GREATER HEIGHTS ACADEMY

FOUR CLASSROOM ADDITION

3196 W. PASADENA AVE., FLINT, MICHIGAN 48504

ISSUED FOR: BIDS
DATE: MARCH 31, 2015
PROJECT NO.: 141601

ARCHITECT / CONSTRUCTION MANAGER:

WAKELY ASSOCIATES, INC./ ARCHITECTS
30500 VAN DYKE AVE, SUITE M-7, WARREN, MI 48093, 586.573.4100

CIVIL AND STRUCTURAL ENGINEER:

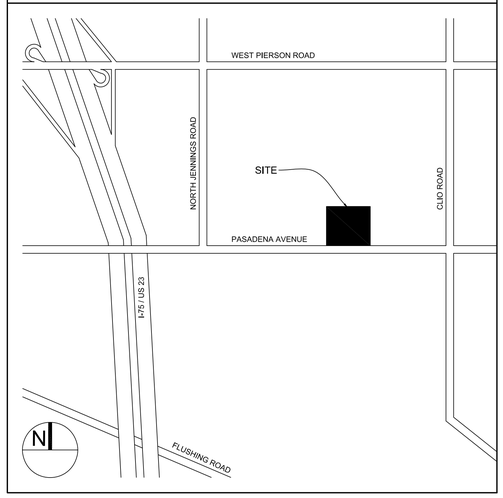
ANDERSON ECKSTEIN AND WESTRICK
51301 SCHOENHERR ROAD, SHELBY TOWNSHIP, MI 48315, 586.726.1234

MECHANICAL AND ELECTRICAL ENGINEER:

PETER BASSO ASSOCIATES INC.
5145 LIVERNOIS, SUITE 100, TROY, MI 48098, 248.879.5666

Index of Drawings

Location Map: NOT TO SCALE



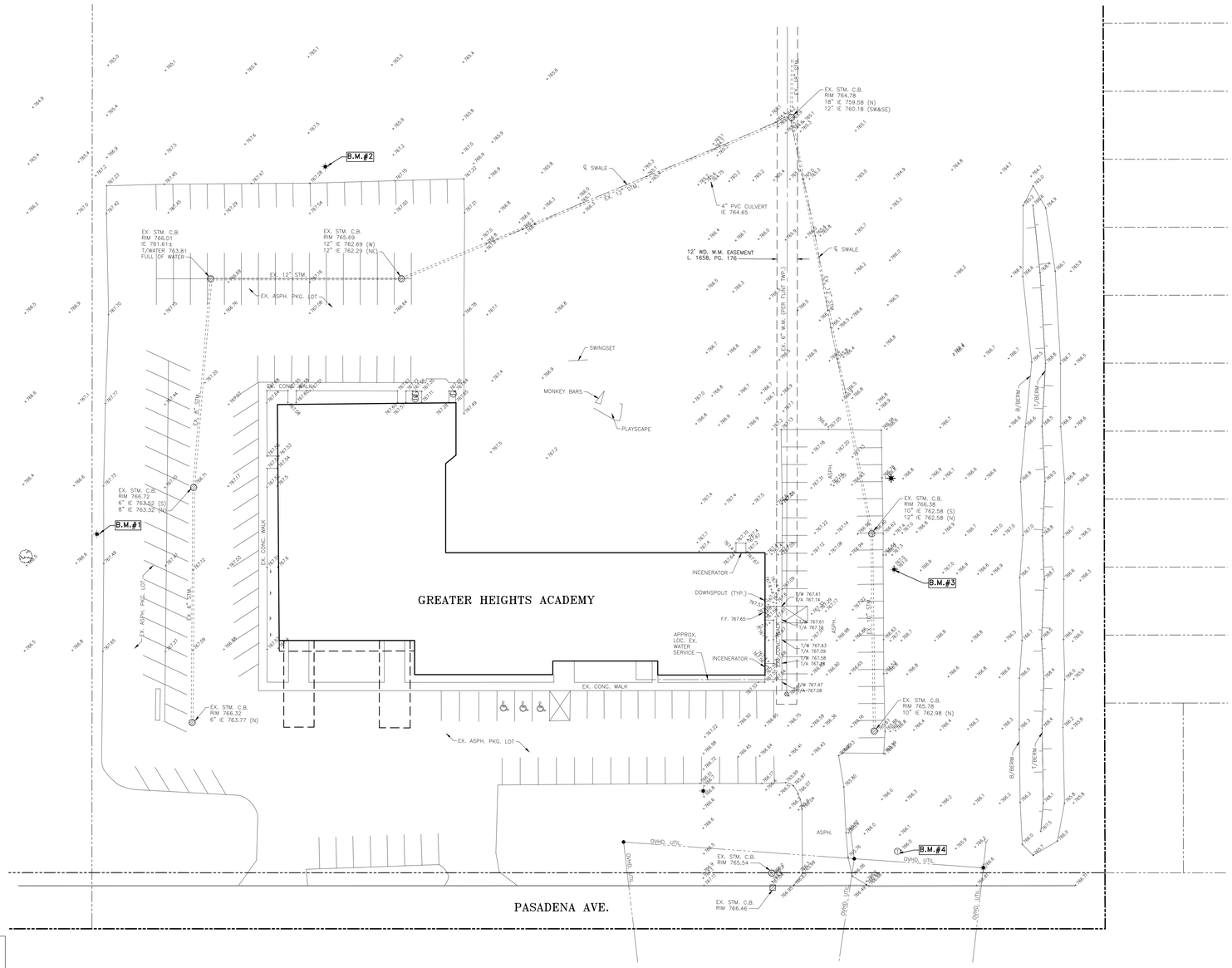
GREATER HEIGHTS ACADEMY FOUR CLASSROOM ADDITION Issued for: BIDS, Date: March 31, 2015 Project No: 141601

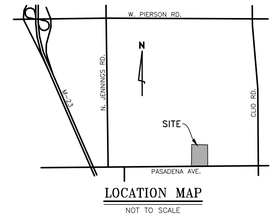
NORTH

W E

1" = 30'

S





LOCATION MAP

NOT TO SCALE

BOUNDARY DATA

BOUNDARY AS PER ALTA/ACSM LAND TITLE SURVEY DATED 01-13-2012 PREPARED BY EXXEL ENGINEERING, INC.

BENCH MARKS (NAVD88 DATUM)

BENCH MARK NO. 1
T/CONC. LIGHT POLE BASE,
(E/FACE) ON W. SIDE BLDG.
ELEVATION: 769.03

BENCH MARK NO. 2
T/CONC. LIGHT POLE BASE,
(S/FACE) 70'± N. OF N.W.
COR. BLDG,
ELEVATION: 768.84

BENCH MARK NO. 3
T/CONC. LIGHT POLE BASE,
(W/FACE) 75'± E. OF E. SIDE
OF BLDG.
ELEVATION: 769.28

BENCH MARK NO. 4
"X" ON S. RIM MBT MAN HOLE,
60'± N. OF PASADENA & 60'±
E. OF E. DRIVEWAY.
ELEVATION: 765.97

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

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3 WORKING DAYS BEFORE YOU DIG

CALL MISS DIG 811 TOLL FREE

WAKELY ASSOCIATES, INC./
ARCHITECTS

30500 VAN DYKE AVENUE
SUITE M-7
WARREN, MICHIGAN 48093
PH: 586.573.4100
FX: 586.573.0822
www.wakelyaia.com

ANDERSON, ECKSTEIN AND WESTRICK INC.
51301 Schoenherr Road,
Shelby Township, Michigan 48315
Phone 586-726-1234
Fax 586-726-8705
AEW NO. 0577-0074

GREATER HEIGHTS ACADEMY
FOUR CLASSROOM ADDITION
FLINT, MICHIGAN

TOPOGRAPHIC SURVEY

PRELIMINARY ■
DESIGN DEVELOPMENT □
CONSTRUCTION □
FINAL RECORD □

DRAWN BY: KJP
CHECKED BY: JS

REVISIONS:

DATE: MARCH, 2015

SHEET NO.:

C1.0

JOB NO.: 141601

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NORTH

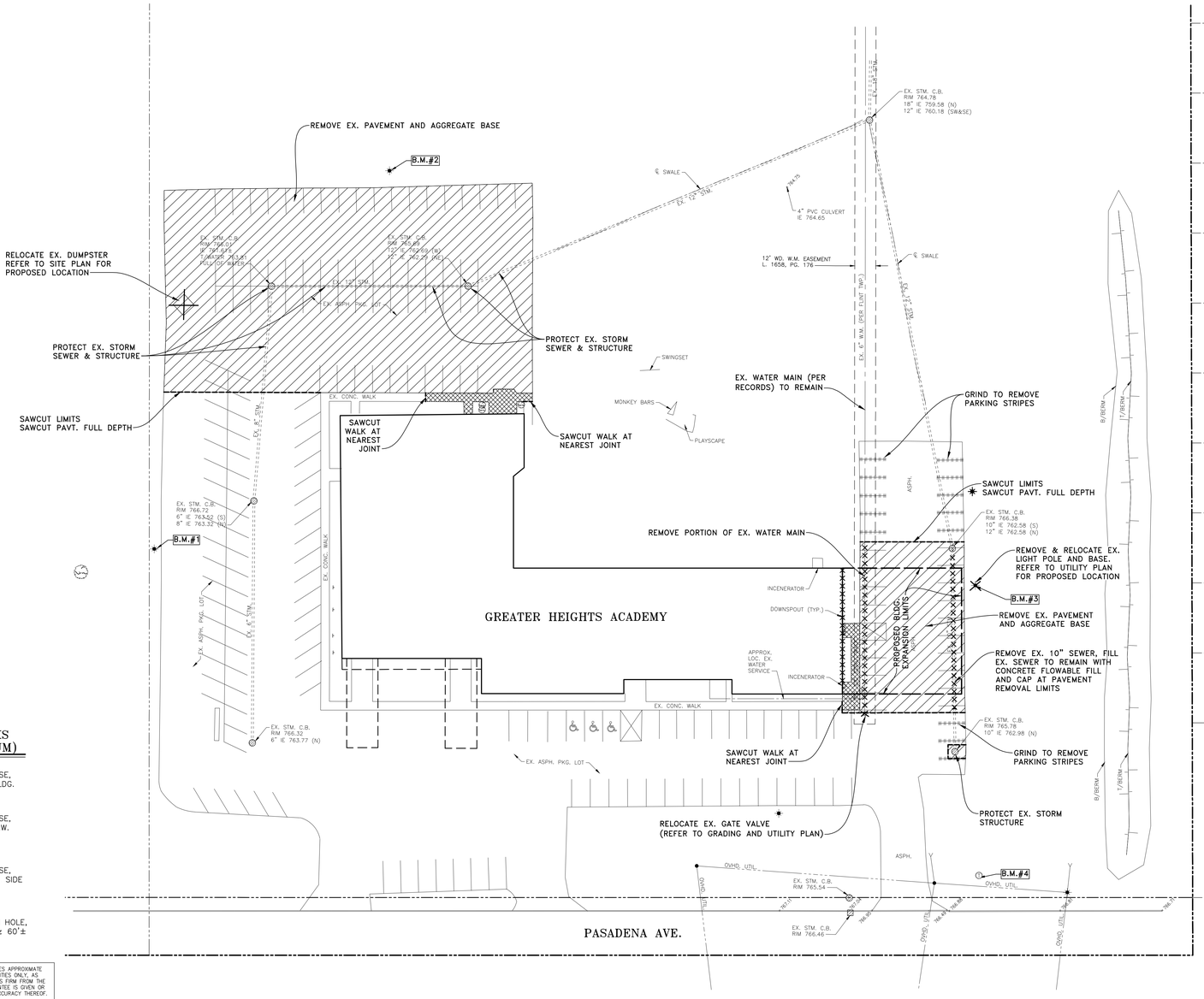
W 1"=30' E

S

NOTE:

CONTRACTOR TO CONTACT THE OWNER FOR THE STAKING OF ALL EXISTING UNDERGROUND CABLE, ELECTRICAL SERVICES AND IRRIGATION SYSTEMS WITHIN THE PROJECT LIMITS.

IN ADDITION, MISS DIG SHOULD BE CONTACTED FOR ALL MAJOR SERVICES WITHIN THE PROJECT LIMITS.



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3 WORKING DAYS BEFORE YOU DIG

CALL MISS DIG 811 TOLL FREE

REMOVAL NOTES:

1. NO ATTEMPT IS MADE TO STIPULATE EVERY REQUIRED ITEM OF REMOVAL AND DEMOLITION EITHER ON DRAWINGS OR IN SPECIFICATIONS. VISIT THE SITE AND STUDY EXISTING PHYSICAL CONDITIONS, REVIEW DRAWINGS, AND REACH CONCLUSIONS ON WORK NECESSARY TO ACCOMPLISH INTENDED RESULTS DESCRIBED BY THE PROJECT DOCUMENTS.
2. ALL DEMOLITION WORK SHALL CONFORM TO GOVERNING AGENCY DESIGN STANDARDS AND SPECIFICATIONS. COMPLY WITH OSHA REGULATIONS INSOFAR AS THEY APPLY TO THE REQUIRED WORK.
3. SOIL EROSION AND SILTATION CONTROL MEASURES MUST BE IN PLACE PRIOR TO STARTING REMOVALS AND EARTH MOVING OPERATIONS. THESE CONTROL MEASURES SHALL CONFORM IN ALL RESPECTS TO GOVERNING AGENCY REQUIREMENTS.
4. PROVIDE A DESIGNATED AREA (TO BE APPROVED BY OWNER) FOR STORAGE OF MATERIALS, EQUIPMENT AND PARKING OF THE REQUIRED EQUIPMENT. DESIGNATE A TRAFFIC LANE FOR INGRESS AND EGRESS FROM THE WORK AREA. IF REQUIRED, PROVIDE FLAG MEN FOR A SAFE AND EFFICIENT MOVEMENT OF VEHICLES. NO CHANGES TO THE WORK AREA OR TO THE AGREED TRAFFIC PATTERN SHALL BE MADE WITHOUT PRIOR APPROVAL OF THE OWNER CONSTRUCTION MANAGER. THE CONSTRUCTION MANAGER WILL SECURE THE APPROVAL FOR SUCH CHANGES.
5. COMPLETELY RESTORE ALL DISTURBED AREAS TO A CONDITION EQUAL TO OR BETTER THAN EXISTING CONDITION AND TO THE SATISFACTION OF THE OWNER AND MUNICIPALITY. ALL COSTS FOR CLEAN-UP, RESTORATION WORK AND OTHER IMMEDIATE OPERATIONS SUCH AS, BUT NOT LIMITED TO, CONSTRUCTION SIGNAGE, STREET SWEEPING, AND MAINTAINING EXISTING UTILITIES SHALL BE THE CONTRACTORS RESPONSIBILITY. PERFORM RESTORATION WORK WITHIN 5 DAYS AFTER COMPLETION OF FINAL GRADING.
6. WHERE EXISTING PAVEMENT IS TO BE PARTIALLY REMOVED, SAWCUT PAVEMENT FULL DEPTH TO PROVIDE A SMOOTH JOINT WITH PROPOSED PAVEMENT.
7. SAWCUT FULL DEPTH AND REMOVE EXISTING ASPHALT PAVEMENT AS NEEDED TO INSTALL NEW CONCRETE CURBING, WALKS, UNDERGROUND UTILITIES OR NEW BUILDING. SAWCUTS SHALL BE MADE A MINIMUM OF 1' BEYOND THE ACTUAL NEW CURB OR WALK LIMITS OR AT THE EXISTING NEAREST JOINT.
8. REMOVE ALL EXISTING UTILITY PIPING SERVICES WITHIN THE DESIGNATED WORK AREA UNLESS OTHERWISE INDICATED ON THE PLANS. DISCONNECT FROM PUBLIC UTILITIES IN ACCORDANCE WITH UTILITY OWNER'S REQUIREMENTS.
9. PROMPTLY REMOVE ALL DEMOLITIONS, REMOVALS, RUBBISH, AND DEBRIS FROM THE LIMITS OF THE OWNER'S PROPERTY AND DISPOSE IN A LEGAL MANNER.
10. EXCAVATIONS AND HAZARDOUS AREAS SHALL BE PROTECTED BY BARRICADES. BARRICADES LEFT IN PLACE AT NIGHT SHALL BE LIGHTED.
11. RESTORE AT CONTRACTOR'S EXPENSE ANY STRUCTURES, PIPE, UTILITY, PAVEMENT, CURBS, SIDEWALKS, LANDSCAPED AREAS, ETC. WITHIN THE SITE OR ADJOINING PROPERTIES DISTURBED DURING DEMOLITION OR CONSTRUCTION TO THEIR ORIGINAL CONDITION OR BETTER, AND TO THE SATISFACTION OF THE OWNER AND LOCAL MUNICIPALITY. ALL WORK WITHIN A D.O.T RIGHT-OF-WAY SHALL COMPLY WITH ALL D.O.T STANDARDS.
12. THE WORK INCLUDED SHALL BE PERFORMED AS INDICATED ON THE PLANS. STOCKPILING, STORAGE OF MATERIALS AND ACCESS TO THE SITE SHALL BE COORDINATED WITH THE OWNER.
13. PRESERVE ALL SURVEY STAKES AND PROPERTY LINE MONUMENTS. ANY STAKES OR MONUMENTS DESTROYED OR DISTURBED IN THE COURSE OF WORK SHALL BE RESTORED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
14. ALL EXCAVATION IS CONSIDERED UNCLASSIFIED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS, METHODS, AND MATERIALS OF CONSTRUCTION TO COMPLETE CONSTRUCTION AS DESIGNED. ADDITIONALLY, THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE OFF-SITE DISPOSAL OF ANY AND ALL EXCESS OR UNSUITABLE MATERIAL AND THE IMPORTATION OF ANY BORROW MATERIAL NECESSARY TO COMPLETE THE JOB.
15. OWNER RESERVES THE RIGHT TO SALVAGE EXISTING MATERIALS. COORDINATE DISPOSAL OF MATERIALS WITH OWNER.
16. BACKFILL TRENCHES RESULTING FROM UNDERGROUND UTILITY REMOVAL WITH CL-II SAND COMPACTED TO 95% MAX. UNIT WEIGHT.

LEGEND

- REMOVE EXIST. BITUMINOUS PAVT.
- REMOVE EXIST. CONC. WALK
- REMOVE WALL, SEWER, OR WATER MAIN
- REMOVE PARKING STRIPING
- SAWCUT FULL DEPTH
- REMOVE EX. LIGHT POLE, OR DUMPSTER

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GREATER HEIGHTS ACADEMY
FOUR CLASSROOM ADDITION
FLINT, MICHIGAN

REMOVAL PLAN

PRELIMINARY ■
DESIGN DEVELOPMENT □
CONSTRUCTION □
FINAL RECORD □

DRAWN BY: KJP
CHECKED BY: JS

REVISIONS:

DATE: MARCH, 2015

SHEET NO.:

C2.0

JOB NO.: 141601

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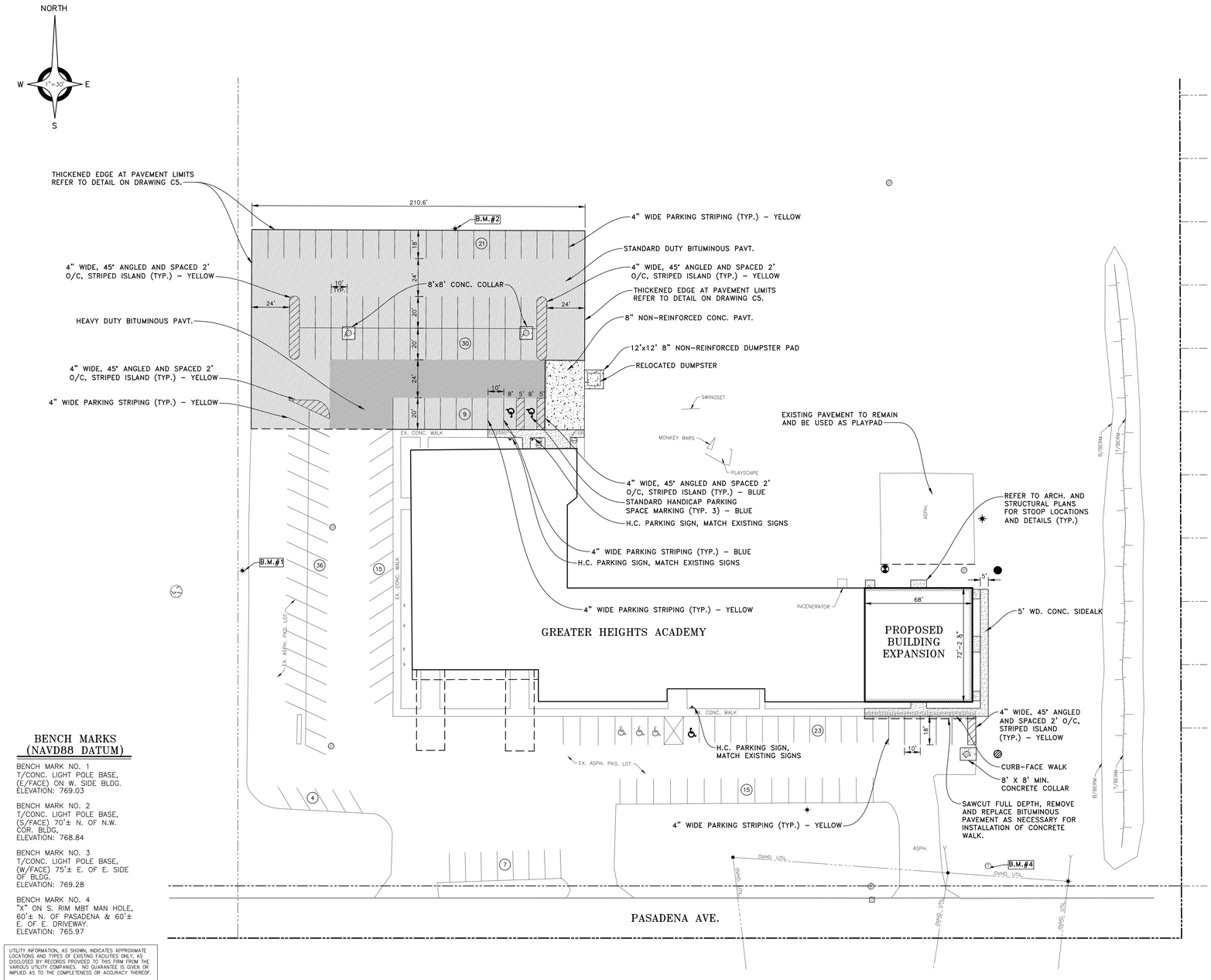

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GENERAL CONSTRUCTION NOTES:

1. THE CONTRACTOR AT ALL TIMES SHALL FOLLOW ALL FEDERAL, STATE AND LOCAL SAFETY REQUIREMENTS DURING CONSTRUCTION OF THIS PROJECT. SPECIAL CARE SHALL BE TAKEN DURING ALL TRENCHING OPERATIONS. SHEETING AND BRACING, CRIBBING, ETC., MUST BE INSTALLED AS REQUIRED TO PROVIDE MAXIMUM SAFETY TO THE CONTRACTOR'S WORKERS IN FULL COMPLIANCE WITH OSHA REGULATIONS.
2. ALL CONSTRUCTION SHALL BE CONDUCTED SUCH THAT THERE WILL BE MINIMAL INTERFERENCE WITH STREETS, DRIVES OR WALKS. THE CONTRACTOR IS RESPONSIBLE FOR MAINTENANCE OF TRAFFIC. DO NOT CLOSE OR OBSTRUCT STREETS, DRIVES OR WALKS OR USER FACILITIES WITHOUT PERMISSION FROM THE OWNER'S REPRESENTATIVE.
3. CONTRACTOR SHALL KEEP EXISTING STREETS, ROADS AND DRIVES CLEAR OF DIRT, DEBRIS AND EQUIPMENT.
4. REVIEW CONSTRUCTION AND AND SCHEDULE AT THE PRECONSTRUCTION MEETING WITH OWNER.
5. THE CONTRACTOR SHALL VERIFY ALL SITE CONDITIONS IN THE FIELD AND CONTACT THE ENGINEER IF THERE ARE ANY QUESTIONS OR CONFLICTS REGARDING THE CONSTRUCTION DOCUMENTS AND/OR FIELD CONDITIONS SO THAT APPROPRIATE REVISIONS CAN BE MADE PRIOR TO CONSTRUCTION. ANY CONFLICT BETWEEN DRAWINGS AND THE SPECIFICATIONS SHALL BE CONFIRMED WITH THE ENGINEER PRIOR TO BIDDING.
6. THE CONTRACTOR SHALL ABIDE BY ALL OSHA, FEDERAL, STATE AND LOCAL REGULATIONS WHEN OPERATING CRANES, BOOMS, HOISTS, ETC. IN CLOSE PROXIMITY TO OVERHEAD ELECTRIC LINES. IF CONTRACTOR MUST OPERATE EQUIPMENT CLOSE TO ELECTRIC LINES, CONTACT THE POWER COMPANY TO MAKE ARRANGEMENTS FOR PROPER SAFEGUARDS.
7. THE OWNER AT ITS DISCRETION RESERVES THE RIGHT TO MODIFY THE DETAILS AND STANDARDS OF CONSTRUCTION FOR ALL PRIVATE FACILITIES FROM THAT INDICATED ON THE APPROVED PLAN, PROVIDED THAT THE ALTERNATE STANDARD COMPLIES WITH LOCAL CODE AND/OR UTILITY COMPANY REQUIREMENTS AND THE GENERAL DESIGN INTENT OF THE PROJECT IS NOT COMPROMISED.
8. CONTRACTOR SHALL MAINTAIN ALL TRAFFIC LANES AND PEDESTRIAN WALKWAYS AT ALL TIMES UNLESS WRITTEN APPROVAL FROM THE STATE DOT, LOCAL MUNICIPALITY, COUNTY, OR OTHER GOVERNING AUTHORITY IS RECEIVED.
9. THE CONTRACTOR SHALL NOTIFY THE ENGINEER SHOULD ANY DISCREPANCY REGARDING THE PROPOSED WORK OR UNFORESEEN CONDITIONS ARISE PRIOR TO PROCEEDING FURTHER WITH THE AFFECTED WORK.
10. THE CONTRACTOR SHALL PROVIDE AS-BUILT RECORDS OF ALL CONSTRUCTION (INCLUDING UNDERGROUND UTILITIES) TO THE ENGINEER AND OWNER FOLLOWING COMPLETION OF CONSTRUCTION ACTIVITIES.
11. ALL PAVING AND AGGREGATE MATERIALS AND WORK COMPLETED SHALL BE IN STRICT ACCORDANCE WITH THE STATE DOT SPECIFICATIONS AND STANDARD DETAILS UNLESS OTHERWISE SPECIFIED.
12. THE CONTRACTOR SHALL BE RESPONSIBLE FOR VERIFYING ALL DIMENSIONS FOR BUILDING, WALLS, CONCRETE SLABS, AND UTILITY SERVICE POINT CONNECTIONS AND NOTIFYING THE OWNER AND ENGINEER OF ANY CONFLICTS OR DISCREPANCIES PRIOR TO CONSTRUCTION.
13. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS OF ALL PRODUCTS AND MATERIALS TO THE OWNER AND LOCAL UTILITY COMPANIES AS REQUIRED FOR REVIEW AND APPROVAL PRIOR TO FABRICATION OR DELIVERY TO THE SITE. ALLOW A MINIMUM OF 7 DAYS FOR REVIEW.
14. THE CONTRACTOR SHALL REFERENCE ARCHITECTURAL PLANS FOR EXACT DIMENSIONS AND CONSTRUCTION DETAILS OF BUILDING, CANOPY, AND UTILITY CONNECTIONS.
15. TRAFFIC CONTROL SIGNAGE SHALL CONFORM TO THE STATE DOT STANDARD DETAIL SHEETS AND THE MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES. SIGNS SHALL BE INSTALLED PLUMB.
16. FIRE LANES SHALL BE ESTABLISHED AND PROPERLY DESIGNATED IN ACCORDANCE WITH THE LOCAL MUNICIPALITY AND LOCAL FIRE DEPARTMENT REQUIREMENTS.
17. THE CONTRACTOR SHALL REMOVE CONFLICTING PAVEMENT MARKINGS IN A METHOD APPROVED BY THE STATE DOT.
18. AGGREGATES AND BITUMINOUS PAVEMENT MATERIAL AND INSTALLATION SPECIFICATIONS SHALL BE IN ACCORDANCE WITH STATE DOT SPECS. THE CONTRACTOR SHALL SUBMIT AGGREGATE SIEVE ANALYSIS AND A JOB-MIX FORMULA FOR THE BITUMINOUS PAVEMENT TO THE ENGINEER FOR REVIEW AND APPROVAL AT LEAST 14 DAYS PRIOR TO THE PLACEMENT OF BITUMINOUS PAVEMENTS.
19. ALTERNATIVE METHODS AND PRODUCTS OTHER THAN THOSE SPECIFIED MAY BE USED IF REVIEWED AND APPROVED BY THE OWNER, ENGINEER, AND APPROPRIATE REGULATORY AGENCIES PRIOR TO INSTALLATION.
20. PROVIDE ADEQUATE BARRICADES AT DRIVES, ENTRANCES, EXCAVATIONS AND OTHER OPENINGS TO KEEP OUT UNAUTHORIZED PERSONS AND FOR PUBLIC SAFETY AND TRAFFIC CONTROL. SAFETY PROVISIONS OF APPLICABLE LAWS SHALL BE OBSERVED AT ALL TIMES. BARRICADES LEFT IN PLACE AT NIGHT SHALL BE LIGHTED.
21. NO EQUIPMENT OR MATERIAL STORAGE IS PERMITTED WITHIN THE ROAD RIGHT-OF-WAY.
22. CONTRACTOR'S MANNER AND METHOD OF INGRESS AND EGRESS WITH RESPECT TO THE PROJECT AREA SHALL IN NO WAY PROHIBIT OR DISTURB NORMAL PEDESTRIAN OR VEHICULAR TRAFFIC IN THE VICINITY AND IS SUBJECT TO REGULATION AND WRITTEN APPROVAL OF APPROPRIATE GOVERNING AGENCIES.
23. CONSTRUCTION SHALL BE IN ACCORDANCE WITH A.D.A. REGULATIONS AS APPLICABLE.

PARKING DATA:

EXISTING: 185 SPACES (3 H.C.)
PROPOSED: 160 SPACES (6 H.C.)

WAKELY ASSOCIATES, INC./
ARCHITECTS

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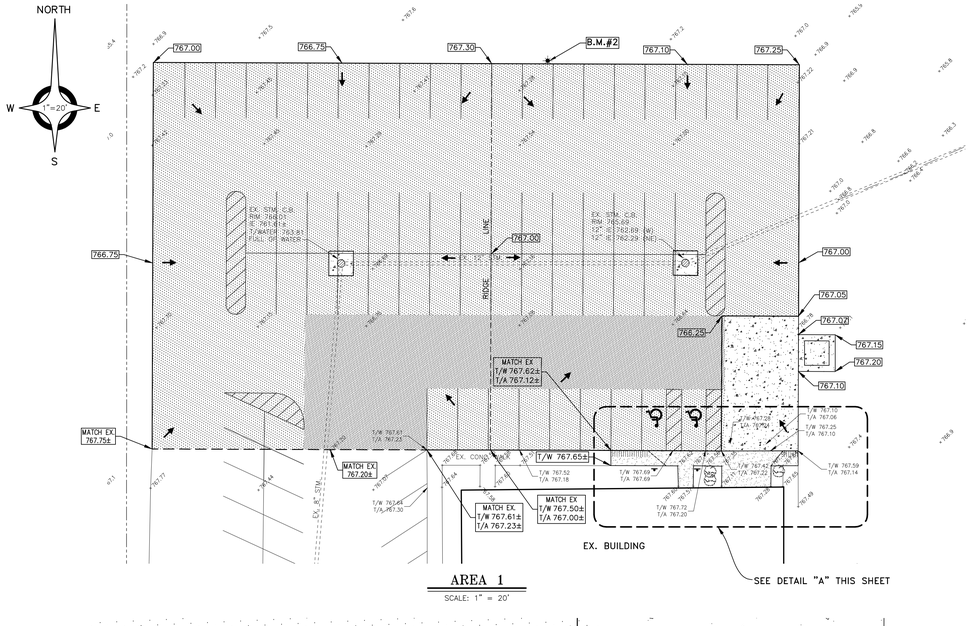
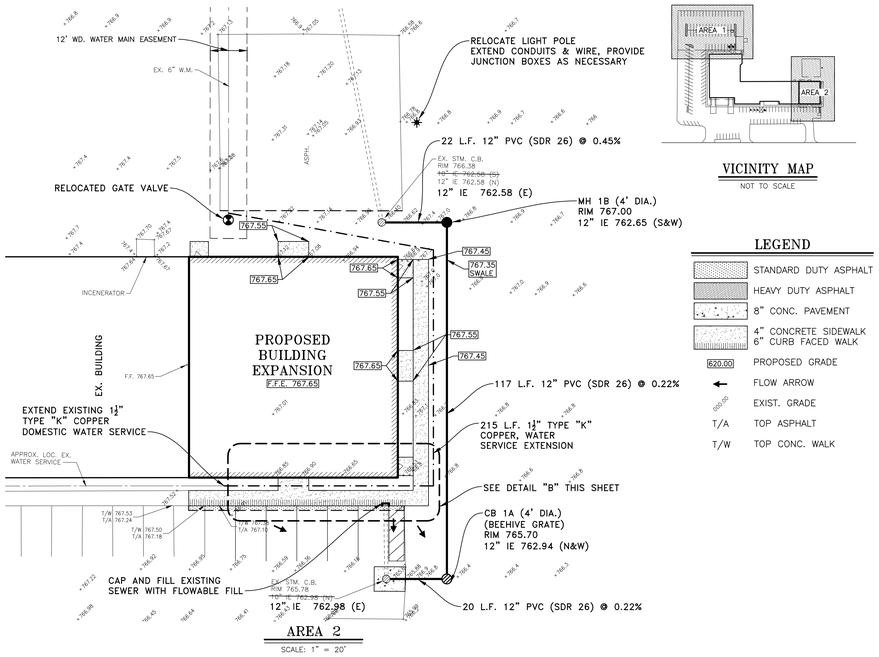


AREA 1

SCALE: 1" = 20'



AREA 2

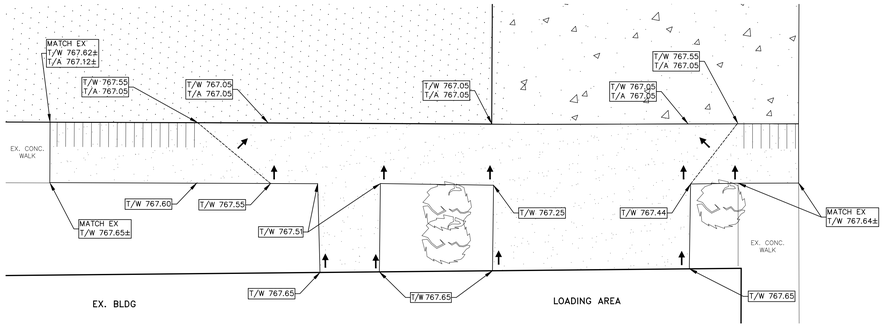
SCALE: 1" = 20'

VICINITY MAP

NOT TO SCALE

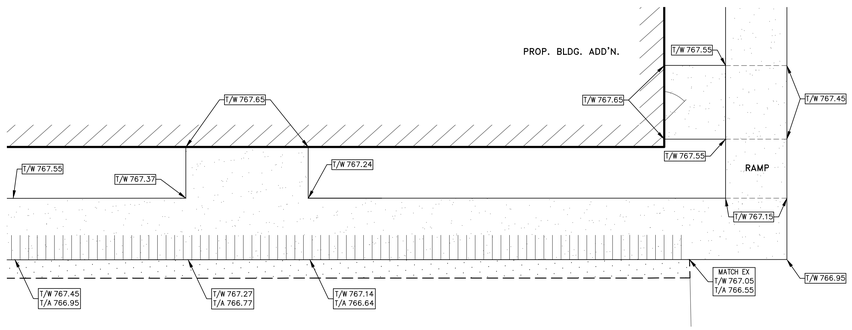
LEGEND

- STANDARD DUTY ASPHALT
- HEAVY DUTY ASPHALT
- 8" CONC. PAVEMENT
- 4" CONCRETE SIDEWALK 6" CURB FACED WALK
- 620.00 PROPOSED GRADE
- FLOW ARROW
- 620.00 EXIST. GRADE
- T/A TOP ASPHALT
- T/W TOP CONC. WALK



DETAIL "A"

SCALE: 1" = 5'



DETAIL "B"

SCALE: 1" = 5'

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3 WORKING DAYS BEFORE YOU DIG

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GRADING NOTES:

1. REFER TO SOIL EROSION PLAN FOR EROSION CONTROL NOTES.
2. ALL MATERIALS AND CONSTRUCTION METHODS SHALL BE IN CONFORMANCE WITH THE LOCAL MUNICIPALITY DESIGN STANDARDS AND SPECIFICATIONS AND IN ACCORDANCE WITH THESE PLANS.
3. ALL PROPOSED SPOT ELEVATIONS IN PAVED AREAS SHALL BE CONSIDERED TOP OF PAVEMENT GRADES UNLESS NOTED OTHERWISE.
4. SITE GRADING SHALL BE PERFORMED TO PROVIDE POSITIVE DRAINAGE AT ALL TIMES TO ENSURE NO STANDING WATER.
5. REFER TO DRAWING C3 FOR ADDITIONAL GENERAL NOTES.
6. UNLESS OTHERWISE INDICATED AT A SPECIFIC LOCATION, ALL FINISHED GRADES ARE TO CONFORM TO AND MATCH EXISTING GRADES. ALL FINAL GRADES AT THE PROJECT BOUNDARY SHALL MATCH EXISTING ELEVATIONS.
7. REMOVE AND REPLACE EXISTING PAVEMENT AS NEEDED TO MEET PROPOSED AND EXISTING GRADES.
8. TOPSOIL SHALL BE STRIPPED FROM ALL AREAS TO RECEIVE PAVING AND FROM WITHIN THE LIMITS OF PROPOSED BUILDINGS AND STRUCTURES. TOPSOIL SHALL BE STRIPPED TO THE DEPTH SHOWN IN THE GEOTECHNICAL REPORT, OR TO A DEPTH OF 6 INCHES, WHICHEVER IS GREATER.
9. TOPSOIL SHALL BE PLACED TO A DEPTH OF 3 TO 6 INCHES IN ALL AREAS TO BE SEEDED OR SODDED.
10. EXCESS TOPSOIL MAY BE PLACED IN MOUNDING AREAS AND NONSTRUCTURAL FILL AREAS AS AVAILABLE OR DISPOSED OF AS PER LOCAL, STATE AND FEDERAL REGULATIONS.
11. THE CONTRACTOR WILL BE RESPONSIBLE TO REPAIR ANY EXISTING SITE IMPROVEMENTS THAT MAY BE DISTURBED DURING CONSTRUCTION.
12. CONSTRUCTION SHALL BE IN ACCORDANCE WITH A.D.A. REGULATIONS AS APPLICABLE.

GENERAL UTILITY NOTES

1. PROTECT AND MAINTAIN CROSSINGS OF OTHER UTILITY LINES.
2. PROPER COORDINATION SHALL BE PERFORMED BY THE CONTRACTOR TO INSURE THAT ALL GOVERNING AGENCY STANDARDS FOR MATERIALS AND CONSTRUCTION METHODS ARE MET.
3. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR DETERMINING ACTUAL LOCATIONS AND ELEVATIONS OF ALL UTILITIES, INCLUDING SERVICES PRIOR TO CONSTRUCTION, THE CONTRACTOR SHALL CONTACT THE STATE UTILITIES PROTECTION SERVICE @ 811 AT LEAST 48 HOURS BEFORE THE START OF THE WORK AND VERIFY ALL EXISTING UTILITY LOCATIONS.
4. THE CONTRACTOR SHALL ARRANGE FOR AND COORDINATE WITH THE RESPECTIVE UTILITY COMPANIES FOR SERVICE INSTALLATIONS AND CONNECTIONS AND MAIN AND SERVICE RELOCATIONS. THE CONTRACTOR SHALL COORDINATE THE WORK TO BE PERFORMED BY THE VARIOUS GOVERNING AGENCIES AND SHALL SECURE ALL PERMITS AND PAY ALL FEES FOR CONNECTIONS, DISCONNECTIONS, RELOCATIONS, INSPECTIONS, AND DEMOLITION AS NECESSARY.
5. CONTRACTOR TO PROVIDE SLEEVES UNDER FOOTINGS OR THROUGH FOUNDATIONS FOR UTILITY CONNECTIONS AS REQUIRED.
6. CONTRACTOR SHALL PROVIDE ALL BENDS, FITTINGS, ADAPTERS, ETC. AS REQUIRED FOR PIPE CONNECTIONS.
7. ALL UTILITY CONSTRUCTION IS SUBJECT TO INSPECTION PRIOR TO APPROVAL FOR BACKFILL, IN ACCORDANCE WITH THE APPROPRIATE GOVERNING AGENCY.
8. IN THE EVENT OF CONFLICT OF ANY REQUIREMENTS OR PROVISIONS OF THE WORK INDICATED HEREON, THE SITE ENGINEER SHALL BE NOTIFIED FOR A DETERMINATION OF THE PLAN REQUIREMENTS AND INTENT THEREOF.
9. DO NOT INTERRUPT EXISTING UTILITIES SERVICING FACILITIES OCCUPIED AND USED BY THE OWNER OR OTHERS DURING OCCUPIED HOURS EXCEPT WHEN SUCH INTERRUPTIONS HAVE BEEN AUTHORIZED IN WRITING BY THE OWNER. INTERRUPTIONS SHALL ONLY OCCUR AFTER ACCEPTABLE TEMPORARY OR PERMANENT SERVICE HAS BEEN PROVIDED.
10. PIPE LENGTHS SHOWN ARE MEASURED FROM CENTER OF STRUCTURE TO CENTER OF STRUCTURE.
11. THE TRENCH SHOULD BE BACKFILLED AND THE PAVEMENT RESTORED IN SUCH A MANNER THAT ALLOWS TRAFFIC TO SAFELY TRAVEL ALONG AND/OR CROSS IT DURING NON-CONSTRUCTION HOURS. HOLES SHALL NOT BE ALLOWED DURING NON-CONSTRUCTION HOURS. THE CONTRACTOR SHALL BE RESPONSIBLE FOR KEEPING THE TRENCH AREA IN A SAFE PASSABLE CONDITION AT ALL TIMES.
12. TEMPORARY PAVEMENT RESTORATION SHOULD CONSIST OF AT LEAST 3 INCHES OF COMPACTED BITUMINOUS COLD PATCH OR TEMPORARY AGGREGATE SURFACE WITH APPROVAL FROM AUTHORITY HAVING JURISDICTION.
13. PERMANENT PAVEMENT RESTORATION SHALL BE COMPLETED IN A TIMELY MANNER.
14. UTILITY TRENCH BACKFILL SHALL BE MDOT STD. PLAN R-83-B, TRENCH DETAIL "B" FOR STORM AND SANITARY SEWER, AND TRENCH DETAIL "G" FOR WATER MAIN AND SERVICE.

STORMWATER NOTES

1. THE CONTRACTOR SHALL VISIT THE SITE AND VERIFY THE ELEVATION AND LOCATION OF ALL UTILITIES BY VARIOUS MEANS PRIOR TO BEGINNING ANY EXCAVATION. TEST PITS SHALL BE DUG AT ALL LOCATIONS WHERE SEWERS CROSS EXISTING UTILITIES, AND THE HORIZONTAL AND VERTICAL LOCATIONS OF THE UTILITIES SHALL BE DETERMINED. THE CONTRACTOR SHALL CONTACT THE ENGINEER AND CONSTRUCTION MANAGER IN THE EVENT OF ANY UNFORESEEN CONFLICTS BETWEEN EXISTING AND PROPOSED UTILITIES SO THAT AN APPROPRIATE MODIFICATION MAY BE MADE.

WATER NOTES

1. INSTALL WATER MAIN/LEAD WITH A MINIMUM OF FIVE (5) FEET OF COVER.
2. PROVIDE A MINIMUM OF EIGHTEEN (18) INCHES OF VERTICAL SEPARATION AND TEN (10) FEET OF HORIZONTAL SEPARATION BETWEEN THE WATER MAIN AND ALL SANITARY SEWERS.

MATERIAL NOTES

ALL MATERIAL SHALL COMPLY WITH THE LOCAL MUNICIPALITY DESIGN & PROJECT SPECIFICATIONS.

STORM DRAINS:
1. PVC PIPE ASTM D3034 (SDR. 26) FOR DIAMETERS GREATER THAN 6"

WATER:
1. DOMESTIC SERVICE: TYPE "K" COPPER ASTM B 42

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GREATER HEIGHTS ACADEMY
FOUR CLASSROOM ADDITION
FLINT, MICHIGAN

GRADING
AND
UTILITY
PLAN

PRELIMINARY ■
DESIGN DEVELOPMENT □
CONSTRUCTION □
FINAL RECORD □

DRAWN BY: KJP
CHECKED BY: JS

REVISIONS:

DATE: MARCH, 2015

SHEET NO.:

C4.0

JOB NO.: 141601

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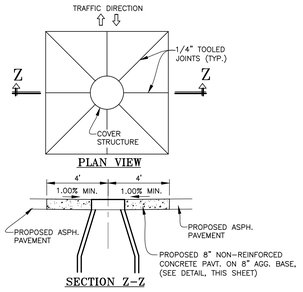
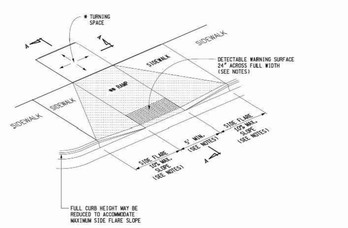
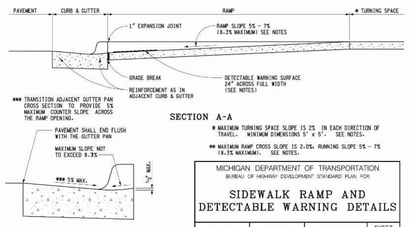


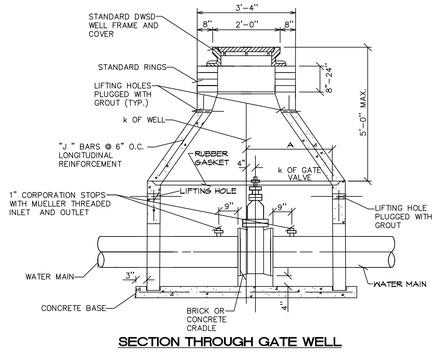
CONCRETE PAVEMENT AT CATCH BASIN DETAIL

NOT TO SCALE



SIDEWALK RAMP TYPE F

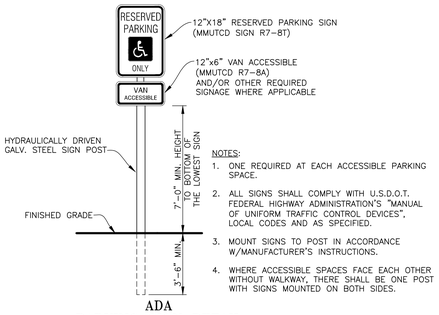




SECTION THROUGH GATE WELL

SCHEDULE OF PRECAST GATE WELL DIMENSIONS*									
SIZE	A	B	C	D	E	F	G	H	J
6" & 8"	2'-6"	5'-0"	6'-0"	1'-4"	8"	12"	8"	6"	1/2 "
12"	3'-0"	6'-0"	7'-2"	2'-0"	1'-0"	1'-0"	8"	7"	5/8 "
16"	3'-0"	6'-0"	7'-2"	2'-0"	1'-0"	1'-0"	8"	7"	5/8 "

* DIMENSIONS MAY VARY BY MANUFACTURER



NOTES:

1. ONE REQUIRED AT EACH ACCESSIBLE PARKING SPACE.
2. ALL SIGNS SHALL COMPLY WITH U.S.D.O.T. FEDERAL HIGHWAY ADMINISTRATION'S "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES", LOCAL CODES AND AS SPECIFIED.
3. MOUNT SIGNS TO POST IN ACCORDANCE W/MANUFACTURER'S INSTRUCTIONS.
4. WHERE ACCESSIBLE SPACES FACE EACH OTHER WITHOUT WALKWAY, THERE SHALL BE ONE POST WITH SIGNS MOUNTED ON BOTH SIDES.

ADA PARKING SIGN DETAIL

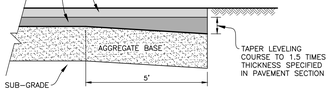
NOT TO SCALE

STANDARD TRENCH DETAIL FOR SEWER UNDER BERMS, LAWNS, GRASSY AREAS, (OUTSIDE PAVEMENT INFLUENCE)

STANDARD TRENCH DETAIL FOR SEWER UNDER ROAD BED, PARKING LOTS, SIDEWALKS, DRIVEWAYS, CURBS, GRAVEL ROADS AND ALLEYS

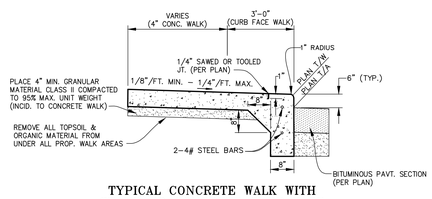
CATCH BASIN

NOT TO SCALE



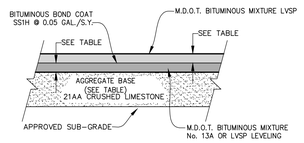
THICKENED EDGE ASPHALT SECTION

NOT TO SCALE



TYPICAL CONCRETE WALK WITH STANDARD CONCRETE CURB FACE

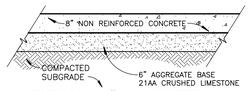
NOT TO SCALE



USE	WEARING COURSE (#/SY)	LEVELING COURSE (#/SY)	STONE BASE
HEAVY DUTY	2" (220#/SY)	2.5" (275#/SY)	10"
LIGHT DUTY	1.5" (165#/SY)	2" (220#/SY)	10"

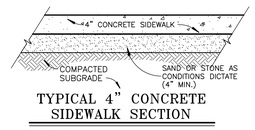
ASPHALT PAVEMENT SECTION

NOT TO SCALE



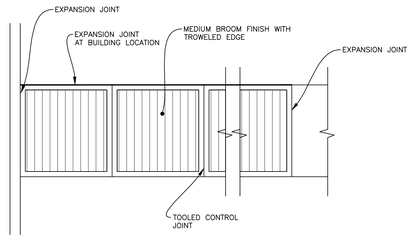
TYPICAL 8" CONCRETE PAVEMENT SECTION

NOT TO SCALE



TYPICAL 4" CONCRETE SIDEWALK SECTION

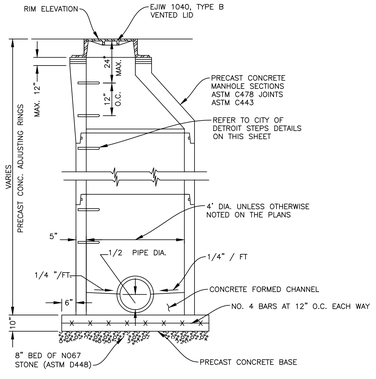
NOT TO SCALE



NOTE: PAVING CONTRACTOR TO JOINT PAVEMENT AS PER INDUSTRY STANDARDS.

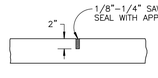
TYPICAL SIDEWALK JOINTING AND FINISH

NOT TO SCALE



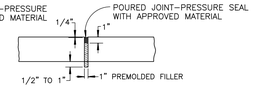
STORM MANHOLE (NO SUMP)

NOT TO SCALE



CONTRACTION (CONTROL) JOINT

NOT TO SCALE



EXPANSION JOINT

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GREATER HEIGHTS ACADEMY

FOUR CLASSROOM ADDITION

FLINT, MICHIGAN

MISCELLANEOUS PROJECT DETAILS

PRELIMINARY ■
DESIGN DEVELOPMENT □
CONSTRUCTION □
FINAL RECORD □

DRAWN BY: KJP
CHECKED BY: JS

REVISIONS:

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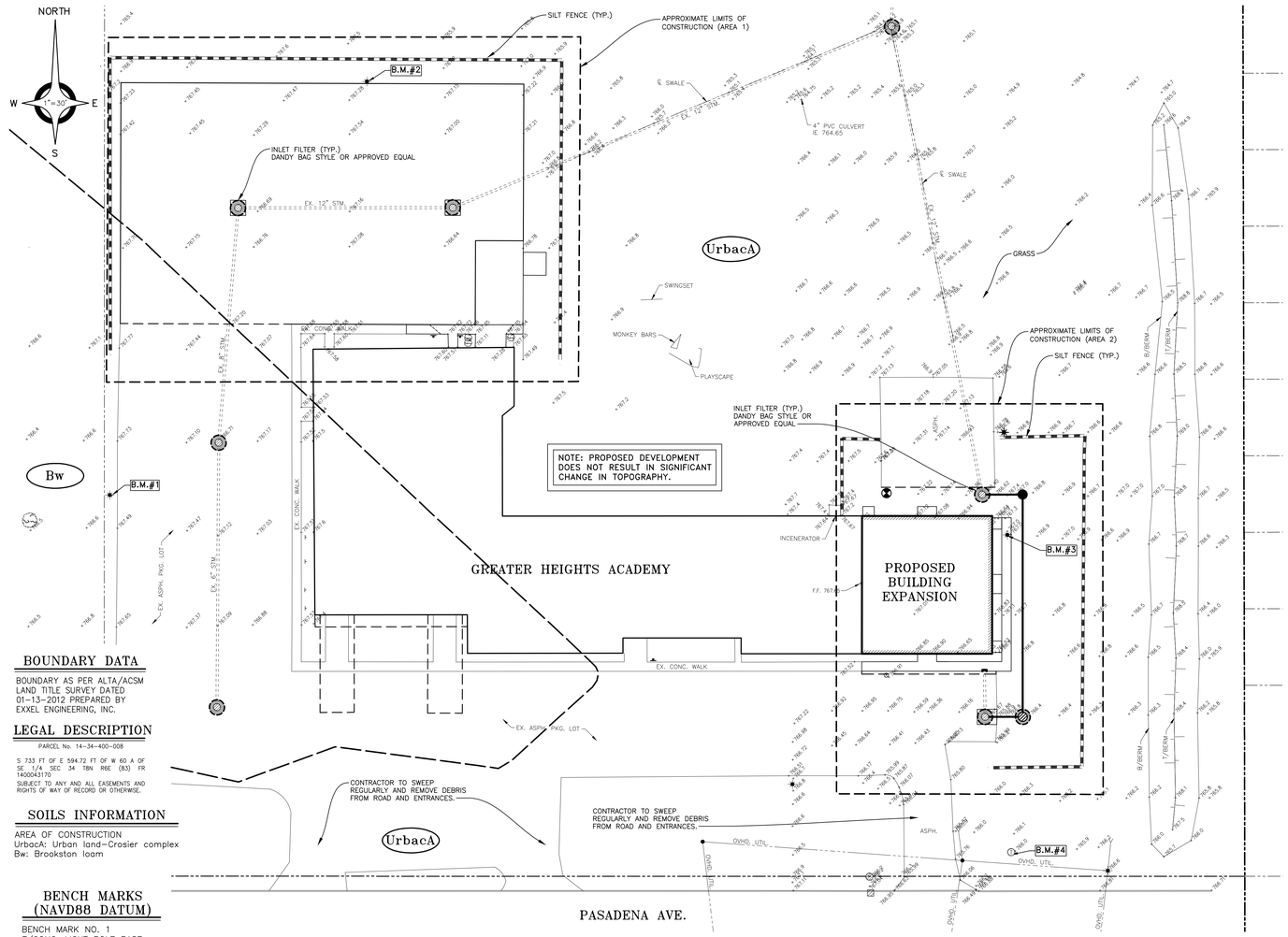

BOUNDARY DATA

BOUNDARY AS PER ALTA/ACSM LAND TITLE SURVEY DATED 01-13-2012 PREPARED BY EXXEL ENGINEERING, INC.

LEGAL DESCRIPTION

PARCEL No. 14-34-400-008

S 733 FT OF E 594.72 FT OF W 60 A OF SE 1/4 SEC 34 T8N R6E (83) FR 1400043170

SUBJECT TO ANY AND ALL EASEMENTS AND RIGHTS OF WAY OF RECORD OR OTHERWISE.

SOILS INFORMATION

AREA OF CONSTRUCTION
UrbacA: Urban land-Crosier complex
Bw: Brookston loam

BENCH MARKS (NAVD88 DATUM)

BENCH MARK NO. 1
T/CONC. LIGHT POLE BASE, (E/FACE) ON W. SIDE BLDG.
ELEVATION: 769.03

BENCH MARK NO. 2
T/CONC. LIGHT POLE BASE, (S/FACE) 70'± N. OF N.W. COR. BLDG,
ELEVATION: 768.84

BENCH MARK NO. 3
T/CONC. LIGHT POLE BASE, (W/FACE) 75'± E. OF E. SIDE OF BLDG.
ELEVATION: 769.28

BENCH MARK NO. 4
"X" ON S. RIM MBT MAN HOLE, 60'± N. OF PASADENA & 60'± E. OF E. DRIVEWAY.
ELEVATION: 765.97

UTILITY INFORMATION, AS SHOWN, INDICATES APPROXIMATE LOCATIONS AND TYPES OF EXISTING FACILITIES ONLY, AS DISCLOSED BY RECORDS PROVIDED TO THIS FIRM FROM THE VARIOUS UTILITY COMPANIES. NO GUARANTEE IS GIVEN OR IMPLIED AS TO THE COMPLETENESS OR ACCURACY THEREOF.

PRIOR TO CONSTRUCTION, ALL LOCATIONS AND DEPTHS OF EXISTING OVERHEAD AND UNDERGROUND UTILITIES IN CONFLICT WITH THE CONSTRUCTION OF THESE PROPOSED IMPROVEMENTS SHALL BE VERIFIED IN THE FIELD. DURING THE CONSTRUCTION, THE CONTRACTOR SHALL PROTECT AND SUPPORT ALL UTILITIES THAT ARE ENCOUNTERED. (ALL COSTS FOR UTILITY LOCATION VERIFICATION, SUPPORT AND PROTECTION SHALL BE INCLUDED IN THE PROPOSED PAY ITEM CONFLICTING WITH THAT UTILITY).

DURING CONSTRUCTION, THE CONTRACTOR SHALL USE EXTREME CAUTION WHEN OPERATING NEAR ANY AND ALL OVERHEAD AND / OR BURIED UTILITIES.

3 WORKING DAYS BEFORE YOU DIG
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EROSION CONTROL NOTES:

1. BECOME COMPLETELY FAMILIAR WITH THE GEOTECHNICAL REPORT PRIOR TO BEGINNING ANY WORK.
2. CONSTRUCT AND MAINTAIN ALL SOIL EROSION CONTROL MEASURES IN ACCORDANCE WITH STATE AND LOCAL REQUIREMENTS.
3. CONSTRUCTION OPERATIONS SHALL BE SCHEDULED AND PERFORMED SO THAT PREVENTATIVE EROSION CONTROL MEASURES ARE IN PLACE PRIOR TO EXCAVATION AND TEMPORARY STABILIZATION MEASURES ARE IN PLACE IMMEDIATELY FOLLOWING BACKFILLING AND/OR GRADING OPERATIONS.
4. ANY EROSION AND SEDIMENT FROM WORK ON THIS SITE SHALL BE CONTAINED ON THE SITE AND NOT ALLOWED TO COLLECT IN ANY OFF-SITE AREAS OR IN WATERWAYS. WATERWAYS INCLUDE NATURAL AND MANMADE OPEN DITCHES, STREAMS, STORM DRAINS, LAKE AND PONDS.
5. KEEP NEIGHBORING STREETS CLEAN AND FREE OF MUD AND DEBRIS.
6. CONSTRUCT AND MAINTAIN INLET FILTER AT ALL CATCH BASINS AND INLET STRUCTURES THAT HAVE THE POTENTIAL TO RECEIVE SEDIMENT LADEN RUNOFF UNTIL PERMANENT MEASURES ARE IN PLACE.
7. CONTROL DUST AT ALL TIMES DURING CONSTRUCTION.
8. SPECIAL PRECAUTIONS SHALL BE TAKEN IN THE USE OF CONSTRUCTION EQUIPMENT TO PREVENT SITUATIONS THAT PROMOTE EROSION.
9. THE PROJECT SHALL CONTINUALLY BE INSPECTED FOR SOIL EROSION AND SEDIMENT CONTROL COMPLIANCE. DEFICIENCIES WILL BE CORRECTED WITHIN 24 HOURS.
10. CLEANUP SHALL BE DONE IN A MANNER TO ENSURE THAT EROSION CONTROL MEASURES ARE NOT DISTURBED.
11. FINAL SITE SOIL EROSION CONTROL STABILIZATION, SUCH AS SEED OR SOD, IS TO BE COMPLETED WITHIN FIVE (5) DAYS OF FINAL GRADING.
12. TEMPORARY EROSION CONTROL MEASURES SHALL BE COMPLETELY REMOVED BY THE CONTRACTOR UPON ESTABLISHMENT OF PERMANENT CONTROL MEASURES.

CONSTRUCTION SEQUENCE:

1. PROVIDE TEMPORARY BEST MANAGEMENT PRACTICES (BMPs) PRIOR TO ANY EARTH MOVING ACTIVITIES.
2. COMPLETE PAVEMENT AND ITEM REMOVAL.
3. ROUGH GRADE SITE AND CONSTRUCT STORM SYSTEM. INSTALL AND MAINTAIN INLET FILTERS ON STORM STRUCTURES.
4. COMPLETE NEW CONSTRUCTION AS INDICATED ON THE PLANS.
5. INSPECT AND PERFORM MAINTENANCE OF BMPs DURING THE ENTIRE CONSTRUCTION EFFORT.
6. COMPLETE PERMANENT SOIL EROSION CONTROL STABILIZATION MEASURES.
7. REMOVE TEMPORARY BMPs AFTER SITE IS STABILIZED AND AS DIRECTED BY THE OWNER AND/OR INSPECTOR.

SWPPP MAINTENANCE SCHEDULE NOTES:

INSPECT THE SOIL EROSION AND SEDIMENT CONTROL DEVICES ONCE EACH WEEK AND WITHIN TWENTY-FOUR (24) HOURS OF A PRECIPITATION EVENT WHICH RESULTS IN A STORM WATER DISCHARGE FROM THE SITE. IMPLEMENT THE FOLLOWING STEPS IF ANY DAMAGE HAS RESULTED FROM CONSTRUCTION OR WEAR.

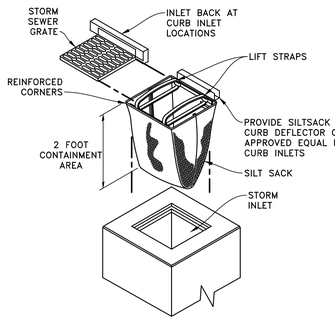
1. INSPECT INLET FILTERS FOR BUILD-UP OF SILT AND OTHER DEBRIS. EXCESSIVE BUILD-UP IS EVIDENT IF GEOTEXTILE IS CAUSING FLOODING. MAINTENANCE CONSISTS OF REMOVING ALL SEDIMENT WITH A STIFF BRISTLE BROOM OR SQUARE POINT SHOVEL. IF INLET FILTER IS BEYOND THIS LEVEL OF REPAIR, IT MAY BE NECESSARY TO REPLACE THE GEOTEXTILE FILTER FABRIC.
2. PREPARE EROSION CONTROL SEEDING ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. THE CONTRACTOR / INSPECTOR SHALL INSPECT THE AREA AFTER SEEDING IS COMPLETED. REPAIR AREAS THAT ARE BARE OR NOT MULCHED PROPERLY BY SPOT SEEDING AND / OR RE-MULCHING.
3. MAINTAIN DUST CONTROL AT ALL TIMES DURING CONSTRUCTION. SPRINKLING TANK TRUCKS SHALL BE AVAILABLE AT ALL TIMES AND USED ON HAUL ROADS, ON-SITE DISTURBED AREAS, OR OTHER PLACES WHERE DUST BECOMES A PROBLEM AS A RESULT OF CONSTRUCTION EFFORTS.
4. PROMPTLY REMOVE ALL MUD, DIRT AND DEBRIS TRACKED ONTO EXISTING ROADS FROM THIS SITE.
5. SILTATION CONTROL FENCE SHOULD BE TRENCHED IN, BACKFILLED, AND STAPLED OR STAKED ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS. MAINTENANCE INCLUDES THE REMOVAL OF BUILT-UP SEDIMENT WHEN THE SEDIMENT ACCUMULATES TO 1/3 OF THE HEIGHT OF THE FENCE. CONTRACTOR MAY HAVE TO REMOVE, REPLACE, RETRENCH, OR RE-BACKFILL THE FENCE IF IT FAILS. IT WOULD ALSO BE NECESSARY TO REINSTALL IF ANY PORTION OF THE FENCING WAS DAMAGED BY CONSTRUCTION MACHINERY.

OWNER/APPLICANT

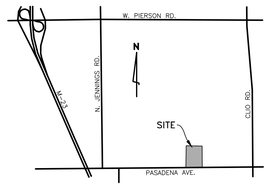
GREATER HEIGHTS ACADEMY
CENTER MICHIGAN UNIVERSITY CHARTER

LISA LEIMEISTER – GREATER HEIGHTS ACADEMY DIRECTOR
EMAIL: LEIMEISTERL@GREATERHEIGHTSACADEMY.ORG

NICK ZILS – HEAD OF MAINTENANCE
ZILSN@GREATERHEIGHTSACADEMY.ORG



TEMPORARY INLET SEDIMENT FILTER TO BE USED FOR STORM INLETS AND CATCH BASINS



LOCATION MAP
NOT TO SCALE

LIMITS OF DISTURBANCE:

THE PROJECT WILL DISTURB APPROXIMATELY 1.67 ACRES.

FLOODPLAIN DATA:

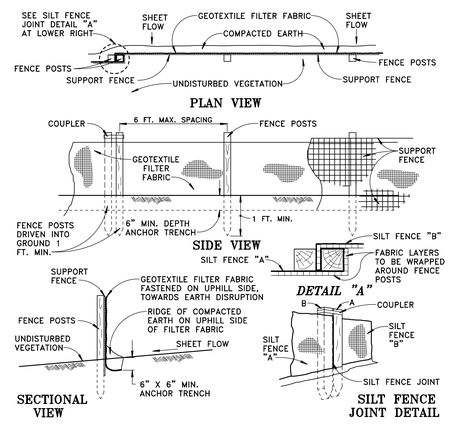
ZONE X: AREAS DETERMINED TO BE OUTSIDE OF THE 0.2% ANNUAL CHANCE FLOODPLAIN AS PER FEMA MAP NO. 26049C0186D EFFECTIVE SEPTEMBER 25, 2009.

NEAREST WATERWAY

NEAREST WATERWAY IS FLINT RIVER APPROXIMATELY 1.3 MILES SOUTHWEST OF THE SITE.

INLET FILTER

NOT TO SCALE



SILT FENCE

NOT TO SCALE

SOIL EROSION / SEDIMENTATION CONTROL MAINTENANCE SCHEDULE

CONSTRUCTION SEQUENCE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
INSTALL TEMPORARY BMPs						X						
SITE DEMO/SITE CONSTRUCTION						X	X	X	X			
INLET FILTERS ON STRUCTURES						X	X	X	X	X		
FINAL GRADING										X		
SEEDING AND LANDSCAPING										X		
REMOVE TEMPORARY MEASURES										X		

ANTICIPATED SITE CONSTRUCTION START: JUNE 2015
ANTICIPATED SITE CONSTRUCTION END DATE: OCT. 2015

NOTE:
NO DEWATERING OR ON SITE STOCKPILING OF MATERIAL IS ANTICIPATED ON THIS PROJECT

NOTE:
RESTORE ALL DISTURBED AREAS WITH 3" MIN. TOPSOIL, SEED, FERTILIZER & MULCH.

LEGEND

- EXIST. STORM CATCH BASIN (FIELD)
- EXIST. STORM CATCH BASIN (PAV'T.)
- STORM MAN HOLE
- STORM CATCH BASIN (FIELD)
- STORM CATCH BASIN (PAV'T.)
- SILT FENCE AT CATCH BASIN
- PARKING LOT INLET FILTER
- SILT FENCE
- LIMITS OF DISTURBANCE

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AEW NO. 0577-0074

GREATER HEIGHTS ACADEMY
FOUR CLASSROOM ADDITION
FLINT, MICHIGAN

SOIL EROSION CONTROL PLAN

PRELIMINARY ■
DESIGN DEVELOPMENT □
CONSTRUCTION □
FINAL RECORD □

DRAWN BY: KJP
CHECKED BY: JS

REVISIONS:

DATE: MARCH, 2015

SHEET NO.:

C6.0

JOB NO.: 141601

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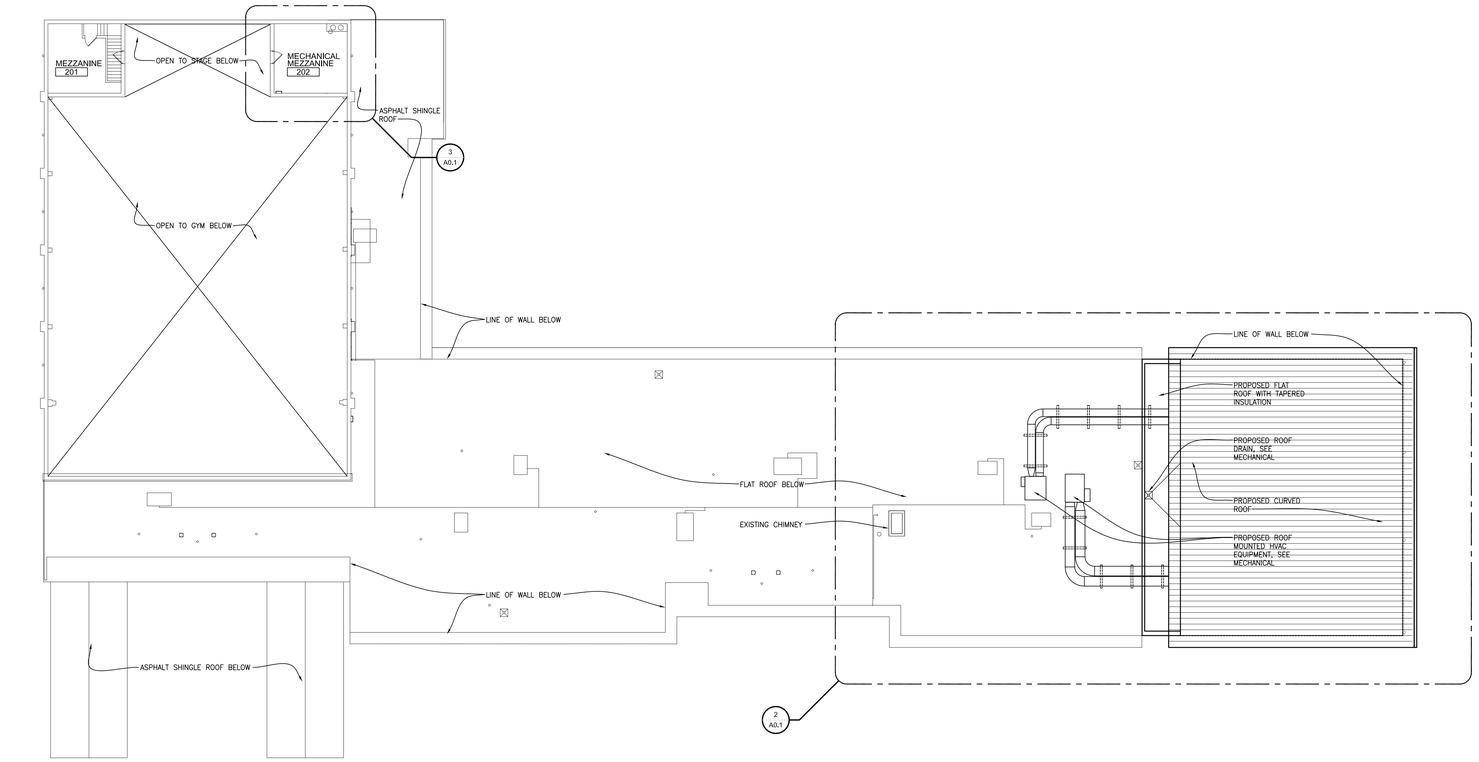

2 A1.1 SECOND FLOOR LIFE SAFETY PLAN

SCALE: 1/16" = 1'-0"

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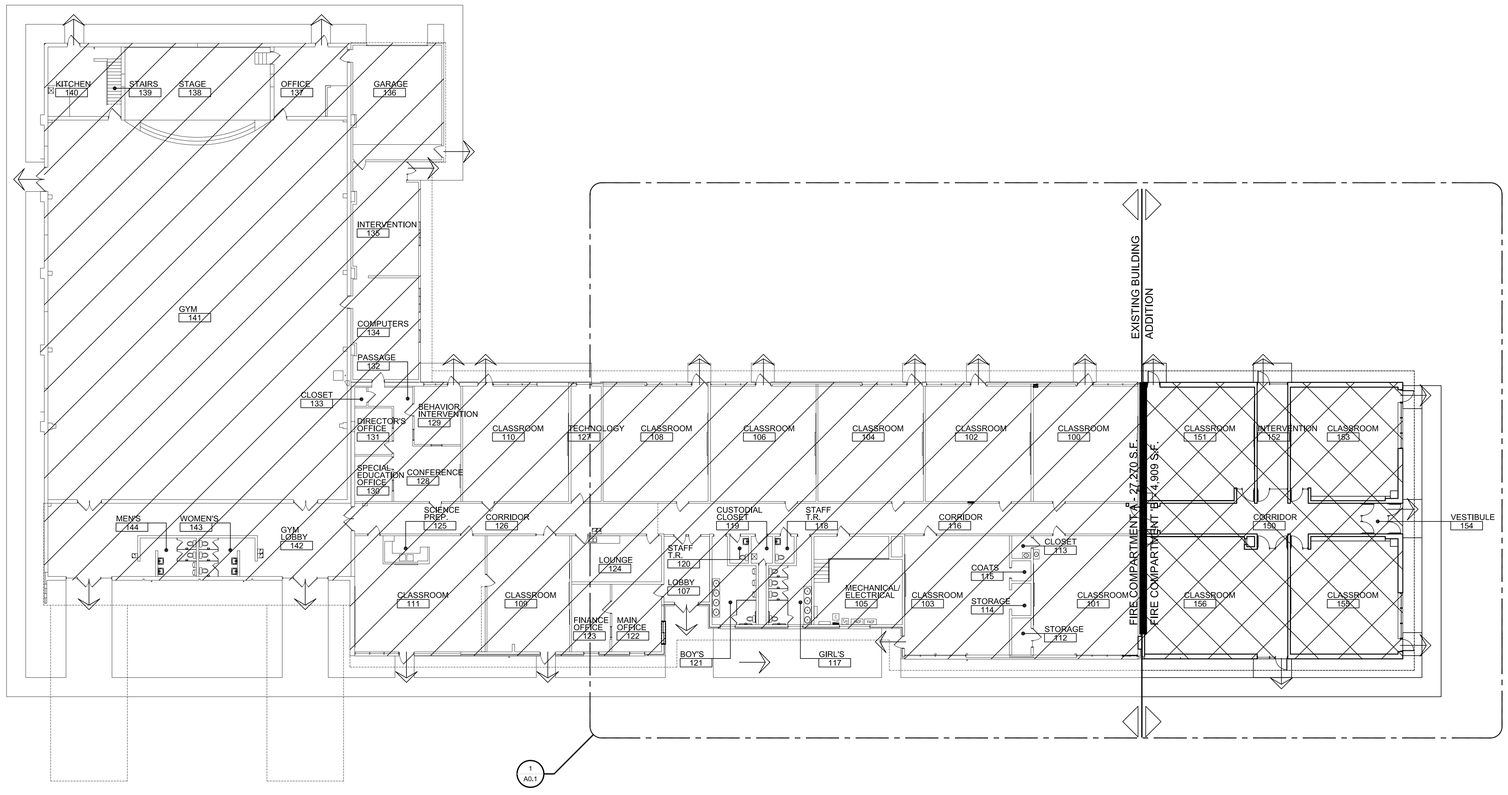

1 A1.1 FIRST FLOOR LIFE SAFETY PLAN

SCALE: 1/16" = 1'-0"

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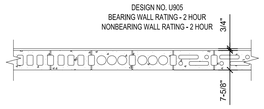

1. CONCRETE BLOCKS* -
   VARIOUS DESIGNS. CLASSIFICATION D-2 (2 HR) SEE CONCRETE BLOCK CATEGORY FOR LIST OF ELIGIBLE MANUFACTURERS.
2. MORTAR -
   BLOCKS LAID IN FULL BED OF MORTAR, NOMINAL 3/8" THICK, OF NOT PART PORTLAND CEMENT (PROPORTIONED BY VOLUME) AND NOT MORE THAN 50 PERCENT HYDRATED LIME (BY CEMENT VOLUME). VERTICAL JOINTS STAGGERED.
3. PORTLAND CEMENT STUCCO OR GYPSUM PLASTER -
   ADD 1/2 HOUR TO CLASSIFICATION IF USED. WHERE COMBUSTIBLE MEMBERS ARE FRAMED IN WALL, PLASTER OR STUCCO MUST BE APPLIED ON THE FACE OPPOSITE FRAMING TO ACHIEVE MAXIMUM CLASSIFICATION OF 1-1/2 HOUR ATTACHED TO CONCRETE BLOCKS (ITEM 1).
4. LOOSE MASONRY FILL -
   IF ALL CORE SPACES ARE FILLED WITH LOOSE DRY EXPANDED SLAG, EXPANDED CLAY OR SHALE (ROTARY KILN PROCESS), WATER REPELLANT VERMICULITE MASONRY FILL INSULATION, OR SILICONE TREATED PERLITE LOOSE FILL INSULATION ADD 2 HOUR TO CLASSIFICATION.

* BEARING THE UL CLASSIFICATION MARKING

3 LS1.1 U905 DETAIL

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

BUILDING CODE SUMMARY

PROJECT: GREATER HEIGHTS ACADEMY FOUR CLASSROOM ADDITION

ADDRESS 3196 W. PASADENA AVE., FLINT, MI. 48504

PROPOSED USE: CLASSROOMS / INSTRUCTION

REFERENCE CODES:

BUILDING: 2012 MICHIGAN BUILDING CODE, NFPA 101 1997 LIFE SAFETY CODE
MECHANICAL: 2012 MICHIGAN MECHANICAL CODE
PLUMBING: 2012 MICHIGAN PLUMBING CODE
ELECTRICAL: MICHIGAN ELECTRICAL CODE (2011 NEC WITH PART 8 TECHNICAL AMENDMENTS

BUILDING DATA

USE GROUP:

( ) ASSEMBLY:_____
( ) BUSINESS
(X) EDUCATIONAL (E)
( ) FACTORY-INDUSTRIAL-LOW HAZARD
( ) FACTORY-INDUSTRIAL-MODERATE HAZARD
( ) HIGH HAZARD:_____
( ) INSTITUTIONAL: 1-3 CONDITIONS IV
( ) MERCANTILE
( ) RESIDENTIAL:_____
( ) STORAGE-LOW HAZARD
( ) STORAGE-MODERATE HAZARD
( ) UTILITY, MISCELLANEOUS

CONSTRUCTION TYPE:

( ) TYPE 1A - PROTECTED
( ) TYPE 1B - PROTECTED
( ) TYPE 2A - PROTECTED
( ) TYPE 2B - PROTECTED
(X) TYPE 2B - UNPROTECTED
( ) TYPE 3 - PROTECTED
( ) TYPE 3 - UNPROTECTED
( ) TYPE 4 - HEAVY TIMBER
( ) TYPE 5 - PROTECTED
( ) TYPE 5 - UNPROTECTED

( ) MIXED CONSTRUCTION TYPE:_____

SPRINKLED? ( ) REQUIRED ( ) PROVIDED

BUILDING HEIGHT PERMITTED: 2 STORIES, 55'-0"
ACTUAL BUILDING HEIGHT: 1 STORY, 27'-4"

MEZZANINE: ( ) YES (X) NO

HIGH RISE: ( ) YES (X) NO

GROSS BUILDING AREA:

GRADE LEVEL: 27,270 S.F. (FIRE COMPARTMENT 'A')

BASEMENT LEVEL: N.A.

SECOND LEVEL: 604 S.F.

GRADE LEVEL TOTAL AREA: 27,270 S.F.

GROSS BUILDING AREA:

NEW ADDITION: 4,836 S.F. (FIRE COMPARTMENT 'B')

NEW GRADE LEVEL TOTAL AREA: 32,108 S.F.

AREA MODIFICATION APPLIED?
( ) YES (X) NO

PERIMETER MODIFICATIONS APPLIED?
( ) YES (X) NO

NEW ADDITION CODE ANALYSIS:

USE THE MORE STRINGENT ALLOWABLE AREA BETWEEN NFPA 101 1997 EDITION AND 2012 MBC:

2012 MBC:
AA = ALLOWABLE AREA
AA = AT + [AT IF/100] + [AT IS/100]

AT = 14,500 S.F.
IF = 100[F/P-0.25] W/30 = .75 (OPEN PERIMETER ALLOWANCE)
IS = 0% (TWO STORY BUILDING WITH FIRE SPRINKLER)

AA = 14,500 + [0] + [0]
AA = 14,500

NFPA 101 1997 EDITION:
ALLOWABLE AREA UNDER TYPE II-000 (COMPARABLE TO TYPE 2B OF MBC)
14,400 S.F.

CONCLUSION:
MORE RESTRICTIVE OF THE TWO IS NFPA 101, 1997 EDITION, 14,400 S.F. GOVERNS

14,400 S.F. ALLOWABLE AREA < 32,106 S.F. (27,270 S.F. OF EXISTING FIRST FLOOR + 4,836 S.F. ADDITION)
THEREFORE PROVIDE FIRE WALL CONSTRUCTION TO SEPARATE ADDITION FROM EXISTING BUILDING TO REDUCE BUILDING AREA AS NOTED ON PLAN.

FIRE COMPARTMENT 'A' = 27,270 S.F.
FIRE COMPARTMENT 'B' = 4,836 S.F.

LIFE SAFETY SYSTEMS

EMERGENCY LIGHTING AND EXIT SIGNS	(X) REQUIRED	(X) PROVIDED
FIRE ALARMS	(X) REQUIRED	(X) PROVIDED
SMOKE DETECTION SYSTEMS	(X) REQUIRED	(X) PROVIDED
PANIC HARDWARE	(X) REQUIRED	(X) PROVIDED
FIRE SUPPRESSION SYSTEM	( ) REQUIRED	( ) PROVIDED
STANDPIPE SYSTEM	( ) REQUIRED	( ) PROVIDED

EXIT REQUIREMENTS

DEAD END LIMIT-MAXIMUM CONDITION (1018.4):
ALLOWED: 20 FT.
ACTUAL: 14 FEET, 6 INCHES

TRAVEL DISTANCE TO EXIT-MAXIMUM CONDITION (TABLE 1016.2):
ALLOWED: 200 FT.
ACTUAL: TRAVEL DISTANCE = 57 FEET, 0 INCHES

COMMON PATH OF TRAVEL 1014.3 (WITH EXCEPTION NO. 2):
ALLOWED: 75 FT.
ACTUAL: TRAVEL DISTACNE = 44 FEET, 0 INCHES

NUMBER OF EXITS:
REQUIRED (TABLE 1021.2)-OCCUPANT LOAD 0-500: TWO (2)
PROVIDED: DIRECT EXIT TO EXTERIOR FROM ALL STUDENT OCCUPIED ROOMS.

DESIGN LOADS: (SEE STRUCTURAL DRAWINGS)

SOIL BEARING CAPACITIES:
ASSUMED NET SOIL BEARING CAPACITY: 1,500 S.F.

LEGEND

EGRESS TO EXTERIOR

EXISTING BUILDING

NEW ADDITION

NEW 2 HOUR FIRE WALL CONSTRUCTION (U905) WITH 90 MINUTE OPENING PROTECTIVES IN COMPLIANCE WITH MBC SECTIONS 706.5.1 (1) FOR HORIZONTAL CONTINUITY AND SECTION 706.6.1 FOR VERTICAL CONTINUITY OF STEPPED BUILDINGS.

WAKELY ASSOCIATES, INC.
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GREATER HEIGHTS ACADEMY
FOUR CLASSROOM ADDITION
FLINT, MICHIGAN

FIRST FLOOR LIFE SAFETY PLAN, SECOND FLOOR LIFE SAFETY PLAN AND BUILDING CODE SUMMARY

PRELIMINARY
DESIGN DEVELOPMENT
CONSTRUCTION
FINAL RECORD

DRAWN BY JSM
CHECKED BY BJS

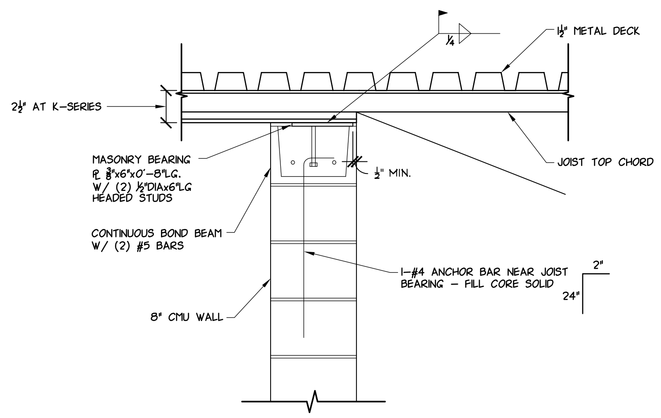
REVISIONS

DATE: MARCH 31, 2015

SHEET NO.
LS1.1

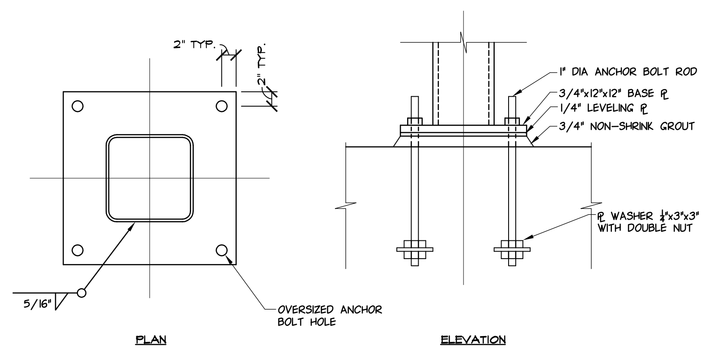
JOB NO. 141601

JOIST SCHEDULE		
MARK	SIZE	NOTES
JI	18K5	BASE BID AND ALTERNATE - CURVED TOP & BOTTOM CHORDS
JIA	18K5	BASE BID - CURVED TOP & BOTTOM CHORDS ALTERNATE - CURVED TOP, STRAIGHT BOTTOM



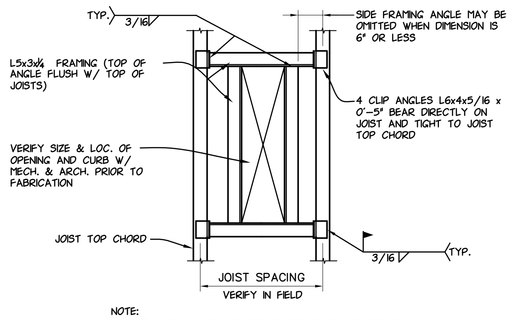
TYPICAL JOIST BEARING PLATE DETAIL

SCALE: 1" = 1'-0"



TYPICAL COLUMN BASE PLATE DETAIL

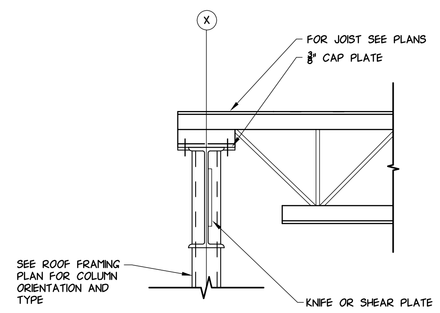
SCALE: NOT TO SCALE



NOTE:
LOCATE CLIP ANGLES AT TOP CHORD PANEL POINTS OR PROVIDE 2 ANGLES FROM BRG. POINT OF FRAME TO BOT. CHORD PANEL POINT OF JOIST - SEE JOIST REINFORCEMENT DETAIL.

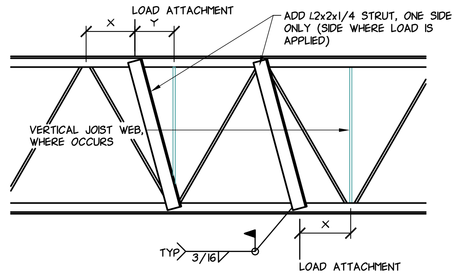
TYPICAL CURB FRAMING DETAIL

SCALE: N.T.S.



TYPICAL JOIST / BEAM TO COL. CONN. DETAIL

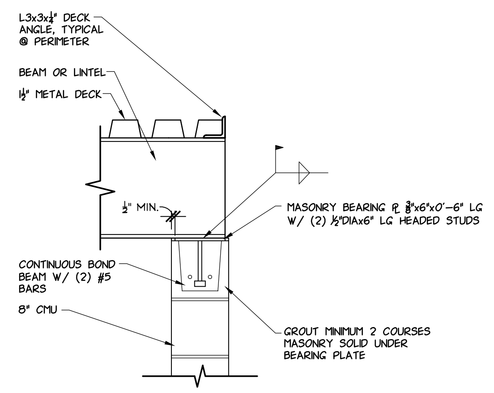
SCALE: 1" = 1'-0"



NOTES:
1. AN ADDITIONAL SUPPLEMENTAL STRUT MUST BE INSTALLED IN STEEL JOISTS AT ALL CONCENTRATED LOADS IN EXCESS OF 50 LBS., UNLESS THE LOAD ATTACHMENT IS AT A PANEL POINT OF THE JOIST..
2. AN ADDITIONAL STRUT IS NOT REQUIRED IF "X" OR "Y" IS LESS THAN OR EQUAL TO 6".
3. CONCENTRATED LOADS GREATER THAN 250 LBS. WHICH ARE NOT SPECIFIED ON THE PLANS, ARE NOT PERMITTED WITHOUT REVIEW BY THE PROFESSIONAL-OF-RECORD.

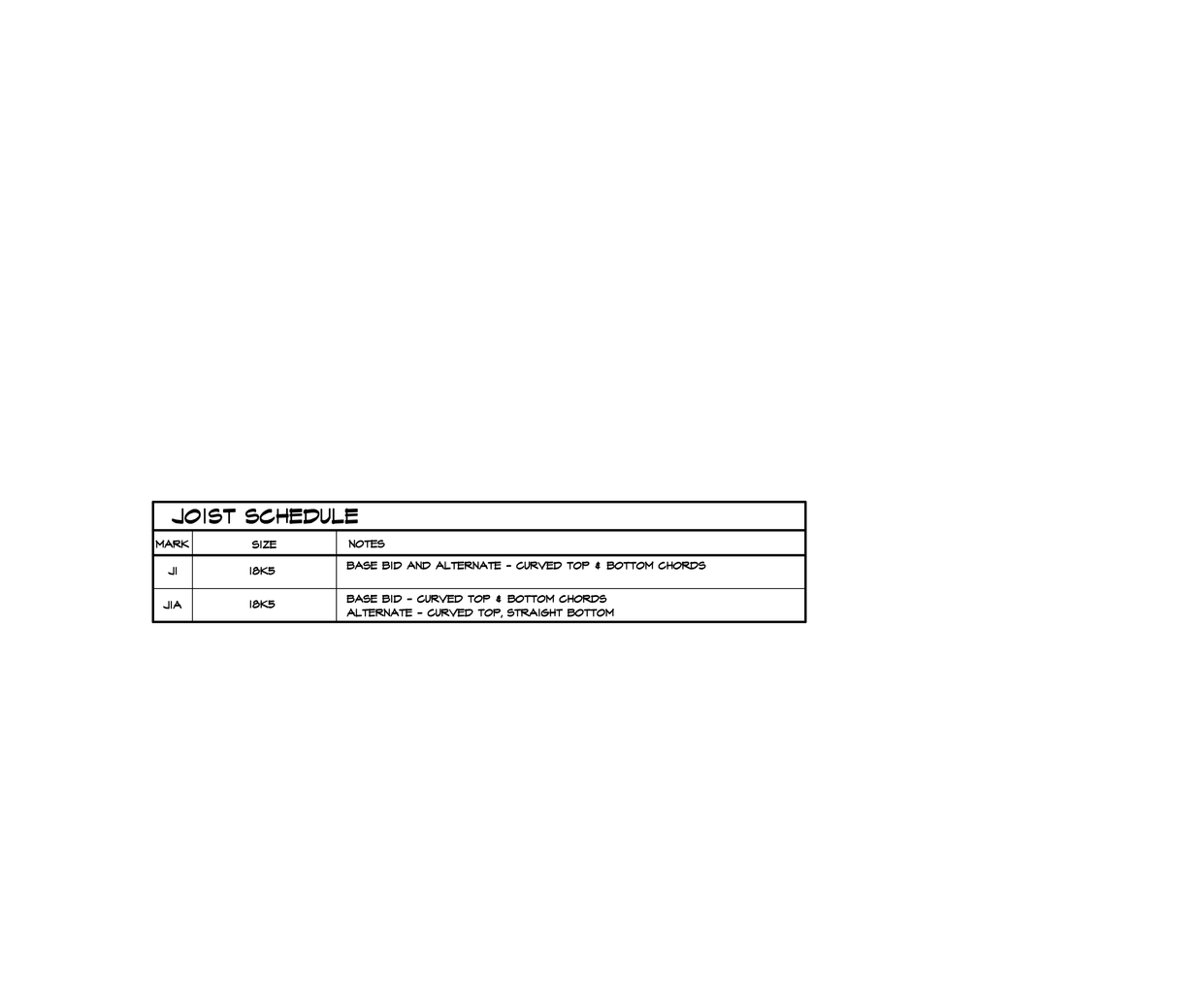
TYPICAL JOIST REINFORCEMENT DETAIL

SCALE: N.T.S.



TYPICAL BEAM / LINTEL BEARING PLATE DETAIL

SCALE: 1" = 1'-0"



PARTIAL ROOF FRAMING PLAN

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

NOTES:
1. ALL MEMBERS ARE EQUALLY SPACED, UNLESS NOTED OTHERWISE
2. ALL ROOF DECK IS 1½" WIDE RIB, 20 GAGE GALVANIZED AND CONTINUOUS OVER A MINIMUM OF THREE SPANS
3. ALL 8" CMU TO BE REINFORCED W/ #5 @ 32" O.C. VERT. REINFORCEMENT - SEE MASONRY NOTES ON SH S2.0 FOR ADD'L REQUIREMENTS.
4. SEE TYPICAL BEAM AND JOIST BEARING PLATE DETAILS THIS SHEET FOR BEARING PLATE SIZES.
5. SEE ARCH FOR T.O.S. ELEVATIONS, JOIST CHORD RADIUS AND CMU BOND BEAM LOCATIONS.

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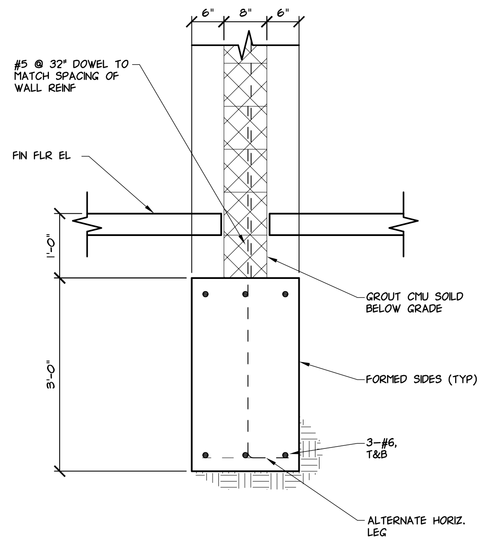
FOUR CLASSROOM ADDITION
FLINT, MICHIGAN

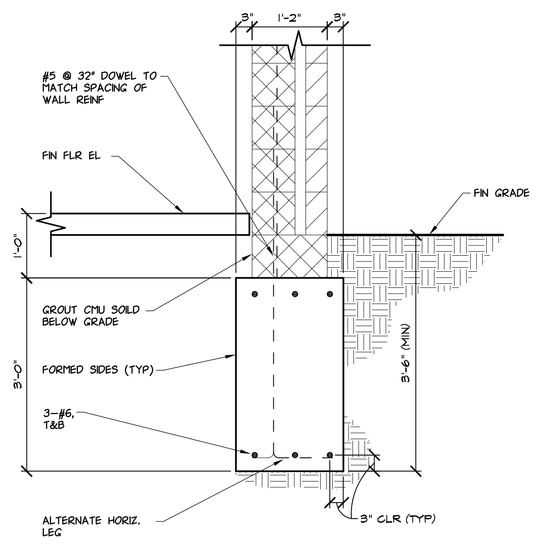
PARTIAL ROOF FRAMING
PLAN AND DETAILS

PRELIMINARY	■
DESIGN DEVELOPMENT	□
CONSTRUCTION	□
FINAL RECORD	□
DRAWN BY:	BLD
CHECKED BY:	KEZ
REVISIONS:	
DATE:	MARCH, 2015
SHEET NO.:	S1.1
JOB NO.:	141601

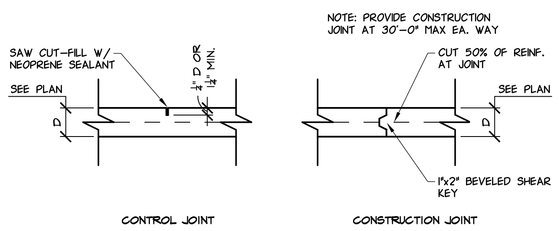
FOOTING SCHEDULE				
MARK	SIZE LxWxD	REINFORCING	ELEV. BOT. OF FTG.	REMARKS
F1	4'6"x4'-6"x3'-0"	5-#5 EW, T&B	96'-0"	



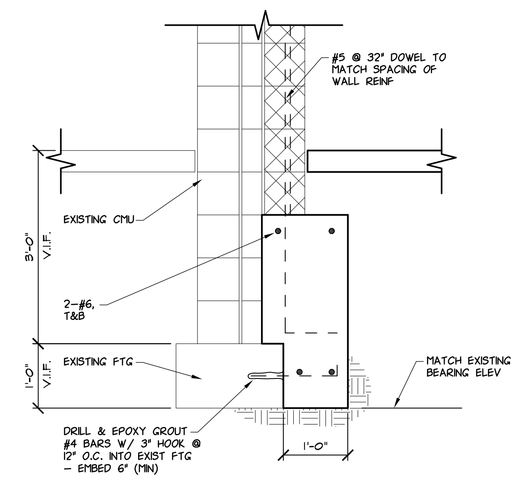
TYPICAL INTERIOR WALL FOOTING DETAIL
SCALE: 3/4" = 1'-0"



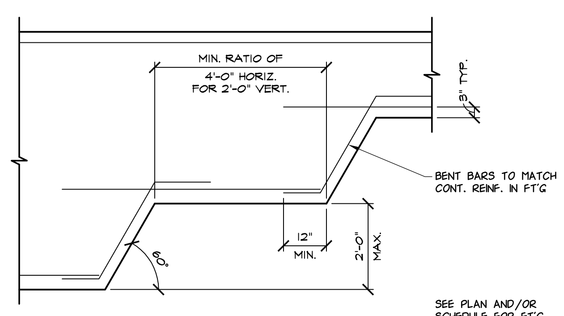
TYPICAL EXTERIOR WALL FOOTING DETAIL
SCALE: 3/4" = 1'-0"



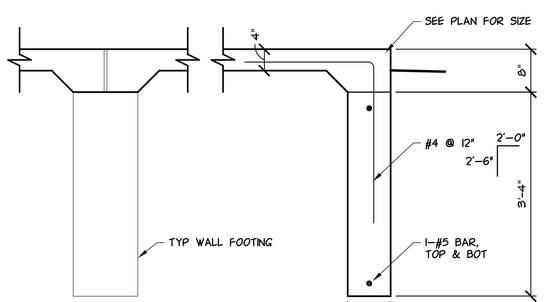
TYP. FLOOR SLAB JOINT DETAILS
SCALE: N.T.S.



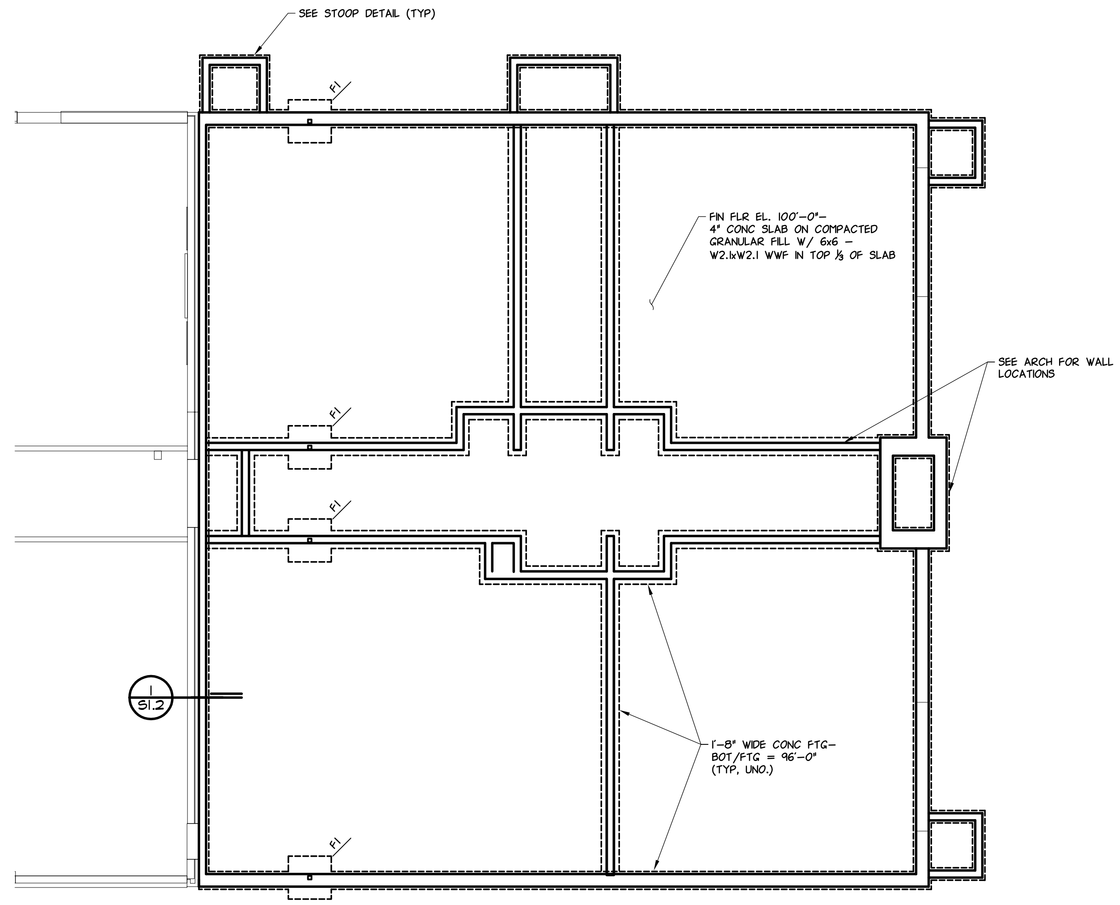
1 / S1.2 DETAIL
SCALE: 3/4" = 1'-0"



TYPICAL STEP FOOTING
SCALE: N.T.S.



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



PARTIAL FOUNDATION PLAN
SCALE: 1/8" = 1'-0"

N

NOTE:
1. COORDINATE ALL DIMENSIONS AND WALL LOCATIONS W/ ARCH PLANS, TYP.
2. BOTTOM OF COLUMN AND FOOTING ELEVATIONS MAY BE ADJUSTED TO BEAR ON COMPETENT NATIVE SOIL, AS VERIFIED BY TESTING AGENCY.

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GREATER HEIGHTS ACADEMY
FOUR CLASSROOM ADDITION
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PARTIAL FOUNDATION PLAN AND DETAILS

PRELIMINARY	■
DESIGN DEVELOPMENT	□
CONSTRUCTION	□
FINAL RECORD	□
DRAWN BY:	BLD
CHECKED BY:	KEZ
REVISIONS:	
DATE:	MARCH, 2015
SHEET NO.:	S1.2
JOB NO.:	141601

GENERAL NOTES FOR SITE CONDITIONS

1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING AND PROTECTING EXISTING UNDERGROUND UTILITIES IN THE AREA OF CONSTRUCTION.
2. THE CONTRACTOR SHALL COORDINATE HIS WORK ACTIVITIES WITH THE OWNER TO MINIMIZE DISRUPTION TO THE OWNER'S OPERATION OF THE FACILITY.
3. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS, BEFORE COMMENCING WITH SHOP DRAWING PREPARATION. REPORT EXISTING CONDITIONS WHICH DO NOT CONFORM WITH THE DETAILS PROVIDED BY THE ARCHITECT.

GENERAL NOTES FOR MASONRY

1. MASONRY CONSTRUCTION SHALL COMPLY WITH ACI 530-13 - BUILDING CODE REQUIREMENTS FOR MASONRY STRUCTURES, ACI 530.1-13 - SPECIFICATION FOR MASONRY STRUCTURES, AND NCMA SPECIFICATIONS.
2. LOAD BEARING CONCRETE MASONRY SHALL CONFORM TO ASTM C90, MEDIUM WEIGHT WITH NET AREA COMPRESSIVE STRENGTH OF CONCRETE MASONRY UNITS = 1900 PSI (MIN).
3. MORTAR SHALL BE TYPE N OR S AND CONFORM TO ASTM C270 AND NCMA TEK NOTES 9-1 OR 9-2. NET AREA COMPRESSIVE STRENGTH OF MASONRY (f'm) = 1500 PSI (MIN).
4. MASONRY GROUT SHALL CONFORM TO ASTM C 476 WITH PEA GRAVEL AGGREGATE AND A MINIMUM STRENGTH OF 2000 PSI.
5. UNLESS OTHERWISE NOTED, PROVIDE HORIZONTAL WIRE TYPE REINFORCING WITH 9 GAUGE SIDE AND CROSS MEMBERS IN EVERY SECOND COURSE (16" O.C.), IN ALL MASONRY WALLS.
6. REINFORCING BARS, DOWELS AND TIES SHALL CONFORM TO ASTM A615, GRADE 60.
7. INSTALL 8" DEEP CONCRETE MASONRY LINTELS OVER SINGLE WINDOW AND DOOR OPENINGS INDICATED ON DRAWINGS. GROUT MASONRY LINTELS SOLID AND REINFORCE W/ 2-#5 BARS (BOTTOM). MAINTAIN MINIMUM 8 INCH BEARING ON EACH SIDE OF OPENING. SOLID GROUT WALL FOR BEARING LENGTH AND REINFORCE W/ 2-#5 VERTICAL BARS FULL HEIGHT.
8. INSTALL 16" DEEP CONCRETE MASONRY LINTELS OVER DOUBLE PEDESTRIAN DOOR OPENINGS INDICATED ON DRAWINGS. GROUT MASONRY LINTELS SOLID AND REINFORCE W/ 2-#5 BARS (TOP & BOTTOM). MAINTAIN MINIMUM 16 INCH BEARING ON EACH SIDE OF OPENING. SOLID GROUT WALL FOR BEARING LENGTH AND REINFORCE W/ 4-#5 VERTICAL BARS FULL HEIGHT.
9. ALL MASONRY BELOW GRADE SHALL BE GROUTED SOLID.
10. UNLESS OTHERWISE NOTED, REINFORCE BOND BEAMS WITH 2-#5 BARS. REFER TO ARCHITECTURAL DRAWING FOR WALL SECTIONS.

GENERAL NOTES FOR REINFORCED CONCRETE AND FOUNDATIONS

1. CONCRETE CONSTRUCTION SHALL COMPLY WITH ACI 301-10 - SPECIFICATIONS FOR STRUCTURAL CONCRETE, ACI 318-11 - BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE AND COMMENTARY, AND ACI 302.1R-04 - GUIDE FOR CONCRETE FLOOR AND SLAB CONSTRUCTION.
2. REINFORCING STEEL SHALL BE DETAILED, FABRICATED AND PLACED IN COMPLIANCE WITH ACI 315-99 - DETAILS AND DETAILING OF CONCRETE REINFORCEMENT, AND THE CRSI - MANUAL OF STANDARD PRACTICE (28TH EDITION). SUBMIT REINFORCING STEEL SHOP DRAWINGS FOR THE ENGINEER'S REVIEW. SUBMITTAL SHALL INCLUDE TWO (2) BLACKLINES (MINIMUM).
3. CONCRETE USED IN SLAB ON GROUND SHALL BE NORMAL WEIGHT CONCRETE AND DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI AT 28 DAYS. CEMENT SHALL COMPLY WITH ASTM C150, TYPE I. MINIMUM CEMENT CONTENT SHALL BE 611 POUNDS PER CUBIC YARD.
4. CONCRETE USED IN BUILDING FOUNDATIONS, AND ALL OTHER CONCRETE UNLESS NOTED OTHERWISE, SHALL BE NORMAL WEIGHT CONCRETE AND DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 3000 PSI AT 28 DAYS. CEMENT SHALL COMPLY WITH ASTM C150, TYPE I. MINIMUM CEMENT CONTENT SHALL BE 526 POUNDS PER CUBIC YARD.
5. SUBMIT CONCRETE MIX DESIGNS FOR EACH CONCRETE MIX FOR THE ENGINEER'S REVIEW. SUBMITTAL SHALL INCLUDE, AT A MINIMUM, MIX PROPORTIONS, CEMENT TYPE AND SOURCE, AGGREGATE GRADATIONS AND SOURCE, ADMIXTURE CATALOG INFORMATION, CYLINDER STRENGTH TEST RESULTS ON SPECIMENS FOR IDENTICAL MIX DESIGN, OR OTHER PROOF OF STRENGTH PER ACI 301.
6. CONCRETE AGGREGATES SHALL COMPLY WITH ASTM C33 AND SHALL BE FREE OF CLAY, LOAM, LUMPS OR OTHER DELETERIOUS SUBSTANCES.
7. REINFORCING SHALL BE DEFORMED BARS CONFORMING TO ASTM A615 OR ASTM A616 (GRADE 60) AND SHALL HAVE A MINIMUM YIELD STRENGTH OF 60 KSI.
8. WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185, BE FURNISHED IN FLAT SHEETS, AND HAVE MINIMUM SIDE AND END LAP OF 8 INCHES.
9. EXTERIOR CONCRETE, AND INTERIOR CONCRETE SUBJECTED TO FREEZE/THAW CYCLES, SHALL BE AIR ENTRAINED WITH 6% AVERAGE AIR CONTENT WITH A 1% TOLERANCE. AIR ENTRAINMENT SHALL COMPLY WITH ASTM C260.
10. REINFORCING SHALL HAVE EITHER TENSION EMBEDMENT OR TENSION CLASS "B" LAP SPLICE UNLESS OTHERWISE NOTED.
11. PROVIDE HORIZONTAL BENT BARS AT CORNERS AND INTERSECTIONS OF CONCRETE WALLS, TRENCH FOOTINGS AND STRIP FOOTINGS USING THE SAME SIZE AND SPACING AS FOR THE HORIZONTAL REINFORCING DETAILED UNLESS OTHERWISE NOTED.
12. PROVIDE SMOOTH FORMED FINISH ON EXPOSED CONCRETE WALLS AND FOUNDATIONS.
13. PROVIDE 3/4" X 3/4" BEVELED EDGES AT CORNERS OF EXPOSED CONCRETE MEMBERS, UNLESS NOTED OTHERWISE.
14. CONSTRUCTION JOINTS SHALL HAVE A FORMED KEY CENTERED ON MEMBER. WHERE THE SIZE OF KEY IS NOT SHOWN ON THE DRAWINGS, THE KEY SHALL BE ONE FOURTH OF THE CROSS SECTION MEMBER AND MINIMUM 1 ½ INCHES INTO THE FIRST POUR OF CONCRETE.
15. DO NOT PROCEED WITH DETAILING, FABRICATION, OR CONSTRUCTION OF ANY WORK CONNECTED WITH OR DEPENDENT ON EQUIPMENT FURNISHED BY OWNER OR OTHER CONTRACTORS UNTIL DIMENSIONS AND DETAILS ARE VERIFIED WITH CERTIFIED OR APPROVED EQUIPMENT DRAWINGS.
16. BEFORE PLACING CONCRETE, REFER TO OTHER TRADE DRAWINGS AND COORDINATE THE LOCATION AND SIZE OF ITEMS SUCH AS OPENINGS, SLEEVES, EQUIPMENT PADS, PIPING, CONDUIT, DRAINS, DEPRESSED FLOORS, DOOR HOLDDOWNS IN GRADE WALLS, EMBEDDED ITEMS, ETC.
17. DRILL-IN ANCHOR BOLTS SHALL BE HVA ADHESIVE ANCHORING SYSTEM AS MANUFACTURED BY HILTI. ANCHOR BOLTS SHALL BE 304 STAINLESS STEEL.
18. NON-SHRINK GROUT SHALL BE SURE GRIP HIGH PERFORMANCE GROUT, OR APPROVED EQUAL, AS MANUFACTURED BY DAYTON SUPERIOR CORPORATION.
19. CONCRETE CONSTRUCTION SHALL INCLUDE PROVISIONS FOR COLD WEATHER CONCRETING, IN COMPLIANCE WITH ACI 306R-10 - GUIDE TO COLD WEATHER CONCRETING.
20. CONCRETE FORMS SHALL REMAIN IN PLACE A MIN. OF 48 HOURS OR UNTIL THE CONCRETE HAS ATTAINED 75 PERCENT OF ITS DESIGN STRENGTH.
21. CONCRETE SHALL ATTAIN ITS 28 DAY DESIGN STRENGTH BEFORE COMMENCING WITH BACK FILLING OPERATIONS.
22. CONTROL OR CONSTRUCTION JOINTS, REQUIRED BY THE CONTRACTOR, IN ADDITION TO THE JOINTS SHOWN ON THE DRAWINGS, SHALL BE SUBJECT TO THE REVIEW OF THE ENGINEER. THE CONTRACTOR SHALL SUBMIT A PLAN OF THE PROPOSED JOINTING BEFORE PROCEEDING WITH THE AFFECTED WORK.
23. PLACE TWO ADDITIONAL #5 BARS AROUND ALL OPENINGS LARGER THAN ONE FOOT SQUARE OR DIAMETER. EXTEND BARS A MINIMUM 24 INCHES BEYOND OPENINGS, UNLESS OTHERWISE NOTED.
24. SIDES OF FOUNDATIONS SHALL BE FORMED.
25. STRUCTURE BACKFILL SHALL CONSIST OF CLEAN, WELL GRADED GRANULAR SOILS, FREE OF ORGANIC MATERIAL, SILT AND CLAY. PLACE BACKFILL IN LAYERS, NOT MORE THAN 6 INCHES IN DEPTH, AND COMPACTED TO NOT LESS THAN 95 PERCENT OF THE MAXIMUM UNIT WEIGHT, AS DETERMINED BY THE MODIFIED PROCTOR METHOD (ASTM D1557) AND VERIFIED BY A GEOTECHNICAL ENGINEER REGISTERED IN THE STATE OF MICHIGAN. PLACE BACKFILL ALTERNATING EACH FACE OF WALLS TO BALANCE PRESSURE TO WALLS.
26. FOUNDATIONS SHALL BEAR ON UNDISTURBED VIRGIN SOIL, FREE OF VEGETATION AND ORGANIC MATERIALS, WITH A MINIMUM ALLOWABLE BEARING CAPACITY OF 1500 PSF, VERIFIED BY A GEOTECHNICAL ENGINEER REGISTERED IN THE STATE OF MICHIGAN. REFER TO GEOTECHNICAL INVESTIGATION PREPARED BY TESTING ENGINEERS & CONSULTANTS, PROJECT NO. 55266.
27. SAMPLES FOR STRENGTH TESTS OF EACH CLASS OF CONCRETE PLACED EACH DAY SHALL BE TAKEN BY A QUALIFIED TESTING AGENCY NOT LESS THAN ONCE PER DAY, NOR LESS THAN ONCE FOR EACH 100 CUBIC YARDS OF CONCRETE. SAMPLE CONCRETE IN ACCORDANCE WITH ASTM C172. PERFORM THE FOLLOWING TESTS IN ACCORDANCE WITH THE INDICATED STANDARD:
    A. SLUMP - ASTM C143
    B. AIR CONTENT - ASTM C173
    C. COMPRESSIVE STRENGTH - C39 (WITH 1 CYLINDER AT 7 DAYS, 2 CYLINDERS AT 28 DAYS AND 1 CYLINDER HELD IN RESERVE)

GENERAL NOTES FOR STRUCTURAL STEEL

1. DESIGN, DETAILING, FABRICATION, AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE FOLLOWING PUBLICATIONS EXCEPT AS SPECIFICALLY INDICATED IN THE CONTRACT DOCUMENTS:

    A. AISC STEEL CONSTRUCTION MANUAL (14TH EDITION) INCLUDING:
        1) AISC 360-10 - SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS, ALLOWABLE STRESS DESIGN
        2) AISC 348-04 - SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS (RCSC)
        3) AISC 303-10 - CODE OF STANDARD PRACTICE FOR STEEL BUILDINGS AND BRIDGES
    B. AISC 326-09 - DETAILING FOR STEEL CONSTRUCTION
    C. AWS D1.1-10 - STRUCTURAL WELDING CODE - STEEL

2. WIDE FLANGE SHAPES SHALL BE ASTM A992, Fy = 50,000 PSI.
3. MISCELLANEOUS SHAPES AND PLATE SHALL BE ASTM A36, Fy = 36,000 PSI.
4. HSS STEEL SHALL BE ASTM A500, GRADE B, Fy = 46,000 PSI.
5. ANCHOR BOLTS SHALL BE ASTM F1554, GRADE 55, Fy = 55,000 PSI.
6. COMPOSITE SHEAR STUDS SHALL BE NELSON "FLUXED SHEAR CONNECTOR STUDS" OR APPROVED SUBSTITUTE AND WELDED AS PER MANUFACTURER'S WRITTEN INSTRUCTIONS.
7. SHEAR STUDS SHALL BE EQUALLY SPACED ALONG THE LENGTH OF THE BEAM UNLESS NOTED OTHERWISE.
8. STEEL ELEVATIONS SHALL BE AS INDICATED ON PLANS AND DETAILS.
9. PRIOR TO FABRICATION THE FABRICATOR SHALL SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL CONSIST OF TWO SETS OF BLACKLINE DRAWINGS (MIN).
10. INSTALL ASTM A325 BOLTS IN ACCORDANCE WITH THE SPECIFICATION FOR STRUCTURAL JOINTS, USING ONE HARDENED WASHER UNDER THE TURNED ELEMENT, AND AN IMPACT WRENCH TO ACHIEVE FIRM CONTACT BETWEEN CONNECTED PLIES AND A SNUG TIGHT CONDITION.
11. SHOP AND FIELD WELDS SHALL BE MADE BY APPROVED CERTIFIED WELDERS. PERFORM ALL WELDING BY THE ELECTRIC ARC METHOD IN ACCORDANCE WITH THE AWS D1.1 STRUCTURAL WELDING CODE.
12. PERFORM WELDING WITH SPECIFIED ELECTRODES AND QUALIFIED WELDERS, WELDING OPERATORS, AND TACKERS AS APPROPRIATE, PER SPECIFIED REFERENCE STANDARDS. PROVIDE NECESSARY JIGS AND HOLDING DEVICES FOR SHOP WELDING. CONTROL WELDING SEQUENCE TO MINIMIZE RESIDUAL STRESSES AND MEMBER DISTORTION.
13. MAKE BOLTED CONNECTIONS WITH 3/4 INCH DIAMETER ASTM A325N BEARING TYPE BOLTS (WITH THREADS ASSUMED IN THE SHEAR PLANE) UNLESS OTHERWISE NOTED.
14. CONNECTIONS SHALL BE A MINIMUM OF TWO 3/4 INCH DIAMETER ASTM A325N BOLTS OR A WELD DEVELOPING A MINIMUM OF 10 KIPS.
15. SUBMIT DRAWINGS AND CALCULATIONS OF TYPICAL CONNECTION DETAILS FOR APPROVAL PRIOR TO PROCEEDING WITH DETAILING.
16. DESIGN BEAM CONNECTIONS FOR MINIMUM ONE-HALF OF THE TOTAL ALLOWABLE UNIFORM LOAD PER AISC BEAM LOAD TABLES, UNLESS NOTED OTHERWISE. CONNECTIONS FOR COMPOSITE BEAMS SHALL BE DESIGNED FOR END REACTIONS NOTED ON THE DRAWINGS OR A MINIMUM TWO-THIRDS OF THE TOTAL ALLOWABLE UNIFORM LOAD PER AISC BEAM LOAD TABLES, WHICHEVER IS GREATER.
17. PROVIDE ADEQUATE LATERAL BRACING AND VERTICAL SUPPORT FOR THE SAFE ERECTION AND ALIGNMENT OF THE STRUCTURAL STEEL.
18. FURNISH MEMBERS OF PROPER LENGTH AND ASSEMBLE WITHOUT EXCESSIVE USE OF FILLERS - FIELD VERIFY DIMENSIONS BEFORE FABRICATION WHEN CONNECTING TO EXISTING STRUCTURE. JOIN AND ASSEMBLE MEMBERS WITHOUT SHARP PROJECTIONS, SERRATED EDGES, SHARP EDGES OR SHARP CORNERS AT JOINTS. COPE, BLOCK, MITER AND GRIND EDGES WITH CARE. FURNISH MEMBERS FREE FROM TWISTS, BENDS, DISTORTIONS AND OPEN JOINTS.
19. GROUT PADS SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI IN SEVEN DAYS.
20. ANCHOR BOLTS AND SETTING PLANS SHALL BE FURNISHED BY THE STRUCTURAL STEEL FABRICATOR AND SET BY THE FOUNDATION CONTRACTOR.
21. ALL WELDED CONNECTIONS SHALL BE VISUALLY INSPECTED, WITH 15% MEASURED AT RANDOM. VISUALLY INSPECT THAT ALL BOLTED CONNECTIONS ARE PROPERLY FABRICATED, WITH PROPER COMPONENTS, AND THE JOINT IS DRAWN INTO FIRM CONTACT.
22. ELEVATIONS ARE REFERENCED FROM FINISH FLOOR ELEVATION = 100'-0".
23. COUPLER NUTS MAY BE PROVIDED AT ANCHOR BOLTS SO THAT ANCHOR BOLTS CAN BE INSTALLED IN TWO PIECES TO MAXIMIZE VERTICAL CLEARANCE FOR COLUMN ERECTION.
24. THE USE OF A GAS-CUTTING TORCH IN THE FIELD FOR CUTTING HOLES OR FOR CORRECTING FABRICATION ERRORS WILL NOT BE PERMITTED ON STRUCTURAL FRAMING MEMBERS EXCEPT WITH THE WRITTEN APPROVAL OF THE ENGINEER FOR EACH SPECIFIC CONDITION.
25. ALL STRUCTURAL STEEL SHALL BE SHOP PAINTED WITH AN APPROVED CORROSION RESISTANT PRIMER SUCH AS "TNEMEC PRIMER 10-99" OR APPROVED EQUIVALENT. ALL STEEL SHALL BE PAINTED IN STRICT ACCORDANCE WITH THE AISC SPECIFICATIONS AND MANUFACTURER'S RECOMMENDATIONS. PRIOR TO PAINTING, ALL STEEL SURFACES SHALL BE PREPARED IN ACCORDANCE WITH SSPC-SP3. REMOVE LOOSE RUST, LOOSE MILL SCALE AND SPLATTER SLAG OR FLUX DEPOSITS. ALL PAINTS SHALL BE APPROVED BY THE ENGINEER PRIOR TO THEIR USE.
26. SHOP PRIME AND PAINT STRUCTURAL STEEL. FIELD TOUCH-UP FINISH COAT AFTER ERECTION.
27. STEEL ABOVE THE ROOF AND OUTSIDE THE BUILDING ENVELOPE (EXPOSED TO WEATHER) SHALL BE CLEANED PER SSPC-SP6 AND HOT DIP GALVANIZED.
28. REFERENCE ARCHITECTURAL DRAWINGS FOR MISCELLANEOUS SHAPES AND PLATES NOT SHOWN ON THE STRUCTURAL DRAWINGS. THESE ITEMS SHALL BE SHOP WELDED TO THE STRUCTURAL FRAMING TO MINIMIZE FIELD WELDING.
29. ROOF OPENINGS SHALL BE FRAMED WITH L5X3X1/4 LLV, UNLESS NOTED OTHERWISE. VERIFY SIZE AND LOCATION OF ALL OPENINGS WITH THE TRADES INVOLVED.

GENERAL NOTES FOR STEEL JOISTS

1. DESIGN, DETAILING, FABRICATION, AND ERECTION OF STEEL JOISTS SHALL CONFORM TO THE FOLLOWING PUBLICATIONS EXCEPT AS SPECIFICALLY INDICATED IN THE CONTRACT DOCUMENTS:

    A. SJI-K-2010 - STANDARD SPECIFICATION FOR OPEN WEB STEEL JOISTS, K-SERIES

2. THE SPACING, TYPE AND INSTALLATION OF BRIDGING SHALL CONFORM TO THE STEEL JOIST INSTITUTE REQUIREMENTS UNLESS OTHERWISE NOTED.
3. STEEL JOISTS SHALL BE SHOP PAINTED WITH AN APPROVED CORROSION RESISTANT PRIMER IN CONFORMANCE WITH THE STEEL JOIST INSTITUTE.
4. MECHANICAL EQUIPMENT SHALL NOT BE PLACED DIRECTLY ON THE JOISTS WITHOUT THE APPROVAL OF THE ENGINEER. NO EQUIPMENT SHALL BE SUPPORTED FROM THE BOTTOM CHORD OR BETWEEN PANEL POINTS OF THE JOISTS OR JOIST GIRDERS.
5. ALL STEEL JOISTS, SHALL BE INSPECTED BY AN AGENCY RETAINED BY THE OWNER. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO INFORM THE INSPECTION AGENCY OF THE PROGRESS OF THE STEEL ERECTION AND TO NOTIFY THE AGENCY 24 HOURS PRIOR TO A REQUESTED INSPECTION. THE CONTRACTOR SHALL PROVIDE ANY ASSISTANCE REQUIRED BY THE INSPECTOR FOR THE COMPLETION OF HIS DUTIES.
6. ALL REQUIREMENTS FOR INSPECTION, WELDER'S CERTIFICATION, AND SHOP DRAWINGS AS DESCRIBED IN THE STRUCTURAL STEEL NOTES SHALL APPLY TO STEEL JOISTS.
7. PROVIDE BOLTED ERECTION CONNECTION FOR JOIST CLOSEST TO CENTERLINE OF THE COLUMNS.
8. TRAPEZE HANGERS FOR PIPING SUPPORT ARE PERMITTED AS FOLLOWS:

    A. NO MORE THAN ONE TRAPEZE HANGER ON A JOIST.
    B. NO MORE THAN 300 POUNDS SUPPORTED BY ANY SINGLE TRAPEZE HANGER.
    C. ADDITIONAL JOIST REINFORCEMENT PER INDICATED DETAILS IS TO BE USED IF TRAPEZE HANGER IS FURTHER THAN SIX INCHES FROM A JOIST PANEL POINT.

9. DESIGN DETAILS ARE BASED ON A JOIST SEAT HEIGHT OF 2 1/2 INCHES FOR K SERIES JOISTS.
10. THE JOIST SUPPLIER SHALL COORDINATE WITH THE STEEL FABRICATOR AND SHALL PROVIDE ALL BRACING CONNECTION PLATES AND HOLES REQUIRED TO CONNECT THE BRACING TO THE JOISTS. DETAILED SHOP DRAWINGS SHALL BE SUBMITTED FOR REVIEW BY THE STRUCTURAL ENGINEER OF RECORD PRIOR TO THE START OF FABRICATION.
11. JOIST BOTTOM CHORDS SHALL HAVE EXTENSIONS FOR CEILING SUPPORT WHERE SUSPENDED CEILINGS ARE SPECIFIED ON THE ARCHITECTURAL DRAWINGS.
12. JOIST BEARING SUPPORTS ON BEAMS AND MASONRY WALLS SHALL BE DESIGNED AND FABRICATED SUCH THAT THE CENTROID OF THE BEARING (AND END REACTION) IS ON THE BEAM AND WALL CENTERLINES, UNLESS NOTED OTHERWISE.
13. THE K SERIES JOISTS SHALL HAVE CURVED TOP AND BOTTOM CHORDS WITH RADIUS AS INDICATED ON THE ARCHITECTURAL PLANS. PROVIDE ALTERNATE PRICING TO PROVIDE CERTAIN JOISTS WITH STRAIGHT BOTTOM CHORDS AS INDICATED.

GENERAL NOTES FOR METAL DECKING

1. METAL ROOF DECK SHALL BE 20 GAGE, G60 GALVANIZED, TYPE 1.5B AS MANUFACTURED BY 'VULCRAFT', OR APPROVED SUBSTITUTE, UNLESS OTHERWISE NOTED.
2. METAL DECK SHALL BE CONTINUOUS OVER A MINIMUM OF THREE SPANS.
3. METAL DECK SHALL BE FASTENED TO PERIMETER EDGE ANGLES WITH PNEUMATIC OR POWDER ACTUATED FASTENERS. MATCH SIDE LAP AND BEARING FASTENER SPACING. PROVIDE 20 GAGE, G60 GALVANIZED BENT PLATES AT LONGITUDINAL EDGES AS REQUIRED TO MAKE CONNECTION.
4. METAL DECK FUNCTIONS AS A HORIZONTAL DIAPHRAGM. FASTENER LAYOUT SHALL BE 36/7 WITH A MINIMUM OF 2 SIDE LAP FASTENER AT INTERIOR LOCATIONS AND 5 SIDE FASTENERS TO EDGE ANGLES AND EDGE CHANNELS.
5. PROVIDE 20 GAGE GALVANIZED RIDGE AND VALLEY PLATES. FASTEN RIDGE AND VALLEY PLATES TO THE TOP SURFACE OF THE METAL ROOF DECK LAP END JOINTS NOT LESS THAN 3 INCHES.
6. FASTEN ROOF SUMP PANS TO ROOF DECK WITH NO. 10 SELFTAPPING SCREWS AT 6 INCH CENTERS AROUND PERIMETER OF PAN.

DESIGN CRITERIA

CODE: MICHIGAN BUILDING CODE 2012 (MBC)

ROOF DESIGN LOAD

DEAD LOAD	
STANDING SEAM ROOF	1.0 PSF
PLYWOOD/UNDERLAYMENT	2.0 PSF
RIGID INSULATION	4.5 PSF
METAL DECK	2.5 PSF
FRAMING	2.0 PSF
UTILITIES	5.0 PSF
CEILING	3.0 PSF
TOTAL DEAD LOAD:	20.0 PSF
LIVE LOAD	25.0 PSF

GROUND SNOW LOAD, Pg=30.0 PSF
SNOW EXPOSURE FACTOR, Ce=0.9
THERMAL FACTOR, Ct=1.0
SNOW LOAD IMPORTANCE FACTOR, Is=1.1

WIND DESIGN CRITERIA
RISK CATEGORY: III
BASIC WIND SPEED Vs=120 MPH
EXPOSURE CATEGORY B
ANALYTICAL WIND LOAD PROCEDURE
COMPONENT AND CLADDING: ASCE 7-10

SEISMIC DESIGN CRITERIA
RISK CATEGORY: III
SEISMIC IMPORTANCE FACTOR, Ie=1.0
MAPPED SPECTRAL RESPONSE ACCELERATION, Ss=0.073
MAPPED SPECTRAL RESPONSE ACCELERATION, S1=0.042
SITE CLASS: D
SPECTRAL RESPONSE COEFFICIENT, Sds=0.078
SPECTRAL RESPONSE COEFFICIENT, Sd1=0.067
SEISMIC DESIGN CATEGORY: B
BASIC SEISMIC-FORCE-RESISTING SYSTEM:
ORDINARY REINFORCED MASONRY SHEAR WALLS.
DESIGN BASE SHEAR: F = 0.049W
ANALYSIS PROCEDURE USED:
ASCE 7-10 SECTION 12.8,
EQUIVALENT LATERAL FORCE PROCEDURE

WA
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GREATER HEIGHTS ACADEMY
FOUR CLASSROOM ADDITION
FLINT, MICHIGAN

GENERAL NOTES

PRELIMINARY ■
DESIGN DEVELOPMENT □
CONSTRUCTION □
FINAL RECORD □

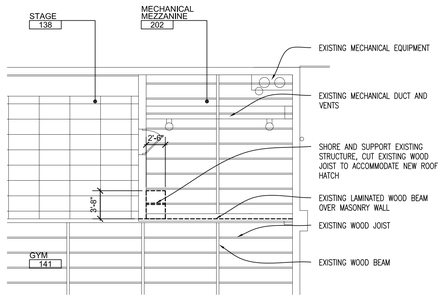
DRAWN BY: BLD
CHECKED BY: KEZ

REVISIONS:

DATE: MARCH, 2015

SHEET NO.:
S2.0

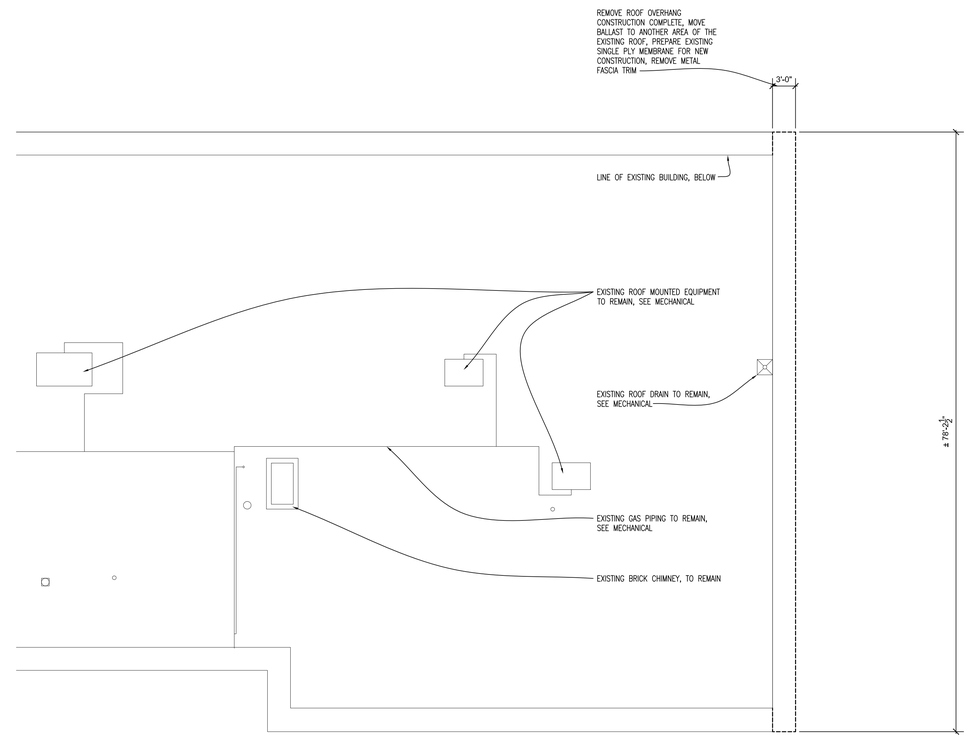
JOB NO.: 141601



PARTIAL SECOND FLOOR DEMOLITION PLAN

3 / A1.1

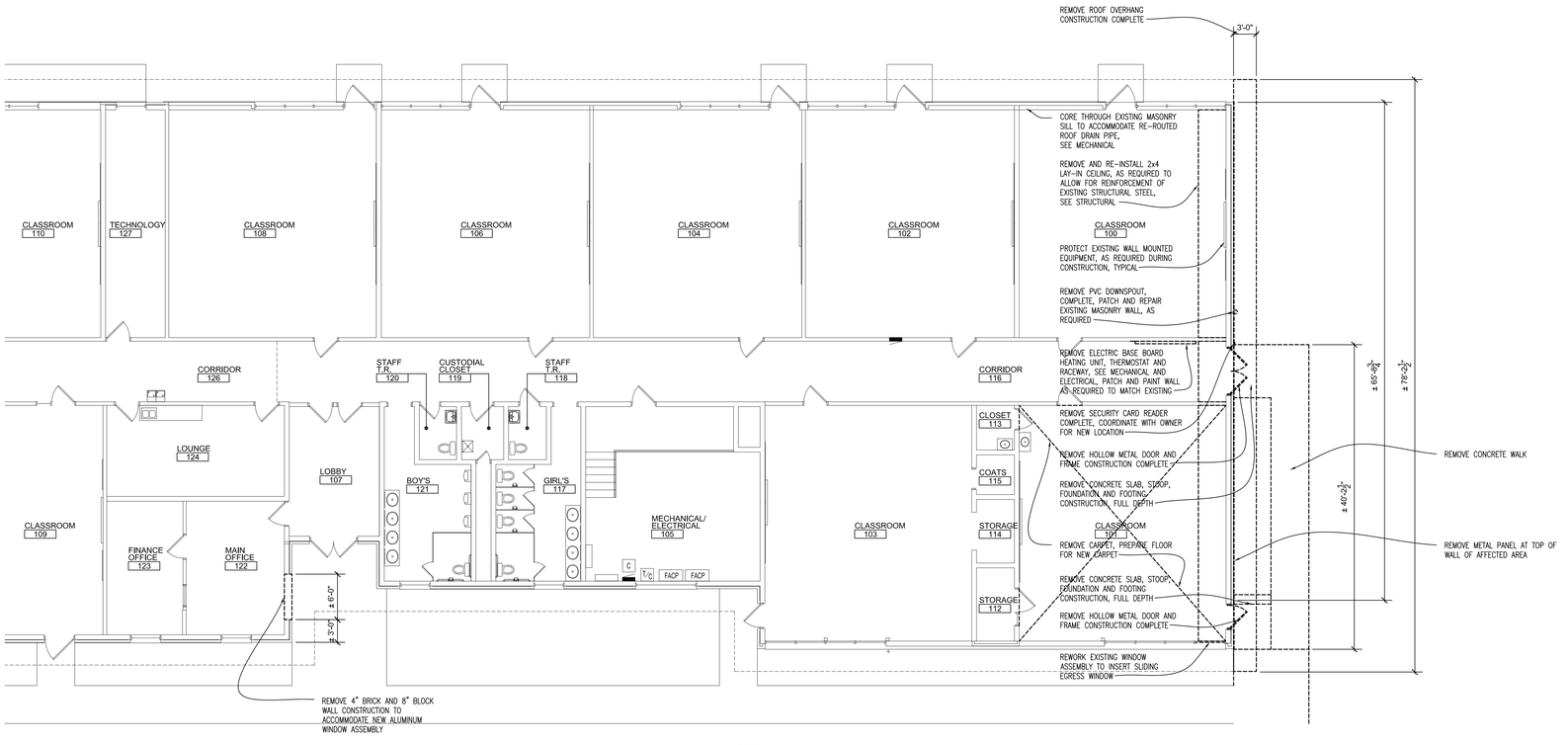
SCALE: 1/8" = 1'-0"



PARTIAL ROOF DEMOLITION PLAN

2 / A0.1

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



PARTIAL FIRST FLOOR DEMOLITION PLAN

1 / A0.1

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

DEMOLITION PLAN GENERAL NOTES:

A. ALL DEMOLITION NECESSARY FOR THE INSTALLATION OF NEW CONSTRUCTION IS PART OF THE CONTRACT ISSUED FOR THIS PROJECT. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ALL DEMOLITION, CUTTING AND PATCHING, SHORING AND BRACING AS REQUIRED TO COMPLETE THE WORK SHOWN/DESCRIBED IN THE CONSTRUCTION DOCUMENTS OR AS REQUIRED TO COMPLETE THE WORK.

B. PROVIDE PROTECTION FOR EXISTING CONSTRUCTION TO REMAIN. PATCH AND REPAIR ALL AREAS DAMAGED DURING DEMOLITION / CONSTRUCTION. MATCH EXISTING CONSTRUCTION, MATERIALS AND FINISHES. TYPICAL ALL LOCATIONS.

C. SEE CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS FOR RELATED AND ADDITIONAL DEMOLITION AND PATCHING WORK BY MECHANICAL AND ELECTRICAL TRADES.

D. SEE CIVIL, MECHANICAL AND ELECTRICAL DRAWINGS FOR REMOVAL AND/OR CAPPING OF UTILITIES WHERE EQUIPMENT IS REMOVED.

E. COORDINATE PHASING AND SEQUENCING OF DEMOLITION AND PATCHING WORK WITH MECHANICAL AND ELECTRICAL DRAWINGS.

F. DO NOT REMOVE ANY INDICATED OR NOTED BEAMS, COLUMNS, OR MASONRY BEARING WALLS WITHOUT OBSERVING THE EFFECT UPON THE STRUCTURAL INTEGRITY OF CONSTRUCTION TO REMAIN. ALL QUESTIONABLE CONDITIONS SHALL BE BROUGHT TO ARCHITECT'S ATTENTION PRIOR TO REMOVAL OF SUCH ITEMS.

G. WHERE EXISTING MASONRY WALLS INDICATED TO BE REMOVED EXTEND BELOW FLOOR SLAB, REMOVE MATERIAL TO 8" MINIMUM BELOW FINISH FLOOR TO ALLOW FOR TIE-IN OF NEW CONCRETE SLAB (U.N.O.)

H. PATCH EXPOSED FACES OF EXISTING WALLS TO REMAIN ADJACENT TO LOCATIONS WHERE EXISTING WALLS ARE INDICATED TO BE REMOVED. FILL AND PATCH FLOORS TO RECEIVE NEW FLOOR COVERING. TOOTH-IN NEW MASONRY AT REMOVED WALLS TO MATCH COURSING OF EXISTING WALLS.

J. WHERE REMOVAL OF PORTIONS OF EXISTING FLOORS IS INDICATED OR IS REQUIRED TO PERFORM INDICATED WORK, PATCH AND REPLACE FLUSH WITH EXISTING UPON COMPLETION OF RELATED WORK.

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PARTIAL FIRST FLOOR DEMOLITION PLAN, PARTIAL ROOF DEMOLITION PLAN, AND PARTIAL SECOND FLOOR DEMOLITION PLAN

PRELIMINARY ■
DESIGN DEVELOPMENT ■
CONSTRUCTION ■
FINAL RECORD □

DRAWN BY JSM
CHECKED BY BJS

REVISIONS

DATE: MARCH 31, 2015

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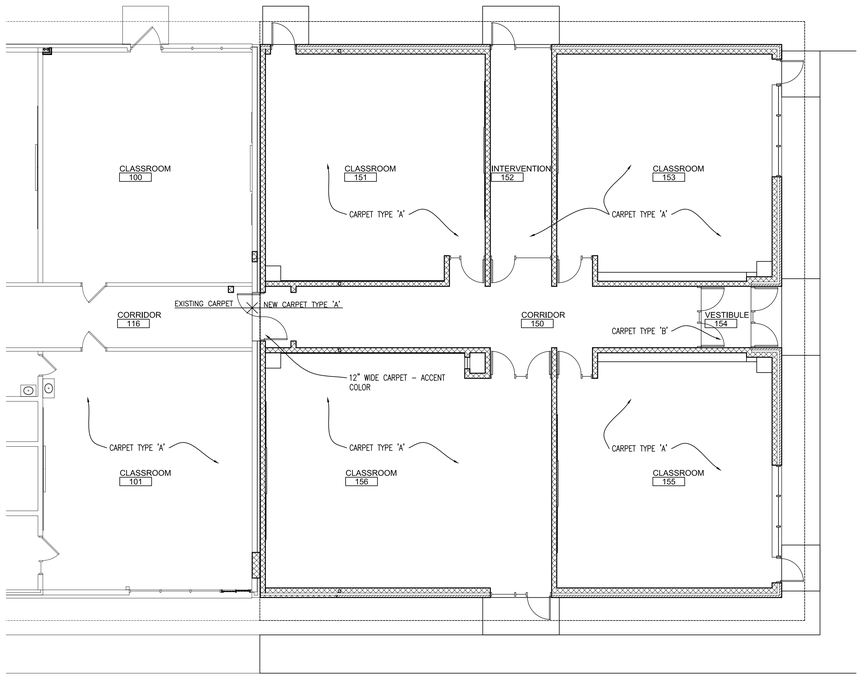


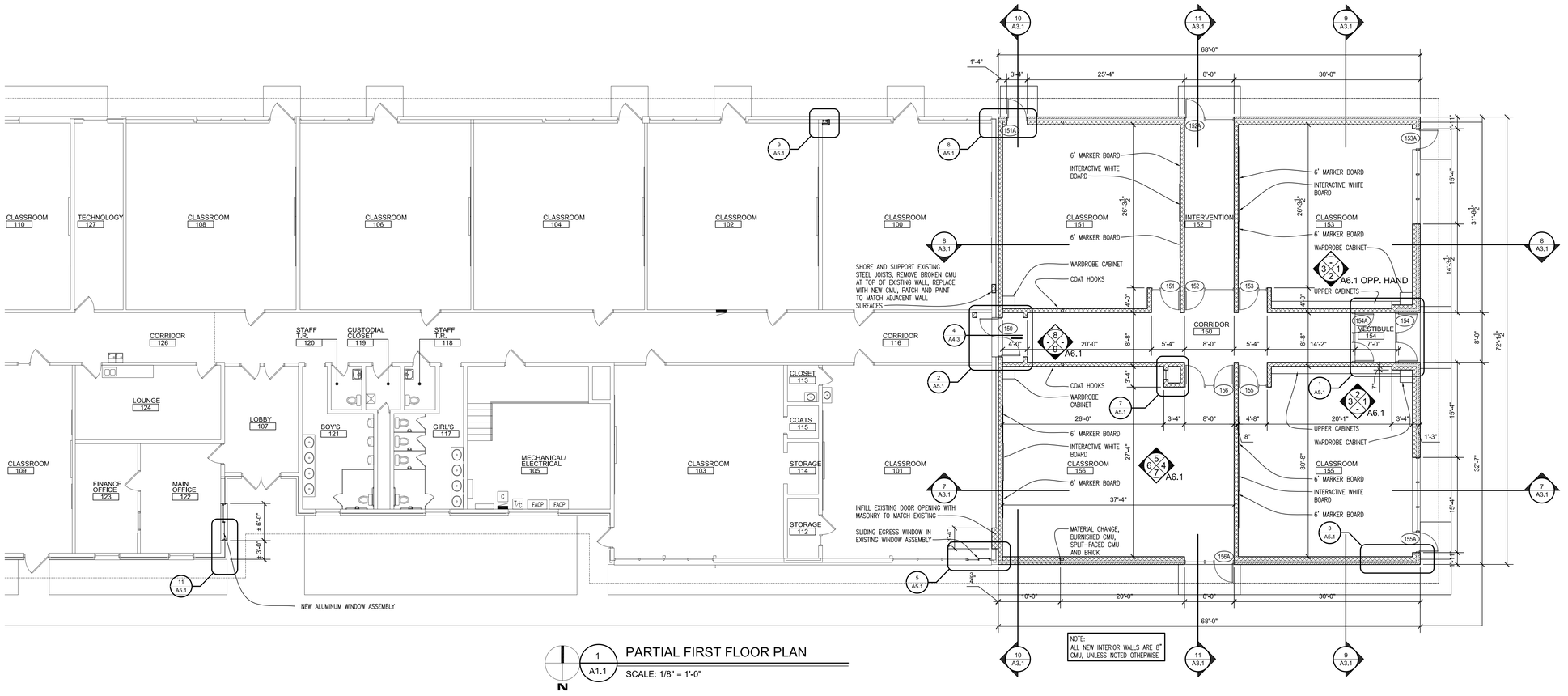
3 A1.1 — PARTIAL FIRST FLOOR FINISHES PLAN

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

SOFFIT CONSTRUCTION:
PAINTED 5/8" GYPSUM BOARD ON 3-5/8" METAL FRAMING AT 16" ON CENTER MAX.

2 A1.1 — PARTIAL FIRST FLOOR CEILING PLAN

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



1 A1.1 — PARTIAL FIRST FLOOR PLAN

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

NOTE:
ALL NEW INTERIOR WALLS ARE 8" CMU, UNLESS NOTED OTHERWISE

TYPICAL CONSTRUCTION NOTES:

1. ALL WORK SHALL COMPLY WITH NATIONAL, STATE AND LOCAL CODES, ORDINANCES AND REGULATIONS.

2. ALL MATERIALS SHALL BE INSTALLED/APPLIED IN STRICT ACCORDANCE WITH MANUFACTURER'S REGULATIONS.

3. CONTRACTOR SHALL BE HELD RESPONSIBLE FOR VISITING THE JOB SITE AND FAMILIARIZING THEMSELVES WITH EXISTING CONDITIONS PRIOR TO START OF WORK. ALL DIMENSIONS AND FIELD CONDITIONS SHALL BE VERIFIED, AND ARCHITECT NOTIFIED OF ANY DISCREPANCIES PRIOR TO THE RECEIPT OF BIDS. FAILURE OF THE CONTRACTOR TO VERIFY ALL CONDITIONS PRIOR TO THE AWARD OF BID WILL NOT BE CONSIDERED AS GROUNDS FOR AN EXTRA.

4. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR INITIATING, MAINTAINING, AND SUPERVISING ALL SAFETY PRECAUTIONS AND PROGRAMS IN CONNECTION WITH THE PERFORMANCE OF THE CONTRACT. PROVIDE ALL NECESSARY TEMPORARY PROTECTION TO ENSURE THE SAFETY OF THE GENERAL PUBLIC DURING CONSTRUCTION.

5. ALL ITEMS SHALL BE AS SPECIFIED BY ARCHITECT / ENGINEER.

6. SUBMIT SHOP DRAWINGS, PRODUCT DATA, AND SAMPLES TO THE ARCHITECT FOR REVIEW PRIOR TO INSTALLATION/APPLICATION.

7. ALL DEBRIS SHALL BE LEGALLY DISPOSED OF OFF THE SITE BY THE CONTRACTOR.

8. ALL PRECAUTIONS SHALL BE TAKEN TO AVOID DAMAGE TO EXISTING MATERIALS AND CONSTRUCTION TO REMAIN.

9. CONTRACTOR SHALL CUT AND PATCH EXISTING WALLS, FLOORS, ROOFS, ETC., AS REQUIRED TO COMPLETE THE WORK.

10. CONTRACTOR SHALL KEEP NOISE, DUST, ETC., TO A MINIMUM STANDARD AS SET FORTH BY THE OWNER.

11. CONTRACTOR SHALL COORDINATE INSTALLATION AND PHASING OF WORK WITH THE ARCHITECT AND OWNER'S REPRESENTATIVE PRIOR TO THE START OF WORK.

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PARTIAL FIRST FLOOR PLAN, PARTIAL FIRST FLOOR CEILING PLAN, AND PARTIAL FIRST FLOOR FINISHES PLAN

PRELIMINARY
DESIGN DEVELOPMENT
CONSTRUCTION
FINAL RECORD

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CHECKED BY BJS

REVISIONS

DATE: MARCH 31, 2015

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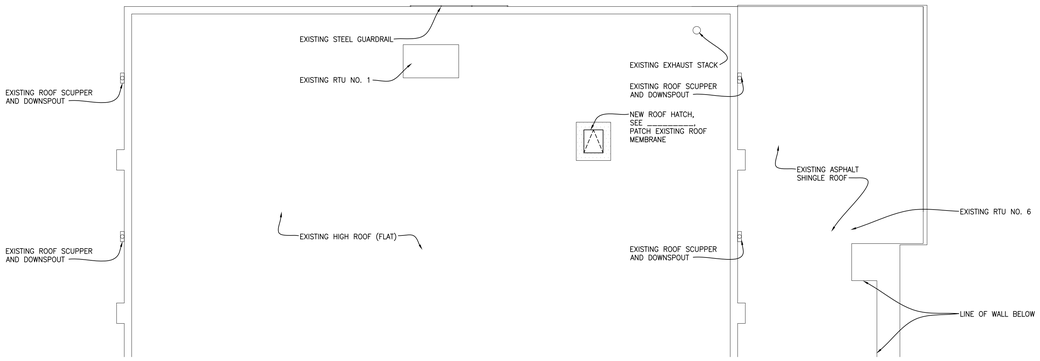
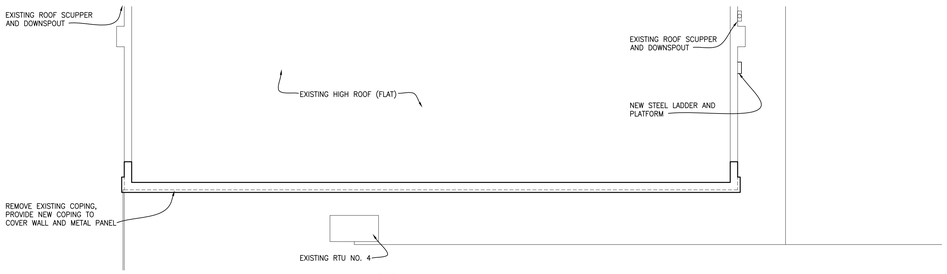


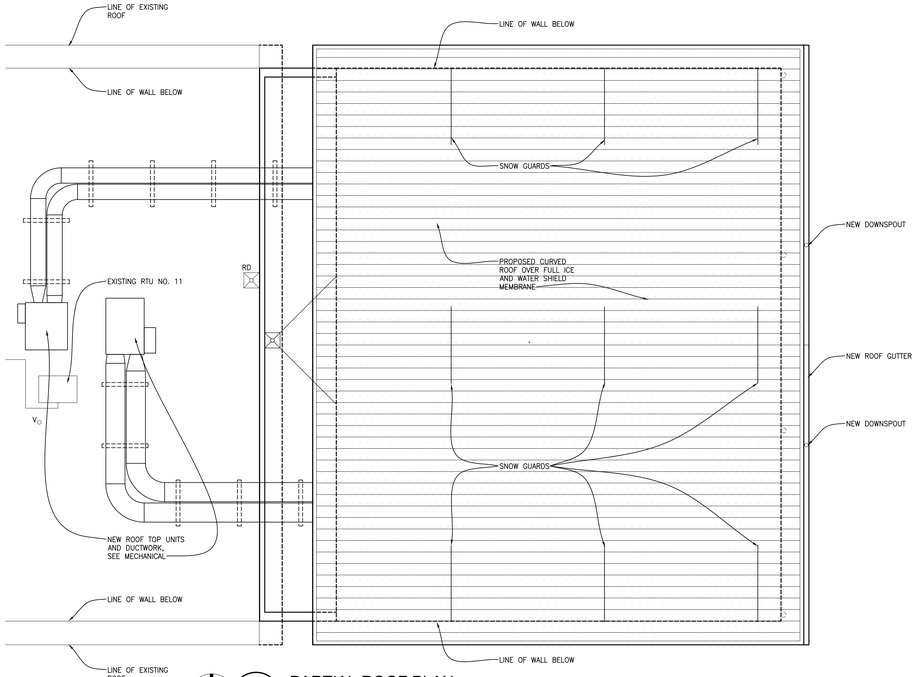
4 A2.1 PARTIAL ROOF PLAN

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



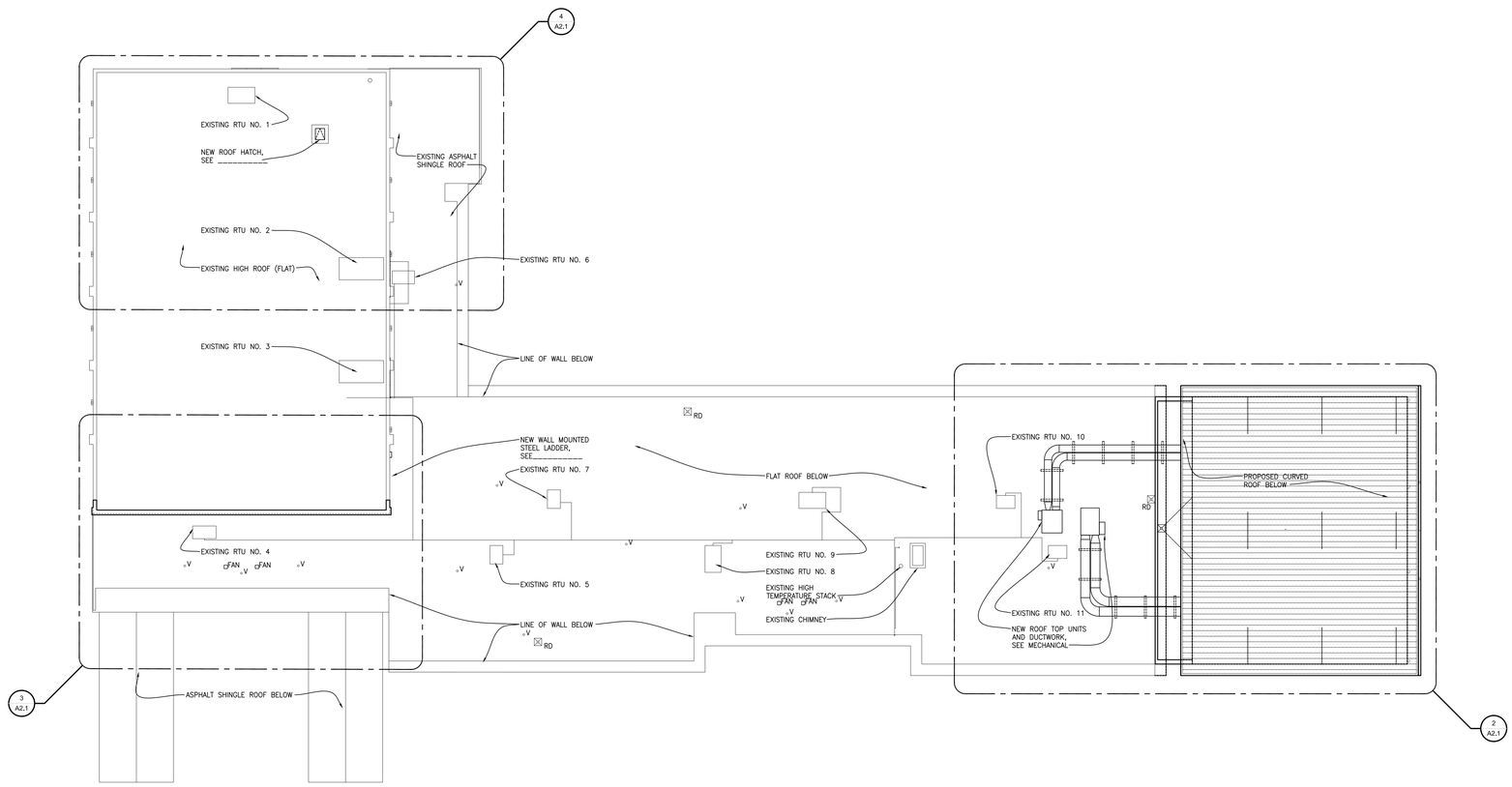
3 A2.1 PARTIAL ROOF PLAN

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



2 A2.1 PARTIAL ROOF PLAN

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



1 A2.1 COMPOSITE ROOF PLAN

SCALE: 1/16" = 1'-0"

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GREATER HEIGHTS ACADEMY

FOUR CLASSROOM ADDITION

FLINT, MICHIGAN

COMPOSITE ROOF PLAN AND PARTIAL ROOF PLANS

PRELIMINARY ■
DESIGN DEVELOPMENT ■
CONSTRUCTION ■
FINAL RECORD □

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CHECKED BY BJS

REVISIONS

DATE: MARCH 31, 2015

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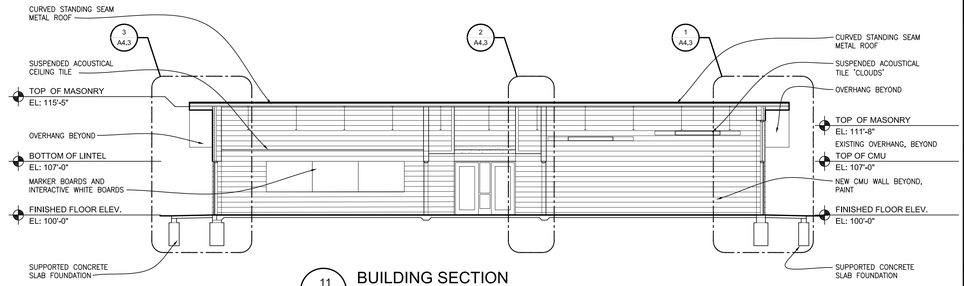
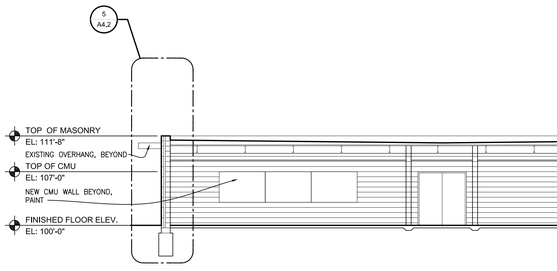
A2.1

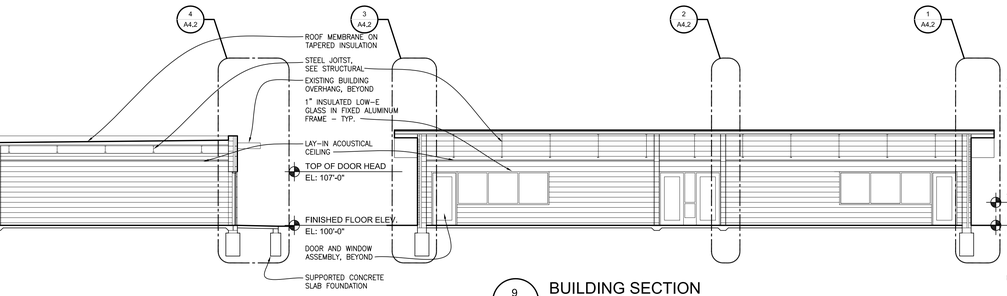
JOB NO. 141601



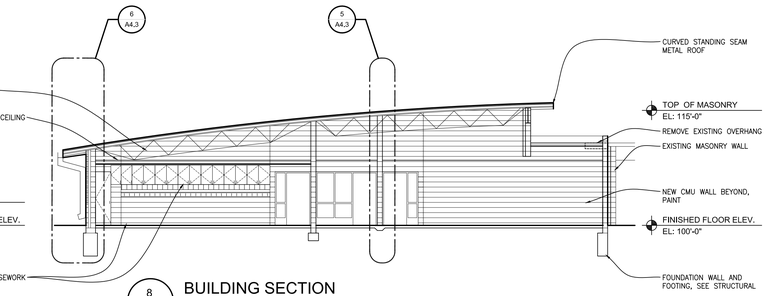
11 A1.1 BUILDING SECTION
SCALE: 1/8" = 1'-0"



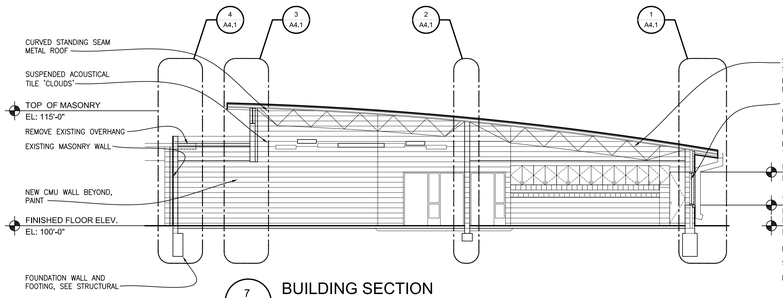
10 A1.1 BUILDING SECTION
SCALE: 1/8" = 1'-0"



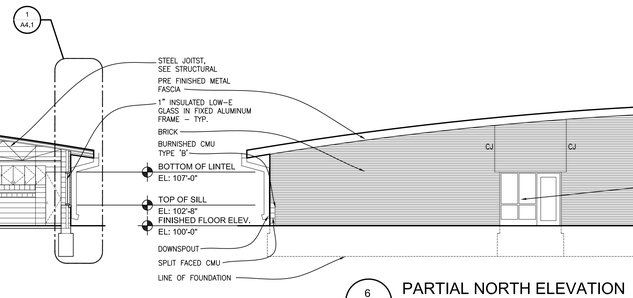
9 A1.1 BUILDING SECTION
SCALE: 1/8" = 1'-0"



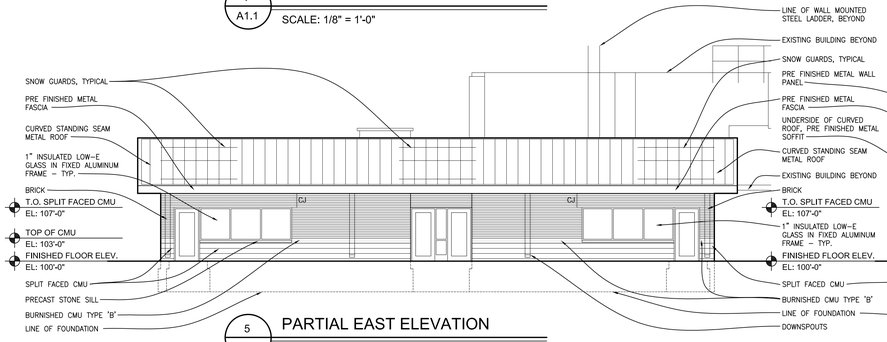
8 A1.1 BUILDING SECTION
SCALE: 1/8" = 1'-0"



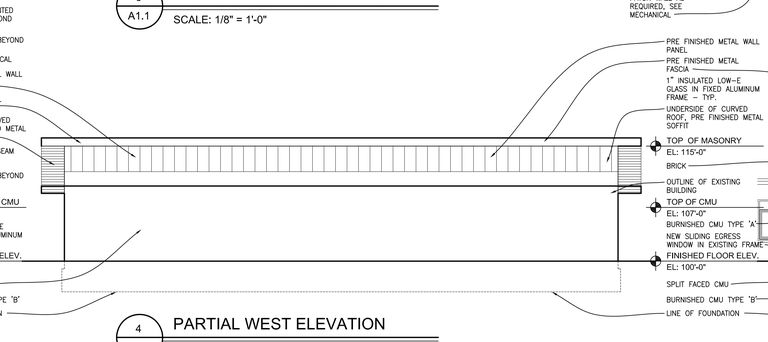
7 A1.1 BUILDING SECTION
SCALE: 1/8" = 1'-0"



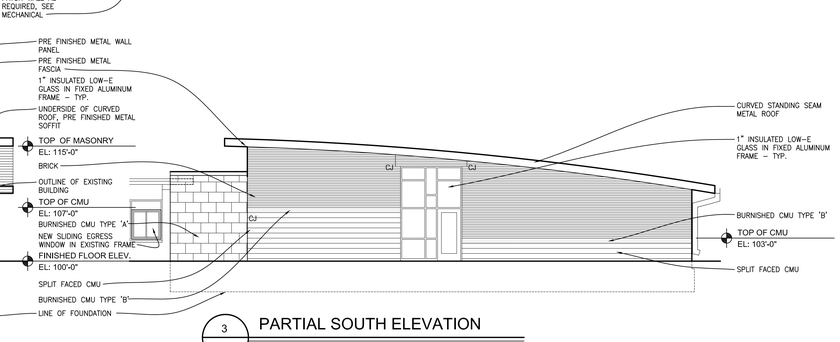
6 A1.1 PARTIAL NORTH ELEVATION
SCALE: 1/8" = 1'-0"



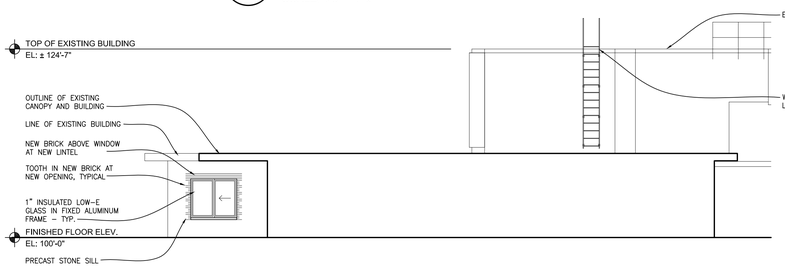
5 A1.1 PARTIAL EAST ELEVATION
SCALE: 1/8" = 1'-0"



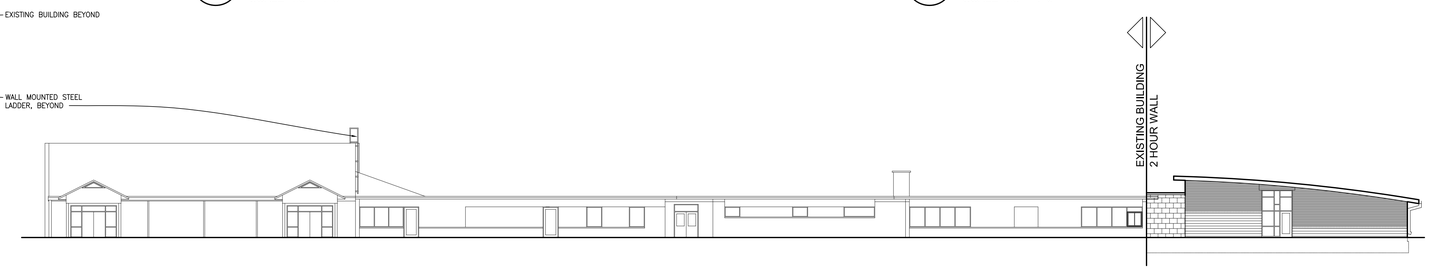
4 A1.1 PARTIAL WEST ELEVATION
SCALE: 1/8" = 1'-0"



3 A1.1 PARTIAL SOUTH ELEVATION
SCALE: 1/8" = 1'-0"



2 A1.1 PARTIAL EAST ELEVATION
SCALE: 1/8" = 1'-0"



1 A1.1 COMPOSITE SOUTH ELEVATION
SCALE: 1/16" = 1'-0"

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EXTERIOR ELEVATIONS AND BUILDING SECTIONS

PRELIMINARY ■
DESIGN DEVELOPMENT ■
CONSTRUCTION ■
FINAL RECORD □

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CHECKED BY BJS

REVISIONS

DATE: MARCH 31, 2015

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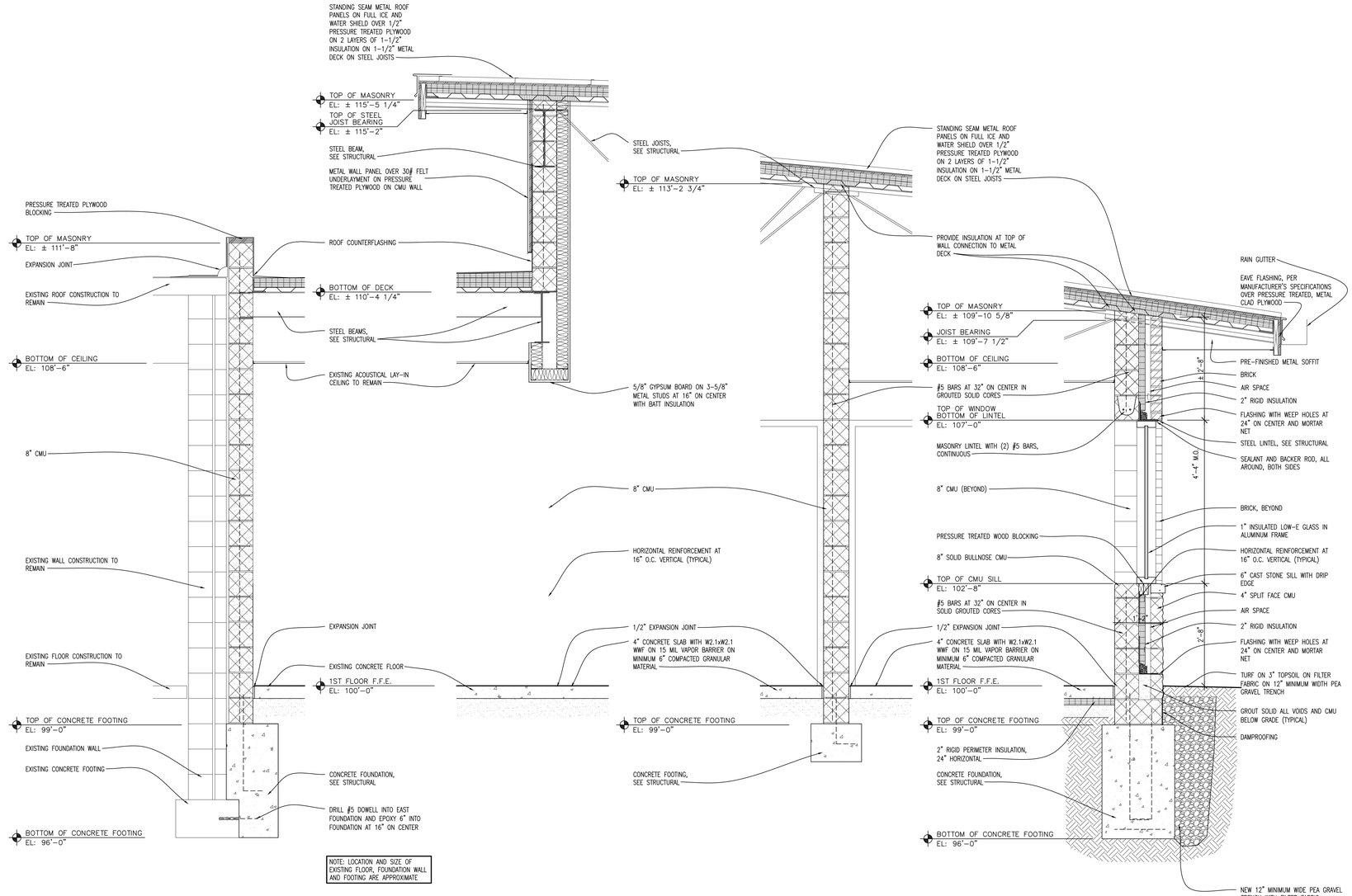
A3.1

JOB NO. 141601



4 / A3.1 WALL SECTION
SCALE: 3/4" = 1'-0"

3 / A3.1 WALL SECTION
SCALE: 3/4" = 1'-0"

2 / A3.1 WALL SECTION
SCALE: 3/4" = 1'-0"

1 / A3.1 WALL SECTION
SCALE: 3/4" = 1'-0"

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WALL SECTIONS

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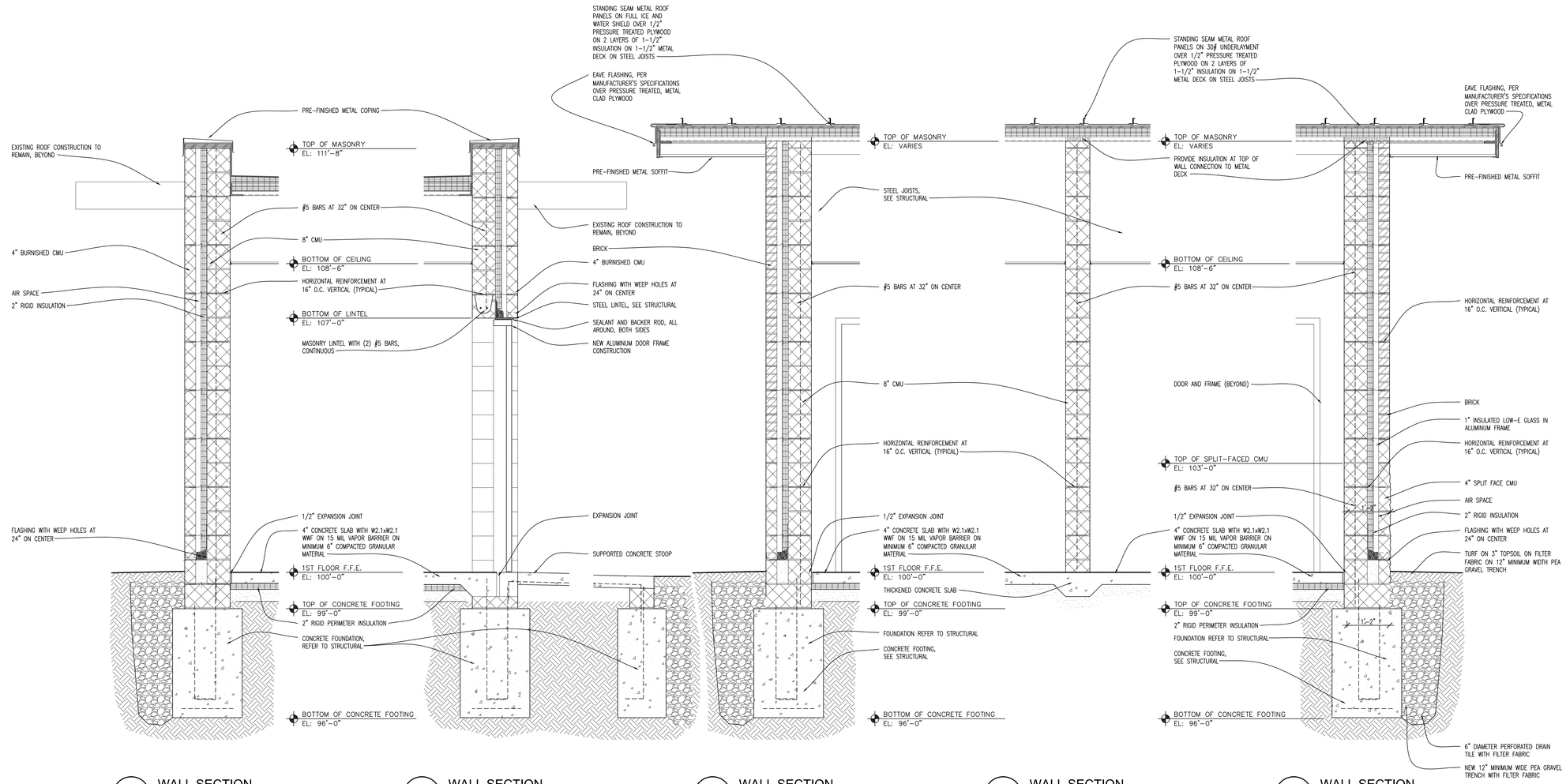
DATE: MARCH 31, 2015

SHEET NO.
A4.1

JOB NO. 141601



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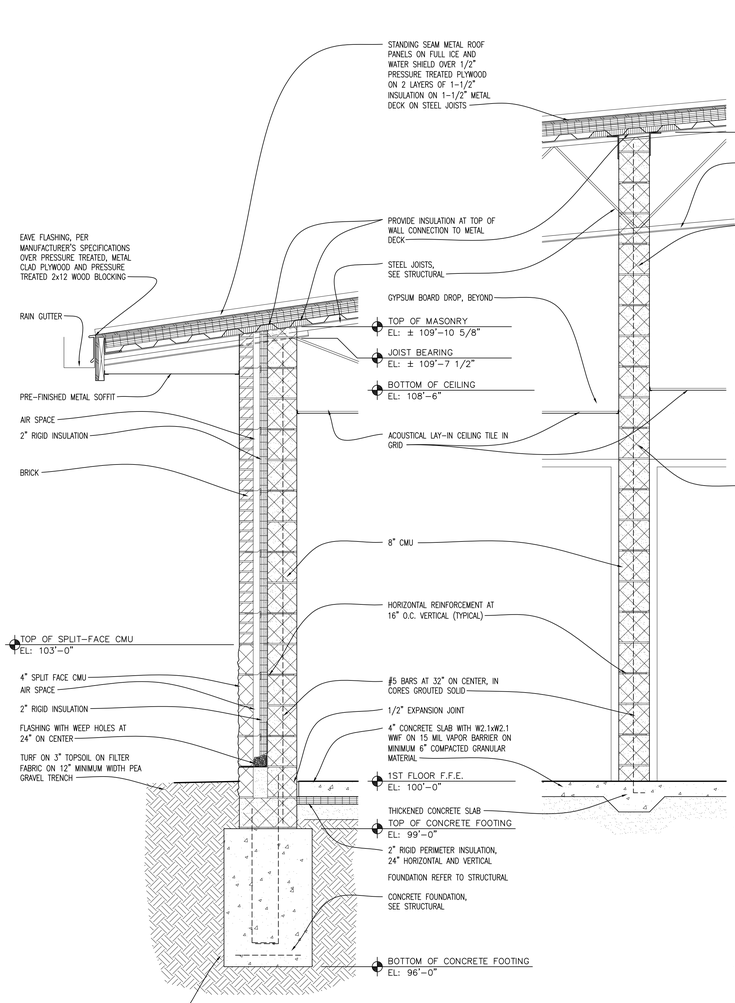
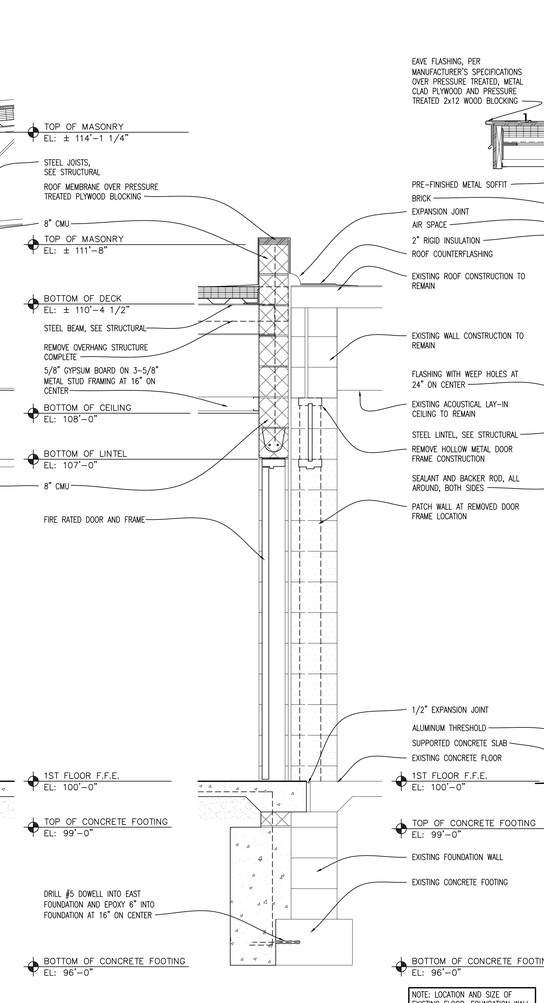
SHEET NO.
A4.2

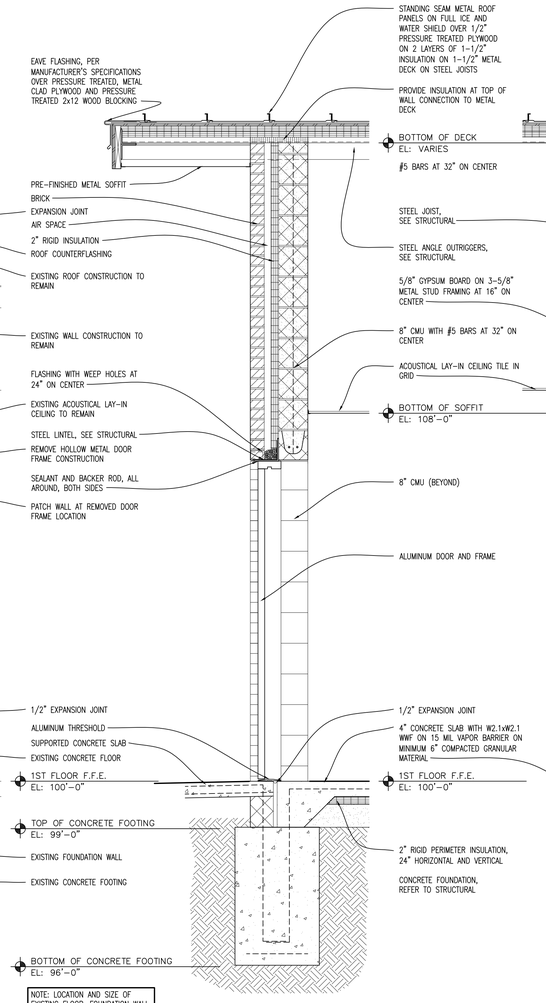
JOB NO.
141601



6 A3.1 WALL SECTION
SCALE: 3/4" = 1'-0"

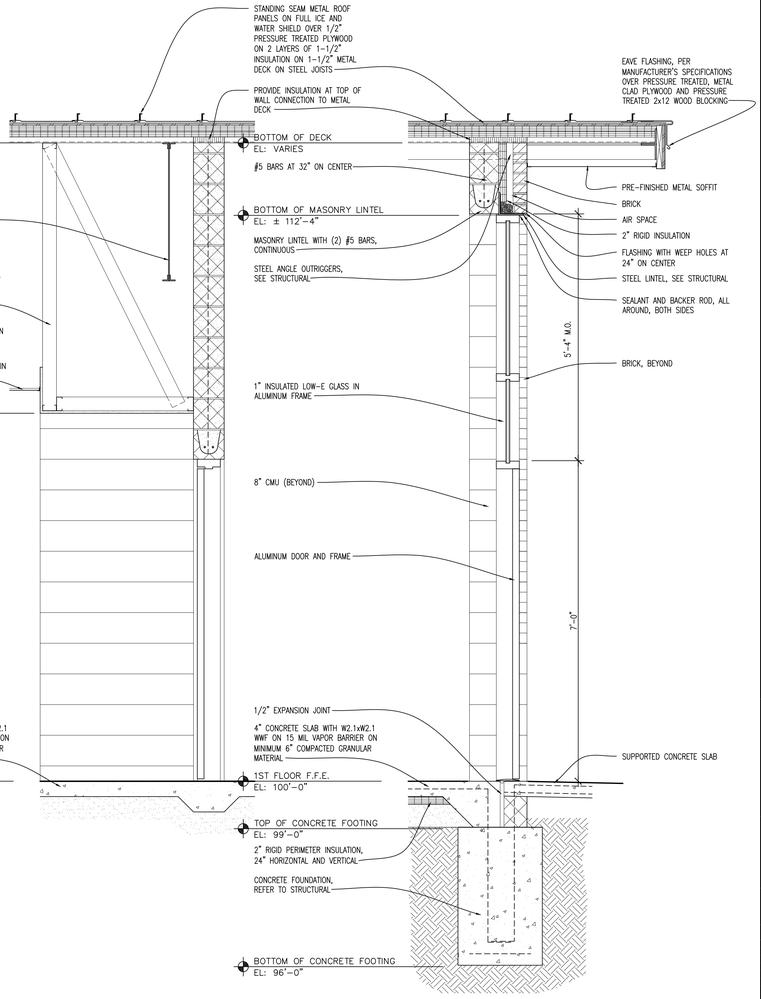


5 A3.1 WALL SECTION
SCALE: 3/4" = 1'-0"



NOTE: LOCATION AND SIZE OF EXISTING FLOOR, FOUNDATION WALL AND FOOTING ARE APPROXIMATE

4 A3.1 WALL SECTION
SCALE: 3/4" = 1'-0"



3 A3.1 WALL SECTION
SCALE: 3/4" = 1'-0"

2 A1.1 WALL SECTION
SCALE: 3/4" = 1'-0"

1 A1.1 WALL SECTION
SCALE: 3/4" = 1'-0"

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WALL SECTIONS

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FINAL RECORD

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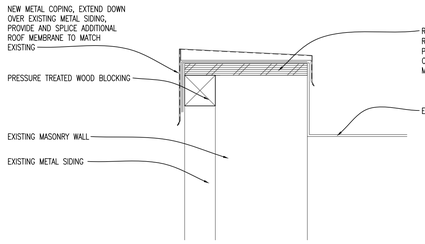
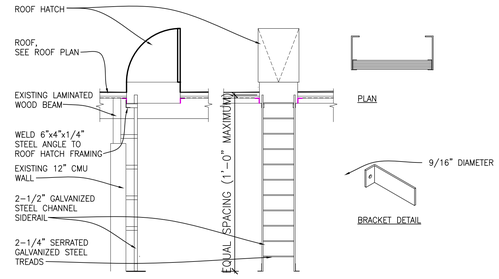
SHEET NO.
A4.3

JOB NO. 141601



15 A1.1 DETAIL

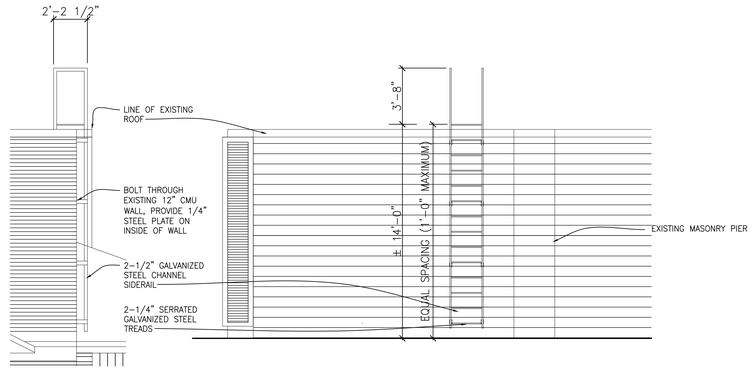
SCALE: 1-1/2" = 1'-0"



14 A5.1 LADDER AND ROOF HATCH DETAIL

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

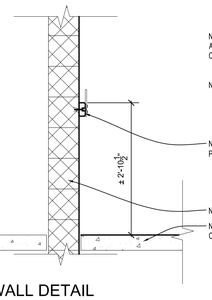
NOTE: ALL COMPONENTS TO BE GALVANIZED STEEL AND PAINTED



13 A5.1 LADDER DETAIL

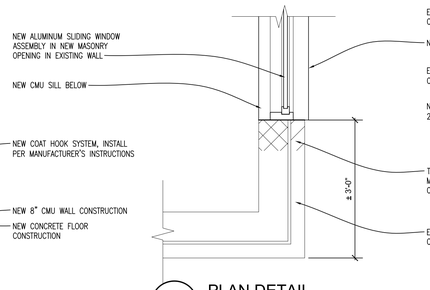
SCALE: 1/4" = 1'-0"

NOTE: ALL COMPONENTS TO BE GALVANIZED STEEL AND PAINTED



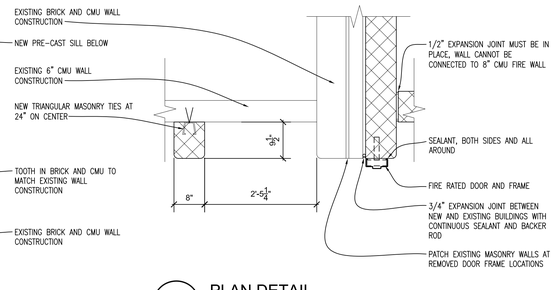
12 A1.1 WALL DETAIL

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



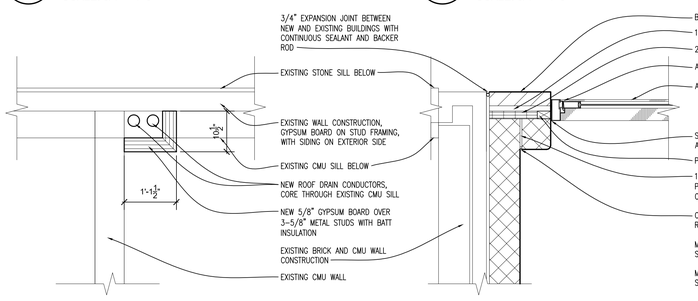
11 A1.1 PLAN DETAIL

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



10 A5.1 PLAN DETAIL

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

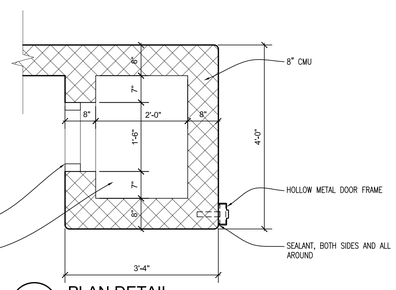


9 A1.1 PLAN DETAIL

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

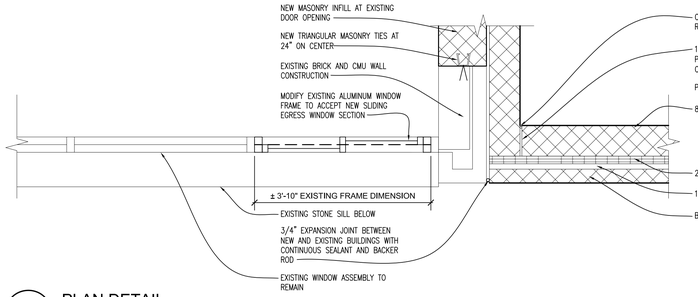
8 A1.1 PLAN DETAIL

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



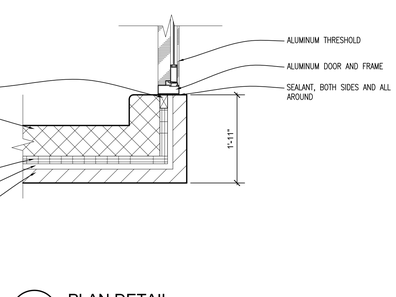
7 A1.1 PLAN DETAIL

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



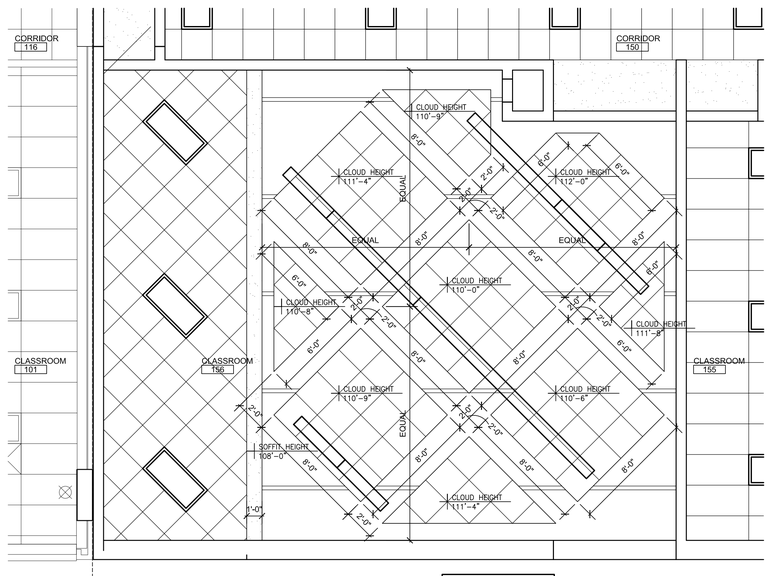
5 A1.1 PLAN DETAIL

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



3 A1.1 PLAN DETAIL

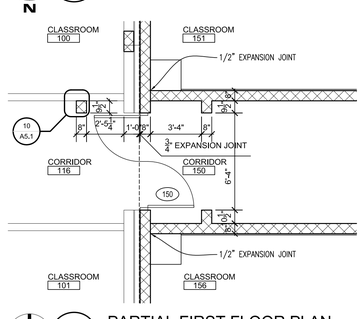
SCALE: 3/4" = 1'-0"



6 A1.1 PARTIAL FIRST FLOOR CEILING PLAN

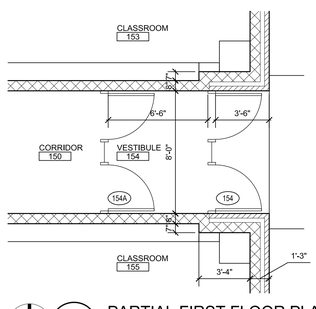
SCALE: 1/4" = 1'-0"

SOFFIT CONSTRUCTION: PAINTED 5/8" GYPSUM BOARD ON 3-5/8" METAL FRAMING AT 16" ON CENTER MAX.



2 A1.1 PARTIAL FIRST FLOOR PLAN

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



1 A1.1 PARTIAL FIRST FLOOR PLAN

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

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FOUR CLASSROOM ADDITION

FLINT, MICHIGAN

PARTIAL ENLARGED CEILING PLAN AND ENLARGED DETAILS

PRELIMINARY ■
DESIGN DEVELOPMENT ■
CONSTRUCTION ■
FINAL RECORD □

DRAWN BY JSM
CHECKED BY BJS

REVISIONS

DATE: MARCH 31, 2015

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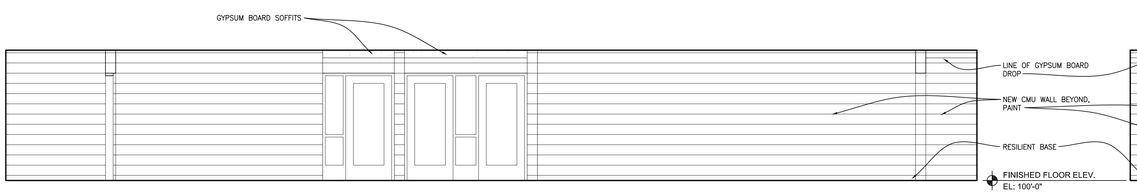
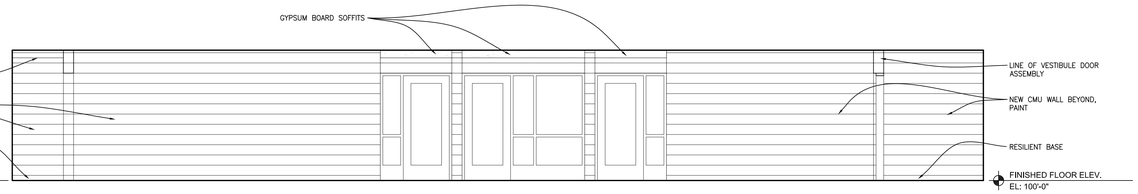
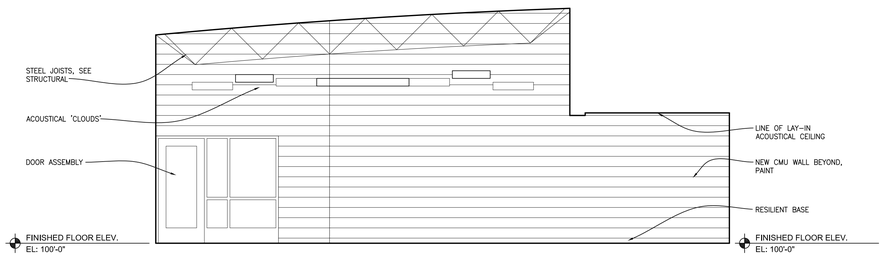
JOB NO. 141601



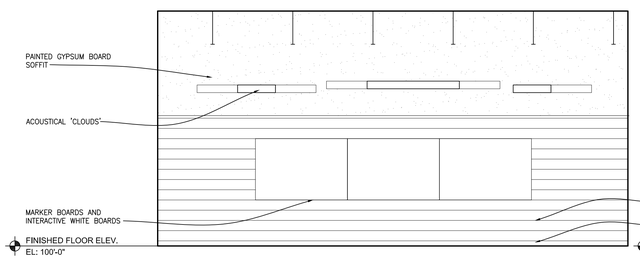
9 A1.1 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



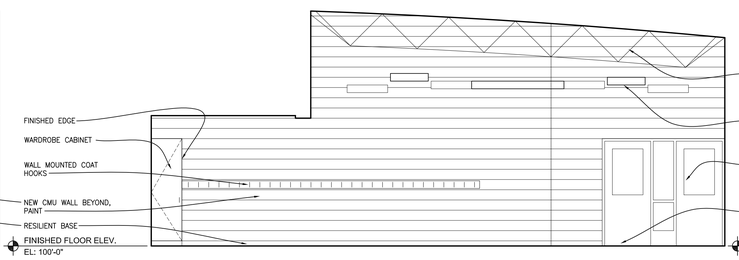
8 A1.1 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



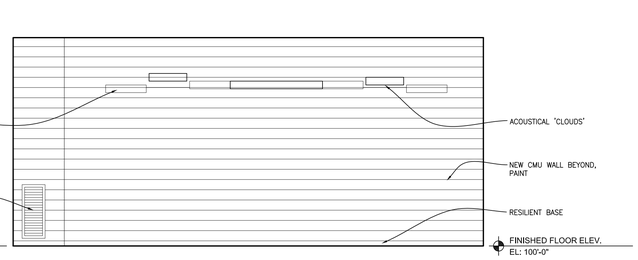
7 A1.1 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



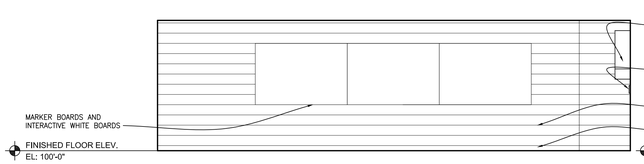
6 A1.1 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



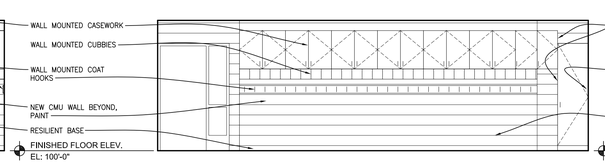
5 A1.1 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



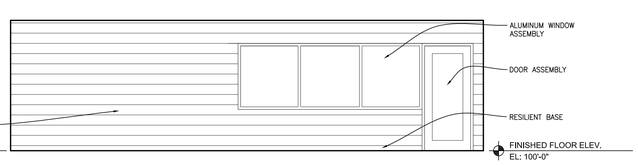
4 A1.1 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



3 A1.1 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



2 A1.1 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"



1 A1.1 INTERIOR ELEVATION
SCALE: 1/4" = 1'-0"

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INTERIOR ELEVATIONS

PRELIMINARY ■
DESIGN DEVELOPMENT ■
CONSTRUCTION ■
FINAL RECORD □

DRAWN BY JSM
CHECKED BY BJS

REVISIONS

DATE: MARCH 31, 2015

SHEET NO.
A6.1

JOB NO. 141601

DOOR AND FRAME SCHEDULE - FIRST FLOOR

DOOR OPENING			DOOR			FRAME			DETAILS						
NO.	WIDTH	HEIGHT	TYPE	MATERIAL	FINISH	TYPE	MATERIAL	FINISH	HEAD	JAMB	SILL	THRESHOLD	U.L. LABEL	HARDWARE SET	REMARKS
100	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
100A	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
101	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
102	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
102A	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
103	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
103A	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
104	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
104A	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
105	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
106	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
106A	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
107	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
107A	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
107B	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
108	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
108A	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
109	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
109A	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
109B	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
110	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
110A	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
111	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
111A	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
111B	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
112	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
113	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
118	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
119	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
120	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
122	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
123	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
124	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
124A	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
126	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
127	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
128	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
129	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
129A	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
130	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
131	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
132	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
133	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
134	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
135	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
135A	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
136	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
136A	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
137	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
137A	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
137B	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
137C	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
140	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
140A	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
141	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
141A	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
141B	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
142	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
142A	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
150	(2) 3'-0"	(2) 6'-10"	D	HM	PTD	1	HM	PTD	-	-	-	-	90 MIN	02	TOTAL DOOR SYSTEM - DOUBLE EGRESS SWING
151	3'-0"	6'-10"	A	WD	STN	4	HM	PTD	-	-	-	-	-	03	-
151A	3'-0"	6'-10"	B	AL	PFN	2	AL	PFN	-	-	-	AL	-	01	-
152	3'-0"	6'-10"	A	WD	STN	3	HM	PTD	-	-	-	-	-	03	-
152A	3'-0"	6'-10"	B	AL	PFN	3	AL	PFN	-	-	-	AL	-	01	-
153	3'-0"	6'-10"	A	WD	STN	4	HM	PTD	-	-	-	-	-	03	-
153A	3'-0"	6'-10"	B	AL	PFN	5	AL	PFN	-	-	-	AL	-	01	-
154	(2) 3'-0"	(2) 6'-10"	C	FRP	PFN	6	AL	PFN	-	-	-	AL	-	05	-
154A	(2) 3'-0"	(2) 6'-10"	B	AL	PFN	6	AL	PFN	-	-	-	-	-	06	-
155	3'-0"	6'-10"	A	WD	STN	4	HM	PTD	-	-	-	-	-	03	-
155A	3'-0"	6'-10"	B	AL	PFN	5	AL	PFN	-	-	-	AL	-	01	-
156	(2) 3'-0"	(2) 6'-10"	A	HM	PFN	6	HM	PTD	-	-	-	-	-	04	-
156A	3'-0"	6'-10"	B	AL	PFN	7	AL	PFN	-	-	-	AL	-	01	-

DOOR AND FRAME SCHEDULE - SECOND FLOOR

DOOR OPENING			DOOR			FRAME			DETAILS						
NO.	WIDTH	HEIGHT	TYPE	MATERIAL	FINISH	TYPE	MATERIAL	FINISH	HEAD	JAMB	SILL	THRESHOLD	U.L. LABEL	HARDWARE SET	REMARKS
201	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
201A	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-
202	ETR	ETR	-	-	-	-	-	-	-	-	-	-	-	-	-

ABBREVIATIONS:

DOOR AND FRAME MATERIAL:

AL	ALUMINUM
FRP	FIBER REINFORCED PLASTIC
HM	HOLLOW METAL
SS	STAINLESS STEEL
STL	STEEL
WD	WOOD

DOOR AND FRAME FINISHES:

PFN	PRE-FINISHED
PTD	PAINTED
STN	STAINED

THRESHOLD MATERIAL:

AL	ALUMINUM
MAR	SYNTHETIC MARBLE
MTL	METAL
WD	WOOD

REMARKS:

1. .
2. .
3. .

FIRST FLOOR ROOM FINISH SCHEDULE

				WALLS				CEILING		
NO.	ROOM NAME	FLOOR	BASE	NORTH	SOUTH	EAST	WEST	MATERIAL	HGT.	REMARKS
100	CLASSROOM	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
101	CLASSROOM	CPT	RB	ETR	ETR	ETR	ETR	ETR	-	-
102	CLASSROOM	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
103	CLASSROOM	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
104	CLASSROOM	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
105	MECHANICAL/ELECTRICAL	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
106	CLASSROOM	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
107	LOBBY	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
108	CLASSROOM	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
109	CLASSROOM	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
110	CLASSROOM	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
111	CLASSROOM	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
112	STORAGE	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
113	CLOSET	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
114	STORAGE	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
115	COATS	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
116	CORRIDOR	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
117	GIRL'S	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
118	STAFF T.R.	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
119	CUSTODIAL CLOSET	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
120	STAFF T.R.	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
121	BOY'S	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
122	MAIN OFFICE	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
123	FINANCE OFFICE	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
124	LOUNGE	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
125	SCIENCE PREP.	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
126	CORRIDOR	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
127	TECHNOLOGY	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
128	CONFERENCE	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
129	TIME-OUT	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
130	SPECIAL EDUCATION OFFICE	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
131	DIRECTOR'S OFFICE	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
132	PASSAGE	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
133	CLOSET	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
134	COMPUTERS	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
135	INTERVENTION	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
136	GARAGE	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
137	OFFICE	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
138	STAGE	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
139	STAIRS	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
140	KITCHEN	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
141	GYM	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
142	GYM LOBBY	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
143	WOMEN'S	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
144	MEN'S	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
150	CORRIDOR	CPT	RB	PTD	PTD	PTD	PTD	ACT-1/GYP	8'-6"	-
151	CLASSROOM	CPT	RB	PTD	PTD	PTD	PTD	ACT-1	8'-6"	-
152	INTERVENTION	CPT	RB	AL/GL	AL/GL	PTD	PTD	ACT-1	8'-6"	FUTURE CORRIDOR
153	CLASSROOM	CPT	RB	PTD	PTD	PTD	PTD	ACT-1	8'-0"	-
154	VESTIBULE	VCT	RB	PTD	PTD	AL/GL	HM/GL	ACT-1	8'-6"	-
155	CLASSROOM	CPT	RB	PTD	PTD	PTD	PTD	ACT-1	8'-0"	FUTURE COMPUTER LAB
156	CLASSROOM	CPT	RB	PTD	PTD	PTD	PTD	ACT-2/PTD	VARIES	FUTURE LIBRARY, 1, 2

SECOND FLOOR ROOM FINISH SCHEDULE

				WALLS				CEILING		
NO.	ROOM NAME	FLOOR	BASE	NORTH	SOUTH	EAST	WEST	MATERIAL	HGT.	REMARKS
201	MEZZANINE	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-
202	MECHANICAL MEZZANINE	ETR	ETR	ETR	ETR	ETR	ETR	ETR	-	-

ABBREVIATIONS:

FLOOR:

ETR	EXISTING TO REMAIN
RF	RUBBER TREADS AND LANDINGS
EPX	EPOXY COATING
CONC	CONCRETE

BASE:

ETR	EXISTING TO REMAIN
RB	RESILIENT COVE BASE
EPX	BUILT UP EPOXY

WALL:

CMU	CONCRETE MASONRY
EPX	EPOXY PAINTED
ETR	EXISTING TO REMAIN
PTD	PAINTED
BV	BRICK VENEER
BMU	BURNISHED MASONRY UNIT
PCT	PORCELAIN WALL TILE

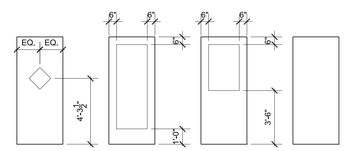
CEILING:

ETR	EXISTING TO REMAIN
EXP	EXPOSED CONSTRUCTION
PTD	PAINTED
GYP	GYPSUM BD. ON METAL FRAMING @16" O.C.

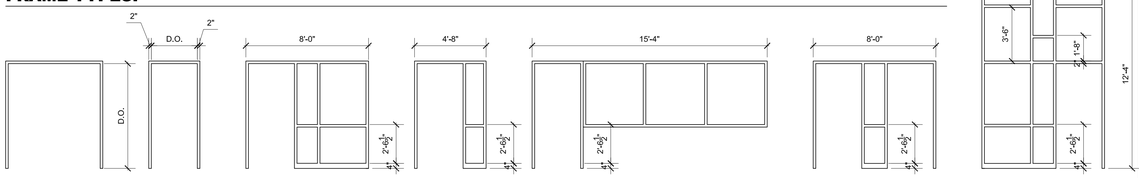
REMARKS:

1. PAINT ALL EXPOSED STRUCTURE, CONDUIT, PIPING, DUCTWORK AND DECK, ETC.
2. SEE REFLECTED CEILING PLAN ON A1.1 AND A5.1 FOR SUSPENDED CLOUD DESIGN.

DOOR TYPES:



FRAME TYPES:



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GREATER HEIGHTS ACADEMY
FOUR CLASSROOM ADDITION
FLINT, MICHIGAN

ROOF FINISH SCHEDULE, DOOR AND FRAME SCHEDULE

PRELIMINARY ■
DESIGN DEVELOPMENT ■
CONSTRUCTION ■
FINAL RECORD □

DRAWN BY JSM
CHECKED BY BJS

REVISIONS

DATE: MARCH 31, 2015

SHEET NO.
A9.1

JOB NO. 141601

MECHANICAL ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
A	COMPRESSED AIR
A(___#)	COMPRESSED AIR (SPECIFIC PSIG)
AAV	AUTOMATIC AIR VENT
ACC	AIR COOLED CONDENSER
ACCU	AIR COOLED CONDENSING UNIT
AD	ACCESS DOOR
AD	AREA DRAIN
AE	AIR EXTRACTOR
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
ALT	ALTERNATE
AMP	AMPERE
APD	AIR PRESSURE DROP
AR	ARGON
ASHRAE	AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR-CONDITIONING ENGINEERS
ASR	AUTOMATIC SPRINKLER RISER
AUX	AUXILIARY
AV	ACID VENT
AVTR	ACID VENT THROUGH ROOF
AW	ACID WASTE
BAS	BUILDING AUTOMATION SYSTEM
BCU	BLOWER COIL UNIT
BDD	BACKDRAFT DAMPER
BFF	BELOW FINISHED FLOOR
BFP	BACKFLOW PREVENTER
BHP	BRAKE HORSEPOWER
BOD	BOTTOM OF DUCT
BOP	BOTTOM OF PIPE
BTU	BRITISH THERMAL UNIT
BTUH	BRITISH THERMAL UNIT PER HOUR
BWV	BACKWATER VALVE
C	COMMON
CAP	CAPACITY
CAV	CONSTANT AIR VOLUME
CB	CATCH BASIN
CC	COOLING COIL
CD	COLD DECK
CD	CONDENSATE DRAIN
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CH	CHILLER
CHW	CHILLED WATER
CHWR	CHILLED WATER RETURN
CHWS	CHILLED WATER SUPPLY
CLG	COOLING
CNDS	CONDENSATE
CNDS (___#)	CONDENSATE (SPECIFIC PSIG)
CO	CLEAN OUT
CO2	CARBON DIOXIDE
CONT	CONTINUATION OR CONTINUED
CONTR	CONTRACTOR
CONV	CONVECTOR
COP	COEFFICIENT OF PERFORMACE
COS	CENTRAL OPERATOR STATION
CP	CIRCULATING PUMP
CRU	CONDENSATE RETURN UNIT
CSS	CLINICAL SERVICE SINK
CT	COOLING TOWER
CUH	CABINET UNIT HEATER
CW	DOMESTIC COLD WATER
CWR	CONDENSER WATER RETURN
CWS	CONDENSER WATER SUPPLY
D&T	DRIP AND TRAP
DA	DISCHARGE AIR
DAT	DISCHARGE AIR TEMPERATURE
DB	DRY BULB
DDC	DIRECT DIGITAL CONTROL
DEG	DEGREE
DFU	DRAINAGE FIXTURE UNITS
DIA	DIAMETER
DMPR	DAMPER
D/N	DAY/NIGHT
DN	DOWN
DNZ	DOWNSPOUT NOZZLE
DS	DUCT SILENCER
DT	DRAIN TILE
DTC	DRAIN TILE CONNECTION
DWH	DOMESTIC WATER HEATER
DWG	DRAWING
(E)	EXISTING
E	EXHAUST GRILLE OR REGISTER
EA	EACH
EA	EXHAUST AIR
EAT	ENTERING AIR TEMPERATURE
EC	EXPANSION COMPENSATOR
ECUH	ELECTRIC CABINET UNIT HEATER
EDB	ENTERING DRY BULB
EER	ENERGY EFFICIENCY RATIO
EEW	EMERGENCY EYE WASH
EF	EXHAUST FAN
EFF	EFFICIENCY
EHC	ELECTRIC HEATING COIL
EJ	EXPANSION JOINT
EL	ELEVATION
ELEC	ELECTRICAL
EMS	ENERGY MANAGEMENT SYSTEM
ERL	ENERGY RECOVERY LOOP
ERLR	ENERGY RECOVERY LOOP RETURN
ERLS	ENERGY RECOVERY LOOP SUPPLY
ERU	ENERGY RECOVERY UNIT
ESH	EMERGENCY SHOWER
ESP	EXTERNAL STATIC PRESSURE
EUH	ELECTRIC UNIT HEATER
EWB	ENTERING WET BULB
EWC	ELECTRIC WATER COOLER
EWT	ENTERING WATER TEMPERATURE
EXH	EXHAUST
F	FIRE PROTECTION
°F	DEGREES FAHRENHEIT
F&B	FACE AND BYPASS
F&T	FLOAT AND THERMOSTATIC
FA	FACE AREA
FCU	FAN COIL UNIT

ABBREVIATION	DESCRIPTION
FD	FLOOR DRAIN
FFD	FUNNEL FLOOR DRAIN
FH	FIRE HYDRANT
FHC	FIRE HOSE CABINET
FHR	FIRE HOSE RACK
FHV	FIRE HOSE VALVE
FLA	FULL LOAD AMPS
FLR	FLOOR
FM	FLOW MEASURING DEVICE
FMS	FLOW MEASURING STATION
FPM	FEET PER MINUTE
FP	FIRE PUMP
FPTU	FAN POWERED (AIR) TERMINAL UNIT
FS	FLOOR SINK
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
FT	FEET
FTR	FINNED TUBE RADIATION
FV	FACE VELOCITY
G	NATURAL GAS
GA	GAUGE
GAL	GALLON
GRH	GRAVITY RELIEF HOOD
GPH	GALLONS PER HOUR
GPM	GALLONS PER MINUTE
H	HYDROGEN
HB	HOSE BIBB
HC	HEATING COIL
HD	HOT DECK
HEPA	HIGH EFFICIENCY PARTICULATE ARRESTANCE
HL	HIGH LIMIT
HOA	HAND/OFF/AUTO
HP	HEAT PUMP
HP	HORSEPOWER
HPCW	HIGH PRESSURE DOMESTIC COLD WATER
HPHW	HIGH PRESSURE DOMESTIC HOT WATER
HPHWR	HIGH PRESSURE DOMESTIC HOT WATER RETURN
HPL	HEAT PUMP LOOP
HPLR	HEAT PUMP LOOP RETURN
HPLS	HEAT PUMP LOOP SUPPLY
HR	HOUR
HTG	HEATING
HV	HEATING VENTILATING
HVAC	HEATING, VENTILATING, AIR CONDITIONING
HWH	HOT WATER HEATING
HWHR	HOT WATER HEATING RETURN
HWHS	HOT WATER HEATING SUPPLY
HW	DOMESTIC HOT WATER
HW(___)	DOMESTIC HOT WATER (SPECIFIC TEMP °F)
HWR	DOMESTIC HOT WATER RETURN
HX	HEAT EXCHANGER
HZ	HERTZ
IAQ	INDOOR AIR QUALITY
ID	INSIDE DIAMETER
IE	INVERT ELEVATION
IH	INTAKE HOOD
IN	INCHES
IR	INFRARED HEATER
IW	INDIRECT WASTE
JC	JANITOR'S CLOSET
JP	JOCKEY PUMP
KW	KILOWATT
KWH	KILOWATT-HOUR
LAT	LEAVING AIR TEMPERATURE
LAB	LABORATORY
LAV	LAVATORY
LBS	POUNDS
LDB	LEAVING DRY BULB
LL	LOW LIMIT
LPC	LOW PRESSURE CONDENSATE
LPS	LOW PRESSURE STEAM
LRA	LOCKED ROTOR AMPS
LTU	LAB (AIR) TERMINAL UNIT
LWB	LEAVING WET BULB
LWT	LEAVING WATER TEMPERATURE
N	NITROGEN
N2O	NITROUS OXIDE
NC	NOISE CRITERIA
NC	NORMALLY CLOSED
NCTC	NORMALLY CLOSED TIMED CLOSED
NCTO	NORMALLY CLOSED TIMED OPEN
NFPA	NATIONAL FIRE PROTECTION ASSOCIATION
NOTC	NORMALLY OPEN TIMED CLOSED
NOTO	NORMALLY OPEN TIMED OPEN
NIC	NOT IN CONTRACT
NO	NORMALLY OPEN
NOM	NOMINAL
NPCW	NON POTABLE COLD WATER

ABBREVIATION	DESCRIPTION
O	OXYGEN
OA	OUTSIDE AIR
OAT	OUTSIDE AIR TEMPERATURE
OBD	OPPOSED BLADE DAMPER
OC	ON CENTER/CENTER TO CENTER
OD	OUTSIDE DIAMETER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
OL	OVERLOAD
ORC	OVERFLOW RAIN CONDUCTOR
ORD	OVERFLOW ROOF DRAIN
OS&Y	OUTSIDE SCREW AND YOKE
OV	OUTLET VELOCITY
PACU	PACKAGED AIR CONDITIONING UNIT
PBD	PARALLEL BLADE DAMPER
PC	PUMPED CONDENSATE
PCW	PROCESS COOLING WATER
PCWR	PROCESS COOLING WATER RETURN
PCWS	PROCESS COOLING WATER SUPPLY
PD	PRESSURE DROP (FEET OF WATER)
PH	PERIMETER HEAT
PHR	PERIMETER HEAT RETURN
PHS	PERIMETER HEAT SUPPLY
PNL	PANEL
PPM	PARTS PER MILLION
PRESS	PRESSURE
PRV	PRESSURE REDUCING VALVE
PSAN	PUMPED SANITARY
PST	PUMPED STORM
PSI	POUNDS PER SQUARE INCH
PSIA	POUNDS PER SQUARE INCH - ABSOLUTE
PSIG	POUNDS PER SQUARE INCH - GAUGE
PW	PURIFIED WATER
PWR	PURIFIED WATER RETURN
PWS	PURIFIED WATER SUPPLY
(R)	RELOCATED
R	RETURN GRILLE OR REGISTER
RA	RETURN AIR
RAT	RETURN AIR TEMPERATURE
RC	RAIN CONDUCTOR
RCP	RADIANT CEILING PANEL
RD	ROOF DRAIN
REQD	REQUIRED
REF	ROOF EXHAUST FAN
RF	RETURN FAN
RH	RELATIVE HUMIDITY
RL	REFRIGERANT LIQUID
RLFA	RELIEF AIR
RPM	REVOLUTIONS PER MINUTE
RS	REFRIGERANT SUCTION
RTU	ROOFTOP UNIT
S	SUPPLY AIR DIFFUSER OR GRILLE
SA	SOUND ATTENUATOR
SA	SUPPLY AIR
SAN	SANITARY WASTE
SAT	SUPPLY AIR TEMPERATURE
SECT	SECTION
SF	SUPPLY FAN
SH	SHOWER
SK	SINK
SMR	SNOW MELT RETURN
SMS	SNOW MELT SUPPLY
SP	STATIC PRESSURE
SPEC	SPECIFICATION
SPKLR	SPRINKLER
SQFT	SQUARE FOOT/SQUARE FEET
S/S	START/STOP
SS	SERVICE SINK
ST	STORM
STD	STANDARD
STK	STACK
STM	STEAM
STM(___#)	STEAM (SPECIFIC PSIG)
S/W	SUMMER/WINTER
SW	SWITCH
T	TRANSFER GRILLE
TC	TEMPERATURE CONTROL
TC	TEMPERING COIL
TCP	TEMPERATURE CONTROL PANEL
TD	TRENCH DRAIN
TEMP	TEMPERATURE
TEMP	TEMPORARY
TH	TERMINAL HEATING
THA	TOTAL HEAT ABSORBED
THR	TERMINAL HEATING RETURN
THR	TOTAL HEAT REJECTED
THS	TERMINAL HEATING SUPPLY
TSP	TOTAL STATIC PRESSURE
TU	(AIR) TERMINAL UNIT
TV	TURNING VANES
TYP	TYPICAL
UH	UNIT HEATER
UL	UNDERWRITER'S LABORATORY
UON	UNLESS OTHERWISE NOTED
UR	URINAL
UV	UNIT VENTILATOR
V	VALVE
V	VENT
VAC	VACUUM
VAV	VARIABLE AIR VOLUME
VB	VACUUM BREAKER
VD	VOLUME DAMPER (MANUALLY ADJUSTABLE)
VOL	VOLUME
VFC	VARIABLE FREQUENCY CONTROLLER
VTR	VENT THROUGH ROOF
VUV	VERTICAL UNIT VENTILATOR
W	WASTE
W&V	WASTE AND VENT
WB	WET BULB
WC	WATER CLOSET
WC	WATER COLUMN
WG	WATER GAUGE
WH	WALL HYDRANT
WPD	WATER PRESSURE DROP
WT	WEIGHT
XFMR	TRANSFORMER

TEMPERATURE CONTROL - PARTIAL SYMBOLS LIST

SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
CO2	CARBON DIOXIDE SENSOR	OS	OCCUPANCY SENSOR
CO	CARBON MONOXIDE SENSOR	PT	PRESSURE TRANSMITTER
DPT	DIFFERENTIAL PRESSURE TRANSMITTER	SP	STATIC PRESSURE SENSOR OR PROBE
FM	FLOW METER		VALVE - 2 WAY CONTROL VALVE
	GUARD FOR STAT OR SENSOR		VALVE - 3 WAY CONTROL VALVE
H	HUMIDISTAT OR HUMIDITY SENSOR (AS DEFINED ON TC DRAWINGS)	T	THERMOSTAT OR TEMPERATURE SENSOR (AS DEFINED ON TC DRAWINGS)

NOTE: LIST OF ADDITIONAL SYMBOLS & ABBREVIATIONS ASSOCIATED WITH TEMPERATURE CONTROLS ARE IDENTIFIED ON TC DRAWINGS.

MECHANICAL SYMBOL LIST

PIPING SYMBOLS

SYMBOL	DESCRIPTION
AV	AIR VENT - AUTOMATIC
MV	AIR VENT - MANUAL
BFP	BACKFLOW PREVENTER
	CATCH BASIN
	CIRCULATING PUMP
CO	CLEAN OUT - IN FLOOR
CO	CLEAN OUT - FLANGE
	DIRECTION OF FLOW
	DIRECTION OF PITCH - DOWN
	FINNED TUBE RADIATION
	FIRE PROTECTION - SIAMESE CONNECTION - FREE STANDING
	FIRE PROTECTION - SIAMESE CONNECTION - WALL MOUNTED
	FIRE PROTECTION - SPRINKLER HEAD, CONCEALED
	FIRE PROTECTION - SPRINKLER HEAD, PENDANT
	FIRE PROTECTION - SPRINKLER HEAD, UPRIGHT
	FIRE PROTECTION - SPRINKLER HEAD, SIDEWALL
	FLOOR DRAIN
	FLOOR DRAIN - ELEVATION
	FLOOR DRAIN - FUNNEL
	FLOOR DRAIN - FUNNEL, ELEVATION
	FLOW MEASURING DEVICE
FS	FLOW SWITCH
HB	HOSE BIBB
MH	MANHOLE
	OPEN SITE DRAIN
	PIPE - ANCHOR
	PIPE - CAP OR PLUG
	PIPE - ELBOW DOWN
	PIPE - ELBOW UP
	PIPE - EXPANSION JOINT OR COMPENSATOR
	PIPE - FLANGE
	PIPE - HOSE AND BRAID FLEXIBLE CONNECTION
	PIPE - RUBBER FLEXIBLE CONNECTION
	PIPE - GUIDE
	PIPE - TEE DOWN
	PIPE - TEE UP
	PIPE - UNION
P/T	PRESSURE AND TEMPERATURE TEST PLUG
	PRESSURE GAUGE AND COCK
	REDUCER - CONCENTRIC
	REDUCER - ECCENTRIC
	ROOF/OVERFLOW DRAIN
	STEAM TRAP - FLOAT AND THERMOSTATIC
	STEAM TRAP - BUCKET
	STRAINER
	STRAINER WITH BLOW-OFF
	THERMOMETER
	TRAP
	VALVE - ANGLE
	VALVE - BALL
	VALVE - BUTTERFLY
0.5	VALVE - BALANCE (i.e. BALANCE VALVE TO 0.5 GPM)
0.5	VALVE - COMBINATION BALANCE & FLOW MEASURING (i.e. BALANCE VALVE TO 0.5 GPM)
	VALVE - CHECK
	VALVE - SPRING CHECK
	VALVE - GAS (MANUAL)
	VALVE - GLOBE
	VALVE - ISOLATION
	VALVE - NEEDLE
	VALVE - OS&Y
	VALVE - PLUG
	VALVE - PRESSURE REGULATING
	VALVE - PRESSURE REDUCING
	VALVE - PRESSURE RELIEF
	VALVE - PRESSURE & TEMPERATURE RELIEF
VTR	VENT THROUGH ROOF
WH	WALL HYDRANT

DOUBLE LINE PIPING SYMBOLS

SYMBOL	DESCRIPTION
	FLANGE
	FLEX CONNECTION
	STRAINER - BASKET
	STRAINER - Y TYPE
	VALVE - 2 WAY CONTROL
	VALVE - 3 WAY CONTROL
	VALVE - BUTTERFLY
	VALVE - CHECK
	VALVE - DETECTOR CHECK
	VALVE - OS&Y HORIZONTAL STEM
	VALVE - OS&Y VERTICAL STEM

DUCTWORK SYMBOLS

SYMBOL	DESCRIPTION
TU-101	AIR TERMINAL UNIT
TU-101	AIR TERMINAL UNIT WITH HEATING COIL
LTU-101	LABORATORY AIR TERMINAL UNIT
LTU-101	LABORATORY AIR TERMINAL UNIT WITH HEATING COIL
	DAMPER - HORIZONTAL FIRE (EXISTING, NEW)
	DAMPER - HORIZONTAL FIRE / SMOKE (EXISTING, NEW)
	DAMPER - SMOKE (EXISTING, NEW)
	DAMPER - VERTICAL FIRE (EXISTING, NEW)
	DAMPER - VERTICAL FIRE / SMOKE (EXISTING, NEW)
BDD	DAMPER - BACK DRAFT
M	DAMPER - MOTORIZED
	DAMPER - VOLUME (MANUALLY ADJUSTABLE)
	DIFFUSER - BLANK OFF
	DIFFUSER - LINEAR SLOT
	DIFFUSER - SQUARE OR RECTANGULAR
	DUCT CROSS SECTION - SUPPLY
	DUCT CROSS SECTION - RETURN OR EXHAUST
	DUCT CROSS SECTION - EXHAUST
	DUCT - FLEXIBLE CONNECTION
	DUCT - FLEXIBLE DUCT
	DUCT TAKE-OFF - ROUND CONICAL
	DUCT TAKE-OFF - RECTANGULAR WITH SHOE TAP
	ELBOW - RECTANGULAR WITH TURNING VANES
	ELBOW - RECTANGULAR/ ROUND SMOOTH RADIUS
	ELBOW DOWN - RECTANGULAR
	ELBOW DOWN - ROUND
	ELBOW UP - RECTANGULAR
	ELBOW UP - ROUND
	FAN - AXIAL
	FAN - CENTRIFUGAL (ELEVATION)
	HEATING COIL
D	INCLINED DROP IN DIRECTION OF AIRFLOW
R	INCLINED RISE IN DIRECTION OF AIRFLOW
	INTAKE OR RELIEF HOOD
	REGISTER - RETURN OR EXHAUST
	REGISTER - RETURN WITH BOOT
	REGISTER - TRANSFER GRILLE
	ROOF EXHAUST FAN
	TRANSITION - CONCENTRIC
	TRANSITION - ECCENTRIC
	UNIT HEATER - HORIZONTAL THROW
	UNIT HEATER - VERTICAL THROW

DOUBLE LINE DUCTWORK SYMBOLS

SYMBOL	DESCRIPTION
	DUCT TAKE-OFF - RECTANGULAR WITH SHOE TAP
	DUCT TAKE-OFF - ROUND CONICAL
	ELBOW - RECTANGULAR WITH TURNING VANES
	ELBOW - RECTANGULAR SHORT RADIUS WITH SPLITTER VANES
	ELBOW - ROUND
	ELBOW - RECTANGULAR SMOOTH RADIUS
	ELBOW DOWN - RECTANGULAR
	ELBOW DOWN - ROUND
	ELBOW UP - RECTANGULAR
	ELBOW UP - ROUND
	HEATING COIL
D	INCLINED DROP IN DIRECTION OF AIRFLOW
R	INCLINED RISE IN DIRECTION OF AIRFLOW
	TRANSITION - CONCENTRIC
	TRANSITION - ECCENTRIC

MECHANICAL DRAWING INDEX

STANDARD METHODS OF NOTATION

S-1
10ø
350-4
SUPPLY DIFFUSER WITH SCHEDULE TAG "1",
10" DIAMETER NECK SIZE
350 CFM TYPICAL FOR 4

R-1
22x22
640-2
RETURN REGISTER WITH SCHEDULE TAG "1",
22"x 22" NECK SIZE
640 CFM TYPICAL FOR 2
EXHAUST REGISTER E DESIGNATION SIMILAR.

TU-101 — AIR TERMINAL UNIT WITH HEATING COIL NO. 101 WITH SERVICE CLEARANCE SHOWN

LTU-101 — LABORATORY AIR TERMINAL WITH HEATING COIL NO. 101 WITH SERVICE CLEARANCE SHOWN

8 — PIPE DIAMETER NOTATION ALL SIZES IN INCHES

8ø — DUCT SIZE NOTATION ALL SIZES IN INCHES

22x10 — OVAL DUCT

18x14ø — RECTANGULAR DUCT

1 — CONSTRUCTION NOTE NUMBER

EF 1 — EQUIPMENT DESIGNATION, (i.e. EXHAUST FAN NUMBER 1)

HW-1 — PIPING RISER DESIGNATION (i.e. HOT WATER RISER NUMBER 1)

NEW SYSTEM COMPONENT

EXISTING SYSTEM COMPONENT TO REMAIN

POINT OF NEW CONNECTION SYMBOL

1 / M5.1 — SECTION OR PLAN NUMBER; SHEET WHERE SECTION IS DRAWN

AREA OF ENLARGEMENT

1 / M5.1 — PLAN NUMBER; SHEET WHERE ENLARGED PLAN IS DRAWN

1 / M5.1 — SECTION OR PLAN NUMBER

SECTION OR ENLARGED PLAN
SCALE: 1/8" = 1' - 0"

SHEET WHERE SECTION IS CUT OR ENLARGED PLAN IS REFERENCED

~~SHEET M1.0~~ / SHEET M1.1 — MATCH LINE

HEAVY LINE WEIGHT INDICATES NEW WORK

LIGHT LINE WEIGHT INDICATES EXISTING EQUIPMENT OR REFERENCED INFORMATION

GRAY LINE INDICATES BACKGROUND INFORMATION

DASHED LINES INDICATE PIPING ROUTED BELOW SLAB OR GRADE

HATCH MARKS INDICATE EQUIPMENT OR MATERIALS TO BE DISCONNECTED AND REMOVED.

NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT.

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GREATER HEIGHTS ACADEMY
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FLINT, MICHIGAN

MECHANICAL STANDARDS AND DRAWING INDEX

PRELIMINARY ■
DESIGN DEVELOPMENT ■
CONSTRUCTION ■
FINAL RECORD □

DRAWN BY: SVM
CHECKED BY: RNR

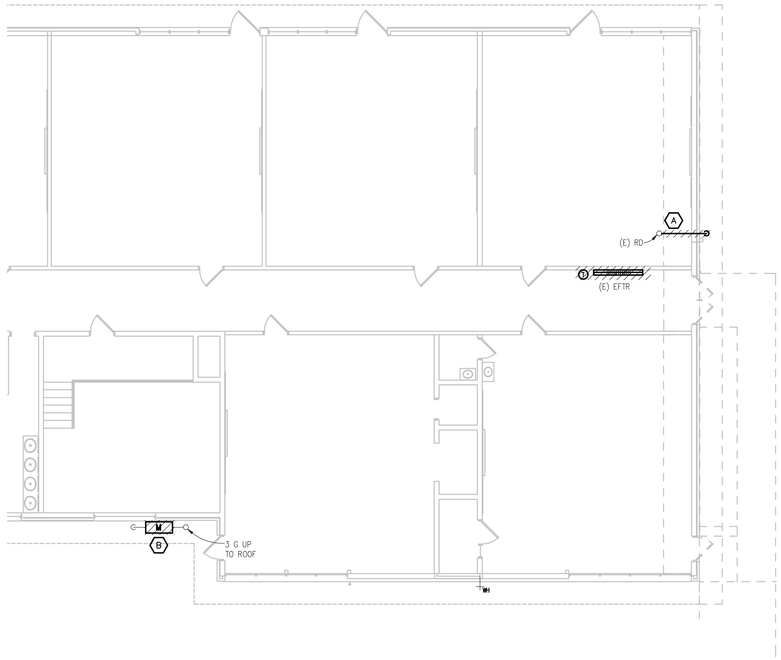
REVISIONS:

DATE: MARCH 31, 2015

SHEET NO.: M0.1

JOB NO.: 141601

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



PARTIAL FIRST FLOOR MECHANICAL DEMOLITION PLAN
SCALE: 1/8" = 1' - 0"

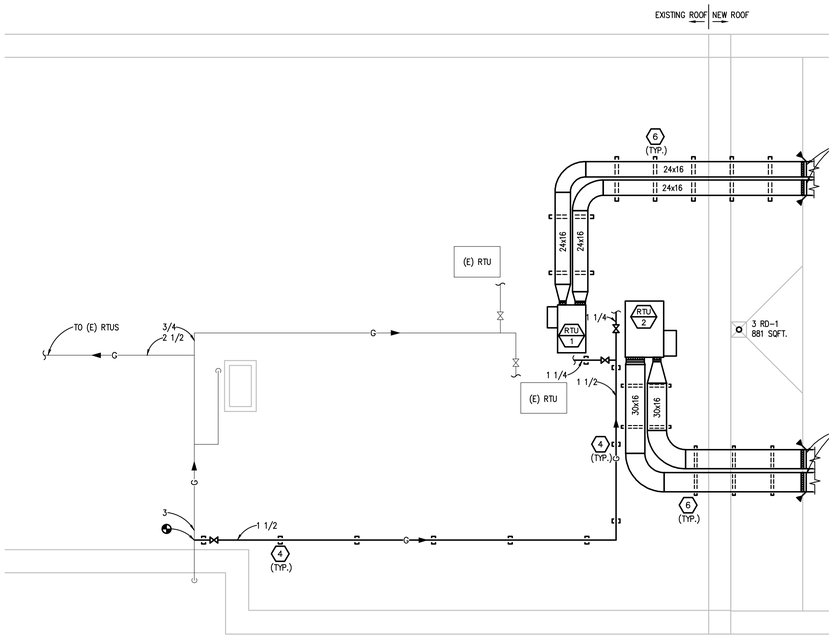
MECHANICAL GENERAL DEMOLITION NOTES:

1. ANY INTERRUPTION OF EXISTING SERVICES AND/OR EQUIPMENT SHALL BE PERFORMED AT A TIME APPROVED IN ADVANCE BY THE OWNER'S REPRESENTATIVE.
2. THESE DRAWINGS ARE DIAGRAMMATIC AND INDICATE THE GENERAL EXTENT OF THE WORK. ACTUAL ROUTING AND SIZES OF EXISTING PIPING AND DUCTWORK MIGHT DIFFER TO A LIMITED EXTENT FROM WHAT IS SHOWN. MAJOR DISCREPANCIES BETWEEN THE DRAWINGS AND ACTUAL EXISTING CONDITIONS SHALL BE REPORTED TO THE ENGINEER.
3. THE EXACT EXTENT OF DEMOLITION SHALL BE AS REQUIRED BY THE NEW WORK.
4. ALL MECHANICAL ITEMS TO BE REMOVED SHALL BE REMOVED COMPLETE, INCLUDING ALL RELATED ITEMS SUCH AS HANGERS, SUPPORTS, CONTROLS, ETC. CAP ALL OPEN ENDED PIPES AND DUCTWORK.

(#) DEMOLITION KEY NOTES:

A. REMOVE EXISTING 3 PVC RC PIPING COMPLETE. EXISTING ROOF DRAIN TO REMAIN. PREPARE ROOF DRAIN FOR NEW RC PIPING. REFER TO NEW WORK PLAN.

B. COORDINATE REPLACEMENT OF EXISTING SERVICE REGULATOR AND METER WITH UTILITY COMPANY FOR NEW TOTAL BUILDING GAS LOAD. CONTRACTOR TO VERIFY EXISTING BUILDING DELIVERY PRESSURE PRIOR TO DEMOLITION.



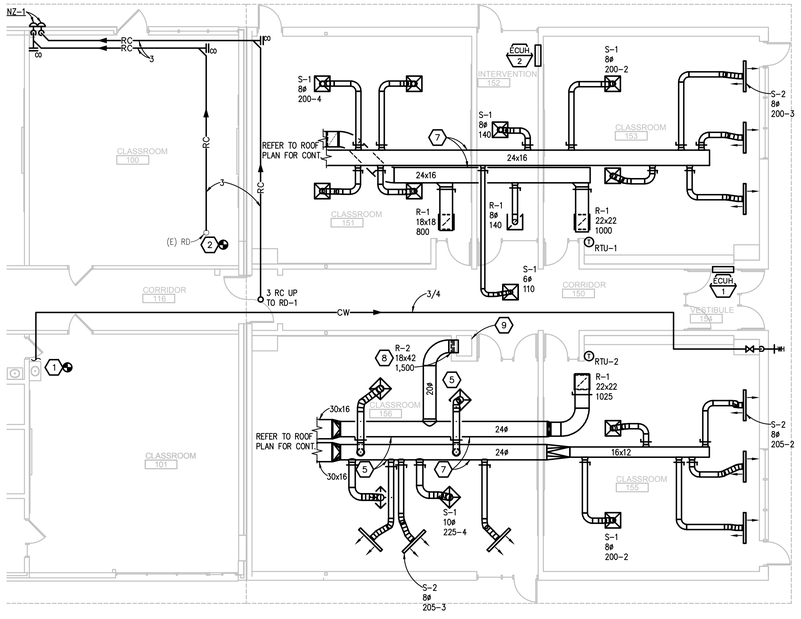
PARTIAL ROOF MECHANICAL NEW WORK PLAN
SCALE: 1/8" = 1' - 0"

SHEET METAL GENERAL NOTES:

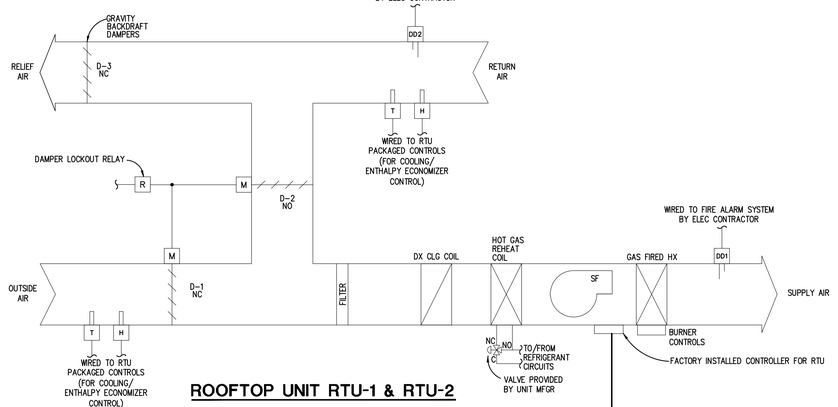
1. THESE DRAWINGS ARE DIAGRAMMATIC, AND REPRESENT THE GENERAL INTENT AND ARRANGEMENT OF SYSTEMS. THEY ARE NOT TO BE CONSIDERED FABRICATION/COORDINATION/SHOP DRAWINGS. COORDINATION WITH OTHER TRADES IS REQUIRED. PROVIDE THE ADDITIONAL FITTINGS AND OFFSETS THAT WILL BE REQUIRED TO COMPLETE EACH SYSTEM AND TO AVOID INTERFERENCES WITH ALL OTHER SYSTEMS INCLUDING THE STRUCTURE, SHEET METAL, OTHER PIPING SYSTEMS, ELECTRICAL CONDUITS, BUS DUCTS, CABLE TRAY, LIGHT FIXTURES, ETC. AND/OR OTHER SPACE CONSTRAINTS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
4. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
5. REFER TO ARCHITECTURAL REFLECTED CEILING PLANS FOR DIMENSIONED LOCATION OF GRILLES, REGISTERS, AND DIFFUSERS.

(#) CONSTRUCTION KEY NOTES:

1. CONNECT NEW 3/4 CW TO EXISTING CW PIPING SERVING EXISTING SINK ABOVE CEILING. ROUTE TO NEW WALL HYDRANT AS INDICATED.
2. CONNECT NEW 3 RC TO EXISTING ROOF DRAIN. ROUTE AS INDICATED AND TERMINATE WITH DOWNSPOUT NOZZLE 24 INCHES ABOVE GRADE.
3. COORDINATE INSTALLATION OF NEW SERVICE REGULATOR AND METER WITH UTILITY COMPANY. BUILDING DELIVERY PRESSURE TO MATCH EXISTING PRESSURE.
4. MANUFACTURED ROOF MOUNTED PIPE SUPPORT.
5. EXPOSED SPIRAL DUCT TO BE DOUBLE WALLED AND PAINTED FLAT BLACK. REFER TO SPECIFICATIONS FOR REQUIREMENTS FOR DOUBLE WALL DUCTWORK.
6. MANUFACTURED ROOF MOUNTED DUCT SUPPORT. MAINTAIN MINIMUM 24 INCHES CLEAR BETWEEN BOTTOM OF DUCTWORK AND ROOF.
7. DUCTWORK TO FOLLOW PITCH OF ROOF AS REQUIRED.
8. MOUNT BOTTOM OF GRILLE 6 INCHES AFF.
9. LINE RETURN AIR SHAFT WITH ONE INCH ACOUSTICAL LINER.
10. PROVIDE FLEX CONNECT AND FIRE DAMPER AT WALL PENETRATION FOR SA AND RA DUCTWORK.



PARTIAL FIRST FLOOR MECHANICAL NEW WORK PLAN
SCALE: 1/8" = 1' - 0"



ROOFTOP UNIT RTU-1 & RTU-2

NOTES:

1. WHERE APPLICABLE, ELECTRICAL CONTRACTOR SHALL PROVIDE FIRE ALARM SYSTEM COMPONENTS AND WIRING FROM FIRE ALARM PANEL TO CONTROL MODULE.

SEQUENCE OF OPERATION

ROOFTOP UNIT CONTROL (RTU-1 AND RTU-2):

1. RTU SHALL OPERATE BASED ON TIME SCHEDULED OCCUPIED MODE AND UNOCCUPIED MODE.
2. FOR HEATING OCCUPIED MODE, RTU SHALL RUN CONTINUOUSLY, OPERATE WITH DAMPERS IN MINIMUM OA POSITION, AND SHALL CONTROL GAS HEAT TO MAINTAIN HEATING SETPOINT OF 72°F.
3. FOR COOLING OCCUPIED MODE, RTU SHALL RUN CONTINUOUSLY AND DX COOLING STAGES SHALL BE CONTROLLED TO MAINTAIN COOLING SETPOINT OF 75°F.
4. FOR HEATING UNOCCUPIED MODE, RTU SHALL CYCLE ON & OFF TO MAINTAIN A SETBACK SPACE TEMP SETPOINT OF 62°F. OUTSIDE AIR DAMPERS SHALL REMAIN CLOSED DURING UNOCCUPIED MODE.
5. FOR COOLING UNOCCUPIED MODE, RTU SHALL CYCLE ON & OFF AND DX COOLING STAGES SHALL BE CONTROLLED TO MAINTAIN A SETBACK TEMPERATURE OF 85°F. OUTSIDE AIR DAMPERS SHALL REMAIN CLOSED DURING UNOCCUPIED MODE.
6. DEHUMIDIFICATION CONTROL: DURING OCCUPIED MODE, RTU SHALL MONITOR RETURN AIR HUMIDITY. WHEN RA HUMIDITY RISES ABOVE 60% RH, PACKAGED RTU CONTROLS SHALL ACTIVATE DEHUMIDIFICATION MODE (HOT GAS REHEAT). HOT GAS REHEAT COIL SHALL REMAIN INACTIVE WHEN HOT WATER HEATING COIL IS BEING USED FOR HEAT.
7. WHEN RTU IS ACTIVATED DURING OCCUPIED MODE; OUTSIDE & RETURN AIR DAMPERS SHALL OPEN TO MINIMUM OA POSITION. RTU SHALL BE PACKAGED WITH FACTORY MOUNTED ENTHALPY ECONOMIZER CONTROLS.
8. DUCT SMOKE DETECTOR(S) SHALL DEACTIVATE RTU (SF) WHEN PRODUCTS OF COMBUSTION ARE DETECTED.
9. WHEN RTU IS DEACTIVATED, DX COOLING SHALL REMAIN OFF AND GAS-FIRED BURNER SHALL REMAIN OFF.

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PARTIAL FIRST FLOOR MECHANICAL PLANS

PRELIMINARY	■
DESIGN DEVELOPMENT	■
CONSTRUCTION	■
FINAL RECORD	□
DRAWN BY:	SVM
CHECKED BY:	RNR

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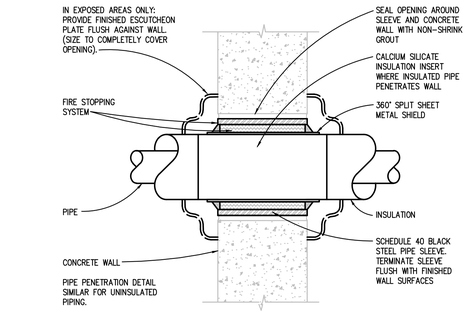
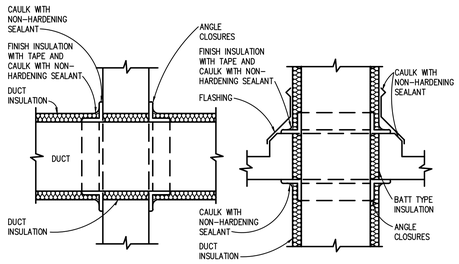


DETAIL INDICATES THE INSTALLATION REQUIREMENTS FOR A FIRE RATED ASSEMBLY. FOR A NON-FIRE RATED ASSEMBLY PACK SLEEVED OPENING WITH INSULATION MATERIAL AND CAULK WITH NON-HARDENING SEALANT.

FIRE RATED AND NON-FIRE RATED POURED CONCRETE OR BLOCK WALL PIPE PENETRATION DETAIL

NO SCALE



VERTICAL OR HORIZONTAL (NON FIRE RATED ASSEMBLY) DUCT PENETRATION DETAIL

NO SCALE

BRANCH CONNECTION OFF TOP

APPLIES TO THE FOLLOWING SYSTEMS:
DOMESTIC WATER
STEAM & CONDENSATE
LABORATORY GASES
LABORATORY VACUUM
COMPRESSED AIR
NATURAL GAS

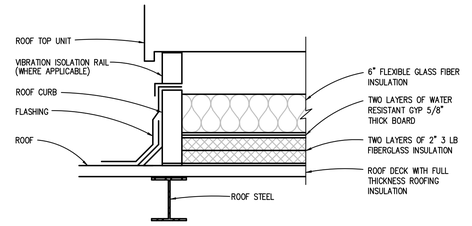
BRANCH CONNECTION OFF BOTTOM

APPLIES TO THE FOLLOWING SYSTEMS:
HOT WATER HEATING
CHILLED WATER
CONDENSER WATER
ENERGY RECOVERY
PROCESS COOLING WATER

NOTE: BOTTOM AS INDICATED OR SIDE CONNECTION IS ACCEPTABLE. CONNECTION ABOVE CENTERLINE OF MAINS IS NOT ACCEPTABLE.

TYPICAL BRANCH TAKE-OFF CONNECTION PIPING DETAIL

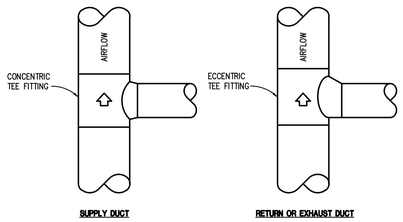
NO SCALE



NOTE: ALL DUCT, PIPING, OR ELECTRICAL CONNECTIONS TO UNIT BELOW CURB SHALL HAVE FLEXIBLE CONNECTIONS. CUT INSULATION, GYP BOARD, ROOFING INSULATION, AND METAL DECKING PENETRATIONS TIGHT TO ITEM PENETRATING ROOF. PACK ALL PENETRATION OPENINGS WITH FLEXIBLE GLASS FIBER.

ROOF TOP UNIT CURB DETAIL

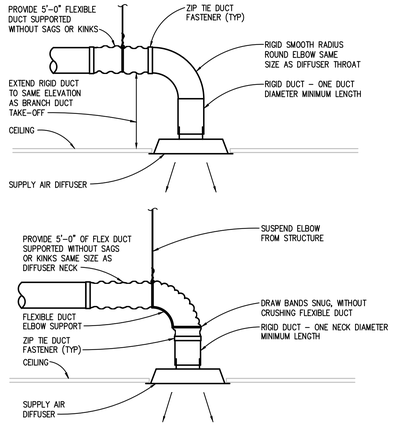
NO SCALE



SUPPLY DUCT **RETURN OR EXHAUST DUCT**

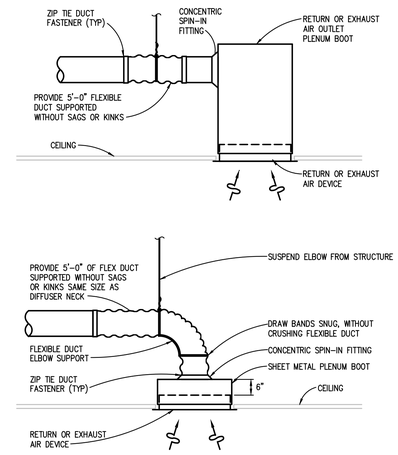
SPIRAL DUCT BRANCH TAKE-OFF DETAILS

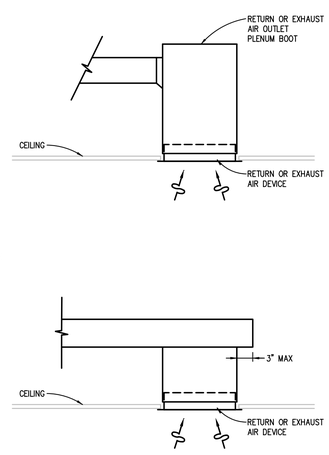
NO SCALE **(ROUND AND FLAT OVAL SIMILAR)**



ROUND NECK SUPPLY AIR DIFFUSER DETAIL

NO SCALE

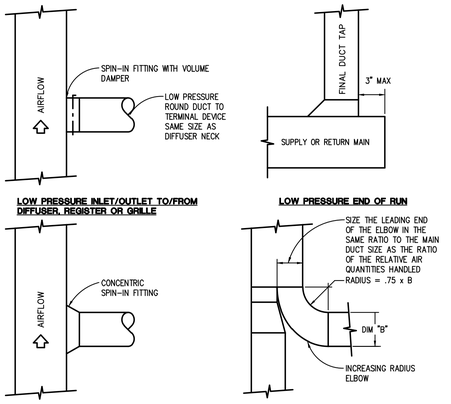




RETURN OR EXHAUST AIR DEVICE INSTALLATION DETAIL

NO SCALE

NOTE: PAINT INTERIOR SURFACE OF PLENUM BOX FLAT BLACK.



RECTANGULAR DUCT BRANCH TAKE-OFF DETAILS

NO SCALE

GAS LOAD SCHEDULE

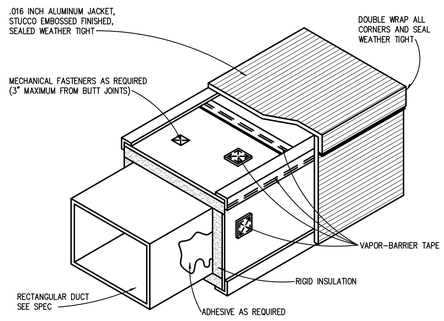
ITEM	TOTAL CFH
(E) RTU	115
(E) RTU	115
(E) RTU	180
(E) RTU	180
(E) RTU	115
(E) RTU	115
(E) RTU	115
(E) RTU	115
(E) RTU	250
(E) RTU	250
(E) RTU	115
(E) WH	199
RTU-1	115
RTU-2	125
CONNECTED GAS LOAD =	2,104 CFH

*GAS TRAIN PROVIDED BY EQUIPMENT MANUFACTURER – SEE SPECIFICATIONS

**GAS PRESSURE REGULATOR PROVIDED BY FOOD SERVICE MANUFACTURER

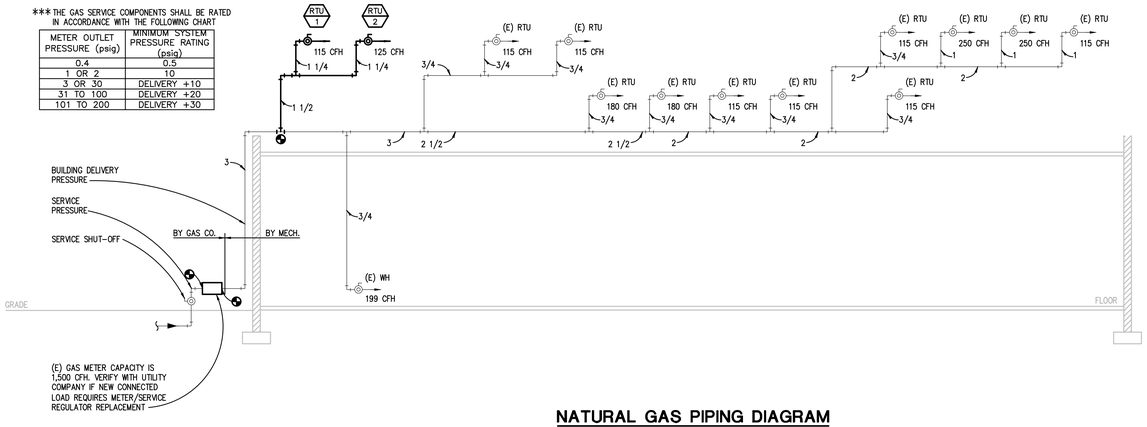
***THE GAS SERVICE COMPONENTS SHALL BE RATED IN ACCORDANCE WITH THE FOLLOWING CHART

METER OUTLET PRESSURE (psig)	MINIMUM SYSTEM PRESSURE RATING (psig)
0.4	0.5
1 OR 2	10
3 OR 30	DELIVERY +10
31 TO 100	DELIVERY +20
101 TO 200	DELIVERY +30



OUTDOOR DUCT INSULATION DETAIL

NO SCALE



NATURAL GAS PIPING DIAGRAM

NO SCALE

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CHECKED BY: RNR

REVISIONS:

DATE: MARCH 31, 2015

SHEET NO.:

M6.1

JOB NO.: 141601

PLUMBING PIPING & VALVE APPLICATION SCHEDULE

PIPE SIZE (INCHES)	MATERIAL: SOFT COPPER TYPE K	SOFT COPPER TYPE L	HARD COPPER TYPE M	CARBON STEEL (SCHED. 40)	CARBON STEEL (STD.)	GALV. STEEL (SCHED. 40)	PEX	PE PIPE	PE SHEATHED CARBON STEEL PIPE	CSST	NO-HUB CISP	PVC TYPE DWV	PP DRAINAGE PIPE	COPPER TYPE DWV	DUCTILE IRON PIPE	PRESSURE CONNECTIONS: SOLDERED	BRAZED	WELDED	THREADED	FLANGED	GROOVED	INSERT & CRIMP	FUSION	PRESSURE-SEAL	MECHANICALLY-FORMED TEE	MECHANICAL JOINT	PUSH-ON-JOINT	GRAVITY DWV CONNECTIONS: SOLVENT WELDED	SOLDERED	FUSION	CISPI HUBLESS	HEAVY-DUTY HUBLESS	ISOLATION VALVES: BALL	AGA BALL	GENERAL SERVICE BUTTERFLY	LUBRICATED PLUG	GATE	KEYED NOTES
ABOVEGROUND DOMESTIC WATER (POTABLE AND NON-POTABLE) ON DISTRIBUTION SIDE OF METER - MIN. WORKING PRESS. & TEMP.: 125 PSIG AT 200 DEG F																																							
UP TO 4		X														X	X							X	X								X		X			A
ABOVEGROUND COLD CONDENSATE DRAIN - MIN. WORKING PRESSURE: 10 FT. HEAD OF WATER																																							
ALL SIZES			X											X		X	X																						
ABOVEGROUND STORM DRAINAGE - MIN. WORKING PRESS.: 10-FOOT HEAD OF WATER																																							
3 TO 15											X																						X						
ABOVEGROUND FUEL GAS - MIN. WORKING PRESS.: 100 PSIG																																							
UP TO 2				X													X	X																X					E
2-1/2 TO 3				X													X		X															X					E

GENERAL NOTES

1. 'X' INDICATES ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED FOR A PIPING SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. DISSIMILAR-METAL PIPING JOINTS: CONSTRUCT JOINTS USING DIELECTRIC FITTINGS COMPATIBLE WITH BOTH PIPING MATERIALS.
   a. NPS 2 AND SMALLER: USE DIELECTRIC NIPPLE/WATERWAY.
   b. NPS 2-1/2 AND LARGER: USE DIELECTRIC FLANGE KITS.
3. USE UNIONS OR FLANGES AT VALVE AND EQUIPMENT CONNECTIONS.
4. PLUMBING EQUIPMENT DRAINS, VENTS, SAFETY VALVE PIPING, BLOWDOWN PIPING AND THE LIKE SHALL BE SAME PIPING MATERIAL AS ASSOCIATED PIPING SYSTEM.
5. GROOVED END VALVES MAY BE USED WITH GROOVED PIPING.

KEYED NOTES

A. GROOVED AND PRESSURE SEALED FITTINGS, JOINTS, AND COUPLINGS, IF INDICATED AS AN ACCEPTABLE SELECTION, MAY BE USED IN ACCESSIBLE LOCATIONS ONLY FOR THIS PIPING SYSTEM.
B. JOINTS ARE NOT PERMITTED ON UNDERGROUND WATER PIPING.
C. USE CAST IRON DRAINAGE PATTERN (DURHAM) FITTINGS.
D. INSTALL IN CONTAINMENT JACKET, REFER TO SPECIFICATIONS.
E. USE STEEL WELDING FITTINGS AND WELDED JOINTS IN PLENUM CEILINGS. VALVES, FLANGES, OR UNIONS ARE PROHIBITED.
F. NO JOINTS ALLOWED UNDERGROUND.

ABOVEGROUND PLUMBING PIPE & ACCESSORY INSULATION APPLICATION SCHEDULE

	INSULATION MATERIAL & THICKNESS (INCHES): FLEXIBLE ELASTOMERIC	FIBERGLASS	MINERAL WOOL	POLYISOCYANURATE	PHENOLIC	CELLULAR GLASS	CALCIUM SILICATE	FIELD-APPLIED JACKET MATERIAL: ALUMINUM	STAINLESS STEEL	PVC	SELF-ADHESIVE (FOR OUTDOOR APPLICATIONS)	PVDC (INDOOR)	PVDC (OUTDOOR)	KEYED NOTES
INDOOR PIPE SYSTEM AND SIZE (INCHES)														
DOMESTIC COLD WATER	1	1						X		X				A

UNLESS OTHERWISE INDICATED OR SCHEDULED, DO NOT INSULATE THE FOLLOWING:
FIRE SUPPRESSION PIPING
UNDERGROUND PIPING
LABORATORY GAS AND VACUUM PIPING
MEDICAL GAS AND VACUUM PIPING
FUEL GAS PIPING
FUEL OIL PIPING

GENERAL NOTES

1. 'X' OR THICKNESS IN INCHES INDICATES ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED FOR A SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. INSULATE PIPING WITHIN AIR HANDLING EQUIPMENT THE SAME AS INDOOR PIPING. PROVIDE ALUMINUM OR STAINLESS STEEL JACKET.

KEYED NOTES

A. PROVIDE FIELD APPLIED JACKET FOR PIPING EXPOSED IN EQUIPMENT ROOMS, STORAGE ROOMS, JANITORS CLOSETS, RECEIVING ROOMS, TEST AREAS, CIRCULATION AREAS AND SUCH AREAS SUBJECT TO DAMAGE, WITHIN 10 FEET (3 METERS) OF FINISHED FLOOR.

SCHEDULES GENERAL NOTES:

TYPICAL FOR ALL SCHEDULE SHEETS:

1. REFER TO ELECTRICAL STANDARD SCHEDULES, ONE LINE DIAGRAM AND PANEL SCHEDULES FOR ADDITIONAL ELECTRICAL INFORMATION
2. PROVIDE THE FOLLOWNG FACTORY-WIRED ELECTRICAL OPTIONS/ACCESSORIES WHERE INDICATED IN SCHEDULE:
   A – NON-FUSED DISCONNECT SWITCH
   B – UNIT SHALL BE SINGLE POINT ELECTRICAL CONNECTION WITH FACTORY INSTALLED DISCONNECTING MEANS AND ALL REQUIRED STARTERS AND CONTROLS
   C – SERVICE RECEPTACLE
   D – FUSED DISCONNECT SWITCH
   E – COMBINATION STARTER
   F – UNIT SHALL HAVE (2) SINGLE POINT CONNECTIONS WITH FACTORY INSTALLED DISCONNECTING MEANS AND ALL REQUIRED STARTERS AND CONTROLS. (1) CONNECTION SHALL BE FOR CONDENSING SECTION AND (1) CONNECTION SHALL BE FOR THE REMAINDER OF THE UNIT.
3. FOR MODULATION/CONTROL TYPE COLUMN, "VFC" INDICATES VARIABLE FREQUENCY CONTROLLERS, "AUTO" INDICATES AUTOMATIC OPERATION (CONTROLLED BY TEMPERATURE CONTROLS OR SELF CONTAINED CONTROLS), "MANUAL" INDICATES HAND OPERATION.
4. IF VARIABLE FREQUENCY CONTROLLERS ARE INDICATED TO BE PROVIDED AND ARE NOT INSTALLED INTEGRAL TO THE UNIT, VARIABLE FREQUENCY CONTROLLERS SHALL BE SUPPLIED BY THE MECHANICAL CONTRACTOR (UNLESS OTHERWISE NOTED) AND INSTALLED BY THE ELECTRICAL CONTRACTOR INCLUDING THE LINE SIDE AND LOAD SIDE WIRING TO THE MOTOR AND INCLUDING MISCELLANEOUS STEEL REQUIRED FOR THE SUPPORT AND MOUNTING OF THE VFC. REFER TO FLOOR PLANS FOR LOCATION.
5. WHERE EQUIPMENT IS INDICATED TO HAVE A SINGLE POINT ELECTRICAL CONNECTION, THAT EQUIPMENT SHALL COME COMPLETE WITH FACTORY INSTALLED STARTERS, MOTOR OVERLOAD PROTECTION, CONTACTORS, FUSING AND ALL NECESSARY INTERNAL WIRING AND CONTROLS. PROVIDE A FACTORY MOUNTED UNIT DISCONNECTING MEANS WHERE THE ELECTRICAL CONTRACTOR SHALL MAKE SINGLE POINT CONNECTION. INSTALL PACKAGED EQUIPMENT SUCH THAT THE ELECTRICAL CONNECTION AND CONTROLS ARE ACCESSIBLE AND HAVE CLEARANCES MEETING THE NATIONAL ELECTRICAL CODE.
6. WHERE PACKAGED EQUIPMENT IS PROVIDED, NAMEPLATE MUST INDICATE MAXIMUM OVERCURRENT PROTECTION BY HACR RATED CIRCUIT BREAKERS OR FUSES. IF FUSE PROTECTION ONLY IS INDICATED, PROVIDE A FUSIBLE DISCONNECT AND FUSES WITH THE UNIT.
7. WHERE EQUIPMENT IS DESIGNATED BY MANUFACTURER AND MODEL NUMBER, THIS IS THE BASIS OF DESIGN. IF THE CONTRACTOR ELECTS TO PROVIDE EQUIPMENT BY OTHER SPECIFIED MANUFACTURERS OR PROPOSED ALTERNATE EQUIPMENT BY THE BASIS OF DESIGN MANUFACTURER, THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY REVISIONS TO ELECTRICAL REQUIREMENTS, STRUCTURAL LOADING, OR ARCHITECTURAL APPURTENANCES AND SHALL INCLUDE THE COST OF SUCH REVISIONS IN HIS BID.
8. WHERE EQUIPMENT IS SCHEDULED TO INCLUDE A SERVICE RECEPTACLE, PROVIDE A FACTORY MOUNTED SERVICE RECEPTACLE WITH APPROPRIATE FUSES AND TRANSFORMERS CONNECTED ON THE LINE SIDE OF THE UNIT DISCONNECT. PROVIDE A NAMEPLATE ON THE DISCONNECT SWITCH INDICATING THE PRESENCE OF LIVE POWER TO THE SERVICE RECEPTACLE WHEN HE UNIT DISCONNECT IS IN THE OFF POSITION.
9. SIZE ALL EQUIPMENT FEEDERS BASED ON THE LISTED MOP (MAXIMUM OVERCURRENT PROTECTION). REFER TO THE FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE ON THE ELECTRICAL STANDARD SCHEDULES SHEET.

DUCT SYSTEM APPLICATION SCHEDULE

AIR SYSTEMS	DUCT MATERIAL: G90 GALV. SHEET METAL	DOUBLE-WALL LINED G90 GALV. SHEET METAL (SOLID INNER WALL)	DOUBLE-WALL LINED G90 GALV. SHEET METAL (PERF. INNER WALL)	G90 GALV. SHEET METAL WITH 1-INCH LINING	GALVANNEALED SHEET METAL	ALUMINUM	TYPE 304 STAINLESS STEEL	TYPE 316 STAINLESS STEEL	PVC COATED GALV. SHEET METAL (4X1)	PVC COATED GALV. SHEET METAL (1X4)	PVC COATED GALV. SHEET METAL (4X4)	16 GA. CARBON STEEL	ZERO-CLEARANCE PREFABRICATED RANGE HOOD EXHAUST DUCT	FABRIC	DESIGN PRESSURE CLASS (INCHES WG)	SEAL CLASS	MAX. ALLOWABLE LEAKAGE RATE (PERCENT)	KEYED NOTES
SUPPLY AIR WITHOUT TERMINAL UNITS	X														+2	A	5	
RETURN AIR WITHOUT TERMINAL UNITS	X														-2	A	5	
EXHAUST AIR WITHOUT TERMINAL UNITS	X														-2	A	5	

GENERAL NOTES

1. 'X' INDICATES ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED FOR A DUCT SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.

KEYED NOTES

A. SCREWS, DAMPERS, OR PROJECTIONS OF ANY TYPE ON INTERIOR OF DUCT SURFACE ARE PROHIBITED.
B. DUCT SHALL BE LINED WITHIN 25 FEET UPSTREAM OF FANS.
C. ALL WELDED CONSTRUCTION.

DUCT SYSTEM INSULATION APPLICATION SCHEDULE

	INSULATION MATERIAL & THICKNESS (INCHES): FIBERGLASS BLANKET 0.75 LB/CU FT	FIBERGLASS BLANKET 1.0 LB/CU FT	FIBERGLASS BOARD 2.25 LB/CU FT	FIBERGLASS BOARD 6.0 LB/CU FT	FLEXIBLE ELASTOMERIC	ASTM E2336 2-HOUR FIRE RATED BLANKET	2-HOUR FIRE RATED BLANKET	FIELD APPLIED JACKET MATERIAL: ALUMINUM	SELF-ADHESIVE (FOR OUTDOOR APPLICATIONS)	KEYED NOTES
DUCT SYSTEMS LOCATED INDOORS										
SUPPLY AIR AND RETURN AIR		1.5								A
DUCT SYSTEMS LOCATED OUTDOORS										
RECTANGULAR DUCTS AND AIR PLENUMS, ALL TYPES				2				X		E

PLENUMS, DUCTS, AND DUCT ACCESSORIES NOT REQUIRING INSULATION:
FIBROUS-GLASS DUCTS
DOUBLE-WALL METAL DUCTS WITH INSULATION OF SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE AND ASHRAE/IESNA 90.1 – 2007
METAL DUCTS WITH DUCT LINER OF SUFFICIENT THICKNESS TO COMPLY WITH ENERGY CODE AND ASHRAE/IESNA 90.1 – 2007
EXPOSED SUPPLY DUCT IN CONDITIONED SPACE SERVED BY THAT SYSTEM
FABRIC SUPPLY DUCTS
FACTORY-INSULATED FLEXIBLE DUCTS
FACTORY-INSULATED PLENUMS AND CASINGS
FLEXIBLE CONNECTORS
VIBRATION-CONTROL DEVICES
FACTORY-INSULATED ACCESS PANELS AND DOORS

GENERAL NOTES

1. 'X' OR THICKNESS IN INCHES INDICATE ACCEPTABLE SELECTION. IF MORE THAN ONE SELECTION IS INDICATED FOR A DUCT SYSTEM, CONTRACTOR MAY SELECT FROM THOSE INDICATED SELECTIONS.
2. REFER TO METAL DUCT SECTION OF SPECIFICATIONS FOR DUCT LINING AND DOUBLE-WALL INSULATED DUCT.
3. REFER TO HVAC CASINGS SECTION OF SPECIFICATIONS FOR DOUBLE-WALL INSULATED PLENUMS.

KEYED NOTES

A. INCLUDE INSULATION AROUND DUCT MOUNTED COILS AND AIR TERMINAL UNIT COILS.
B. NUMBER OF LAYERS AND TOTAL INSULATION THICKNESS AS RECOMMENDED BY SELECTED MANUFACTURER.
C. DOES NOT APPLY TO PREFABRICATED, ZERO-CLEARANCE GREASE DUCT.
D. PROVIDE MANUFACTURER'S RECOMMENDED PROTECTIVE COATING FOR FLEXIBLE ELASTOMERIC THERMAL DUCT INSULATION.
E. INSULATE DUCTWORK IN CRAWLSPACES, VENTILATED ATTICS, AND PARKING GARAGES HAVING NATURAL OR MECHANICAL VENTILATION THE SAME AS OUTDOOR DUCTWORK.

ROOF MOUNTED PIPING SUPPORT APPLICATION SCHEDULE

PIPE TYPE & SIZE	SUPPORT TYPE: LOW FIXED-HEIGHT SINGLE-BASE STAND	LOW ADJUSTABLE-HEIGHT SINGLE-BASE STAND	HIGH ADJUSTABLE-HEIGHT SINGLE-BASE STAND	LOW FIXED HEIGHT SINGLE-BASE ROLLER STAND	LOW ADJUSTABLE-HEIGHT SINGLE-BASE ROLLER STAND	HIGH MULTIPLE-BASE PIPE STAND	CUSTOM MULTIPLE BASE PIPE STAND	CURB-MOUNTING PIPE STAND	SHIELD TYPE: MSS TYPE 39 PROTECTION SADDLE	MSS TYPE 40 INSULATION PROTECTION SHIELD	THERMAL-HANGER SHIELD	KEYED NOTES
SINGLE PIPES												
NATURAL GAS NPS 5 AND SMALLER				X	X			X				

GENERAL NOTES

1. "X" INDICATES APPROVED HANGER OR SUPPORT ELEMENTS. IF MORE THAN ONE HANGER OR SUPPORT ELEMENT IS INDICATED, SELECTION FROM APPROVED ELEMENTS IS CONTRACTOR'S OPTION.
2. REFER TO HANGER AND SUPPORT SECTION FOR APPROVED MANUFACTURERS. CONTRACTOR'S OPTION.
3. SUPPORT ELEMENTS IN CONTACT WITH BARE COPPER PIPE SHALL BE COPPER PLATED, PLASTIC OR PLASTIC COATED, FELT LINED, OR USE MANUFACTURED COPPER TUBE ISOLATORS

GRILLE, REGISTER, AND DIFFUSER SCHEDULE

UNIT IDENTIFICATION	TYPE	FACE SIZE	NECK SIZE	FRAME TYPE	ACCESSORY	CONSTRUCTION	FINISH	MODEL NUMBER	REMARKS
S-1	DIFFUSER	24x24	SEE PLANS	LAY-IN	---	STEEL	WHITE	SPD	
S-2	DIFFUSER	48x4	SEE PLANS	LAY-IN	INSULATED PLENUM	STEEL	WHITE	TBD-3	3 SLOTS 1 INCH WIDTH
R-1	GRILLE	24x24	SEE PLANS	LAY-IN	---	STEEL	WHITE	PDDR	
R-2	GRILLE	D + 1 1/4	SEE PLANS	SIDEWALL	---	STEEL	WHITE	60S	

NOTE:
1. MODEL NUMBERS ARE PRICE UNLESS OTHERWISE NOTED.

ELECTRIC CENTRIFUGAL FAN CABINET UNIT HEATER SCHEDULE

UNIT IDENTIFICATION	CAPACITY MBH	AIR: AIRFLOW CFM	E.D.B. °F	L.D.B. °F	FAN: H.P.	R.P.M.	HEATING ELEMENT: 1ST STAGE KW	TOTAL KW	DIMENSIONS: LENGTH INCHES	HEIGHT INCHES	DEPTH INCHES	RECESS DEPTH INCHES	FILTER: TYPE	MODULATION/ CONTROL TYPE	ELECTRICAL: VOLTS	PHASE	FLA	MOP	OPTIONS/ ACCESSORIES	MODEL NUMBER	REMARKS
ECUH-1	10.2	250	65	103	1/10	1750	2	3	33	25	9	4	THROWAWAY	AUTO	460	3	4.1	15	B	6333D0348J3	NOTE 3
ECUH-2	10.2	250	65	103	1/10	1750	2	3	33	25	9	4	THROWAWAY	AUTO	460	3	4.1	15	B	6333D0348J3	NOTE 3

NOTE:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE MARKEL UNLESS OTHERWISE NOTED.
3. INTEGRAL 2-STAGE THERMOSTAT AND DISCONNECT.

UNITARY ROOFTOP AIR CONDITIONING UNIT SCHEDULE

UNIT I.D.	AREA SERVED	SUPPLY FAN: AIRFLOW CFM	MIN. OUTSIDE AIR FLOW CFM	E.S.P. IN. W.G.	T.S.P. IN. W.G.	FAN SPEED RPM	BHP	HP	HEATING SECTION – GAS FIRED (NAT. GAS): AIR TEMP. E.A.T. °F	AIR TEMP. L.A.T. °F	CAPACITY (MBH) INPUT	CAPACITY (MBH) OUTPUT	GAS PRESSURE TO GAS TRAIN IN. W.C.	COOLING SECTION – DX: MIXED AIR E.D.B. °F	MIXED AIR E.W.B. °F	UNIT LEAVING AIR L.D.B. °F	UNIT LEAVING AIR L.W.B. °F	NET UNIT CAPACITY TOTAL MBH	NET UNIT CAPACITY SENSIBLE MBH	REFRIG. TYPE	MAX. FACE VEL F.P.M.	INTEGRAL AIR-COOLED CONDENSING SECTION: DESIGN AMBIENT TEMP °F	MIN. AMBIENT TEMP. °F	NO. OF CAPACITY CONTROL STAGES	FILTER SECTION: TYPE	AIR PRESS. DROP INITIAL IN. W.G.	AIR PRESS. DROP FINAL IN. W.G.	CURB: TYPE	CURB: VIBRATION ISOLATION SPRING CURB	CURB: HEIGHT	MAXIMUM UNIT DIMENSIONS: LENGTH	HEIGHT (WITH CURB)	WIDTH	MAXIMUM UNIT OPERATING WEIGHT LBS. (WITH CURB)	ARRANGEMENT	TOTAL UNIT ELECTRICAL: VOLTS	PHASE	MCA	MOP	OPTIONS/ ACCESSORIES	MODEL NO.	NOTES
RTU-1	CLASSROOMS 151 & 153	2,050	790	0.5	0.8	1258	1.47	2	40.4	82	115	93	5" – 13"	80.7	68.8	57	57	75.7	51.4	R-410A	500	95	40	1	MERV 8	0.25	1.0	YES	NO	14	74 3/8	55 3/8	44	1,000	HORIZONTAL DISCHARGE	460	3	17	20	B, C	48TCEB07A1A6	NOTE 6
RTU-2	CLASSROOMS 155 & 156	2,525	790	0.5	0.8	736	1.36	2	46.3	84	125	103	5" – 13"	79.7	68.0	57	57	88.4	53.3	R-410A	500	95	40	2	MERV 8	0.25	1.0	YES	NO	14	88	55 3/8	59 1/2	1,500	HORIZONTAL DISCHARGE	460	3	20	25	B, C	48TCDE08A1A6	NOTE 6

NOTE:
1. REFER TO SCHEDULES GENERAL NOTES.
2. MODEL NUMBERS ARE CARRIER UNLESS OTHERWISE NOTED
3. DESIGN MINIMUM OUTSIDE AIRFLOW CFM (VENTILATION) LISTED IS BASED ON THE ESTIMATED MAXIMUM OCCUPANT LOAD. REFER TO TEMPERATURE CONTROL DRAWINGS FOR OUTSIDE AIR CONTROL SEQUENCE.
4. MERV DESIGNATES THE "MINIMUM EFFICIENCY REPORTING VALUE" AS EVALUATED UNDER ASHRAE STANDARD 52.2 1999.
5. AIR HANDLING UNIT TOTAL STATIC PRESSURE FOR VARIABLE AIR VOLUME SYSTEMS IS BASED ON THE FILTER DIRTY AIR PRESSURE DROP AND AVERAGE/MIDLIFE FILTER AIR PRESSURE DROP FOR CONSTANT VOLUME SYSTEMS UNLESS NOTED OTHERWISE.
6. PROVIDE ROOFTOP UNIT WITH HOT GAS REHEAT AND FACTORY PROVIDED 7-DAY PROGRAMMABLE THERMOSTAT WITH AUTOMATIC CHANGEOVER FUNCTION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

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DRAWN BY: SVM
CHECKED BY: RNR

REVISIONS:

DATE: MARCH 31, 2015

SHEET NO.: M7.1

JOB NO.: 141601

ELECTRICAL SYMBOL LIST

(NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT)

SYMBOL	DESCRIPTION
FX	FIXTURE TYPE
	LIGHTING FIXTURE
	DIRECT/INDIRECT LIGHTING FIXTURE
	EMERGENCY FIXTURE
FX-NL	NIGHT LIGHTING FIXTURE
	LIGHTING FIXTURE
	EMERGENCY FIXTURE
	WALL MOUNTED LIGHTING FIXTURE
	LIGHTING FIXTURE
	EMERGENCY FIXTURE
	DIRECTIONAL LIGHTING FIXTURE
	PENDANT LIGHTING FIXTURE
	WALL SCONCE
	LIGHTING TRACK
	TRACK LIGHTING FIXTURE
	POLE MOUNTED LIGHTING FIXTURE
	POLE MOUNTED LIGHTING FIXTURE – POST TOP
	BOLLARD LIGHTING FIXTURE
	EMERGENCY LIGHTING UNIT
	EXIT LIGHTING FIXTURE WITH DIRECTIONAL ARROWS (SHADED AREA INDICATES FACE)
	EXIT LIGHTING FIXTURE WITH DIRECTIONAL ARROWS (SHADED AREA INDICATES FACE)
	EXIT LIGHTING FIXTURE – WALL MOUNTED
ELTD	EMERGENCY LOAD TRANSFER DEVICE
S	SINGLE POLE TOGGLE SWITCH
S2	TWO POLE TOGGLE SWITCH
S3	3 WAY TOGGLE SWITCH
S4	4 WAY TOGGLE SWITCH
K	KEY OPERATED SWITCH
K3	3 WAY KEY OPERATED SWITCH
K4	4 WAY KEY OPERATED SWITCH
D	DIMMER SWITCH
D3	3 WAY DIMMER SWITCH
DO	DIMMER OCCUPANCY SENSOR SWITCH
DL	LOW VOLTAGE DIMMER SWITCH
SP	PILOT SWITCH

SYMBOL	DESCRIPTION
TWC	TWO-WAY COMMUNICATION SYSTEM CALL STATION
TWCD	TWO-WAY COMMUNICATION SYSTEM AUTO DIALER
TWCA	TWO-WAY COMMUNICATION SYSTEM ANNUNCIATOR & COMMUNICATION PANEL
TWCP	TWO-WAY COMMUNICATION SYSTEM POWER SUPPLY WITH BATTERY BACK-UP
TWCDP	TWO-WAY COMMUNICATION SYSTEM AUTO DIALER POWER SUPPLY WITH BATTERY BACK-UP
RGP	REMOTE GENERATOR ANNUCIATOR PANEL
ATS	AUTOMATIC TRANSFER SWITCH
UPS	UN-INTERRUPTABLE POWER SUPPLY
CSX	LOW VOLTAGE CONTROL STATION "X" INDICATES TYPE
	SINGLE RECEPTACLE
	DUPLEX RECEPTACLE
	QUAD RECEPTACLE
	ABOVE COUNTER DUPLEX RECEPTACLE (SIMILAR FOR TAMPER RESISTANT, QUADS, EMERGENCY AND GFI RECEPTACLES)
	DUPLEX RECEPTACLE-GROUND FAULT CIRCUIT INTERRUPTER
	DUPLEX EMERGENCY RECEPTACLE
	TAMPER RESISTANT RECEPTACLE
	QUAD TAMPER RESISTANT RECEPTACLE
	ABOVE COUNTER DUPLEX TAMPER RESISTANT RECEPTACLE
	DUPLEX UPS RECEPTACLE
	USB RECEPTACLE
	4 PORT USB CHARGING STATION
	CEILING MOUNTED DUPLEX RECEPTACLE
	POWER POLE
	SPECIAL RECEPTACLE – REFER TO ELECTRICAL STANDARD SCHEDULES
	MULTI-OUTLET RACEWAY
	MULTI-SERVICE DROP SEE ELECTRICAL DETAILS AND DIAGRAMS SHEET "X" INDICATES TYPE
IC	INTERCOM OUTLET
PTX	POKE THRU SERVICE FITTING "X" INDICATES TYPE
FBX	FLOOR BOX SERVICE FITTING "X" INDICATES TYPE
AFX	ACCESS FLOOR SERVICE FITTING "X" INDICATES TYPE
RX	CORD REEL "X" INDICATES TYPE
	DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES
	3-WAY DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES
	4-WAY DUAL SWITCHING FOR INNER/OUTER LAMPS OF FLUORESCENT LIGHT FIXTURES
ST	DIGITAL TIME SWITCH
SI	ILLUMINATED TOGGLE SWITCH FOR CONTROL OF LIGHTING ON CRITICAL POWER-ILLUMINATED WHEN SWITCH IS IN "OFF" POSITION
SL	LOW VOLTAGE SWITCH
SO	OCCUPANCY SENSOR – REFER TO ELECTRICAL STANDARD SCHEDULES
SO2	OCCUPANCY SENSOR
OS X	OCCUPANCY SENSOR "X" INDICATES TYPE

SYMBOL	DESCRIPTION
CP	CONTROL PANEL
	MOTOR
VFC	VARIABLE FREQUENCY CONTROLLER.
	MANUAL CONTROLLER
	MAGNETIC CONTROLLER
	COMBINATION MAGNETIC CONTROLLER
	NON-FUSIBLE DISCONNECT SWITCH
	FUSIBLE DISCONNECT SWITCH
CB	ENCLOSED CIRCUIT BREAKER
	PUSH BUTTON STATION
J	JUNCTION BOX
	HARD WIRE POWER CONNECTION
DP	AUTOMATIC DOOR CONTROLLER
PP	AUTOMATIC DOOR PUSH PAD OPERATOR
	GROUND ROD
	GROUND CONNECTION
X	CONDUIT SLEEVE WITH BUSHINGS LENGTH AS REQUIRED "X" INDICATES CONDUIT SIZE
	CONDUIT UP
	CONDUIT DOWN
	EMPTY BOX FOR FUTURE TELECOMMUNICATION OUTLET
	ABOVE COUNTER EMPTY BOX FOR FUTURE TELECOMMUNICATION OUTLET
	EMPTY BOX FOR FUTURE CEILING MOUNTED TELECOMMUNICATION OUTLET
X	TELECOMMUNICATION OUTLET "X" INDICATES TYPE
X	ABOVE COUNTER TELECOMMUNICATION OUTLET "X" INDICATES TYPE
X	TELECOMMUNICATION CEILING MOUNTED OUTLET "X" INDICATES TYPE
	TELECOMMUNICATION BACKBOARD
TGB	TELECOMMUNICATION GROUNDING BUS BAR
TMGB	TELECOMMUNICATION MAIN GROUNDING BUS BAR
	INTERCOM OUTLET
	SPEAKER
	SPEAKER – WALL MOUNTED
MIC	MICROPHONE
VC	VOLUME CONTROL/STATION SELECTOR
B	SIGNALING BELL
	SINGLE FACE CLOCK – CEILING MOUNTED
	SINGLE FACE CLOCK – WALL MOUNTED
	DOUBLE FACE CLOCK – CEILING MOUNTED
S	DOUBLE FACE COMBINATION CLOCK/SPEAKER CEILING MOUNTED
	DOUBLE FACE CLOCK – WALL MOUNTED
S	DOUBLE FACE COMBINATION CLOCK/SPEAKER WALL MOUNTED
TC	TIME CLOCK
C	CONTACTOR
P	PHOTOCELL
TT	TWIST TIMER

REFER TO ELECTRICAL STANDARD SCHEDULES

SYMBOL	DESCRIPTION
	SECURITY CAMERA
MD	MOTION DETECTOR
K	SECURITY KEY SWITCH
DC	DOOR CONTACT
KP	KEY PAD
CR	ACCESS CONTROL STATION
DB	DURESS PUSH BUTTON STATION
DE	DELAYED EGRESS
REX	REQUEST TO EXIT STATION
	CIRCUIT BREAKER
	DRAWOUT CIRCUIT BREAKER MANUALLY/ OPERATED
	DRAWOUT CIRCUIT BREAKER ELECTRICALLY/ OPERATED
	SWITCH
	AUTOMATIC OR MANUAL TRANSFER SWITCH
	FUSE
	TRANSFORMER
	CURRENT TRANSFORMER
	POTENTIAL TRANSFORMER
	LIGHTNING ARRESTOR
X	PANELBOARD "X" INDICATES PANELBOARD NAME
	GROUND
	STRESS CONE TERMINATION
K	SECURITY KEY INTERLOCK
G	ENGINE GENERATOR
M	UTILITY METER
EMU	ELECTRONIC METERING UNIT
A	AMMETER
V	VOLTMETER
AS	AMMETER SWITCH
VS	VOLTMETER SWITCH
SPD	SURGE PROTECTIVE DEVICE
CR	CONTROL RELAY
TDR	TIME DELAY RELAY
	THERMAL OVERLOAD RELAY
	NORMALLY OPEN CONTACTS
	NORMALLY CLOSED CONTACTS
	N.O. PUSH BUTTON SINGLE CIRCUIT
	N.C. PUSH BUTTON SINGLE CIRCUIT
X–X	CABLE VAULT "X–X" INDICATES TYPE
	BRANCH CIRCUIT PANELBOARD
	MOTOR CONTROL CENTER
T	TRANSFORMER
	DISTRIBUTION PANEL
GB	GROUND BUS
PB	PLUG IN BUSWAY
FB	FEEDER BUSWAY

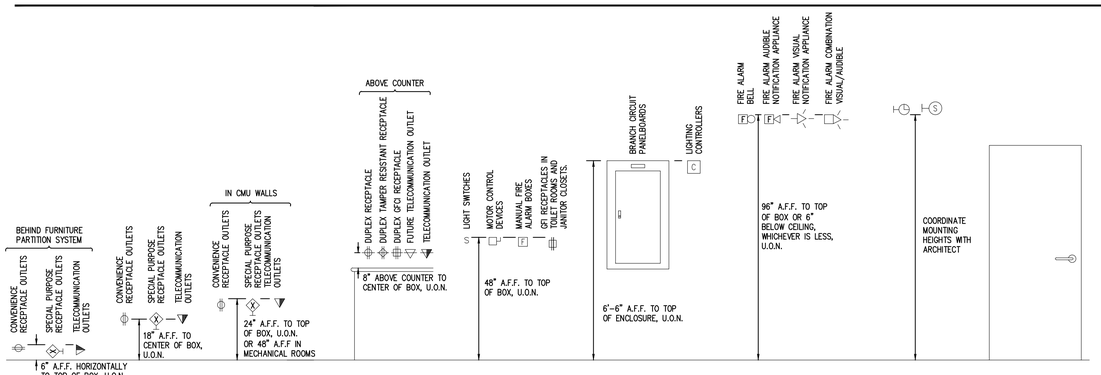
SYMBOL	DESCRIPTION
F	MANUAL FIRE ALARM BOX
SD	SMOKE DETECTOR
DD	DUCT SMOKE DETECTOR
RT	REMOTE TEST STATION (FOR DUCT DETECTOR)
TD	THERMAL DETECTOR
BD	PROJECTED BEAM DETECTOR
F	FIRE ALARM BELL
F	FIRE ALARM AUDIBLE NOTIFICATION APPLIANCE
XX	FIRE ALARM VISUAL NOTIFICATION APPLIANCE "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
XX	FIRE ALARM COMBINATION VISUAL/ AUDIBLE "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
F XX	FIRE ALARM COMBINATION VISUAL/ AUDIBLE NOTIFICATION APPLIANCE– CEILING MOUNTED "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
XX	FIRE ALARM VISUAL NOTIFICATION APPLIANCE CEILING MOUNTED "XX" INDICATES CANDELA RATING IF NO RATING SHOWN, APPLIANCE IS 15cd
F	FIREFIGHTERS PHONE JACK
FACP	FIRE ALARM CONTROL PANEL
FAA	FIRE ALARM ANNUNCIATOR PANEL
NAC	NOTIFICATION APPLIANCE CIRCUIT EXTENDER PANEL
IM	ADDRESSABLE MONITORING MODULE
CM	ADDRESSABLE CONTROL MODULE
TS	TAMPER SWITCH
FS	FLOW SWITCH
DR	MAGNETIC DOOR RELEASE

ELECTRICAL DRAWING INDEX

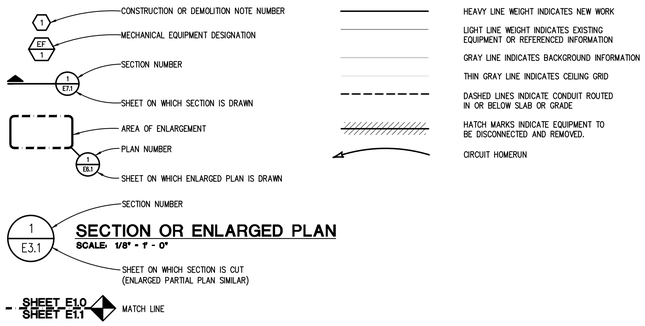
ELECTRICAL ABBREVIATION LIST

ABBREVIATION	DESCRIPTION
A	AMPERES
AF	AMPERES FRAME (BREAKER RATING)
A.F.F.	ABOVE FINISH FLOOR
AIC	AMPS INTERRUPTING CAPACITY
AL	AUDIENCE LEFT
AR	AUDIENCE RIGHT
AT	AMPERES TRIP (BREAKER SETTING)
ATS	AUTOMATIC TRANSFER SWITCH
AUX	AUXILIARY
BKR	BREAKER
BPS	BOLTED PRESSURE SWITCH
C	CONDUIT
CB	CIRCUIT BREAKER
CFCI	CONTRACTOR FURNISHED, CONTRACTOR INSTALLED
CKT	CIRCUIT
CT	CURRENT TRANSFORMER
DEMO	DEMOLITION
DIM	DIMENSION
DISC	DISCONNECT
DP	DISTRIBUTION PANEL
DS	DOWNSTAGE
DWG	DRAWING
EBU	EMERGENCY BATTERY UNIT
EC	ELECTRICAL CONTRACTOR
ELEC	ELECTRICAL
EM/ EMERG	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
EO	ELECTRICALLY OPERATED
EPO	EMERGENCY POWER OFF
EWC	ELECTRIC WATER COOLER
EXIST	EXISTING
FA	FIRE ALARM
FLA	FULL LOAD AMPS
FLR	FLOOR
FOH	FRONT OF HOUSE
FSEC	FOOD SERVICE EQUIPMENT CONTRACTOR
FU	FUSE
G/GRD/EG	GROUND
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GFP	GROUND FAULT PROTECTION
HOA	HAND-OFF-AUTO
HP	HORSEPOWER
HV	HIGH VOLTAGE
HZ	HERTZ
IG	ISOLATED GROUND
JB	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT – AMPERES
KW	KILOWATT
KWH	KILOWATT – HOURS
LA	LIGHTNING ARRESTOR
LP	LIGHTING PANEL
LDP	LIGHTING DISTRIBUTION PANEL
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MDP	MAIN DISTRIBUTION PANEL
MECH	MECHANICAL
MIN	MINIMUM
MISC.	MISCELLANEOUS
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTG	MOUNTING
MTR	MOTOR
N	NEUTRAL
NC	NORMALLY CLOSED
NEC	NATIONAL ELECTRICAL CODE
NF	NON-FUSIBLE
NIC	NOT IN CONTRACT
NL	NIGHT LIGHT
NO	NORMALLY OPEN
NTS	NOT TO SCALE
OC	ON CENTER
OFCI	OWNER FURNISHED, CONTRACTOR INSTALLED
OFOI	OWNER FURNISHED, OWNER INSTALLED
P	POLE
PB	PUSHBUTTON STATION
PH	PHASE
PT	POTENTIAL TRANSFORMER
PDP	POWER DISTRIBUTION PANEL
RECEPT.	RECEPTACLE
RDP	RECEPTACLE DISTRIBUTION PANEL
RP	RECEPTACLE PANEL
RSC	RIGID STEEL CONDUIT
SCHED	SCHEDULE
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TB	TERMINAL BOX
TELECOM	TELECOMMUNICATIONS
TR	TAMPER RESISTANT
TTB	TELEPHONE TERMINAL BACKBOARD
TYP	TYPICAL
U.O.N.	UNLESS OTHERWISE NOTED
US	UPSTAGE
V	VOLTS
W	WIRE
WP	WEATHERPROOF
XFMR	TRANSFORMER
XP	EXPLOSION PROOF
(E)	EXISTING
(R)	RELOCATED

STANDARD MOUNTING HEIGHTS



STANDARD METHODS OF NOTATION



SECTION OR ENLARGED PLAN
SCALE: 1/8" = 1' - 0"

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ELECTRICAL STANDARDS AND DRAWING INDEX

PRELIMINARY ■
DESIGN DEVELOPMENT ■
CONSTRUCTION ■
FINAL RECORD □

DRAWN BY: STP
CHECKED BY: GJZ

REVISIONS:

DATE: MARCH 31, 2015

SHEET NO.: E0.1

JOB NO.: 141601

FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE - GENERAL PURPOSE

	OVERCURRENT DEVICE RATING (AMPERES)	COPPER CONDUCTORS						ALUMINUM CONDUCTORS					
		WIRE SIZE (AWG OR KCMIL)		CONDUIT SIZE				WIRE SIZE (AWG OR KCMIL)		CONDUIT SIZE			
		PHASE & NEUTRAL	GROUND	SINGLE PHASE 2 WIRE+G (1PH, 1N, 1G)	SINGLE PHASE 3 WIRE+G (2PH, 1N, 1G)	THREE PHASE 3 WIRE+G (3PH, 1G)	THREE PHASE & NEUTRAL 4 WIRE+G (3PH, 1N, 1G)	PHASE & NEUTRAL	GROUND	SINGLE PHASE 3 WIRE+G (2PH, 1N, 1G)	THREE PHASE 3 WIRE+G (3PH, 1G)	THREE PHASE & NEUTRAL 4 WIRE+G (3PH, 1N, 1G)
	15–20	12	12	3/4"	3/4"	3/4"	3/4"						
	25–30	10	10	3/4"	3/4"	3/4"	3/4"						
	35–40	8	10	3/4"	3/4"	3/4"	3/4"						
*	45–50	8 (6)	10	3/4"	3/4"	3/4"	3/4"						
*	60	6 (4)	10	3/4" (1")	3/4" (1")	3/4" (1")	3/4" (1")						
	70	4	8	1"	1 1/4"	1 1/4"	1 1/4"						
*	80	4 (3)	8	1"	1 1/4"	1 1/4"	1 1/4"						
*	90–100	3 (2)	8	1 1/4"	1 1/4"	1 1/4"	1 1/4"	1	6	1 1/2"	1 1/4"	1 1/2"	
*	110	2 (1)	6	–	1 1/4"	1 1/4"	1 1/4" (1 1/2")	1/0	4	–	1 1/2"	2"	
*	125	1 (1/0)	6	–	1 1/4" (1 1/2")	1 1/4" (1 1/2")	1 1/2"	2/0	4	–	1 1/2"	2"	
	150	1/0	6	–	1 1/2"	1 1/2"	1 1/2"	3/0	4	–	2"	2 1/2"	
	175	2/0	6	–	2"	2"	2"	4/0	4	–	2"	2 1/2"	
	200	3/0	6	–	2"	2"	2 1/2"	250	4	–	2"	3"	
	225	4/0	4	–	2"	2"	2 1/2"	300	2	–	2 1/2"	3"	
	250	250	4	–	2 1/2"	2 1/2"	2 1/2"	350	2	–	2 1/2"	3"	
	300	350	4	–	2 1/2"	2 1/2"	3"	500	2	–	3"	3 1/2	
	350	500	3	–	3"	3"	3"	2–4/0	2–1/0	–	2–2"	2–2"	
	400	500	3	–	3"	3"	3"	2–250	2–1/0	–	2–2"	2–2 1/2"	
	450	2–4/0	2–2	–	2–2"	2–2"	2–2 1/2"	2–300	2–1/0	–	2–2 1/2"	2–3"	
	500	2–250	2–2	–	2–2 1/2"	2–2 1/2"	2–2 1/2"	2–350	2–1/0	–	2–2 1/2"	2–3"	
	600	2–350	2–1	–	2–2 1/2"	2–2 1/2"	2–3"	2–500	2–2/0	–	2–3"	2–3 1/2"	
	700	2–500	2–1/0	–	2–3"	2–3"	2–3"	2–600	2–3/0	–	2–3"	2–3 1/2"	
	800	2–500	2–1/0	–	2–3"	2–3"	2–3 1/2"	3–400	3–3/0	–	3–3"	3–3 1/2"	
	1000	3–400	3–2/0	–	3–3"	3–3"	3–3"	3–600	3–4/0	–	3–3 1/2"	3–3 1/2"	
	1200	3–600	3–3/0	–	3–3 1/2"	3–3 1/2"	3–3 1/2"	4–500	4–250	–	4–3"	4–3 1/2"	
	1600	4–600	4–4/0	–	4–3 1/2"	4–3 1/2"	4–3 1/2"	5–600	5–350	–	5–3 1/2"	5–4"	
	2000	5–600	5–250	–	5–3 1/2"	5–3 1/2"	5–3 1/2"	6–600	6–400	–	6–3 1/2"	6–4"	

* = SEE NOTE 4

NOTES:

1. CONTRACTOR TO SIZE FEEDERS AND BRANCH CIRCUITS BASED ON THIS SCHEDULE AND OVER CURRENT DEVICE SIZE, UNLESS NOTED OTHERWISE.
2. CONTRACTOR MAY COMBINE 20A CIRCUITS AS NOTED IN SPECIFICATION.
3. CONDUCTORS ARE BASED ON THHN/THWN UP TO AND INCLUDING #4/0. LARGER THAN #4/0 ARE BASED ON TYPE XHHW.
4. CONDUCTORS ARE BASED ON 90°C, 600V. INSULATED COPPER WIRE APPLIED AT 75°C FOR TERMINATION RATED 60/75°C OR 75°C. FOR TERMINATION RATED AT 60°C, USE CONDUCTORS AND CONDUIT SIZES INDICATED IN PARENTHESES.
5. CONDUIT SIZES ARE VALID FOR EMT OR RGS. CONDUIT SIZES SHALL BE ADJUSTED AS REQUIRED FOR OTHER TYPES OF CONDUIT.
6. ELECTRICAL CONTRACTOR TO COORDINATE WITH MECHANICAL CONTRACTOR AND PROVIDE REQUIRED WIRE SIZES TO ACCOMMODATE MECHANICAL EQUIPMENT LUG SIZES.
7. SIZE OF DISCONNECT SWITCH LOCATED AT EQUIPMENT SHALL BE SIZED BASED UPON OVERCURRENT PROTECTION OF THAT DEVICE.
8. OBTAIN APPROVAL FROM ENGINEER PRIOR TO INSTALLING DIFFERENT SIZE/QUANTITY OF CONDUCTORS TO OBTAIN AN EQUIVALENT AMPACITY.
9. SPLICE FROM ALUMINUM TO COPPER PRIOR TO ENTERING EQUIPMENT LISTED FOR USE WITH COPPER CONDUCTORS ONLY OR USE COPPER CONDUCTORS FOR THE ENTIRE LENGTH OF FEEDER.

SPECIAL RECEPTACLES

TYPE	DESCRIPTION
1	125V, 30A, SINGLE PHASE, LOCKING RECEPTACLE, 2 POLE, 3 WIRE (NEMA L5–30R)
2	250V, 20A, SINGLE PHASE, LOCKING RECEPTACLE, 2 POLE, 3 WIRE (NEMA L6–20R)
3	250V, 30A, SINGLE PHASE, LOCKING RECEPTACLE, 2 POLE, 3 WIRE (NEMA L6–30R)
4	250V, 20A, THREE PHASE, LOCKING RECEPTACLE, 3 POLE, 4 WIRE (NEMA L15–20R)
5	250V, 30A, THREE PHASE, LOCKING RECEPTACLE, 3 POLE, 4 WIRE (NEMA L15–30R)
6	208Y/120V, 30A, THREE PHASE, LOCKING RECEPTACLE, 4 POLE, 5 WIRE (NEMA L21–30R)
7	125/ 250V SINGLE PHASE RECEPTACLE, 3 POLE, 4 WIRE (NEMA 14–30R)
8	125/ 250V SINGLE PHASE RECEPTACLE, 3 POLE, 4 WIRE (NEMA 14–50R)

BRANCH CIRCUIT VOLTAGE DROP WIRING SCHEDULE FOR SINGLE PHASE CIRCUITS

BRANCH CKT RATING (A)	WIRE SIZE (AWG)	MAXIMUM BRANCH CIRCUIT LENGTH (IN FEET)				
		120V	208V	240V	277V	480V
20A	12	83	143	165	191	331
	10	128	222	256	295	511
	8	201	348	402	464	804
	6	313	542	625	721	1250
30A	10	85	148	170	197	341
	8	134	232	268	309	536
	6	208	361	417	481	833
	4	313	542	625	721	1250

NOTES:

1. THE ABOVE TABLE VALUES ARE BASED ON COPPER CONDUCTORS, IN STEEL CONDUIT, WITH A LOAD POWER FACTOR OF 0.85 PER NEC CHAPTER 9, TABLE 9.
2. PROVIDE BRANCH CIRCUIT CONDUCTORS AS INDICATED IN THE TABLE ABOVE FOR ALL LIGHTING AND RECEPTACLE BRANCH CIRCUITS. WHERE BRANCH CIRCUITS SERVE DEDICATED EQUIPMENT, THE CONTRACTOR MAY PERFORM VOLTAGE DROP CALCULATIONS BASED ON ACTUAL EQUIPMENT CONNECTED LOAD AND PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO A MAXIMUM OF 3%.
3. CONDUCTOR SIZES ARE BASED ON MAXIMUM OF 9 CURRENT CARRYING CONDUCTORS IN A SINGLE CONDUIT.
4. LIMITS FOR CONDUCTOR LENGTHS SHOWN ARE BASED ON A MAXIMUM BRANCH CIRCUIT LOADING OF 64% OF THE BRANCH BREAKER RATING AND A MAXIMUM OF 3 PERCENT VOLTAGE DROP TO COMPLY WITH ASHRAE/IES 90.1 – 1999 AND THE NEC. FOR CIRCUITS LOADED GREATER THAN 64% OF BRANCH BREAKER RATING, THE CONTRACTOR SHALL PROVIDE CONDUCTORS APPROPRIATELY SIZED TO LIMIT VOLTAGE DROP TO 3%.

OCCUPANCY SENSOR LEGEND

TYPE	DESCRIPTION
OS A	360° CEILING MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR
OS B	90° CEILING/WALL MOUNTED DUAL TECHNOLOGY OCCUPANCY SENSOR
OS C	360° CEILING MOUNTED PASSIVE INFRARED OCCUPANCY SENSOR
OS D	360° CEILING MOUNTED ULTRASONIC OCCUPANCY SENSOR
OS E	360° CEILING MOUNTED ULTRASONIC OCCUPANCY SENSOR – CORRIDOR OPTIMIZED
So	WALL SWITCH PASSIVE INFRARED OCCUPANCY SENSOR
So2	WALL SWITCH PASSIVE INFRARED OCCUPANCY SENSOR – DUAL LEVEL SWITCHING
Do	WALL DIMMER SWITCH INFRARED OCCUPANCY SENSOR

MOTOR CIRCUIT SIZING SCHEDULE (480V, 3 PHASE)

MOTOR HP	SWITCH/ FUSE	CIRCUIT BREAKER	STARTER SIZE/TYPE	MOTOR DISCONNECT (NOTE 3)
1/2	30/3A	15A	1	30A
3/4	30/3A	15A	1	30A
1	30/6A	15A	1	30A
1 1/2	30/6A	15A	1	30A
2	30/6A	15A	1	30A
3	30/10A	15A	1	30A
5	30/15A	15A	1	30A
7 1/2	30/20A	20A	1	30A
10	30/20A	25A	1	30A
15	30/30A	40A	2	30A
20	60/40A	60A	2	60A
25	60/50A	70A	2	60A
30	60/60A.	80A	3	60A
40	100/80A.	90A	3	100A
50	100/100A.	100A	3	100A
60	200/125A.	125A	4	200A
75	200/150A.	150A	4	200A
100	200/200A.	200A	4	200A
125	200/200A.	225A	5	200A
150	400/250A.	250A	5	400A
200	400/350A.	350A	5	400A

NOTES:

1. BASED ON MOTOR FULL LOAD AMPERES AS PROVIDED BY THE N.E.C.
2. BASED ON MOTOR RUNNING OVERLOAD PROTECTIONS PROVIDED BY THERMAL OVERLOAD RELAYS.
3. WHERE THE STARTER IS LOCATED REMOTE FROM THE MOTOR, PROVIDE DISCONNECT LOCATED AT THE MOTOR, SIZE AS INDICATED.

RACEWAY APPLICATION SCHEDULE

RACEWAY		AC/MC CABLE	ALUMINUM RIGID CONDUIT	ELECTRICAL METALLIC TUBING (EMT)	SURFACE RACEWAY	ELECTRICAL NONMETALLIC TUBING (ENT)	FLEXIBLE METAL CONDUIT (FNC)	GENERAL-USE OPTICAL FIBER/COMMUNICATION CABLE RACEWAY	INTERMEDIATE METAL CONDUIT (IMC)	LIQUIDTIGHT FLEXIBLE METAL CONDUIT (LFMC)	LIQUIDTIGHT FLEXIBLE NONMETAL CONDUIT (LFNC)	PLENUM-TYPE OPTICAL FIBER/COMMUNICATIONS CABLE RACEWAY	RIGID STEEL CONDUIT	RISER-TYPE OPTICAL FIBER/COMMUNICATIONS CABLE RACEWAY	RIGID NONMETALLIC CONDUIT (RNC) TYPE EPC-40	RIGID NONMETALLIC CONDUIT (RNC) TYPE EPC-80	HIGH DENSITY POLYTHYLENE (HDPE) SCHEDULE 40	HIGH DENSITY POLYTHYLENE (HDPE) SCHEDULE 80	KEYED NOTES
OUTDOOR	EXPOSED								X				X						
	CONCEALED (ABOVE GROUND)								X				X						
	UNDERGROUND												X		X	X	X	X	
	CONNECTED TO VIBRATING EQUIPMENT									X									EQUIPMENT INCLUDING: TRANSFORMERS, HYDRAULIC PNEUMATIC, ELECTRIC SOLENOID, MOTOR DRIVEN EQUIPMENT
INDOOR	EXPOSED NOT SUBJECT TO PHYSICAL DAMAGE – UNFINISHED SPACES			X															
	EXPOSED NOT SUBJECT TO PHYSICAL DAMAGE – FINISHED SPACES				X														
	EXPOSED SUBJECT TO SEVERE PHYSICAL DAMAGE								X				X						[RIGID STEEL CONDUIT UP TO 10'–0"AFF.] LOCATIONS INCLUDE: LOADING LOCKS, CORRIDORS USED FOR TRAFFIC OF MECHANIZED CARTS AND PALLET HANDLING UNITS, MECHANICAL ROOMS
	CONCEALED IN CEILINGS, INTERIOR WALL AND PARTITIONS	X		X															NOT TO EXCEED 6'–0" IN CEILING SPACE
	CONNECTED TO VIBRATING EQUIPMENT					X				X									EQUIPMENT INCLUDING: TRANSFORMERS, HYDRAULIC PNEUMATIC, ELECTRIC SOLENOID, MOTOR DRIVEN EQUIPMENT USE LFMC IN DAMP/WET LOCATIONS
	DAMP AND WET LOCATIONS								X				X						
	BELOW SLAB IN GRADE														X	X			PROVIDE RIGID STEEL ELBOWS WHERE CONDUIT PENETRATES SLAB. CONDUIT INSTALLED 6" BELOW BOTTOM OF SLAB
	EMBEDDED IN CONCRETE ABOVE GRADE												X		X	X			
	OPTICAL FIBER OR COMMUNICATIONS CABLE IN SPACES USED FOR ENVIRONMENTAL AIR			X								X							
	CONCEALED GENERAL PURPOSE DISTRIBUTION OF OPTICAL FIBER OR COMMUNICATION CABLE			X				X				X		X					
SPECIAL APPLICATIONS	MRI		X																
	NATATORIUMS/FOUNTAINS			X															USE COMPRESSION FITTINGS

GENERAL NOTES

1. 'X' INDICATES ACCEPTABLE SELECTION.
2. REFER TO "CONDUCTORS AND CABLES" SPECIFICATION FOR APPLICATION LIMITATIONS OF AC/MC CABLE.

LIGHTING FIXTURE SCHEDULE

TYPE	DESCRIPTION	VOLTAGE	(QTY.) LAMPS	MANUFACTURERS
F1	2'X4', RECESSED INDIRECT/DIRECT FLUORESCENT FIXTURE: CENTER BASKET METAL DIFFUSER WITH ROUND HOLES, WHITE STEEL HOUSING, FIXTURE DEPTH 5 1/2". FOR FIXTURES INDICATED AS EMERGENCY ON PLAN PROVIDE EMERGENCY BATTERY PACK.	120V	(3) F32T8	1. FOCALPOINT LUNA SERIES 2. COLUMBIA STRATUS SERIES 3. METALUX RDI SERIES
F2	2'X4', RECESSED FLUORESCENT FIXTURE: A12.125 INCH ACRYLIC PRISMATIC DIFFUSER. WHITE STEEL HOUSING AND DOOR. FIXTURE DEPTH 3 1/2". FOR FIXTURES INDICATED AS EMERGENCY ON PLAN PROVIDE EMERGENCY BATTERY PACK.	120V	(3) F32T8	1. LITHONIA GTB SERIES 2. COLUMBIA ST8 SERIES 3. METALUX GR8 SERIES
F3	2'X4', RECESSED FLUORESCENT FIXTURE: A12.125 INCH ACRYLIC PRISMATIC DIFFUSER. WHITE STEEL HOUSING AND DOOR. FIXTURE DEPTH 3 1/2". FOR FIXTURES INDICATED AS EMERGENCY ON PLAN PROVIDE EMERGENCY BATTERY PACK.	120V	(2) F32T8	1. LITHONIA GTB SERIES 2. COLUMBIA ST8 SERIES 3. METALUX GR8 SERIES
F4	CONTINUOUS ROW SUSPENDED INDIRECT/DIRECT LINEAR FLUORESCENT FIXTURE: 40% DOWN LIGHT, 60% UP LIGHT, OPEN BAFFLE, ADJUSTABLE AIR CRAFT CABLE MOUNTING, STRAIGHT POWER FEED CORD, HIGH REFLECTANCE WITH POWER COAT FINISH. FOR FIXTURES INDICATED AS EMERGENCY ON PLAN PROVIDE EMERGENCY BATTERY PACK.	120V	(2) F32T8 IN CROSS SECTION	1. FINELITE SERIES 12 2. CORELITE IRIDIUM IQ SERIES 3. ALERA CVRB SERIES
OL1	6" VANDAL RESISTANT RECESSED LED DOWNLIGHT, 6 INCH APERTURE, VENTILATED DIE-CAST ALUMINUM HEAT SINK, SELF FLANGED REFLECTOR WITH WHITE TRIM, SEMI-SPECULAR FINISH, 1/8" PRISMATIC POLYCARBONATE LENS, IP 65 RATED, U.L. LISTED FOR DAMP LOCATIONS. CLASS P, SOLID STATE DRIVER. FOR FIXTURES INDICATED AS EMERGENCY ON PLAN. PROVIDE COLD WEATHER EMERGENCY BATTERY PACK.	120V	1000 LUMENS 4100K	1. GOTHAM EVO–VR SERIES 2. FAIL SAFE FTLD6A SERIES 3. PEACHTREE 6BLRD–VR SERIES
OL2	LED WALL PACK LIGHT FIXTURE: TYPE III DISTRIBUTION, WEATHER RESISTANT ALUMINUM HOUSING MULTI VOLT, SOLID STATE DRIVER, IP 65 RATED. U.L. LISTED FOR WET LOCATIONS. FINISH DARK BRONZE FOR FIXTURES INDICATED AS EMERGENCY ON PLAN. PROVIDE INTEGRAL COLD WEATHER EMERGENCY BATTERY PACK.	120V	2,000 LUMENS 4100K	1. LITHONIA WSR–LED SERIES 2. MCGRAW–EDISON ISC–LED SERIES 3. ENGINEER APPROVED EQUAL
EXIT SIGNS	EXIT SIGN: WHITE DIE–CAST ALUMINUM HOUSING, RED LETTERS. MOUNTING AS INDICATED ON DRAWINGS. HIGH OUTPUT LED DIFFUSE LIGHT PANEL, NICKEL CADMIUM BATTERY, SINGLE OR DOUBLE STENCIL WHITE FACE AS INDICATED ON DRAWINGS. PROVIDE DIRECTIONAL ARROW AS INDICATED ON DRAWINGS.	120/277V	HIGH OUTPUT LED LIGHT PANEL	1. LITHONIA SIGNATURE SERIES 2. SURELITE CX SERIES 3. DUAL LITE SEMPRA SERIES

COORDINATE WITH ARCHITECTURAL PLANS FOR CEILING TYPES.

ALL LED FIXTURES SHALL MEET THE FOLLOWING MINIMUM REQUIREMENTS:
MINIMUM OF 50,000 HOURS OPERATION WITH GREATER THAN 70% DELIVERED LUMEN OUTPUT.
LUMENS INDICATED ARE DELIVERED.
DRIVER SHALL BE LABELED TO COMPLY WITH NEMA SSL1
DRIVER SHALL HAVE THD OF LESS THAN 20%
DRIVER SHALL BE SERVICEABLE FROM BELOW CEILING.
FIXTURE SHALL BE LISTED WITH DESIGNLIGHTS CONSORTIUM.
FIXTURE SHALL COMPLY WITH IES STANDARDS LM–79 AND LM–80.
DRIVER AND LED FIXTURE SHALL HAVE MINIMUM 5 YEAR WARRANTY.

NOTE: SOME SYMBOLS AND ABBREVIATIONS SHOWN MAY NOT APPLY TO THIS PROJECT.

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GREATER HEIGHTS ACADEMY
FOUR CLASSROOM ADDITION
FLINT, MICHIGAN

ELECTRICAL STANDARD SCHEDULES

PRELIMINARY ■
DESIGN DEVELOPMENT ■
CONSTRUCTION ■
FINAL RECORD □

DRAWN BY: STP
CHECKED BY: GJZ

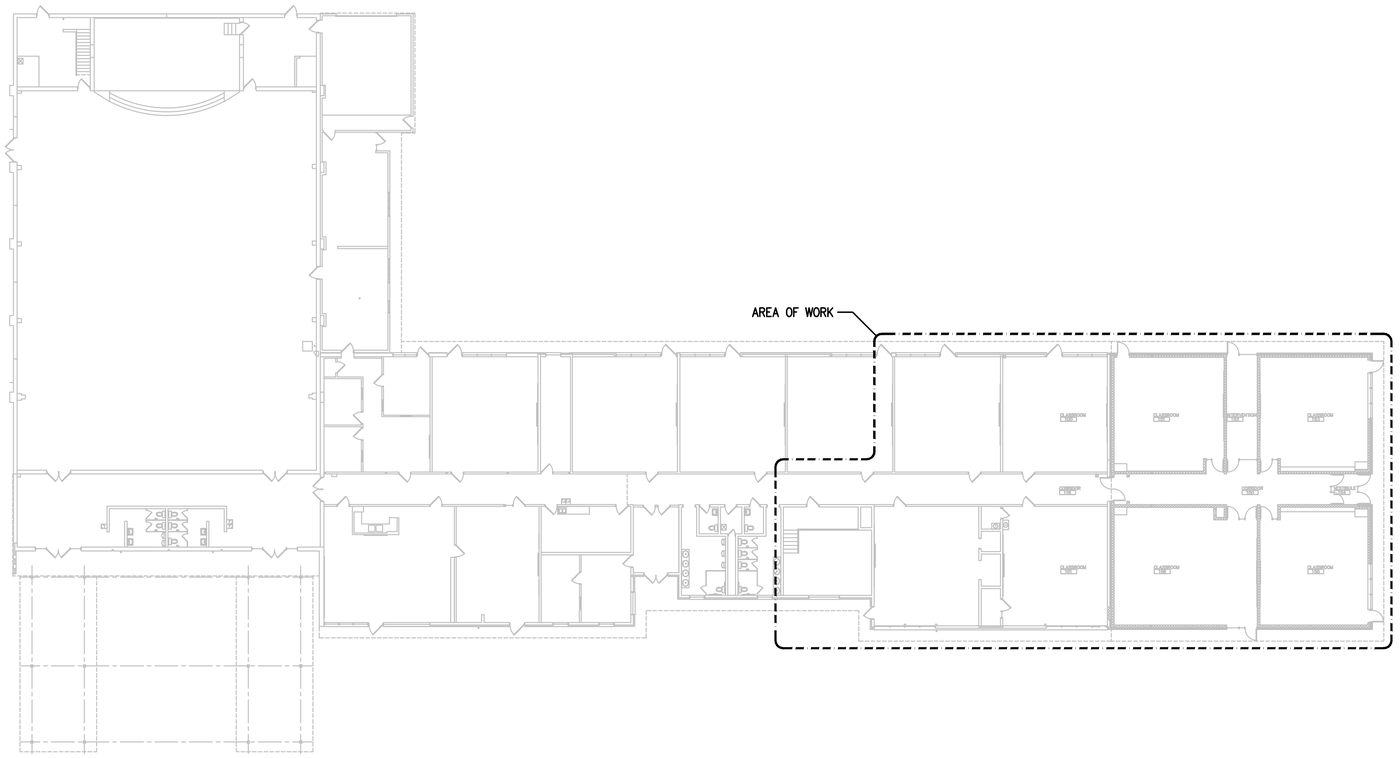
REVISIONS:

DATE: MARCH 31, 2015

SHEET NO.:
E0.2

JOB NO.: 141601

THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"



PROVIDE HAND HOLE FOR SPLICING IF REQUIRED TO KEEP REMAINDER OF SITE LIGHTING OPERATIONAL.

FIRST FLOOR COMPOSITE PLAN
SCALE: 1/16" = 1' - 0"

GENERAL NOTES:

1. THESE DRAWINGS REPRESENT THE GENERAL EXTENT AND ARRANGEMENT OF SYSTEMS, BUT ARE NOT TO BE CONSIDERED FABRICATION DRAWINGS. COORDINATE WITH OTHER TRADES, AND PROVIDE EACH SYSTEM COMPLETE, INCLUDING ALL NECESSARY COMPONENTS, FITTINGS, AND OFFSETS.
2. INSTALL SYSTEMS SUCH THAT REQUIRED CLEARANCE AND SERVICE ACCESS SPACE IS PROVIDED AROUND ALL MECHANICAL AND ELECTRICAL EQUIPMENT, AND AROUND ANY COMPONENTS WHICH REQUIRE SERVICE ACCESS.
3. COORDINATE AND PROVIDE ACCESS DOORS WITHIN INACCESSIBLE CEILING, SHAFT, AND CHASE AREAS FOR ALL COMPONENTS WHICH REQUIRE SERVICE ACCESS. REFER TO ARCHITECTURAL DRAWINGS FOR CEILING TYPES.
4. PROVIDE SUPPLEMENTARY STEEL AS REQUIRED FOR THE PROPER SUPPORT OF ALL SYSTEMS.
5. MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH MOTOR CIRCUIT SIZING SCHEDULES SHOWN ON "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS OTHERWISE NOTED.
6. COORDINATE THE MOUNTING HEIGHTS OF DEVICES WITH ARCHITECTURAL ELEVATIONS AND THE TRADES INSTALLING THE WORK.
7. REFER TO MECHANICAL SCHEDULE SHEETS FOR ELECTRICAL REQUIREMENTS FOR MECHANICAL EQUIPMENT. PROVIDE ALL CONNECTIONS, STARTERS, DISCONNECTS, ETC. AS REQUIRED BY SCHEDULES AND WHERE NOTED ELSEWHERE. VERIFY REQUIREMENTS OF ALL MECHANICAL EQUIPMENT WITH SHOP DRAWINGS SUBMITTALS. NOTIFY ENGINEER OF ANY CONFLICTS BETWEEN EQUIPMENT SUBMITTALS AND ELECTRICAL DRAWINGS. WHERE CIRCUIT SIZES ARE SHOWN ON THE ELECTRICAL DRAWINGS THAT DIFFER FROM WHAT IS INDICATED ON THE MECHANICAL SCHEDULES, PROVIDE THE CIRCUIT OF HIGHER AMPACITY.

(#) CONSTRUCTION KEY NOTES:

1. ELECTRICAL CONTRACTOR SHALL PROVIDE FIRE ALARM CONTROL MODULES AND SMOKE DETECTORS FOR DOOR RELEASE. COORDINATE MOUNTING WITH DOOR CONTRACTOR. ALL RELATED DOOR HARDWARE IS PROVIDED BY OTHERS. WIRE TO FIRE ALARM PANEL SO THAT UPON SYSTEM ALARM, DOOR WILL CLOSE.
2. SMOKE DAMPER DUCT SMOKE DETECTOR SHALL BE PROVIDED BY THE ELECTRICAL CONTRACTOR. COORDINATE INSTALLATION WITH THE MECHANICAL CONTRACTOR SO THAT UPON DETECTION OF SMOKE, THE SUPPLY/RETURN FAN WILL SHUT DOWN. ELECTRICAL CONTRACTOR SHALL WIRE DUCT SMOKE DETECTOR TO FIRE ALARM SYSTEM, AND CIRCUIT DAMPER ACTUATOR FROM A DEDICATED 120 VOLT CIRCUIT AS INDICATED. PROVIDE A 20A-1P SWITCH AT EACH ACTUATOR. CONTROL OF AIR HANDLING EQUIPMENT IS VIA THE FIRE ALARM CONTROL PANEL. PROVIDE ALL REQUIRED CONTROL MODULES AND RELAYS. COORDINATE WORK WITH THE TEMPERATURE CONTROL CONTRACTOR AND FIRE ALARM MANUFACTURER. DAMPER SHALL CLOSE UPON DETECTION OF SMOKE AND SHUT DOWN ASSOCIATED AHU. DAMPER SHALL ALSO CLOSE UPON NORMAL SHUT DOWN OF AHU BY TC CONTRACTOR. PROVIDE ALL CONTROL MODULES, RELAYS, ETC FOR A COMPLETE SYSTEM.
3. REFER TO ARCHITECTURAL FLOOR PLANS, DOOR HARDWARE SCHEDULE ON ARCHITECTURAL DRAWINGS, ACCESS CONTROL SYSTEM SPECIFICATION SECTION AND ACCESS CONTROL DOOR DIAGRAM(S) ON E7 SERIES FOR RACEWAY AND BACK BOX REQUIREMENTS FOR DOOR OR BANK OF DOORS INDICATED. PROVIDE ALL RACEWAYS AND BACK BOXES REQUIRED. COORDINATE WITH DOOR HARDWARE CONTRACTOR.

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FLINT, MICHIGAN

FIRST FLOOR COMPOSITE PLAN

PRELIMINARY ■
DESIGN DEVELOPMENT ■
CONSTRUCTION ■
FINAL RECORD □

DRAWN BY: STP
CHECKED BY: GJZ

REVISIONS:

DATE: MARCH 31, 2015

SHEET NO.:
E1.1

JOB NO.: 141601

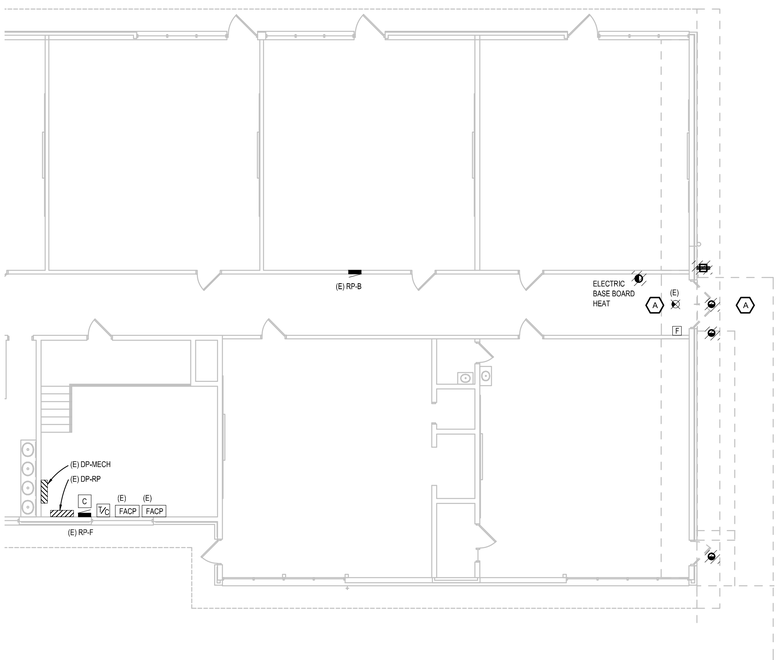
THE FOLLOWING DIMENSION EQUALS ONE INCH WHEN PRINTED TO SCALE. 1"

GENERAL NOTES:

1. VISIT THE SITE PRIOR TO SUBMISSION OF BID TO EXAMINE THE EXISTING CONDITIONS AND THE EXTENT OF DEMOLITION WORK.
2. EXAMINE THE DRAWINGS OF OTHER TRADES AND BE FAMILIAR WITH THE DEMOLITION REQUIRED BY OTHER TRADES. PERFORM ALL INCIDENTAL ELECTRICAL DEMOLITION AND/OR RELOCATION REQUIRED TO FACILITATE THE DEMOLITION WORK OF OTHER TRADES, WHETHER OR NOT SPECIFICALLY INDICATED.
3. REMOVE LIGHTING FIXTURES AND ELECTRICAL DEVICES AS INDICATED ON PLAN WITH CROSS HATCHING. DEMOLITION SHALL INCLUDE, BUT NOT BE LIMITED TO, THOSE DEVICES SHOWN.
4. COORDINATE WITH NEW WORK PLANS, ONE LINE DIAGRAMS AND RISER DIAGRAMS FOR EXTENT OF DEMOLITION WORK.
5. PROVIDE PROPER SUPPORT FOR EXISTING TO REMAIN CONDUITS AND BOXES WHERE EXISTING SUPPORT IS TO BE REMOVED. RE-ROUTE BRANCH CIRCUIT CONDUITS AND RELOCATE JUNCTION BOXES AS REQUIRED TO FACILITATE INSTALLATION OF NEW EQUIPMENT AND SYSTEMS IN CEILING SPACES.
6. REMOVE ALL CONDUIT AND WIRE BACK TO THE SOURCE OR NEAREST UPSTREAM DEVICE REMAINING IN SERVICE.
7. MAINTAIN ELECTRICAL SERVICE TO ALL LIGHTING FIXTURES, DEVICES AND EQUIPMENT THAT ARE TO REMAIN. EXTEND CONDUIT AND WIRE AS REQUIRED WHERE DEMOLITION WORK AFFECTS ELECTRICAL SERVICE TO DOWNSTREAM LOADS THAT ARE TO REMAIN.
8. DISPOSE OF ALL MATERIALS OFF SITE AND INCLUDE ALL COSTS FOR DISPOSAL IN BID. ALL MATERIALS SHALL BE DISPOSED OF IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL REGULATIONS, INCLUDING TCLP TESTING, PROPER DISPOSAL AND/OR RECYCLING OF FLUORESCENT LAMPS.
9. PROVIDE BLANK COVER PLATES WHERE SWITCHES AND DEVICES ARE REMOVED BUT EXISTING WALLS REMAIN INTACT.
10. RING OUT AND TAG ALL CIRCUITS AFFECTED BY THIS ALTERATION AT BOTH ENDS. MARK ALL UNUSED CIRCUIT BREAKERS "SPARE".
11. PROVIDE UPDATED TYPED-IN DIRECTORIES FOR ALL PANELS AFFECTED BY THIS ALTERATION.
12. VERIFY ALL UNDERGROUND AND IN SLAB UTILITY LOCATIONS PRIOR TO SAW-CUTTING OR PENETRATING ANY FLOOR SLAB.
13. COORDINATE ANY SHUT DOWN OF EXISTING SERVICES AND EQUIPMENT THAT ARE REMAINING IN USE WITH THE OWNER'S REPRESENTATIVE. WHERE EXISTING BUILDING SERVICE IS REQUIRED TO BE SHUT DOWN, INCLUDE ALL ASSOCIATED OVERTIME COSTS TO PERFORM THIS WORK DURING WEEKENDS AND EVENINGS INCLUDE ALL COSTS FOR PROVIDING TEMPORARY POWER WHERE SHUT DOWNS MUST OCCUR FOR PERIODS LONGER THAN THESE HOURS. COORDINATE ELECTRICAL SHUT DOWNS WITH THE OWNER 72 HOURS PRIOR TO SHUT DOWN.

(#) DEMOLITION NOTES:

A. REMOVE ALL ELECTRICAL DEVICES ON WALLS TO BE DEMOLISHED (LIGHTING, POWER, FIRE ALARM, P/A, ETC.) INCLUDING CEILING MOUNTED LIGHTING. MAINTAIN BRANCH CIRCUIT SERVING LIGHTING FOR RECONNECTION TO NEW LIGHTING. ANY DEVICE LOCATED ON WALL NOT TO BE DEMOLISHED IS TO REMAIN (WALLS TO BE DEMOLISHED ARE SHOWN DASHED). U.O.N.



PARTIAL FIRST FLOOR ELECTRICAL DEMOLITION PLAN

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

GENERAL NOTES:

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(#) CONSTRUCTION KEY NOTES:

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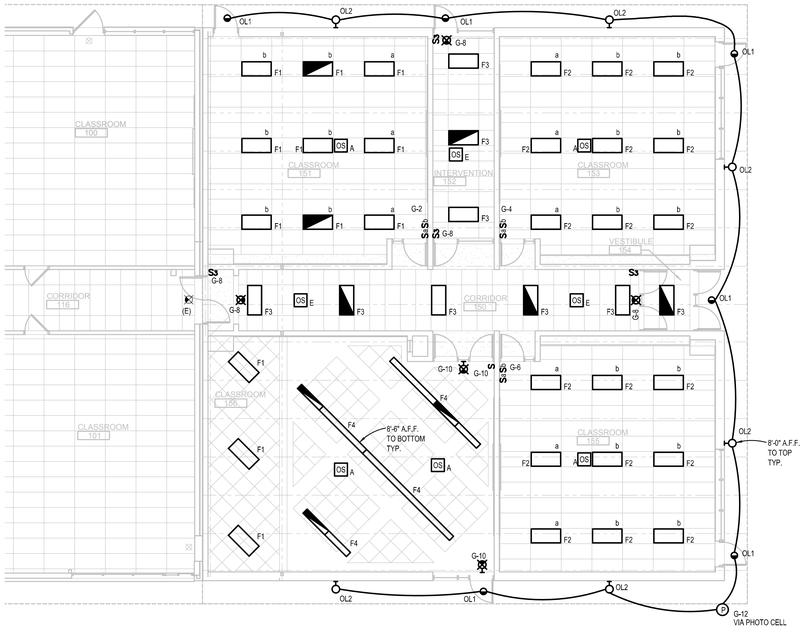
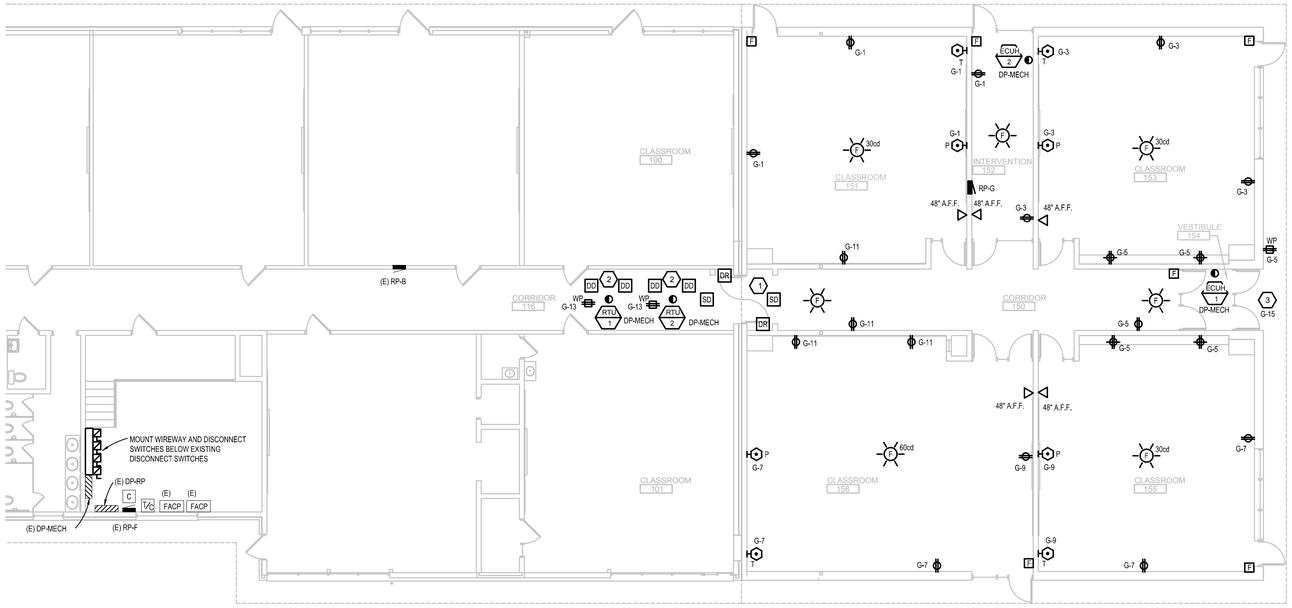
3. REFER TO ARCHITECTURAL FLOOR PLANS, DOOR HARDWARE SCHEDULE ON ARCHITECTURAL DRAWINGS, ACCESS CONTROL SYSTEM SPECIFICATION SECTION AND ACCESS CONTROL DOOR DIAGRAM(S) ON E7 SERIES FOR RACEWAY AND BACK BOX REQUIREMENTS FOR DOOR OR BANK OF DOORS INDICATED. PROVIDE ALL RACEWAYS AND BACK BOXES REQUIRED. COORDINATE WITH DOOR HARDWARE CONTRACTOR.



PARTIAL FIRST FLOOR LIGHTING NEW WORK PLAN

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



PARTIAL FIRST FLOOR POWER NEW WORK PLAN

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

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PARTIAL FIRST FLOOR ELECTRICAL PLANS

PRELIMINARY ■
DESIGN DEVELOPMENT ■
CONSTRUCTION ■
FINAL RECORD □

DRAWN BY: STP
CHECKED BY: GJZ

REVISIONS:

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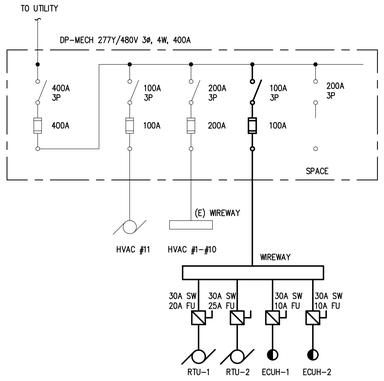

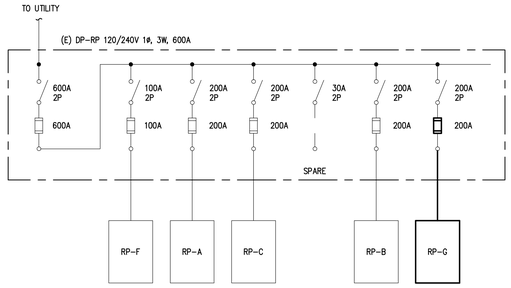

DP-MECH CONNECTED LOAD CALCULATION

METERED X (1.25) + ADDED LOAD	155 KVA
RTU-1	11 KVA
RTU-2	13 KVA
ECUH-1	3 KVA
ECUH-2	3 KVA
TOTAL CONNECTED LOAD	185 KVA

DP-RP CONNECTED LOAD CALCULATION

METERED X (1.25) + ADDED LOAD	48 KVA
RP-G	44 KVA
TOTAL CONNECTED LOAD	92 KVA

PANELBOARD RP-G

#	LOAD TYPE	DESCRIPTION	CB TYPE	CB	VA	ØA	ØC	VA	CB	CB TYPE	DESCRIPTION	LOAD TYPE	#
1	R	RECEPTACLE	NEW	20	1080	1944		864	20	NEW	LIGHTING	L	2
3	R	RECEPTACLE	NEW	20	1080		1944	864	20	NEW	LIGHTING	L	4
5	R	RECEPTACLE	NEW	20	1080	1944		864	20	NEW	LIGHTING	L	6
7	R	RECEPTACLE	NEW	20	1080		1656	576	20	NEW	LIGHTING	L	8
9	R	RECEPTACLE	NEW	20	720	1872		1152	20	NEW	LIGHTING	L	10
11	R	RECEPTACLE	NEW	20	720		972	252	20	NEW	LIGHTING	L	12
13	R	RECEPTACLE	NEW	20	360	360			20	NEW	SPARE		14
15	C	DOOR CONTROLS	NEW	20	50		50		20	NEW	SPARE		16
17		SPARE	NEW	20					20	NEW	SPARE		18
19		SPARE	NEW	20					20	NEW	SPARE		20
21		SPARE	NEW	20					20	NEW	SPARE		22
23		SPARE	NEW	20					20	NEW	SPARE		24
25		SPARE	NEW	20					20	NEW	SPARE		26
27		SPARE	NEW	20					20	NEW	SPARE		28
29		SPARE	NEW	20					20	NEW	SPARE		30
31		SPARE	NEW	20					20	NEW	SPARE		32
33		SPARE	NEW	20					20	NEW	SPARE		34
35		SPARE	NEW	20					20	NEW	SPARE		36
37		SPARE	NEW	20					20	NEW	SPARE		38
39		SPARE	NEW	20					20	NEW	SPARE		40
41		SPARE	NEW	20					20	NEW	SPARE		42
						6120 ØA	4622 ØC						

PANELBOARD INFORMATION

VOLTAGE:	120/240-1Ø
BUS AMPACITY:	225A
MAIN TYPE:	MLO
MINIMUM A.I.C.:	22,000
MOUNTING:	FLUSH

PANELBOARD LOCATION

BRANCH CIRCUIT CONNECTED LOAD:

CONTINUOUS LOAD (C):	50
NON-CONTINUOUS LOAD (NC):	
KITCHEN LOAD (K):	
RECEPTACLE BASE LOAD (R):	6120
RECEPTACLE DEMAND LOAD (R):	
LIGHTING LOAD (L):	4572
TRACK LIGHTING (T):	
MOTORS, HIGHEST LOAD (MH):	
MOTORS, REMAINING LOAD (M):	
TOTAL(KVA):	10.74
TOTAL (AMPS):	44.78

FEEDER DEMAND LOAD:

X 125%	63	
X 100%		
X 100%		
X 100%	6120	
X 50%		
X 100%	4572	
(150VA/2FT)		
X 125%		
X 100%		
TOTAL(KVA):	10.75	
TOTAL (AMPS):	44.81	

OVERCURRENT LOAD:

X 100%	63
X 100%	
X 100%	
X 100%	6120
X 100%	
X 125%	5715
X 125%	
X 100%	
X 100%	
TOTAL(KVA):	11.90
TOTAL (AMPS):	49.57

NOTES:

GENERAL NOTES:

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2. FEEDER AND BRANCH CIRCUIT CONDUCTORS SHALL BE SIZED IN ACCORDANCE WITH THE "FEEDER AND BRANCH CIRCUIT SIZING SCHEDULE-GENERAL PURPOSE" ON THE "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS SPECIFICALLY NOTED OTHERWISE.
3. MOTOR CIRCUIT PROTECTION SHALL BE SIZED IN ACCORDANCE WITH THE MOTOR CIRCUIT SIZING SCHEDULES ON THE "ELECTRICAL STANDARD SCHEDULES DRAWING" UNLESS SPECIFICALLY NOTED OTHERWISE.
4. BRANCH CIRCUIT CONDUCTORS, FEEDERS, AND BRANCH CIRCUIT OVERCURRENT PROTECTION ARE SIZED AT 125% OF THE TOTAL CONTINUOUS AND NON CONTINUOUS LOAD FOR LIGHTING AND MOTOR LOADS THAT RUN CONTINUOUSLY FOR THREE HOURS OR MORE (NEC 210.19 A, 210.20 A, AND 215.2 A). DEMAND AND CONNECTED LOADS ARE CALCULATED PER NEC 220.
5. VARIABLE FREQUENCY CONTROLLERS (VFC) PROVIDED BY MECHANICAL TRADES. ELECTRICAL CONTRACTOR SHALL INSTALL VFC, PROVIDE POWER FEEDER FROM DISTRIBUTION EQUIPMENT TO VFC AND PROVIDE POWER FEEDER FROM VFC TO MOTOR. REFER TO SPECIFICATIONS FOR APPLICATION OF VFC POWER CABLE FROM VFC TO MOTOR.

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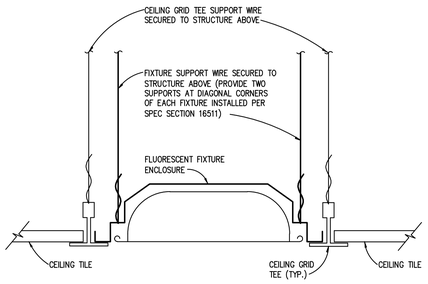
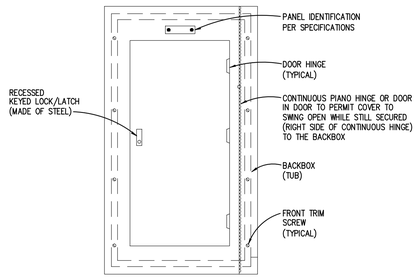


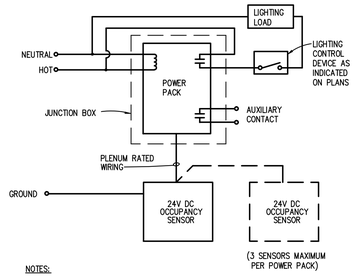
RECESSED FLUORESCENT FIXTURE INSTALLATION DETAIL

NO SCALE



PANELBOARD FRONT COVER DETAIL

NO SCALE

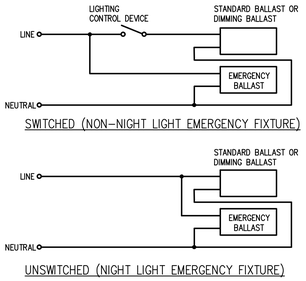


NOTES:

1. REFER TO SPECIFICATIONS FOR ACCEPTED MANUFACTURERS.
2. PROVIDE POWER PACKS AND SLAVE PACKS AS REQUIRED FOR SWITCHING AS INDICATED ON PLAN. REVISE DETAIL AS REQUIRED BY MANUFACTURER.
3. MOUNTING LOCATION PER MANUFACTURER'S RECOMMENDATION.
4. ADJUST SENSITIVITY LEVELS PER THE OWNER REQUIREMENTS.
5. PROVIDE FACTORY SUPPORT FOR AIMING/ADJUSTING OF SENSORS.
6. PLACE CEILING MOUNTED OCCUPANCY SENSORS IN CENTER OF A FULL CEILING TILE, WHERE APPLICABLE.
7. SENSOR ADJUSTMENT: BEFORE MAKING ADJUSTMENTS, MAKE SURE ROOM FURNITURE IS INSTALLED, LIGHTING CIRCUITS ARE TURNED ON, AND THE HVAC SYSTEMS ARE IN THE ON POSITION. VAV SYSTEMS SHOULD BE SET TO THEIR HIGHEST AIRFLOW. SET THE LOGIC CONFIGURATION DIP SWITCHES TO "EITHER". EITHER REQUIRES MOTION DETECTION BY ONLY ONE TECHNOLOGY. SET THE TIME DELAY PER OWNERS DIRECTION.

OCCUPANCY SENSOR WIRING DIAGRAM

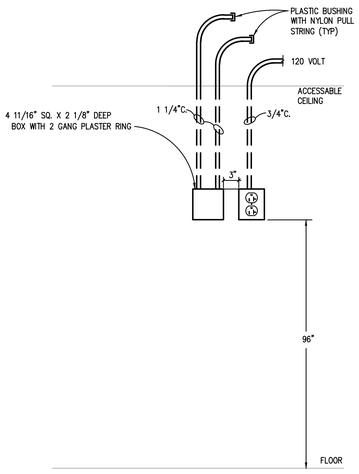
NO SCALE



NOTE: PRIMARY CIRCUIT ONLY. LAMP LEADS NOT SHOWN.

EMERGENCY BALLAST DIAGRAM

NO SCALE

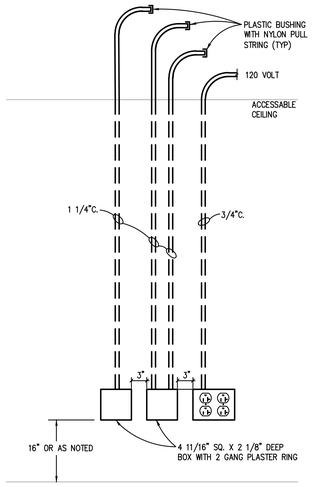


PROJECTOR DETAIL

NO SCALE

NOTES:

1. COORDINATE FINAL TECHNOLOGY OUTLET AND ASSOCIATED POWER LOCATIONS WITH TECHNOLOGY CONTRACTOR PRIOR TO ROUGH IN.
2. FOR INSTALLATION IN NEW WALLS PROVIDE CONDUITS AS INDICATED.
3. FOR INSTALLATION ON EXISTING CMU WALLS PROVIDE SURFACE MOUNTED V4000 RACEWAY IN PLACE OF CONDUITS.
4. DATA DEVICES SHALL BE PROVIDED BY TECHNOLOGY CONTRACTOR.
5. PROVIDE BLANK STAINLESS STEEL FACEPLATE FOR ALL TECHNOLOGY OUTLETS.

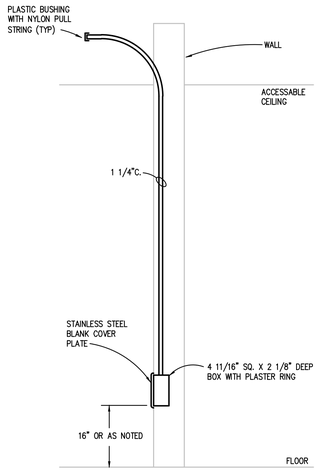


TEACHERS WORKSTATION DETAIL

NO SCALE

NOTES:

1. COORDINATE FINAL TECHNOLOGY OUTLET AND ASSOCIATED POWER LOCATIONS WITH TECHNOLOGY CONTRACTOR PRIOR TO ROUGH IN.
2. FOR INSTALLATION IN NEW WALLS PROVIDE CONDUITS AS INDICATED.
3. FOR INSTALLATION ON EXISTING CMU WALLS PROVIDE SURFACE MOUNTED V4000 RACEWAY IN PLACE OF CONDUITS.
4. DATA DEVICES SHALL BE PROVIDED BY TECHNOLOGY CONTRACTOR.
5. PROVIDE BLANK STAINLESS STEEL FACEPLATE FOR ALL TECHNOLOGY OUTLETS.

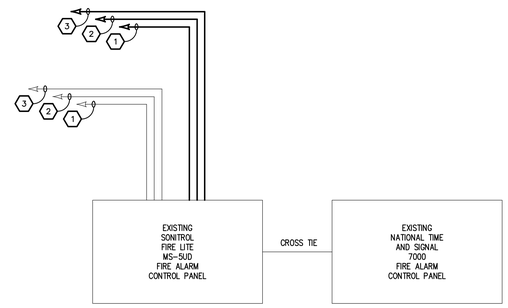


RECESSED TELECOMMUNICATION OUTLET DETAIL

NO SCALE

NOTES:

1. COORDINATE FINAL TECHNOLOGY OUTLET AND ASSOCIATED POWER LOCATIONS WITH TECHNOLOGY CONTRACTOR PRIOR TO ROUGH IN.
2. FOR INSTALLATION IN NEW WALLS PROVIDE CONDUITS AS INDICATED.
3. FOR INSTALLATION ON EXISTING CMU WALLS PROVIDE SURFACE MOUNTED V4000 RACEWAY IN PLACE OF CONDUITS.
4. DATA DEVICES SHALL BE PROVIDED BY TECHNOLOGY CONTRACTOR.
5. PROVIDE BLANK STAINLESS STEEL FACEPLATE FOR ALL TECHNOLOGY OUTLETS.



KEY NOTES:

1. INITIATING DEVICE LOOP (SIGNALING LINE CIRCUIT), CLASS B, STYLE 4 WIRING. INCLUDES MANUAL PULL STATIONS, SMOKE DETECTORS, THERMAL DETECTORS, WATER FLOW SWITCHES, TAMPER SWITCHES, ETC. SEE PLAN DRAWINGS FOR DEVICE LOCATIONS AND QUANTITIES. PROVIDE WIRING AS SPECIFIED BY SYSTEM MANUFACTURER.
2. VISUAL NOTIFICATION APPLIANCE CIRCUIT, CLASS B, STYLE Y WIRING. SEE PLAN DRAWINGS FOR FOR DEVICE LOCATION AND QUANTITIES. PROVIDE WIRING AND NUMBER OF CIRCUITS AS REQUIRED BY SYSTEM MANUFACTURER BASED ON MANUFACTURERS CIRCUIT LOAD CALCULATIONS.
3. AUDIBLE NOTIFICATION APPLIANCE CIRCUIT, CLASS B, STYLE Y WIRING. SEE PLAN DRAWINGS FOR FOR DEVICE LOCATION AND QUANTITIES.

FIRE ALARM RISER DIAGRAM

NO SCALE

NOTE:

1. COORDINATE ROOM NAMES AND/OR NUMBERS WITH OWNER PRIOR TO FINAL PROGRAMMING.
2. PROVIDE MANUFACTURER'S FIELD SERVICES FOR SUPERVISING FINAL WIRING CONNECTIONS, INSPECTION AND ADJUSTING OF COMPLETED INSTALLATION, AND SYSTEMS DEMONSTRATION.

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GREATER HEIGHTS ACADEMY
FOUR CLASSROOM ADDITION
FLINT, MICHIGAN

ELECTRICAL DETAILS

PRELIMINARY ■
DESIGN DEVELOPMENT ■
CONSTRUCTION ■
FINAL RECORD □

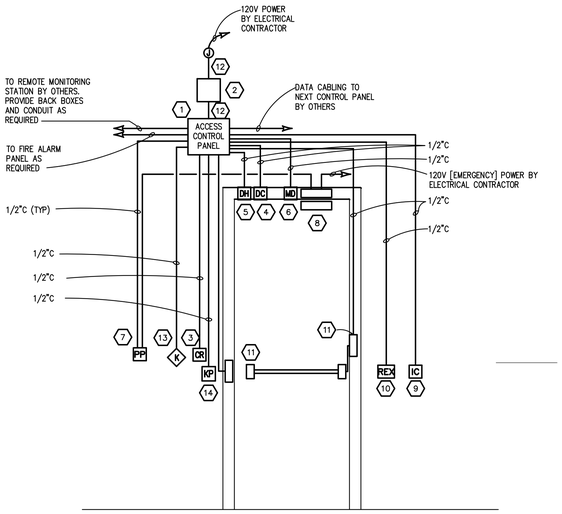
DRAWN BY: STP
CHECKED BY: GJZ

REVISIONS:

DATE: MARCH 31, 2015

SHEET NO.:
E6.1

JOB NO.: 141601



GENERAL NOTES:

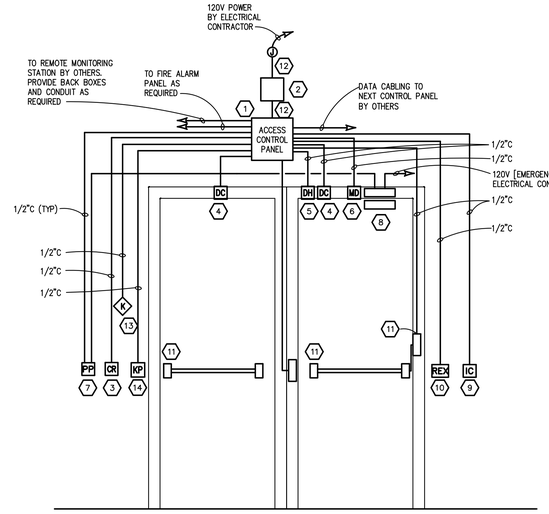
1. REFER TO ELECTRICAL FLOOR PLANS FOR DOOR LOCATIONS.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE BACK BOXES, CONDUIT, 120 VOLT WIRING AND TERMINATIONS AS REQUIRED BY MANUFACTURE.
3. ACCESS CONTROL CONTRACTOR SHALL PROVIDE EQUIPMENT DEVICES AND ALL LOW VOLTAGE WIRING AND TERMINATIONS.
4. SOME DEVICES INDICATED MAY NOT APPLY REFER TO DOOR HARDWARE AND DOOR SCHEDULE. COORDINATE ALL WORK WITH HARDWARE CONTRACTOR.
5. ELECTRICAL CONTRACTOR SHALL PROVIDE INTERCONNECTION WITH FIRE ALARM PANEL TO RELEASE DOORS I.E. ELECTROMAGNETIC LOCKS UPON AN ALARM CONDITION, AS REQUIRED.

KEYED NOTES:

1. ACCESS CONTROL SYSTEM, DOOR PANEL BY OTHERS.
2. DOOR CONTROLLER POWER SUPPLY, BY OTHERS.
3. PROXIMITY CARD READER, BY OTHERS.
4. DOOR MONITOR CONTACT SWITCH, BY OTHERS.
5. DOOR HOLDER, BY OTHERS. ELECTROMAGNETIC SWITCH MOUNTED ON/IN DOOR AND FRAME. [FOR DELAYED OPERATION] IN LIEU OF ELECTRIC STRIKE.
6. MOTION DETECTOR, BY OTHERS. REQUEST TO EXIT MOTION DETECTOR MOUNTED TO TOP OF DOOR FRAME. COORDINATE WITH DOOR AND FRAME CONTRACTOR.
7. DOOR OPERATOR PUSH PLATE, BY OTHERS.
8. DOOR OPERATOR, BY OTHERS.
9. INTERCOM STATION, BY OTHERS.
10. REQUEST TO EXIT PUSH PAD, BY OTHERS.
11. ELECTRIC STRIKE, PANIC HARDWARE, POWER TRANSFER, BY OTHERS.
12. PROVIDE CONDUIT AS REQUIRED.
13. KEY-SWITCH, BY OTHERS.
14. KEYPAD, BY OTHERS.

TYPICAL ACCESS CONTROL SINGLE DOOR CONNECTION DIAGRAM

NO SCALE



GENERAL NOTES:

1. REFER TO ELECTRICAL FLOOR PLANS FOR DOOR LOCATIONS.
2. ELECTRICAL CONTRACTOR SHALL PROVIDE BACK BOXES, CONDUIT, 120 VOLT WIRING AND TERMINATIONS AS REQUIRED BY MANUFACTURE.
3. ACCESS CONTROL CONTRACTOR SHALL PROVIDE EQUIPMENT DEVICES AND ALL LOW VOLTAGE WIRING AND TERMINATIONS.
4. SOME DEVICES INDICATED MAY NOT APPLY REFER TO DOOR HARDWARE AND DOOR SCHEDULE. COORDINATE ALL WORK WITH HARDWARE CONTRACTOR.
5. ELECTRICAL CONTRACTOR SHALL PROVIDE INTERCONNECTION WITH FIRE ALARM PANEL TO RELEASE DOORS I.E. ELECTROMAGNETIC LOCKS UPON AN ALARM CONDITION, AS REQUIRED.

KEYED NOTES:

1. ACCESS CONTROL SYSTEM, DOOR PANEL BY OTHERS.
2. DOOR CONTROLLER POWER SUPPLY, BY OTHERS.
3. PROXIMITY CARD READER, BY OTHERS.
4. DOOR MONITOR CONTACT SWITCH, BY OTHERS.
5. DOOR HOLDER, BY OTHERS. ELECTROMAGNETIC SWITCH MOUNTED ON/IN DOOR AND FRAME. [FOR DELAYED OPERATION] IN LIEU OF ELECTRIC STRIKE.
6. MOTION DETECTOR, BY OTHERS. REQUEST TO EXIT MOTION DETECTOR MOUNTED TO TOP OF DOOR FRAME. COORDINATE WITH DOOR AND FRAME CONTRACTOR.
7. DOOR OPERATOR PUSH PLATE, BY OTHERS.
8. DOOR OPERATOR, BY OTHERS.
9. INTERCOM STATION, BY OTHERS.
10. REQUEST TO EXIT PUSH PAD, BY OTHERS.
11. ELECTRIC STRIKE, PANIC HARDWARE, POWER TRANSFER, BY OTHERS.
12. PROVIDE CONDUIT AS REQUIRED.
13. KEY-SWITCH, BY OTHERS.
14. KEYPAD, BY OTHERS.

TYPICAL ACCESS CONTROL DOUBLE DOOR CONNECTION DIAGRAM

NO SCALE

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