIATE MOUNTING SYSTEM REQUIRED FOR EACH LUMINAIRE. ALSO, PROVIDE PLASTER FRAMES, WALL BRACKETS, SUPPORTS, OR OTHER APPURTENANCES AS REQUIRED FOR PROPER AND COMPLETE INSTALLATIONS.
D. WEAR CLEAN WHITE COTTON GLOVES WHEN HANDLING EXPOSED REFLECTIVE LUMINAIRE SURFACES. REMOVE PLASTIC SHIPPING BAGS ONLY AFTER INTERIOR WORK IS COMPLETE, AND CLEAN ALL SURFACES WITH CLEAN DRY CHEESECLOTH.
E. MOUNTING HEIGHTS INDICATED ARE TO THE BOTTOM OF THE LUMINAIRE, UNLESS OTHERWISE NOTED.
F. PRODUCTS: PROVIDE PRODUCTS INDICATED ON DRAWINGS AND SCHEDULES. WHERE MULTIPLE MANUFACTURER SERIES/MODEL NUMBERS ARE LISTED FOR A SINGLE LUMINAIRE, PROVIDE ONE OF THOSE LISTED. WHERE A SPECIFIC MANUFACTURER SERIES/MODEL NUMBER IS LISTED AS BASIS-OF-DESIGN, AND WHERE IT IS STATED THAT EQUIVALENTS WILL BE CONSIDERED, ANY PROPOSED NON-LISTED LUMINAIRES ARE SUBJECT TO REVIEW BY DESIGN PROFESSIONAL(S), SUBMITTALS FOR WHICH SHALL BE FURNISHED AT LEAST (10) DAYS PRIOR TO BID DUE DATE OR THEY WILL NOT BE CONSIDERED. THESE PRE-BID SUBMITTALS SHALL CLEARLY STATE EXACTLY WHAT IS BEING PROPOSED AND SHALL DEMONSTRATE COMPLIANT EQUIVALENCY. SIMILAR REQUESTS FOR PROPOSED SUBSTITUTIONS MAY BE MADE ONLY AFTER BIDS ARE RECEIVED, AND ONLY IF OWNER CHOOSES TO CONSIDER SUBSTITUTION REQUESTS. DESIGN PROFESSIONAL(S) AND OWNER RESERVE THE RIGHT TO REJECT ALL PRODUCTS THAT ARE NOT DEEMED TO BE FULLY EQUIVALENT TO THE BASIS-OF-DESIGN LISTING(S). SUBMIT ALL REQUESTS AND QUESTIONS THROUGH THE FORMALLY-ESTABLISHED BIDDING PROCESS, NOT DIRECTLY TO ENGINEER.

ELECTRIC INVERTER SCHEDULE

Provide UL924 listed inverters / battery backup for emergency egress as specified below and per specifications. See floor plans for individual luminaires to be connected to each inverter. Luminaires are labeled with "IN_". Coordinate final inverter sizes with final luminaire selection and maximum inverter loading requirements prior to purchase / rough in. Where a luminiare on an inverter is specified to be controlled / dimmed, provide UL924 control bypass devices to force luminaires to 100% on when power is lost. Mount inverters in an easily accessible location. Coordinate final inverter locations in field.

INVERTER ID	125% LOAD	PANEL	CIRCUIT	VOLTAGE	INVERTER SIZE
INV1	193 VA	OSL1A	13	120 V	250 VA
INV2	248 VA	OSL2A	23	120 V	250 VA

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — STEPHEN N. FEDERLE — E-76032 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor consultants — engineers architects planners

REV	ISSUE	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 | DRAWN BY: KH | CHECKED BY: PM | APPROVED BY: | F.B. NO. | PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

ELECTRIC LIGHTING - LUMINAIRE SCHEDULE

SCALE: 1/8" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET EL601

11/14/2019 10:22:01 AM

KLH JOB#: 21459.00

KEYED NOTES

E1 PROVIDE (2) TOTAL CONTROL STATIONS FOR EACH OVERHEAD DOOR, AND PROVIDE (1) MASTER CONTROL STATIONS TO OPEN ALL DOORS SIMULTANEOUSLY. INSTALL AND WIRE 3-BUTTON OVERHEAD DOOR CONTROL STATIONS AT LOCATION AS DIRECTED BY OWNER IN FIELD. COORDINATE WITH OVERHEAD DOOR INSTALLER PRIOR TO ROUGH-IN.

E2 THIS EQUIPMENT RECEIVES POWER FROM ANOTHER. PROVIDE ALL POWER AND CONTROL WIRING BETWEEN EQUIPMENT AS REQUIRED BY THE MANUFACTURER. REFER TO EQUIPMENT COORDINATION SCHEDULES FOR MORE INFORMATION.

E3 INTERLOCK THE EXHAUST FAN OPERATION WITH THE OCCUPANCY SENSORS CONTROLLING THE LIGHTING IN THE ROOM(S) THE EXHAUST FAN SERVES. REFER TO MECHANICAL DRAWINGS FOR WHICH ROOM(S) APPLY.

E7 EQUIPMENT TO BE PROVIDED BY OWNER. PROVIDE BREAKER, WIRING, AND DISCONNECT TO MATCH EQUIPMENT VOLTAGE AND LOAD. COORDINATE POWER REQUIREMENTS PRIOR TO ROUGH-IN.

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — STEPHEN N. FEDERLE — E-76032 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners consultants

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE:	11/20/2019
DRAWN BY:	KH
CHECKED BY:	PM
APPROVED BY:	
F.B. NO.	PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

ELECTRIC POWER - FIRST FLOOR

SCALE:	1/4" = 1'-0"
HORZ:	
VERT:	
CONTRACT NO:	170636
SHEET	EP102

1 / EP102 **ELECTRIC POWER - FIRST FLOOR**
1/4" = 1'-0"

11/14/2019 10:22:11 AM

KLH JOB#: 21459.00

KEYED NOTES

E3 INTERLOCK THE EXHAUST FAN OPERATION WITH THE OCCUPANCY SENSORS CONTROLLING THE LIGHTING IN THE ROOM(S) THE EXHAUST FAN SERVES. REFER TO MECHANICAL DRAWINGS FOR WHICH ROOM(S) APPLY.

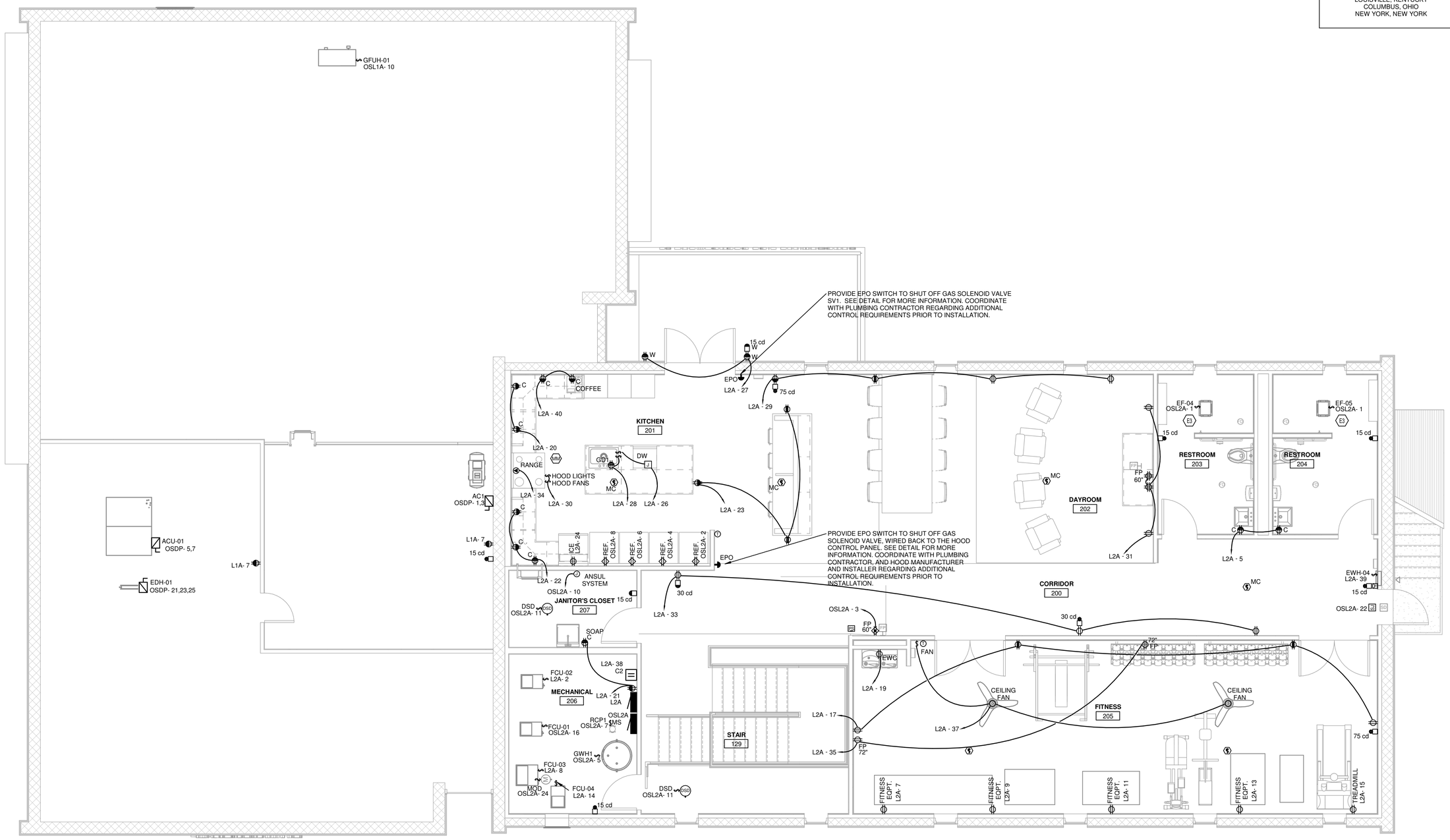
KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM

1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX

LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO
STEPHEN N. FEDERLE
E-76032
REGISTERED
PROFESSIONAL ENGINEER
11/04/19

your trusted advisor consultants — engineers architects planners



1 EP103 **ELECTRIC POWER - SECOND FLOOR**
1/4" = 1'-0"

REV	ISSUE FOR BIDDING AND PERMIT	DATE	BY
0		11/20/2019	CAM

DATE: 11/20/2019
DRAWN BY: KH
CHECKED BY: PM
APPROVED BY:
F.B. NO. PG.

SHARONVILLE FIRE STATION 87 RENOVATION

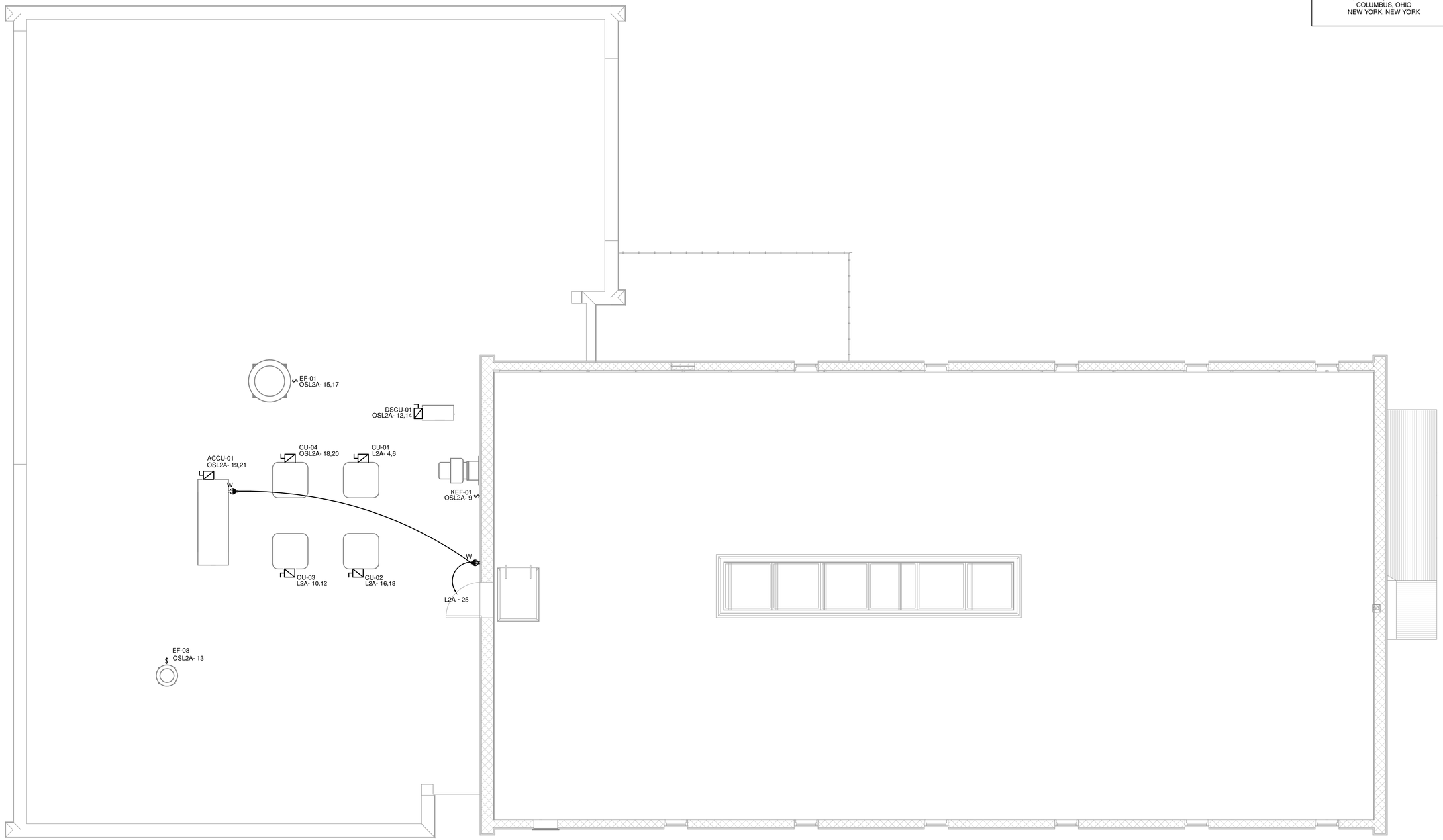
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

ELECTRIC POWER - SECOND FLOOR

SCALE: 1/4" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET EP103

11/14/2019 10:22:21 AM

KLH JOB#: 21459.00



1 EP104 **ELECTRIC POWER - ROOF**

1/4" = 1'-0"

N

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM

1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX

LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO
STEPHEN N. FEDERLE
E-76032
REGISTERED
PROFESSIONAL ENGINEER
11/04/19

your trusted advisor — engineers architects planners consultants

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 | DRAWN BY: KH | CHECKED BY: PM | APPROVED BY: | F.B. NO. | PG.

SHARONVILLE FIRE STATION 87 RENOVATION

CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

ELECTRIC POWER - ROOF

SCALE: 1/4" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET EP104

11/14/2019 10:22:27 AM

KLH JOB#: 21459.00

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

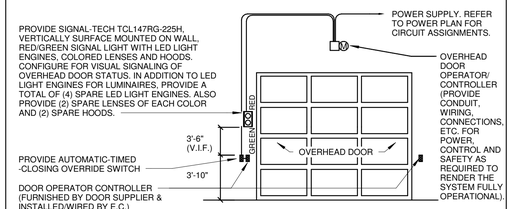
STATE OF OHIO — STEPHEN N. FEDERLE — E-76032 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners — consultants

REV	DATE	BY
0	11/20/2019	CAM

REVISIONS: 0 ISSUE FOR BIDDING AND PERMIT

DATE: 11/20/2019 | DRAWN BY: KH | CHECKED BY: PM | APPROVED BY: | F.B. NO.: | PG.:



GENERAL NOTES:

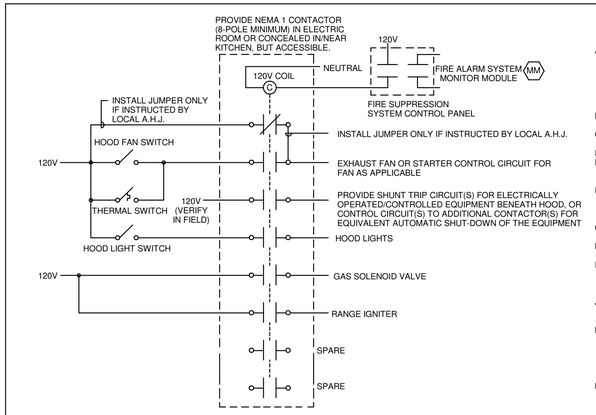
A. THE ELECTRICAL CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE DOOR SUPPLIER AND FOR FURNISHING ALL NECESSARY CONTACTS, ENCLOSED RELAYS, WIRING, CONNECTIONS, ETC. PER MANUFACTURER'S AND CODE REQUIREMENTS.
B. COORDINATE LOCATION OF LUMINAIRES WITH WORK OF OTHER TRADES, INCLUDING STRUCTURAL STEEL, PRIOR TO ROUGH IN.
C. INSTALL AND WIRE ALL SAFETY AND ACCESSORY DEVICES.
D. PROVIDE AUTOMATIC-TIMED-CLOSING OVERRIDE SWITCH TO ALLOW DOORS TO BE KEPT OPEN WHEN DESIRED.
E. PROVIDE ALL MOUNTING COMPONENTS.

SEQUENCE OF OPERATION

1. DOOR FULLY CLOSED - NO LIGHTS SHALL BE ILLUMINATED.
2. DOOR OPERATOR ENERGIZED IN UPWARD MOTION - RED LIGHT ILLUMINATED.
3. DOOR FULLY OPEN - GREEN LIGHT ILLUMINATED.
4. DOOR OPERATOR ENERGIZED IN DOWNWARD MOTRION - RED LIGHT ILLUMINATED.

260590.00-03 - OVERHEAD DOOR STATUS LIGHT SCHEMATIC

SCALE: NONE

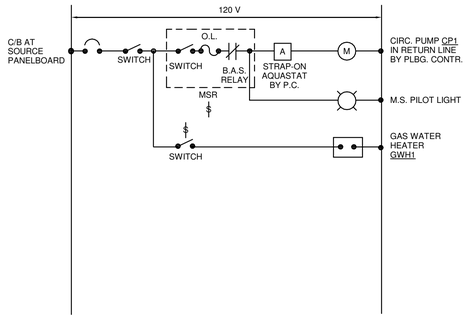


GENERAL NOTES:

A. PROVIDE WIRING AND CONNECTION WORK ASSOCIATED WITH ELECTRICALLY OPERATED GAS SOLENOID SHUT-OFF VALVE(S) FOR GAS LINES THAT SERVE COOKING EQUIPMENT. PROVIDE INTERLOCK CONTROL WIRING BETWEEN THE SHUT-OFF VALVE AND THE KITCHEN HOOD FIRE SUPPRESSION SYSTEM AS DIRECTED IN FIELD BY HOOD FIRE SUPPRESSION SYSTEM INSTALLER. CONFIGURE CONTROLS SO THAT LOSS OF POWER RESULTS IN FAIL-SAFE CONDITIONS (GAS VALVE(S) OPEN. EQUIPMENT MOTORS OFF. ETC.).
B. PROVIDE POWER WIRING TO INDOOR HOOD BODIES AND FIRE SUPPRESSION SYSTEMS FOR HOOD LIGHTS AND CONTROL CIRCUITS.
C. PROVIDE POWER AND CONTROL WIRING FROM INDOOR HOOD BODIES TO RESPECTIVE FAN UNITS AND FROM FAN UNITS TO REMOTE DUCT-STATS.
D. PROVIDE CONTROL WIRING TO AND FROM DUCT HEAT SENSORS.
E. PROVIDE POWER AND CONTROL WIRING FROM INDOOR HOOD BODIES TO CONTACTS ON FACTORY MICRO-SWITCH IN RESPECTIVE HOOD FIRE SUPPRESSION SYSTEM, AND TO THE CONTACTOR (OR SHUNT TRIP AS APPLICABLE) CONTROL CIRCUIT.
F. PROVIDE CONTROL WIRING FROM THE MICRO-SWITCH IN THE HOOD FIRE SUPPRESSION SYSTEMS TO RESPECTIVE DEDICATED FIRE ALARM SYSTEM ADDRESSABLE MONITOR MODULES TO INITIATE ALARM SIGNAL WHEN RESPECTIVE HOOD FIRE PROTECTION SYSTEM IS ACTIVATED.
G. INSTALL AND WIRE DUCT-STAT(S) AND HEAT SENSOR(S), WHICH WILL BE FURNISHED BY HOOD MANUFACTURER (SHIPPED LOOSE).
H. INSTALL AND WIRE HOOD FAN SWITCH AND HOOD LIGHTING SWITCH, WHICH WILL BE FURNISHED BY HOOD MANUFACTURER (SHIPPED LOOSE).
I. IN AUTOMATIC MODE THE HEAT SENSOR SHALL DETECT HEAT FROM FOOD PREPARATION EQUIPMENT BELOW, AND SHALL AUTOMATICALLY ENERGIZE THE RESPECTIVE KITCHEN HOOD EXHAUST FAN IN THE EVENT THAT THE FAN IS NOT ALREADY OPERATING FROM HAVING BEEN TURNED ON MANUALLY AT THE HOOD.
J. PROVIDE SHUNT TRIP OR CONTACTOR CONTROL FOR AUTOMATIC SHUT-OFF FOR ALL ELECTRICALLY OPERATED OR CONTROLLED EQUIPMENT BENEATH THE HOOD UPON ACTIVATION OF THE HOOD FIRE SUPPRESSION SYSTEM.
K. PROVIDE EMPTY OCTAGON BOX FOR MECHANICAL MANUAL PULL STATION (AND INSTALL PULL STATION) FOR EACH HOOD FIRE PROTECTION SYSTEM (MOUNTED AT 48" TO TOP OF OUTLET BOX ABOVE FINISHED FLOOR) WITH (1) 1/2" EMPTY CONDUIT ROUTED UP AND OVER TO HOOD AS DIRECTED IN FIELD BY HOOD INSTALLER (WITH SWEEP 90'S). INSTALL PULL STATION NEAR MEANS OF EGRESS, BETWEEN 10 AND 20 FEET FROM THE COOKING AREA. DETERMINE LOCATIONS IN FIELD.
L. FURNISH, INSTALL & WIRE ALL REQUIRED POWER WIRING, CONTROL AND INTERLOCK WIRING, CONNECTIONS, CONTACTORS, ETC. AS REQUIRED FOR COMPLETE OPERATIONAL HOOD AND ANCILLARY SYSTEMS. THIS DETAIL IS SCHEMATIC IN NATURE. FIELD VERIFY ALL SPECIFICS WITH RESPECTIVE INSTALLERS AND PROVIDE ALL NECESSARY WORK AS REQUIRED TO RENDER THE SYSTEM AND SEQUENCING FULLY OPERABLE. REFER TO FOOD SERVICE DOCUMENTS AND SUBMITTALS FOR MORE SPECIFIC INFORMATION, AND PROVIDE ALL ELECTRICAL WORK ACCORDINGLY. NOTE THAT MULTIPLE HOODS MAY EXIST, AND ANY SHOWN HOOD MAY CONSIST OF MULTIPLE SECTIONS.

260580.00-06 - KITCHEN HOOD WIRING DIAGRAM

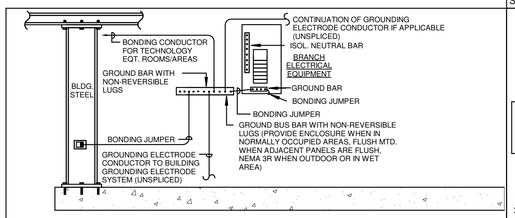
SCALE: NONE



SEE EMERGENCY POWER OFF DETAIL FOR ADDITIONAL REQUIREMENTS

260580.00-03 - DHW W.D.

SCALE: NONE

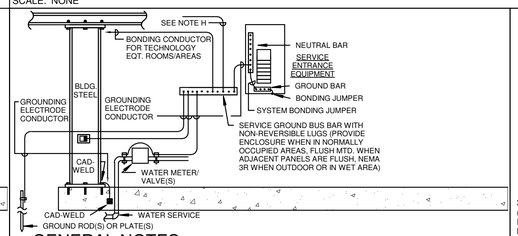


GENERAL NOTES:

A. THIS DETAIL APPLIES AT EACH REMOTE ("SATELLITE") ELECTRIC ROOM/CLOSET/AREA OR OTHER GROUPING OF PANELBOARDS THAT IS REMOTE FROM THE SERVICE ENTRANCE LOCATION, OR OTHER GROUPING OF PANELS. REFER TO FLOOR PLANS FOR GROUND BAR LOCATIONS, AND IF NOT SHOWN IN PLAN-VIEW INSTALL AS CLOSE AS POSSIBLE TO AFFECTED EQUIPMENT.
B. PROVIDE ALL GROUNDING ELECTRODE CONDUCTORS SIZED PER NEC TABLE 250.66 UNLESS NOTED OTHERWISE.
C. PROVIDE GROUND BAR EQUAL TO ERICO EQUIPMENT GROUND BAR W/INSULATERS AND BRACKET, HOLE PATTERN TYPE "CC".
D. PROVIDE ALL BONDING JUMPERS SIZED PER NEC TABLE 250.122 UNLESS NOTED OTHERWISE.
E. PROVIDE ALL WORK COMPLIANT WITH APPLICABLE REQUIREMENTS OF ARTICLE 250 OF NFPA 70 AS A MINIMUM.
F. COORDINATE WITH ELECTRICAL INSPECTOR. MODIFY SPECIFIC MEANS & METHODS IF SO DIRECTED. COORDINATE WITH WORK OF ALL CONSTRUCTION DIVISIONS.

260526.00-03 - GROUND DETAIL - SATELLITE

SCALE: NONE

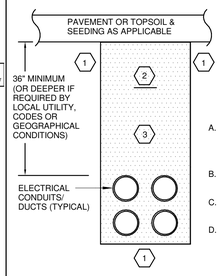


GENERAL NOTES:

A. THIS DETAIL APPLIES AT EACH SERVICE ENTRANCE. REFER TO FLOOR PLANS FOR GROUND BAR LOCATIONS. IF NOT SHOWN IN PLAN VIEW INSTALL AS CLOSE AS POSSIBLE TO SERVICE ENTRANCE EQT.
B. PROVIDE ALL GROUNDING ELECTRODE CONDUCTORS PER NEC TABLE 250.66 UNLESS NOTED OTHERWISE.
C. PROVIDE SERVICE GROUND BAR EQUAL TO ERICO EQUIPMENT GROUND BAR W/INSULATERS AND BRACKET, HOLE PATTERN TYPE "CC".
D. SIZE GROUND CONDUCTORS BETWEEN ROOM GROUND BARS AS GROUND ELECTRODE CONDUCTORS.
E. SIZE ALL BONDING JUMPERS PER NEC TABLE 250.122 UNLESS NOTED OTHERWISE.
F. PROVIDE ALL WORK COMPLIANT WITH APPLICABLE REQUIREMENTS OF ARTICLE 250 OF NFPA 70.
G. COORDINATE WITH ELECTRICAL INSPECTOR. MODIFY SPECIFIC MEANS & METHODS IF SO DIRECTED. COORDINATE WITH WORK OF ALL CONSTRUCTION DIVISIONS.
H. IN ADDITION TO WORK SHOWN IN DETAIL, PROVIDE BONDING JUMPERS FROM SERVICE GROUND BAR TO NATURAL GAS PIPING, WATER PIPING, DUCTWORK, AIR-DUCT EQT., WATER HEATERS, MISC. PIPING, ETC. AS APPLICABLE TO THE PROJECT AND COMPLIANT WITH NFPA 70 (INCLUDING ARTICLE 250).

260526.00-01 - GROUND DETAIL - SERVICE

SCALE: NONE



KEYED NOTES:

1. PROVIDE TRENCH IN UNDISTURBED OR ENGINEERED COMPACTED SOIL AS APPLICABLE.
2. PROVIDE 3" WIDE DETECTABLE CAUTION TAPE 8" BELOW FINISHED SURFACE.
3. PROVIDE FLOWABLE BACKFILL.
   BACKFILL USING EXCAVATED OR BORROWED MATERIAL, FREE OF ROCKS 1" DIAMETER & LARGER. COMPACT TO 90% IN MAXIMUM 8" LIFTS OF LOOSE SOIL.

GENERAL NOTES:

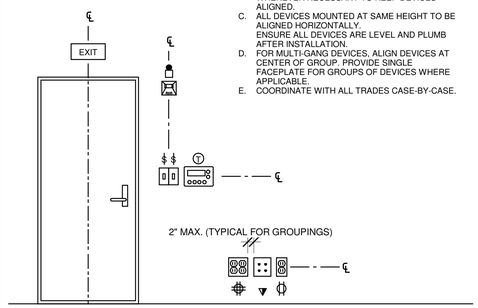
A. THIS DETAIL APPLIES FOR ALL SERVICE ENTRANCE, FEEDER, TECHNOLOGY SERVICE AND SIMILAR APPLICATIONS WHERE ELECTRICAL CONDUITS ARE REQUIRED TO BE INSTALLED BELOW GRADE, PAVEMENT OR SLABS.
B. THIS DETAIL IS TYPICAL FOR ALL CONDUITS/DUCTS, REGARDLESS OF QUANTITY.
C. SEE PLANS AND SPECIFICATIONS FOR SIZES AND QUANTITIES OF CONDUITS/DUCTS.
D. PROVIDE AT LEAST 3" OF SEPARATION BETWEEN CONDUITS AND AT LEAST 4" OF SEPARATION BETWEEN ANY CONDUIT & ADJACENT TRENCH BOTTOM OR WALL. ALIGN CONDUITS ON CHAIRS AND ENSURE ALL BACKFILL ENCASES CONDUITS WITH EVEN BEARING AND WITHOUT DAMAGING CONDUITS OR CHAIRS.
E. COORDINATE TRENCH LOCATION IN REFERENCE TO OTHER UNDERGROUND UTILITIES. ENSURE NO OTHER UTILITIES ARE PLACED DIRECTLY ABOVE OR BELOW, WHEN PARALLEL TO CONDUITS.

260508.00-05 - U.G. SERVICE CONDUIT DETAIL (ONE LAYER BACKFILL)

SCALE: NONE

GENERAL NOTES:

A. ALIGN ALL DEVICES SHOWN ON PLANS AT SAME DIMENSION FROM DOOR FRAME OR WALL.
B. CONDUIT/CABLES SHALL BE ROUTED WHEREVER NECESSARY TO KEEP DEVICES ALIGNED.
C. ALL DEVICES MOUNTED AT SAME HEIGHT TO BE ALIGNED HORIZONTALLY. ENSURE ALL DEVICES ARE LEVEL AND PLUMB AFTER INSTALLATION.
D. FOR MULTI-GANG DEVICES, ALIGN DEVICES AT CENTER OF GROUP. PROVIDE SINGLE FACEPLATE FOR GROUPS OF DEVICES WHERE APPLICABLE.
E. COORDINATE WITH ALL TRADES CASE-BY-CASE.



260502.00-01 - DEVICE ALIGNMENT DETAIL

SCALE: NONE

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241
ELECTRIC POWER - DETAILS

SCALE: 1/8" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET: EP501

11/14/2019 10:22:32 AM

KLH JOB#: 21459.00

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM

1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX

LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO
STEPHEN N. FEDERLE
E-76032
REGISTERED
PROFESSIONAL ENGINEER
11/04/19

your trusted advisor — engineers architects planners consultants

SEQUENCE OF OPERATIONS:

UPON RECEIPT OF SIGNAL FROM DISPATCH RADIO EQUIPMENT, TIME DELAY RELAY ACTIVATES AND THE FOLLOWING SEQUENCE SHALL OCCUR:

1. NOC1 CLOSES. ALL TYPE PS1 LUMINAIRES TURN ON IN SLEEPING ROOMS AND REMAIN ON FOR DURATION OF TIMER COUNTDOWN.

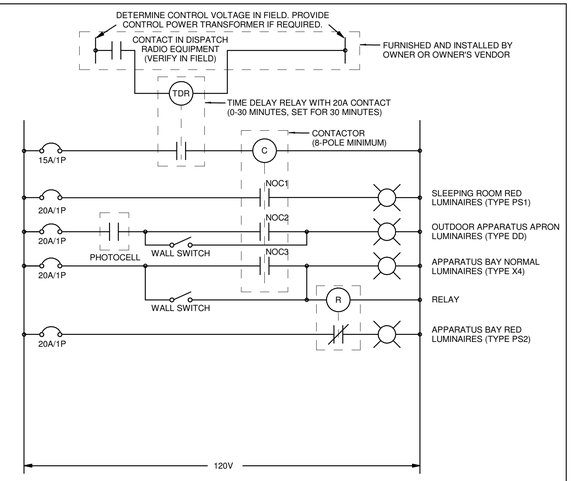
2. NOC2 CLOSES. ALL TYPE DD2 OUTDOOR LUMINAIRES ABOVE BAY DOORS TURN ON AND REMAIN ON FOR DURATION OF TIMER COUNTDOWN.

3. NOC3 CLOSES. ALL TYPE X4 LUMINAIRES TURN ON IN APPARATUS BAY, AND REMAIN ON FOR DURATION OF TIMER COUNTDOWN. ALL TYPE PS2 LUMINAIRES TURN OFF AND REMAIN OFF FOR DURATION OF TIMER COUNTDOWN.

4. NOC's REOPEN AT END OF TIMER COUNTDOWN.

GENERAL NOTES:

A. THIS WIRING DIAGRAM IS INTENDED TO SCHEMATICALLY DEFINE FUNCTIONALITY AND GENERAL SCOPE OF WORK. MEET AND COORDINATE WITH OWNER AND DISPATCH RADIO INSTALLER PRIOR TO BEGINNING ANY RELATED WORK. PROVIDE SPECIFIC WIRING, CONTACTOR, RELAY, ETC. WORK AS REQUIRED TO ACCOMMODATE OWNER'S INTENDED OPERATION.
B. TYPE PS2 LUMINAIRES IN APPARATUS BAY SHALL AUTOMATICALLY TURN OFF WHEN TYPE X4 LUMINAIRES ARE ON, AND SHALL AUTOMATICALLY TURN ON WHEN THE TYPE X4 LUMINAIRES ARE OFF.



260590.00-10 - TONE DROP AUXILIARY CONTROL WIRING DIAGRAM

SCALE: NONE

SEQUENCE OF OPERATIONS:

UPON ACTIVATION OF EMERGENCY-POWER-OFF (EPO) PUSHBUTTON, CONTACTOR COIL IS DEENERGIZED AND THE FOLLOWING SEQUENCE SHALL OCCUR:

1. ACTIVE CONTACTS OPEN.

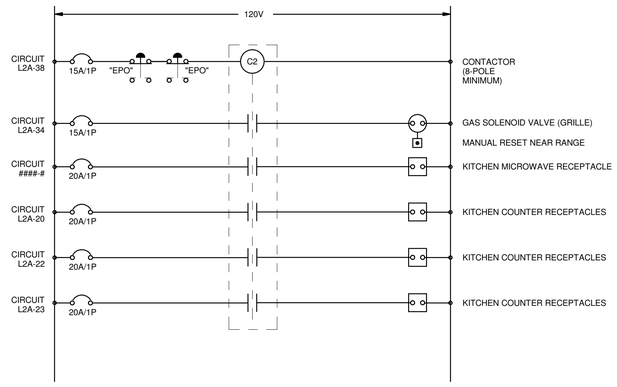
2. GAS SOLENOID VALVES OPEN. GAS SOLENOID VALVES MUST BE MANUALLY RESET. GAS SOLENOID VALVES SHALL NOT AUTOMATICALLY REOPEN AFTER THE TIMER COUNTDOWN.

3. ASSOCIATED ELECTRICALLY OPERATED KITCHEN LOADS ARE DEENERGIZED.

4. CONTACTOR MUST BE MANUALLY RESET BY PULLING THE EPO PUSHBUTTON BACK OUT TO ITS NORMAL POSITION.

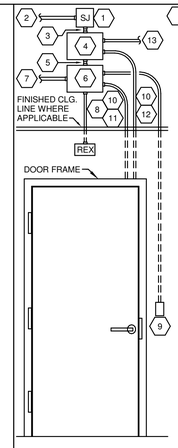
GENERAL NOTES:

A. THIS WIRING DIAGRAM IS INTENDED TO SCHEMATICALLY DEFINE FUNCTIONALITY AND GENERAL SCOPE OF WORK. MEET AND COORDINATE WITH OWNER PRIOR TO BEGINNING ANY RELATED WORK. PROVIDE SPECIFIC WIRING, CONTACTOR, ETC. WORK AS REQUIRED TO ACCOMMODATE OWNER'S INTENDED OPERATION.
B. CONFIGURE SOLENOID VALVE CONTROLS FAIL-SAFE SO THEY AUTOMATICALLY CLOSE WITH LOSS OF ANY POWER. COORDINATE WITH PLUMBING INSTALLER TO ENSURE THAT CONTACTOR RESET WILL NOT AUTOMATICALLY REOPEN SOLENOID VALVES. EACH VALVE MUST BE RESET MANUALLY, AND MUST NOT BE ABLE TO BE RESET UNTIL POWER IS AVAILABLE AT THE SOLENOID VALVE.
C. PROVIDE ENGRAVED PLATE AT KITCHEN GAS SOLENOID VALVE RESET PUSHBUTTON TO READ: "GAS VALVE RESET: TO RESET, TURN OFF ALL VALVES & CONTROLS ON RANGE INCLUDING OVEN, THEN PUSH THIS BUTTON".
D. PROVIDE ENGRAVED PLATE AT PATIO GAS SOLENOID VALVE RESET PUSHBUTTON TO READ: "GAS VALVE RESET: TO RESET, TURN OFF ALL VALVES & CONTROLS ON GRILL, THEN PUSH THIS BUTTON."



260590.00-09 - KITCHEN EQUIPMENT EMERGENCY-POWER-OFF DETAIL

SCALE: NONE



KEYED NOTES:

1. SECURE-DOOR JUNCTION BOX ("SJ"): PROVIDE 4" X 4" OUTLET BOX ON SECURE SIDE OF DOOR, ABOVE ACCESS-CONTROL SYSTEM COMPONENT BOX. PROVIDE FLUSH KEY SWITCH IN FACE OF STEEL COVER PLATE TO SERVE AS LOCAL DISCONNECT WHEN SERVICING THE POWER SUPPLY.
2. PROVIDE 120VAC POWER WIRING IN 3/4" CONDUIT FROM BUILDING POWER SOURCE TO SECURE-DOOR JUNCTION BOX.
3. PROVIDE 120VAC POWER WIRING IN 3/4" CONDUIT FROM KEY-SWITCH AT "SJ" TO DOOR HARDWARE POWER SUPPLY.
4. DOOR HARDWARE POWER SUPPLY BOX.
5. PROVIDE 3/4" EMPTY CONDUIT BETWEEN DOOR HARDWARE POWER SUPPLY BOX AND ACCESS CONTROL SYSTEM COMPONENT BOX.
6. ACCESS CONTROL SYSTEM COMPONENT BOX. IF ACCESS CONTROL SYSTEM INSTALLER DOES NOT PROVIDE THIS BOX, THEN PROVIDE 8" X 8" X 4" DEEP SURFACE MOUNTED JUNCTION BOX. VERIFY BOX DIMENSIONS IN FIELD WITH ACCESS CONTROL SYSTEM INSTALLER.
7. PROVIDE 3/4" EMPTY CONDUIT(S) TO CABLE TRAY OR J-HOOK PATHWAY OR OTHER PATHWAY AS APPLICABLE.
8. PROVIDE 4" X 4" X 2-1/8"D FLUSH OUTLET BOX WITH HORIZONTAL 1-GANG RING FOR REQUEST-TO-EXIT ("REX") DEVICE, AND 3/4" CONDUIT FROM ACCESS CONTROL SYSTEM COMPONENT BOX TO "REX" BOX.
9. PROVIDE 4" X 4" X 2-1/8"D FLUSH WALL OUTLET BOX WITH 1-GANG RING ON BOTH SIDES OF DOOR FOR CONTROL DEVICES AND 3/4" CONDUIT FROM EACH WALL OUTLET BOX TO ACCESS CONTROL BOX.
10. PROVIDE 3/4" CONCEALED CONDUIT DOWN TO WITHIN 12" OF DOOR FRAME, THEN CONVERT TO CONCEALED 3/4" FLEXIBLE STEEL CONDUIT DOWN TO DOOR FRAME. LEAVE SLACK IN FLEXIBLE CONDUIT FOR CABLE INSTALLATION, AND TERMINATE AT FRAME AT LOCATION, AS DIRECTED BY ACCESS CONTROL SYSTEM INSTALLER AND DOOR HARDWARE INSTALLER.
11. THIS CONDUIT IS FOR DOOR STATUS MONITORING CABLE.
12. THIS CONDUIT IS FOR DOOR HARDWARE WIRING.
13. PROVIDE WIRING IN 3/4" TO FIRE ALARM SYSTEM CONTROL MODULE WHEN RESPECTIVE DOOR IS ALONG A BUILDING EGRESS PATH.

GENERAL NOTES:

A. THIS IS A SCHEMATIC DETAIL. MODIFY MEANS AND METHODS AS NEEDED FOR DOUBLE DOORS, ROOF HATCHES, "STOREFRONT" GLASS DOORS, ETC. PRE-COORDINATE ALL WORK WITH DOOR AND ACCESS CONTROL SYSTEM INSTALLERS.
B. INSTALL ALL WORK ON SECURE SIDE OF DOOR UNLESS NOTED OTHERWISE. INSTALL OVERHEAD WORK ABOVE NEAREST SECURE-SIDE ACCESSIBLE CEILING FOR APPLICATIONS WHERE NON-ACCESSIBLE CEILING EXISTS ABOVE DOOR. INSTALL IN OVERHEAD STRUCTURAL SPACE FOR APPLICATIONS WHERE THERE ARE NO FINISHED CEILINGS.

260590.00-04 - SECURE DOOR ROUGH-IN DETAIL

SCALE: NONE

REVISIONS		DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019
DRAWN BY: KH
CHECKED BY: PM
APPROVED BY:
F.B. NO. PG.

SHARONVILLE FIRE STATION 87 RENOVATION

CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

ELECTRIC POWER - DETAILS

SCALE: 1/8" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET EP502

11/14/2019 10:22:37 AM

KLH JOB#: 21459.00

ELECTRIC SINGLE LINE EQUIPMENT SCHEDULE

NOTES:
ALL CONDUIT SIZES INDICATED ARE MINIMUM SIZES. INCREASE SIZES AS REQUIRED TO ACCOMMODATE CONDUCTOR PULLING EASE, FIELD CONDITIONS, ETC.

*CU" = COPPER CONDUCTOR, "AL" = ALUMINUM CONDUCTOR

TYPICAL EQUIPMENT NAME NOMENCLATURE:
1 - POWER DISTRIBUTION SYSTEM (BLANK - NORMAL, E - EMERGENCY, S - STANDBY, L - LIFE SAFETY)
2 - DESCRIPTION (H - 480Y/277V, L - 208Y/120V)
3 - FLOOR / LEVEL
4 - SEQUENCE

FEEDER ID NOMENCLATURE:
* - INDICATES FEEDER SIZED TO COMPENSATE FOR VOLTAGE DROP
1 - GROUND TYPE (MAY BE BLANK)
U = EQUIPMENT GROUND CONDUCTOR REMOVED FOR SERVICE ENTRANCE FROM UTILITY
P = PARITY-SIZED EQUIPMENT GROUND CONDUCTOR
X = EXISTING FEEDER TO REMAIN UNLESS OTHERWISE NOTED
T = UPSIZED GROUND CONDUCTORS FOR TRANSFORMER SECONDARY

2 - CONDUCTOR AMPACITY
3 - TOTAL NUMBER OF PHASE AND GROUNDED ("NEUTRAL") CONDUCTORS
4 - CONDUCTOR MATERIAL: C = COPPER, A = ALUMINUM
5 - SPECIAL (MAY BE BLANK)
I = ISOLATED GROUND (PROVIDE CONTINUOUS INSULATED ISOLATED EQUIPMENT GROUNDING CONDUCTOR(S) FROM INSULATED ISOLATED GROUND BAR(S) TO RESPECTIVE UPSTREAM SERVICE ENTRANCE OR DERIVED SYSTEM GROUNDING ELECTRODE CONDUCTOR AS APPLICABLE.

EQUIPMENT	PHASE	POWER BRANCH	EQUIPMENT TYPE	SUPPLY FROM	SPACE NUMBER	SPACE NAME	VOLTAGE	PHASE	WIRES	DEMAND (kVA)	DEMAND (A)	MAINS RATING (A)	MAINS FRAME RATING (A)	MAINS TYPE	FEEDER ID	FEEDER	VD %	LUGS TYPE	SPD	ULSE	GEC	ENCLOSURE TYPE	200% NEUTRAL	K-RATING	FAULT CURRENT (A)	SHORT CIRCUIT RATING (A)	NOTES
GENERATOR	New Construction	OPTIONAL STANDBY	Generator				208	3		87.2 kVA	242 A											NEMA 3R			2891		
-- ATS-OS	New Construction	OPTIONAL STANDBY	ATS - Emergency Connection	GENERATOR	124	ELECTRICAL	208	3	4	87.2 kVA	242 A	300	300		300-4A	(4) #500 KCMIL AL, (1) #2 AWG AL GND. IN 4" CONDUIT	1.006					NEMA 1			3171	10000	
UTILITY	Existing	NORMAL	Pole Mounted Transformer				208	3		122.1 kVA	339 A			MAIN LUGS ONLY								NEMA 3R			55600		
-- MDP	New Construction	NORMAL	Distribution Panelboard	UTILITY	124	ELECTRICAL	208	3	4	122.1 kVA	339 A	600	600	THERMAL MAGNETIC	U600-4A	(2) SETS OF (4) #500 KCMIL AL IN 4" CONDUIT EACH	0.59		Yes	Yes	Yes	NEMA 1			36434	42000	
---- L1A	New Construction	NORMAL	Branch Panelboard	MDP	124	ELECTRICAL	208	3	4	14.4 kVA	40 A	125	125	MAIN LUGS ONLY	125-4A	(4) #2/0 AWG AL, (1) #4 AWG AL GND. IN 2" CONDUIT	0.727	FEED-THROUGH				NEMA 1			29527	42000	
---- L2A	New Construction	NORMAL	Branch Panelboard	MDP	206	MECHANICAL	208	3	4	33.1 kVA	92 A	200	200	MAIN LUGS ONLY	200-4A	(4) #250 KCMIL AL, (1) #4 AWG AL GND. IN 3" CONDUIT	1.238					NEMA 1			16509	22000	
---- ATS-OS	New Construction	OPTIONAL STANDBY	3-Pole ATS	MDP	124	ELECTRICAL	208	3	4	87.2 kVA	242 A	300	300	MAIN LUGS ONLY	300-4A	(4) #500 KCMIL AL, (1) #2 AWG AL GND. IN 4" CONDUIT	0.7					NEMA 1			34483	42000	
------ OSDP	New Construction	OPTIONAL STANDBY	Branch Panelboard	ATS-OS	124	ELECTRICAL	208	3	4	87.2 kVA	242 A	300	300	THERMAL MAGNETIC	300-4A	(4) #500 KCMIL AL, (1) #2 AWG AL GND. IN 4" CONDUIT	0.81		Yes			NEMA 1			32060	42000	
-------- OSL1A	New Construction	OPTIONAL STANDBY	Branch Panelboard	OSDP	124	ELECTRICAL	208	3	4	18.3 kVA	51 A	125	125	MAIN LUGS ONLY	125-4A	(4) #2/0 AWG AL, (1) #4 AWG AL GND. IN 2" CONDUIT	0.947		Yes			NEMA 1			29717	42000	
-------- OSL1B	New Construction	OPTIONAL STANDBY	Branch Panelboard	OSDP	112	LAUNDRY	208	3	4	20.6 kVA	57 A	100	100	MAIN LUGS ONLY	100-4A	(4) #1/0 AWG AL, (1) #6 AWG AL GND. IN 2" CONDUIT	1.664		Yes			NEMA 1			8439	22000	
-------- OSL2A	New Construction	OPTIONAL STANDBY	Branch Panelboard	OSDP	206	MECHANICAL	208	3	4	16.2 kVA	45 A	125	125	MAIN LUGS ONLY	125-4A	(4) #2/0 AWG AL, (1) #4 AWG AL GND. IN 2" CONDUIT	1.515		Yes			NEMA 1			11256	22000	

GENERAL ELECTRICAL POWER DISTRIBUTION NOTES

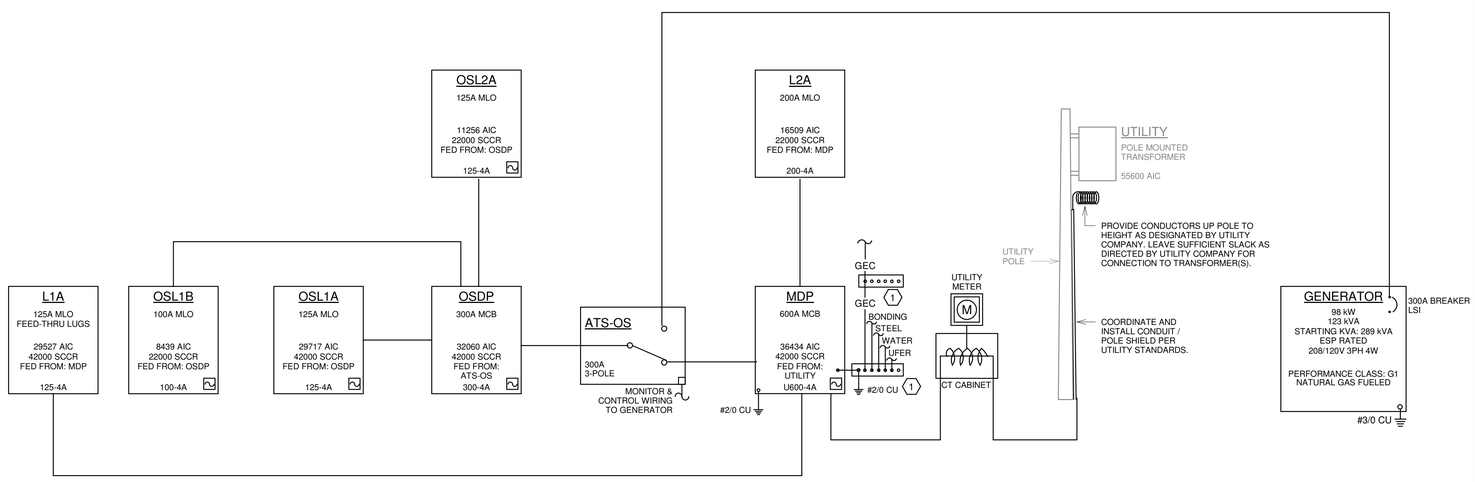
A. PARALLEL CONDUCTOR SETS: CUT PARALLEL SERVICE/FEEDER CONDUCTORS TO EXACTLY THE SAME LENGTHS AND USE CONDUCTORS FROM THE SAME FACTORY RUN. TORQUE ALL CONNECTIONS FOR PARALLEL SERVICE/FEEDER CONDUCTORS TO IDENTICAL VALUES.
B. OVERCURRENT PROTECTION RATINGS: UNLESS INDICATED OTHERWISE, PROVIDE FULLY-RATED OR SERIES-RATED OVERCURRENT PROTECTION (OCP) AS REQUIRED TO COMPLY WITH ALL APPLICABLE REQUIREMENTS OF NFPA 70. PROVIDE EQUIPMENT AND OCP RATED TO MEET OR EXCEED THE AVAILABLE SERIES-RATED FAULT CURRENT AT THE RESPECTIVE NODE IN THE POWER DISTRIBUTION SYSTEM. SERIES-RATED BREAKERS/SYSTEMS ARE NOT PERMITTED WHERE PROHIBITED BY PREVAILING CODES AND STANDARDS, INCLUDING APPLICATIONS INVOLVING MOTOR CONTRIBUTION AS ADDRESSED IN ARTICLE 240.86(C) OF NFPA 70. FURNISH ELECTRONIC COPIES OF THE ELECTRICAL DOCUMENTS TO THE MANUFACTURER'S REPRESENTATIVE AND/OR EQUIPMENT SUPPLIER SO THAT PROPERLY RATED AND BRACED EQUIPMENT IS PROVIDED UNDER BASE BID. IF FAULT CURRENT VALUES ARE NOT INDICATED ON PLANS, ALSO PROVIDE FAULT CURRENT CALCULATIONS AND FURNISH RESULTS WITH EQUIPMENT SUBMITTALS.
C. GROUNDING ELECTRODE CONDUCTOR SYSTEM: PROVIDE GROUNDING ELECTRODE CONDUCTOR SYSTEM IN STRICT COMPLIANCE WITH THE LATEST ADOPTED EDITION OF THE NATIONAL ELECTRICAL CODE (NFPA 70), INCLUDING ARTICLE 250 AND TABLE 250.66. THESE CONDUCTORS MAY OR MAY NOT BE INDICATED ON SINGLE-LINE DIAGRAMS, BUT SHALL BE PROVIDED UNDER BASE BID NEVERTHELESS.
D. FLUSH MOUNTED EQUIPMENT: PROVIDE FLUSH MOUNTED POWER DISTRIBUTION AND RELATED EQUIPMENT FOR APPLICATIONS IN FINISHED AREAS AND COORDINATE THESE LOCATIONS AND INSTALLATIONS WITH ARCHITECT, OWNER AND AFFECTED TRADES. ELSEWHERE PROVIDE SURFACE MOUNTED EQUIPMENT UNLESS FLUSH MOUNTED EQUIPMENT IS SHOWN ON DRAWINGS OR UNLESS NEEDED TO ACCOMMODATE UNUSUAL CONDITIONS.
E. POWER DISTRIBUTION EQUIPMENT LABELS: IN ADDITION TO LABELS REQUIRED WITHIN THE SPECIFICATIONS, INCLUDE CORRESPONDING MAXIMUM AIC (AVAILABLE INRUSH CURRENT) AND SHORT-CIRCUIT CURRENT RATING (SCCR) FOR EACH PIECE OF POWER DISTRIBUTION EQUIPMENT, ALONG WITH ARC FLASH LABELS COMPLIANT WITH ARTICLE 110.16 OF NFPA 70. ALSO INCLUDE CONDUCTOR COLOR CODING FOR THE BUILDING AND PHASE ROTATION AS APPLICABLE.
F. CONDUCTOR TERMINATIONS: IN CASES WHERE CONDUCTOR SIZES ARE TOO LARGE TO FIT INTO LUGS/TERMINALS, PROVIDE APPROPRIATE FACTORY LUG KITS FOR AFFECTED EQUIPMENT IF AVAILABLE. ELSEWHERE, PROVIDE INSULATED BUTT-SPLICES OR EQUIVALENT METHOD, WITH TAILS SIZED TO FIT LUGS/TERMINALS. PROVIDE SPLICES IN SEPARATE BOXES IF REQUIRED BASED ON FIELD CONDITIONS. BOX SIZE LIMITATIONS, ETC. CONCEAL BOXES IN ACCESSIBLE OVERHEAD JOIST SPACES IN FINISHED REGULARLY OCCUPIED AREAS.
G. ALUMINUM CONDUCTORS: PROVIDE THE FOLLOWING SUPPLEMENTAL WORK FOR ALUMINUM-CONDUCTOR ELECTRICAL EQUIPMENT CONNECTIONS, REGARDLESS OF WHO FURNISHES THE EQUIPMENT: REVIEW EQUIPMENT SUBMITTALS, INSTALLATION DOCUMENTS AND NAMEPLATES TO DETERMINE IF THERE ARE ANY WARRANTY OR UL LIMITATIONS REGARDING COPPER VERSUS ALUMINUM WIRING CONNECTIONS AT EQUIPMENT; IF THERE ARE ANY LIMITATIONS, PROVIDE LOCAL DISCONNECT AT OR NEAR EQUIPMENT (EXTERNAL TO THE EQUIPMENT) AND TERMINATE ALUMINUM CONDUCTORS TO THE LINE-SIDE LUGS/TERMINALS OF THE DISCONNECT SWITCH; PROVIDE COPPER CONDUCTORS FROM LOAD-SIDE LUGS/TERMINALS OF THE DISCONNECT SWITCH TO THE RESPECTIVE EQUIPMENT FACTORY DISCONNECT OR LUG/TERMINALS AS APPLICABLE; COORDINATE ALL RELATED WORK WITH ALL AFFECTED INSTALLERS.
H. FEEDER TAPS: PERFORM FEEDER TAPS IN ACCORDANCE WITH NFPA 70. PERFORM FEEDER TAPS TO PARALLELED-SET FEEDERS BY RESPECTIVELY TAPPING ALL PHASE, GROUNDED AND GROUNDING CONDUCTORS TO ENSURE UNIFORM CURRENT FLOW IN ALL SETS.
I. BREAKER FRAME SIZES: AMPERE RATINGS INDICATED ON DRAWINGS FOR CIRCUIT BREAKERS ARE SHOWN TO DEFINE OVERCURRENT REQUIREMENTS/TRIP RATINGS. PROVIDE BREAKER FRAMES IN SIZES AND TYPES GREATER THAN THE DESIGNATED OVERCURRENT TRIP RATINGS WHERE NECESSARY TO ACHIEVE THE REQUIRED SELECTIVE COORDINATION, AND/OR AS NECESSARY FOR OTHER APPLICABLE REASONS.
J. HOUSEKEEPING PADS: SEE SPECIFICATION SECTION 260529.00 FOR REQUIREMENTS ASSOCIATED WITH CONCRETE HOUSEKEEPING PADS.
K. PLYWOOD EQUIPMENT BOARDS: SEE SPECIFICATION SECTION 260529.00 FOR REQUIREMENTS ASSOCIATED WITH PLYWOOD EQUIPMENT BOARDS.
L. FIELD ADJUSTMENTS OF CIRCUIT BREAKERS: SET FIELD-ADJUSTABLE OVERCURRENT TRIP VALUES AS INDICATED ON DRAWINGS (UNLESS OTHERWISE SPECIFIED IN OVERCURRENT PROTECTIVE DEVICE COORDINATION STUDY). UNLESS INDICATED OTHERWISE ON DRAWINGS, OR DIRECTED OTHERWISE BY AHJ OR PREVAILING CODES, MANUFACTURER SHALL FURNISH SETTING INFORMATION BASED ON PROJECT REQUIREMENTS AND PREVAILING CODES, WHILE MINIMIZING THE POSSIBILITY OF NUISANCE TRIPPING. MANUFACTURER SHALL PROVIDE REMOVABLE AND SEALABLE COVERS OVER ALL ADJUSTABLE CIRCUIT BREAKER SETTINGS PER NEC 240.6(C).
M. ELECTRIC UTILITY SERVICE WORK: PROVIDE ALL ELECTRIC UTILITY SERVICE WORK IN STRICT COMPLIANCE WITH PREVAILING REQUIREMENTS OF THE UTILITY COMPANY. THE DRAWINGS INDICATE RELATED REQUIREMENTS AT A SCHEMATIC LEVEL. IT IS NOT THE INTENT OF THESE DRAWINGS TO DETAIL ANY SUCH WORK. UTILITY COMPANY WILL PROVIDE (FURNISH AND INSTALL) UTILITY TRANSFORMER(S). PROVIDE METER SOCKET(S) AND EMPTY CONDUIT (WITH DRAG LINE) FROM METER TO CURRENT TRANSFORMER LOCATION. PROVIDE CURRENT TRANSFORMER (CT) CABINET COMPLIANT WITH UTILITY COMPANY STANDARDS. COORDINATE WITH UTILITY COMPANY AS REQUIRED TO PROVIDE COMPLETE OPERATIONAL ELECTRIC SERVICE(S).

GENERATOR NOTES

A. COMPLIANCE WITH CODES & STANDARDS: PROVIDE ALL WORK COMPLIANT WITH ALL PREVAILING CODES, ORDINANCES, STANDARDS, ETC. THAT APPLY. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO, CHAPTER 7 OF NFPA 70.
B. MONITORING & CONTROL: PROVIDE WIRING IN CONDUIT (1-1/2" MINIMUM) FROM GENERATOR SET(S) TO TRANSFER SWITCH(ES), AS REQUIRED FOR COMPLETELY OPERATIONAL MONITORING AND CONTROL OF GENERATOR SET(S) AND TRANSFER SWITCH(ES). DETERMINE SPECIFIC REQUIREMENTS FROM GENERATOR SET MANUFACTURER. CONTROL CONDUCTORS INSTALLED BETWEEN THE TRANSFER EQUIPMENT AND THE GENERATOR SHALL BE KEPT ENTIRELY INDEPENDENT OF ALL OTHER WIRING AND SHALL MEET THE CONDITIONS OF ARTICLE 700.10(D)(1) OF NFPA 70. THE INTEGRITY OF THE COLLECTIVE GENERATOR SYSTEM, INCLUDING GENERATOR CONTROL WIRING, SHALL BE CONTINUOUSLY MONITORED. ANY MALFUNCTION OF THE COLLECTIVE GENERATOR SYSTEM, INCLUDING LOSS OF INTEGRITY OF THE REMOTE START CIRCUIT(S), SHALL INITIATE VISUAL AND AUDIBLE ANNUNCIATION OF GENERATOR MALFUNCTION AT THE GENERATOR LOCAL AND REMOTE ANNUNCIATOR(S). LOSS OF INTEGRITY OF THE REMOTE START CIRCUIT(S) SHALL START THE GENERATOR(S).
C. MONITORING: PROVIDE WIRING IN CONDUIT (1-1/2" MINIMUM) FROM GENERATOR SET(S) AND TRANSFER SWITCH(ES) TO REMOTE GENERATOR ANNUNCIATOR FOR MONITORING OF GENERATOR SYSTEM STATUS. DETERMINE SPECIFIC REQUIREMENTS FROM GENERATOR SET MANUFACTURER. DETERMINE EXACT LOCATION FOR REMOTE ANNUNCIATOR IN FIELD WITH OWNER, AND WITH AUTHORITY HAVING JURISDICTION IF APPROPRIATE.
D. ACCESSORY COMPONENT POWER: PROVIDE POWER WIRING FOR GENERATOR SET ACCESSORY COMPONENTS AS DIRECTED BY GENERATOR SET MANUFACTURER. POWER SHALL BE FED FROM A 208Y/120V PANELBOARD THAT IS FED FROM THE BRANCH OF GENERATOR BACKED-UP POWER THAT HAS THE HIGHEST PRIORITY FOR TRANSFER.
E. SIGN AT SERVICE ENTRANCE: PROVIDE ENGRAVED NAMEPLATE TYPE SIGN AT SERVICE ENTRANCE(S) INDICATING TYPE AND LOCATION OF EACH ON-SITE ALTERNATE SOURCE OF POWER.
F. SHORT-CIRCUIT CURRENT RATING DOCUMENTATION: PROVIDE FIELD MARKING (NEATLY PRINTED OR ENGRAVED LABEL) ON THE EXTERIOR OF ALL TRANSFER EQUIPMENT THAT INDICATES THE RESPECTIVE SHORT-CIRCUIT CURRENT RATING, BASED ON THE SPECIFIC OVERCURRENT PROTECTIVE DEVICE TYPE AND SETTINGS PROTECTING THE RESPECTIVE TRANSFER EQUIPMENT.
G. MAINTENANCE RECEPTACLE: PROVIDE AT LEAST ONE WEATHERPROOF TYPE WR GFCI DUPLEX RECEPTACLE WITHIN 25 FEET OF THE GENERATOR SET.
H. OUTDOOR LIGHTING AT GENERATOR: PROVIDE AT LEAST ONE UL WET LISTED LUMINAIRE NEAR GENERATOR SET FOR OUTDOOR APPLICATIONS.
I. BUILDING AIR INTAKE COORDINATION: COORDINATE AIR INTAKES, RADIATOR-AIR DISCHARGE AND ENGINE EXHAUST DISCHARGE LOCATIONS WITH HVAC INSTALLER SO THAT RADIATOR-AIR DISCHARGE AND ENGINE EXHAUST DISCHARGE ARE AS FAR AS POSSIBLE (AT LEAST 25 FEET) AWAY FROM ANY HVAC AIR INTAKES, AND DOWNWIND FROM ANY HVAC AIR INTAKES BASED ON LOCAL PREVAILING WIND PATTERNS.

KEYED SINGLE-LINE DIAGRAM NOTES

1. GROUNDING BUSBAR(S): PROVIDE GROUNDING BUSBAR FOR BUILDING GROUNDING ELECTRODE SYSTEM. SEE DETAILS AND SPECIFICATIONS. PROVIDE ONE AT EACH GROUPING OF ONE OR MORE PIECES OF POWER DISTRIBUTION EQUIPMENT, AND IN EACH TECHNOLOGY EQUIPMENT ROOM, AND PROVIDE CONTINUOUS BUILDING GROUNDING ELECTRODE CONDUCTOR BETWEEN ALL BUSBARS. PROVIDE BONDING JUMPERS FROM SERVICE GROUND BAR TO NATURAL GAS PIPING, WATER PIPING, DUCTWORK, AIR-DUCT EQT., WATER HEATERS, MISC. PIPING, ETC. AS APPLICABLE TO THE PROJECT AND COMPLIANT WITH NFPA 70 (INCLUDING ARTICLE 250).



ELECTRIC SINGLE-LINE DIAGRAM

SCALE: NONE

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX

LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — STEPHEN N. FEDERLE — E-76032 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor consultants — engineers architects planners

REV	DATE	BY
0	11/20/2019	CAM

REVISIONS
0 ISSUE FOR BIDDING AND PERMIT 11/20/2019

DATE: 11/20/2019 | DRAWN BY: KH | CHECKED BY: PM | APPROVED BY: | F.B. NO. | PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

ELECTRIC POWER - SINGLE LINE DIAGRAM

SCALE: 1/8" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET EP601

11/14/2019 10:22:43 AM

KLH JOB#: 21459.00

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO
STEPHEN N. FEDERLE
E-76032
REGISTERED
PROFESSIONAL ENGINEER
11/04/19

your trusted advisor
engineers
architects
planners
consultants

PANEL NAME: L2A

SUPPLY FROM: MDP | **MAINS RATING (A):** 200 | **FAULT CURRENT (A):** 16509 | **SURGE SUPRESSION:**
LOCATION: MECHANICAL 206 | **MAINS TYPE:** MAIN LUGS ONLY | **SHORT CIRCUIT RATING (A):** 22000 | **ULSE:**
DISTRIBUTION SYSTEM: 208/120V 3PH 4W | **FEEDER ID:** 200-4A | **LUGS TYPE:** | **200% NEUTRAL:**
FEEDER: (4) #250 KCMIL AL, (1) #4 AWG AL GND. IN 3" CONDUIT | **ENCLOSURE TYPE:** NEMA 1 | **ISOLATED GROUND:**

CKT	CIRCUIT DESCRIPTION	VD%	AWG	GND	TRIP	FRAME	POLE	A	B	C	POLE	FRAME	TRIP	GND	AWG	VD%	CIRCUIT DESCRIPTION	CKT
1	LIGHTING MECHANICAL 206	1.308	#12	#12	20 A	20 A	1	0.14 0.55			1	15 A	15 A	#12	#12	1.393	FCU-02 I MOTOR MECHANICAL 206	2
3	LIGHTING FITNESS 205	1.269	#12	#12	20 A	20 A	1		0.03 1.32		2	20 A	20 A	#12	#12	2.39	CU-01 I MOTOR	4
5	RECEPTACLE RESTROOM 203	1.945	#12	#12	20 A	20 A	1			0.36 1.32								6
7	FITNESS EQPT. I RECEPTACLE FITNESS 205	2.642	#12	#12	20 A	20 A	1	1.50 1.60			1	20 A	20 A	#12	#12	1.882	FCU-03 I MOTOR MECHANICAL 206	8
9	FITNESS EQPT. I RECEPTACLE FITNESS 205	3.037	#12	#12	20 A	20 A	1		1.50 2.57		2	40 A	40 A	#10	#8	2.051	CU-03 I MOTOR	10
11	FITNESS EQPT. I RECEPTACLE FITNESS 205	3.468	#12	#12	20 A	20 A	1			1.50 2.57								12
13	FITNESS EQPT. I RECEPTACLE FITNESS 205	3.933	#12	#12	20 A	20 A	1	1.50 0.76			1	15 A	15 A	#12	#12	1.539	FCU-04 I MOTOR MECHANICAL 206	14
15	TREADMILL I MOTOR FITNESS 205	4.344	#12	#12	20 A	20 A	1		1.50 1.10		2	20 A	20 A	#12	#12	1.992	CU-02 I MOTOR	16
17	RECEPTACLE FITNESS 205	2.612	#12	#12	20 A	20 A	1			0.72 1.10								18
19	(G) EWC I NON-CONTINUOUS FITNESS 205	1.709	#12	#12	20 A	20 A	1	0.60 0.36			1	20 A	20 A	#12	#12	1.625	(A) RECEPTACLE, NON-CONTINUOUS KITCHEN 201	20
21	RECEPTACLE 207,206	1.334	#12	#12	20 A	20 A	1		0.36 0.54		1	20 A	20 A	#12	#12	1.654	(A) RECEPTACLE KITCHEN 201	22
23	(A) RECEPTACLE KITCHEN 201	1.838	#12	#12	20 A	20 A	1			0.54 1.20	1	20 A	20 A	#12	#12	1.902	(G) ICE I NON-CONTINUOUS	24
25	RECEPTACLE	1.796	#12	#12	20 A	20 A	1	0.36 1.00			1	20 A	20 A	#12	#12	1.879	(G) DISHWASHER I MOTOR, NON-CONTINUOUS...	26
27	EXTERIOR RECEPTACLE	1.656	#12	#12	20 A	20 A	1		0.36 1.14		1	15 A	15 A	#12	#12	1.957	(A) GD1 I MOTOR, NON-CONTINUOUS KITCHEN 201	28
29	RECEPTACLE 201,202	2.684	#12	#12	20 A	20 A	1			0.72 0.50	1	20 A	20 A	#12	#12	1.663	(ST) HOOD FANS HOOD LIGHTS TOGGLE SWITCH I...	30
31	(A) RECEPTACLE DAYROOM 202	3.43	#12	#12	20 A	20 A	1	1.08 0.00			--	--	--	--	--	--	SHUNT TRIP	32
33	(A) RECEPTACLE CORRIDOR 200	2.17	#12	#12	20 A	20 A	1		0.54 0.75		1	20 A	20 A	#12	#12	1.938	(ST) RANGE I NON-CONTINUOUS KITCHEN 201	34
35	NON-CONTINUOUS FITNESS 205	2.097	#12	#12	20 A	20 A	1			0.60 0.00	--	--	--	--	--	--	SHUNT TRIP	36
37	FAN I NON-CONTINUOUS FITNESS 205	1.398	#12	#12	20 A	20 A	1	0.10 0.05			1	20 A	20 A	#12	#12	1.251	C2 I NON-CONTINUOUS JANITOR'S CLOSET 207	38
39	EWH-04 I HEATING CORRIDOR 200	4.542	#12	#12	20 A	20 A	1		1.50 0.18		1	20 A	20 A	#12	#12	1.423	(A) RECEPTACLE KITCHEN 201	40
41	SPARE	--	--	--	20 A	--	1			0.00 1.50	1	20 A	20 A	#12	#12	4.898	EWH-03 I HEATING CORRIDOR 101	42
43	SPARE	--	--	--	20 A	--	1	0.00 0.00			1	--	20 A	--	--	--	SPARE	44
45	SPARE	--	--	--	20 A	--	1		0.00 0.00		1	--	20 A	--	--	--	SPARE	46
47	SPACE	--	--	--	--	--	--			0.00 0.00	--	--	--	--	--	--	SPACE	48
49	SPACE	--	--	--	--	--	--	0.00 0.00			--	--	--	--	--	--	SPACE	50
51	SPACE	--	--	--	--	--	--		0.00 0.00		--	--	--	--	--	--	SPACE	52
53	SPACE	--	--	--	--	--	--			0.00 0.00	--	--	--	--	--	--	SPACE	54
	TOTAL CONNECTED LOAD:							9.6 kVA	13.4 kVA	12.6 kVA								

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	NOTES:	BREAKER QUANTITIES (NEW ONLY)
Cooling	9978 VA	100.00%	9978 VA		(2) 15A / 1P, (1) 15A / 1P (A), (24) 20A / 1P, (6) 20A / 1P (A), (3) 20A / 1P (G), (2) 20A / 1P (ST), (2) 20A / 2P, (1) 40A / 2P
Heating	3000 VA	100.00%	3000 VA		
Lighting	418 VA	125.00%	523 VA		
Motor	11795 VA	103.39%	12195 VA		
Non-Continuous	4300 VA	100.00%	4300 VA		
Receptacle	6120 VA	100.00%	6120 VA		

PANEL TOTALS

TOTAL CONNECTED LOAD: 35.6 kVA
DEMAND CALCULATION NOTES: 0% HEATING, 100% COOLING
TOTAL DEMAND: 33.1 kVA
TOTAL DEMAND AMPS: **92 A**

PANEL NAME: L1A

SUPPLY FROM: MDP | **MAINS RATING (A):** 125 | **FAULT CURRENT (A):** 29527 | **SURGE SUPRESSION:**
LOCATION: ELECTRICAL 124 | **MAINS TYPE:** MAIN LUGS ONLY | **SHORT CIRCUIT RATING (A):** 42000 | **ULSE:**
DISTRIBUTION SYSTEM: 208/120V 3PH 4W | **FEEDER ID:** 125-4A | **LUGS TYPE:** FEED-THROUGH | **200% NEUTRAL:**
FEEDER: (4) #2/0 AWG AL, (1) #4 AWG AL GND. IN 2" CONDUIT | **ENCLOSURE TYPE:** NEMA 1 | **ISOLATED GROUND:**

CKT	CIRCUIT DESCRIPTION	VD%	AWG	GND	TRIP	FRAME	POLE	A	B	C	POLE	FRAME	TRIP	GND	AWG	VD%	CIRCUIT DESCRIPTION	CKT
1	(G) VENDING I NON-CONTINUOUS APPARATUS BA...	1.881	#12	#12	20 A	20 A	1	0.80 0.17			1	20 A	20 A	#12	#12	1.48	(->) PARKING LOT LIGHTING	2
3	LIGHTING	1.367	#12	#12	20 A	20 A	1		0.24 0.24		1	20 A	20 A	#12	#12	1.363	EXTERIOR LIGHTING	4
5	(G) EWC I RECEPTACLE, NON-CONTINUOUS...	2.444	#12	#12	20 A	20 A	1			0.96 0.04	1	20 A	20 A	#12	#12	0.849	FLAG POLE LIGHTING	6
7	RECEPTACLE	1.311	#12	#12	20 A	20 A	1	0.36 0.04			1	20 A	20 A	#12	#12	0.794	LIGHTING	8
9	EF-06 I MOTOR JANITOR'S CLOSET 115	0.764	#12	#12	15 A	15 A	1		0.03 0.10		1	20 A	20 A	#12	#12	1.057	LIGHTING	10
11	RECEPTACLE JANITOR'S CLOSET 115	0.954	#12	#12	20 A	20 A	1			0.18 0.54	1	20 A	20 A	#12	#12	2.193	RECEPTACLE	12
13	RECEPTACLE, NON-CONTINUOUS CORRIDOR 101	1.583	#12	#12	20 A	20 A	1	0.72 1.50			1	20 A	20 A	#12	#12	1.898	EWH-02 I HEATING VESTIBULE 100	14
15	(G) WASHER I NON-CONTINUOUS DECON 119	3.295	#12	#12	20 A	20 A	1		1.20 0.54		1	20 A	20 A	#12	#12	1.598	RECEPTACLE TOOLS/STORAGE 117	16
17	DRYER I NON-CONTINUOUS DECON 119	2.34	#10	#10	30 A	30 A	2			1.88 0.36	1	20 A	20 A	#12	#12	1.344	RECEPTACLE SCBA 118	18
19								1.88 1.44			1	20 A	20 A	#12	#12	2.298	POWER WASHER I MOTOR APPARATUS BAY 125	20
21	RECEPTACLE APPARATUS BAY 125	1.308	#12	#12	20 A	20 A	1		0.54 0.04		1	15 A	15 A	#12	#12	0.767	EF-07 I MOTOR RESTROOM 123	22
23	SPARE	--	--	--	20 A	--	1			0.00 0.00	1	--	20 A	--	--	--	SPARE	24
25	SPARE	--	--	--	20 A	--	1	0.00 0.00			1	--	20 A	--	--	--	SPARE	26
27	SPARE	--	--	--	20 A	--	1		0.00 0.00		1	--	20 A	--	--	--	SPARE	28
29	SPARE	--	--	--	20 A	--	1			0.00 0.00	1	--	20 A	--	--	--	SPARE	30
31	SPACE	--	--	--	--	--	--	0.00 0.00			--	--	--	--	--	--	SPACE	32
33	SPACE	--	--	--	--	--	--		0.00 0.00		--	--	--	--	--	--	SPACE	34
35	SPACE	--	--	--	--	--	--			0.00 0.00	--	--	--	--	--	--	SPACE	36
37	SPACE	--	--	--	--	--	--	0.00 0.00			--	--	--	--	--	--	SPACE	38
39	SPACE	--	--	--	--	--	--		0.00 0.00		--	--	--	--	--	--	SPACE	40
41	SPACE	--	--	--	--	--	--			0.00 0.00	--	--	--	--	--	--	SPACE	42
	TOTAL CONNECTED LOAD:							6.9 kVA	2.9 kVA	4.0 kVA								

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	NOTES:	BREAKER QUANTITIES (NEW ONLY)
Heating	1500 VA	100.00%	1500 VA		(2) 15A / 1P, (23) 20A / 1P, (3) 20A / 1P (G), (1) 30A / 2P
Lighting	832 VA	125.00%	1040 VA		
Motor	1513 VA	123.79%	1873 VA		
Non-Continuous	6350 VA	100.00%	6350 VA		
Receptacle	3600 VA	100.00%	3600 VA		

PANEL TOTALS

TOTAL CONNECTED LOAD: 13.8 kVA
DEMAND CALCULATION NOTES:
TOTAL DEMAND: 14.4 kVA
TOTAL DEMAND AMPS: **40 A**

PANEL NAME: MDP

SUPPLY FROM: UTILITY | **MAINS RATING (A):** 600 | **FAULT CURRENT (A):** 36434 | **SURGE SUPRESSION:** Yes
LOCATION: ELECTRICAL 124 | **MAINS TYPE:** THERMAL MAGNETIC | **SHORT CIRCUIT RATING (A):** 42000 | **ULSE:** Yes
DISTRIBUTION SYSTEM: 208/120V 3PH 4W | **FEEDER ID:** U600-4A | **LUGS TYPE:** | **200% NEUTRAL:**
FEEDER: (2) SETS OF (4) #500 KCMIL AL IN 4" CONDUIT EACH | **ENCLOSURE TYPE:** NEMA 1 | **ISOLATED GROUND:**

CKT	CIRCUIT DESCRIPTION	VD%	AWG	GND	TRIP	FRAME	POLE	A	B	C	POLE	FRAME	TRIP	GND	AWG	VD%	CIRCUIT DESCRIPTION	CKT
1								6.90 0.00										2
3	L1A I NON-CONTINUOUS ELECTRICAL 124	SL	SL	SL	125 A	125 A	3		2.94 0.00		3	--	20 A	--	--	--	SPARE	4
5										3.96 0.00								6
7								31.... 0.00										8
9	ATS-OS I NON-CONTINUOUS ELECTRICAL 124	SL	SL	SL	300 A	300 A	3		29.21 0.00		3	--	20 A	--	--	--	SPARE	10
11										26.90 0.00								12
13								9.59										14
15	L2A	SL	SL	SL	200 A	200 A	3		13.39									16
17										12.63								18
19																		20
21																		22
23																		24
25																		26
27																		28
29																		30
31																		32
33																		34
35																		36
37																		38
39																		40
41																		42
	TOTAL CONNECTED LOAD:							47.7 kVA	45.5 kVA	43.5 kVA								

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND	NOTES:	BREAKER QUANTITIES (NEW ONLY)
Continuous	4360 VA	125.00%	5450 VA		(2) 20A / 3P, (1) 125A / 3P, (1) 200A / 3P, (1) 300A / 3P
Cooling	13554 VA	100.00%	13554 VA		
Heating	24468 VA	100.00%	24468 VA		
Lighting	5821 VA	125.00%	7276 VA		
Motor	43424 VA	104.29%	45289 VA		
Non-Continuous	23010 VA	100.00%	23010 VA		
Receptacle	21120 VA	73.67%	15560 VA		
Spare	500 VA	100.00%	500 VA		

PANEL TOTALS

TOTAL CONNECTED LOAD: 136.3 kVA
DEMAND CALCULATION NOTES: 0% COOLING, 100% EXISTING, 100% HEATING
TOTAL DEMAND: 122.1 kVA
TOTAL DEMAND AMPS: **339 A**

PANEL SCHEDULE LEGEND

(EX)	=	EXISTING CIRCUIT TO REMAIN
(#)	=	NEW CIRCUIT TO EXISTING CIRCUIT BREAKER
(G)	=	PROVIDE GROUND-FAULT CIRCUIT INTERRUPTER (GFCI) CIRCUIT BREAKER
(GE)	=	PROVIDE GROUND-FAULT EQUIPMENT PROTECTION (GFEP) CIRCUIT BREAKER
(ST)	=	PROVIDE SHUNT TRIP CIRCUIT BREAKER
(A)	=	PROVIDE ARC FAULT CIRCUIT INTERRUPTER (AFCI) CIRCUIT BREAKER
(L)	=	PROVIDE LOCK-ON DEVICE
(LT)	=	PROVIDE LOCK-OUT/TAG-OUT DEVICE
(->)	=	CONNECT BRANCH CIRCUIT, WHICH WAS DISCONNECTED FROM ANOTHER SOURCE AS PART OF SELECTIVE DEMOLITION, TO POLE SPACE(S) INDICATED. DETERMINE EXACT POLE ASSIGNMENT(S) BASED ON EXISTING COLOR-CODING OF THE BRANCH CIRCUIT CONDUCTOR INSULATION. PROVIDE NEW BREAKER IF REQUIRED.
*	=	WIRE SIZED TO COMPENSATE FOR VOLTAGE DROP
**	=	REFER TO DRAWINGS FOR SPECIFICATIONS
SL	=	SEE THE SINGLE LINE DIAGRAM / SCHEDULE FOR WIRE SIZE AND VOLTAGE DROP

PANEL SCHEDULE GENERAL NOTES

A. PROVIDE HACR RATED BREAKERS ON ALL MOTOR LOADS.
B. PROVIDE LOCKING TYPE BREAKER FOR ALL LIFE SAFETY AND NIGHT LIGHTING BRANCH CIRCUITS.
C. ALL VOLTAGE DROP CALCULATIONS AND COMPENSATED WIRE SIZES ARE BASED ON RIGHT ANGLE CIRCUIT LENGTHS TO THE LAST DEVICE. ACTUAL VOLTAGE DROP VARIES BASED ON INSTALLED WIRE LENGTH.

PANEL KEY

--	--	--
--	--	L2A
--	L1A	MDP

REV	DATE	BY
0	11/20/2019	CAM

REVISIONS
0 ISSUE FOR BIDDING AND PERMIT

DATE: 11/20/2019 | DRAWN BY: KH | CHECKED BY: PM | APPROVED BY: | F.B. NO. | PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

ELECTRIC POWER - PANEL SCHEDULES

SCALE:
HORZ:
VERT:
CONTRACT NO: 170636
SHEET: EP602

11/14/2019 10:22:49 AM

KLH JOB#: 21459.00

PANEL NAME: OSL2A

SUPPLY FROM: OSDP | **MAINS RATING (A):** 125 | **FAULT CURRENT (A):** 11256 | **SURGE SUPRESSION:** Yes
LOCATION: MECHANICAL 206 | **MAINS TYPE:** MAIN LUGS ONLY | **SHORT CIRCUIT RATING (A):** 22000 | **ULSE:**
DISTRIBUTION SYSTEM: 208/120V 3PH 4W | **FEEDER ID:** 125-4A | **LUGS TYPE:** | **200% NEUTRAL:**
FEEDER: (4) #2/0 AWG AL, (1) #4 AWG AL GND. IN 2" CONDUIT | **ENCLOSURE TYPE:** NEMA 1 | **ISOLATED GROUND:**

CKT	CIRCUIT DESCRIPTION	VD%	AWG	GND	TRIP	FRAME	POLE	A	B	C	POLE	FRAME	TRIP	GND	AWG	VD%	CIRCUIT DESCRIPTION	CKT
1	(A) EF-04 EF-05 I LIGHTING KITCHEN 201	3.49	#12	#12	20 A	20 A	1	0.78	0.80		1	20 A	20 A	#12	#12	1.933	(G) REF. I MOTOR	2
3	(A) NON-CONTINUOUS CORRIDOR 200	1.761	#12	#12	20 A	20 A	1		0.30	0.80	1	20 A	20 A	#12	#12	1.871	(G) REF. I MOTOR	4
5	GWH1 I NON-CONTINUOUS MECHANICAL 206	1.67	#12	#12	15 A	15 A	1			0.60 0.80	1	20 A	20 A	#12	#12	1.829	(G) REF. I MOTOR	6
7	RCP1 I MOTOR MECHANICAL 206	1.555	#12	#12	15 A	15 A	1	0.16	0.80		1	20 A	20 A	#12	#12	1.881	(G) REF. I MOTOR	8
9	KEF-01 I MOTOR	2.175	#12	#12	20 A	20 A	1		0.70	0.25	1	20 A	20 A	#12	#12	1.684	ANSUL SYSTEM I NON-CONTINUOUS JANITOR'S...	10
11	DSD I MOTOR JANITOR'S CLOSET 207	1.577	#12	#12	20 A	20 A	1			0.10 1.69	2	25 A	25 A	#10	#10	2.387	DSCU-01 I MOTOR	12
13	EF-08 I MOTOR	1.921	#12	#12	15 A	15 A	1	0.31	1.69									14
15	EF-01 I MOTOR	1.882	#12	#12	20 A	20 A	2		0.33	0.76	1	15 A	15 A	#12	#12	1.71	FCU-01 I MOTOR MECHANICAL 206	16
17										0.33 1.32								18
19	ACCU-01 I MOTOR	2.061	#12	#12	15 A	15 A	2	0.47	1.32		2	20 A	20 A	#12	#12	2.866	CU-04 I MOTOR	20
21									0.47	0.05								22
23	LIGHTING STAIR 129	1.678	#12	#12	20 A	20 A	1			0.20 0.10	1	20 A	20 A	#12	#12	1.561	MOD MOTOR MECHANICAL 206	24
25	SPARE	--	--	--	20 A	--	1	0.00	0.00		1	--	20 A	--	--	--	SPARE	26
27	SPARE	--	--	--	20 A	--	1		0.00	0.00	1	--	20 A	--	--	--	SPARE	28
29	SPARE	--	--	--	20 A	--	1			0.00 0.00	1	--	20 A	--	--	--	SPARE	30
31	SPARE	--	--	--	20 A	--	1	0.00	0.00		1	--	20 A	--	--	--	SPARE	32
33	SPACE	--	--	--	--	--	--		0.00	0.00	--	--	--	--	--	--	SPACE	34
35	SPACE	--	--	--	--	--	--			0.00 0.00	--	--	--	--	--	--	SPACE	36
37	SPACE	--	--	--	--	--	--	0.00	0.00		--	--	--	--	--	--	SPACE	38
39	SPACE	--	--	--	--	--	--		0.00	0.00	--	--	--	--	--	--	SPACE	40
41	SPACE	--	--	--	--	--	--			0.00 0.00	--	--	--	--	--	--	SPACE	42
	TOTAL CONNECTED LOAD:							6.3 kVA	3.7 kVA	5.1 kVA								

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND
Cooling	3576 VA	100.00%	3576 VA
Lighting	840 VA	125.00%	1050 VA
Motor	9496 VA	108.87%	10339 VA
Non-Continuous	1200 VA	100.00%	1200 VA

NOTES:

BREAKER QUANTITIES (NEW ONLY)
(4) 15A / 1P, (1) 15A / 2P, (14) 20A / 1P, (2) 20A / 1P (A), (4) 20A / 1P (G), (2) 20A / 2P, (1) 25A / 2P

PANEL TOTALS
TOTAL CONNECTED LOAD: 15.1 kVA
DEMAND CALCULATION NOTES:
TOTAL DEMAND: 16.2 kVA
TOTAL DEMAND AMPS: **45 A**

PANEL NAME: OSL1B

SUPPLY FROM: OSDP | **MAINS RATING (A):** 100 | **FAULT CURRENT (A):** 8439 | **SURGE SUPRESSION:** Yes
LOCATION: LAUNDRY 112 | **MAINS TYPE:** MAIN LUGS ONLY | **SHORT CIRCUIT RATING (A):** 22000 | **ULSE:**
DISTRIBUTION SYSTEM: 208/120V 3PH 4W | **FEEDER ID:** 100-4A | **LUGS TYPE:** | **200% NEUTRAL:**
FEEDER: (4) #1/0 AWG AL, (1) #6 AWG AL GND. IN 2" CONDUIT | **ENCLOSURE TYPE:** NEMA 1 | **ISOLATED GROUND:**

CKT	CIRCUIT DESCRIPTION	VD%	AWG	GND	TRIP	FRAME	POLE	A	B	C	POLE	FRAME	TRIP	GND	AWG	VD%	CIRCUIT DESCRIPTION	CKT
1	(A) LIGHTING FF BUNK 111	1.831	#12	#12	20 A	20 A	1	0.10	1.88		2	30 A	30 A	#10	#10	1.859	DRYER I NON-CONTINUOUS LAUNDRY 112	2
3	(A) LIGHTING LAUNDRY 112	2.775	#12	#12	20 A	20 A	1		0.75	1.88								4
5	LIGHTING CORRIDOR 101	2.211	#12	#12	20 A	20 A	1			0.41 1.20	1	20 A	20 A	#12	#12	1.974	(G) WASHER I NON-CONTINUOUS LAUNDRY 112	6
7	(A) RECEPTACLE LAUNDRY 112	2.548	#12	#12	20 A	20 A	1	0.90	0.84		1	20 A	20 A	#12	#12	2.648	RECEPTACLE FF OFFICE 103	8
9	NON-CONTINUOUS CORRIDOR 101	1.72	#12	#12	20 A	20 A	1		0.05	1.04	1	20 A	20 A	#12	#12	2.707	RECEPTACLE, NON-CONTINUOUS LT OFFICE 104	10
11	(A) RECEPTACLE LT BUNK 105	2.742	#12	#12	20 A	20 A	1			1.08 0.14	1	20 A	20 A	#12	#12	1.872	EF-02 EF-03 I MOTOR RESTROOM 107	12
13	(A) RECEPTACLE FF BUNK 111	2.577	#12	#12	20 A	20 A	1	1.08	0.10		1	20 A	20 A	#12	#12	1.776	DSD I MOTOR CORRIDOR 101	14
15	RECEPTACLE 107,108	2.018	#12	#12	20 A	20 A	1		0.36	1.50	1	20 A	20 A	#12	#12	3.424	EWH-01 I HEATING JANITOR'S CLOSET 115	16
17	(A) RECEPTACLE FF BUNK 109	2.291	#12	#12	20 A	20 A	1			0.54 0.36	1	20 A	20 A	#12	#12	2.129	ACCESS CONTROL I CONTINUOUS SERVER 102	18
19	PA AND RADIO I CONTINUOUS SERVER 102	2.892	#12	#12	20 A	20 A	1	1.00	1.00		1	20 A	20 A	#12	#12	3.349	NON-CONTINUOUS FF OFFICE 103	20
21	ER102-1 I CONTINUOUS SERVER 102	2.854	#8	#10	35 A	35 A	1		3.00	0.00	1	--	20 A	--	--	--	SPARE	22
23	SPARE	--	--	--	20 A	--	1			0.00 0.00	1	--	20 A	--	--	--	SPARE	24
25	SPARE	--	--	--	20 A	--	1	0.00	0.00		1	--	20 A	--	--	--	SPARE	26
27	SPARE	--	--	--	20 A	--	1		0.00	0.00	1	--	20 A	--	--	--	SPARE	28
29	SPARE	--	--	--	20 A	--	1			0.00 0.00	1	--	20 A	--	--	--	SPARE	30
31	SPACE	--	--	--	--	--	--	0.00	0.00		--	--	--	--	--	--	SPACE	32
33	SPACE	--	--	--	--	--	--		0.00	0.00	--	--	--	--	--	--	SPACE	34
35	SPACE	--	--	--	--	--	--			0.00 0.00	--	--	--	--	--	--	SPACE	36
37	SPACE	--	--	--	--	--	--	0.00	0.00		--	--	--	--	--	--	SPACE	38
39	SPACE	--	--	--	--	--	--		0.00	0.00	--	--	--	--	--	--	SPACE	40
41	SPACE	--	--	--	--	--	--			0.00 0.00	--	--	--	--	--	--	SPACE	42
	TOTAL CONNECTED LOAD:							6.9 kVA	8.6 kVA	3.7 kVA								

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND
Continuous	4360 VA	125.00%	5450 VA
Heating	1500 VA	100.00%	1500 VA
Lighting	1258 VA	125.00%	1573 VA
Motor	240 VA	107.29%	258 VA
Non-Continuous	6800 VA	100.00%	6800 VA
Receptacle	5040 VA	100.00%	5040 VA

NOTES:

BREAKER QUANTITIES (NEW ONLY)
(20) 20A / 1P, (6) 20A / 1P (A), (1) 20A / 1P (G), (1) 30A / 2P, (1) 35A / 1P

PANEL TOTALS
TOTAL CONNECTED LOAD: 19.2 kVA
DEMAND CALCULATION NOTES:
TOTAL DEMAND: 20.6 kVA
TOTAL DEMAND AMPS: **57 A**

PANEL NAME: OSL1A

SUPPLY FROM: OSDP | **MAINS RATING (A):** 125 | **FAULT CURRENT (A):** 29717 | **SURGE SUPRESSION:** Yes
LOCATION: ELECTRICAL 124 | **MAINS TYPE:** MAIN LUGS ONLY | **SHORT CIRCUIT RATING (A):** 42000 | **ULSE:**
DISTRIBUTION SYSTEM: 208/120V 3PH 4W | **FEEDER ID:** 125-4A | **LUGS TYPE:** | **200% NEUTRAL:**
FEEDER: (4) #2/0 AWG AL, (1) #4 AWG AL GND. IN 2" CONDUIT | **ENCLOSURE TYPE:** NEMA 1 | **ISOLATED GROUND:**

CKT	CIRCUIT DESCRIPTION	VD%	AWG	GND	TRIP	FRAME	POLE	A	B	C	POLE	FRAME	TRIP	GND	AWG	VD%	CIRCUIT DESCRIPTION	CKT
1	(L) FACP I NON-CONTINUOUS ELECTRICAL 124	1.076	#12	#12	20 A	20 A	1	0.50	0.75		1	20 A	20 A	#12	#12	2.55	OVERHEAD DOOR I MOTOR APPARATUS BAY 125	2
3	(G) RECEPTACLE APPARATUS BAY 125	1.445	#12	#12	20 A	20 A	1		0.50	0.75	1	20 A	20 A	#12	#12	1.517	OVERHEAD DOOR I MOTOR APPARATUS BAY 125	4
5	(G) RECEPTACLE APPARATUS BAY 125	1.701	#12	#12	20 A	20 A	1			0.50 0.75	1	20 A	20 A	#12	#12	2.209	OVERHEAD DOOR I MOTOR APPARATUS BAY 125	6
7	(G) RECEPTACLE APPARATUS BAY 125	1.53	#12	#12	20 A	20 A	1	0.50	0.30		1	20 A	20 A	#12	#12	1.242	SECURE DOOR NON-CONTINUOUS 101,102,104	8
9	RECEPTACLE APPARATUS BAY 125	2.709	#12	#12	20 A	20 A	1		1.08	0.47	1	15 A	15 A	#12	#12	1.632	GFUH-01 I HEATING	10
11	LIGHTING ELECTRICAL 124	2.493	#12	#12	20 A	20 A	1			0.77 0.15	1	20 A	20 A	#12	#12	1.254	LIGHTING	12
13	LIGHTING APPARATUS BAY 125	1.164	#12	#12	20 A	20 A	1	0.15	0.20		1	20 A	20 A	#12	#12	1.558	EXTERIOR LIGHTING	14
15	LIGHTING APPARATUS BAY 125	4.132	#12	#12	20 A	20 A	1		1.20	0.50	1	20 A	20 A	#12	#12	1.619	PPE DRYER I MOTOR APPARATUS BAY 125	16
17	GEN ACCESSORY I NON-CONTINUOUS	2.061	#12	#12	20 A	20 A	1			0.50 0.80	1	20 A	20 A	#12	#12	1.567	(G) VENDING I NON-CONTINUOUS EMS SUPPLY 121	18
19	BLOCK HTR I NON-CONTINUOUS	3.139	#12	#12	20 A	20 A	1	1.00	0.10		1	20 A	20 A	#12	#12	1.137	MOD I MOTOR APPARATUS BAY 125	20
21	BATTERY HTR I NON-CONTINUOUS	3.105	#12	#12	20 A	20 A	1		1.00	0.54	1	20 A	20 A	#12	#12	2.009	RECEPTACLE 119,118,117	22
23	RECEPT I NON-CONTINUOUS	1.711	#12	#12	20 A	20 A	1			0.36 0.72	1	20 A	20 A	#12	#12	1.991	RECEPTACLE SCBA 118	24
25	RECEPTACLE, NON-CONTINUOUS 125,124,123	1.196	#12	#12	20 A	20 A	1	0.66	0.72		1	20 A	20 A	#12	#12	1.576	RECEPTACLE TOOLS/STORAGE 117	26
27	RECEPTACLE EMS SUPPLY 121	1.396	#12	#12	20 A	20 A	1		0.54	0.36	1	20 A	20 A	#12	#12	1.407	RECEPTACLE TURNOUT GEAR 120	28
29	RECEPTACLE STORAGE 122	1.412	#12	#12	20 A	20 A	1			0.54 0.50	1	--	20 A	--	--	--	NOTIFICATION SYSTEM	30
31	SPARE	--	--	--	20 A	--	1	0.00	0.00		1	--	20 A	--	--	--	SPARE	32
33	SPARE	--	--	--	20 A	--	1		0.00	0.00	1	--	20 A	--	--	--	SPARE	34
35	SPARE	--	--	--	20 A	--	1			0.00 0.00	1	--	20 A	--	--	--	SPARE	36
37	SPARE	--	--	--	20 A	--	1	0.00	0.00		1	--	20 A	--	--	--	SPARE	38
39	SPACE	--	--	--	--	--	--		0.00	0.00	--	--	--	--	--	--	SPACE	40
41	SPACE	--	--	--	--	--	--			0.00 0.00	--	--	--	--	--	--	SPACE	42
	TOTAL CONNECTED LOAD:							5.0 kVA	6.9 kVA	5.6 kVA								

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND
Heating	468 VA	100.00%	468 VA
Lighting	2473 VA	125.00%	3091 VA
Motor	2850 VA	106.58%	3038 VA
Non-Continuous	4360 VA	100.00%	4360 VA
Receptacle	6360 VA	100.00%	6360 VA
Spare	500 VA	100.00%	500 VA

NOTES:

BREAKER QUANTITIES (NEW ONLY)
(1) 15A / 1P, (32) 20A / 1P, (4) 20A / 1P (G), (1) 20A / 1P (L)

PANEL TOTALS
TOTAL CONNECTED LOAD: 17.0 kVA
DEMAND CALCULATION NOTES: 100% EXISTING
TOTAL DEMAND: 18.3 kVA
TOTAL DEMAND AMPS: **51 A**

PANEL NAME: OSDP

SUPPLY FROM: ATS-OS | **MAINS RATING (A):** 300 | **FAULT CURRENT (A):** 32060 | **SURGE SUPRESSION:** Yes
LOCATION: ELECTRICAL 124 | **MAINS TYPE:** THERMAL MAGNETIC | **SHORT CIRCUIT RATING (A):** 42000 | **ULSE:**
DISTRIBUTION SYSTEM: 208/120V 3PH 4W | **FEEDER ID:** 300-4A | **LUGS TYPE:** | **200% NEUTRAL:**
FEEDER: (4) #500 KCMIL AL, (1) #2 AWG AL GND. IN 4" CONDUIT | **ENCLOSURE TYPE:** NEMA 1 | **ISOLATED GROUND:**

CKT	CIRCUIT DESCRIPTION	VD%	AWG	GND	TRIP	FRAME	POLE	A	B	C	POLE	FRAME	TRIP	GND	AWG	VD%	CIRCUIT DESCRIPTION	CKT
1								0.60	4.98									2
3	AC1 I MOTOR	1.106	#12	#12	20 A	20 A	2		0.60	6.94	3	125 A	125 A	SL	SL	SL	OSL1A	4
5										3.00	5.59							6
7	ACU-01 I MOTOR	1.593	#6	#10	50 A	50 A	2	3.00	6.32									8
9									2.49	3.65								10
11	SCBA I MOTOR SCBA 118	1.117	#4	#10	60 A	60 A	3			2.49 5.14	3	125 A	125 A	SL	SL	SL	OSL2A	12
13								2.49	6.89									14
15									0.96	8.57								16
17	EXTRACTOR I MOTOR DECON 119	1.477	#12	#12	20 A	20 A	3			0.96 3.73	3	100 A	100 A	SL	SL	SL	OSL1B	18
19								0.96	0.00									20
21									6.00	0.00	3	--	20 A	--	--	--	SPARE	22
23	EDH-01 I HEATING	1.69	#4	#10	60 A	60 A	3			6.00 0.00								24
25								6.00	0.00		--	--	--	--	--	--	SPACE	26
27																		28
29																		30
31																		32
33																		34
35																		36
37																		38
39																		40
41																		42
	TOTAL CONNECTED LOAD:							31.2 kVA	29.2 kVA	26.9 kVA								

LOAD CLASSIFICATION	CONNECTED LOAD	DEMAND FACTOR	ESTIMATED DEMAND
Continuous	4360 VA	125.00%	5450 VA
Cooling	3576 VA	100.00%	3576 VA
Heating	19968 VA	100.00%	19968 VA
Lighting	4571 VA	125.00%	5714 VA
Motor	30116 VA	106.19%	31981 VA
Non-Continuous	12360 VA	100.00%	12360 VA
Receptacle	11400 VA	93.86%	10700 VA
Spare	500 VA	100.00%	500 VA

NOTES:

BREAKER QUANTITIES (NEW ONLY)
(1) 20A / 2P, (2) 20A / 3P, (1) 50A / 2P, (2) 60A / 3P, (1) 100A / 3P, (2) 125A / 3P

PANEL TOTALS
TOTAL CONNECTED LOAD: 86.9 kVA
DEMAND CALCULATION NOTES: 0% COOLING, 100% EXISTING, 100% HEATING
TOTAL DEMAND: 87.2 kVA
TOTAL DEMAND AMPS: **242 A**

PANEL SCHEDULE LEGEND

(EX)	=	EXISTING CIRCUIT TO REMAIN
(#)	=	NEW CIRCUIT TO EXISTING CIRCUIT BREAKER
(G)	=	PROVIDE GROUND-FAULT CIRCUIT INTERRUPTER (GFCI) CIRCUIT BREAKER
(GE)	=	PROVIDE GROUND-FAULT EQUIPMENT PROTECTION (GFEP) CIRCUIT BREAKER
(ST)	=	PROVIDE SHUNT TRIP CIRCUIT BREAKER
(A)	=	PROVIDE ARC FAULT CIRCUIT INTERRUPTER (AFCI) CIRCUIT BREAKER
(L)	=	PROVIDE LOCK-ON DEVICE
(LT)	=	PROVIDE LOCK-OUT/TAG-OUT DEVICE
(->)	=	CONNECT BRANCH CIRCUIT, WHICH WAS DISCONNECTED FROM ANOTHER SOURCE AS PART OF SELECTIVE DEMOLITION, TO POLE SPACE(S) INDICATED, DETERMINE EXACT POLE ASSIGNMENT(S) BASED ON EXISTING COLOR-CODING OF THE BRANCH CIRCUIT CONDUCTOR INSULATION. PROVIDE NEW BREAKER IF REQUIRED.
*	=	WIRE SIZED TO COMPENSATE FOR VOLTAGE DROP
**	=	REFER TO DRAWINGS FOR SPECIFICATIONS
SL	=	SEE THE SINGLE LINE DIAGRAM / SCHEDULE FOR WIRE SIZE AND VOLTAGE DROP

PANEL SCHEDULE GENERAL NOTES

A. PROVIDE HACR RATED BREAKERS ON ALL MOTOR LOADS.
B. PROVIDE LOCKING TYPE BREAKER FOR ALL LIFE SAFETY AND NIGHT LIGHTING BRANCH CIRCUITS.
C. ALL VOLTAGE DROP CALCULATIONS AND COMPENSATED WIRE SIZES ARE BASED ON RIGHT ANGLE CIRCUIT LENGTHS TO THE LAST DEVICE. ACTUAL VOLTAGE DROP VARIES BASED ON INSTALLED WIRE LENGTH.

PANEL KEY

--	--	--
--	OSL2A	OSL1B
--	OSL1A	OSDP

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — STEPHEN N. FEDERLE — E-76032 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners consultants

REV	DATE	BY
0	11/20/2019	CAM

REVISIONS
0 ISSUE FOR BIDDING AND PERMIT

DATE: 11/20/2019 | DRAWN BY: ___ | CHECKED BY: KH | APPROVED BY: PM | F.B. NO.: ___ | PG.: ___

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

ELECTRIC POWER - PANEL SCHEDULES

SCALE:
HORZ:
VERT:
CONTRACT NO: 170636
SHEET: EP603

11/14/2019 10:22:56 AM

KLH JOB#: 21459.00

ELECTRIC EQUIPMENT SUPPLY SCHEDULE

EQUIPMENT MARK	SUPPLY FROM	CKT	EMERG.	LOAD (kVA)	AVAILABLE FAULT CURRENT	VOLTS	POLE	HTG KW	WATT	HP	FLA (A)	MCA (A)	RQD OCP (A)	BREAKER RATING (A)
AC1	OSDP	1,3		1.20	4141	208 V	2					32	50	50
ACCU-01	OSL2A	19,21		0.94	1711	208 V	2				4.5	7		15
ACU-01	OSDP	5,7		5.99	7026	208 V	2					32	50	50
CU-01	L2A	4,6		2.64	2315	208 V	2					14.1	20	20
CU-02	L2A	16,18		2.19	2824	208 V	2					11.7	20	20
CU-03	L2A	10,12		5.15	5127	208 V	2					27.5	40	40
CU-04	OSL2A	18,20		2.64	1906	208 V	2					14.1	20	20
DS-01				0.00		208 V	2							
DSCU-01	OSL2A	12,14		3.37	3234	208 V	2					18	25	25
EDH-01	OSDP	21,23,25		18.00	5698	208 V	3	18						60
EF-01	OSL2A	15,17		0.67	1793	208 V	2			.25	3.2			20
EF-02	OSL1B	12		0.07	1872	120 V	1				0.58			20
EF-03	OSL1B	12		0.07	1495	120 V	1				0.58			20
EF-04	OSL2A	1		0.07	1062	120 V	1				0.58			20
EF-05	OSL2A	1		0.07	915	120 V	1				0.58			20
EF-06	L1A	9		0.03	1680	120 V	1				0.27			15
EF-07	L1A	22		0.04	1973	120 V	1				0.34			15
EF-08	OSL2A	13		0.31	1377	120 V	1			1/10	2.6			15
EWH-01	OSL1B	16		1.50	1438	120 V	1	1.5			12.5			20
EWH-02	L1A	31		1.50	2389	120 V	1	1.5			12.5			20
EWH-03	L2A	42		1.50	795	120 V	1	1.5			12.5			20
EWH-04	L2A	39		1.50	875	120 V	1	1.5			12.5			20
FCU-01	OSL2A	16		0.76	4911	120 V	1					7	15	15
FCU-02	L2A	2		0.55	5035	120 V	1					5.1	15	15
FCU-03	L2A	8		1.60	3860	120 V	1					14.8	20	20
FCU-04	L2A	14		0.76	3906	120 V	1					7	15	15
GD1	L2A	28		1.14	2697	120 V	1				9.5			15
GFUH-01	OSL1A	10		0.47	1327	120 V	1				3.9			15
GWH1	OSL2A	5		0.60	5900	120 V	1				5.0			15
KEF-01	OSL2A	9		0.70	1800	120 V	1			.25	5.8			20
RCP1	OSL2A	7		0.16	5593	120 V	1		.85	1/12	1.3			15

HVAC ELECTRICAL COORDINATION SCHEDULE

ABBREVIATIONS		CONTRACTOR TYPE		MOTOR CONTROL TYPE		CONTROL TYPE	
DC	LOCAL DISCONNECT	EC	ELECTRICAL CONTRACTOR	CS	COMBINATION STARTER	TC	TIMECLOCK
MC	MOTOR CONTROL (POWER)	EX	EXISTING	MCC	MOTOR CONTROL STARTER	CPT	CONTROL POWER TRANSFORMER
SD	DUCT SMOKE DETECTOR	FC	FIRE PROTECTION CONTRACTOR	MG	MAGNETIC STARTER OR CONTACT	BAS	BUILDING AUTOMATION SYSTEM
CN	CONTROLS	GC	GENERAL CONTRACTOR	MS	MANUAL STARTER	LOW	LOW VOLTAGE CONTROLS
TS	TOGGLE SWITCH	HC	HVAC CONTRACTOR	VFD	VARIABLE FREQUENCY DRIVE	LINE	LINE VOLTAGE CONTROLS
C/B	H.A.C.R. CIRCUIT BREAKER AT SOURCE PANELBOARD	MFR	MANUFACTURER	MSR	MANUAL STARTER W/ CONTROL RELAY	RLINE	REVERSE ACTING LINE VOLTAGE THERMOSTAT
FUSE	FUSE AT LOCAL DISCONNECT (VERIFY FIELD RATING)	PC	PLUMBING CONTRACTOR	OV	OVERCURRENT PROTECTION	MAN	MANUAL
FLA	OPERATING FULL LOAD AMPS	OR	OWNER OR OTHERS			FA	FIRE ALARM
MCA	MINIMUM CIRCUIT AMPACITY					CO	CARBON MONOXIDE SENSOR
CP	CORD AND PLUG CONNECTION					INT	INTEGRAL TO EQUIPMENT

EQUIPMENT MARK	DESCRIPTION	VOLTS (V)	PHASE	EMERGENCY	BHP (HP)	HP (HP)	HTG (kW)	WATTS	Fed From	FLA (A)	MCA (A)	OCP (A)	DC TYPE	DC FURN	DC INST	DC WIRE	MC TYPE	MC FURN	MC INST	MC WIRE	CN TYPE	CN FURN	CN INST	CN WIRE	SD TYPE	AVAILABLE FAULT CURRENT (A)
ACCU-01	AIR COOLED REFRIGERANT CONDENSERS	208	1							4.5	7			EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC		1711
ACU-01	DEHUMIDIFICATION UNIT	208	1								32	50		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	DUCT SMOKE	7026
CF-01	CEILING FAN	120	1			1/16								EC	EC	EC	VFD	MFR	MFR	MFR	LINE	EC	EC	EC		
CF-02	CEILING FAN	120	1			1/16								EC	EC	EC	VFD	MFR	MFR	MFR	LINE	EC	EC	EC		
CU-01	AIR COOLED CONDENSING UNIT	208	1								14.1	20		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC		2315
CU-02	AIR COOLED CONDENSING UNIT	208	1								11.7	20		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC		2824
CU-03	AIR COOLED CONDENSING UNIT	208	1								27.5	40		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC		5127
CU-04	AIR COOLED CONDENSING UNIT	208	1								14.1	20		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC		1906
DS-01	DUCTLESS SPLIT HIGH WALL UNIT	208	1						DSCU-01					EC	EC	EC	MG	MFR	MFR	MFR	LOW	MFR	MFR	MFR		
DSCU-01	DUCTLESS SPLIT OUTDOOR CONDENSING UNIT	208	1								18	25		EC	EC	EC	MG	MFR	MFR	MFR	LOW	MFR	MFR	MFR		3234
ECP	ENVIRONMENTAL CONTROL PANEL	120	1											EC	EC	EC	---	---	---	---	---	BAS	HC	HC	HC	
EDH-01	ELECTRIC FURNACE	208	3				18							EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC		5698
EF-01	CENTRIFUGAL ROOF VENTILATOR	208	1			.25				3.2				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC		1793
EF-02	CEILING MOUNTED VENTILATOR	120	1							0.58				EC	EC	EC	MG	MFR	MFR	MFR	OCC	EC	EC	EC		1872
EF-03	CEILING MOUNTED VENTILATOR	120	1							0.58				EC	EC	EC	MG	MFR	MFR	MFR	OCC	EC	EC	EC		1495
EF-04	CEILING MOUNTED VENTILATOR	120	1							0.58				EC	EC	EC	MG	MFR	MFR	MFR	OCC	EC	EC	EC		1062
EF-05	CEILING MOUNTED VENTILATOR	120	1							0.58				EC	EC	EC	MG	MFR	MFR	MFR	OCC	EC	EC	EC		915
EF-06	CEILING MOUNTED VENTILATOR	120	1							0.27				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC		1680
EF-07	CEILING MOUNTED VENTILATOR	120	1							0.34				EC	EC	EC	MG	MFR	MFR	MFR	OCC	EC	EC	EC		1973
EF-08	CENTRIFUGAL ROOF VENTILATOR	120	1			1/10				2.6				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC		1377
EF-09	CEILING MOUNTED VENTILATOR	120	1							0.34				EC	EC	EC	MG	MFR	MFR	MFR	OCC	EC	EC	EC		1680
EWH-01	WALL AND CEILING HEATER	120	1				1.5			12.5				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR		1438
EWH-02	WALL AND CEILING HEATER	120	1				1.5			12.5				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR		2389
EWH-03	WALL AND CEILING HEATER	120	1				1.5			12.5				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR		795
EWH-04	WALL AND CEILING HEATER	120	1				1.5			12.5				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR		875
FCU-01	FANCOIL UNIT	120	1								7	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	DUCT SMOKE	4911
FCU-02	FANCOIL UNIT	120	1								5.1	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	DUCT SMOKE	5035
FCU-03	FANCOIL UNIT	120	1								14.8	20		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	DUCT SMOKE	3860
FCU-04	FANCOIL UNIT	120	1								7	15		EC	EC	EC	MG	MFR	MFR	MFR	LOW	HC	HC	HC	DUCT SMOKE	3906
GFUH-01	GAS FIRED UNIT HEATER	120	1							3.9				EC	EC	EC	MG	MFR	MFR	MFR	LINE	HC	EC	EC		1327
KEF-01	CENTRIFUGAL WALL VENTILATOR	120	1			.25				5.8				EC	EC	EC	MG	MFR	MFR	MFR	LINE	EC	EC	EC		1800
MOD		120																								

PLUMBING ELECTRICAL COORDINATON SCHEDULE

ABBREVIATIONS		CONTRACTOR TYPE		MOTOR CONTROL TYPE		CONTROL TYPE	
DC	LOCAL DISCONNECT	EC	ELECTRICAL CONTRACTOR	CS	COMBINATION STARTER	TC	TIMECLOCK
MC	MOTOR CONTROL (POWER)	EX	EXISTING	MCC	MOTOR CONTROL STARTER	CPT	CONTROL POWER TRANSFORMER
SD	DUCT SMOKE DETECTOR	FC	FIRE PROTECTION CONTRACTOR	MG	MAGNETIC STARTER OR CONTACT	BAS	BUILDING AUTOMATION SYSTEM
CN	CONTROLS	GC	GENERAL CONTRACTOR	MS	MANUAL STARTER	LOW	LOW VOLTAGE CONTROLS
TS	TOGGLE SWITCH	HC	HVAC CONTRACTOR	VFD	VARIABLE FREQUENCY DRIVE	LINE	LINE VOLTAGE CONTROLS
C/B	H.A.C.R. CIRCUIT BREAKER AT SOURCE PANELBOARD	MFR	MANUFACTURER	MSR	MANUAL STARTER W/ CONTROL RELAY	RLINE	REVERSE ACTING LINE VOLTAGE THERMOSTAT
FUSE	FUSE AT LOCAL DISCONNECT (VERIFY FIELD RATING)	PC	PLUMBING CONTRACTOR	OV	OVERCURRENT PROTECTION	MAN	MANUAL
FLA	OPERATING FULL LOAD AMPS	OR	OWNER OR OTHERS			FA	FIRE ALARM
MCA	MINIMUM CIRCUIT AMPACITY					CO	CARBON MONOXIDE SENSOR
CP	CORD AND PLUG CONNECTION					INT	INTEGRAL TO EQUIPMENT

EQUIPMENT MARK	DESCRIPTION	VOLTS (V)	PHASE	EMERGENCY	BHP (HP)	HP (HP)	HTG KW (kW)	WATTS (W)	FLA (A)	MCA (A)	OCP (A)	DC TYPE	DC FURN	DC INST	DC WIRE	MC TYPE	MC FURN	MC INST	MC WIRE	CN TYPE	CN FURN	CN INST	CN WIRE	AVAILABLE FAULT CURRENT (A)
AC1	AIR COMPRESSOR	208	1										EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR	4141
EWC1	DOMESTIC ELECTRIC WATER COOLER	120	1					370	5.0			CP	EC	EC	EC	MG	MFR	MFR	MFR	INT	MFR	MFR	MFR	
GD1	GARBAGE DISPOSAL	120	1						9.5			CP	EC	EC	EC	MG	MFR	MFR	MFR	MAN	EC	EC	EC	2697
GWH1	DOMESTIC GAS-FIRED TANK-TYPE WATER HEATER	120	1						5.0				EC	EC	EC	---	---	---	---	INT	MFR	MFR	MFR	5900
RCP1	HOT WATER RECIRCULATING PUMP	120	1			1/12		85	1.3				EC	EC	EC	MG	MFR	MFR	MFR	LINE	PC	PC	PC	5593

TECHNOLOGY ELECTRICAL COORDINATION SCHEDULE

EQUIPMENT MARK	DESCRIPTION	ROOM NAME	ROOM NUMBER	VOLTS (V)	POLES	POWER (W)	NEMA CONFIGURATION	HEAT GAIN
ACS	Access Control Control Panel	SERVER	102	120 V	1	360 VA	5-20R	4190 Btu/h
ER102-1	Equipment Rack	SERVER	102	120 V	1	3000 VA	5-20R	34910 Btu/h
FP (FLAT PANEL)	CAD DISPLAY	CORRIDOR	200	120 V	1	360 VA		
FP (FLAT PANEL)	DAYROOM DISPLAY	DAYROOM	202	120 V	1	360 VA		
FP (FLAT PANEL)	CAD DISPLAY	CORRIDOR	101	120 V	1	360 VA		
FP(FLAT PANEL)	CAD DISPLAY	APPARATUS BAY	125	120 V	1	360 VA		

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX

LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO
STEPHEN N. FEDERLE
E-76032
REGISTERED
PROFESSIONAL ENGINEER
11/04/19

your trusted advisor — engineers architects planners consultants

REV	ISSUE FOR BIDDING AND PERMIT	DATE	BY
0		11/20/2019	CAM

DATE: 11/20/2019 | DRAWN BY: KH | CHECKED BY: PM | APPROVED BY: | F.B. NO. | PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

ELECTRIC POWER - SCHEDULES

SCALE:
HORZ:
VERT:
CONTRACT NO: 170636
SHEET: EP604

11/14/2019 10:23:03 AM

KLH JOB#: 21459.00

ESSENTIAL FACILITY SEISMIC REQUIREMENTS

SEISMIC BRACING FOR ALL NON-STRUCTURAL COMPONENTS INCLUDING BUT NOT LIMITED TO EQUIPMENT, PIPING, CONDUIT AND DUCTWORK IS REQUIRED FOR THIS PROJECT. THE DESIGN AND INSTALLATION OF THE SEISMIC RESTRAINT DEVICES IS DELEGATED TO THE CONTRACTOR. REFER TO SEISMIC CONTROLS SPECIFICATION FOR DELEGATED DESIGN SUBMITTAL REQUIREMENTS.

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — STEPHEN N. FEDERLE — E-76032 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — consultants — engineers architects planners

TECHNOLOGY LEGEND

SYMBOL	DESCRIPTION
TELECOMMUNICATIONS	
	WALL VOICE OUTLET EM = EMERGENCY VOICE OUTLET, W = WALL TELEPHONE OUTLET
	CEILING DATA OUTLET WAP = WIRELESS ACCESS POINT
	WALL DATA OUTLET WAP = WIRELESS ACCESS POINT
	WALL DATA AND RF OUTLET
XXXX	SPECIAL PURPOSE DATA OUTLET BAS = BUILDING AUTOMATION SYSTEM
AUDIO-VISUAL SYSTEMS	
AV	CEILING AUDIO VISUAL CONNECTION
AV	WALL AUDIO VISUAL CONNECTION
R	WALL RESET CONNECTION
V	WALL VOLUME CONTROL
FP	WALL FLAT PANEL DISPLAY
SECURITY SYSTEMS	
C	CEILING SECURITY CAMERA
C	WALL SECURITY CAMERA
PR	WALL PROXIMITY READER
SD	SECURE DOOR
CABLE / RACEWAY / SPACE	
ER-02-01,13	CIRCUIT HOME RUN WITH RACK IDENTIFIER AND PORT NUMBER
	CABLING / RACEWAY INSTALLED CONCEALED IN WALLS OR ABOVE CEILING
	CABLING / RACEWAY INSTALLED BELOW FLOOR OR GRADE
	CABLE TRAY
	LADDER RACK
	SERVICE POLE - POWER AND TECHNOLOGY WHERE APPLICABLE.
UP DN	4" CONDUIT SLEEVE UP OR DOWN THROUGH FLOOR
	CONDUIT SLEEVE THROUGH WALL
PLAN-VIEW LINE TYPES	
	WORK SHOWN BOLD-CONTINUOUS INDICATES NEW WORK (UNLESS INDICATED OTHERWISE)
	WORK SHOWN FADED INDICATES EXISTING WORK TO REMAIN OR NEW WORK BY OTHERS AS APPLICABLE (UNLESS INDICATED OTHERWISE)
	WORK SHOWN BOLD-DASHED INDICATES SELECTIVE DEMOLITION WORK (UNLESS INDICATED OTHERWISE)

ABBREVIATIONS

(R)	RELOCATE FIXTURE, EQUIPMENT OR DEVICE	HDMI	HIGH DEFINITION MULTIMEDIA INTERFACE
42"	DISTANCE ABOVE FINISHED FLOOR / GRADE / PAVEMENT	IP	INTERNET PROTOCOL
		LI	LOCAL INPUT
		LO	LOCAL OUTPUT
ACC	ADMINISTRATIVE CONTROL CONSOLE		
ACD	ACCESS CONTROLLED DOOR	OFE	OWNER FURNISHED EQUIPMENT
AFF	ABOVE FINISHED FLOOR	OFCI	OWNER FURNISHED CONTRACTOR INSTALLED
AFG	ABOVE FINISHED GRADE		
AVR	AUDIO VISUAL SYSTEM EQUIPMENT RACK	PBB	PRIMARY GROUNDING BUSBAR
		PM	PATIENT MONITOR
BAS	BUILDING AUTOMATION SYSTEM	PS	PATIENT STATUS
BFC	BELOW FINISHED CEILING		
		R	ROUGH-IN ONLY
C	CONDUIT		
CH	COUNTER HEIGHT OR SPECIAL HEIGHT DEVICE	SBB	SECONDARY GROUNDING BUSBAR
		SER	SECURITY SYSTEM EQUIPMENT RACK
DP	DISPLAY PORT	SSR	SOUND SYSTEM EQUIPMENT RACK
DS	DIGITAL SIGNAGE		
DVI	DIGITAL VIDEO INTERFACE	TAAC	TO ABOVE ACCESSIBLE CEILING
DVR	DIGITAL VIDEO RECORDER	TAHC	TO ABOVE ACCESSIBLE HALLWAY CEILING
		TR	TELECOMMUNICATIONS ROOM
EC	ELECTRICAL CONTRACTOR	TBB	TELECOMMUNICATIONS BACKBOARD
EF	ENTRANCE FACILITY		
EMR	ELECTRONIC MEDICAL RECORDS	WP	WEATHERPROOF
EQR	EQUIPMENT RACK	WG	WIRE GUARD
ER	EQUIPMENT ROOM		
ETR	EXISTING TO REMAIN		
EX	EXISTING		

GENERAL NOTES:

A. NOTHING SET FORTH IN THESE DRAWINGS SHALL RELEASE ANY CONTRACTOR FROM HIS RESPONSIBILITY TO PROVIDE APPROPRIATE QUANTITIES, FIELD MEASUREMENTS, DIMENSIONAL STABILITY, INSTALLATION, ANCHORAGE, AND COORDINATION WITH OTHER TRADES; OR RELEASE HIM FROM HIS RESPONSIBILITY TO IDENTIFY AND RESOLVE DEVIATIONS FROM THE REQUIREMENTS OF THE CONTRACT DOCUMENTS, OR FREE HIM OF HIS RESPONSIBILITY TO ALERT DESIGNER TO ERRORS OR OMISSIONS.
B. CONTRACTOR SHALL UTILIZE THESE DRAWINGS IN CONJUNCTION WITH THE SPECIFICATIONS TO DETERMINE THE FULL SCOPE, INTENT AND REQUIREMENTS OF THE PROJECT. SPECIFICATIONS AND DRAWINGS ARE INTENDED TO BE COMPLEMENTARY, NOT MUTUALLY EXCLUSIVE. WORK SHOWN ON THE DRAWINGS BUT NOT LISTED IN THE SPECIFICATIONS, AND WORK DESCRIBED IN THE SPECIFICATIONS BUT NOT SHOWN ON THE DRAWINGS SHALL BE INTERPRETED AS THOUGH WORK WERE FULLY DESCRIBED IN BOTH PLACES. THE HIGHER QUANTITY, HIGHER QUALITY, MORE LABOR INTENSIVE AND OVERALL MORE STRINGENT AND MORE COSTLY REQUIREMENT SHALL APPLY UNLESS OTHERWISE CLARIFIED IN WRITING PRIOR TO BID.
C. EACH CONTRACTOR SHALL VERIFY IN THE FIELD ALL EXISTING APPLICABLE CONDITIONS AND DIMENSIONS SHOWN ON THE DRAWINGS AND AS PERTINENT TO THE INTENT OF THESE DRAWINGS. ANY DISCREPANCY DISCOVERED SHALL BE BROUGHT TO THE ATTENTION OF THE DESIGNER PRIOR TO THE COMMENCEMENT OF ANY WORK AFFECTED BY, OR RELATED TO, SUCH DISCREPANCY. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COSTS ASSOCIATED WITH, OR CAUSED BY HIS FAILURE TO COMPLY WITH THIS REQUIREMENT.
D. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR JOB CLEANLINESS. PROJECT AREAS SHALL BE THOROUGHLY CLEANED AND TRASH DISPOSED OF AT THE END OF EACH WORK DAY. OWNER'S FACILITIES SHALL NOT BE USED FOR WASTE DISPOSAL.
E. EACH CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTION OF ALL SURFACES AND FINISHES IN THE INTERIOR OR EXTERIOR OF THE FACILITY. DAMAGED SURFACES OR FINISHES RESULTING FROM THE PERFORMANCE OF THE WORK OR NEGLIGENCE SHALL BE REPAIRED AT NO COST TO THE OWNER AND BE MADE TO MATCH THE EXISTING FINISHES OR SURFACES TO THE SATISFACTION OF THE OWNER.
F. FOR COORDINATION PURPOSES, OCCASSIONALLY AN ITEM OF WORK WILL BE SHOWN ON THE E SERIES DRAWINGS AND THE T SERIES DRAWINGS. IN ADDITION, THE SAME WORK MAY BE INCLUDED ON MULTIPLE T SERIES DETAIL SHEETS FOR SIMILAR REASONS.
G. FOR MULTI-PHASED PROJECTS, THE CONTRACTOR SHALL MAINTAIN ALL EXISTING UTILITY SERVICES AND BUILDING SYSTEMS. THE CONTRACTOR SHALL COORDINATE WITH THE OWNERS IT REPRESENTATIVE AS NECESSARY TO ALLOW FOR OPERATION ACCEPTABLE TO THE OWNER DURING CONSTRUCTION. THE CONTRACTOR SHALL PROVIDE TEMPORARY WIRING AS NECESSARY.
H. PROVIDE DUST PROTECTION WHEN WORKING IN EXISTING FACILITIES. SEAL OFF ALL WORK AREAS FROM REMAINDER OF THE EXISTING FACILITY.

GENERAL ROUGH-IN AND PATHWAY NOTES:

A. PROVIDE PATHWAYS FOR COMMUNICATIONS AND SECURITY SYTEMS CABLING. REFER TO SECTIONS "PATHWAYS FOR COMMUNICATIONS".
B. ROUGH-IN/PATHWAYS SHALL BE CLOSELY REVIEWED AND COORDINATED PRIOR TO INSTALLATION. IT IS THE RESPONSIBILITY OF THE ROUGH-IN PROVIDER TO THROUGHLY REVIEW AND UNDERSTAND THE REQUIREMENTS OF THE SYSTEMS THAT WILL USE THE PATHWAYS.
C. WHERE CONDUITS ARE SPECIFIED "TAAC" (TO ABOVE ACCESSIBLE CEILING) THIS SHALL MEAN THAT CONDUITS SHALL BE STUBBED INTO AN ACCESSIBLE CEILING CAVITY WITHIN THE SAME ROOM AS THE DEVICE THE CONDUIT SERVES.
D. WHERE DEVICE CONDUITS ARE SPECIFIED "TAHC" (TO ABOVE ACCESSIBLE HALLWAY/CORRIDOR CEILING) THIS SHALL MEAN THAT CONDUITS SHALL BE RUN CONTINUOUS AND STUBBED OUT INTO AN ACCESSIBLE CEILING CAVITY WITHIN THE NEAREST CORRIDOR FEATURING AN ACCESSIBLE CEILING CAVITY.
E. CONDUIT INSTALLER SHALL INSTALL PULL STRINGS IN ALL CONDUITS IMMEDIATELY AFTER INSTALLATION.
F. WHERE CONDUIT IS SHOWN AND/OR SPECIFIED, PROVIDE PULL BOXES SHOWN ON THE DRAWINGS PLUS ADDITIONAL PULL BOXES FOR EVERY 180 DEGREES OF CONDUIT BEND AND 100 FEET OF CONDUIT.
G. PROVIDE COVER PLATES FOR JUNCTION AND PULL BOXES. COORDINATE MATERIAL AND FINISH OF BLANK PLATES TO MATCH SURROUNDING PLATES.
H. WHERE A MOUNTING HEIGHT MEASUREMENT IS APPLIED TO A ROUGH-IN, THE MEASUREMENT SHALL BE REFERENCED TO THE CENTER OF THE ROUGH-IN DEVICE.
I. PATHWAYS SHALL BE INSTALLED IN A CONCEALED MANNER. EXPOSED CONDUIT SHALL NOT BE PERMITTED IN FINISHED AREAS.
J. PROVIDE CODE-COMPLIANT FIRE-STOPPING FOR PATHWAYS THROUGH FIRE-RATED WALLS, FLOORS AND CEILINGS.
K. PROVIDE CONDUITS WITH NYLON END-BUSHINGS. INSTALL BUSHINGS AT THE END OF EACH CONDUIT AND EACH ADDITIONAL LOCATION WHERE CABLES COULD BE DAMAGED WHEN PULLING THEM THROUGH THE CONDUIT.
L. DEVICES TO BE INSTALLED AT COUNTER HEIGHT, CASEWORK OR FURNITURE SHALL BE CLOSELY COORDINATED IN THE FIELD WITH ARCHITECT, CASEWORK AND FURNITURE VENDORS PRIOR TO ROUGH-IN.
M. WHERE FLOORBOXES, POWER POLES AND OTHER DUAL SERVICE PATHWAYS ARE INDICATED ON THE DRAWINGS, PATHWAY DEVICES SHALL BE PROVIDED BY THE EC. SEE ELECTRIC DRAWINGS FOR REQUIREMENTS AND ADDITIONAL INFORMATION.
N. MANY COMMUNICATIONS DEVICES ARE INTENDED TO HAVE ADJACENT POWER OR INTEGRAL RECEPTACLES (MULTI-SERVICE) TO SERVE THE SAME EQUIPMENT. COORDINATE THE LOCATION OF SEPARATE DEVICES SO THAT THEY ARE LOCATED ADJACENT AND AT THE SAME ELEVATION. FACEPLATES SHALL BE COORDINATED TO THE SAME TYPE AND COLOR.
O. CONDUITS STUBBED INTO THE CEILING CAVITY SHALL BE MARKED WITH AN INDELIBLE MARKER INDICATING THE CONDUIT'S INTENDED USE. MARK CONDUIT WITHIN SIX INCHES OF THE CONDUIT BUSHING SO AS TO BE READABLE FROM BELOW.
P. LADDER RACK AND OTHER COMMUNICATION TECHNOLOGY CABLING PATHWAYS DEPICTED ON THE ENLARGED FLOOR PLANS SHALL BE PROVIDED AS INDICATED. ADDITIONAL PRODUCTS NECESSARY FOR PROFESSIONAL WIRE MANAGEMENT WITHIN THE MAIN EQUIPMENT ROOM <ER> AND ALL TELECOMMUNICATION ROOMS <TR> SHALL BE ALSO BE PROVIDED AS NECESSARY.
Q. PROVIDE A MINIMUM OF ONE (1) 2-INCH DIAMETER THROUGH-THE-WALL CONDUIT SLEEVES FOR USE AS COMMUNICATION AND SECURITY CABLE PATHWAYS INTO EACH SPACE CONTAINING COMMUNICATION AND SECURITY DEVICES. ROUTE CONDUITS FROM ABOVE ACCESSIBLE CEILING TO THE NEAREST HALLWAY/CORRIDOR FEATURING AN ACCESSIBLE CEILING CAVITY.

DRAWING IDENTIFICATION:

DRAWING PREFIX
DRAWING TYPE
DISCIPLINE ID
SEQUENCE #

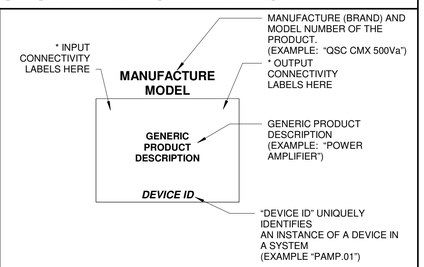
T-501

DRAWING IDENTIFICATION IS INTENDED TO PROVIDE AN ORDERLY FORMAT TO DELIVER PROJECT INFORMATION. A MAJORITY OF DRAWINGS CONTAIN INFORMATION THAT IS REQUIRED OR WILL BE BENEFICIAL TO MULTIPLE DISCIPLINES AND / OR CONTRACTORS. LIKEWISE, EACH SPECIFICATION SECTION MAY REQUIRE INFORMATION ON MULTIPLE DRAWINGS TO COMPLETE THE SYSTEM(S).

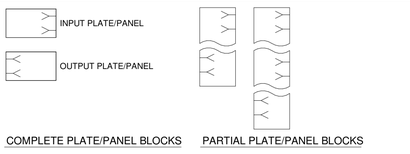
DRAWING IDENTIFICATION		
DRAWING PREFIX		
	T	TECHNOLOGY
DRAWING TYPE		
	0	LEGEND/INDEX/COMPOSITE
	1	FLOORPLANS
	2	ELEVATIONS
	3	SECTIONALS
	4	ENLARGED FLOORPLANS AND DETAILS
	5	DETAILS
	6	DIAGRAMS
	7	PATHWAY/ROUGH-IN
DISCIPLINE ID		
	0	INFORMATION TECHNOLOGY - ALL DISCIPLINES
	1	STRUCTURED CABLING
	2	DATA SYSTEMS
	3	TELEPHONE SYSTEM
	4	A/V SYSTEMS
	5	DISTRIBUTED COMMUNICATIONS
	6	RESERVED
	7	SECURITY
	8	SITE/OUTDOOR (OSP)
	9	RESERVED
SEQUENCE #		
	0	RESERVED
	1-9	FIRST-NINTH
	A-Z	10-36

SYSTEM DIAGRAM LEGEND

TYPICAL PRODUCT



PLATES AND PANELS



GENERAL CABLING NOTES:

A. PLENUM CABLE REQUIRED. ALL CABLE THAT WILL NOT BE INSTALLED IN A FULLY ENCLOSED CONDUIT SYSTEM SHALL BE RATED FOR INSTALLATION WITHIN A RETURN AIR PLENUM.
B. ALL INSTALLED CABLING SHALL BE CONTINUOUS AND WITHOUT SPLICES, EXCEPT WHERE OTHERWISE NOTED.
C. COLORS OF CABLING USED FOR ALL TECHNOLOGY WORK SHALL BE REVIEWED AND APPROVED PRIOR TO PROCUREMENT AND INSTALLATION.

REVISIONS			
REV	ISSUE FOR BIDDING AND PERMIT	DATE	BY
0		11/20/2019	CAM

DATE: 11/20/2019 — DRAWN BY: MSN — CHECKED BY: SMB — APPROVED BY: — F.B. NO. — PG. —

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

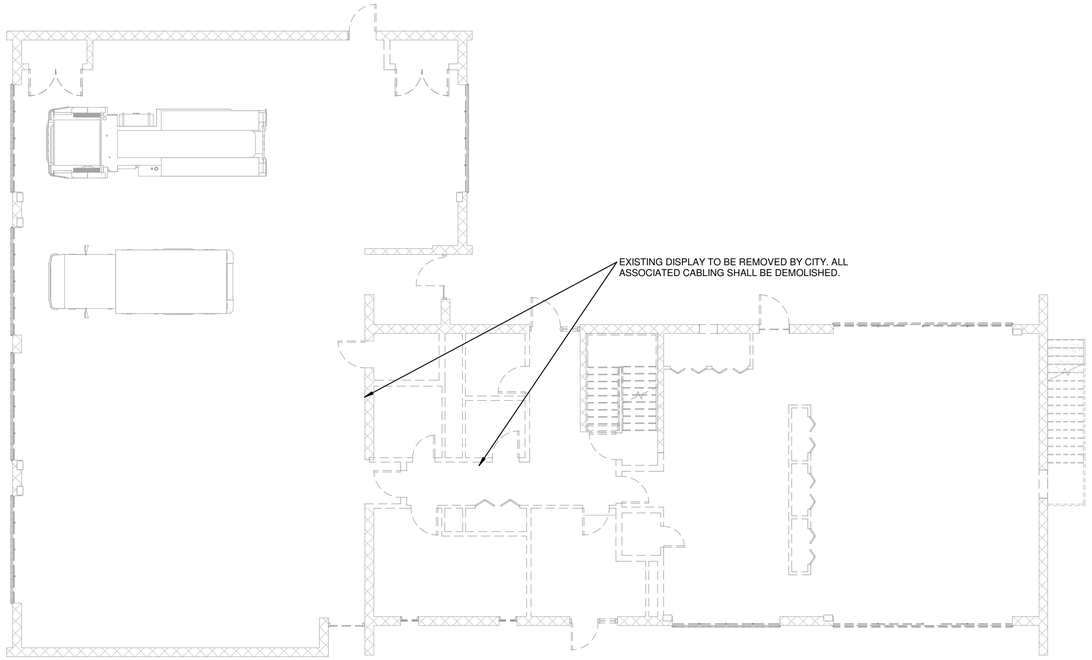
TECHNOLOGY COVER SHEET

SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET: T-001

11/14/2019 10:23:17 AM

KLH JOB#: 21459.00

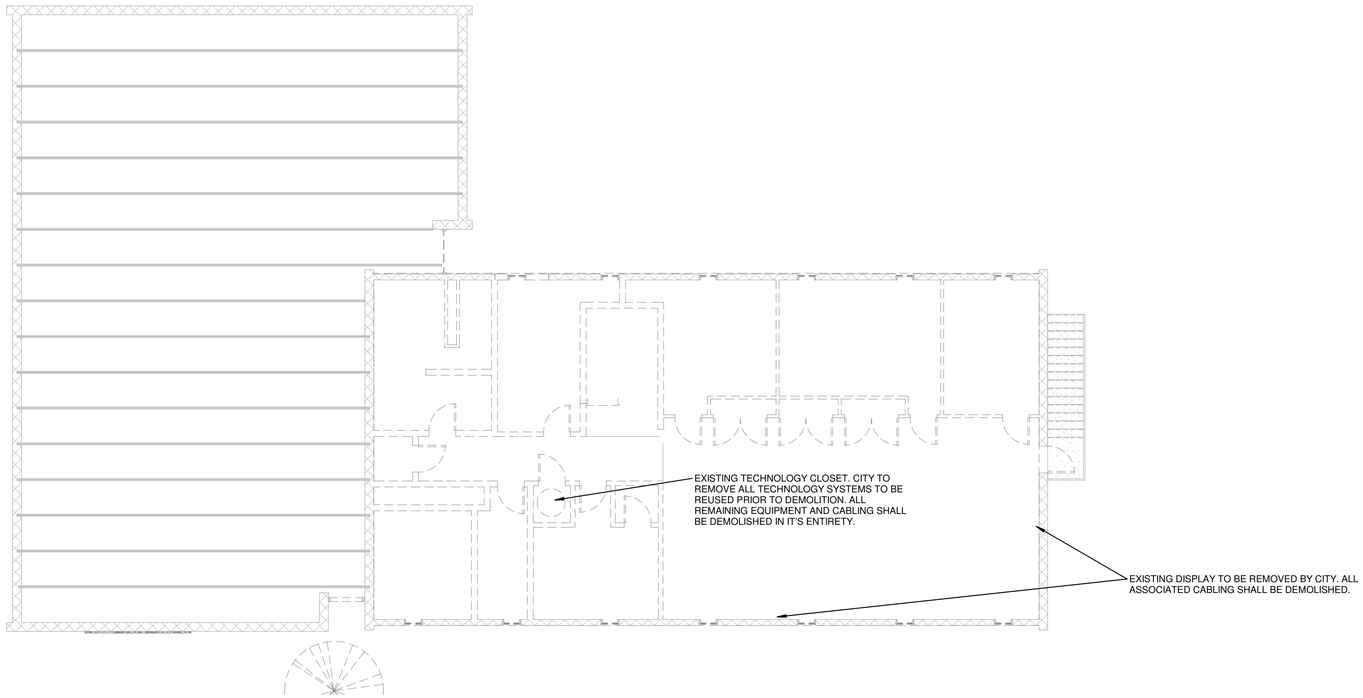
KEYED NOTES



1 / T-101 **FIRST FLOOR TECHNOLOGY DEMOLITION PLAN**

1/8" = 1'-0"

N



2 / T-101 **SECOND FLOOR TECHNOLOGY DEMOLITION PLAN**

1/8" = 1'-0"

N

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — STEPHEN N. FEDERLE — E-76032 — REGISTERED PROFESSIONAL ENGINEER — MECHANICAL
11/04/19

your trusted advisor — engineers architects planners consultants

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 | DRAWN BY: MSN | CHECKED BY: SMB | APPROVED BY: | F.B. NO. | PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

TECHNOLOGY DEMOLITION PLAN

SCALE: 1/8" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET T-101

11/14/2019 10:23:23 AM

KLH JOB#: 21459.00

KEYED NOTES

T2 (1) 2" CONDUIT TO ROOF FOR ANTENNA. PROVIDE WEATHERHEAD. SEE ANTENNA DETAIL. TURN CONDUIT OUT INTO CEILING SPACE OF OFFICE 103.

T3 (1) 4" CONDUIT FOR CATEGORY CABLING. TURN CONDUIT OUT INTO CEILING SPACE OF OFFICE 103.

T4 (1) 1" CONDUIT FOR SPEAKER CABLING. TURN CONDUIT OUT INTO CEILING SPACE OF OFFICE 103.

T5 DUE TO WALL SPACE AVAILABLE DISPLAY SIZE IS LIMITED TO 65" OR LESS.

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX

LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO
STEPHEN N. FEDERLE
E-76032
REGISTERED
PROFESSIONAL ENGINEER
11/04/19

your trusted advisor — engineers architects planners consultants

REV	ISSUE FOR BIDDING AND PERMIT	DATE	BY
0		11/20/2019	CAM

DATE: 11/20/2019 | DRAWN BY: MSN | CHECKED BY: SMB | APPROVED BY: | F.B. NO. | PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

TECHNOLOGY PLAN - FIRST FLOOR

SCALE: 1/4" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET T-102

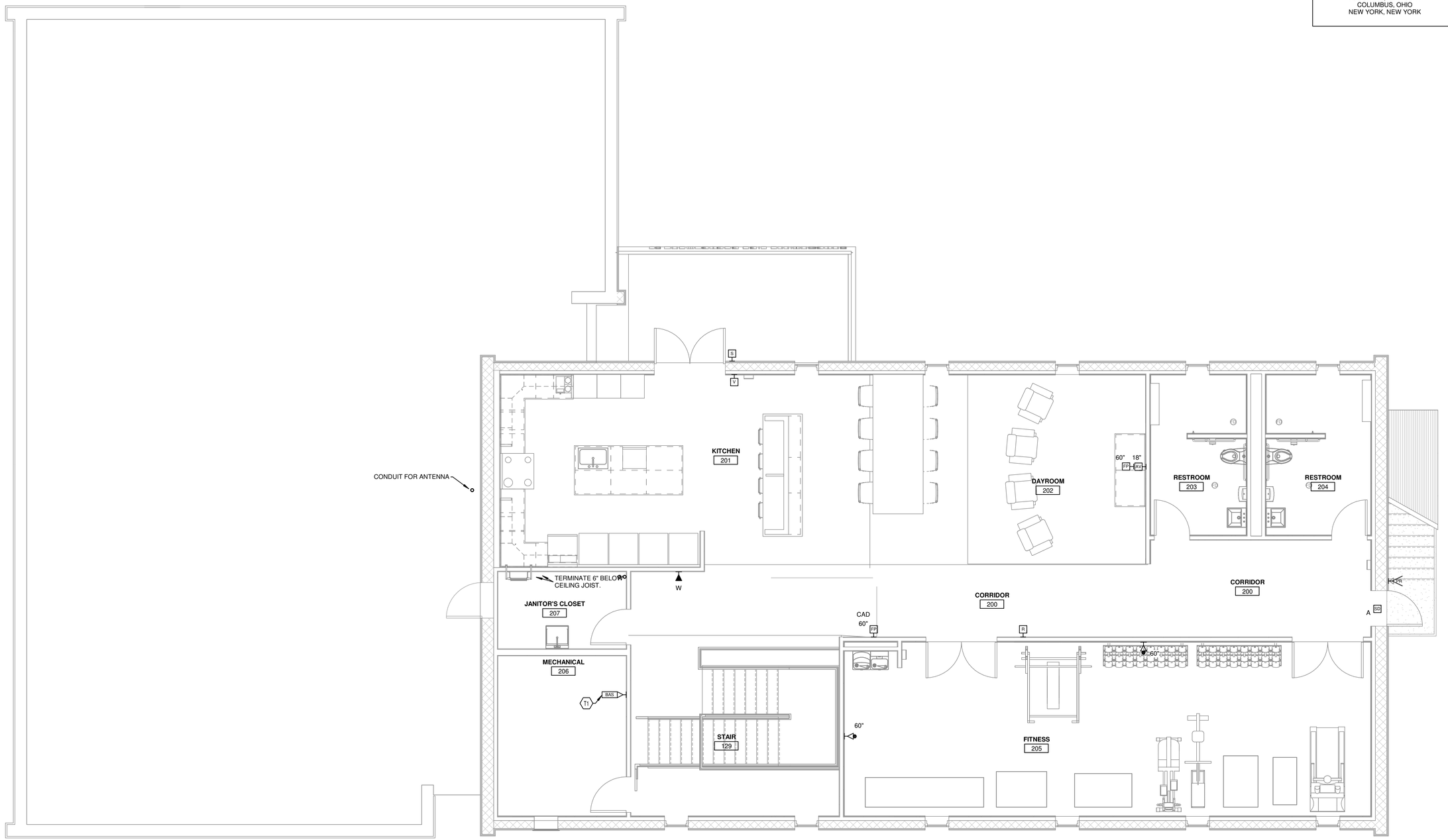
1 / T-102 **TECHNOLOGY PLAN - FIRST FLOOR**
1/4" = 1'-0"

11/14/2019 10:23:33 AM

KLH JOB#: 21459.00

KEYED NOTES

T1 VERIFY FINAL LOCATION WITH MECHANICAL CONTRACTOR.



1 / T-103 **TECHNOLOGY PLAN - SECOND FLOOR**

1/4" = 1'-0"

N

KLH ENGINEERS

MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM

1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX

LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO
STEPHEN N. FEDERLE
E-76032
REGISTERED
PROFESSIONAL ENGINEER
11/04/19

your trusted advisor — consultants — engineers architects planners

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 | DRAWN BY: MSN | CHECKED BY: SMB | APPROVED BY: | F.B. NO. | PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

TECHNOLOGY PLAN - SECOND FLOOR

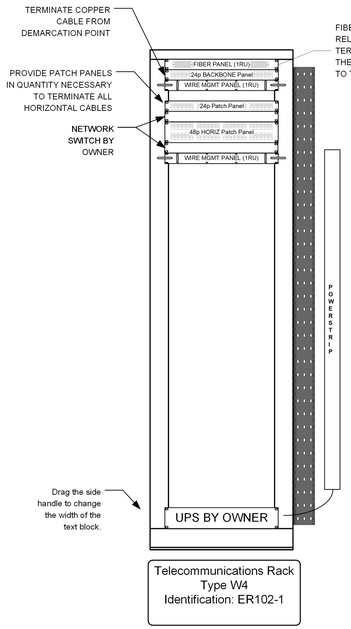
SCALE: 1/4" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET T-103

11/14/2019 10:23:40 AM

KLH JOB#: 21459.00

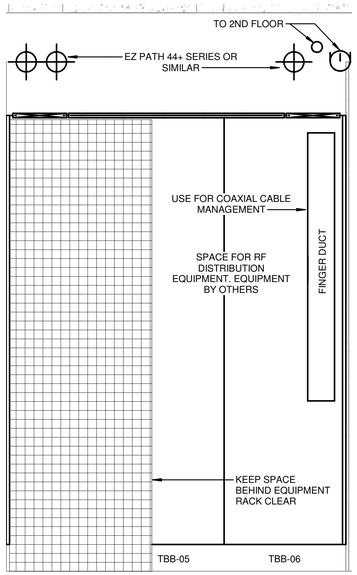
TELECOM ROOM NOTES: (THIS SHEET)

A. STANDARD TELECOMMUNICATIONS BACKBOARDS SHALL BE 4' WIDE BY 8' TALL. EACH BACKBOARD SHALL BE 3/4" A-C GRADE PLYWOOD COATED ON THE EXPOSED FRONT AND ALL EDGES WITH 2 COATS OF WHITE FIRE-RETATDANT PAINT. LEAVE ONE FIRE RETARDANT STAMP VISIBLE NEAR THE TOP OF THE BACKBOARD.
B. EACH BACKBOARD SHALL BE MOUNTED VERTICALLY UTILIZING THREE BOLTS (TOP, MIDDLE, BOTTOM) OF EACH STUD IN THE WALL (OR A MINIMUM OF 2 COLUMNS IN BLOCK CONSTRUCTION). BACKBOARDS SHALL BE MOUNTED WITH THE BOTTOM EDGE SQUARE AND LEVEL 1/4" ABOVE THE BASEBOARD OR 6" ABOVE FINISHED FLOOR (WHICHEVER IS LOWER) UNLESS OTHERWISE NOTED.
C. WHERE A FULL-SIZED BACKBOARD CANNOT BE UTILIZED, A STANDARD BACKBOARD SHALL BE CUT TO FIT THE SPACE. ALL EDGES SHALL BE RE-PAINTED.
D. WHERE BACKBOARDS ARE MOUNTED OVER DEVICES (SUCH AS SWITCHES AND OUTLETS) THE BACKBOARD SHALL BE CUT TO ALLOW THE ENTIRE DEVICE TO BE REVEALED PLUS 1/4" TRIM SPACE ON EACH SIDE.
E. EACH BACKBOARD SHOWN ON THE ENLARGED FLOOR PLAN SHALL BE NUMBERED AND CORRESPOND TO BACKBOARDS SHOWN ON THE WALL ELEVATION DETAIL. WALL AND/OR BACKBOARDS SHOWN ON THE FLOOR PLANS BUT NOT DETAILED ON THE WALL ELEVATION HAVE NO PLANNED EQUIPMENT MOUNTING REQUIREMENTS UNDER THIS CONTRACT.
F. EQUIPMENT SHOWN ON BACKBOARDS IS DIAGRAMMATICAL AND IS INTENDED TO SHOW A SPACE ALLOCATION FOR EQUIPMENT THAT MAY BE REQUIRED.

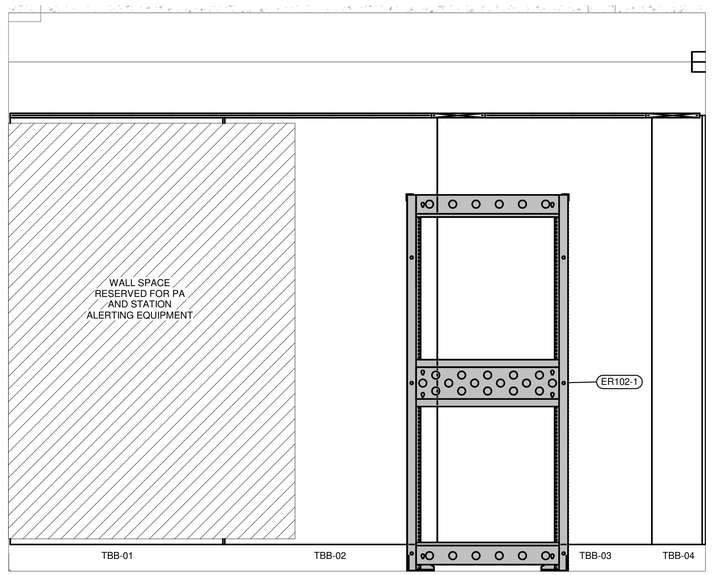


TECHNOLOGY - ROUGH-IN

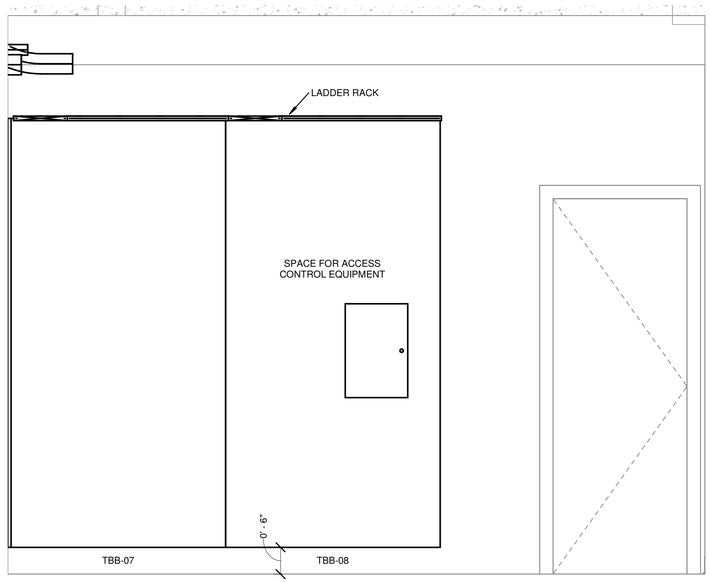
SCALE: NONE



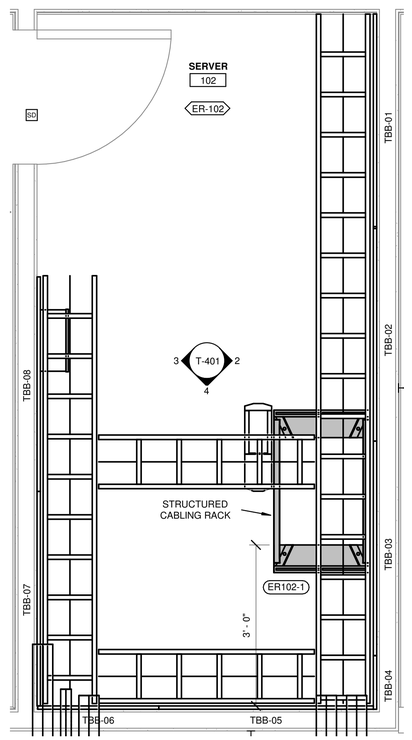
4 / T-401 **TECHNOLOGY PLAN - ENLARGED**
3/4" = 1'-0"



2 / T-401 **TECHNOLOGY PLAN - ENLARGED**
3/4" = 1'-0"



3 / T-401 **TECHNOLOGY PLAN - ENLARGED**
3/4" = 1'-0"



1 / T-401 **TECHNOLOGY PLAN - ENLARGED**
3/4" = 1'-0"

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — STEPHEN N. FEDERLE — E-76032 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners consultants

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 | DRAWN BY: MSN | CHECKED BY: SMB | APPROVED BY: | F.B. NO. | PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

TECHNOLOGY PLAN - ENLARGED

SCALE: As indicated
HORZ:
VERT:
CONTRACT NO: 170636
SHEET: T-401

11/14/2019 10:23:46 AM

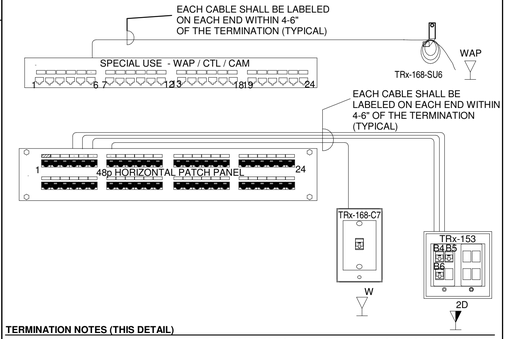
KLH JOB#: 21459.00

LABELING NOTES:

A. ALL CABLES SHALL HAVE A LABEL AFFIXED TO THE JACKET AT EACH END 3" PANEL OR 12" AT FACEPLATE. THIS LABEL SHALL IDENTIFY THE SOURCE, DESTINATION, AND PORT IDENTIFIER. EXAMPLE: C-XX-YYYY-1A01-YYYY YYYY-SVID.
B. THESE DETAILS ARE NOT INTENDED TO SHOW EXACT PROJECT REQUIREMENTS FOR RACK/CABINET LAYOUTS, FACEPLATE CONFIGURATION, EXACT CABLE TYPES, CABLE DESTINATIONS OR CABLE QUANTITIES. THESE DETAILS DO DIAGRAMMATICALLY INDICATE PROJECT REQUIREMENTS FOR LABELING, COLOR-CODING, AND TERMINATIONS FOR THIS PROJECT. USE THESE DETAILS AS A GUIDE; SUBMIT ANY QUESTIONS IN WRITING WITH THE PROCEDURE FOUND IN THE SPECIFICATIONS.
C. COORDINATE "FINAL" ROOM NUMBERS OR IDENTIFIERS WITH OWNER PRIOR TO PERFORMING WORK; ALL LABELING SHALL CONFORM TO OPERATIONAL ROOM IDENTIFIERS FOR BUILDING USE. IF ACTUAL ROOM NUMBER AND ARCHITECTURAL ROOM NUMBERS ARE DIFFERENT, BOTH SHALL BE INCLUDED ON AS-BUILT FLOORPLANS.
D. IN EACH ER/TR, "HORIZONTAL" PATCH PANELS SHALL BE LABELED WITH AN ALPHA DESIGNATOR PURSUANT TO THE TOP AREA OF ITS MOUNTING POSITION. THIS, IN CONJUNCTION WITH THE PORT NUMBER OF EACH PORT, WILL BE THE UNIQUE LINK IDENTIFIER.
E. EACH CABLE (LINK) SHALL HAVE A LABEL CONSISTING OF THE ORIGINATING POINT (ER/TR), THE UNIQUE IDENTIFIER, AND THE DESTINATION POINT (ROOM).
F. FIBER OPTIC PANELS SHALL BE IDENTIFIED WITH SOURCE, DESTINATION, STRAND IDENTIFIER AS WELL AS WITH THE CORE DIAMETERS.
G. LABEL CROSS-CONNECT FIELDS, RACK/CABINET PANELS, FACEPLATES, CABLES ETC. UTILIZING THE EXAMPLES IN THE DIAGRAM AS A GUIDE.

TECHNOLOGY - DETAILS

SCALE: NONE

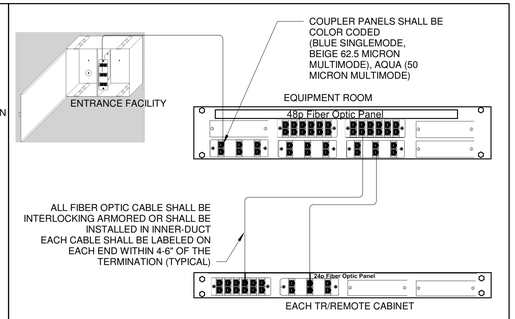


TERMINATION NOTES (THIS DETAIL)

A. TERMINATE ALL HORIZONTAL 4 PAIR UTP CABLES TO EIA/TIA T568b WIRING SPECIFICATION ON BOTH ENDS.
B. ALL HORIZONTAL 4 PAIR CABLES SHALL TERMINATE AT THE WORKSTATION ON JACKS AND AT THE ER/TR/REMOTE CABINET ON PANELS.
C. CABLES AND JACKS MAY BE COLOR CODED; SEE DRAWINGS FOR DETAILS.
D. HORIZONTAL 4 PAIR CABLES MAY BE SEGREGATED ON SEPARATE PATCH PANELS SUCH AS "SPECIAL USE", "WAP" "CAM". SEE ENLARGED RACK LAYOUT FOR PROJECT REQUIREMENTS.
E. CABLES SHALL BE LANDED IN ALPHANUMERIC ORDER ON PANELS BY CABLE ID.

TECHNOLOGY - DETAILS

SCALE: NONE



TERMINATION NOTES (THIS DETAIL)

A. TERMINATE ALL STRANDS WITH SPECIFIED CONNECTORS ON BOTH ENDS. SC STYLE UNLESS OTHERWISE NOTED.
B. FIBER OPTIC BACKBONE CABLES SHALL TERMINATE BETWEEN THE ER AND EACH REMOTE CABINET IN RACK MOUNTED ENCLOSURES WITH THE APPROPRIATE COLOR CODED COUPLER PANELS.
C. CABLES ENTERING ENCLOSURES SHALL BE SECURED AT THE ENTRY POINT TO THE ENCLOSURE. INTERLOCKING ARMORED CABLE SHALL BE GROUNDED AT BOTH ENDS.
D. WALL MOUNTED ENCLOSURES SHALL BE USED AT THE ENTRANCE FACILITY.
E. SEE BACKBONE DIAGRAM FOR CABLE REQUIREMENTS.

TECHNOLOGY - DETAILS

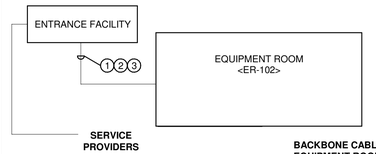
SCALE: NONE

BACKBONE PATHWAY NOTES (THIS DETAIL)

A. TUNNELS HAVE PATHWAY FOR COMMUNICATIONS CABLING; SEE DETAIL _____.
B. NO MORE THE 180 DEGREES OF BENDS WITHOUT PROPERLY SIZED ACCESSIBLE PULL BOXES (SEE FLOORPLAN FOR APPROXIMATE CONDUIT ROUTES. COORDINATE WITH OTHER TRADES AND THE CONSTRUCTION MANAGER.
C. THIS DIAGRAM IS INTENDED TO SHOW BACKBONE PATHWAYS REQUIRED BETWEEN MAJOR TERMINATION POINTS IN THIS PROJECT. THIS DIAGRAM IS NOT INTENDED TO INDICATE EXACT ROUTING OR LOCATIONS. UTILIZE DETAIL DRAWINGS AND FLOORPLANS FOR ADDITIONAL INFORMATION.
D. NOT USED

BACKBONE NOTES (THIS DETAIL)

A. BACKBONE CABLES ENTERING THE ER AND TR(S) SHALL CONTINUE WITHIN EACH ROOM TO THEIR SPECIFIED TERMINATION POINT WITH ADEQUATE SERVICE LOOP.
B. THIS DIAGRAM IS INTENDED TO SHOW BACKBONE CABLES REQUIRED BETWEEN MAJOR TERMINATION POINTS IN THIS PROJECT. THIS DIAGRAM IS NOT INTENDED TO INDICATE CABLE OR CONDUCTOR ROUTING OR TERMINATION METHODS OR LOCATIONS. UTILIZE DETAIL DRAWINGS AND FLOORPLANS FOR ADDITIONAL INFORMATION.
C. UNLESS OTHERWISE NOTED, BACKBONE TERMINATIONS SHALL BE AS FOLLOWS:
   1. FIBER OPTIC CABLE WILL TERMINATE IN PATCH PANELS IN THE RACKS/CABINETS AT THE ER/TR AND SURFACE MOUNTED PANEL AT THE ENTRANCE FACILITY.
   2. UTP COPPER (VOICE) BACKBONE CABLES SHALL TERMINATE ON PATCH PANEL(S) IN THE ER/TR RACKS AND ON 110 STYLE BLOCKS ON A BACKBOARD IN THE MAIN EQUIPMENT ROOM AND ENTRANCE FACILITY.
   3. VIDEO COAX CABLES SHALL TERMINATE ON BACKBOARDS AT EACH END COILED FOR ATTACHMENT DIRECT TO EQUIPMENT.



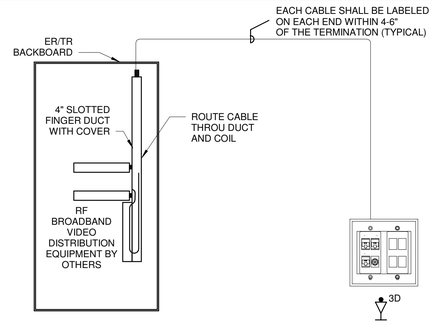
BACKBONE CABLES ENTERING THE EQUIPMENT ROOM AND TELECOMMUNICATIONS ROOM(S) SHALL CONTINUE WITHIN EACH ROOM TO THEIR SPECIFIED TERMINATION POINT WITH ADEQUATE SERVICE LOOP (SEE NOTES THIS DETAIL)

BACKBONE CABLING LEGEND: (THIS DETAIL)

1. (4) 4-PAIR CATEGORY 6 CABLES
2. RG-11 VIDEO COAXIAL CABLE
3. 6 STRANDS SINGLEMODE FIBER OPTIC CABLE
4. 12 STRANDS SINGLEMODE FIBER OPTIC CABLE
5. 25 PAIR CATEGORY 3 UNSHIELDED TWISTED PAIR CABLE
6. 50 PAIR CATEGORY 3 UNSHIELDED TWISTED PAIR CABLE
7. 100 PAIR CATEGORY 3 UNSHIELDED TWISTED PAIR CABLE
8. 6 STRANDS MULTIMODE FIBER OPTIC CABLE
9. 12 STRANDS MULTIMODE FIBER OPTIC CABLE

TECHNOLOGY - DETAILS

SCALE: NONE

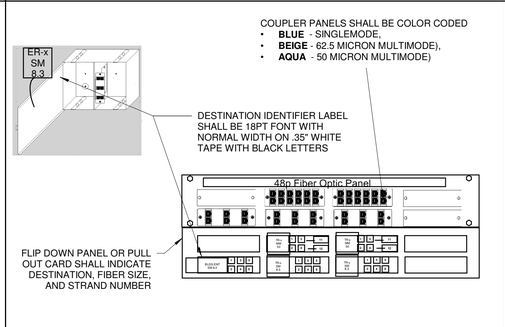


TERMINATION NOTES (THIS DETAIL)

A. TERMINATE ALL HORIZONTAL COAXIAL CABLES WITH COMPRESSION TYPE F-STYLE CONNECTORS ON BOTH ENDS.
B. PROVIDE A F-STYLE BULKHEAD FITTING TO LAND CABLE TERMINATION AT OUTLET LOCATIONS.
C. HORIZONTAL COAXIAL CABLES WILL LAND ON BULKHEAD FITTINGS AT THE OUTLET END AND COILED ON THE ER/TR BACKBOARD FOR DEVICE ATTACHMENT.

TECHNOLOGY - DETAILS

SCALE: NONE

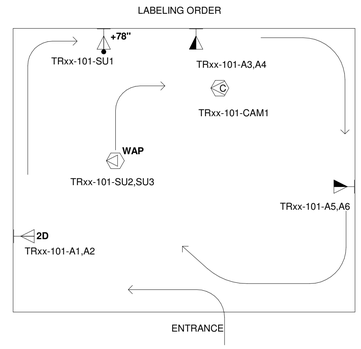


LABELING NOTES (THIS DETAIL)

A. DESTINATION IDENTIFIER LABEL SHALL BE PLACED ON EXTERIOR OF ENCLOSURE WHEN ALL TERMINATIONS WITHIN THE ENCLOSURE SHARE THE SAME DESTINATION.
B. INDUSTRY STANDARD COLOR CODING SHALL BE UTILIZED ON ALL COUPLERS.
C. STRANDS SHALL BE CLEARLY NUMBERED ON BOTH ENDS.
D. ALL LABELS SHALL BE APPLIED STRAIGHT.
E. UNLESS OTHERWISE NOTED LABELS SHALL BE BLACK TEXT ON WHITE BACKGROUND.

TECHNOLOGY - DETAILS

SCALE: NONE

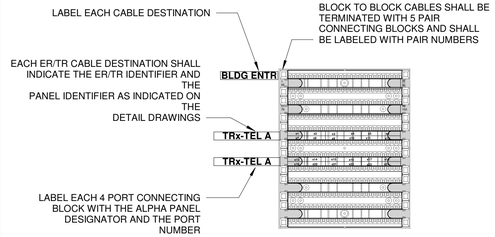


LABELING NOTES (THIS DETAIL)

A. WHERE CABLE HAVE THE SAME SOURCE AND DESTINATION (ROOM) THE LABELING ORDER WILL BE CLOCKWISE FROM THE ROOM ENTRANCE. WALL OUTLETS WILL PRECEDE CEILING DEVICES.

TECHNOLOGY - DETAILS

SCALE: NONE

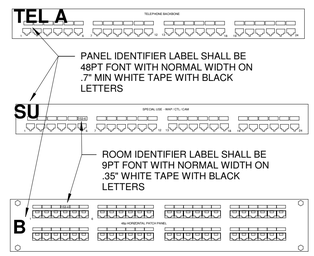


LABELING NOTES (THIS DETAIL)

A. SEE LABELING PATTERN EXAMPLES FOR REQUIRED TEXT.
B. ALL LABELS SHALL BE APPLIED STRAIGHT.
C. UTILIZE INTEGRAL LABEL INSERTS FROM THE MANUFACTURER OF THE BLOCK.
D. WHERE DEVICE IS DESIGNED FOR FACTORY INSERTS, ADHESIVE LABEL SHALL BE APPLIED TO THE INSERT.
E. UNLESS OTHERWISE NOTED LABELS SHALL BE BLACK TEXT ON WHITE BACKGROUND.

TECHNOLOGY - DETAILS

SCALE: NONE

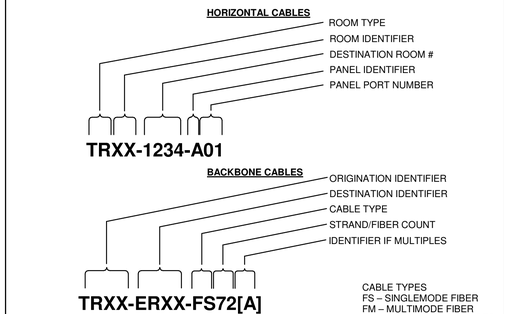


LABELING NOTES (THIS DETAIL)

A. PANEL IDENTIFIERS SHALL BE USED TO IDENTIFY THE USE OF PANELS AND TO CREATE A UNIQUE CABLE ID.
B. HORIZONTAL CABLE TERMINATION PANELS SHALL BEGIN WITH PANEL "A" AND CONTINUE ALPHABETICALLY TOP TO BOTTEM.
C. A RACK WILL BE LIMITED ON THE QUANTITY OF PANELS; CONTINUE THE LETTERING SEQUENCE IN THE NEXT RACK.
D. WHERE SO NOTED, SPECIAL USE PANELS MAY BE USED TO SEGREGATE CERTAIN CABLE USES.
E. SPECIAL USE DESIGNATORS MAY BE CAM, WAP, TEL OR SU (WHEN THE PANEL IS USED FOR MORE THAN ONE TYPE).
F. ALL LABELS SHALL BE APPLIED STRAIGHT.
G. UNLESS OTHERWISE NOTED LABELS SHALL BE BLACK TEXT ON WHITE BACKGROUND.

TECHNOLOGY - DETAILS

SCALE: NONE



LABELING NOTES (THIS DETAIL)

A. LABELING PATTERN EXAMPLES REPRESENT MINIMUM REQUIREMENTS. (CAMPUS PROJECTS SHALL ALSO INCLUDE A BUILDING IDENTIFIER).
B. EVERY CABLE SHALL BE LABELED AT EACH END WITHIN 4 TO 6" OF THE TERMINATION. POSITION AND ORIENT LABEL TO BE READABLE WITHOUT DISASSEMBLY.
C. EXISTING FACILITIES SHALL FOLLOW PRE-EXISTING LABELING PATTERNS; COORDINATE WITH OWNER.

TECHNOLOGY - DETAILS

SCALE: NONE

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — STEPHEN N. FEDERLE — E-76032 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners consultants

REV	DATE	BY
0	11/20/2019	CAM

REVISIONS: ISSUE FOR BIDDING AND PERMIT

DATE: 11/20/2019
DRAWN BY: MSN
CHECKED BY: SMB
APPROVED BY:
F.B. NO. PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

TECHNOLOGY - DETAILS

SCALE: 1/8" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET: T-501

11/14/2019 10:23:53 AM

KLH JOB#: 21459.00

PROJECT COORDINATION SCHEDULE

WORKSTATION	*FINISH/COLOR*		*STYLE*	*JACK FRAME*	
FACEPLATE	STAINLESS STEEL		DECORA	MATCH ELECTRICAL	
CABLES			***RATING***		
CABLES IN AIR HANDELING CEILING OR FLOOR SPACE			PLENUM		
CABLES IN FULLY DUCTED CEILING OR FLOOR SPACE			RISER		
CABLES IN CONTINIOUS METAL CONDUIT			RISER		
CABLES OUTDOORS OR WET LOCATIONS			OSP WATER BLOCKED [NOTE 1]		
CABLE	***TYPE***	***CABLE COLOR***	***TERMINATION 1***	***TERMINATION 2***	***GRADE***
HORIZONTAL VOICE	4 PAIR UTP	BLUE	HORIZONTAL PANEL	SAME AS JACK FRAME	CAT 6
HORIZONTAL DATA	4 PAIR UTP	BLUE	HORIZONTAL PANEL	SAME AS JACK FRAME	CAT 6
HORIZONTAL WAP	4 PAIR UTP	GREEN	S. U. PANEL [NOTE 3]	GREEN JACK	CAT 6
HORIZONTAL CAMERA	4 PAIR UTP	YELLOW	S. U. PANEL [NOTE 3]	YELLOW JACK	CAT 6
HORIZONTAL VIDEO	4 PAIR STP	GRAY	GRAY JACK [NOTE 2]	GRAY JACK	CAT 6
HORIZONTAL "OTHER"	4 PAIR UTP	VIOLET	S. U. PANEL [NOTE 3]	PURPLE JACK	CAT 6
HORIZONTAL MEDICAL	4 PAIR UTP	ORANGE	S. U. PANEL [NOTE 3]	ORANGE JACK	CAT 6
LOCAL CONTROL	4 PAIR UTP	WHITE	WHITE JACK [NOTE 2]	WHITE JACK	CAT 6
COPPER BACKBONE	MULTI-PAIR UTP	GRAY	110 STYLE BLOCKS	BACKBONE PANEL	CAT 3
FIBER OPTIC BACKBONE	SINGLEMODE	YELLOW	SC CONN IN PANEL	SC CONN IN PANEL	OS2
FIBER OPTIC BACKBONE	MULTIMODE 50/125	AQUA	SC CONN IN PANEL	SC CONN IN PANEL	OM4
HORIZONTAL RF	RG-6 VIDEO COAX	BLACK	F STYLE ON DEVICE	F STYLE ON FP CPLR	N/A
RF BACKBONE	RG-11 VIDEO COAX	BLACK	F STYLE ON DEVICE	F STYLE ON DEVICE	N/A

NOTE 1: SPLICING MAY BE REQUIRED UNLESS AN INDOOR/OUTDOOR CONSTRUCTION IS UTILIZED WITH THE CORRECT NEC RATING.

NOTE 2: LOCAL CONTROL CABLES ARE POINT TO POINT AND DO NOT HAVE AN ER/TR DESTINATION

NOTE 3: SPECIAL USE PANEL REFERENCE IS APPLICABLE IN PROJECTS SO EQUIPPED; SEE ENLARGED RACK LAYOUT FOR PANEL REQUIREMENTS

NOTE 4: WHERE CABLE GRADE IS SPECIFIED IT SHALL BE INTERPRETED THAT THE GRADE OF BOTH CABLE AND TERMINIATIONS SHALL MATCH.

PROVIDE FACEPLATE COMPATIBLE WITH THE WALL ENCLOSURE

QUANTITY OF JACKS VARY WITH SUBSCRIPT; SEE LEGEND THIS DETAIL

SEE PROJECT COORDINATION SCHEDULE FOR COLOR-CODING AND PROJECT SPECIFIC INFORMATION

**** OUTLET DEVICE LEGEND**

	BASE OUTLET/DEVICE			
	3 GANG BACKBOX W/ 2 GANG PLASTER RING, (1) 1" CONDUIT (1) 1 1/4" CONDUIT; 2 GANG FACEPLATE			
SUBSCRIPT	**TERMINATION**	**CABLE**	**MTG HT**	**ORIGINATION**
DR	"F" FEEDTHROUGH	RF VIDEO COAX	54" O.C. AFF	TR TBB
	ONE (1) RJ45 JACK	ONE (1) 4 PAIR		TR PANEL
SUBSCRIPT	**TERMINATION**	**CABLE**	**MTG HT EXC**	**ORIGINATION**
CAD	TWO (2) RJ45 JACKS	TWO (2) 4 PAIR	SEE PLAN	TR PANEL
	GANG 2 - ADD GANGS AS NEEDED TO ACCOMMODATE CONNECTIVITY			
	DUAL DEVICE TRIM RING, TWO GANG FACEPLATE			
DR	HDMI FEEDTHROUGH	M-M HDMI CABLE		LOCAL INPUT
A				
B				
C				

[X] INDICATES THE WALL ENCLOSURE TYPE SEE ROUGH-IN DETAILS FOR ADDITIONAL INFORMATION

FP [X] SPECIAL WALL OUTLET

TECHNOLOGY - DETAILS

SCALE: NONE

DEVICE BY OTHERS

SEE PROJECT COORDINATION SCHEDULE FOR COLOR-CODING AND PROJECT SPECIFIC INFORMATION

**** OUTLET DEVICE LEGEND**

	BASE OUTLET/DEVICE			
	4" SQUARE BOX, ONE (1) 1" CONDUIT			
	SINGLE DEVICE TRIM RING, SINGLE GANG FACEPLATE			
SUBSCRIPT	**TERMINATION**	**CABLE**	**MTG HT**	**ORIGINATION**
NONE	BY OTHERS	NONE	48" O.C. AFF	

V WALL OUTLET

TECHNOLOGY - DETAILS

SCALE: NONE

QUANTITY OF JACKS VARY WITH SUBSCRIPT; SEE LEGEND THIS DETAIL

SEE PROJECT COORDINATION SCHEDULE FOR COLOR-CODING AND PROJECT SPECIFIC INFORMATION

**** OUTLET DEVICE LEGEND**

	BASE OUTLET/DEVICE			
	3 GANG BACKBOX W/ 2 GANG PLASTER RING, (1) 1" CONDUIT (1) 1 1/4" CONDUIT; 2 GANG FACEPLATE			
SUBSCRIPT	**TERMINATION**	**CABLE**	**MTG HT**	**ORIGINATION**
	GANG 1			
NONE, 2D	TWO (2) RJ45 JACKS	TWO (2) 4 PAIR	18" O.C. AFF	TR PANEL
	ADDITIONS TO BASE OUTLET/DEVICE			
	GANG 2			
SUBSCRIPT	**TERMINATION**	**CABLE**	**MTG HT EXC**	**ORIGINATION**
	HDMI FEEDTHROUGH	M-M HDMI CABLE		FLATPANEL WALL

AV WALL OUTLET

TECHNOLOGY - DETAILS

SCALE: NONE

DEVICE BY OTHERS

**** OUTLET DEVICE LEGEND**

	BASE OUTLET/DEVICE			
	4" SQUARE BOX, ONE (1) 1" CONDUIT			
	SINGLE DEVICE TRIM RING, SINGLE GANG FACEPLATE			
SUBSCRIPT	**TERMINATION**	**CABLE**	**MTG HT**	**ORIGINATION**
NONE	ONE (1) RJ45 JACK	ONE (1) 4 PAIR	54" O.C. AFF	TR TBB
	ADDITIONS TO BASE OUTLET/DEVICE			
SUBSCRIPT	**TERMINATION**	**CABLE**	**MTG HT EXC**	**ORIGINATION**

R WALL OUTLET

271543.00-17 - WALL RESET OUTLET

SCALE: NONE

THE CABLE SHALL HAVE A 20' SERVICE LOOP SUPPORTED BY A J-HOOK DEVICE.

UTILIZE PLENUM RATED HOUSING OR COMPLETELY WRAP JACK ASSEMBLY WITH UNIFRAX FYREWRAP 0.5 PLENUM INSULATION

QUANTITY OF JACKS VARY WITH SUBSCRIPT; SEE SUBSCRIPT LEGEND THIS DETAIL

SEE PROJECT COORDINATION SCHEDULE FOR COLOR-CODING AND PROJECT SPECIFIC INFORMATION

**** OUTLET DEVICE LEGEND**

	BASE OUTLET/DEVICE			
	ABOVE CEILING STRUCTURAL MOUNT			
	2 PORT SURFACE HOUSING			
SUBSCRIPT	**TERMINATION**	**CABLE**	**MTG HT**	**ORIGINATION**
NONE	ONE (1) RJ45 JACK	ONE (1) 4 PAIR	ABOVE CLNG	TR PP
	ADDITIONS TO BASE OUTLET/DEVICE			
WAP	NO ADDITIONS	NO ADDITIONS		NOTE 2

NOTE 2: UTILIZE SECIAL USE ("SU" OR "WAP") PATCH PANEL WHERE SO EQUIPPED.

** ABOVE CEILING OUTLET

TECHNOLOGY - DETAILS

SCALE: NONE

4 PORTS OR FEWER

QUANTITY OF JACKS VARY WITH SUBSCRIPT; SEE LEGEND THIS DETAIL

SEE PROJECT COORDINATION SCHEDULE FOR COLOR-CODING AND PROJECT SPECIFIC INFORMATION

**** OUTLET DEVICE LEGEND**

	BASE OUTLET/DEVICE			
	4" SQUARE BOX, ONE (1) 1" CONDUIT			
	SINGLE DEVICE TRIM RING, SINGLE GANG FACEPLATE			
SUBSCRIPT	**TERMINATION**	**CABLE**	**MTG HT**	**ORIGINATION**
NONE	"F" FEEDTHROUGH	RF VIDEO COAX	72" O.C. AFF	TR TBB
	ONE (1) RJ45 JACK	ONE (1) 4 PAIR		TR PANEL
	ADDITIONS TO BASE OUTLET/DEVICE			
SUBSCRIPT	**TERMINATION**	**CABLE**	**MTG HT EXC**	**ORIGINATION**
1D	NO ADDITIONAL			
2D	ONE (1) RJ45 JACK	ONE (1) 4 PAIR		TR PANEL
3D	TWO (2) RJ45 JACKS	TWO (2) 4 PAIR		TR PANEL

** WALL OUTLET

TECHNOLOGY - DETAILS

SCALE: NONE

UTILIZE LEVITON 49223-BAK FOR WAP

QUANTITY OF JACKS VARY WITH SUBSCRIPT; SEE LEGEND THIS DETAIL

SEE PROJECT COORDINATION SCHEDULE FOR COLOR-CODING AND PROJECT SPECIFIC INFORMATION

**** OUTLET DEVICE LEGEND**

	BASE OUTLET/DEVICE			
	4" SQUARE BOX, ONE (1) 1" CONDUIT			
	SINGLE DEVICE TRIM RING, SINGLE GANG FACEPLATE			
SUBSCRIPT	**TERMINATION**	**CABLE**	**MTG HT**	**ORIGINATION**
NONE	ONE (1) RJ45 JACK	ONE (1) 4 PAIR	18" O.C. AFF	TR PANEL
	ADDITIONS TO BASE OUTLET/DEVICE			
SUBSCRIPT	**TERMINATION**	**CABLE**	**MTG HT EXC**	**ORIGINATION**
1D	NO ADDITIONAL			
2D	ONE (1) RJ45 JACK	ONE (1) 4 PAIR		TR PANEL
WAP	ONE (1) RJ45 JACK	ONE (1) 4 PAIR [NOTE 1]	6" BCL	TR PANEL
3D	TWO (2) RJ45 JACKS	TWO (2) 4 PAIR		TR PANEL
4D	THREE (3) RJ45 JACKS	THREE (3) 4 PAIR		TR PANEL

** WALL OUTLET

TECHNOLOGY - DETAILS

SCALE: NONE

HOUSING TO BE MOUNTED INSIDE PANEL. PROVIDE SERVICE LOOP AT ENTRANCE TO THE CONDUIT ACCESSING THE PANEL; COORDINATE WITH EQUIPMENT INSTALLER.

QUANTITY OF JACKS VARY WITH SUBSCRIPT; SEE SUBSCRIPT LEGEND THIS DETAIL

**** OUTLET DEVICE LEGEND**

	BASE OUTLET/DEVICE			
	MOUNT INSIDE SERVICE PANEL			
	2 PORT SURFACE HOUSING			
LABEL	**TERMINATION**	**CABLE**	**MTG HT**	**ORIGINATION**
BAS	ONE (1) RJ45 JACK	ONE (1) 4 PAIR	PANEL MTD	TR PANEL
FACP	ONE (1) RJ45 JACK	ONE (1) 4 PAIR	PANEL MTD	TR PANEL

** BUILDING SERVICE OUTLET

TECHNOLOGY - DETAILS

SCALE: NONE

KLH ENGINEERS

MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM

1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX

LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — STEPHEN N. FEDERLE — E-76032 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners consultants

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 — DRAWN BY: MSN — CHECKED BY: SMB — APPROVED BY: — P.E. NO. — PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

TECHNOLOGY - DETAILS

SCALE: 1/8" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET T-511

11/14/2019 10:23:59 AM

KLH JOB#: 21459.00

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM

1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX

LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO
STEPHEN N. FEDERLE
E-76032
REGISTERED
PROFESSIONAL ENGINEER
11/04/19

your trusted advisor — consultants — engineers architects planners

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019 | DRAWN BY: MSN | CHECKED BY: SMB | APPROVED BY: ____ | F.B. NO. ____ PG. ____

SHARONVILLE FIRE STATION 87 RENOVATION

CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

TECHNOLOGY - DETAILS

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

CONTRACT NO: 170636

SHEET: T-512

UTILIZE LEVITON 49223-BAK

SEE PROJECT COORDINATION SCHEDULE FOR COLOR-CODING AND PROJECT SPECIFIC INFORMATION

** OUTLET DEVICE LEGEND				
	BASE OUTLET/DEVICE			
	4" SQUARE BOX, ONE (1) 1" CONDUIT			
	SINGLE DEVICE TRIM RING, IN-BOX MOUNTING BRACKET			
SUBSCRIPT	TERMINATION	CABLE	MTG HT	ORIGINATION
NONE	ONE (1) RJ45 JACK	ONE (1) 4 PAIR	6" BCL	TR PANEL

UTILIZE SECIAL USE ("SU" OR "CAM") PATCH PANEL WHERE SO EQUIPPED.

[X] INDICATES THE CAMERA TYPE; OUTLET ONLY WHERE TYPE NOT INDICATED.

** [X] WALL OUTLET

TECHNOLOGY - DETAILS

SCALE: NONE

THE CABLE SHALL HAVE A 20' SERVICE LOOP SUPPORTED BY A J-HOOK DEVICE.

UTILIZE PLENUM RATED HOUSING OR COMPLETELY WRAP JACK ASSEMBLY WITH UNIFRAX FYREWRAP 0.5 PLENUM INSULATION

PROVIDE BLANK

SEE PROJECT COORDINATION SCHEDULE FOR COLOR-CODING AND PROJECT SPECIFIC INFORMATION

** OUTLET DEVICE LEGEND				
	BASE OUTLET/DEVICE			
	ABOVE CEILING STRUCTURAL MOUNT			
	2 PORT SURFACE HOUSING			
SUBSCRIPT	TERMINATION	CABLE	MTG HT	ORIGINATION
NONE	ONE (1) RJ45 JACK	ONE (1) 4 PAIR	ABOVE CLNG	TR PANEL

UTILIZE SECIAL USE ("SU" OR "WAP") PATCH PANEL WHERE SO EQUIPPED.

[X] INDICATES THE CAMERA TYPE; OUTLET ONLY WHERE TYPE NOT INDICATED.

** ABOVE CEILING OUTLET

TECHNOLOGY - DETAILS

SCALE: NONE

SEE PROJECT COORDINATION SCHEDULE FOR COLOR-CODING AND PROJECT SPECIFIC INFORMATION

** OUTLET DEVICE LEGEND				
	BASE OUTLET/DEVICE			
	4" SQUARE BOX, ONE (1) 1" CONDUIT			
	SINGLE DEVICE TRIM RING			
SUBSCRIPT	TERMINATION	CABLE	MTG HT	ORIGINATION
NONE	PROXIMITY READER	NONE	48" O.C. AFF	TR TBB PNL
PIN	READER WITH PIN	NO ADDITIONAL		
BIO	BIOMETRIC READER	NO ADDITIONAL		
	ADDITIONS TO BASE OUTLET/DEVICE			
	NOTE: CABLE FROM DEVICE AND OPENER TO TR TBB PNL			
SUBSCRIPT	TERMINATION	CABLE	MTG HT	ORIGINATION

PIN = PROXIMITY READER WITH PIN PAD

SHOWN FOR ROUGH-IN PURPOSES ONLY. ACCESS CONTROL EQUIPMENT BY OTHERS

** WALL OUTLET

TECHNOLOGY - DETAILS

SCALE: NONE

DOOR FRAME

ROUTE CABLES THROUGH ELECTRIC TRANSFER HINGE

COORDINATE WITH DOOR HARDWARE SCHEDULE

INTEGRATED ELECTRIFIED DOOR HARDWARE. REQUEST TO EXIT, ELECTRONIC LOCKET AND STATUS SENSOR

** OUTLET DEVICE LEGEND				
	BASE OUTLET/DEVICE			
	1/2" CONDUIT INTO DOOR FRAME, STUBBED TAAC			
SUBSCRIPT	TERMINATION	CABLE	MTG HT	ORIGINATION
NONE	SENSOR	NONE	DOOR	TR TBB PNL
	ELECTRIC LOCKSET	NONE	DOOR	TR TBB PNL
	REQUEST TO EXIT	NONE	DOOR	TR TBB PNL
ADA	DOOR OPENER	NONE	DOOR	TR TBB PNL
NONE	NON-INTEGRATED LOCKSET. SEPERATE ROUGH-IN FOR PR			
NONE	INTEGRATED LOCKSET. NO ROUGH-IN FOR PR			

PR = PROXIMITY READER

SHOWN FOR ROUGH-IN PURPOSES ONLY. ACCESS CONTROL EQUIPMENT BY OTHERS

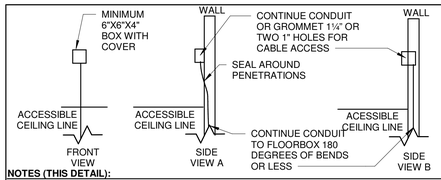
SD SECURE DOOR

TECHNOLOGY - DETAILS

SCALE: NONE

11/14/2019 10:24:04 AM

KLH JOB#: 21459.00

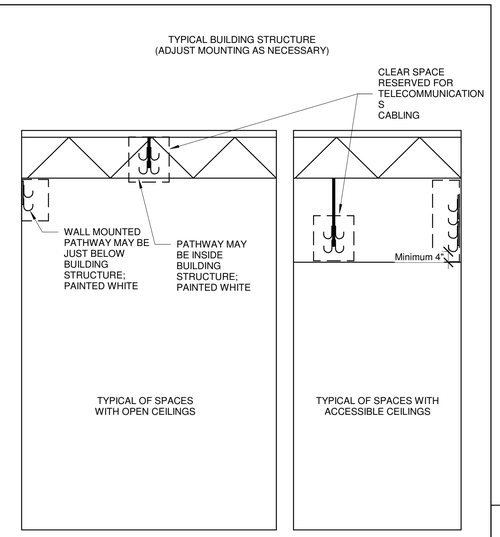


NOTES (THIS DETAIL):

A. ALL REFERENCES TO CONDUIT SIZE SHALL BE TO THE RECOGNIZED TRADE SIZE.
B. ALL CONDUIT BENDS SHALL HAVE A BEND RADIUS EQUAL OR GREATER THAN 4 TIMES THE TRADE SIZE. EXAMPLE: 1" – BEND RADIUS GREATER THAN 4", 90 DEGREE FITTING LENGTH APPROXIMATELY 15".
C. DUE TO ADDITIONAL BENDS REQUIRED, TERMINATE CONDUIT(S) IN A TRANSITION BOX WITH COVER ABOVE THE ACCESSIBLE CEILING.
D. CONDUIT SHALL BE EMT UNLESS OTHERWISE NOTED. EXCEPTION: CONDUIT INSTALLED IN LOCATIONS WHERE IT IS EXPOSED TO MOISTURE; UTILIZE CONDUIT THAT WILL NOT DEGRADE IN WET ENVIRONMENTS.
E. HORIZONTAL CABLES SHALL TRANSITION IN THE BOX TO OSP RATED 4 PAIR CABLES WITH 110 STYLE CATEGORY SPLICE.
F. UNLESS SHOWN ON THE FLOORPLAN, FLOORBOX CONDUITS SHALL BE RUN TO ABOVE AN ACCESSIBLE CEILING VIA A WALL ALONG THE PATH TO THE NEAREST TELECOMMUNICATIONS ROOM TO MINIMIZE THE TOTAL LENGTH OF HORIZONTAL CABLES.

TECHNOLOGY - ROUGH-IN

SCALE: NONE



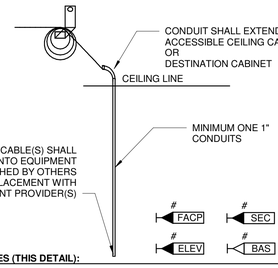
THIS IS A TYPICAL DETAIL, REPRESENTING CLEARANCE REQUIREMENTS FOR DISCRETE CABLING PATHWAY DEVICES (J-HOOKS) FOR CABLE SUPPORT AND MANAGEMENT ABOVE ACCESSIBLE CEILINGS WHEN CABLE TRAY IS NOT REQUIRED ON THE PROJECT.

DISCREET PATHWAY SUPPORT NOTES:

A. ALL CABLES SHALL BE SUPPORTED AT MINIMUM EVERY 5'.
B. J-HOOKS (DISCREET SUPPORT DEVICES) SHALL BE MOUNTED
   1. ONLY IN AREAS WHERE PATHWAY IS ACCESSIBLE.
   2. TO SURFACES CAPABLE OF SUPPORTING THE WEIGHT AT FULL LOAD
   3. IN POSITIONS ALLOWING RE-USE.
C. UNLESS OTHERWISE NOTED, MOUNTING HEIGHT ABOVE AN ACCESSIBLE CEILING SHALL BE 4-6" ABOVE THE CEILING [TO THE BOTTEM OF THE DEVICE] TO ALLOW TILE TO BE REMOVED.
D. SPACE FOR ACCESS TO THE SUPPORT DEVICE SHALL BE 6" TO THE SIDE AND 4" ABOVE.
E. DEVICES USED TOGATHER TO FORM A PATHWAY SHALL BE MOUNTED AT A UNIFORM HEIGHT AND POSITION TO FORM A CONTINIOUS STRAIGHT PATHWAY.
F. DEVICES USED INDEPENDANTLY TO SUPPORT CABLES BETWEEN TWO POINTS (i.e. FROM A TRAY TO A SLEEVE) SHALL BE POSITIONED SO AS TO RELEIVE THE STRESS OF PATHWAY EDGES ON THE CABLE(S).
G. WHERE BACKBONE AND HORIZONTAL CABLES SHARE THE SAME ROUTE, CREATE A SEPARATE ROW OF SUPPORT ABOVE THE PRIMARY PATH FOR BACKBONE CABLES.
H. PROVIDE ONE 4-INCH J-HOOK PER (100) HORIZONTAL CABLES. CABLES IN EXCESS OF 100 SHALL BE PLACED IN AN ADDITIONAL ROW BELOW THE FIRST. FILL TOP HOOKS AND WORK DOWN WITH HORIZONTAL CABLES; LESSER UTILIZED HOOKS SHALL BE LOCATED AT BOTTOM.
I. SYSTEMS CABLING (SUCH AS FIRE ALARM, SECURITY, SOUND) SHALL NOT UTILIZE THE PATHWAY CREATED FOR VOICE, DATA, AND VIDEO. UTILIZE A SEPARATE SUPPORT FOR THESE SYSTEMS.
J. COORDINATE PATHWAY PLACEMENT WITH ALL TRADES

TECHNOLOGY - ROUGH-IN

SCALE: NONE

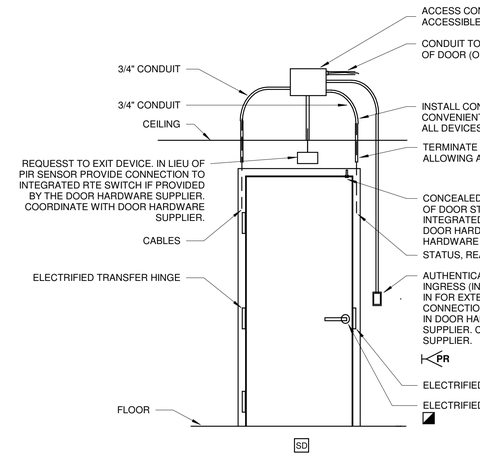


ROUGH-IN NOTES (THIS DETAIL):

A. ELEVATOR TELEPHONE CONNECTIONS, SHALL BE CLOSELY COORDINATED WITH THE ELEVATOR PROVIDER. PROVIDE CONDUIT FROM THE ELEVATOR CONTROL PANEL TO THE ACCESSIBLE CORRIDOR CEILING SPACE, UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
B. COORDINATE THE TELEPHONE CONNECTION REQUIREMENTS FOR THE FIRE ALARM CONTROL PANEL (FACP) WITH THE FIRE ALARM INSTALLER. PROVIDE CONDUIT FROM THE FACP TO ACCESSIBLE CORRIDOR CEILING SPACE, UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
C. COORDINATE DATA CABLING AND TERMINATION REQUIREMENTS FOR HVAC BUILDING AUTOMATION SYSTEM (BAS), WITH THE BAS PROVIDER. PROVIDE CONDUIT FROM THE BAS TO ACCESSIBLE CORRIDOR CEILING SPACE, UNLESS OTHERWISE INDICATED ON THE DRAWINGS.
D. COORDINATE THE TELEPHONE CONNECTION REQUIREMENTS FOR THE SECURITY/ALARM SYSTEM PANEL (SP) WITH THE SECURITY SYSTEM INSTALLER. PROVIDE CONDUIT FROM THE SP TO ACCESSIBLE CORRIDOR CEILING SPACE, UNLESS OTHERWISE INDICATED ON THE DRAWINGS.

TECHNOLOGY - ROUGH-IN

SCALE: NONE



ROUGH-IN NOTES (THIS DETAIL):

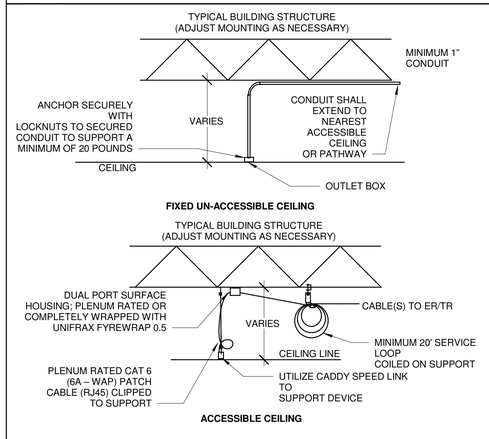
A. EXPOSED CONDUIT SHALL NOT BE PERMITTED BELOW CEILINGS IN FINISHED AREAS UNLESS SPECIFICALLY NOTED.
B. MOUNTING HEIGHTS FOR USE IN BLOCK WALL SHALL BE ADJUSTED TO FIT THE COURSE AND SHALL BE CONSISTENT WITH ELECTRICAL DEVICE MOUNTING HEIGHT.
C. COORDINATE WITH DOOR HARDWARE SCHEDULE.

SD A INDICATES OPENS REQUIRING SEPERATE PATHWAY/ROUGH-IN FOR PROXIMITY READER, DOOR STATUS AND REQUEST TO EXIT.

SD B INDICATES OPENS WITH INTEGRATED HARDWARE. PROVIDE ROUGH-IN/PATHWAY TO HINGE.

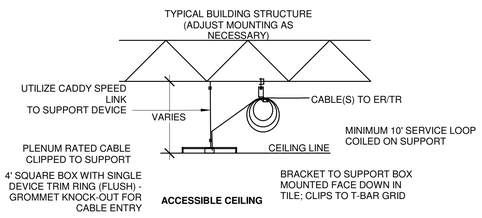
TECHNOLOGY - ROUGH-IN

SCALE: NONE



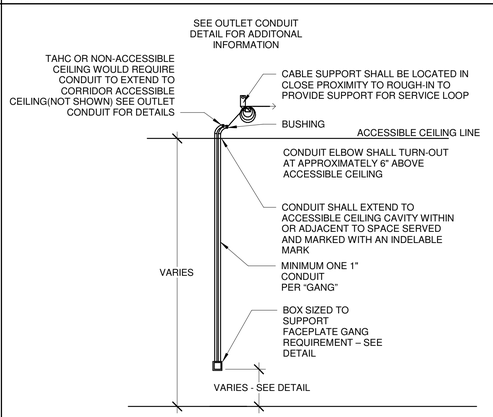
ROUGH-IN NOTES (THIS DETAIL):

A. SURFACE MOUNTED HOUSING(S) SHALL BE STRAPPED TO BUILDING STRUCTURE AND SERVICE LOOP SUPPORT SHALL BE CLAMPED TO ALLOW RE-POSITIONING AS REQUIRED BY SYSTEM INSTALLER.



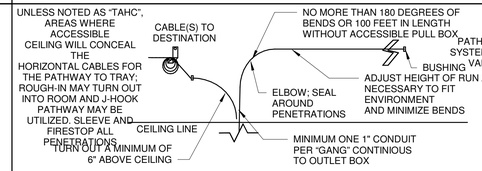
TECHNOLOGY - ROUGH-IN

SCALE: NONE



TECHNOLOGY - ROUGH-IN

SCALE: NONE



NOTES (THIS DETAIL):

A. ALL REFERENCES TO CONDUIT SIZE SHALL BE TO THE RECOGNIZED TRADE SIZE.
B. UNLESS OTHERWISE SPECIFICALLY NOTED, ALL CONDUIT BENDS SHALL BE ACCOMPLISHED WITH FACTORY ELBOWS WITH A BEND RADIUS EQUAL OR GREATER THAN 4 TIMES THE TRADE SIZE. EXAMPLE:1" – BEND RADIUS GREATER THAN 4", 90 DEGREE FITTING LENGTH APPROXIMATELY 15".
C. CONDUITS SHALL BE ATTACHED TO BOXES WITH A BOX CONNECTOR FITTING AND THREAD-ON BUSHING. CONDUIT ENDS NOT TERMINATING AT A BOX OR ENCLOSURE SHALL HAVE A NYLON BUSHING.
D. PULL STRINGS SHALL BE INSTALLED IN ALL CONDUITS.
E. MINIMUM CONDUIT REQUIREMENTS SHALL BE A 1" TRADE SIZE CONDUIT. PER GANG. TWO 1" CONDUITS MAY BE REPLACED BY A SINGLE 1 ¼" CONDUIT.
F. KNOCK OUT REQUIREMENTS EXCEEDING MANUFACTURER'S STANDARD SIZES SHALL BE ACCOMODATED WITH A PUNCH OF THE CORRECT SIZE HOLE; FILE SHARP EDGES AND BURRS.
G. CONDUIT SHALL BE EMT UNLESS OTHERWISE NOTED.
H. EXCEPTION: CONDUIT(S) FOR FLOORBOXES SHALL HAVE A TRANSITION BOX ABOVE ACCESSIBLE CEILING; SEE FLOORBOX DETAILS FOR REQUIREMENTS.

TECHNOLOGY - ROUGH-IN

SCALE: NONE

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — STEPHEN N. FEDERLE — E-76032 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor — engineers architects planners consultants

REV	DATE	BY
0	11/20/2019	CAM

REVISIONS: ISSUE FOR BIDDING AND PERMIT

DATE: 11/20/2019 — DRAWN BY: MSN — CHECKED BY: SMB — APPROVED BY: — F.B. NO. — PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

TECHNOLOGY - ROUGH-IN

SCALE: 1/8" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET: T-701

11/14/2019 10:24:10 AM

KLH JOB#: 21459.00

PATHWAY NOTES:

A. CONDUIT SHALL BE CONSTRUCTED OF MATERIAL SUITABLE FOR THE ENVIRONMENT. INDOOR ENVIRONMENTS SHALL UTILIZE EMT. AREAS SUBJECT TO MOISTURE INCLUDING HUMIDITY SHALL BE GALVANIZED RIGID CONDUIT.
B. CONDUITS PENETRATING/INTERSECTING BUILDING EXPANSION JOINTS SHALL UTILIZE EXPANSION JOINT FITTINGS.
C. SLEEVES THROUH FIRE-RATED FLOORS AND WALLS SHALL UTILIZE STI E-Z PATH SELF SEALING SLEEVE ASSEMBLIES.
D. SLEEVES THROUGH FLOORS SHALL HAVE A 2" CURB ABOVE THE FINISHED FLOOR TO PREVENT ACCIDENTAL FLUID LEAKAGE TO AREAS BELOW.
E. ALL CONDUITS OVER 3' IN LENGTH SHALL BE GROUNDED PURSUANT TO THE CODE AND APPLICABLE STANDARDS.
F. DIAGRAM ADDRESSES BACKBONE PATHWAYS; ADDITIONAL PATHWAY MAY BE REQUIRED FOR HORIZONTAL CABLES TO ENTER TELECOMMUNICATIONS ROOMS, CABINETS OR PATHWAY SYSTEM.
G. HORIZONTAL CABLES EXPOSED IN GARAGE AND SERVICE AREAS (NOT CONDITIONED OFFICE AREAS) SHALL BE RUN IN GRC CONDUIT.
H. PATHWAYS SHALL NOT BE OVER-FILLED. SEE DETAILS AND STANDARDS FOR SIZING INFORMATION.
I. THIS DIAGRAM INDICATES MINIMUM PULL/JUNCTION BOX REQUIREMENTS. ADDITIONAL BOXES WILL BE REQUIRED TO COMPLY WITH GENERAL RULES FOR PULLING DISTANCE AND NUMBER OF BENDS BETWEEN PULL POINTS.
J. ALL JUNCTION/PULL BOXES SHALL BE METALLIC AND RATED FOR USE WITH THE REQUIRED CONDUITS AND IN THE ENVIRONMENT WHERE BEING UTILIZED.
K. 4" CONDUITS WILL HAVE 3 X 3 CELL MAXCELL TEXTILE INNER-DUCTS IN THE PRIMARY CONDUIT. SECONDARY CONDUITS SHALL HAVE A PULL ROPE INSTALLED. TIE OFF ALL DUCTS AND PULLING ROPE TO PREVENT BEING RETRACTED INTO CONDUIT.
L. CONDUITS IN OPEN CEILING AREAS SHALL BE TRAPEZE MOUNTED.
M. STANDARDS REQUIRE COLOR CODING AND IDENTIFICATION OF PATHWAYS. SEE THE STANDARD AND DETAILS FOR REQUIREMENTS.
N. PULL BOXES SHOWN OUTSIDE THE BUILDING WOULD BE OPEN BOTTEM HAND HOLES WITH A MINIMUM OF 36"X36". SEE DETAILS FOR SIZING REQUIREMENTS.
O. EXPOSED CONDUIT SHALL NOT BE PERMITTED IN FINISHED AREAS UNLESS SPECIFICALLY NOTED. SURFACE MOUNTED BACK BOXES AND MATCHING RACEWAY SHALL BE USED FOR DEVICES THAT ARE NOT INSTALL WITHIN A WALL OR CEILING.
P. CONDUIT INSTALLER SHALL INSTALL BUSHING AND PULL STRING IN CONDUITS IMMEDIATELY AFTER INSTALLATION.

TECHNOLOGY - ROUGH-IN

SCALE: NONE

ROUGH-IN NOTES:

A. ROUGH-IN SHALL BE CLOSELY REVIEWED AND COORDINATED PRIOR TO INSTALLATION. IT IS THE RESPONSIBILITY OF THE ROUGH-IN PROVIDER TO THOROUGHLY REVIEW AND UNDERSTAND THE REQUIREMENTS OF THE SYSTEMS THAT WILL USE THE PATHWAYS. THIS INCLUDES, BUT IS NOT LIMITED TO, PROPER SIZING OF BOXES, AND PROVIDING THE CORRECT QUANTITY AND SIZES OF CONVEYANCES.
B. ROUGH-IN PROVIDER SHALL COORDINATE CLOSELY WITH THE DEVICE AND CABLE PROVIDER(S), PRIOR TO INSTALLATION, TO BE CERTAIN THAT THE TYPE AND LOCATION OF ALL ROUGH-IN AND PATHWAY PROVISIONS ARE COORDINATED AND WILL ADEQUATELY SUPPORT THE SYSTEMS AS THEY ARE TO BE INSTALLED. ANY COSTS INCURRED RESULTING FROM A FAILURE TO ADEQUATELY COORDINATE SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
C. ROUGH-IN SHALL BE CLOSELY COORDINATED TO COMPLEMENT THE INTENDED FURNITURE PLAN AND TO ENSURE THE SAFE AND EFFICIENT CONNECTIVITY OF EQUIPMENT.
D. MANY COMMUNICATIONS DEVICES ARE INTENDED TO HAVE ADJACENT POWER OR INTEGRAL RECEPTACLES (MULTI-SERVICE) TO SERVE THE SAME EQUIPMENT. CLOSE PROXIMITY OF SEPARATE DEVICES IS CRITICAL FOR USABILITY AND AESTHETICS. COORDINATE THE LOCATION OF SEPARATE DEVICES SO THAT THEY ARE LOCATED ADJACENT AND AT THE SAME ELEVATION.
E. COMMUNICATIONS DEVICE MOUNTING HEIGHTS SHALL BE CONSISTENT WITH THE ELECTRICAL OUTLET MOUNTING HEIGHTS FOR THE FACILITY (NEW AND EXISTING), EXCEPT WHERE DIMENSIONALLY DETAILED. CONTRACTOR SHALL SEEK THE DIRECTION OF THE DESIGNER WHEN DISCREPANCIES ARE FOUND. MEASUREMENT OF ROUGH-IN TO THE CENTER OF THE ROUGH-IN DEVICE.
F. MOUNTING HEIGHT IN BLOCK WALLS SHALL BE ADJUSTED TO FIT THE COURSE AND SHALL BE CONSISTENT WITH ELECTRICAL DEVICE MOUNTING HEIGHT.
G. IN APPLICATIONS WHERE THE DRAWINGS AND/OR SPECIFICATIONS REQUIRE THE USE OF SURFACE RACEWAY AND BOXES IN LIEU OF CONCEALED ROUGH-IN, CONTRACTOR SHALL MATCH THE SIZE OF THE BOX LISTED ON THE LEGEND; SHALL MATCH THE QUANTITY OF USABLE RACEWAYS; AND SHALL MATCH THE USABLE RACEWAY CABLE AREA SUBSTANTIALLY, TO QUANTITY AND SIZES OF RACEWAYS LISTED ON THE LEGEND. CONTRACTOR IS ADVISED THAT THIS MAY REQUIRE PROCUREMENT OF MATERIALS ONLY AVAILABLE BY SPECIAL ORDER FROM THE MANUFACTURERS.
H. CONDUITS STUBBED INTO THE CEILING CAVITY SHALL BE MARKED WITH AN INDELIBLE MARKER INDICATING THE CONDUIT'S INTENDED USE. MARK CONDUIT SO AS TO BE READABLE FROM BELOW. LABEL WITHIN 6 INCHES OF THE CONDUIT BUSHING. BELOW OF EXAMPLES OF LABELS TO BE USED. "CAMERA," "ICOM," "DOOR," "SPKR," "MIC," "CLOCK," "VOL," "PANEL," "WAP," "DATA," "PHONE," "COMM," "RF," "VP," "INPUT," ETC.
I. PROVIDE BLANK COVER PLATES FOR "FUTURE" OR "BLANK" DEVICE BOXES. COORDINATE MATERIAL AND FINISH OF BLANK PLATES TO MATCH SURROUNDING PLATES.
J. WHERE CONDUITS ARE SPECIFIED "TAAC" (TO ABOVE ACCESSIBLE CEILING) THIS SHALL MEAN THAT CONDUITS SHALL BE STUBBED INTO AN ACCESSIBLE CEILING CAVITY WITHIN THE SAME ROOM AS THE DEVICE THE CONDUIT SERVES.
K. WHERE DEVICE CONDUITS ARE SPECIFIED "TAHC" (TO ABOVE ACCESSIBLE HALLWAY/CORRIDOR CEILING) THIS SHALL MEAN THAT CONDUITS SHALL BE RUN CONTINUOUS AND STUBBED OUT INTO AN ACCESSIBLE CEILING CAVITY WITHIN THE NEAREST CORRIDOR FEATURING AN ACCESSIBLE CEILING CAVITY.
L. 3 GANG AND LARGER BOXES SHALL BE MULTI-GANG BOXES, NOT GANGABLE ASSEMBLIES.
M. DEPTH OF COMPOSITE ASSEMBLY OF BOX AND TRIM RING SHALL BE SHALL A MINIMUM COMBINED DEPTH OF 2 7/8". MASONRY BOXES MINIMUM DEPTH SHALL BE 3 ½".
N. ROUGH-IN BOXES SHALL BE INSTALLED FLUSH IN WALLS AND CEILINGS. MUD/PLASTER/TRIM RINGS AND MASONRY BOXES SHALL BE MOUNTED SO AS TO BE EXACTLY FLUSH OR RECESSED 1/16TH INCH TO ASSURE FACEPLATE FIT. BOXES SHALL NOT EXTEND OUT OF THE WALL STRUCTURE.
O. BOXES SIZED TO SUPPORT FACEPLATE GANG REQUIREMENT – SEE DETAILS.
P. KNOCK OUT REQUIREMENTS EXCEEDING MANUFACTURER'S STANDARD SIZES SHALL BE ACCOMODATED WITH A PUNCH OF THE CORRECT SIZE HOLE; FILE SHARP EDGES AND BURRS.
Q. MINIMUM CONDUIT REQUIREMENTS SHALL BE A 1" TRADE SIZE CONDUIT PER GANG. TWO 1" CONDUITS MAY BE REPLACED BY A SINGLE 1 ¼" CONDUIT.
R. CONDUITS SHALL BE ATTACHED TO BOXES WITH A BOX CONNECTOR FITTING AND THREAD-ON BUSHING.
S. USE ONLY BOXES CONSTRUCTED FROM MATERIALS RATED FOR THE SPACE
T. EQUIP BOXES WITH CODE COMPLIANT ACCESSORY CLASS-1 AND CLASS-2 SERVICE PARTITIONS WHEN BOXES ARE USED IN MULTI-SERVICE APPLICATIONS.
U. "CH" (COUNTER HEIGHT) ROUGH-INS SHALL BE COORDINATED WITH CASEWORK AND FURNITURE VENDORS PRIOR TO ROUGH-IN.
V. ROUGH-INS IN CASE WORK SHALL BE COORDIATED WITH CASEWORK VENDOR TO ENSURE FUNCTIONALITY AND DEVICE FITMENT. IF DISCREPENCIES ARE DISCOVERED IT SHALL BE BROUGHT UP TO DESIGNER.
W. MOUNTING HEIGHTS FOR SPECIFIC DEVICES CALLED OUT ON THE FLOOR PLAN OVERRIDE STANDARD MOUNTING HEIGHT.

TECHNOLOGY - ROUGH-IN

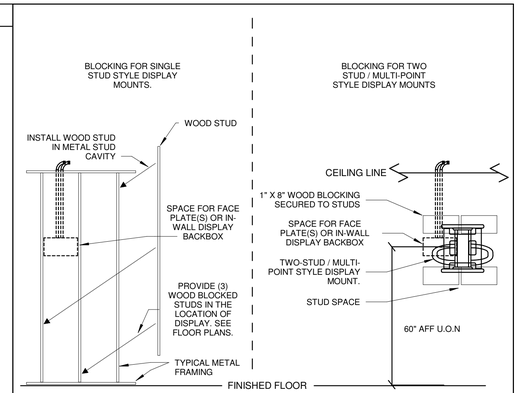
SCALE: NONE

PENETRATION NOTES:

A. ALL PENETRATIONS THROUGH BUILDING STRUCTURE (WALLS, CEILINGS, AND/OR FLOORS) FOR COMMUNICATIONS CABLING SHALL BE SLEEVED.
B. ALL SLEEVES THROUGH WALLS OR FLOORS HOLDING A FIRE RATING SHALL BE INSTALLED UTILIZING ONE OF THE APPROVED METHODS FOR A UL LISTED ASSEMBLY.
C. ALL SLEEVES THROUGH FLOORS AND WALLS SHALL BE FIRESTOPPED TO A RATING EQUAL TO OR HIGHER THAN THE FLOOR/WALL RATING.
D. ALL UN-USED SLEEVES THROUGH WALLS OR FLOORS HOLDING A FIRE RATING SHALL BE FIRESTOPPED TO A RATING EQUAL TO OR HIGHER THAN THE FLOOR/WALL RATING.
E. ALL PENETRATIONS SHALL BE PART OF THE RE-USABLE PATHWAY SYSTEM; FIRESTOPPED PENETRATIONS SHALL EITHER BE AN ASSEMBLY WITH FIRESTOP MATERIALS BUILT INTO THE ASSEMBLY OR FIRESTOPPED WITH REMOVABLE PUTTY OR FIRESTOP BAGS.
F. THE DETAILS SHOWN ON THIS PAGE ARE REPRESENTATIVE OF THE SLEEVING REQUIREMENTS FOR COMMUNICATIONS AND SECURITY CABLING SYSTEMS; ADDITIONAL LISTINGS ARE AVAILABLE FROM EACH MANUFACTURER.
G. PENETRATIONS SHALL BE FIRESTOPPED OR PLUGGED TO PREVENT AIR MOVEMENT THROUGH CONDUITS.
H. SELF-SEALING FIRESTOPPED PENETRATION DEVICES SHALL BE UTILIZED INTO ALL ROOMS WITH PRESURIZED FIRE SUPRESSION SYSTEMS.

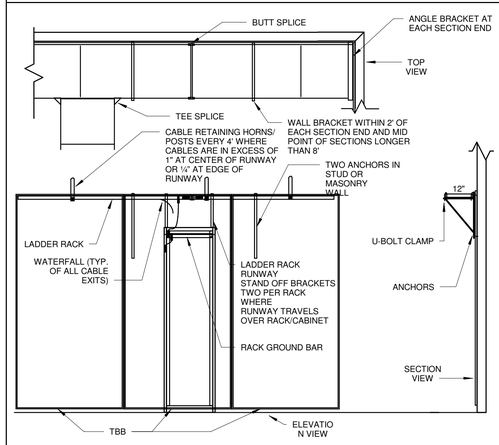
TECHNOLOGY - ROUGH-IN

SCALE: NONE



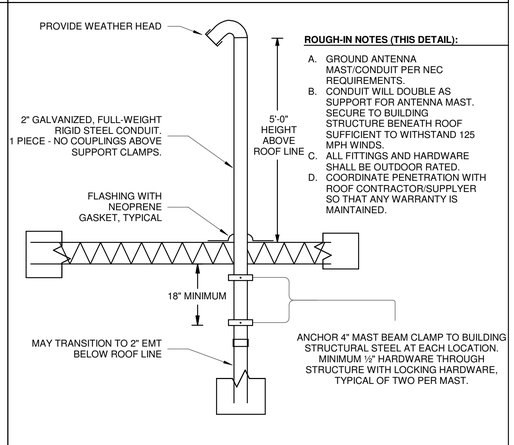
TECHNOLOGY - ROUGH-IN

SCALE: NONE



TECHNOLOGY - ROUGH-IN

SCALE: NONE



TECHNOLOGY - ROUGH-IN

SCALE: NONE

KLH ENGINEERS
MECHANICAL/ELECTRICAL ENGINEERS
WWW.KLHENGRS.COM
1538 ALEXANDRIA PIKE, SUITE 11
FT. THOMAS, KENTUCKY 41075
800-354-9783
859-442-8050
859-442-8058 FAX
LEXINGTON, KENTUCKY
LOUISVILLE, KENTUCKY
COLUMBUS, OHIO
NEW YORK, NEW YORK

STATE OF OHIO — STEPHEN N. FEDERLE — E-76032 — REGISTERED PROFESSIONAL ENGINEER — 11/04/19

your trusted advisor consultants — engineers architects planners

REV	REVISIONS	DATE	BY
0	ISSUE FOR BIDDING AND PERMIT	11/20/2019	CAM

DATE: 11/20/2019
DRAWN BY: MSN
CHECKED BY: SMB
APPROVED BY:
F.B. NO. PG.

SHARONVILLE FIRE STATION 87 RENOVATION
CITY OF SHARONVILLE
11210 READING RD, SHARONVILLE, OH 45241

TECHNOLOGY - ROUGH-IN

SCALE: 1/8" = 1'-0"
HORZ:
VERT:
CONTRACT NO: 170636
SHEET T-702

11/14/2019 10:24:15 AM

KLH JOB#: 21459.00